

ERM Symposium 2006

Exploiting Risk



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You're in good hands.

April 25, 2006

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Agenda

- ◆ **Risk Opportunity Defined**
- ◆ **ERM Process at Allstate**
 - Process Sketch
 - ERM Modeling
 - Risk Opportunities: Real World Applications
- ◆ **Risk Opportunity Case Studies**
 - Capital / Product Optimization
 - Pandemic Planning
 - Risk Opportunity Leadership Forum
 - Reinsurance Optimization
- ◆ **Key Messages**

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Risk Opportunity Defined

♦ ***Risk Opportunity* can be characterized as:**

- Identifying and **exploiting natural hedges** and portfolio effects among businesses and other assets
 - Capitalizing on covariance benefits
- **Taking on additional, different, or bigger risks** by adopting an enterprise-wide view of risk
 - Better strategic decisions based on risk/return relationship
 - “Bigger sandboxes” at business segment level
 - Revenue enhancing, cost reduction or capital management activities
- **Having necessary tools**, metrics, etc. to optimize the dynamics among risk, capital and value
- Any risk treatment, response or activity that is **not defensive or compliance/governance based**

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ERM Process at Allstate

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ERM Process: About Allstate

Before we start talking about ERM, it might be helpful to know who we are...

- ◆ **The Allstate Corporation is the largest publicly held personal lines insurer in the United States**
- ◆ **Engaged primarily in the personal property and casualty insurance business and life insurance, retirement, and investment products business**
- ◆ **Market Rank (2004):**
 - #2 Property-Casualty
 - #13 Life
- ◆ **2005 Statistics:**
 - Revenues \$35B
 - Assets \$156B
 - Market Cap \$36B

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ERM Process: Requirements for Success

A successful ERM program connects culture, infrastructure, practices and stakeholders...

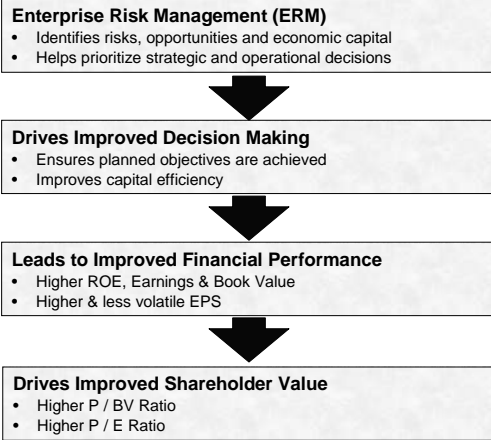
- ◆ **Engaged** senior management and board of directors
- ◆ Established risk management **policies, processes and owners** supported by a strong risk management **culture** to optimize value
- ◆ Clearly **defined risk appetite** with specific risk limits and business boundaries
- ◆ Strong risk-return **modeling and analytics** integrating ERM into strategic planning, capital management, key business processes and performance measurement
- ◆ Robust risk **communication and reporting** summarized in an “ERM dashboard”

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ERM Process: Objectives

The ultimate goal of Enterprise Risk Management is to help Allstate achieve its objectives driving higher levels of shareholder value...

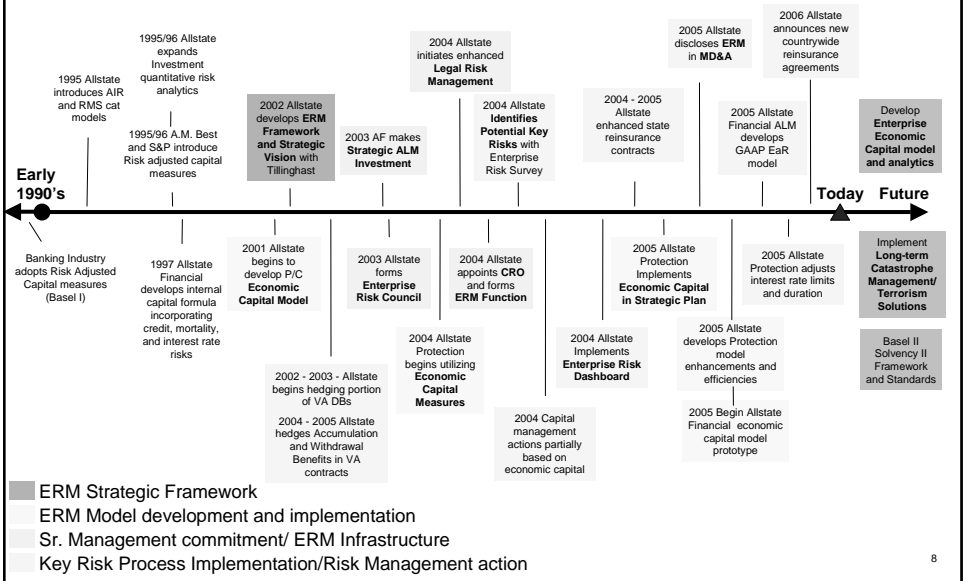


We view enterprise risk management as a strategic competitive advantage providing us with deeper insight into our businesses so that *we make even better decisions for all our stakeholders*; Our strong commitment to the ERM framework provides a coherent way to execute our strategies and corporate governance responsibilities and improve financial performance.

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ERM Process: Evolution

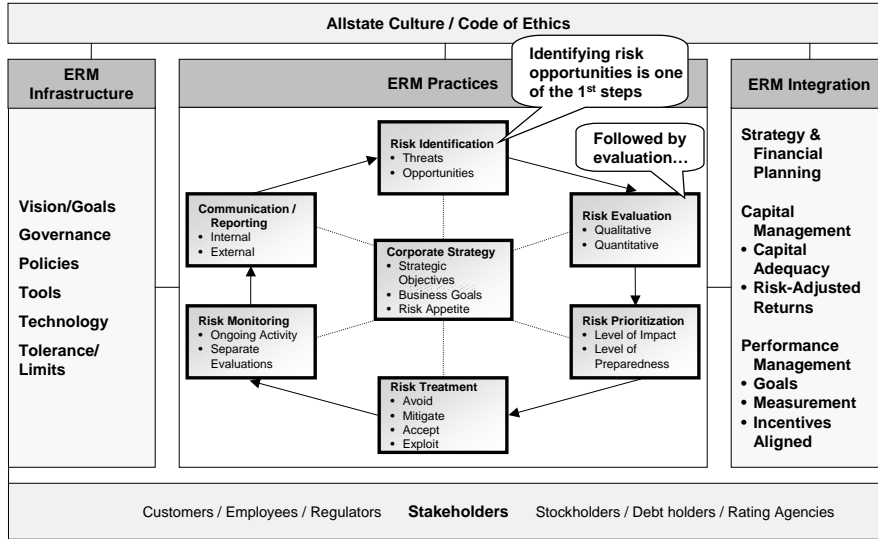
Enterprise Risk and Capital Management practices have evolved at Allstate over many years...



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ERM Process: Framework

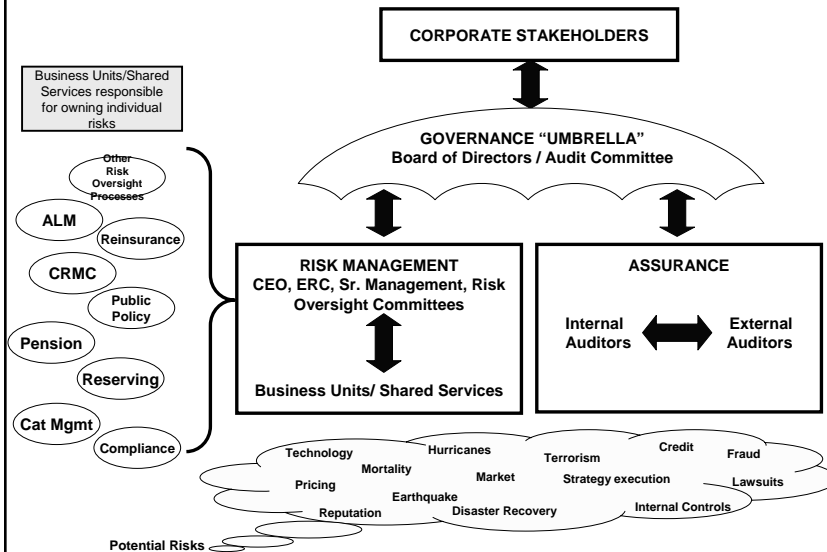
For Allstate, Enterprise Risk Management key practices continue to be developed, enhanced and integrated within the enterprise along the following key pillars...



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ERM Process: Governance Structure

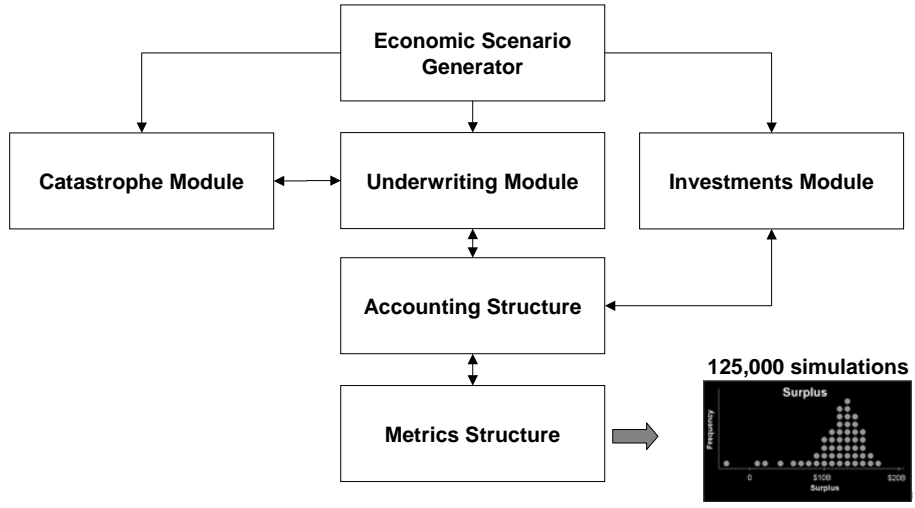
ERM is positioned in the center of Allstate's overall governance structure, encompassing various control mechanisms, committees and processes...



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ERM Process: Stochastic Modeling

Modeling plays an important role in risk opportunity evaluation. Allstate's Property/Casualty stochastic model incorporates the dynamic relationships between assets, liabilities, products and the macro economic environment...



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ERM Process: Stochastic Modeling

Stochastic modeling allows Allstate to study likelihood, magnitude and the interrelationship of various risks. Viewing the business at various points on the surplus distribution curve improves clarity and enhances risk-return decision making...

Illustrative

Stochastic Modeling

Surplus Distribution – Allstate Protection

Surplus distribution is built from stochastic risk modeling; interrelationships and aggregation of significant risks captured

Tail probability

- Risk of ruin default or solvency standard
- Usually anchored to observable corporate bond default rates
- Used to determine appropriate economic capital safety levels

Impairment probability

- Annual aggregate volatility standard (e.g. 10% surplus loss)
- Used to establish appropriate annual security level for surplus and establish aggregate risk limits

Other distribution points

- Rating agency/other stakeholders interested in other thresholds- e.g. insurance department company action levels

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ERM Process: Risk Opportunities

Risk opportunity analysis and evaluation will help ensure an organization is well compensated for the risks it takes...



- ♦ **Employ a systematic process to develop and evaluate risk/reward opportunity ideas**
- ♦ **Know your current risk profile and risk appetite**
 - Can't exploit risk if you don't know what risks your taking/how much you are willing to pursue
- ♦ **Draw on stochastic ERM models and analytics for evaluation of ideas**
 - Incorporate new opportunity ideas (cost/benefit distribution) to existing models
 - Agree on measurements and objectives (e.g. economic capital relief, volatility)
 - Compare changes to baseline values and calculate shareholder value
 - Opportunities that are less quantifiable are no less valuable, just more difficult to assess
- ♦ **Pursue opportunities if they add shareholder value within the context of one holistic portfolio**
 - Take into account impacts to other strategic imperatives and/or perceived constraints
 - Take into account co-variance credits
- ♦ **Appropriately and consistently measure and align risk opportunities pursued**
 - Effectively use performance management and incentive compensation

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ERM Process: Risk Opportunity Real World Applications

Allstate's ERM framework has been positioned and operationalized to help us take the right risks and the right amount of risk to achieve appropriate returns...

- ♦ **ERM framework and risk opportunity methodology practiced at Allstate**
- ♦ **Examples include:**
 - **Capital Planning & Optimization – Case Study 1**
 - Corporate Liquidity
 - Dividend Confidence
 - Operational Risk Options
 - Optimal Debt Levels
 - **Pandemic Planning – Case Study 2**
 - Rating Agency Conversations (S&P)
 - **Reinsurance Program Analysis & Optimization – Case Study 3**
 - Risk Identification and Assessment
 - Risk Limits and Trade-offs
 - **Risk Opportunity Leadership Forum – Case Study 4**
 - Share Buyback
 - State Product Options

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Case Studies

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Case Study 1

Capital/Product Optimization

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Case Study 1: Capital/Product Optimization

- ♦ **Exploiting natural hedges in the business between product lines**
 - Life products may be uncorrelated to non-life products
 - If one product overwhelmingly influences capital levels, other products can grow with minimal additional capital
 - Products can also be hedged across geographic areas (catastrophe areas vs. non-catastrophe affected areas)
- ♦ **Stochastic modeling may also identify a more appropriate capital level than deterministic formulas**
 - Better represents the covariance of the product portfolio
 - Maximize opportunities by understanding what drives capital requirements
- ♦ **Capital Model Demonstration**

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Case Study 2

Pandemic Planning

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Case Study 2: Pandemic Planning

- ◆ **The threat of Avian Flu presents a number of issues for companies:**
 - Mortality risk for life insurers, loss of workers/productivity, health insurance costs, investment risk
- ◆ **How could one respond?**
 - Business continuity planning
 - Risk transfer (reinsurance)
- ◆ **Is it possible for a company to have some natural hedge?**
 - CNN effect: at the start of the Gulf war people stopped driving for a couple of weeks, auto losses dropped
 - It is possible that in an Avian Flu outbreak, the mortality losses of the company may be offset by a substantial decrease in auto losses
- ◆ **Avian Flu Model Demonstration**

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Case Study 3

Reinsurance Optimization

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Case Study 3: Reinsurance Optimization

- ◆ **Reinsurance can be optimized across the organization when viewed in a global sense**
 - At what level are reinsurance decisions made?
 - Operating unit, division, state?
 - What risks are being reinsured?
 - Mortality, catastrophe, interest rate?
- ◆ **An ERM viewpoint can provide more complete information based on strategic goals**
 - What is the objective of reinsurance? Control volatility, avoid bankruptcy, regulatory?
 - A specific contract may not be aligned with the overall corporate strategy and may not add value if decisions are not evaluated at a portfolio level within the construct of an ERM framework
- ◆ **Reinsurance Demonstration**

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Case Study 4

Risk Opportunities Forum

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Case Study 4: Risk Opportunities Forum

- ♦ **Brainstorming process to solicit shareholder value enhancing ideas from across the company**
- ♦ **Cross Company input (Finance, Investments, Product, Tax, IT, HR) from 19 leaders across the organization**
- ♦ **Facilitators used to lead and structure process; any crazy idea considered**
- ♦ **Over 100 revenue enhancing, cost cutting and capital management ideas generated**
 - New business/products
 - Co-variance credit opportunities
 - Capital management
 - Process changes
 - Investment activity
- ♦ **Several projects sponsored by business areas and/or ERM for further evaluation and analysis; potential to add shareholder value with little or no capital charge**
 - Enterprise ALM (minimize capital requirements by considering total enterprise assets and liabilities and their optimal mix)
 - Reinsurance (evaluate options when considering total enterprise risk capacity and co-variance credits)
- ♦ **Ongoing discussion, review and reporting of risk opportunity projects with Allstate's Enterprise Risk Council (senior leadership risk committee)**
 - Formally measure and report not only governance responsibilities, but risk opportunity actions as well

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Key Messages

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Exploiting Risk: Key Messages

- ◆ **Lay the foundation**
 - You must have effective processes, models, systems and measurements in place
 - You must have management buy-in on ERM concepts
- ◆ **Continually identify opportunities to exploit risk**
 - As situations change, you must be able to adapt
 - New opportunities may develop as the corporate risk profile changes
- ◆ **Apply a holistic/portfolio viewpoint**
 - No risk should be evaluated in absence of all others
- ◆ **Integrate ERM risk-return thinking into all decision making practices**
 - ERM is a tool to achieve strategic objectives
 - All risk treatment decisions (whether to control, mitigate, transfer, exploit...) should be evaluated in the context of ERM risk/return tradeoff analysis

Exploiting Risk

Enterprise Risk Management Symposium Chicago, IL

Michael J. Belfatti
April 24, 2006

This document is incomplete without the accompanying discussion;
It is intended solely for the information and benefit of the recipient hereof.

Agenda

- Comparison of risk, capital and value
 - Insurance vs. restaurant chain

- Risk management themes in insurance

- Foundation for exploiting risk – exposure tracking

- Applications
 - Economic capital modeling
 - Insurance portfolio optimization
 - Credit risk tracking
 - Operational decisions
 - Pay for performance

Comparison of Risk, Capital and Value

risk  **Pronunciation Key** (rɪsk)
n.

1. The possibility of suffering harm or loss; danger.
2. A factor, thing, element, or course involving uncertain danger; a hazard: "the usual risks of the desert: rattlesnakes, the heat, and lack of water" (Frank Clancy).

tr.v. **ex-ploit-ed, ex-ploit-ing, ex-ploits** (ɪk-splɔɪt', ɛk-splɔɪt')

1. To employ to the greatest possible advantage: *exploit one's talents*.

- In thinking about exploiting risk, it is useful to compare the concepts of risk, capital and value in insurance to other businesses
- Today, we'll use the example of a restaurant chain

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Comparison of Risk, Capital and Value

- We often focus on the differences between insurance and other businesses. There are several important ones:

	Restaurant Chain	Insurer
Product	Physical quantity (food)	Intangible – guarantee of future payment
Cost of goods sold	Known at sale	Unknown at sale
Form of investment	Cash outlay for physical assets	Deadweight cost on financial assets supporting uncertainty
Product differentiation	Significant	Varies, but generally minimal by line
Approach to hazard risks	Hedge	Assume and hold
Threat to business	Operational ineffectiveness; Loss of demand for product	Adverse selection; mispricing

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Comparison of Risk, Capital and Value

- Nonetheless, there are significant similarities that can provide lessons for exploiting risk in insurance.

	Restaurant Chain	Insurer
Basis for entering the market	Possess expertise in market and/or other competitive advantages	Possess expertise in market and/or other competitive advantages
Exposure to economy and business cycle	Significant	Significant
Importance of geographic/regional influences	Significant	Significant
Value of diversifying earnings stream	High, but only if you know the new business	High, but only if you know the new business
Factors in success	Access to customer data and information; execution	Access to customer data and information; execution
Goal of risk management	Ensure available funds for value-enhancing investments	Ensure available funds for value-enhancing investments

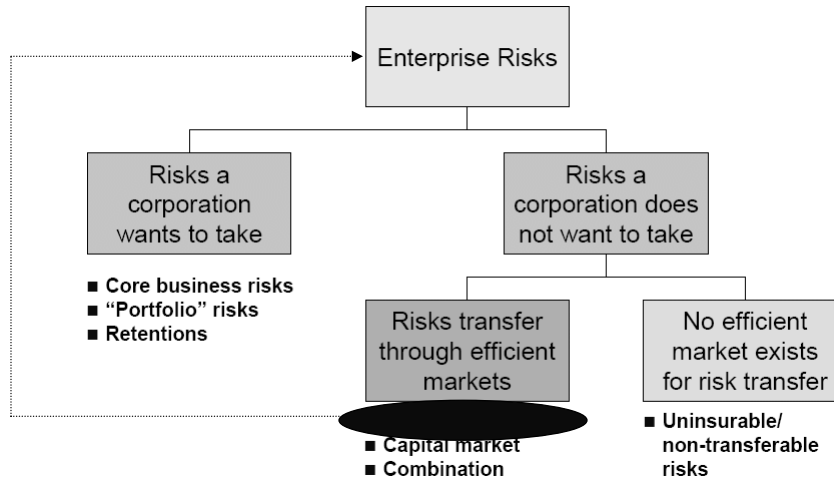
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Comparison of Risk, Capital and Value

- Summary of comparison
 - Insurers assume and hold other companies' hazard, operational and other financial risks.
 - This creates an important difference between insurers and other businesses - Insurers knowingly assume exposure to fortuitous events while most companies attempt to hedge or outsource non-core exposures.
 - Yet, there are fundamental similarities about running an insurance business.
 - While diversification is important, exploiting risk involves understanding areas where you have competitive advantages and capitalizing on them.
 - Taking more risk where you have expertise/advantage
 - Neutralizing risk elsewhere
 - Knowing where you are taking risk, how much you are comfortable taking, and why

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Comparison of Risk, Capital and Value



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Risk management themes

- Insurance profitability – Traditional view of keys to profitability:
 - Law of Large Numbers – independence, equal sized bets, known parameters
 - Individual Risk Selection – picking better risks than everyone else

- Problems
 - Large single events
 - Shared drivers/sector effects
 - Serial Correlation/Emergence Lag
 - Estimation Error
 - Varying Expertise

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Risk management themes

- ERM principles:
 - Understanding risk in insurance requires managing sensitivity to common loss drivers.
 - Understanding shared drivers/macro environmental influences is as important as individual risk selection
 - Accumulation of risk: 10 small bets become 1 large bet
 - Estimation risk is critical. Not all exposures can be known with equal certainty. Exploiting risk involves making sure that the amount of risk you take varies based on expertise, competitive position, etc.

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Exposure Tracking – The foundation for exploiting risk

- Managing and exploiting insurance risk has two fundamental steps:
 - Understanding the probability of various events occurring
 - Understanding how those events would affect your portfolio of risks
- The distinction between these two steps is critical
 - Although we endeavor to better understand the environment, events are, for the most part, uncontrollable.
 - On the other hand, it is possible to affect/control the impact that events have on a portfolio.

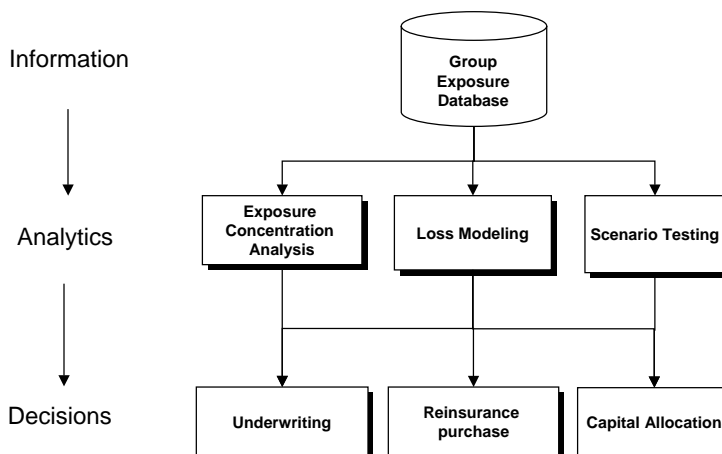
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Exposure Tracking – The foundation for exploiting risk

- To make appropriate risk decisions, a company must understand it's exposure to events/influences of various types
- This means data – Exploiting risk is not just looking at the same data differently
 - Better understanding of the details of how individual risk positions are affected by various events/influences.
 - Before: I have a WC policy, a D&O policy and a financial guaranty policy; insureds are all airlines
 - After: I have three policies that will lose money if the airline industry runs into difficulty.
- Better exposure tracking data is a foundation for exploiting risk.

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Exposure Tracking – The foundation for exploiting risk



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Exposure Tracking – The foundation for exploiting risk

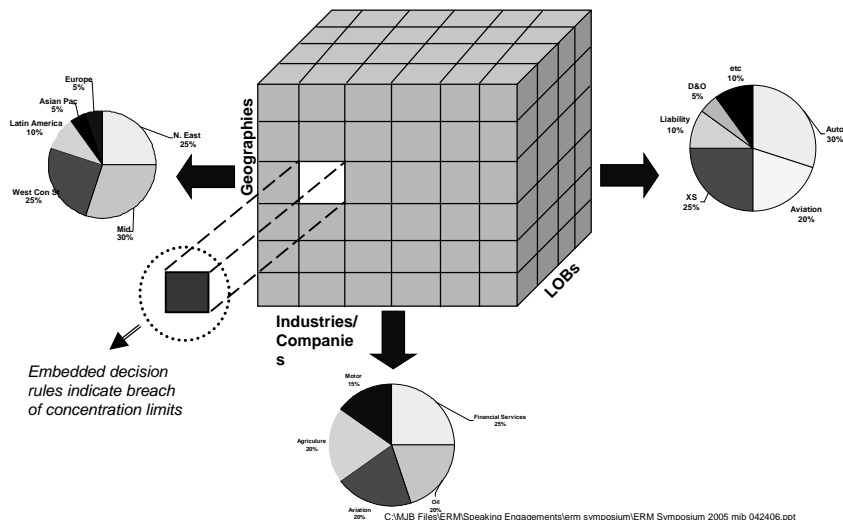
- Synopsis¹ of company's worldwide exposure
- Provide a view of exposure to concentration of risks, in absolute terms and in relative terms vs. competitors and/or industry
- The exposure distribution should cut across all enterprise units and along the following dimensions:

Exposure Distribution Dimension	Examples of Risks
Line of Business	■ Tort/Legal risk: What is our exposure to mold? What correlation is there between exposure sources? Are we protecting aggregate exposure?
Geography (Country, Street level)	■ Political risk: What is our exposure across all lines in AsiaPacific? ■ Terrorism: What is our concentration in urban areas or near potential targets? ■ Natural Catastrophe: Are we monitoring both Property and Casualty exposure?
Industry	■ Industry downturn: What is our exposure to the banking, energy and telecom sectors vs. our competitors?
Company	■ Credit risk: What is our exposure across all lines to a single counterparty?
Economic Factor	■ What is the overall impact on my company if interest rates rise or the economy goes into recession.

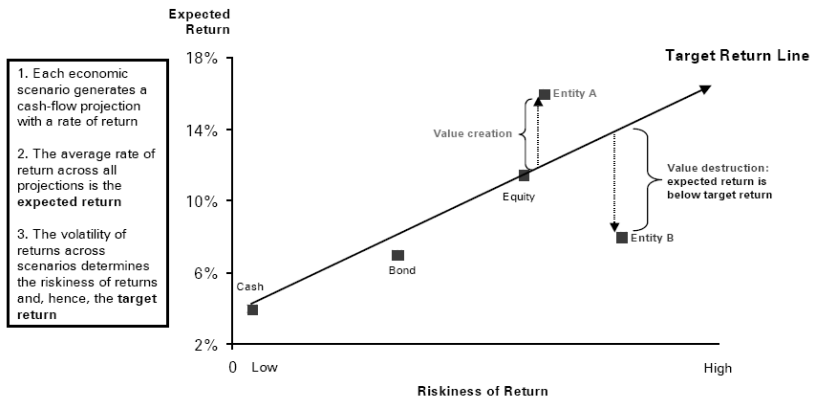
¹ Both in real-time (responding to particular events and scenarios) and periodic management reports

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Exposure Tracking – The foundation for exploiting risk

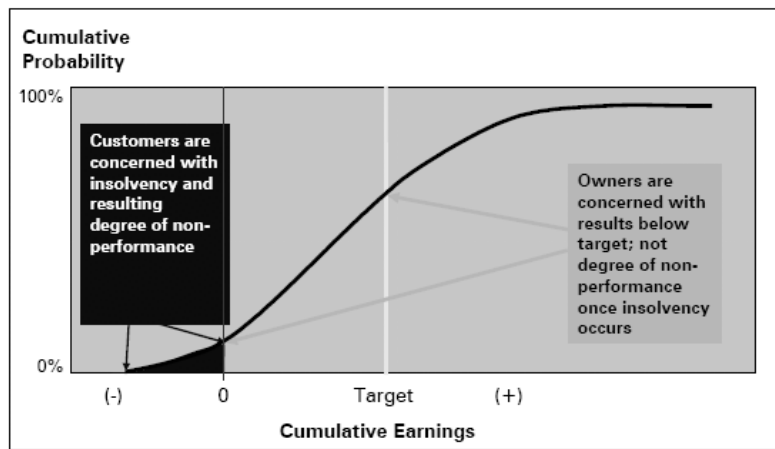


Exploiting Risk Application 1:
Economic capital modeling – risk/reward framework



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Exploiting Risk Application 1:
Economic capital modeling – owners and customers needs



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Exploiting Risk Application 1:
Economic Capital – market price vs. value to me

- Market price <=> value to me; in fact, when a transaction occurs
 - The buyer places more value on the good/service than the market price suggests
 - The seller places less value on the good/service than the market price suggests

- In insurance, this is particularly important.
 - The economic capital implied by a certain transaction varies based on the portfolio of the buyer
 - Thus the market price may be more or less than the value to the buyer.

- A key objective of economic capital modeling is understanding one's portfolio and searching for opportunities where the market price is better than you'd require based on your portfolio.

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Exploiting Risk Application 2:
Portfolio Optimization

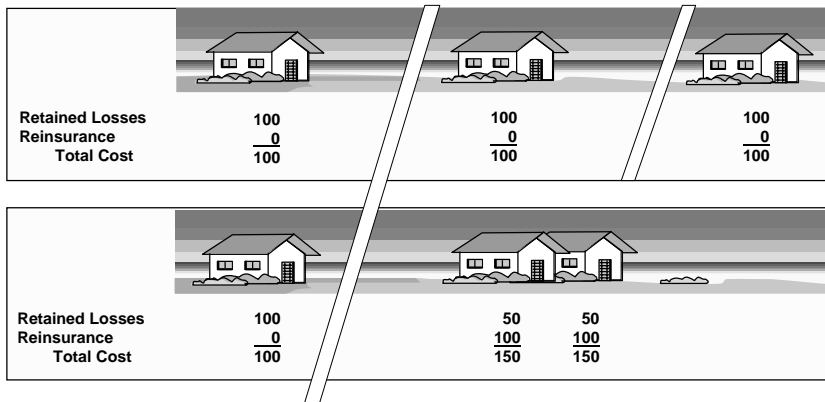


Illustration assumes that the company is only willing to retain \$100 of losses from a single event, and that reinsurance is priced to a 50% loss ratio

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Exploiting Risk Application 2: Portfolio Optimization

- Managing geographic concentration is a key to success in property
 - Reduces dependence on catastrophe reinsurance
 - Business may be profitable on a gross basis, but unprofitable on a net basis

- The long term strategic goal should be to build a property portfolio that is as geographically diversified as is feasible
 - Long term because restructuring the existing portfolio is problematic
 - Improving geographic diversification is easier to achieve by managing geographic growth
 - Strategic because diversification is a source of competitive advantage
 - Companies with concentrated portfolios are at a disadvantage
 - Higher risk, higher reinsurance costs
 - Achieving better-than-average diversification is a value-creating strategy

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Exploiting Risk Application 2: Portfolio Optimization

- Case study: Developed a model of business to assess risk and a set of risk-capital metrics that allowed the company to monitor the level of capital employed in the business

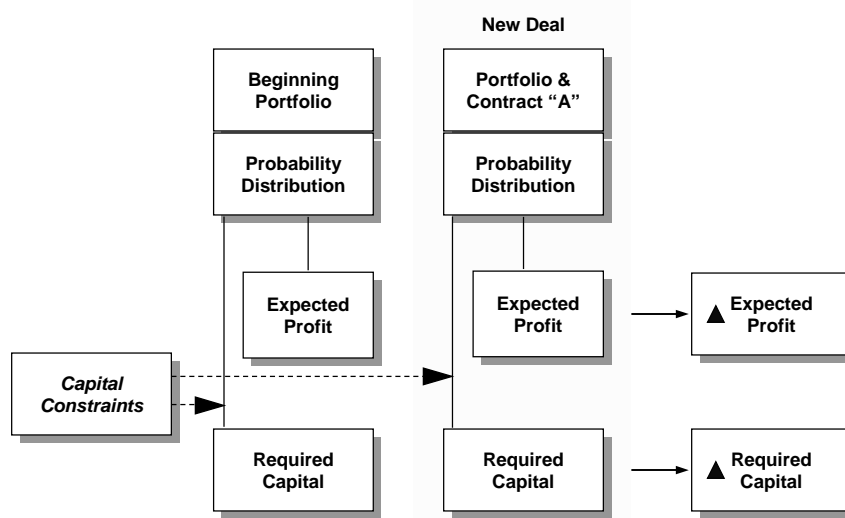
- The model allowed the company to measure the marginal return on marginal capital for each contract in their reinsurance portfolio, on a real time basis
 - The system measures the (unique) interaction of each contract with others in the portfolio -- based on the geographic distribution of underlying exposures

- The same model is used to support a broad array of risk and capital management issues

- The resulting portfolio is roughly twice as efficient as the unmanaged portfolio

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Exploiting Risk Application 2: Portfolio Optimization



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Exploiting Risk Application 2: Portfolio Optimization

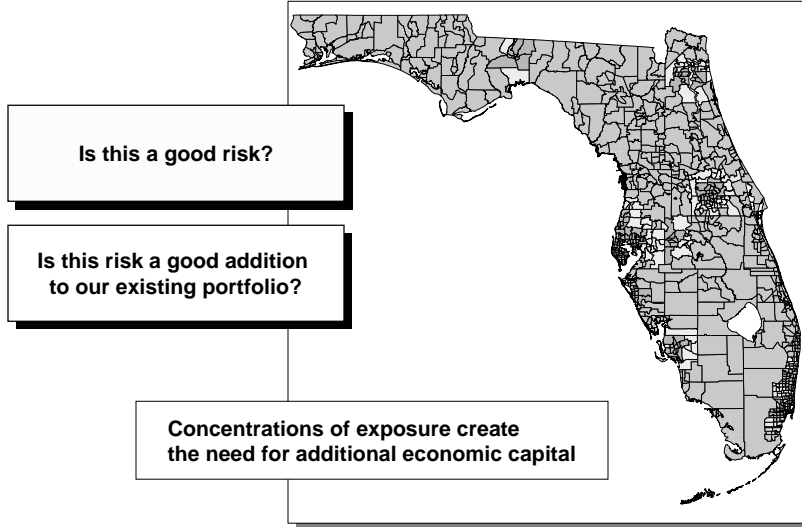
	Expected Profit	Required Capital	Marginal Profit	Marginal Capital	Marginal Return	Comments
Portfolio	1,000	5,000			20%	
Portfolio+A	1,080	5,400	80	400	20%	Average diversification; average profit
Portfolio+B	1,120	5,600	120	600	20%	Poor diversification; above average profit
Portfolio+C	1,040	5,200	40	200	20%	Good diversification; below average profit
Portfolio+D	1,120	5,900	120	900	13%	Very poor diversification; above average profit
Portfolio+E	1,040	5,000	40	-	Infinite	Excellent diversification; below average profit

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Exploiting Risk Application 2:
Portfolio Optimization



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Exploiting Risk Application 2:
Portfolio Optimization

The South Carolina PML estimates from strategic growth are significantly lower than estimates based on uniform growth

ILLUSTRATIVE

Return Period	Uniform Growth	Strategic Growth	Percent Difference
20 Year	574,876	248,983	-57%
50 Year	1,006,230	531,275	-47%
100 Year	1,356,742	810,927	-40%
250 Year	1,847,318	1,278,916	-31%
500 Year	2,251,611	1,715,734	-24%
Exposures	66,888,500	66,888,500	0%
Risk Count	1,318	1,318	0%
Expected Loss	124,123	49,229	-60%

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Exploiting Risk Application 3:
Credit Risk

- Major industrial firm
- Credit exposure to both suppliers and customers
- Had always managed individual exposures at the business unit level
- ERM scenario analysis now able to assess portfolio effect of credit exposure:
 - Net exposure across all credits
 - Portfolio effect with other enterprise risks
- Information used to improve contracting terms and product pricing

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Exploiting Risk Application 4:
Operational Decisions

- Regional pharmaceutical firm
- Critical equipment is old and can be updated:
 - Works well
 - Has occasional failures, but nothing serious
 - Potential for single large event to occur
- Risk manager's challenge:
 - What are risks to business — financial, reputational?
 - Cost of new vs. cost of old
 - Which decision criteria to use?
- ERM analysis helped formulate decision criteria based on quantitative and qualitative risk assessment

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Exploiting Risk Application 5:
Pay for Performance

- Asset manager
- Compensation restructured to pay for performance
- Previous performance metrics:
 - Did not account properly for risk taken by traders
 - Did not charge appropriate capital cost
- Improving accountability using ERM:
 - Develop new performance metrics
 - Consistent with Economic Capital in ERM exercise
 - Identify risks that trader can act on and measure performance relative to appropriate market