Integrating Quantitative and Qualitative Components in an ERM Framework

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ERM Framework and the Challenge Function

1. Risk management oversight
2. Articulate views on risk management
3. Approve risk appetite

Board of Directors

First Line of Defense – Business Units	Second Line of Defense – Control Functions	Third Line of Defense – Internal Audit
Business Units & Functions	**Risk Management (ERM)**	**Internal Audit**
Business units have primary risk ownership responsibilities:	Risk management and other second line functions have standard setting, oversight and reporting responsibilities.	IA operates independently from the business and second line functions,
• Identify • Control • Monitor • Report	• Set standards • Identify • Challenge • Recommend • Monitor • Report	• Test • Assure • Monitor • Report
• Measure • Quantify	• Measure • Quantify	

Qualitative

Quantitative

ERM Framework and the Challenge Function

Today's session will focus on the five aspects of an ERM program listed below.

Board of Directors

First Line of Defense – Business Units	Second Line of Defense – Control Functions	Third Line of Defense – Internal Audit
Business Units & Functions	Risk Management (ERM)	Internal Audit

RCSA (Risk Control Self Assessment)

ERM in Business Planning

Models and Scenario Testing

Model Risk Management

Risk Reporting and Action plans

RCSA

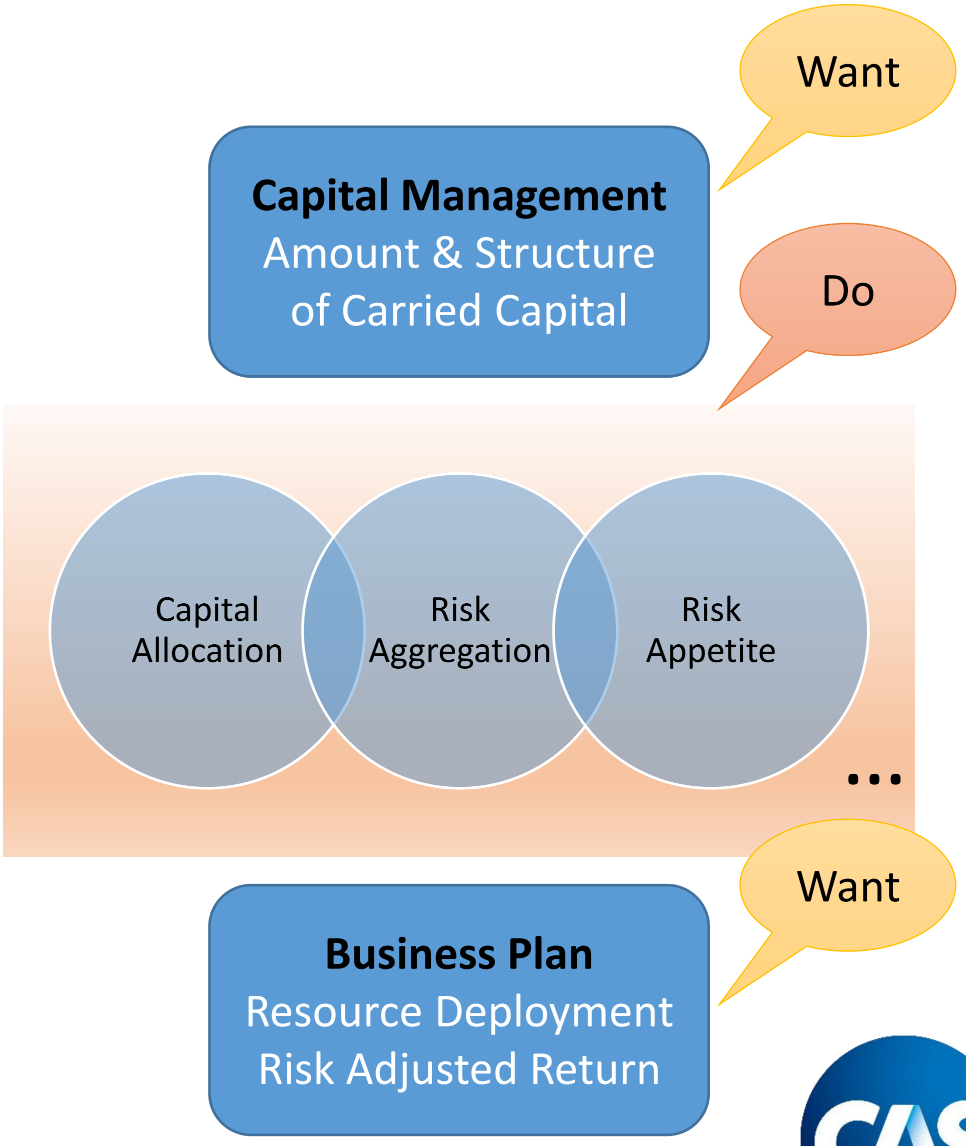
- RCSA (Risk Control Self Assessment) is a foundational ERM process for determining the risk profile for the enterprise
  - Also known as “business risk assessment” and “enterprise risk assessment”
  - Essentially provides (collectively) the business view of risk levels across the enterprise
  - Risks are assessed at a somewhat granular level within the major (Level 1) categories of Insurance, Market, Credit, Liquidity and Operational (sometimes Strategic and other risks are included as Level 1 risks
- RCSA’s involve a qualitative expert judgment process to produce quantitative metrics to describe risk levels
  - Inherent and residual risk levels
  - Likelihood (probability) and impact ($’s) estimates
  - Control effectiveness estimates
- Role of RCSA in:
  - The challenge function
  - Making the numbers matter
  - Embedding ERM
  - Making ERM practical
- QUESTION: what purposes does the RCSA (or equivalent) process serve at your company?
  - A) We don’t have a capital model so RCSA is used to quantify our risk profile
  - B) We use RCSA to identify our top risks and control remediation priorities
  - C) We use RCSA to identify the risks that are subject to stress testing
  - D) We don’t have an RCSA process
  - E) Other

ERM in the Business Planning Process

- Business Planning should be an inherent risk management process
  - Business plans should be partly geared towards responding to key risks
  - Business plans will embody risks that need to be evaluated
- The second line ERM function should set the standards for formalizing risk management to support the Business Planning process
  - Establish linkage between risk appetite, tolerances and risk limits to the Business Plan
  - Develop protocols for business leaders to “sign-off” on risk levels implied by the Business Plan
  - Ensure appropriate risk oversight authority over the Business Planning process (by management and the board)
- Assumptions at the portfolio level
  - Business planning loss ratios, RoE and other risk metrics
  - Reserving loss ratios for the current year
- Assumptions at the account level
  - Pricing and the underwriting decision
  - Consistency with portfolio level assumptions
  - Rate level monitoring and production management
- Role of ERM and the Business Planning process in:
  - The challenge function
  - Making the numbers matter
  - Embedding ERM
  - Making ERM practical
- QUESTION: which best describes your pricing practices on an individual account level
  - A) Underwriter makes decision on account without analytical support or uses mode to back into desired or market price
  - B) Underwriter uses a pricing model in conjunction with underwriting guidelines
  - C) Actuary is directly involved in underwriting decision for select accounts
  - D) Underwriting decision requires sign off of actuary for most or every account

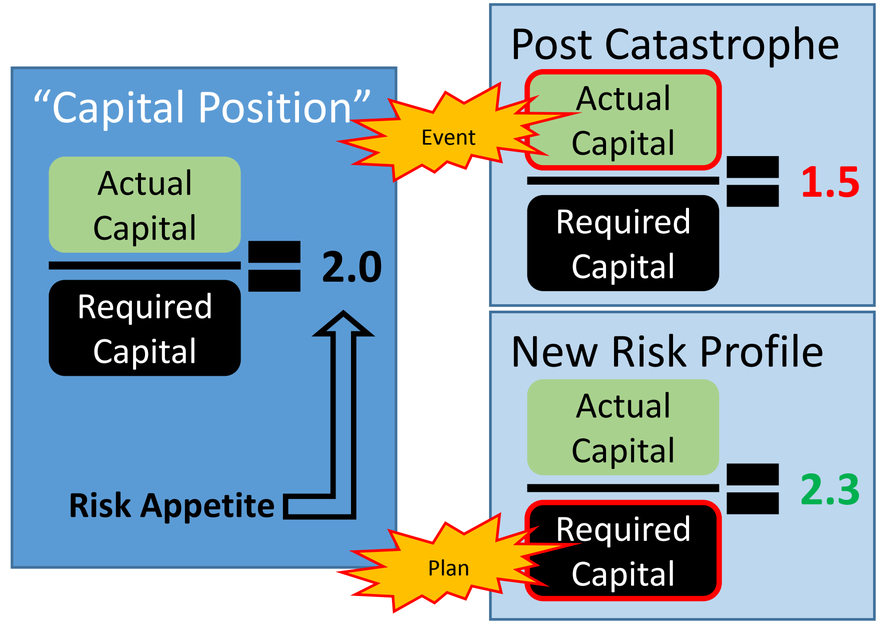
Risk & Capital Models

- What we want is clear
  - Good planning and capital management
- What we do varies widely
  - Across the industry the scope and quality of risk modeling is inconsistent
  - Complexity undermining effectiveness is a persistent problem for many
- Complex models
  - Advanced models are required for some risks
  - Assumption governance and validation should be priorities
- Scenarios Models
  - Simple models can outperform complex models
  - Effective Challenge informed by models is an important objective

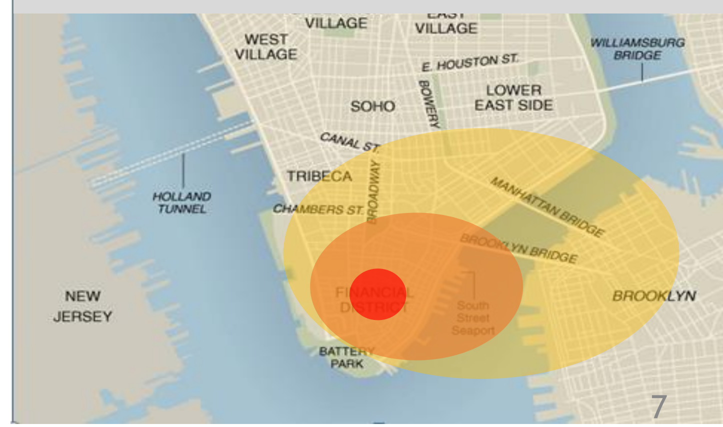


Scenario Testing

- Scenario models provide clarity
  - Repeatable inventories of scenarios provide valuable exposure monitoring for management
  - ***Event scenarios*** impact carried capital to test balance sheet resiliency *(deterministic)*
  - ***Strategic scenarios*** enable testing of alternative business plans *(stochastic or factors derived from stochastic)*
- Risk appetite
  - 2X Required Capital is common
  - Conceptually equivalent to going concern survival of a tail event
- ORSA
  - Combining event and factor based strategic scenarios can be an effective approach to prospective solvency assessment
- Emerging and complex risks
  - Realistic disaster scenarios



Wall Street Dirty Bomb



Model Risk Management

- Model risk management is becoming more critical
  - Insurance companies are becoming more reliant on models to support business decisions
  - Models are becoming more complex
- Model risk management involves a number of important activities
  - Governance
  - Risk assessment
  - Validation
  - Remediation
  - Monitoring and reporting
- Role of Model Risk Management in:
  - The challenge function
  - Making the numbers matter
  - Embedding ERM
  - Making ERM practical
- QUESTION: which best describes your model risk management framework?
  - A) No formal company-wide MRM framework in place
  - B) MRM framework is under consideration or in development
  - C) Portions of an MRM framework are in place (e.g., model inventory, risk assessment, validation)
  - D) Fully functional company-wide MRM framework is in place
  - E) What is MRM?

Reporting and Action Plans

- Risk Dashboard
  - Position relative to risk limits or tolerances
  - Operational risk losses and near misses
  - Action plans for breaches
- Action Plans
  - First, Second, and Third line audits
  - Reporting to management and Board
  - Tracking Action Plans and Target Dates
- QUESTION: which best describes your Internal Audit function
  - A) We typically don't use actuaries within the Internal Audit function
  - B) We periodically use external (co-sourced) actuaries to support Internal Audit activities
  - C) We have employed actuaries within our Internal Audit function to regularly support audit activities

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