



New approaches for overcoming the challenges of ORSA modeling

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Agenda....

- ORSA - Key Points & Challenges

- Challenges: A Closer Look

- The IBM Response

- Recap & Questions





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ORSA Background....

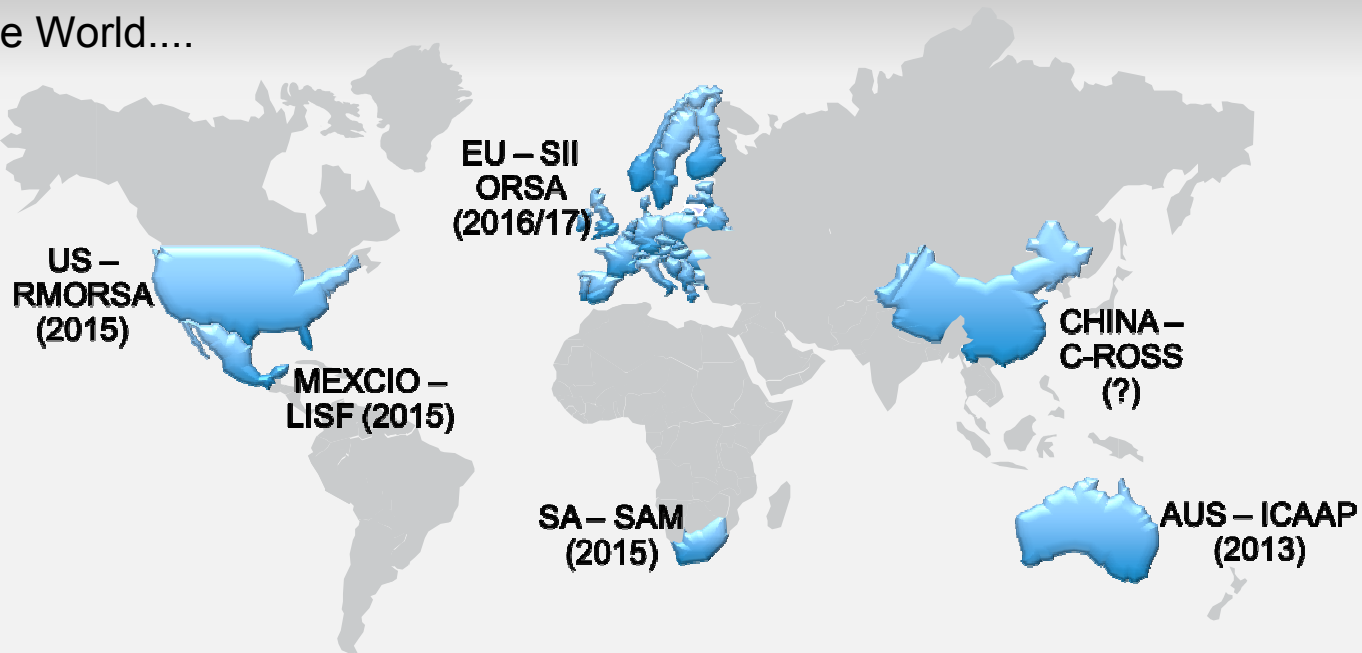
Supervisors want to see plans to develop the ORSA

- Dry run 2014 & near final ORSA 2015

Local regulators pushing ORSA type requirements

- United Kingdom – Business Model Analysis

Rest of The World....





Article 45 requirement:

“..... firms need to perform forward-looking solvency assessment and it should be either over a medium or long term perspective, whichever is appropriate.....”

IBM Identified Areas:

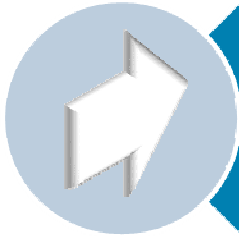
- Be forward looking and project risk and solvency levels for future years
- Monitor solvency on a continuous basis
- Be able to assess risk through tools such as stress, scenario and reverse stress testing

Key issues faced:

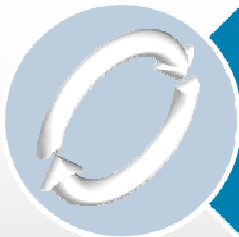
- Integration and consolidation of a company projection
- New business
- Sophistication of proxy methods for projecting future periods



The Key Challenges.....



Forward Projection
- Model integration and New Business



Continuous Modeling
- Approximation Techniques



Assessing Risk
- Production & Testing





Agenda....

- ORSA - Key Points & Challenges

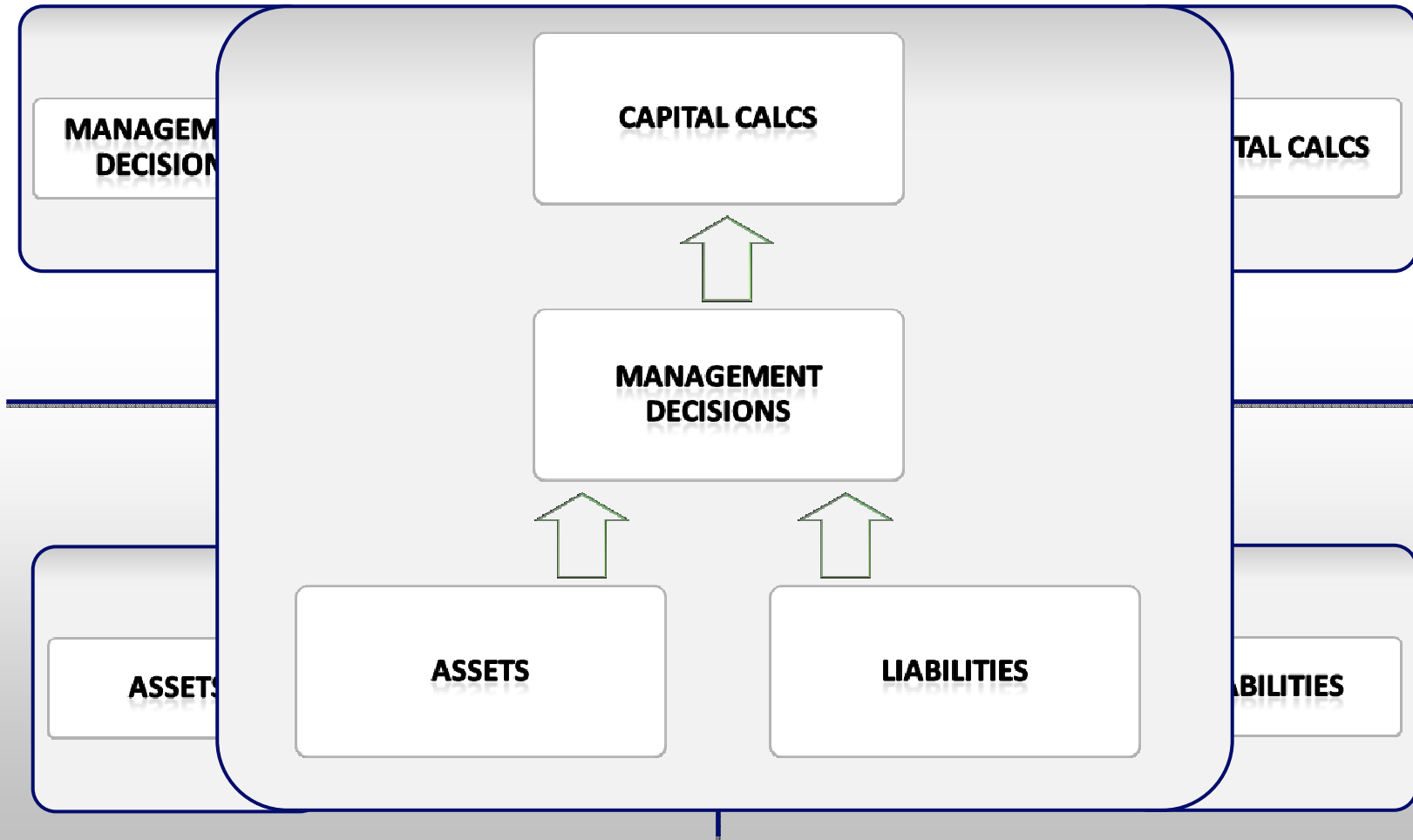
- Challenges: 1) Forward Projections

- The IBM Response

- Recap & Questions

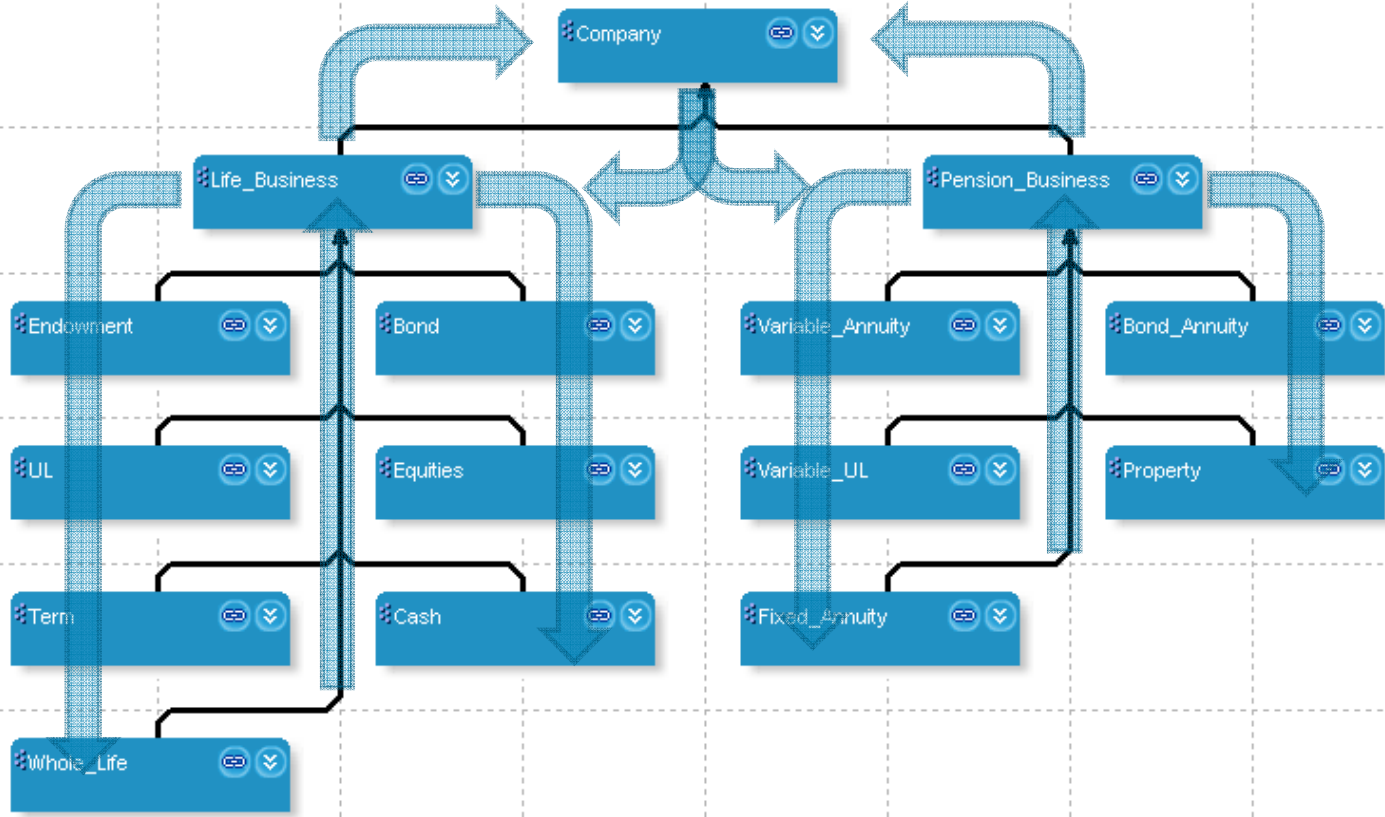


Integrated System....





ALM Modeling Mechanics....



New Business....



To allow for the growth in the business then a company has to allow for its expected new business, therefore need to think about:

- Variation depending on economic conditions at time of writing
- Variation with each economic scenario at every future time period
- Allowance for the dynamic new business





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- Challenges: 2) Continuous Monitoring

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Sophistications of approximations....



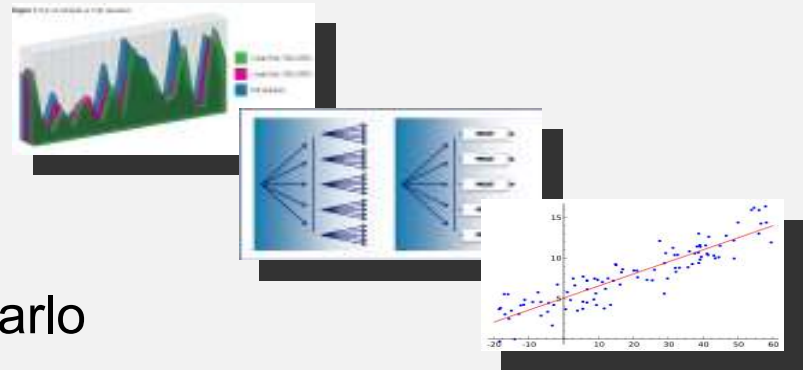
Ideal solution is to use full nested stochastic models:

- Would allow accurately for any guarantees
- Time is an issue but becoming increasingly possible

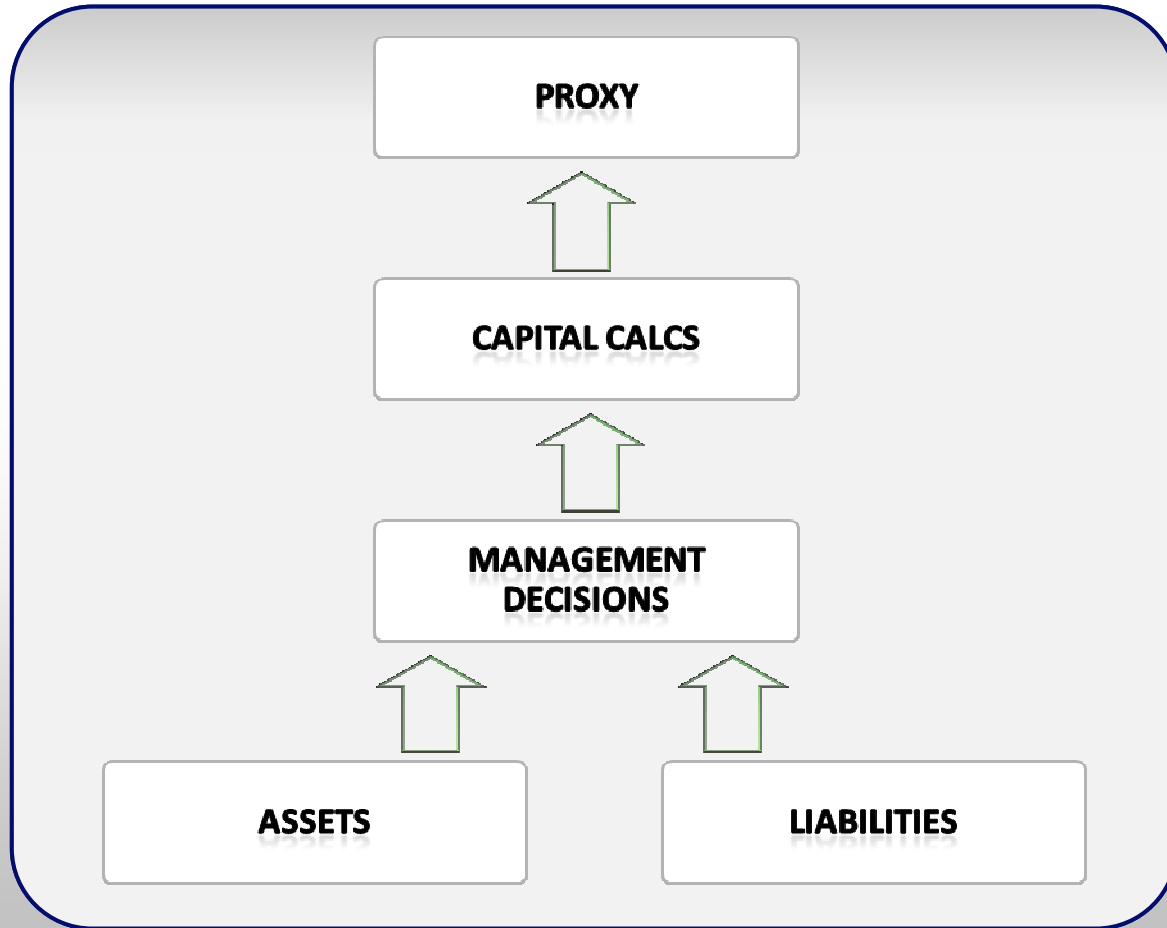
The requirement for ORSA to be done on a continuous basis allows for the use of approximations

Most popular approximation techniques:

- Curve Fitting
- Replicating Portfolio
- Least Square Monte Carlo



Proxy Methods....





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- Challenges: 3) Assessing Risk

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Stress, Reverse Stress & Scenario Testing....



Need the ability to assess risk, there are already established techniques prevalent:

- Similar to those used for the Pillar II of ICA
- There is some additional complexity from projecting capital for ORSA calculation
- Two potential issues though are:
 - Volume of runs
 - Management actions



Volume of Runs....



Looking more closely at the issue of volume::

- There are potentially time issues caused by volume of runs
- Security issues compounded by lack of time to re-run
- A good solution should:
 - ✓ • Be efficient and make maximum use of hardware
 - ✓ • Utilise 'dead' time
 - ✓ • Provide a secure production environment



Management Actions....



....Important that a solution covers all areas of the business and realistic management actions allowed for otherwise....

- The insurer could:
 - Hold too much capital
 - Not hold enough capital

....The difficulty lies in the ability to adequately test the management actions....

- Therefore need to ensure testing allows:
 - Range of scenarios including extreme scenarios
 - Individual sections tested to reduce time





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Conclusion – So How Can IBM Help You....



Algo Financial Modeler:

- Allows complete company model to be built of assets and liabilities
- Allows **complex decision rules** to be incorporated
- Full **nested stochastic** model and proxy fitting in one system
- Includes batch functionality
- Output in a format consistent with IBM business intelligence tools and other dashboard systems

IBM Algo Financial Modeler Own Risk and Solvency Assessment and Curve Fitting Model Add-On:

- Template for projecting SCR
- Includes templates for **curve fitting** and **LSMC** proxy methods
- Support ORSA without heavy investment in hardware

Algo Financial Modeler Enterprise:

- **Secure** web server
- Allows models to be fully locked down in separate **production environment**
- Allows scheduling of runs to utilise otherwise dead time





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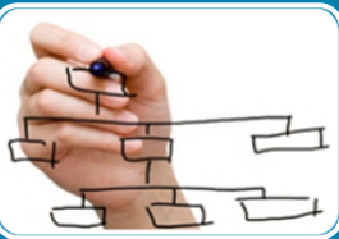
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Summary....



Modeling:

- Many insurers still struggling with practicalities of ORSA modelling
- However approximation techniques are available and can be used



Key areas of difficulty are:

- Being able to project risk and solvency levels for future years ✓
- Monitoring solvency on a continuous basis ✓
- Be able to assess risk ✓



IBM Solutions:

- There are solutions out there which can help and IBM provides a suite of tools to help quick and efficient implementation of ORSA solution.



Questions....





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