
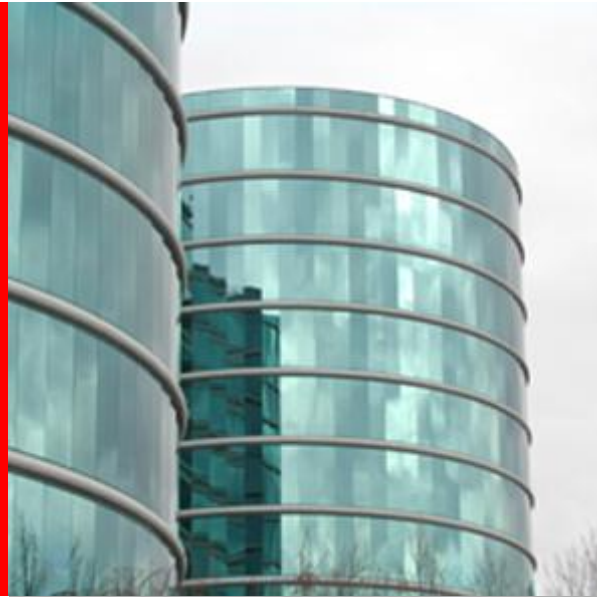


**ORACLE®**



The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.



**ORACLE®**

# Managing Capital Adequacy and Stress Testing

**A Practitioner's View**

Saloni Ramakrishna

Principal Architect Risk & Compliance Solutions  
Oracle Financial Services Software

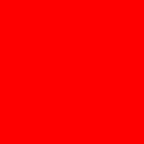
**ORACLE®**  
FINANCIAL SERVICES

# Agenda

- Current Landscape
- Indian Perspectives
- Managing Capital Adequacy
- Stress Testing Center stage
- Solution Ideas
- Concluding thoughts

# Current Landscape





*“May You live in  
Interesting Times”*

**Chinese Proverb**



# Risk & Capital Management – Centre Stage



**FDIC Officials Reveal New Concern about Interest Rate Risk, Urge Banks to Expand their Modeling**

Dec 6, 2009 | See More in: [Enforcement, Regulation & Compliance](#)

**Managing Risk Intelligently: How to Leverage Business Intelligence to Improve Risk Management and Boost the Bottom Line** *Bank Systems & Technology, March 2009*

Linkage and alignment of risk and performance management is a new business imperative according to PricewaterhouseCoopers



**CELENT**

**Risk Mgmt is Number 1 Global Priority**  
**Aligning Risk, Capital and Performance Mgmt Practices**

**ERNST & YOUNG**  
**“Top priority: creating a risk-aware culture”**

**ORACLE**

# Capital Adequacy and Stress Testing

## Market Conditions Lead to New Challenges

**Failures of Major Banks & Financial Institutions**



**Risk management silos and inadequate capital planning processes**

**Undercapitalization & Large, Unforeseen Exposures**



**Partial and incomplete understanding of risks associated with structured products**

**Less than Optimal Capitalization**



**Independent management of the increasingly interdependent relationships between traditional risk silos – credit risk, market risk, liquidity risk, reputational risk, etc.**

**Increasing Regulatory Scrutiny**

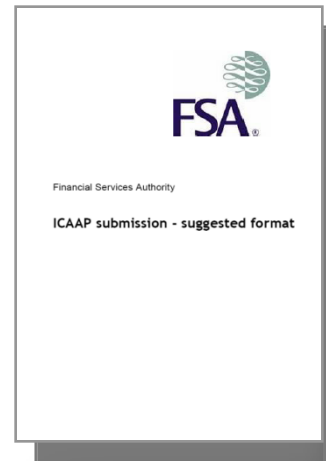


**Increasing pressure to comply with Basel II ICAAP guidelines and other regionally mandated regulations**

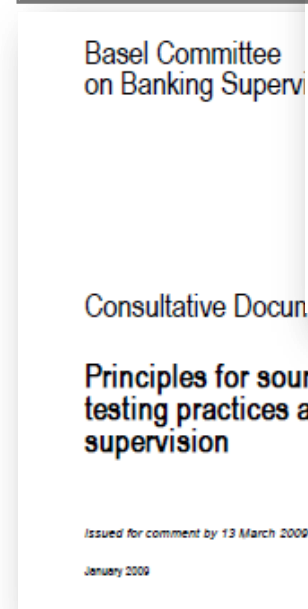
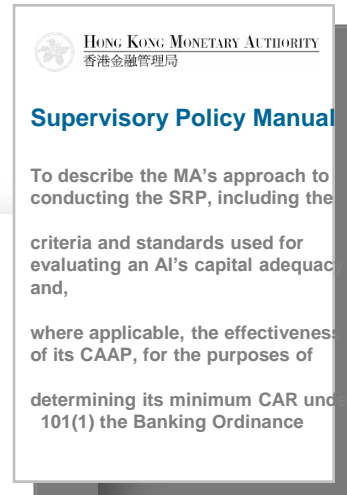
# Risk and Capital Management Challenges

## Regulatory Impetus

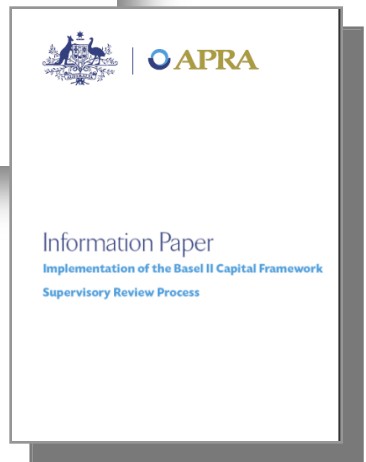
- **Interconnected nature of risk a reality** – Regulatory and Market requirement of looking at all **material risks** holistically
- **Stress testing and capital adequacy practices** under scrutiny by regulators
- Local regulators publishing **detailed guidelines for ICAAP**



Basel Committee  
on Banking Supervision



Principles for Sound  
Liquidity Risk  
Management and  
Supervision



# Indian Perspectives



- “The coming decade will see **unprecedented volume of business** for the Indian financial system as it tries to meet the **challenges and requirements of rapid and inclusive growth**
- . Information Technology (IT) has made it possible for banks to deal with large numbers and such growth in volume and value of business will obviously imply **huge challenges for risk management**, which in turn will have to depend on human resources and IT in dealing with **the new normal**”

Usha Thorat, Deputy Governor, RBI

- Some Data
- The common equity component as percent of total assets stood at 7 per cent in March 2009 for Indian banking sector as against a range of 3 per cent to 4 per cent for large international banks.
- Total CRAR is 13.75 percent with Tier I at 9.4 per cent.
- The leverage ratio for Indian banks (including credit equivalents of off-balance sheet) was about 17 per cent in March 2009 and can be considered reasonable.
- The gross NPAs for the banking sector have increased from 2.4 per cent as on March 31, 2008 to 2.6 per cent as on September 30, 2009.

RBI

ORACLE

# Capital Adequacy



## **Bank for International Settlements (BIS) aims to enhance Basel II and improved information gathering on securities**

- Building up of capital buffers that can be drawn down in periods of stress
- Strengthening the quality of bank capital
- Introducing a leverage ratio as a backstop to Basel II
- Introducing higher capital requirements to capture the credit risk of complex trading activities by 2010
- Stressing value-at-risk requirement, to help dampen the cyclicity of the minimum regulatory capital framework
- New Pillar 1 capital requirements and Pillar 3 disclosures should be implemented no later than 31 December 2010
- Committee agreed to keep in place Basel I capital floors beyond the end of 2009

Source: BIS

# Capital Adequacy amongst banks in India

**At the end of March 2008, there were:**

- 2 Scheduled Commercial Banks(1 Private Sector Bank & 1 Foreign bank)having 0-9% of Capital Adequacy Ratio
- 55 Scheduled Commercial Banks( 28 Public Sector Banks,17 Private Sector Banks & 10 Foreign Banks)were having CAR between 10%-15%
- 22 Scheduled Commercial Banks (19 Foreign Banks & 3 Private Sector Banks) having CAR of 15% and above

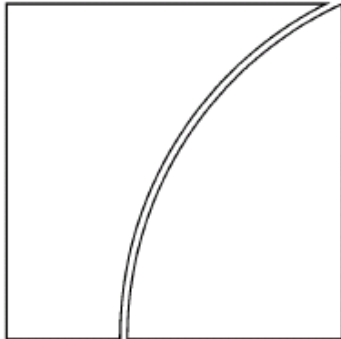
according to RBI Publications.

# Stress Testing



# Stress testing and capital adequacy practices under scrutiny

by regulators



## Principles for sound stress testing practices and supervision

*Issued for comment by 13 March 2009*

January 2009



BANK FOR INTERNATIONAL SETTLEMENTS

### Recommendations to banks

#### Use of stress testing and integration in risk governance

1. **Stress testing should form an integral part of the overall governance and risk management culture of the bank. Stress testing should be actionable, with the results from stress testing analyses impacting decision making at the appropriate management level, including strategic business decisions of the board and senior management. Board and senior management involvement in the stress testing programme is essential for its effective operation.**

---

2. **A bank should operate a stress testing programme that: promotes risk identification and control; provides a complementary risk perspective to other risk management tools; improves capital and liquidity management; and enhances internal and external communication.**

# Banks Cannot be Risk Avoiders – they need to be Risk managers

- While credit, market and operational risk are captured in the capital framework under Pillar I of Basel II, liquidity risk, concentration risks, strategic risk, reputation risk and risks arising out of securitisation, off balance sheet vehicles, valuation practices need to be recognised. Banks'
- Boards need to focus on all these risks and set firm wide limits on the principal risks relevant to the banks' activities.
- Banks should focus on robust stress testing. banks should not take stress testing exercise a mere compliance requirement but accord due importance to it to facilitate the development of risk mitigation or contingency plans across a range of stressed conditions.

Usha Thorat, Deputy Governor, RBI

# Solution Ideas



# Capital Adequacy and Stress Testing

## Approach Considerations

**Assess risk appetite of the organization under extreme scenarios**

- **Build and apply stress models across multiple risk areas**
- **Identify risk concentrations across trading and banking books**
- **To manage those risks which are most critical to the bank**

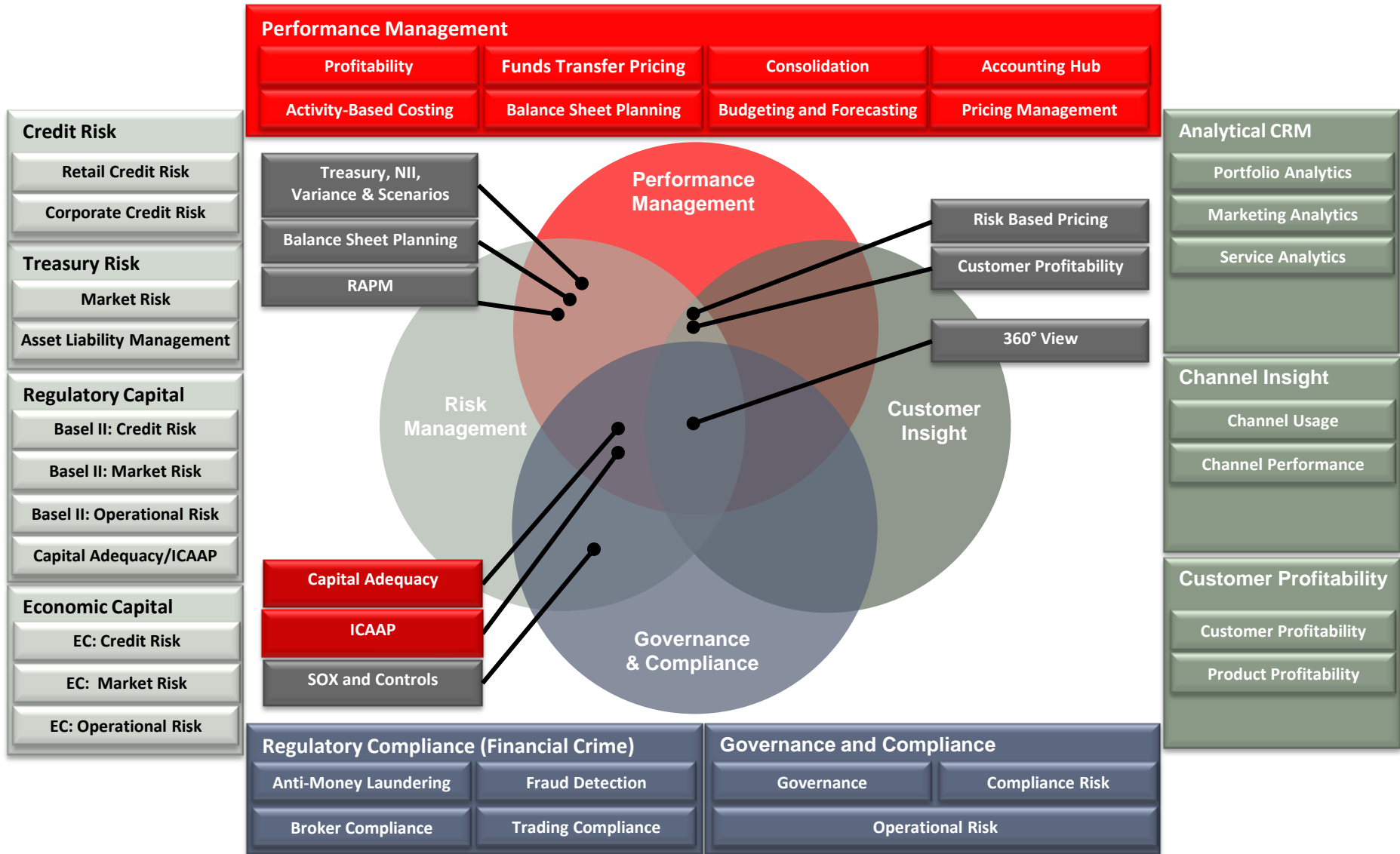
**Compute current and future capital and liquidity requirements under baseline and stressed conditions**

- **Using a common and centralized library**
- **To match your institution's risk appetite**
- **Run model-based and deterministic stress tests over time**

**Meet regulatory requirements and business planning needs now and into the future**

- **Must comply with established (Basel) and emerging regulatory requirements**
- **With a transparent and auditable stress testing process**
- **Gain pervasive and actionable insight to improve current and future risk and capital decisions**

# Oracle Financial Services Analytical Applications



# Building Blocks

## Shared Components across Applications



Data  
Sources

Unified Analytical Metadata

### FINANCIAL SERVICES BUSINESS INTELLIGENCE

Reports

Alerts

Dashboards

Embedded

### FINANCIAL SERVICES ANALYTICAL APPLICATIONS INFRASTRUCTURE

Computations

Common Tools

Business Rules

Stochastic Modeling

### FINANCIAL SERVICES ANALYTICAL APPLICATIONS DATA MODEL

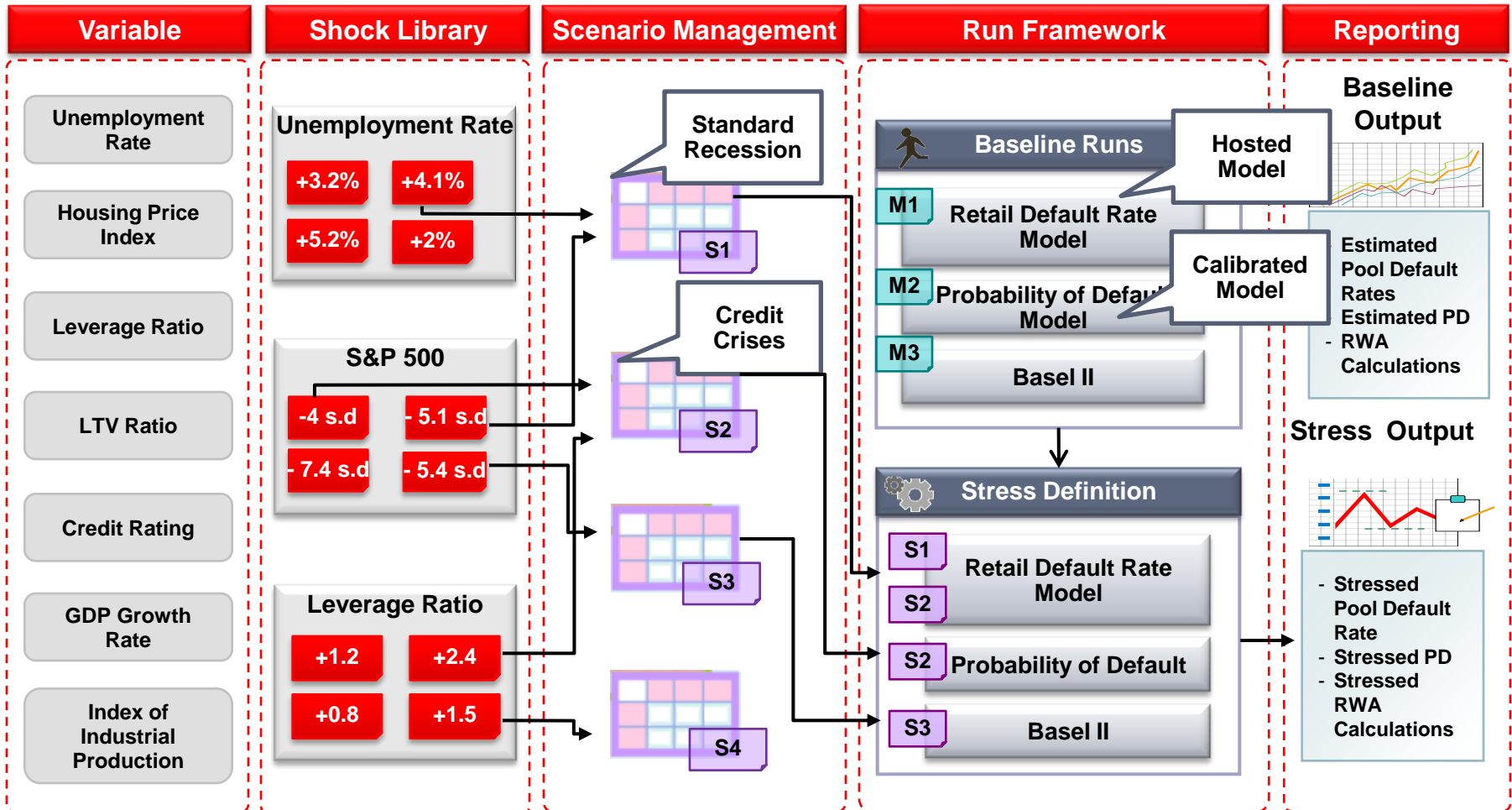
Common Objects

Common Dimensions

Pre-Integrated/  
Extensible

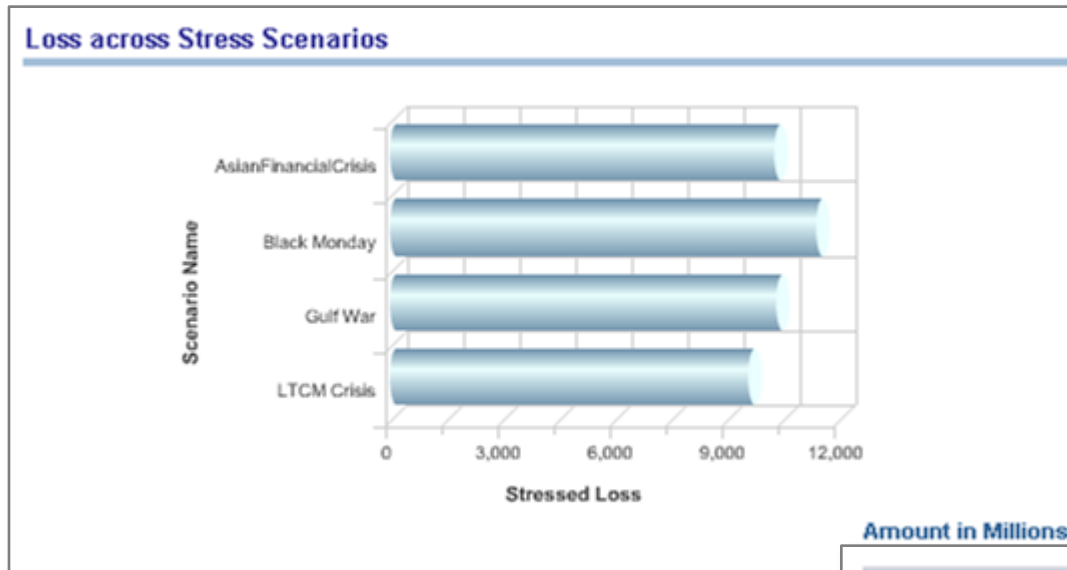
High Volume

# Stress Testing Solution Process Flow



# Stress Testing Analytics

## Comparison of Loss across Stress Scenarios



Enables comparison between the stress results across multiple scenarios in a tabular as well as graphical format

Scenario Name	Stressed Loss
AsianFinancialCrisis	31,501
Black Monday	35,728
Gulf War	30,037
LTCM Crisis	29,694

# Stress Testing and Scenario Modeling

## A Practical and Holistic Technology Approach

**Assess risk appetite of the organization under extreme scenarios**

- Rapidly build and apply stress test models across multiple risk areas such as Credit Risk, Market Risk etc. to assess the enterprise-wide impact
- Accurately identify potential risk concentrations across trading and banking portfolios using a common application
- Utilize stress testing results to develop strategies for managing those risks which could inflict the maximum damage on the institution

**Compute current and future capital requirements under baseline and stressed conditions**

- Execute stress tests by applying scenarios from a centralized library using various macro-economic, idiosyncratic and categorical variable
- Easily compare stressed regulatory and economic capital requirements against baseline conditions to confirm that internal strategies are in step with your overall risk appetite.
- Flexibly execute model based as well as deterministic stress tests over time and across all key risk areas from a centralized library

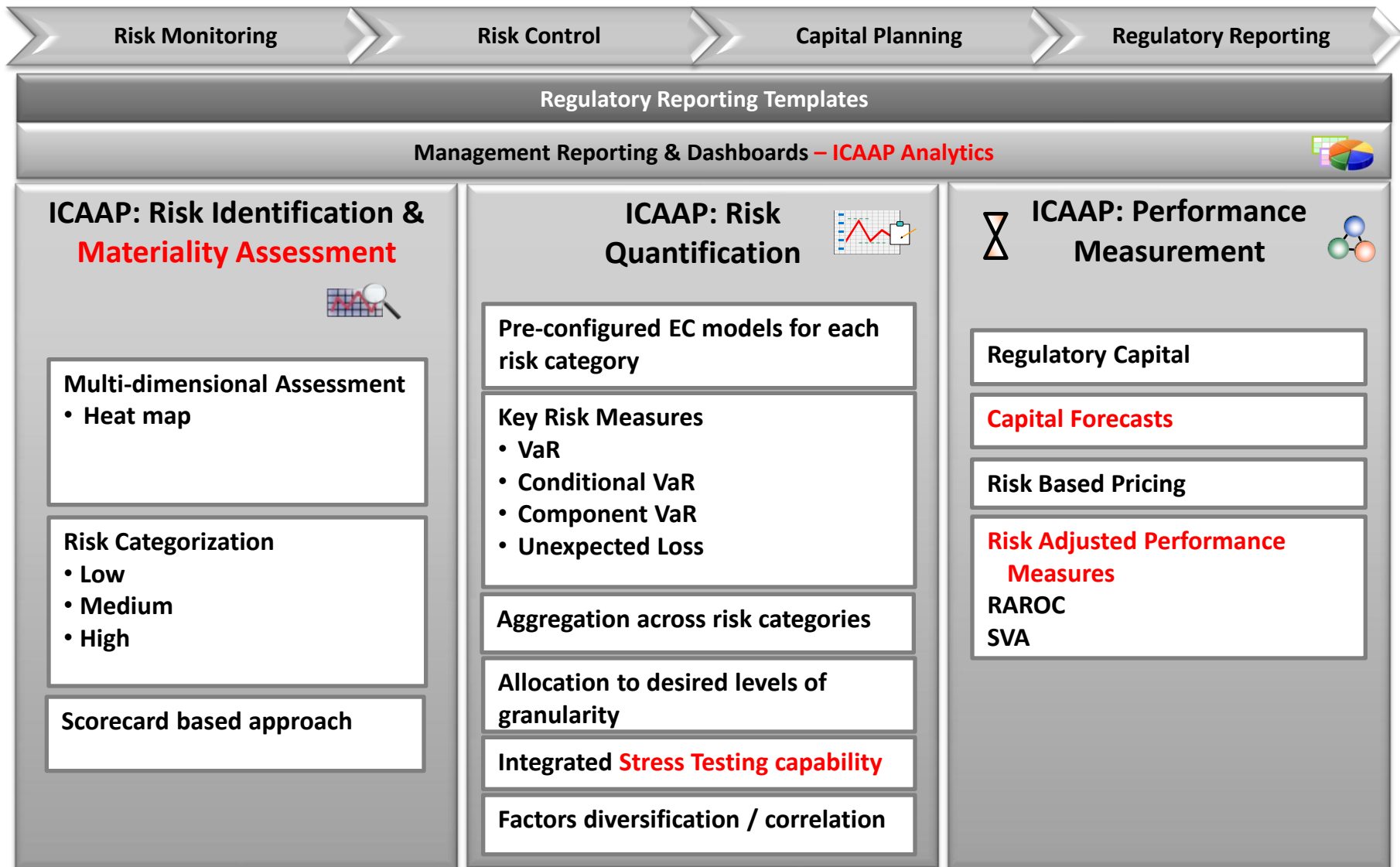
**Meet regulatory requirements and business planning needs now and into the future**

- Efficiently comply with the regulatory stress testing requirements under Pillar I and Pillar II (Internal capital Adequacy Assessment Process)
- Transparent and auditable stress testing process that helps reviewers and regulators to understand organization specific risks and their mitigation plan
- Gain pervasive and actionable insight from the stress testing process to improve current and future risk and capital decisions

# Concluding Thoughts



# Pillar II / ICAAP – The Central Pillar



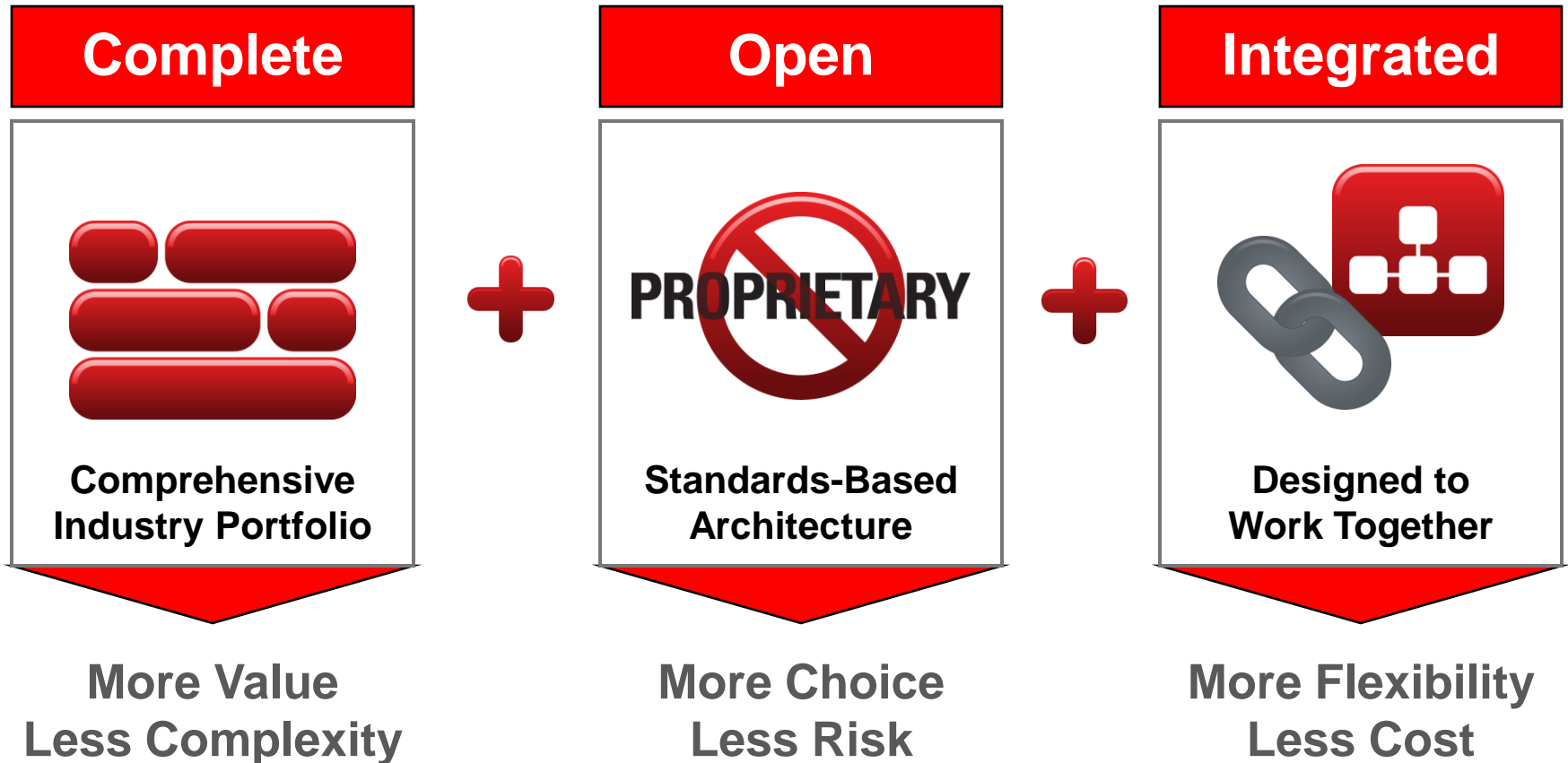
# Technology as the Risk Management Enabler

- It is necessary for the banks now to take technology core banking solution to a higher level to build up adequate MIS capability.
- Unless this is done, risk management cannot be of the highest order and banks will not be able to meet the challenge of an increasingly sophisticated financial system.

Dr. Usha Thorat

# Oracle Financial Services Strategy

## Complete Open Integrated



- The combined pressures of regulatory aggressiveness, client disloyalty, and continuous technology advancements will force hard decisions and new business models
- Mastery of data will emerge as a defining skill for differentiation
- Mastery of technology will allow winners to separate from the pack
- Mastery of the advisor-based client experience will represent the key factor influencing choice

Source: Tower Group



**Integrated Enterprise Risk, Capital & Performance  
Platform Creating Consistency, Improving  
Transparency & Lowering Risk**

✓ ***Better Information***

✓ ***Lower Cost***

✓ ***More Flexible***

✓ ***Reduced Risk***



**SOFTWARE. HARDWARE. COMPLETE.**

**ORACLE®**