



ERM Regulations: ORSA

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Enterprise Risk Management

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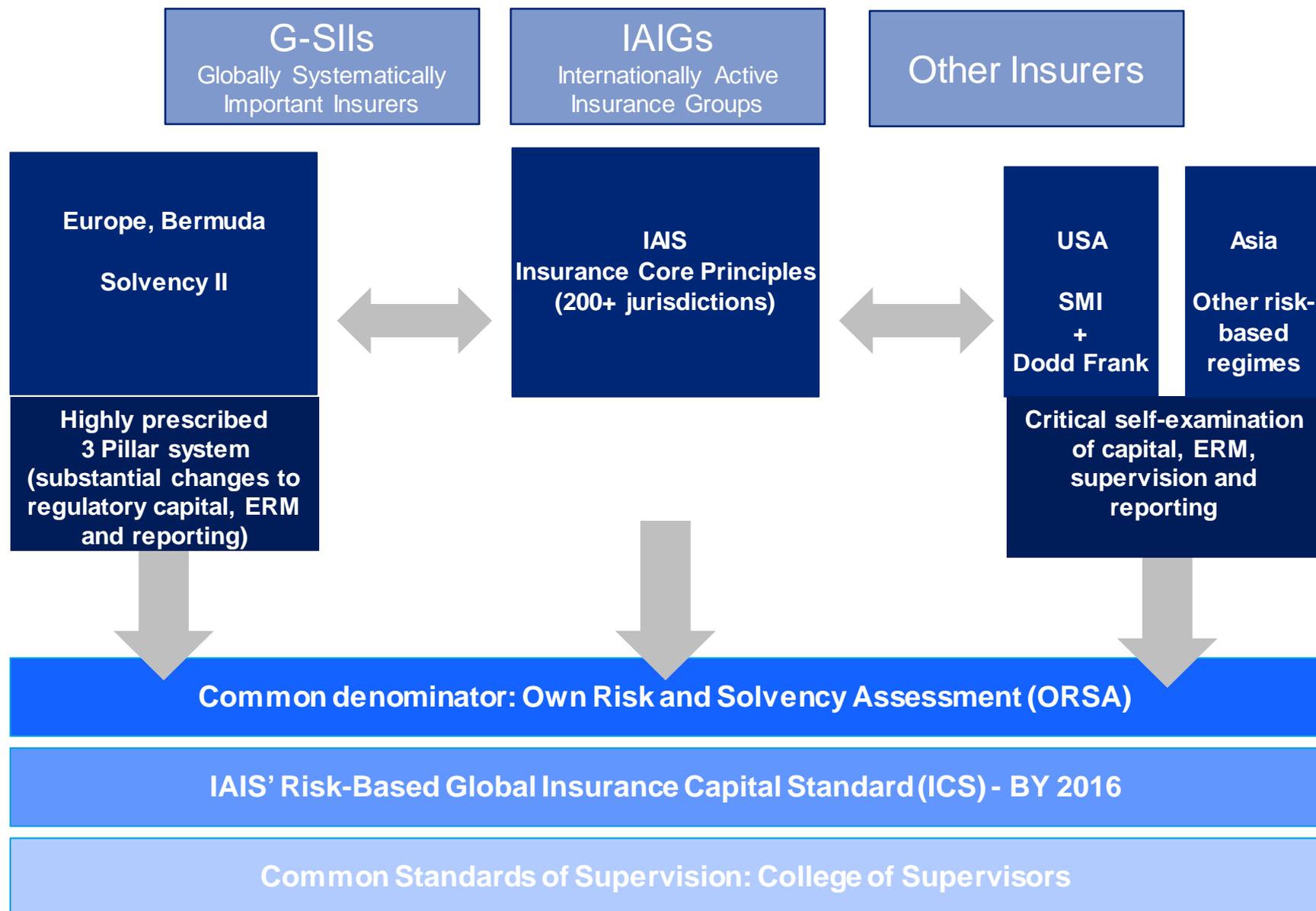


Speaker's introduction

- Elisabetta Russo, Principal, Deloitte Consulting LLP
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- Fellow of the Institute of Actuaries in the UK, Italy and Russia.
- Master's degree with honors in Actuarial Science and Statistics, University of Trieste, Italy.
- Member of Risk Management Society (RIMS) and Global Association of Risk Professionals (GARP).
- Leader of Deloitte Solvency practice in USA and P&C risk modeling team since 2011. Based in New York.
- Prior with PwC (London and Moscow). Head of actuarial for CEE, member of the Global Solvency II Steering Committee for Europe, advising the largest European insurance groups on all 3 pillars (capital assessment, ERM&ORSA, risk reporting)
- ORSA related projects (in Europe, Bermuda, North-America): development of ORSA processes, internal capital model development and validation, development of ERM framework, awareness and technical training (regulators, C-suites, Boards of Directors)

Global regulatory trends

International trends - Global trend toward risk-based regulations



International trends - Timeline of key regulations

- Bermuda - Solvency II. Since 2011 (issuance of Insurance Class 3A Prudential Standard Rules).
- European - Solvency II. In effect from January 1, 2016 (“Triologue” agreement between European Parliament, Commission and Council signed on October 14, 2013)
- USA – Solvency Modernization Initiative (SMI). Began in 2008. The SMI Roadmap describes the policy direction and priorities
- USA – Dodd Frank. Signed into law on July 21, 2010. It addresses potential “systemic risk” in the financial service sector and focuses on “SIFIs” (Systematically Important Financial Institutions). It created the Federal Insurance Office (FIO)
- IAIS –ICP 16 (“Enterprise Risk Management for Solvency Purposes”). Adopted in October 2010, amended in October 2012. Key statement: “The supervisory regime establishes enterprise risk management requirements for solvency purposes that require insurers to address all relevant and material risks.” Also, it requires the insurer to perform an ORSA. Applies to all insurers, without exceptions
- IAIS – ComFrame. Comprehensive common framework for the supervision of IAIGs. Draft released on July 2, 2012
- IAIS - Risk-based global ICS. To be developed by 2016. Full implementation will begin in 2019 after two years of testing and refinement with supervisors and internationally active insurance groups (IAIGs). Announced on October 9, 2013
- IAIS – College of Supervisors. On January 27, 2009 (now) EIOPA (then CEIOPS) publishes the 10 Common Principles. US states participate in the Colleges of domestic insurers with international operations via the 2011 revision to the Model Insurance Holding Company System Regulatory Act and Regulation.

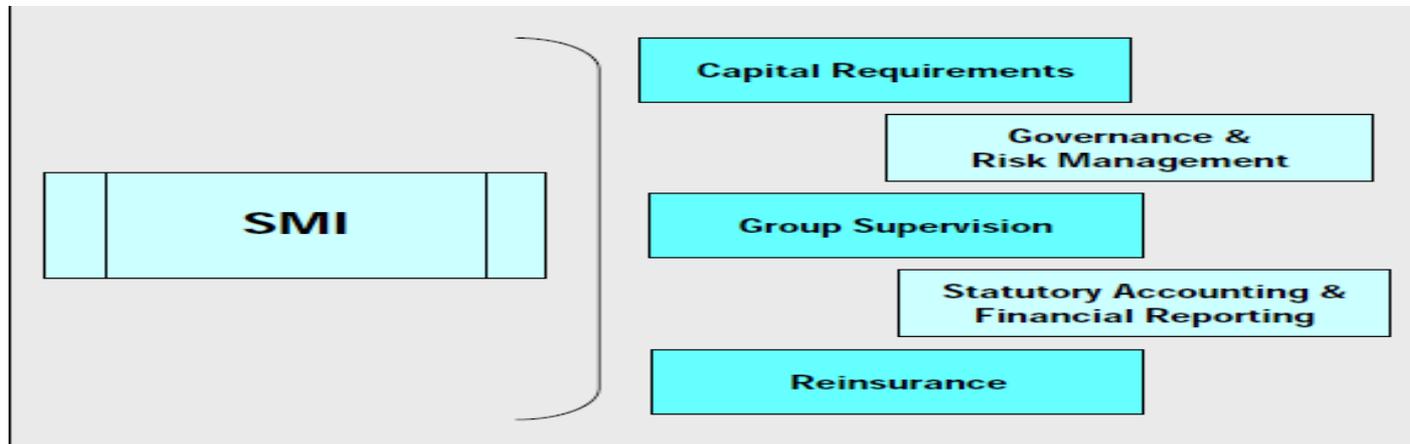
Update on the US Solvency Modernization Initiative

Update on SMI - Overview

The SMI workplan includes:

- Articulation of the U.S. solvency framework and principles,
- Study of other sectors' and other countries' solvency and accounting initiatives and the tools that are used and proposed,
- Improved tools for risk-focused examinations,
- Creation of a new reinsurance regulatory framework,
- Movement to principles-based reserving for life insurance products,
- Consideration of possible change to group supervisory methods, and
- Implementation of new ideas to incorporate into the U.S. solvency system

Key focus areas of the SMI are:



Update on SMI – Focus Areas

- **Capital Requirements (Capital Adequacy Task-Force)**
 - Develop modifications to current Risk-Based Capital requirements
 - No fundamental changes to the regulatory capital formula (i.e. Risk Based Capital) were recommended but only a revision to include Catastrophic and Operational Risk
- **Statutory Accounting and Financial Reporting (International Solvency & Accounting Standards Working Group and Principles Based Reserving Working Group)**
 - Life insurance principles-based reserving has been developed and adopted by the NAIC. Now, it is up to the single states to adopt.
 - Determine policy for future of statutory accounting and financial reporting, including the impact of international accounting (IFRS) and extent of public disclosure versus regulatory reporting
 - Awaiting completion of the IASB/FASB Insurance Contracts project and U.S. Securities and Exchange Commission (SEC) decision regarding IFRS
- **Reinsurance (Reinsurance Task Force)**
 - Task Force is working on passporting reinsurers from approved jurisdictions certified by various states. These jurisdictions have lower collateral requirements. Conditional qualified jurisdictions are Bermuda Monetary Authority (BMA); the German Federal Financial Supervisory Authority (BaFin); the Swiss Financial Market Supervisory Authority (FINMA); and the United Kingdom's Prudential Regulation Authority of the Bank of England (PRA)

Update on SMI – Focus Areas (cont'ed)

- **Governance & Risk Management/Group Supervision**
 - Develop corporate governance principles/risk-focused surveillance (ORSA)
 - Expand to look at enterprise risk, governance and internal controls within an insurance holding company system.
- **Current Proposal (effective January 1, 2016):**
 - Collect corporate governance information annually through a confidential annual filing with its domestic regulator.
 1. Discussion of significant changes from prior year
 2. General description of the organization's corporate governance framework
 3. Description of Board of Directors and committee policies and practices
 4. Description of management policies and practices
 5. Management and oversight of critical risk areas
- **Insurers meeting size threshold (\$500 million in annual premiums) required to have an internal audit function.**
- **Current guidance**
 - Insurance Holding Company System Regulatory Act
 - Insurance Holding Company System Model Regulation with Reporting Forms and Instructions

US ORSA and Form F Regulatory Requirements

USA - New risk reporting: ORSA and Form F

- Two new formats of statutory reporting have already been approved by the NAIC as part of the SMI:
 - Form F Enterprise Risk Report (ERR) as part of the Holding Company ERM Filing – from 2013
 - ORSA to the Lead State – from 2015
- Nearly 2000 entities in the scope of ORSA belonging to 250 insurance groups. More for Form F.



US Form F – Summary of key reporting requirements

Form F is used to report on “Enterprise Risk”. Information to be reported:

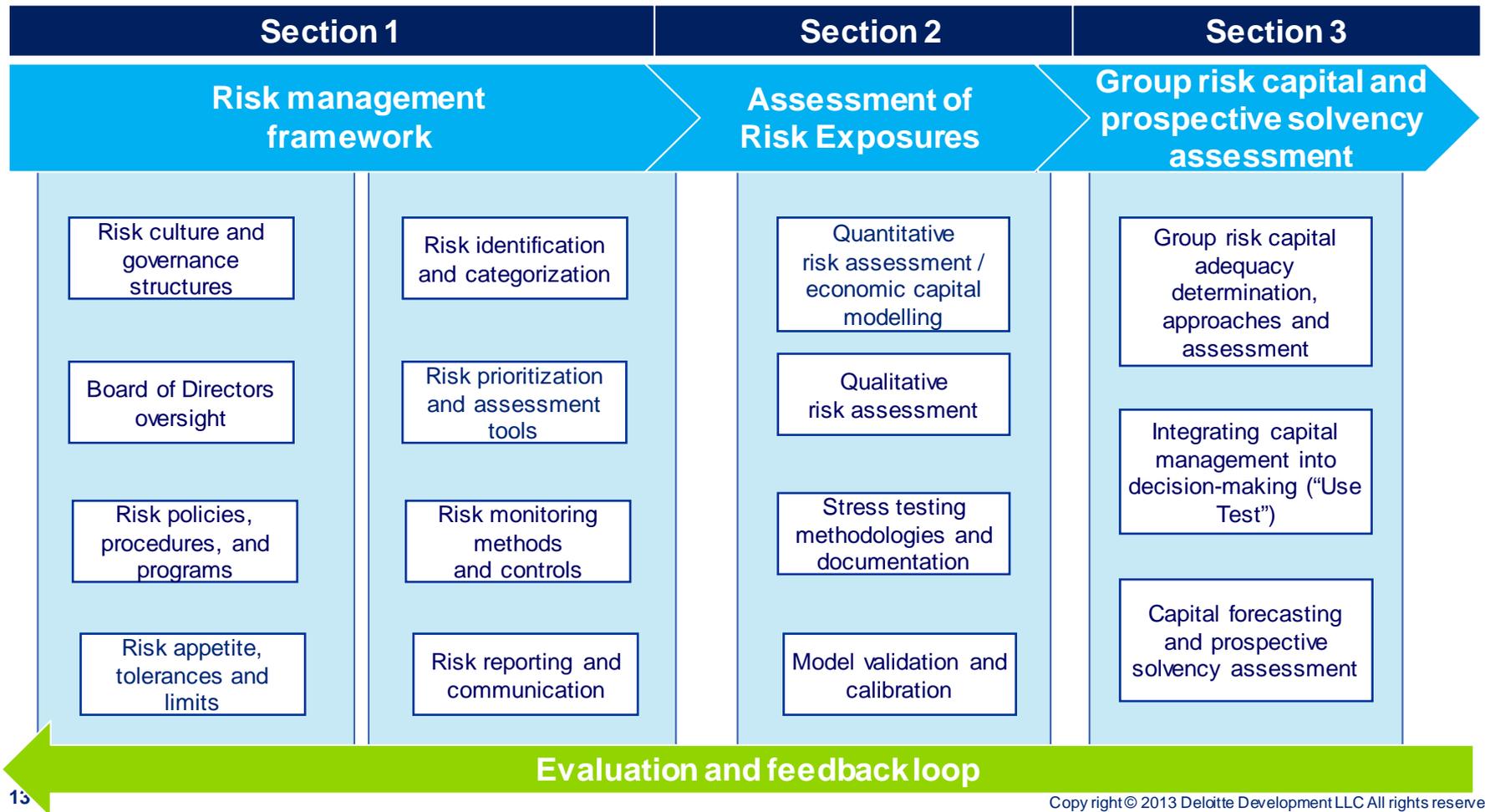
- Any material developments regarding strategy, internal audit findings, compliance or risk management
- Acquisitions and disposals
- Changes of shareholders of the insurance holding company system exceeding ten percent or more of voting securities
- Developments in various investigations, regulatory activities or litigation that may have a significant impact
- Business plan of the insurance holding company system and summarized strategies for next 12 months
- Identification of material concerns of the insurance holding company system raised by supervisory college
- Identification of insurance holding company system capital resources and material distribution patterns
- Identification of any negative movement or discussions with rating agencies which may cause potential negative movement in the credit ratings
- Information on corporate or parental guarantees throughout the holding company
- Identification of any material activity that, in the opinion of senior management, could adversely affect.

US ORSA – Summary of key features

Definition of the ORSA	<ul style="list-style-type: none">• A confidential internal assessment of the significant and relevant risks:<ul style="list-style-type: none">- associated with the insurer's current business plan, and- the sufficiency of capital resources to support those risks• The assessment should be conducted by the insurer itself and should be appropriate to its nature, scale and complexity
Entities in scope	<ul style="list-style-type: none">• Individual insurers with annual direct written premium plus unaffiliated assumed premium more than \$500,000,000• Insurance groups with annual direct written premium plus unaffiliated assumed premium more than \$1,000,000,000
Requirements	<ul style="list-style-type: none">• Maintain a risk management framework• Regularly conduct an ORSA to assess the adequacy of its risk management and current, and likely future, solvency position• Internally document the process and results• Provide a high-level summary report upon the Commissioner's request no more than once each year• The date of filing will depend on the timing of the internal strategic planning process• This report shall include a signature of the insurer group CRO or other executive having responsibility for the oversight of the enterprise risk management (ERM) process
Effect date	<ul style="list-style-type: none">• Date of effect: January 1, 2015

US ORSA – The building blocks (illustrative model)

- The US ORSA can be structured around segmented building blocks, each with its own principles.
- Risk and capital assessment needs to be conducted on a current and projected basis (for the duration of the business plan) and in current and stressed market conditions
- Evidence through the “Use Test” that both risk and capital management frameworks are used to make business decisions at C-suite level.



ORSA Risk Categories

	Risk Type	Definition
Key Material Risks	Underwriting Risk	<p>The risk that the collected premiums will be inadequate to cover losses and expenses resulting from claims</p> <ul style="list-style-type: none"> • Pricing Risk • Reserving Risk • Catastrophic Risk
	Credit Risk	Credit risk concerns the exposure to economic loss due to the default or credit downgrade of an issuer of a financial instrument, a borrower, or counterparty in a reinsurance or derivative contract
	Market Risk	Market Risk arises from the deterioration in value or increase in volatility of market prices which negatively affects the value of the plan's assets and liabilities
	Liquidity Risk	The risk that of not being able to meet financial obligations either by increasing liabilities or selling assets without incurring significant losses
	Operational Risk	The risk of losses resulting from inadequate/failed internal processes, people, and systems

ORSA Risk Categories (cont'ed)

Other Material Risks	Reputational Risk	The risk of losing the brand or other intangible, but coveted, goodwill
	Emerging Risk	Known unknowns or unknown unknowns
	Strategic Risk	Poor devised or ineffective execution of strategic plans

US ORSA – Deliverables by building block (sample) (1 of 2)

Building Block	Deliverables
Risk culture and governance structures	<ul style="list-style-type: none"> ▪ Risk governance structure and process ▪ Feedback-loop ▪ Training
Board of Directors oversight	<ul style="list-style-type: none"> ▪ Sign-off of the ORSA process ▪ Sign-off of the ORSA report ▪ Feedback-loop
Risk policies, procedures and programs	<ul style="list-style-type: none"> ▪ ERM policy ▪ Capital policy ▪ Investment policy ▪ Underwriting policy ▪ Reinsurance policy ▪ ALM policy
Risk appetite, tolerances and limits	<ul style="list-style-type: none"> ▪ Risk appetite statement ▪ Risk tolerance statement ▪ Overall risk limits ▪ Risk limits per risk type
Risk identification and categorization	<ul style="list-style-type: none"> ▪ Risk register
Risk prioritization and assessment tools	<ul style="list-style-type: none"> ▪ Risk heat map ▪ Risk metrics
Risk monitoring methods and controls	<ul style="list-style-type: none"> ▪ Material risks ▪ Emerging risks
Risk reporting and communication	<ul style="list-style-type: none"> ▪ Regular reports ▪ Ad-hoc reports

US ORSA – Deliverables by building block (sample) (2 of 2)

Building Block	Deliverables
Quantitative risk assessment / economic capital modelling	<ul style="list-style-type: none"> ▪ List of metrics ▪ Documentation of scope, goals, process, data, assumptions, methodologies and calibration ▪ Documentation of results
Qualitative risk assessment	<ul style="list-style-type: none"> ▪ List of metrics ▪ Documentation of scope, goals, process, data, assumptions and methodologies
Stress testing methodologies and documentation	<ul style="list-style-type: none"> ▪ List of assumptions ▪ List of scenarios ▪ Documentation of process and results
Model validation and calibration	<ul style="list-style-type: none"> ▪ Validation framework ▪ Validation report
Group risk capital adequacy determination, approaches and assessment	<ul style="list-style-type: none"> ▪ Documentation of process, data, assumptions, methodologies and calibration ▪ Documentation of results ▪ Documentation of capital allocation methodology and results
Integrating capital management into decision-making (“Use Test”)	<ul style="list-style-type: none"> ▪ Documentation of ORSA role in role in decision-making process and risk management ▪ Feedback-loop to risk and business management ▪ Link to executive compensation
Capital forecasting and prospective solvency assessment	<ul style="list-style-type: none"> ▪ Forecasted capital numbers and solvency position per year according to the duration of the business plan

ORSA - Business implications

Ultimate Objectives of the ORSA

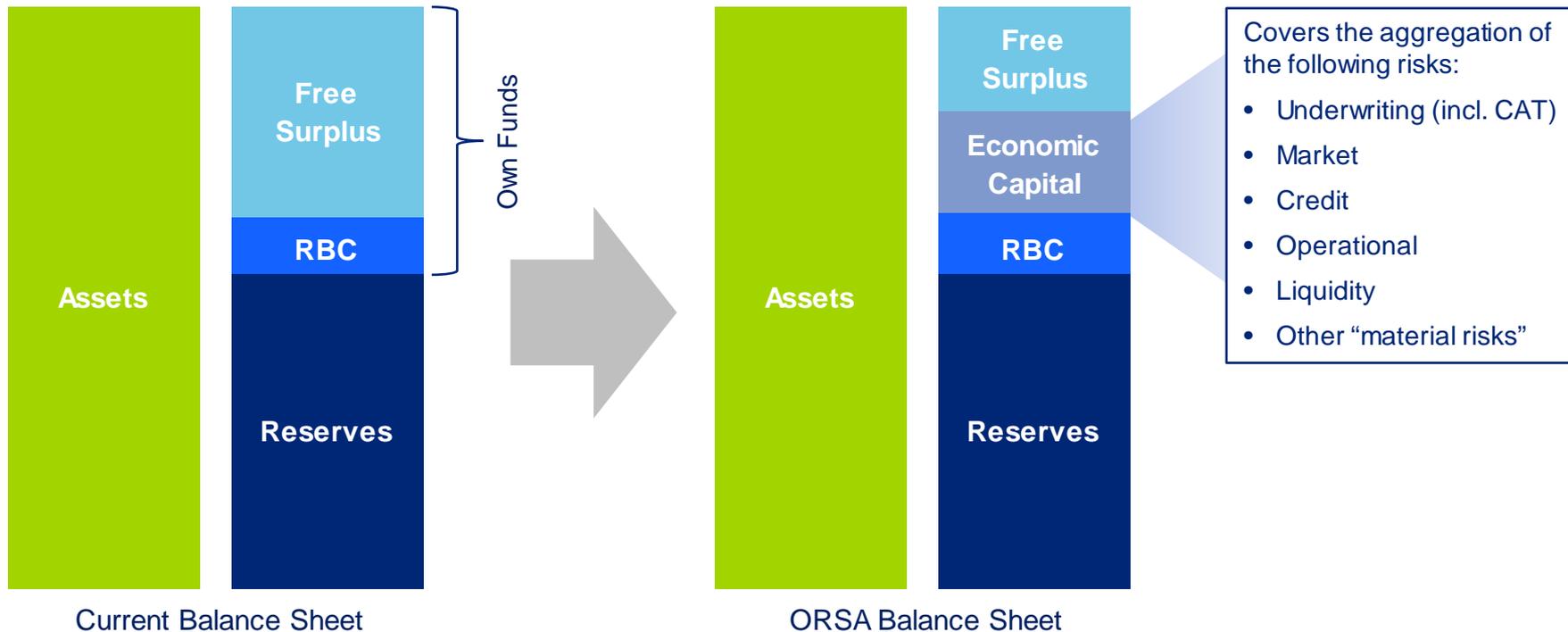
- Clear identification of material risks with clear definition of materiality and link with the internal strategic planning process
- An ERM framework that identifies, prioritizes, manages, monitors and reports risks
- Identification of mitigation measures to limit adverse impact on the solvency position of the insurers of unexpected losses
- Sufficiency of financial resources at group level to mitigate any residual risk (after reinsurance and after controls), on a current and prospective basis and on a normal and stressed market condition
- Ultimate ownership of the ORSA process by the C-suite and oversight by the Board of Director but participation of all functions in the execution of the ORSA process
- More detailed reporting on risks to regulators (and possibly other 3-party users) than previously
- ORSA is becoming the Gold Standard for risk management and in future regulators are likely to extend it to ALL insurers (already happening, for example in Bermuda)

US ORSA – key organizational areas impacted

Capital management	<ul style="list-style-type: none">• Determining approach for economic capital calculation and projection finding the proper balance between feasibility and accuracy• Group view on capital and solvency
ERM framework	<ul style="list-style-type: none">• Integrating several existing risk management processes into one consistent ORSA process, based on a common planning, maturity level, valuation basis, and assumption set• Strengthen Group and subsidiaries ERM and governance framework• Establishing a relevant link between the risk tolerance of subsidiaries' and Group
Strategic planning	<ul style="list-style-type: none">• Embedding the ORSA process into the strategic process• Aligning granularity, risk indicators and model parameters between strategic planning and risk modeling, to increase the relevance of the ORSA for decision making
Resources	<ul style="list-style-type: none">• Changing skill set for finance, actuarial and risk management• Having in place adequate processes, controls and risk quantification tools
Risk culture	<ul style="list-style-type: none">• Board ownership of the ORSA process, to prevent a 'silo-based' approach across entities and risk categories• Improve communication between different capabilities within the insurer• Managing business in accordance with risk appetite and risk tolerance levels
Technology	<ul style="list-style-type: none">• Developing robust systems and data environment to perform and analyze risk metrics in tight time frames

US ORSA - C-Suite Considerations

- The ORSA requires the C-Suite to demonstrate how they make business decisions based on risk profile, risk limits, risk appetite and financial means of their company and the Board of Directors to supervise. Management needs to make tactical decisions and plan ahead.
- It introduces a new measure of solvency in addition to Risk Based Capital (“RBC”) and impacts free surplus.
- There are financial penalties for late submission.
- Rating agencies are interested in the ORSA report.
- The requirements are comprehensive; there are a number of technical challenges to resolve and it requires skilled resources and time to implement.



US ORSA- Stakeholders considerations

Internal Stakeholder	Considerations	External Stakeholder	Considerations
Senior Management	<ul style="list-style-type: none"> Ultimate ownership of the ORSA process, to prevent a 'silo-based' approach across entities and risk categories Called to demonstrate a increased degree of risk awareness and more in-depth technical knowledge Align risk and business strategies on a current and prospective basis Embed the ORSA process into the decision-making process and articulate the "Use Test" 	Regulators	<ul style="list-style-type: none"> Regulators will place a high degree of scrutiny on the ORSA and Form F reports When they see a "good ORSA report", they will know how one looks like Data may be used to create industry and segment benchmarks ORSA will replace the risk based examinations High attention to stress tests, risk aggregation and risk diversification and capital fungibility at group level Scrutiny of effective role of the ORSA in the business decision making processes, i.e. "Use Test"
Board of Directors	<ul style="list-style-type: none"> Must receive a copy of the ORSA report Called to demonstrate a increased degree of risk awareness and more in-depth technical knowledge 	Rating agencies	<ul style="list-style-type: none"> Rating agencies expect to see the ORSA report Standard & Poor's is updating the criteria for evaluating management and governance as part of the wider assessment of an enterprise's creditworthiness to make them more risk-based Expected date for new criteria to be in force is July 1, 2013
Risk Management function	<ul style="list-style-type: none"> Integrate several existing risk management processes into one consistent ORSA process, based on a common planning, maturity level, valuation basis, and assumption set Strengthen Group and subsidiaries ERM and governance framework Establish relevant link between the risk tolerance of subsidiaries' and Group Group view on capital and solvency 	Competitors	<ul style="list-style-type: none"> ORSA filing to the regulators may reveal under capitalized insurers or lead to changes in business plans, product strategy and corporate structure Insurers with international operations will have to comply with different Solvency regimes and possibly prepare different ORSAs
Actuarial function	<ul style="list-style-type: none"> Determine approach for economic capital calculation and projection finding the proper balance between feasibility and accuracy Consistency between actuarial models (pricing, reserving and reinsurance) and risk projection models Integration of ORSA feedback loops into pricing, reserving and reinsurance 	Policyholders	<ul style="list-style-type: none"> Good risk management provides greater confidence to policyholders that their interests are protected In other jurisdictions, insurers are publicizing their investments in risk management for marketing purposes
Human Resources function	<ul style="list-style-type: none"> Changing skill set for finance, actuarial and risk management Improve communication between different capabilities within the insurer Disclosure of correlation between executive reward and risk strategy 		
Other Internal Stakeholders	<ul style="list-style-type: none"> IT: Develop robust systems and data environment to perform and analyze risk metrics in tight time frames Finance: Integrate ORSA feedback loop in financial and capital planning Business units: integrate ORSA process in business as usual operations, managing business in accordance with risk appetite and risk tolerance levels Internal audit: Develop specific processes and controls for the ORSA process 		

Implementation of the ORSA

US ORSA - Implementation Approach

Jump Start

- ORSA/ERM readiness assessment
- Internal Capital Model (ICM) readiness assessment
- Enterprise Information Management (EIM) readiness assessment
- Identify tools and accelerators needed
- Management team and Board of Directors Awareness

Design

- Use Test (“the heart of the ORSA”)
- ORSA Implementation Plan by workstream (ie ERM, ICM and EIM)
- ORSA Summary Report
- ORSA Process
- Internal Capital Model Validation
- Disclosure strategy to various stakeholders

Execute and Test

- Execute Implementation Plan
- Partial dry-run of ORSA with a selected BU or portfolio
- Intermediate Management team and Board of Director Approval

Refine and Deploy

- Implement changes required
- ORSA Deployment across group
- Business Unit Mobilization
- Intermediate Management team and Board of Director Approval
- Stakeholder Engagement

How to get started

Raise ORSA awareness

Establish a focus group

Conduct the readiness assessments

Discuss results within the focus group

Agree priorities and identify accelerators

Move onto Phase 2

- Training
- Management Team Awareness
- Board of Directors Awareness
- Set vision and business objectives
- Senior management
- Risk management
- Actuarial
- Internal audit & compliance
- Business units
- IT
- HR
- Others

Building Block	Scoring		
Risk culture and governance structures		Orange	
Board of Directors oversight		Orange	
Risk policies, procedures and programs		Orange	
Risk appetite, tolerances and limits		Orange	
Risk identification and categorization			Green
Risk prioritization and assessment tools			Green
Risk monitoring methods and controls		Orange	
Risk reporting and communication		Orange	
Emerging risks	Red	Orange	
Quantitative risk assessment / economic capital modelling	Red		
Qualitative risk assessment		Orange	
Stress testing methodologies and documentation		Orange	
Validation and calibration	Red		
Group risk capital adequacy determination, approaches and assessment	Red		

Start with:

1. Use Test

2. Implementation Plan:

- Timelines
- Actions
- Governance
- Resources
- Tools
- Milestones

Corporate Governance considerations (section 1)

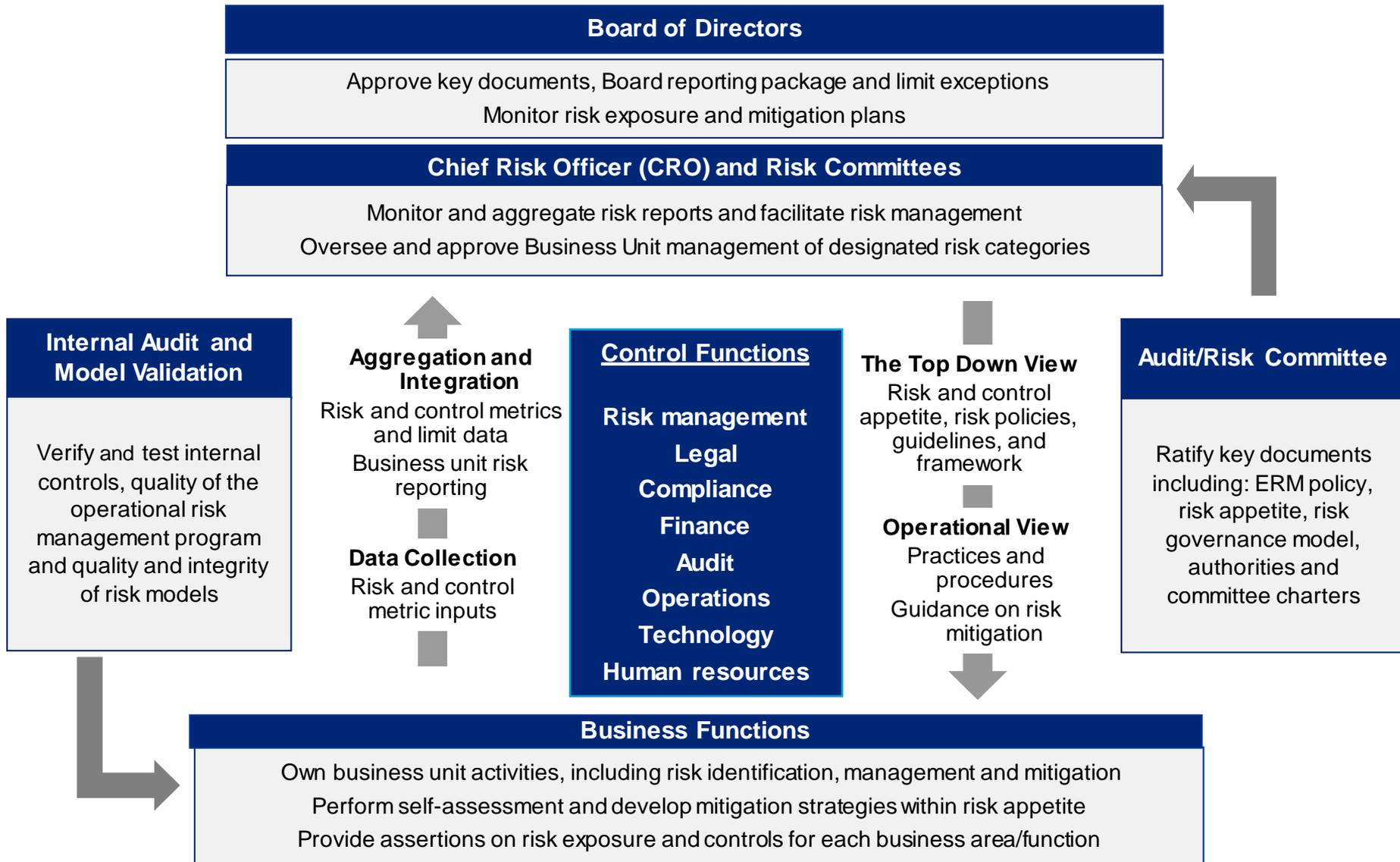
Risk management governance in the ORSA

- Section 1 of the ORSA requires the ERM framework of the insurer to include a governance structure that clearly defines and articulates roles, responsibilities and accountabilities and evidence of a risk culture that supports accountability in risk-based decision making
- The ORSA requires:
 - The ORSA Summary Report be signed by a CRO or other executive having responsibility for the oversight of ERM attesting that the insurer applies ERM
 - A copy of the ORSA Summary Report be provided to the insurer's board of directors or the appropriate committee
- No further additional guidance is provided on:
 - Risk ownership
 - Roles&responsibilities with regard to risk management of the individual functions
 - Segregation of duties between functions (in particular, Internal Audit, CRO Office, Compliance and Actuarial)
 - Reporting lines with regard to risk management of the individual functions

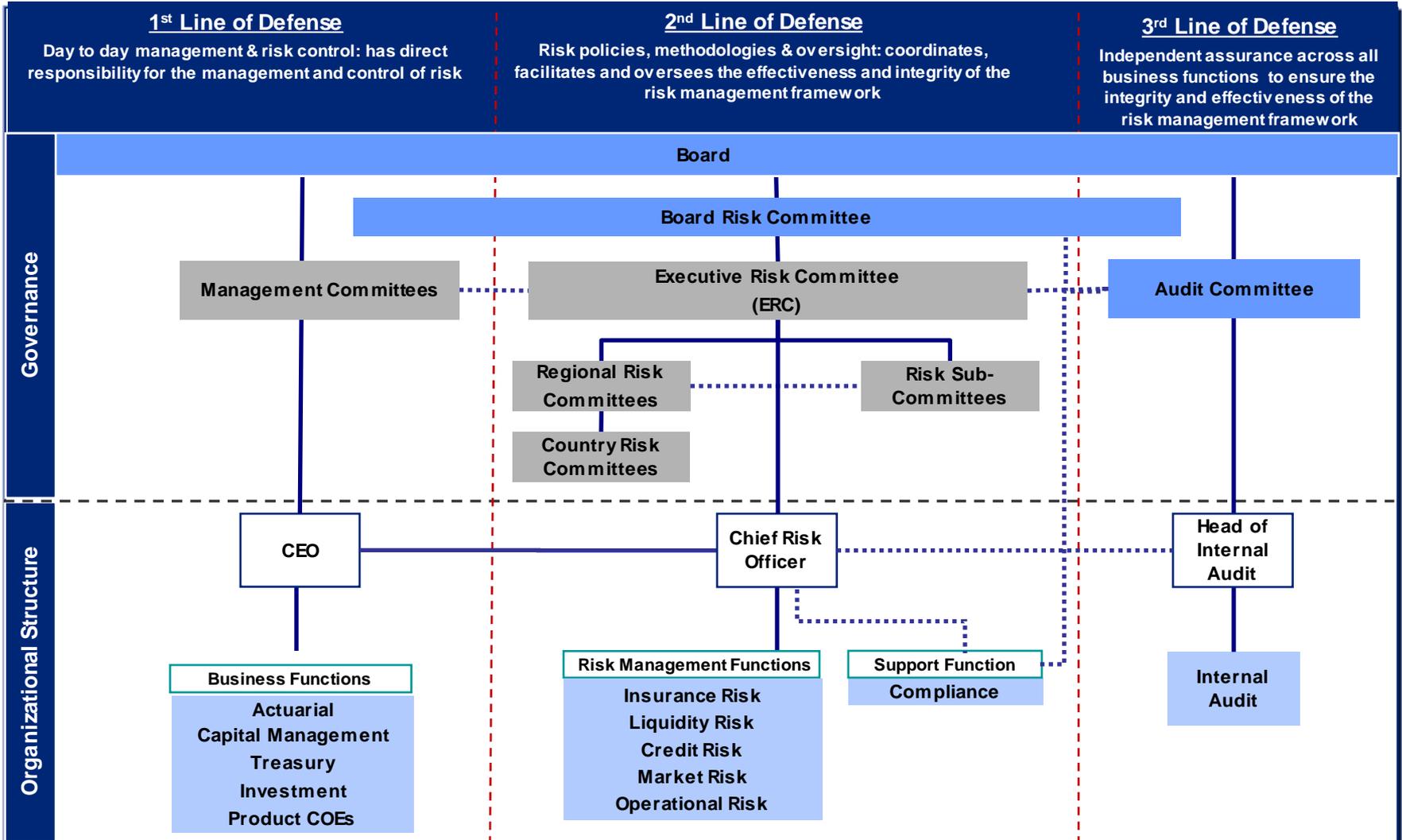
Risk management governance in the ORSA (cont'ed)

- The Corporate Governance (E) Working Group of the NAIC is developing additional guidance.
- In particular:
 - Development of best practices for the corporate governance of insurers
 - Development of insurance regulatory education for members of insurers' Boards of Directors
 - Review of the IAIS principles and standard related to corporate governance (i.e. ICP 7, ICP 8)
- ICP 7 on Corporate Governance:
Statement: "The supervisor requires insurers to establish and implement a corporate governance framework which provides for sound and prudent management and oversight of the insurer's business and adequately recognizes and protects the interests of policyholders"
- ICP 8 on Risk Management and Internal Controls:
Statement: "The supervisor requires an insurer to have, as part of its overall corporate governance framework, effective systems of risk management and internal controls, including effective functions for risk management, compliance, actuarial matters and internal audit"
- The following slides provide illustrative examples of corporate governance that are in line with these ICPs

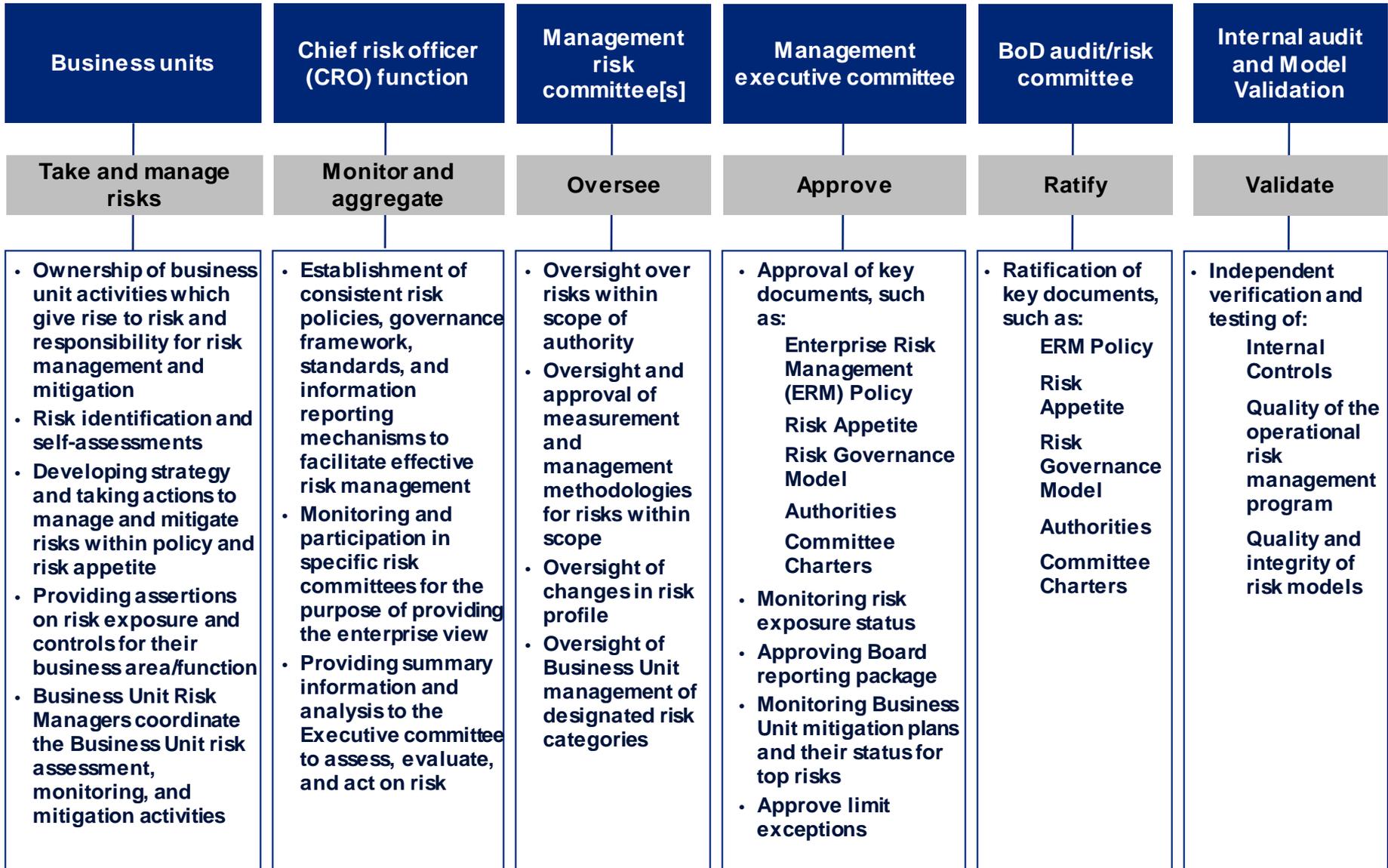
Illustrative top-down and bottom up approach of risk governance



Illustrative organization: Three lines of defense



Illustrative risk management ownership

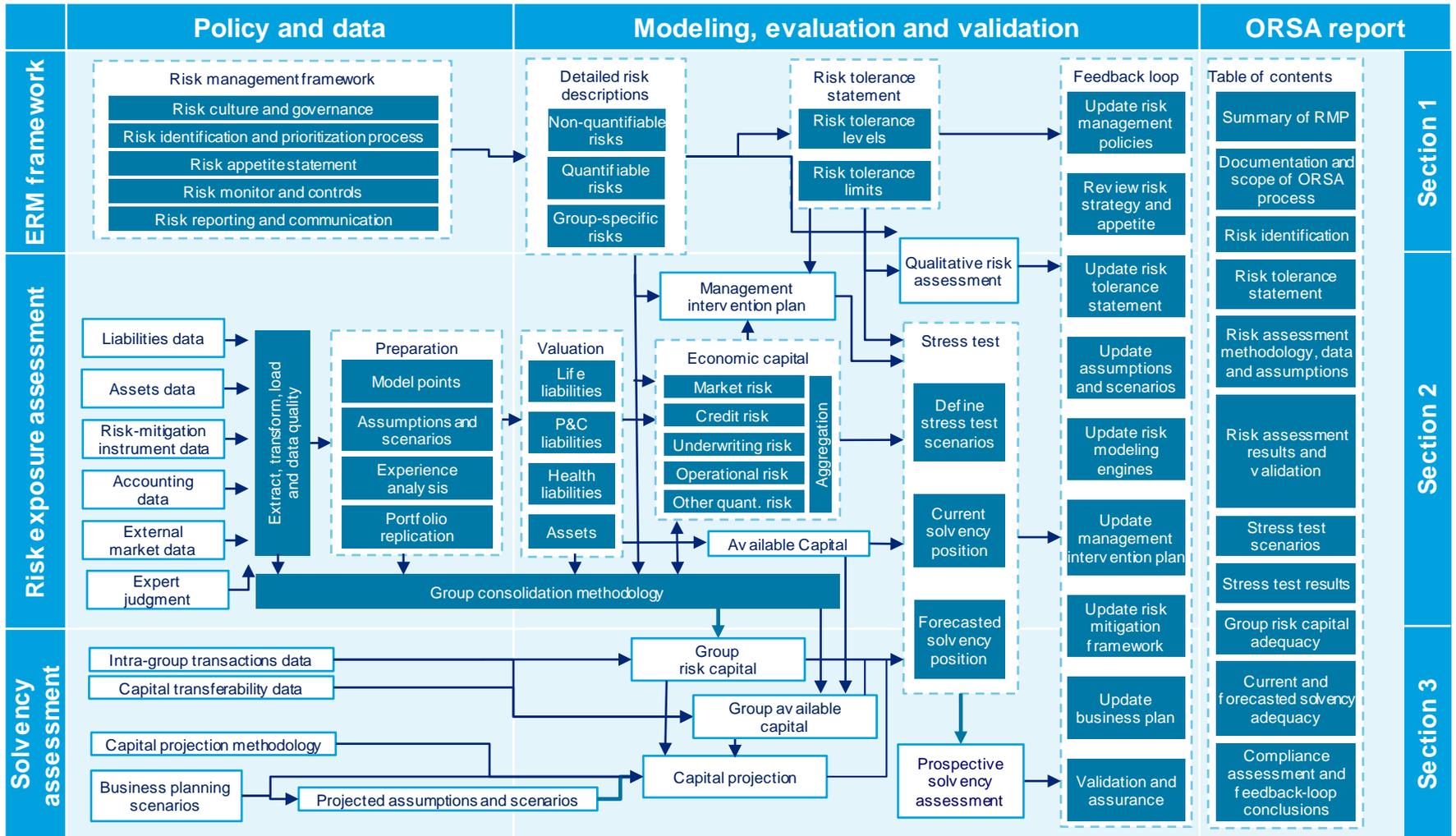


Deep dive into sections 2 and 3

The essence of sections 2 and 3

- The ORSA requires an insurers to:
 - Organize their risk universe in pre-set risk categories, as described by the ORSA Manual
 - Select those risks that are “material” to the insurer based on the insurer’s definition of materiality (quantitative or qualitative)
 - Set risk limits for each material risk (these can be quantitative or qualitative)
 - Determine for each risk, the economic capital. Defined as “risk capital or capital-at-risk” (hereinafter risk capital)
 - For those risks where it is possible to quantify the amount of risk capital, to quantify it
 - For those risks where it is NOT possible to quantify the amount of risk capital, to identify other non-financial measures to mitigate the risk
 - To aggregate the risk capital for each risk into one overall risk capital at group level and compare it with the “available” capital
 - If the “available” capital is less than the overall risk capital, the insurer needs to have a financial plan in place to avoid insolvency
 - The risk capital needs to be identified in normal and stressed economic conditions
 - The resulting internal capital model needs to be actively used to make business decision and independently validated
 - All the above needs to be repeated at each future balance sheet date for the duration of the business plan
 - All the above needs to be adjusted if the risk profile of the insurer changes due to economic, operational or strategy changes

The detailed picture and interaction between sections



Challenging areas in sections 2 and 3

Materiality and selection of businesses and risks to be modeled	<ul style="list-style-type: none">• Insurers have to decide which businesses and which risks to include in the analysis of available versus risk capital• The decision is delivered through a definition of “materiality” that is specific to the insurer• The definition of materiality will be a inclusive mix of qualitative and quantitative definitions depending on management’s views, the type of risk and how tolerance levels and limits are defined• Decide if risks should be modeled by type, by block of business or both• Measuring impact of Social Mission considerations
Input data	<ul style="list-style-type: none">• Collection of data from different sources – internal and external – can be time consuming• Analysis of data and preparation for the calculations. Issues relating to robustness, completeness, heterogeneity, appropriate level of granularity of data will arise and will need to be resolved• Use of expert judgment can be extensive in absence of historical data trends.. For example, difficult ACA rollout and impact of 3R’s over lifetime of business plan will make the assumption setting process more dependent on expert judgment• Selection of assumptions requires the identification of key drivers for each risk and calibration of the assumptions using various techniques
Calculations of economic capital	<ul style="list-style-type: none">• Selection of accounting or valuation basis for the available surplus. May need choice of more than one basis• Selection of risk capital metric (i.e. VaR, Tail Var, % RBC, capital change pre and post stresses) to estimate the risk capital. An ideal risk metric should be intuitive, stable, easy to compute, easy to understand, coherent and interpretable in economic terms• Selection of time horizon (i.e. one year, multiple years). It depends on type of risk (i.e. days and weeks for market risk, years for operational risk), risk management needs of the insurer, regulatory requirements• Selection of appropriate confidence level (i.e. 99%, 99.5%, 99.9%). The target rating of the insurer will play an important role in the choice. Decide how to treat tail events.

Challenging areas in sections 2 and 3 (cont'ed)

Risk dependencies and correlations	<ul style="list-style-type: none">• Identify dependencies and correlation between risks across blocks of business and within the same block of business• Quantify the correlations (for example, some Blues have life insurance affiliates and property casualty affiliates with long-tail coverage (e.g. LTC or Workers Comp))
Risk aggregation	<ul style="list-style-type: none">• ORSA requires the solvency position to be determined at group level• Determine the aggregate surplus-at-risk across risks and blocks of business• Selection of aggregation methodologies are to consider the diversification benefit between risk categories, common drivers of loss between risk categories, and any differences in the methodology utilized for the risk categories• Approaches for aggregation can include correlation matrices and risk driver approaches
Stress tests	<ul style="list-style-type: none">• The NAIC does not provide a set of stresses, but the insurer needs to select their own stresses• The risk capital and the available capital need to be modeled under each set of stresses and compared to determine whether the insurer remains solvent• Over time, benchmarks are likely to emerge from the ORSA submissions and insurers may be asked by the regulators to re-run their ORSA calculations using new stresses• Influence of stress tests emerging from other regulators (i.e. from the Feds for SIFIs, European regulators for Solvency II purposes)

Challenging areas in sections 2 and 3 (cont'ed)

Capital projections

- Determine the methodology to project available and risk capital over the duration of the business plan to assess the future solvency position of the insurer (for example, over M years).
- Determine the multi-year scenarios (for example, N scenarios) in which the business is to be projected. These could be a handful of deterministic scenarios or thousands of stochastic scenarios. In both cases, the scenario model is typically done at a 'macro' level.
- Describe how all of the significant risk exposures of the insurer's balance sheet behave in each of these macro scenarios.
- Calculate the projected risk capital within each of these scenarios. For example, in the case of N M-year scenarios, the capital calculation would need to be implemented N x M times.
- The selected projection methodology will take into account historical observed events, emerging risks identified through subjective assessment, and the possibility of losses from previously unidentified sources
- Projections can utilize stochastic methodologies (such as Monte Carlo simulation or Panjer recursion) or formulaic approximations calibrated to specified percentiles, or the impact of identified stress scenarios on available capital

Validation framework

- Develop a validation framework that describes: scope, processes and methods and available tools, frequency of validation, persons involved with clear roles, reporting lines and escalation paths
- Validation should be delivered by a different group of people from those that built the model

Use Test

- Demonstrate how the results of the internal capital model used to determine the solvency position are used by Management to make business decisions, to revise the business strategy and how they are integrated in the ERM framework
- The model will need to be run for a certain period of time to demonstrate that is actually used
- The more the model is run the more feedback will be generated and the model will need to be adjusted and re-validated.

Lessons learned to deliver sections 2 and 3

- Delivering the content of sections 2 and 3 requires:
 - Time (whilst it may not yet be clear when the ORSA filing date to the domiciliary regulator is, insurers need to start working on ORSA now)
 - Skilled resources with new set of skills that often do not already exist in the organization
 - A structured approach with an articulated delivery plan
 - Methodological and technical decisions (i.e. risk capital metric, use of expert judgment)
 - Management decisions (i.e. materiality, accounting basis for capital analysis)
 - Investment in new technology (i.e. modeling software, economic scenario generators, aggregators, etc.)
 - Cooperation between functions
 - Cooperation between group and legal entities
 - Sign off from Management and Board of Directors
 - Clear understanding of expectations of regulators (i.e. regulators have already seen models through the college of supervisors for other insurers)
 - Clear understanding of expectations of rating agencies (i.e. what if the ORSA report is shared with them)

Appendix

Risk policies – capital policy an example

A capital policy is a written assessment of the principles and guidelines used for capital planning, capital issuance, use and distributions, including internal capital goals; the quantitative or qualitative guidelines for dividend and stock repurchases; the strategies for addressing potential capital shortfalls; and the internal governance procedures around capital policy principles and guidelines.

Components

Business overview

Capital principles and guidelines

- Capital planning
- Capital issuance
- Capital use
- Capital goals
 - Risk appetite and risk profile
 - Targets for the level and composition of capital

Decision-making processes regarding capital level and composition, actions, and contingency plans

Risk quantification / stress testing

- Metrics
- Methodology and choice of scenarios

Potential sources and impact of changes or uncertainties in the economic, financial, regulatory, or accounting environment and underlying assumptions

Internal controls

- Governance
- Tools and process
- Contingency actions to remedy deficiencies
- Independence regarding compliance and oversight functions (e.g. controls and reporting)

Risk appetite and risk limits definitions

Risk Appetite	Risk Limits
<p>Definition The amount of risk an entity is willing to take, given its capacity to bear risk and its risk philosophy</p>	<p>Definition Maximum level of risk exposure, used by a business area or product area to monitor risk taken</p>
<p>Factors to consider Probability of downgrade, earnings volatility, current position in economic cycle, mitigation options, liquidity considerations, qualitative risk considerations, reputation, amongst other</p>	<p>Factors to consider Historic performance, current exposure, volatility of underlying factors, key risk indicators (KRIs) availability</p>
<p>Level of organization Corporate, all business units; use capital allocation as a basis of allocating appetite to business units, products and even individual instruments</p>	<p>Level of organization: Corporate level for corporate wide aggregate limits and can be set at the lower levels e.g. per risk type at product level</p>
<p>Cycle Annually or when the risk capacity is reduced by tail events below appetite</p>	<p>Cycle Reviewed annually or as deemed necessary</p>
<p>Used for Strategic planning and monitoring risk exposure</p>	<p>Used for Monitoring and controlling risks and keeping them in line with available risk appetite</p>

Risk appetite framework – an example

Insurers are typically seeking to implement risk appetite frameworks such as illustrated below:

Stakeholders



Framework

Risk appetite	Quantitative	Capital at risk	Eg. \$xm at y% confidence
		Earnings at risk	Eg. x% earning volatility against plan >97% confidence in meeting dividend forecast
	Qualitative	Restrictions/ business, customer segments, risk types	Eg. The firm has no appetite to do business in xx segment
Risk tolerance	Risk type	Eg. Market, insurance, operational, etc	
	Business unit	Eg. Insurance, Investment, Bank	
	Level	Minimum Tolerance, Tolerance for favorable cost/ benefit exposure, Tolerance for calculated exposure and failure	
Risk limits	\$ Limits Measures / Key Performance Indicators Thresholds		

Enablers

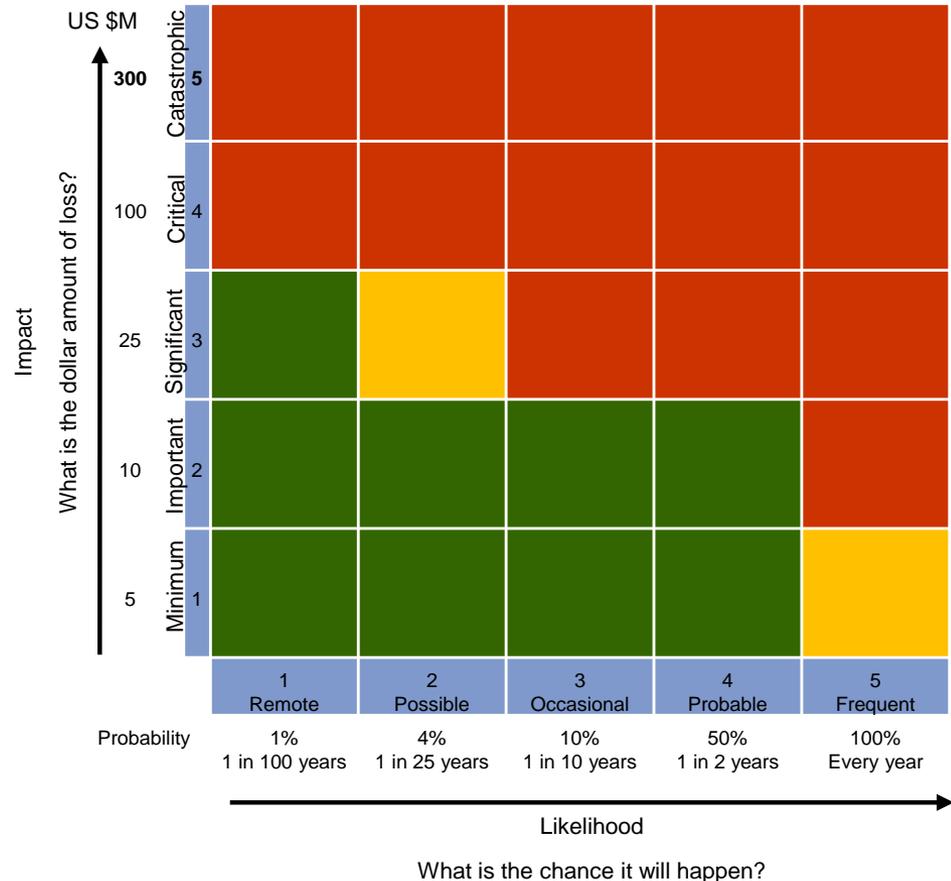


Risk appetite heat map – an example

A key element of a successful ERM program is the ability to clearly articulate risk appetite and ensure risks are retained within risk tolerances set by the firm.

Description

- A risk appetite statement is a living document that formalizes the attitudes of senior management and the Board towards risk and is aligned with company objectives.
- Risk appetite statements should reflect upside potential as well as downside risk.
- Risk appetite can be expressed quantitatively in a variety of ways, including:
 - Specified amount of capital that can be lost.
 - Capital sufficient to cover a risk event with a state probability.
 - Ratings downgrade below a particular level.
 - Defined percentage of annual earnings.
 - Firm value.
- The heat map diagram to the right is a useful tool for quickly visualizing risk appetite. This heat map shows the tolerance for risk.



- Red: Unacceptable; insufficient mitigating action plans
- Yellow: Currently unacceptable; future mitigating actions will reduce risk sufficiently
- Green: Sufficient controls are in place and risk is within tolerance

Benefits

- The appetite identifies areas where too much risk has been taken on and areas where not enough risk has been taken on.

Risk Identification – an example

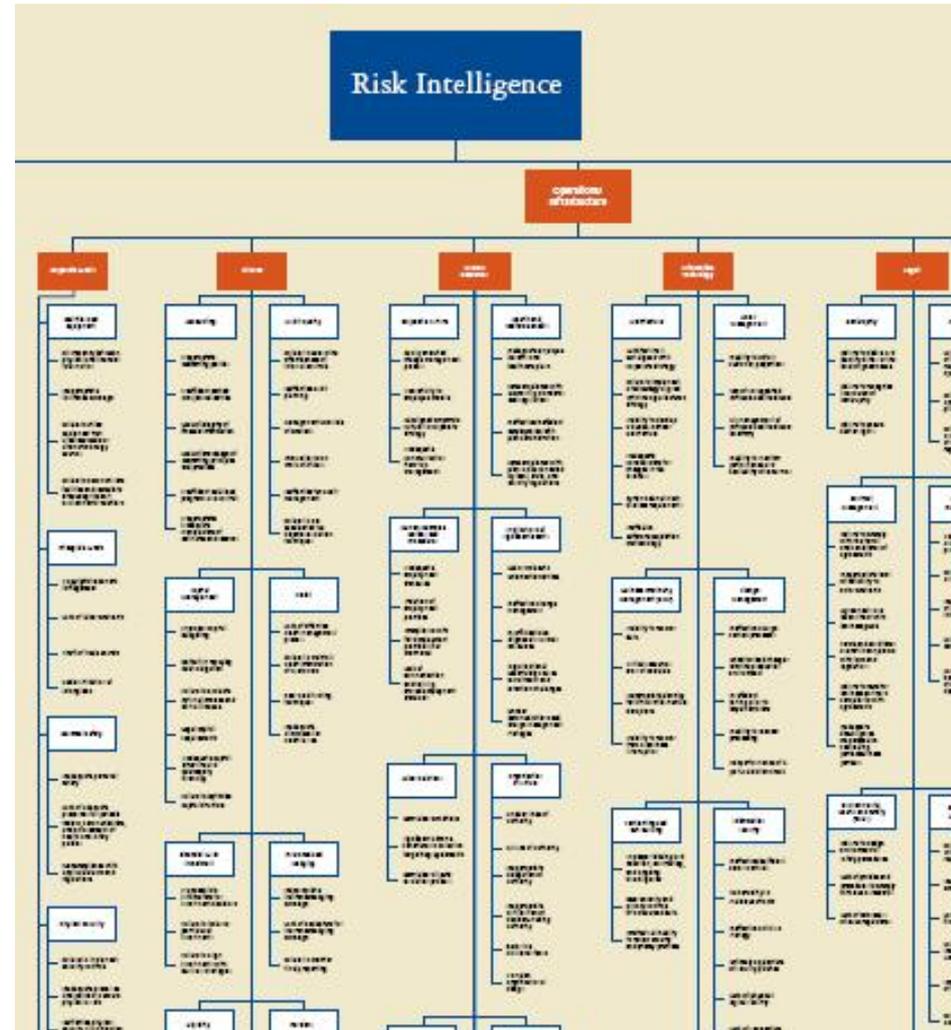
The identification and ranking of risks is a key activity for ERM, providing important information for the further evaluation and management of key risk exposures. A risk map is a key tool to aid the identification of risks.

Description

- All risks are identified on a risk list and organized into classifications that are significant to the company and aligned with industry and rating agency views of risk.
- Additional sub-categories for classification are developed to tailor the risk list to the company.
- A tool such as a risk map can broaden the company's risk perspective, identify key areas of organizational risk that may be overlooked, and improve the company's ability to identify and assign risk-related responsibilities.

Benefits

- Risk classification provides the company with a framework to drive other risk management activities.
- A standard taxonomy establishes a common language for the discussion of risk exposures.
- The involvement of business units in the identification of risk may drive a greater sense of ownership and accountability.



Risk prioritization – an example

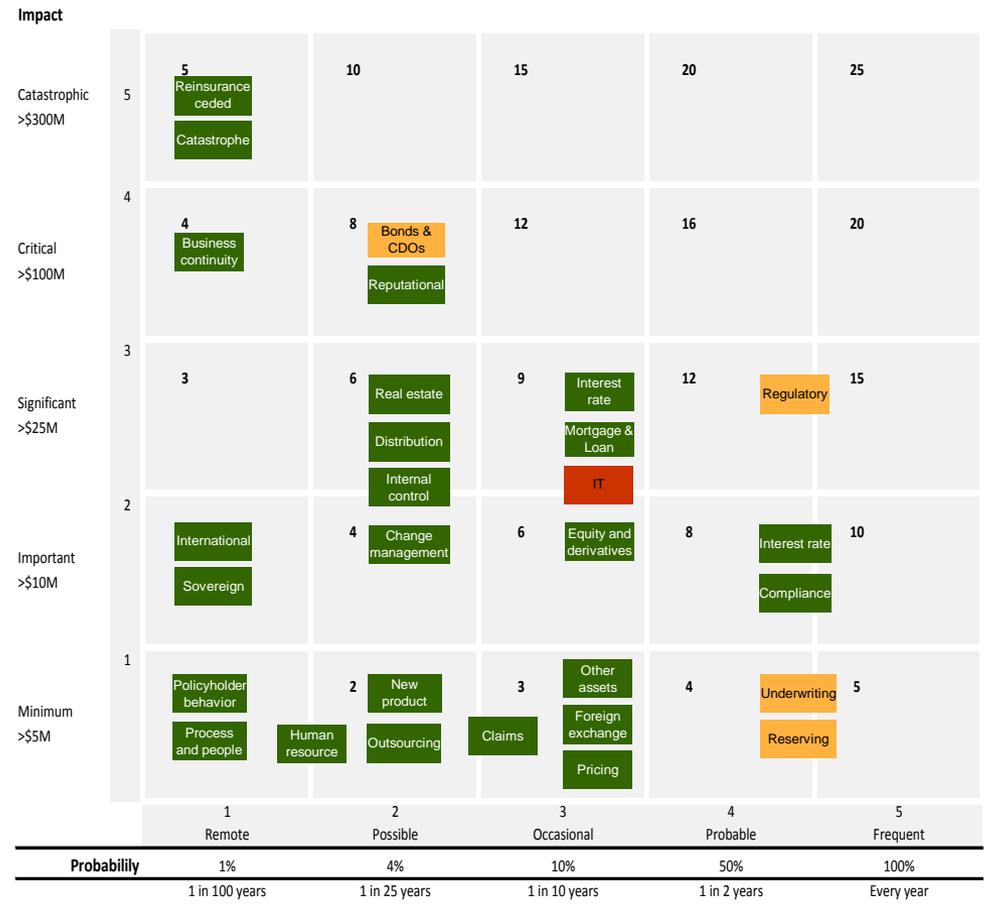
A risk heat map facilitates the prioritization of key risks based on their likelihood and impact, allowing the company to focus risk management activities on the most significant risks.

Description

- Risks are “heat map” as a means to establish management priorities and focus.
- The key risk exposures ranked with respect to their frequency and severity and color coded according to predefined standards.
- The anatomy of loss scenarios is analyzed to develop KRIs for tracking exposure levels.

Benefits

- Risk mapping techniques can be used when historical data is unavailable.
- Frequency and severity information may be leveraged as inputs for various types of risk quantification models, such as economic capital models and stress testing.
- Risk heat maps provide management with comprehensive risk information needed to effectively understand and manage their risks.



Acceptable Sufficient controls are in place and risk is within tolerance

Unacceptable Currently unacceptable; future mitigating actions will reduce risk sufficiently

Risk monitoring and controls – an example

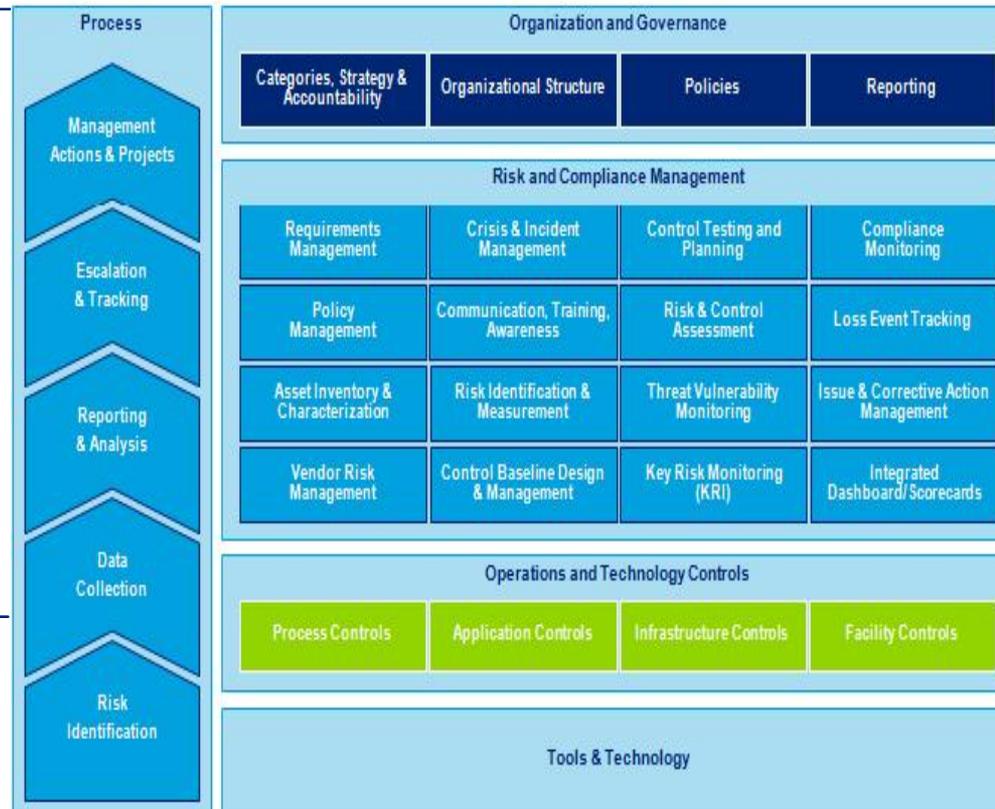
A risk catalog is a tool that provides a core set of risk and compliance management solutions that allows for consistent comparison, prioritization, and aggregation of risk and compliance across the enterprise's business and functional units.

Description

- A risk catalog is a solutions framework for enabling integrated risk and compliance management.
- It should encompass a full featured set of solutions, including:
 - Requirements Library.
 - Crisis and Incident Management System.
 - Policy Management.
 - Control Baselines.
 - Integrated Assessment System.
 - Issue and Corrective Action Management System.
 - Vendor Risk Management System.

Benefits

- A risk catalog can reduce costs while improving quality.
- Integrated risk and compliance management allows for full risk coverage and reduces the burden on individual business units.



Risk reporting – an example

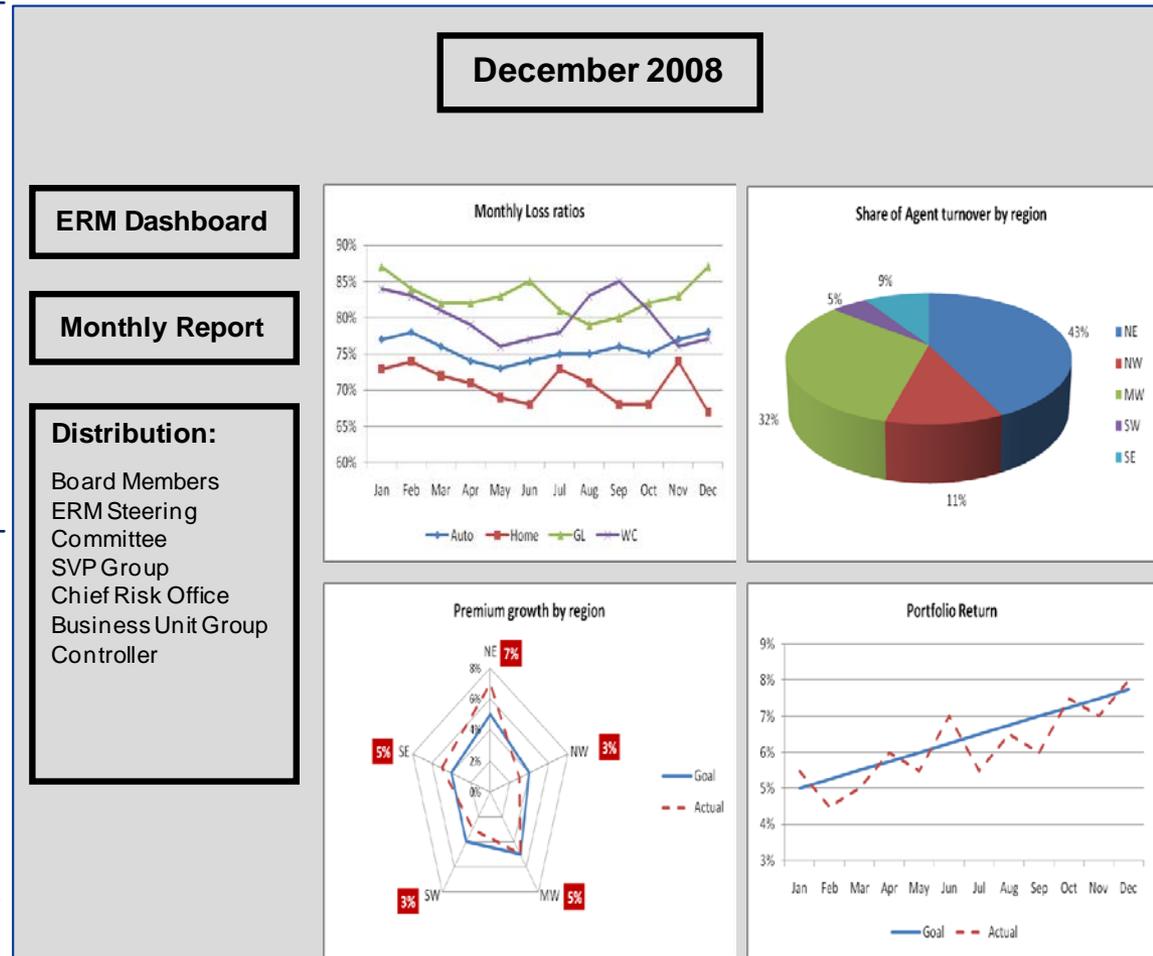
Risk reporting should provide the clearest possible picture of a firm's overall risk profile and the evolving nature of risks, as well as salient features of the risk management processes.

Description

- Qualitative and quantitative assessments of the current risk exposures, as well as analyses of emerging risks and extreme scenarios are completed.
- Comprehensive risk information needed to effectively understand and manage firm's risks is compiled.
- Risk metric data can be displayed in a risk dashboard, custom designed to fit organizations' strategic intent.

Benefits

- Risk reporting captures risk identification, assessment, control, and monitoring information.
- It also allows business areas to report on risk profile status on an as-needed and routine basis.
- Additionally, the risk dashboard acts as an early warning system for any changes in risk exposures.





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