HSS Approach to ERM

2015

Carrier

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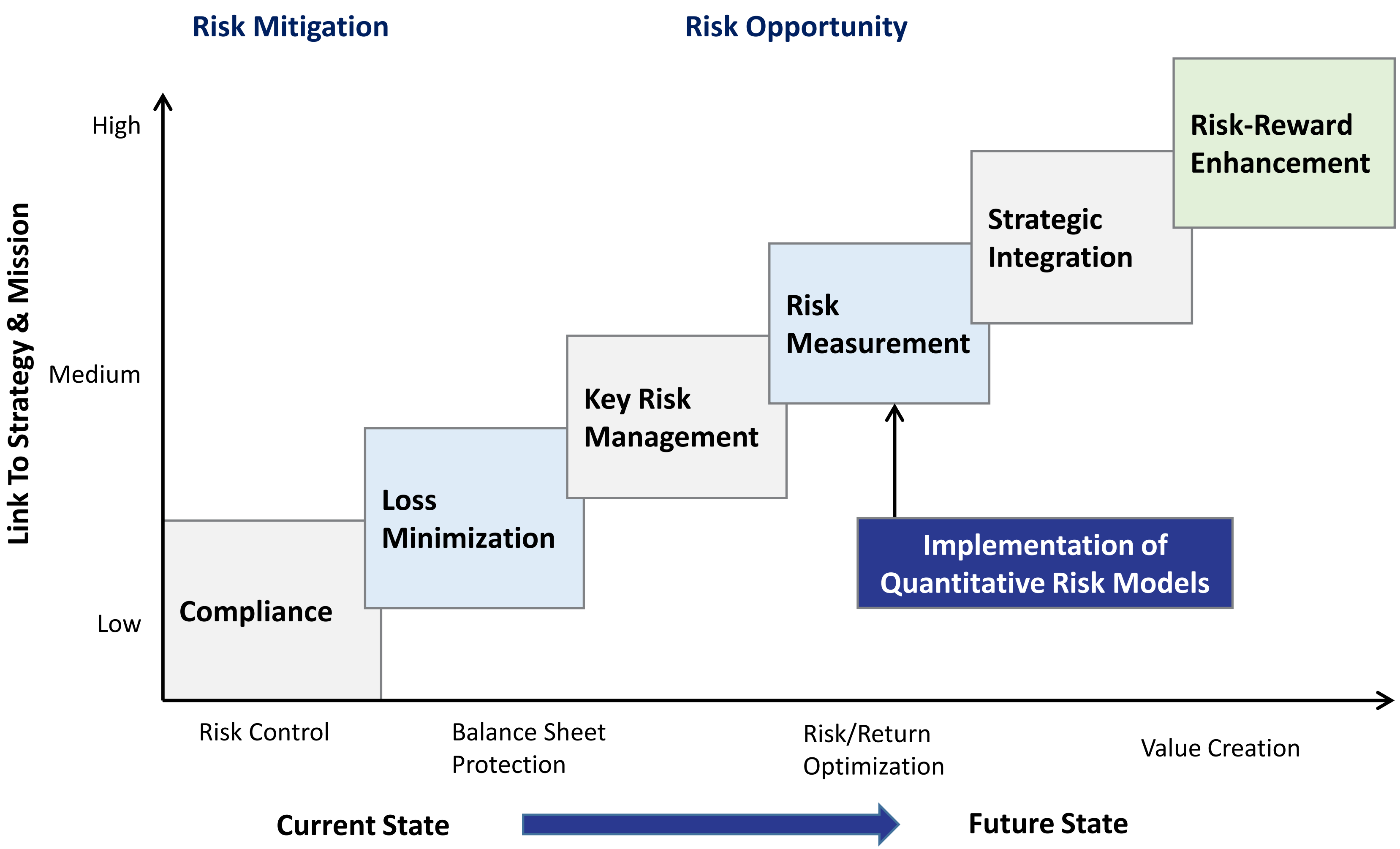
What is Enterprise Risk Management



What is the ERM Value Proposition

- What is ERM?
  - The process by which organizations identify, measure, monitor and exploit key risks for the purpose of meeting business objectives and increasing shareholder value
- What are the Objectives of ERM?
  - Achieve a competitive advantage by better understanding the risk environments in which an organization operates
  - Avoid unwelcome surprises, by reducing uncertainty & volatility, through the identification & management of key risks to meeting strategic objectives
  - Enrich risk-based decision making by effectively allocating resources & capital to help optimize returns from a chosen risk profile

Further Defining ERM Value Proposition

- Enriched risk-based decision making to help optimize returns from a chosen risk profile can be achieved by:
  - Further developing risk appetite statements
  - Further assessing strategic, operational & emerging risk
  - Further developing risk & economic capital models
  - Incorporating these enhancements into existing business processes
- Requires execution of a robust risk management framework which leverages an organization's business profile, balance sheet strength, business acumen, and analytic & risk modeling capabilities
- Utilizes a "top down" (corporate strategic objectives) and "bottom up" (risk universe or risk register) approach, aimed at identifying, quantifying and mitigating key risks to meeting objectives
  - Requires use of ongoing processes to monitor and challenge key risk-related assumptions, and to ensure execution of risk mitigation activities

Three Parts of the NAIC ORSA

To be consistent with NAIC ORSA requirements, the following sections, "ERM Topics for Discussion" & "HSS Observations," are organized into three key sections.

Section 1 - Description of insurer's ERM framework including:	• Risk culture & governance • Risk identification & prioritization • Risk appetite, tolerances & limits • Risk management & controls • Risk reporting & communication
Section 2 - Insurer's quantitative & qualitative assessment of risk exposure to include:	• Details of risks identified, measurement approaches used & assumptions • Quantification of risk for each major risk category • Outcomes of plausible adverse scenarios • The impact of stressed environments on available capital, considering multiple capital viewpoints if relevant (e.g., regulatory, rating agency)
Section 3 - Group risk capital & prospective solvency assessment:	• Definition of solvency, accounting or valuation regime • Time horizon of risk exposure • Risks modeled • Quantification method • Measurement metric • Target level of capital • Aggregation and diversification

Note: ORSA Report to be filed annually with relevant State Insurance Department

HSS Approach to ERM

The HSS Enterprise Risk Management Approach

ERM Framework

- Risk Culture/Governance
- Risk Strategy
- Risk ID/Prioritization
- Risk Appetite, Tolerance & Limits
- Risk Controls
- Reporting/Communication

Risk Assessment

- Strategic Risks
- Insurance Risks
- Financial Risks
- Operational Risks
- Emerging Risks

Risk Capital

- Capital Models
- Financial Models
- Rating Agency Models
- Prospective Solvency Assessment

Report

- Synthesis of Key Themes
- Perform Gap Analysis
- Deliver Recommendations
- Develop ORSA Report

ERM Framework

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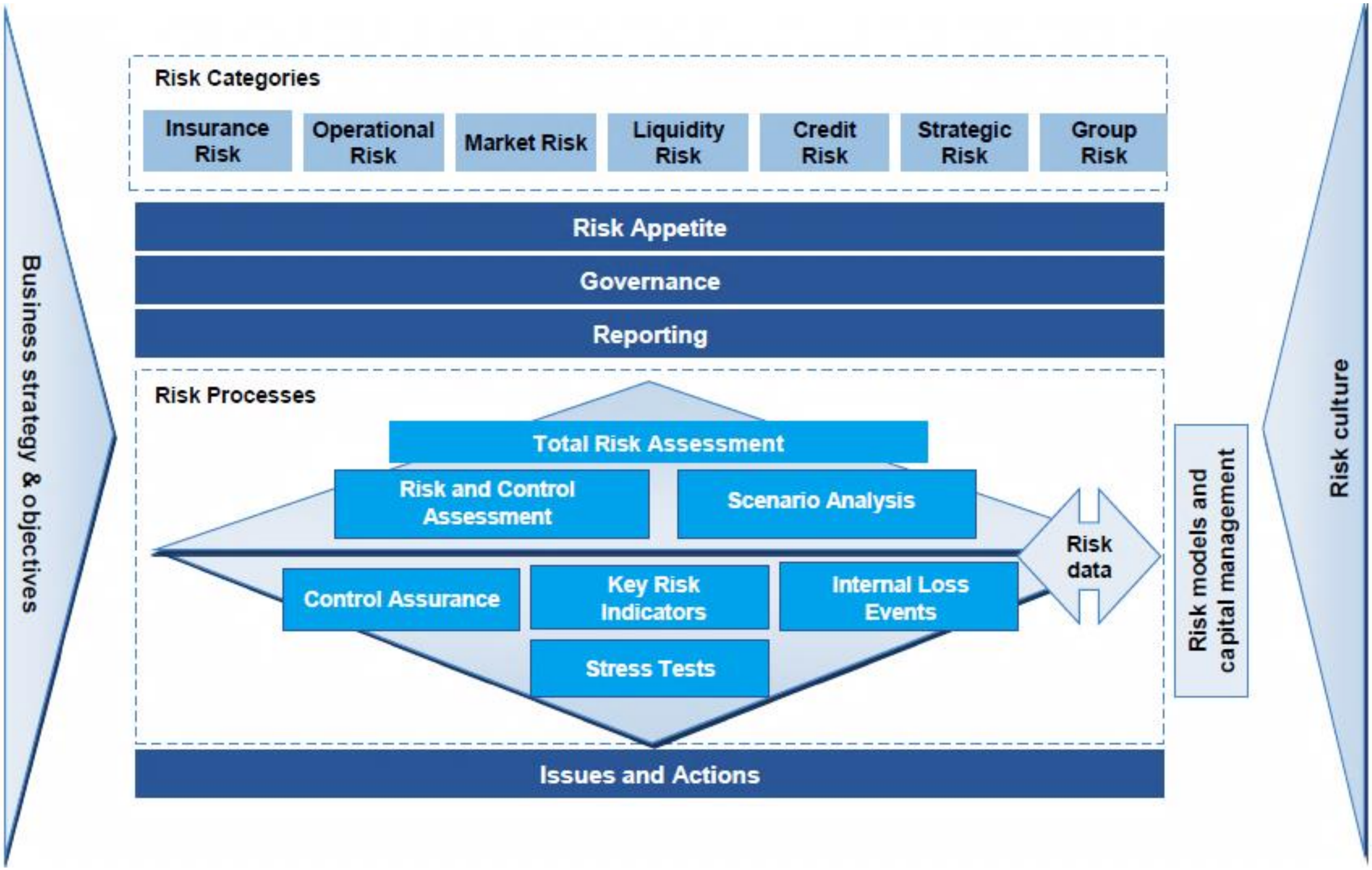
ERM Framework for Insurance I



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Operationalizing ERM Framework II

ERM Framework

Key Strategic Initiatives & Business Objectives

Risk Governance
- Board of Directors
- Org. Structure
- Risk Committee
- Risk Appetite

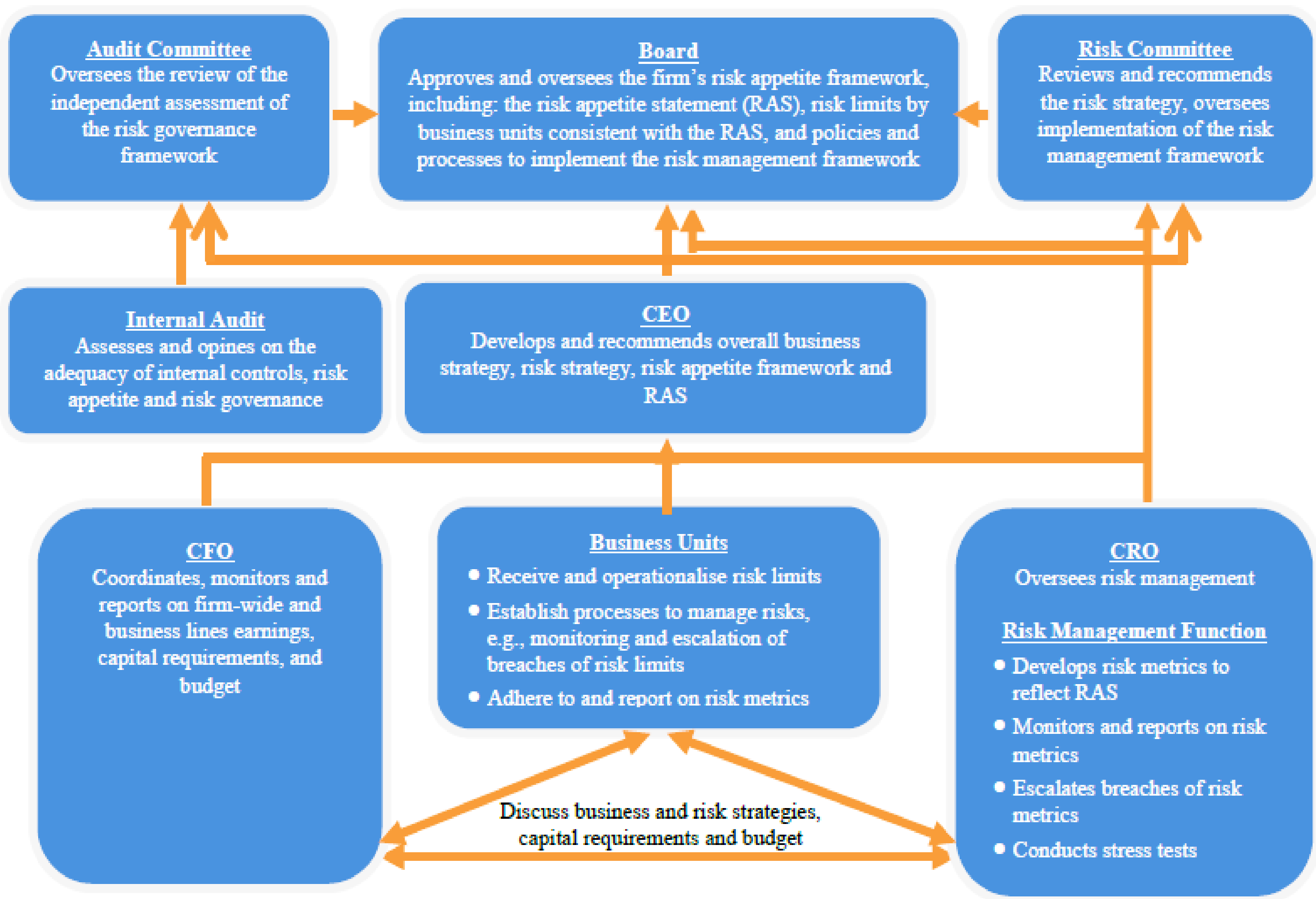
Risk Universe
- Strategic Risks
- Insurance Risks
- Financial Risks
- Operational Risks

Risk Processes
- Risk Inventory
- Risk Assessments
- Risk Optimization
- Risk Modeling

Monitoring & Reporting
- Loss Events
- Risk Issues
- Action Plans
- Risk Reporting

Risk Governance

Risk Governance



Source: *Financial Stability Board (FSB) Thematic Review on Risk Governance*

Risk Assessments

Business Objectives Approach

Applying a Business Objectives Driven Approach to an ERM Framework

Insurers should focus on the combination of strategic planning, risk and economic capital results in good business decisions. The aim is to meet strategic objectives and generate an optimum return for shareholders

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Risk Universe Approach

Insurance Carrier Risk Universe

Strategic	Insurance	Financial	Operational
• Execution	• Underwriting	• Investment Market	• Employee & Culture
• Capital Management	• Reserving	• Counterparty Credit	• Information Systems
• Earnings Management	• Pricing	• Capital Adequacy	• Business Process
• Rating Agencies	• Claims Management	• Financial Flexibility	• Financial Crime
• Competition	• Distribution	• Liquidity	• Service Provider
• Macro Economic	• Reinsurance	• Accounting	• Business Continuity
• Reputational	• Natural Hazard	• Financial Reporting	• Compliance
• Emerging Risks	• Terrorism	• Budgeting	• Legal & Political

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Sample Risk Register I

Key Risk Areas	Risk Register Items
Strategic Risk	1. Execution (strategy, objectives, governance & acquisition) 2. Capital management (capital at risk & capital structure) 3. Earnings management (earnings at risk & volatility) 4. Rating agency management (meeting expectations, loss of rating) 5. Competition (market cycle, customer needs, market environment) 6. Macro economic (policyholder behavior, demographics, consumer trends) 7. Reputation & stakeholder (brand erosion, contagion) 8. Emerging risks (climate & social change, latent liabilities, new technology)
Insurance Risk	9. Underwriting (risk selection, coverage, delegated authority management) 10. Reserving (case reserving, liability claim exposure, disease & disability) 11. Pricing (exposure & rate adequacy, product design) 12. Claims management (leakage, loss control, salvage & subrogation) 13. Distribution (channel & producer management, availability of opportunities) 14. Reinsurance (structure & performance, aggregate management) 15. Natural hazard (wind, earthquake, flood) 16. Terrorism (coverage & location exposure)

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Sample Risk Register II

Key Risk Areas	Risk Register Items
Financial Risk	17. Investment market (volatility, concentration, interest & reinvestment rate) 18. Counterparty credit (investment, receivables, vendors) 19. Capital adequacy (risk of ruin, BCAR, RBC) 20. Financial flexibility (access to capital markets, alternative forms of capital) 21. Liquidity (cash flow needs, illiquid assets, asset-liability management) 22. Accounting & tax risk (accounting standards & policies) 23. Financial reporting (statutory & related filings, internal controls) 24. Budgeting (accuracy of balance sheet & income statement projections)
Operational Risk	25. Employee & culture (talent, change & performance mgmt., succession planning) 26. Information systems (project management, data management) 27. Business process (project management, control environment, communication) 28. Financial crime (fraudulent activities, internal & external theft) 29. Service provider (outsourcing & vendor management) 30. Business continuity (loss of power, disaster recovery, supply chain, pandemic) 31. Regulatory & compliance (changes in statutory regulation & employment practices) 32. Legal & political (changes to legal or political environment, ethical standards)

Risk Appetite

Risk Appetite, Tolerances & Limits

Risk Appetite – The amount and type of risk an organization is willing to accept in pursuit of its objectives at a high level. Ideally should be stated quantitatively, in context of risk & return, and define how an organization communicates its risk taking strategy to key stakeholders. Set and endorsed by the Board through discussion with management.

For example: Investment portfolio should generate a return greater than 4% of the risk-free rate of return, with standard deviation of the portfolio expected to be less than 10%.

Risk Tolerance – Quantitative boundaries that control the amount of risk a company takes. Risk tolerances are typically narrower than risk appetite statements, and set an acceptable level of variation around objectives. Exceeding risk tolerance will typically trigger a management action plan.

For example: Risk tolerance could be to maintain an asset allocation mix of 60% bonds, 25% stock and 15% other alternative types of investments.

Risk Limits – Risk limits are even more granular that risk tolerances and generally expressed in dollar amounts, within a specific type of risk or business unit, and used to monitor and organization's risk exposure.

For example: Risk limits could be that no single investment should be greater than $10 million, or 1% of invested assets.

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Sample Risk Appetite Statements

Strategic	• Company has sufficient Economic Capital at a probability of XX% (or risk or ruin in less than Y%) • Combined ratio of less than XX% should be achieved over Y year period at ZZ% probability • Probability of losing more than X% of capital & surplus should be less than Y% over Z years • Achieve capital & surplus growth of at least X% in Y out Z years • Target Best Rating of "X" and maintain Best's Capital Adequacy Score (BCAR) greater than XXX% • Maintain NAIC Risk Based Capital (RBC) of at least XXX%
Insurance	• Achieve a renewal retention ratio of at least XX% coupled with rate change of (+/-) Y% • Probability of loss reserve deterioration greater than X% should be less than YY% over Z years • Loss reserves should be within X% (+/-) of central point estimate • Maximum Event Retention, at a 1 in XXX year level, should not exceed X% of capital & surplus • Annual aggregate catastrophe & large losses (grater than $Xm) to be less than XX% of earned premium
Financial	• Probability of a generating a net loss of X% should be less than Y% over Z years • Greater than a XX% chance that risk-adjusted returns will exceed Y% over Z years • ROR to exceed risk-free rate of return by XXX basis points with standard deviation less than XX% • Market value of investments should not decline by more than XX% in chosen stress-test scenarios • Acquisitions should be earnings accretive in X years
Operational	• Operational risk losses should not exceed X% of budgeted profit at YY% probability • All "high risk" management action plans should resolved within XX days • Pension plan liabilities should be funded at a rate greater than XX% • Voluntary turnover should be less than X% of the employee base on an annual basis • Cost of salaries and benefits should not exceed Inflation by more than XXX basis points • Customer satisfaction survey results should be greater than XX% • All processes, people, and systems deemed "critical" should be recoverable within X days

Economic Capital Model

A.M. Best Capital Model: Overview

BCAR Ratio = Adjusted Surplus / Net Required Capital

Adjusted Surplus

Reported Surplus (PHS)

Equity Adjustments:

- Unearned Premiums
- Assets
- Loss Reserves
- Reinsurance

Debt Adjustments:

- Surplus Notes
- Debt Service Requirements

Stress Test Adjustments:

- Future Operating Losses
- Potential Catastrophe Exp.

Economic Surplus (APHS)

Net Required Capital

Gross Required Capital (GRC):

- (B1) Fixed Income Securities
- (B2) Equity Securities
- (B3) Interest Rate
- (B4) Credit
- (B5) Loss and LAE Reserves
- (B6) Net Premiums Written
- (B7) Off-Balance Sheet

Covariance Adjustment

Net Required Capital (NRC)*

$$\text{*NRC} = \sqrt{(B1)^2+(B2)^2+(B3)^2+(0.5*B4)^2+[(0.5*B4)+B5)]^2+(B6)^2} + B7$$

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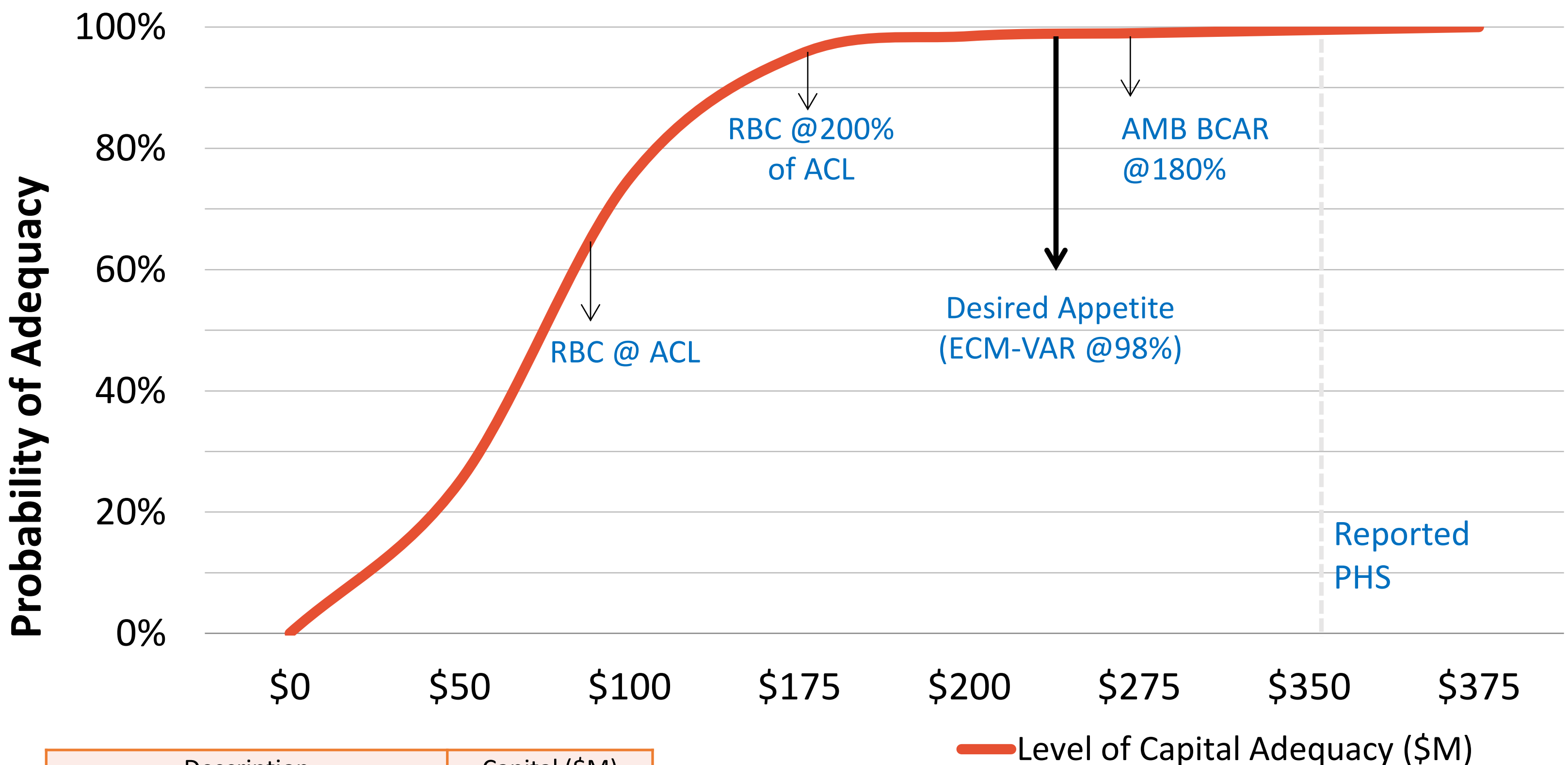
Capital at Risk

VAR = Value at Risk	Corresponds to a given percentile of a distribution (e.g., 98%)



Description	Capital ($M)
RBC ACL	90
RBC @200% ACL	180
ECM-VaR @98%	250
Minimum BCAR @180%	275
Reported Surplus	350

Risk Appetite Example: Maintain minimum Capital at ECM-VaR @98% level ($250M)

Capital Model Business Applications

- Quantification of key business risks
- Validation of corporate risk appetite
- Assessment of capital adequacy & earnings at risk
- Analysis of operational, strategic & emerging risks (e.g., scenarios)
- Review of capital allocation & related management compensation
- Analysis of reinsurance program & strategy
- Assessment of asset allocation & ALM strategy
- Review of business opportunities & alternative strategies

ECM Project Governance

- Project should be managed by management team, with broad based skill sets, working with executive management & Board involvement
- A broad based mix of skills are needed: finance, actuarial, underwriting, operational (e.g., legal & regulatory) and risk management
- Need the ability to guide project to ensure:
  - Buy-in from all stakeholders to actively support ECM usage
  - Availability of ECM team resources and that project remains on track
  - Team approach to maximize input from talent & share experiences
  - Access to key personnel (for model parameterization & validation)
  - Decision on key high-level objectives such as risk appetite statements
  - Strong review & challenge of ECM results

Project Outline

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Project Plan Status Update & Timeline

Step 1

Project Kick-Off & Planning Discussion with Carrier

One Hour Conference Call

Step 2

HSS Performs Initial Current State Risk Management Assessment

Two Weeks

Step 3

HSS Conducts Management Meetings with Relevant Carrier Executive (s)

One day

Step 4

HSS Presents Initial Analysis of ERM Activities for Review & Feedback

Two Hour Conference Call

Step 5

HSS & Carrier Work together to Develop Future State ERM Vision

Two Weeks to Prepare

Step 6

HSS Presents Carrier with logical next steps towards Carrier's Future State ERM Vision

Date & Venue TBD

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High Level Approach to Carrier Engagement

	Key Phases	Summary of Activity
1.	Project Kick-Off	• Confirm scope and objectives of the ERM Engagement • Conceptually agree on deliverables & estimate time-line for completion • Discuss information to be requested by HSS
2.	Review ERM Current State	• Conduct a review of current ERM activities & accountabilities
3.	Identify ERM Best Practices	• Highlight strengths & identify gaps in current ERM approach
4.	Conduct On-Site Management Meetings	• Review gap analysis findings • Develop a view of desired ERM Future State
5.	Consolidate Findings	• Provide recommendations to address gaps in the ERM Current State • Prepare high-level prioritized action plan to attain Future State
6.	Deliver Report	• Summarize findings, conclusions, and suggested next steps for discussion with Executive Management & other relevant Stakeholders

Suggested Project Plan & Estimated Timeline

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Project Kick-Off & Planning Discussion with Carrier	HSS Performs Initial Current State Risk Management Assessment	HSS Conducts Management Meetings with Relevant Senior Managers	HSS Develops Suggested Roadmap for ERM Implementation	HSS Delivers Carrier with Future State ERM Roadmap	HSS Presents Initial Analysis of ERM Activities for Review & Feedback
One Hour Phone Call	Two Weeks to Prepare	One Day of Meetings	Two Weeks to Prepare	Two Hour Discussion	Two Hour Meeting

HSS Initial Information Request:

After a “Project Kick-Off” discussion; we begin the process by requesting the following items where applicable:

1. Brief description of Carrier’s key business goals & objectives
2. Describe the objectives of Carrier’s risk management program today and in the future?
3. Description of roles & responsibilities, current and prospective, of person(s) responsible for risk management activities with Carrier. Include relevant operating structure and business unit reporting lines for these persons
4. Relevant information related to Carrier’s current risk management framework in areas such as: risk identification & prioritization; risk appetite, risk tolerance & limits; risk reporting & communication; risk culture & governance
5. Provide ERM related information submitted to Carrier’s most senior level risk committee including output from risk & control assessments performed by the organization
6. Summary level output from relevant financial models (e.g., RBC, BCAR, economic capital, financial projections, loss reserve estimates & catastrophe exposure), include reference to roles & responsibilities for persons preparing models
7. ERM related information submitted to rating agencies and regulators, along with feedback received if relevant
8. Copy of ORSA Report (draft or final), if appropriate
9. Summary of Carrier’s key business policies including business continuity & disaster recovery and IT security
10. Other information Carrier would like HSS to review related to Carrier’s current risk management activities

Enterprise Risk Management Gap Analysis

- HSS will perform a review and analysis of the information you provide
- The HSS Assessment will put Carrier in a better position to:
  - Identify & deliver on your future state ERM objectives
  - Ensure ERM processes are aligned with criteria used by regulators (e.g., ORSA) rating agencies (e.g., A.M. Best and Standard & Poor’s) in their rating process
- The HSS review will be focused in three key areas:
  - Risk Management Framework
  - Assessment of Risk Assessment Processes
  - Assessment of Risk & Capital Models
- The output of Carriers project will include:
  - A synthesis of key themes identified from our review of the information provided
  - A gap analysis highlighting strengths and areas to potentially improve based on current risk management processes
  - Recommendations to address key gaps to support an enriched ERM future state approach

HSS’s review to assess the effectiveness of Carrier’s current risk management processes will included (but not be limited to) criteria outlined on the following pages.

ERM Review: Framework

Risk Management Area	Stage	HSS Risk Assessment Components
1. Risk Management Framework		
▪ Risk Culture & Governance		What is the organizations risk management governance structure? Are roles, responsibilities & accountabilities clearly defined? Does the risk culture support accountability in decision making? Does management & the Board mutually understand the cos. risk profile?
▪ Risk Identification & Prioritization		Who is responsible for ensuring risk identification & prioritization occurs? Are all key risks to meeting business objectives being identified? Are risks being assessed individually to determine relative importance? Is risk identification process functioning properly across the organization?
▪ Risk Appetite, Tolerance & Limits		Have formal risk appetite statements been developed? If so, are risk appetite states being operationalized in the business? Are risk appetite statements actionable? Do they reflect the up-side of risk? Are risk appetites (top-down) aligned with risk limits (bottom-up)?
▪ Risk Management & Controls		Are action plans developed to mitigate unacceptable risks? Are major issues & loss events being captured along with loss data? Are risk & control self-assessments being prepared? Are controls appropriately documented & tested?
▪ Risk Reporting & Communication		Are internal risk reports complete & disseminated in a timey basis? Are key risk exposures being aggregated in dashboard reports? Are results from risk assessments being communicated to managers? Does existing technology adequately support risk management needs?

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ERM Review: Risk Assessment

Risk Management Area	Stage	HSS Risk Assessment Components
II. Assessment of Risk Exposures		
▪ Strategic Risks		Are all key risks to meeting business objectives being analyzed? Is there a link between risk exposure & the decision-making framework? Does an effective dashboard risk reporting mechanism exist? Are key risk indicators or key performance indicators being utilized?
▪ Insurance Risks		Is distribution risk being addressed appropriately? Is the size & structure of the reinsurance program purchased appropriate? What is the organizations risk appetite regarding reserve adequacy? Are pricing risk, risk selection, coverage & delegated authorities evaluated?
▪ Financial Risks (e.g. Credit, Market & Liquidity)		Is liquidity and cash flow testing being done? Are assets & the investment strategy linked to the nature of liabilities? Are the impacts of interest rates & market price changes being recognized? Are accounting & tax risks being appropriately evaluated?
▪ Operational Risks		Are product development & design risk being evaluated? Is scenario analysis being utilized to evaluate operational risk? Are the results of operational risk being included in the capital model? Are the key risk indicators being utilized?
▪ Emerging Risks		Is there an emerging risk committee in place? Is there a formal way to identify & prioritize emerging risks? Are magnitude of emerging get reported to management & the Board? Does the Company actively participate in ISO Emerging Risks Group?

ERM Review: Risk Capital

Risk Management Area	Stage	HSS Risk Assessment Components
III. Assessment of Risk Capital		
▪ Risk & Capital Model Overview	Green	Are internal risk & capital models being prepared? Which vendors are used? Who is responsible for running these models? What are model assumptions are being made & what documentation exists? How frequently are models being run and what is quality of data utilized? Are processes and procedures formally documented? Is there an independent review of modeling processes? Are capital & financial models understood & trusted by management?
▪ Estimating Risk Capital	Yellow	Are all key risks being captured in economic capital modeling? Are capital model risk charges factor based, deterministic or stochastic? What assumptions are made about risk correlation? Is credit given for diversification? If so how is Carrier's determined? Which risk capital metrics are being utilize? Probability of ruin, VAR, TVAR? At what percentile is the solvency security standing utilized defined? Is the capital assessment forward looking? If so, at what time horizon?
▪ Uses of Risk & Capital Models	Red	What are the business uses of risk & capital models? Does the reinsurance program design reflect risk modeling? Are outputs from capital models used for performance management? Are outputs from capital & financial models linked to business planning? Are Economic Scenario Generators used in capital modeling process? Is scenario analysis or stress testing incorporated into modeled results? Is economic capital being allocated to specific business units??

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