Creating a Framework for Risk-Adjusted Performance Measurement

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Agenda

- Risk and Value Governance
- Framework for Risk Adjusted Performance Measurement
- Implementation Challenges
- Case Study
- Summary

Risk and Value Governance

Boards And Executives are asking…

Risk Governance

- Are we taking the right risks?
- Are we taking the right amount of risk?
- Do we have the right processes and tools to manage risk?

Value Governance

- Where is our capital deployed?
- Is our performance creating value?
- Do we have the right processes to manage value?

How many of you are helping to answer these questions?

Risk Adjusted Performance Measurement Framework

- Consistent and equitable view of the financial impact of risk across all products
- Framework for better decision making
- Greater accountability for impact of risk on financial performance
- Greater transparency in communication with analysts and rating agencies

Framework for Risk Adjusted Performance Measurement

(RAPM)

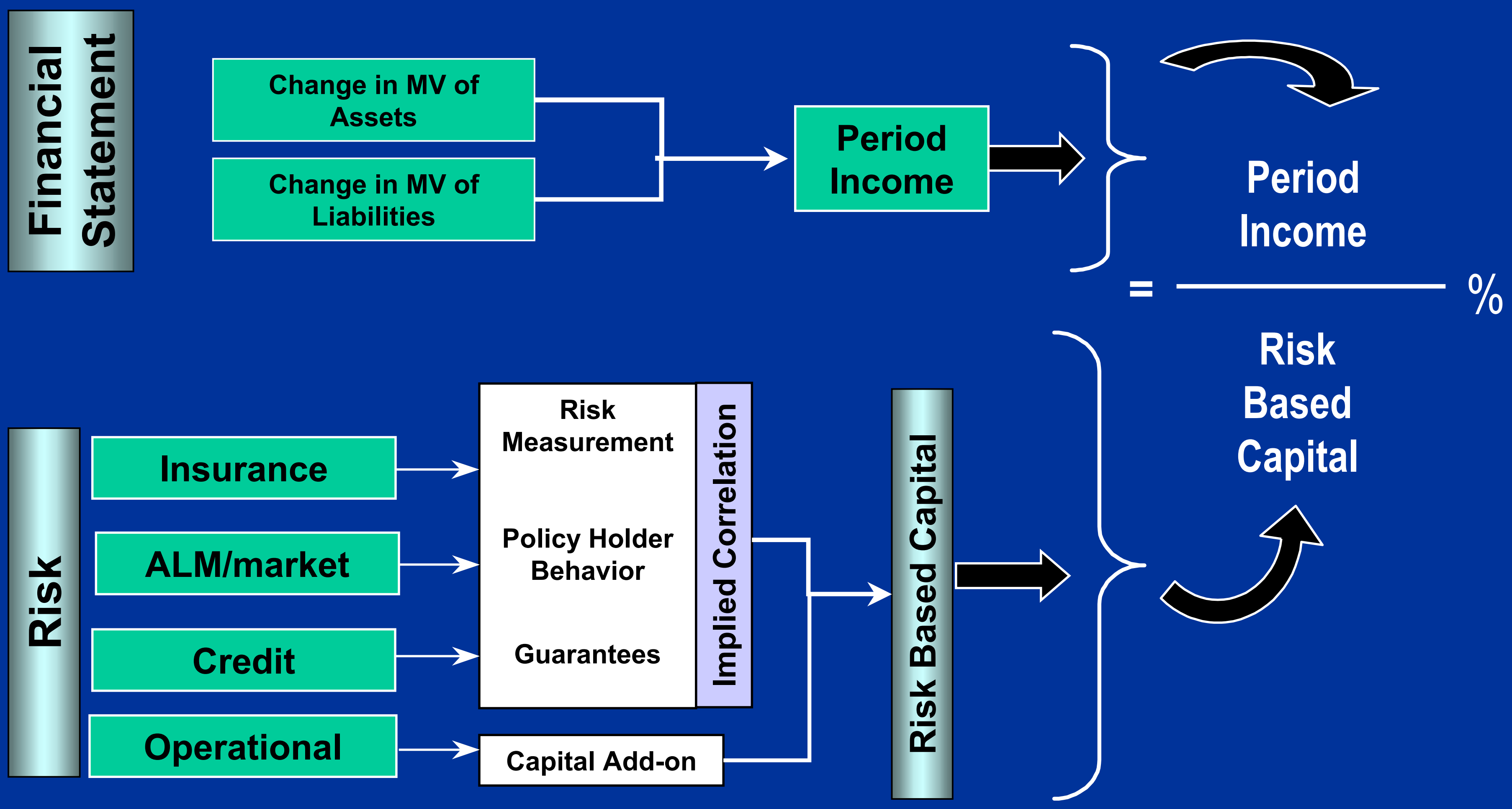
RAPM Foundation: Linking Risk to Value

Risk destroys economic value when:

- Supporting capital earns inadequate return
  - Unrecognized increase in capital requirements
  - Inadequate pricing
- Resulting earnings volatility inflicts economic losses
  - Loss of tax benefits
  - Foregone investments opportunities

The primary purpose of RAPM is to help manage the risk-value relationship

Framework for Risk Adjusted Performance Measurement



Methodology Components

Identify Risk

- Product Inventory
- Risk Inventory
- Prioritize Risk Elements

Measure Risk

- Risk Profiles
- Time Horizon
- Correlation

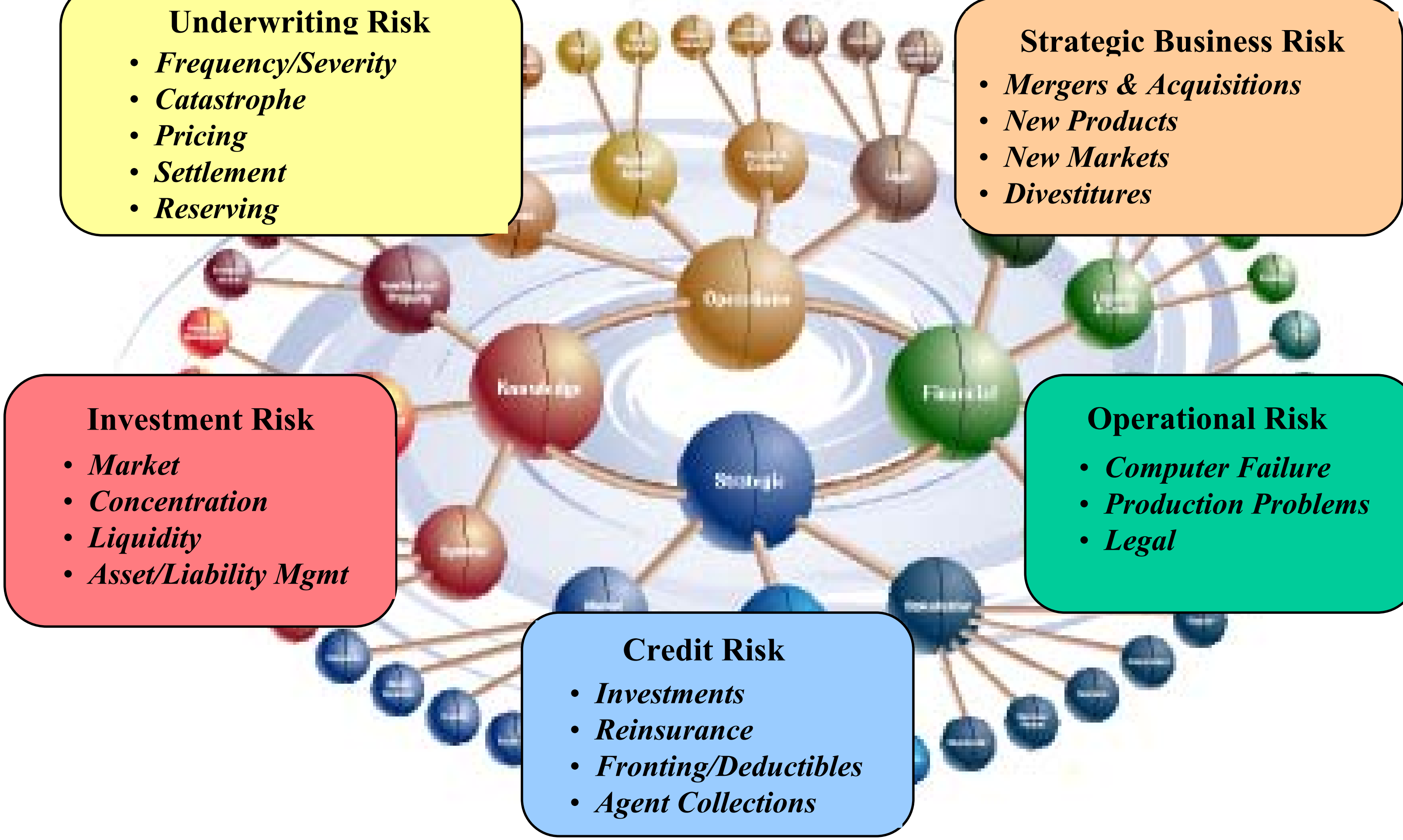
Determine Capital

- Risk Framework
- Risk Tolerance
- Diversification

Evaluate Return

- Income Definition
- Stranded Capital
- Hurdle Rates

Insurer's Risk Universe



Underwriting Risk
- *Frequency/Severity*
- *Catastrophe*
- *Pricing*
- *Settlement*
- *Reserving*

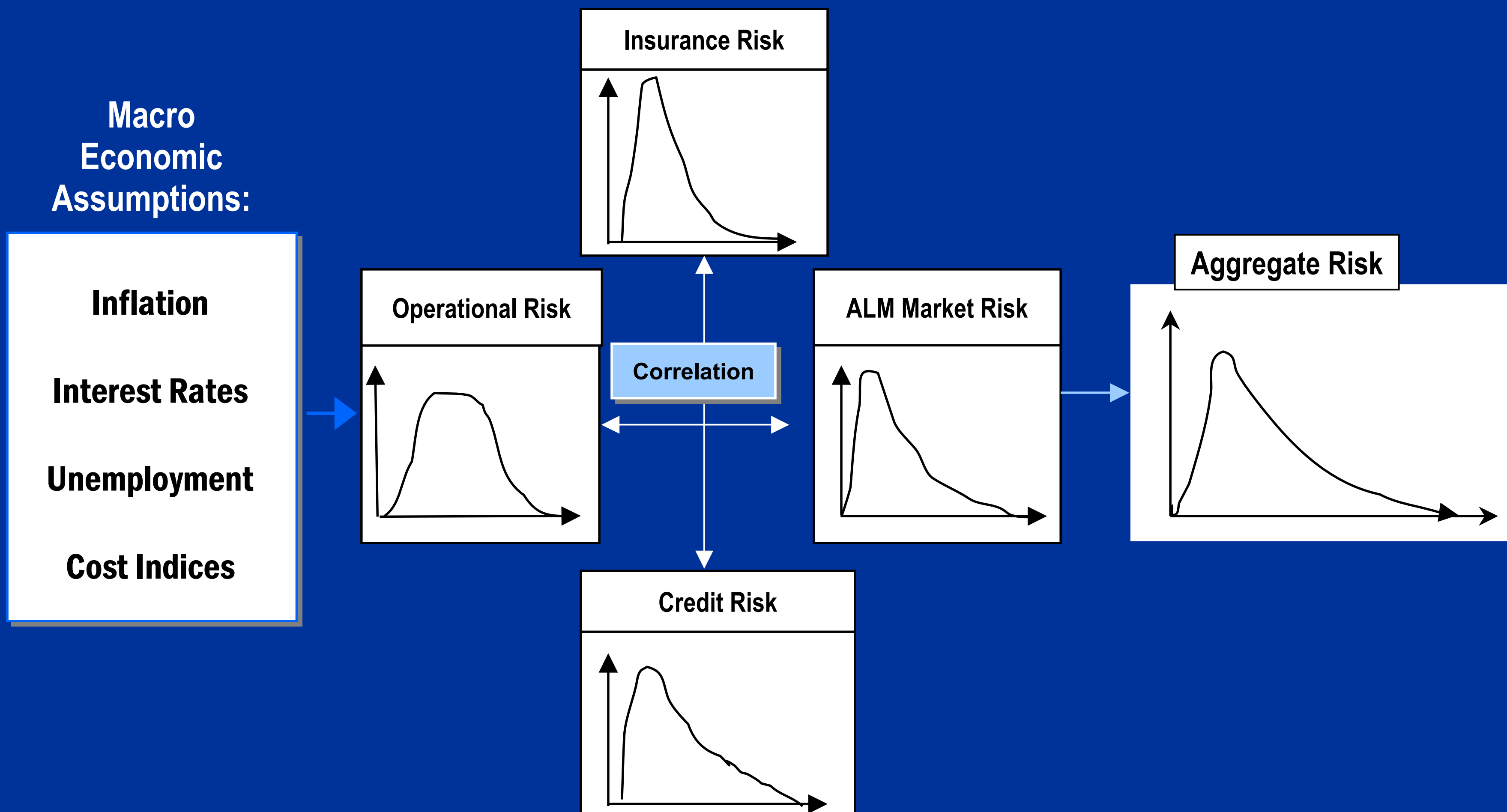
Strategic Business Risk
- *Mergers & Acquisitions*
- *New Products*
- *New Markets*
- *Divestitures*

Investment Risk
- *Market*
- *Concentration*
- *Liquidity*
- *Asset/Liability Mgmt*

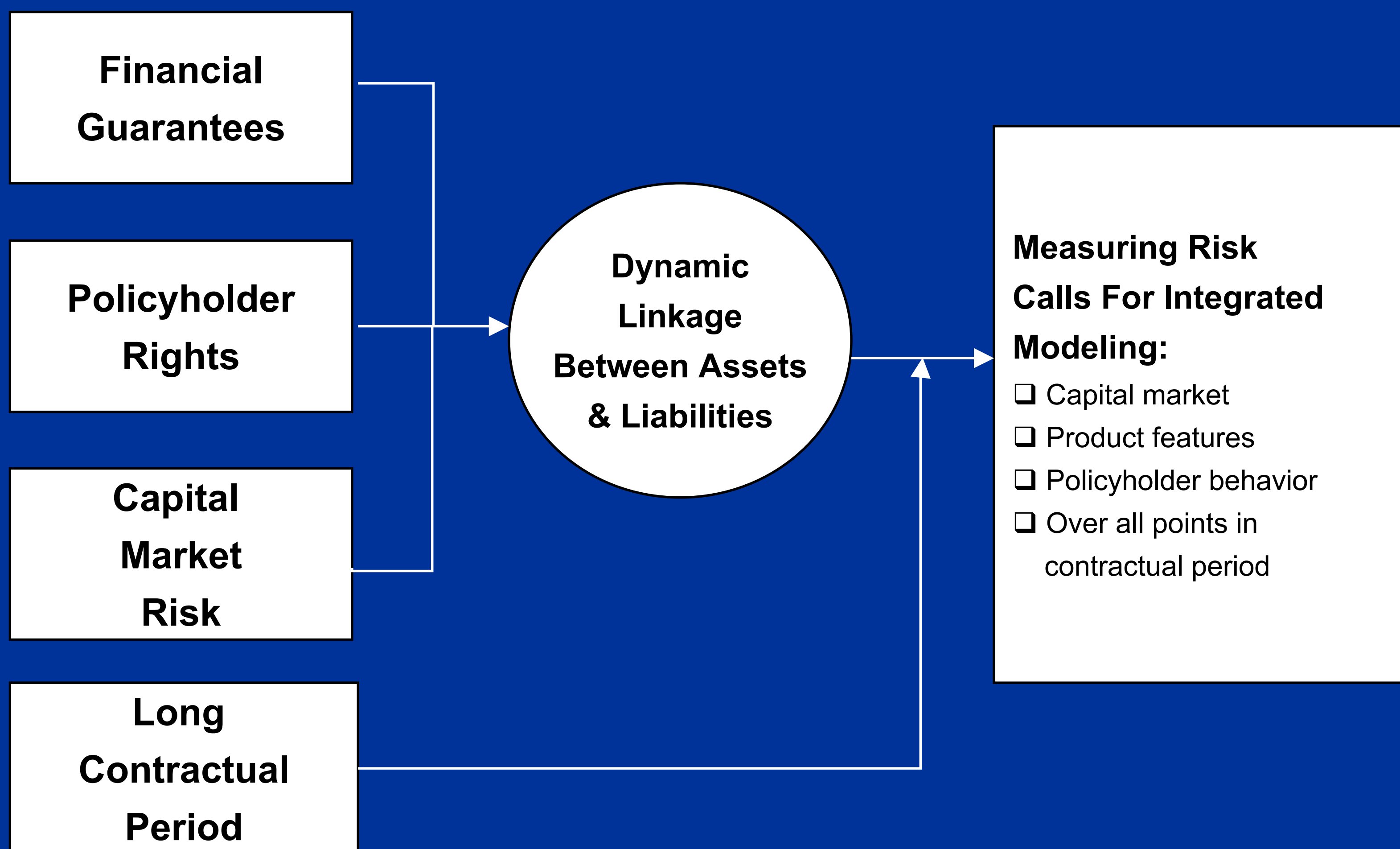
Operational Risk
- *Computer Failure*
- *Production Problems*
- *Legal*

Credit Risk
- *Investments*
- *Reinsurance*
- *Fronting/Deductibles*
- *Agent Collections*

Measuring Risk



Measuring Risk for Life and Annuity Businesses



Implementation Challenges

Implementation Challenges: Measuring Risk Based Capital

- Measuring economic value volatility and the risk of insolvency
- Confidence level
- Time horizon of risk assumption
  - Multi-period view and associated growth rates
- Cross-risk and cross-business correlations
  - Risk aggregation methodology
- Allocation of diversification benefits

Measuring Insurance & Catastrophe Risk

- Data collection for mature lines
- Data availability for new products
- Loss distribution estimation
- Correlation measurement between product/risk types
- Ability to model certain risk types

Measuring Investment Risk

- Definition of interest rate and equity market models
- Asset / liability matching
- Reinvestment and funding considerations
- Correlation of risk parameters
- Prepayment and credit spread modeling

Measuring Credit Risk

- Point-in-time vs. through-the-cycle rating
- Exposure At Default (EAD) assumptions
- Loss Given Default (LGD) assumptions
- Default and LGD correlations

Measuring Operational / Business Risk

- Top-down vs. bottom-up
- Practical methods of quantification
- Incentives to reduce risk capital

Measuring Period Income:

- Attribution of investment risks and investment income
- Revenue and expense allocations
  - GAAP to economic value adjustments
  - Tax considerations
  - Robustness of cost allocations
- Treatment of excess regulatory or rating agency capital

Change Management Challenge: Securing Buy-in

Risk and capital management initiatives are not typically seen by operating entities as supporting their goals

	Corporate Center	Operating Entities
Primary Audience	Investors	Customers/local environment
View of Risk	Aggregate across enterprise	Product related
Risk/Capital Decisions	Direct: – capital deployment – reinsurance – asset allocation	Indirect: - product mix - product design - product pricing
Return Management	Strategic capital deployment	Creation of competitive advantage

Change Management Challenge: Building a Bridge for Success

- Successful integration of risk and capital management calls for implementation plans that have the following key elements:
  - Communication plan
  - Corporate sponsorship of tools and resources
  - Dedicated corporate support of the implementation effort
  - Development of operating entity specific benefits
  - Linkage to incentive compensation
  - Product specific adaptation of the methodology

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Case Study

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Why Risk Adjusted Performance Measurement (RAPM)?

- Consistency of relative performance measurement across the group
- Updating of S&P factors
- Better business decisions

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Objectives

- Development of consistent performance metrics
  - Multiple business units
  - Worldwide
  - Reconciliation to S&P capital
  - Attribution of investment income
  - Attribution of credit costs
- Enhancement of Business Decisions
  - Business portfolio management
  - Product development & pricing
  - Communication with third parties
- Support next planning cycle with interim framework

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Interim Performance Measurement

$$\text{Return on Capital} = \frac{\text{Adjusted GAAP Income}}{\text{Attributed Capital}}$$

GAAP Income, Adjusted to reflect:

- Attribution of investment income
- Attribution of credit costs

Attributed S&P Capital

- Based on contribution of business unit to aggregate underwriting and reserving risk
- Investment risk and credit risk excluded in first iteration

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Interim RAPM Development

Business Unit Risk Measurement * → Development of Risk Correlation Matrix → Risk Aggregation & S&P Capital Attribution → GAAP Return on Risk Capital

Business Unit Risk Measurement *

- Underwriting risk
  - LOB
  - Primary/excess
  - Guaranteed cost vs. loss sensitive
- Reserving risk

Development of Risk Correlation Matrix

- Inflation sensitivity
- Region
- Line of Business
  - Primary
  - Excess

Risk Aggregation & S&P Capital Attribution

- Normal approximation
- Closed form solution
- Balance to S&P capital

GAAP Return on Risk Capital

- Back testing with prior year results

* Credit Risk and Asset Risk not included in first iteration

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Overcoming Challenges

- Data issues
- Resource capacity
- Buy-in
- Calibration for consistency across businesses

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RAPM Status Report

- Attribution of capital to business units accomplished in eight weeks
- Validation of alternative approaches in two selected units
  - Higher granularity level
  - Greater differentiation of capital charges
- Reasonableness of results verified through back testing with 2002 results
- Approach to framework extensions and enhancement is being developed

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Next RAPM Enhancements

- Stochastic modeling of certain risks
- Measurement of “economic” capital
- Reconciliation of performance metrics based on economic capital and S&P capital with reported financial results
- Refinement of decision benchmarks
  - Single vs. differentiated hurdle rates
  - Differentiation of return targets
- Enhancement of the data infrastructure
- Integration of RAPM into management reporting

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Lessons Learned

- Focus resources on accomplishment of objectives
- Get buy-in of big business unit people ASAP
- Achieve useful results early (months, not years)
- Plan for continuous improvement
- Build the support infrastructure