

The Role of ERM in Ratings

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Standard & Poor's

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Developing A Framework To Evaluate ERM Practices

Risk management is at the heart of what S&P does. S&P assesses institutions' risks and how risks are managed.

- **A framework to systematically evaluate firms' ERM practices to incorporate into ratings**
 - Institutions with robust processes that are well integrated into enterprise's functions would be scored highly,
 - Institutions with weaker risk management capabilities, or poorly integrated risk management would be incorporated into the ratings as well
- **A meaningful, more objective input into the evaluation of an institutions' risk tolerances than the current more qualitative analysis**
- **These conclusions are incorporated into our ERM category of analysis**

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ERM & Ratings

➔ **ERM Quality Evaluation is based on the risks of the company**

➔ **Importance of ERM in the company rating is based on:**

- Capacity to absorb losses
- Complexity of risks

↑ **An institution with tight capital and complex risks**

- ERM is very important

↓ **An institution with excess capital and ordinary risks**

- ERM is not as important



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ERM Key Points – Financial Services

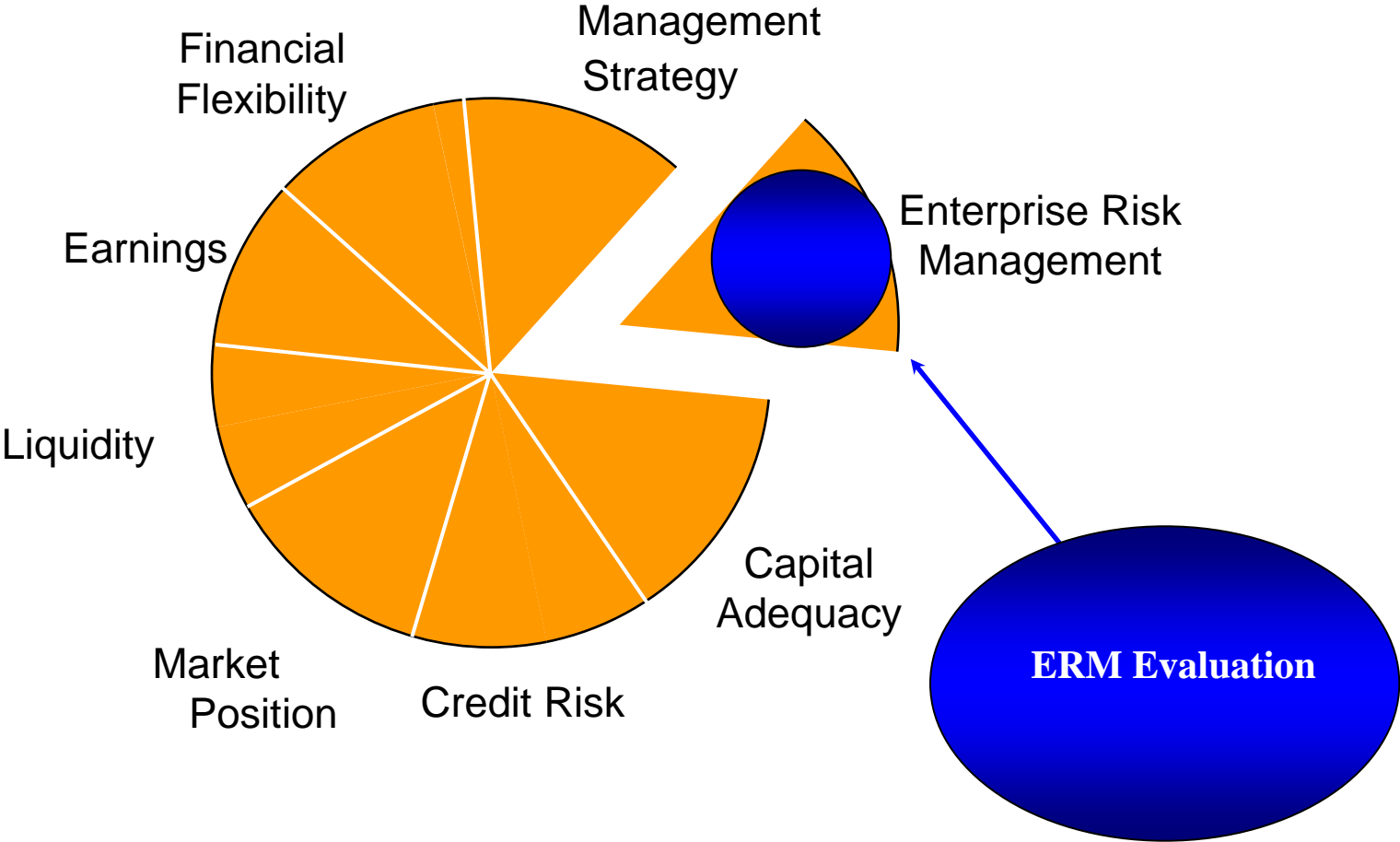
- 1. ERM is a new organizing concept**
 - For looking at a collection of issues we have always covered
- 2. ERM applies to all institutions globally**
- 3. ERM evaluation will be tailored to the risks of each institution**
- 4. ERM recognizes all the risk management of the institution**
 - Even if the company does not do “ERM”!!!
- 5. ERM is reflected in our ratings**
 - Importance of ERM will vary among companies – just as every other factor does
- 6. ERM is a new section in the ratings report**
- 7. ERM is not a new Capital Model!**
 - ERM is not primarily concerned with looking at Economic Capital Models

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ERM Evaluation in the Ratings Process



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ERM Evaluation – Focus

		Significance of Risk			
		Low	-----	-----	High
Quality of Risk Controls	Low	Yellow	Yellow	Brown	Brown
	-----	Yellow	Yellow	Yellow	Brown
	-----	Green	Yellow	Yellow	Yellow
	High	Green	Green	Yellow	Yellow

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ERM Quality Classifications

Excellent	<ul style="list-style-type: none"> ▪ Advanced capabilities to identify, measure, manage all risk exposures within tolerances ▪ Advanced implementation, development and execution of ERM parameters ▪ Consistently optimizes risk adjusted returns throughout the organization
Strong	<ul style="list-style-type: none"> ▪ Clear vision of risk tolerance and overall risk profile ▪ Risk Control exceeds adequate for most major risks ▪ Has robust processes to identify and prepare for emerging risks ▪ Incorporates risk management and decision making to optimize risk adjusted returns
Adequate	<ul style="list-style-type: none"> ▪ Has fully functioning control systems in place for all of their major risks ▪ May lack a robust process for identifying and preparing for emerging risks ▪ Performing good classical “silo” based risk management ▪ Not fully developed process to optimize risk adjusted returns
Weak	<ul style="list-style-type: none"> ▪ Incomplete control process for one or more major risks ▪ Inconsistent or limited capabilities to identify, measure or manage major risk exposures

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Evaluating Insurance Enterprise Risk Management

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ERM Evaluation Components - Insurance



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Risk Management Culture

- **Risk and risk mgmt are considerations in every day corporate decision-making.**
 - Not just a concern of Risk management staff
- **Staffing and organizational structure of risk-management function**
 - Adequate to accomplish objectives
- **Governance structure suggests high degree of influence on decision-making by risk-management staff.**
 - Positioned to be effective
- **Communication of risk and risk management**
 - Transparent risk-management process within the company
 - And with other interested parties through their public communications.

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Risk Control Processes

Primary Components:

- Identify Risks
- Evaluate/Quantify/Measure Risks
- Monitor Risks
- Diversify Risks
- Limit, Avoid Risks & Offset Risks
- Exploit Retained Risks
- Transfer Risks
- New Product Risk & Risk Control Review
- Process Reporting

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Risk Control Applies to:



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Emerging Risk Management

➤ Environmental Scanning

- To provide advance signals of potential Crisis developments

➤ Process for Anticipating Emerging Risks

- Development of Emerging Risk Scenarios

➤ Process for Envisioning Significance of Emerging Risks

- Stress Testing
- Liquidity Risk Analysis

➤ Process for Preparing Response to Emerging Risk Situations

- Contingency Planning

➤ Execution of Company in Emerging Risk Situation

- Changes to company business and risk management practices

➤ Company learning process from Emerging Risk Situation

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Risk & Economic Capital Models

Primary Components:

- Type of Risks Modeled
- Modeling methodologies used for each risk
- Risk mitigation
- Risk dependencies and aggregation
- Risk measures
- Assumptions
- Data feeding
- Model integrity
- Validation and Documentation

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Strategic Risk Management

S&P Ratings Criteria:

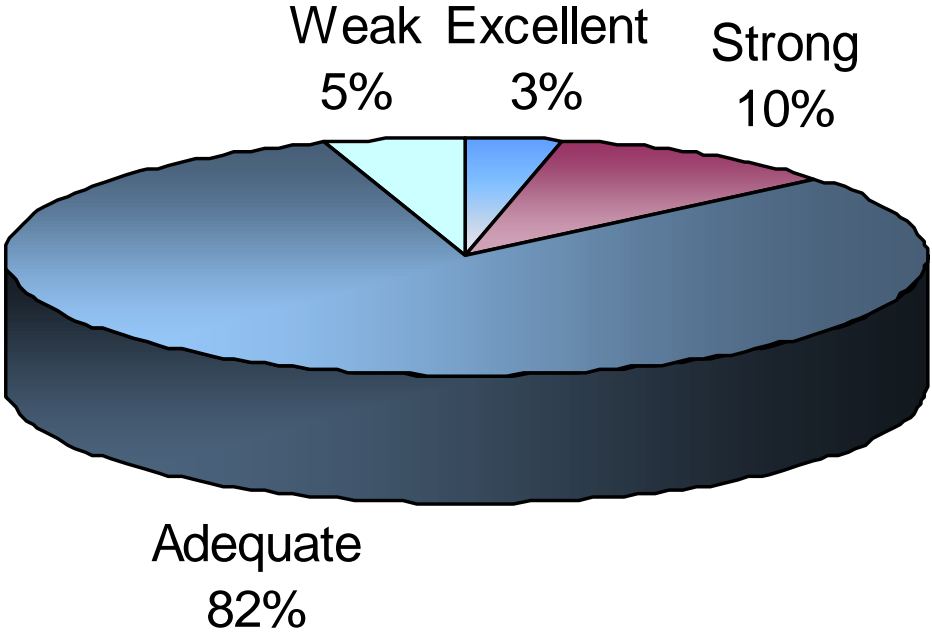
- **View of risk across all risks to make decisions about optimizing risk adjusted returns.**
- **Capability to assess trade-offs between different risk types**
- **Assessment of risk adjusted returns**
- **Capital budgeting**
- **Strategic investment allocation**

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2006 All ERM Scores Global 241 Insurers

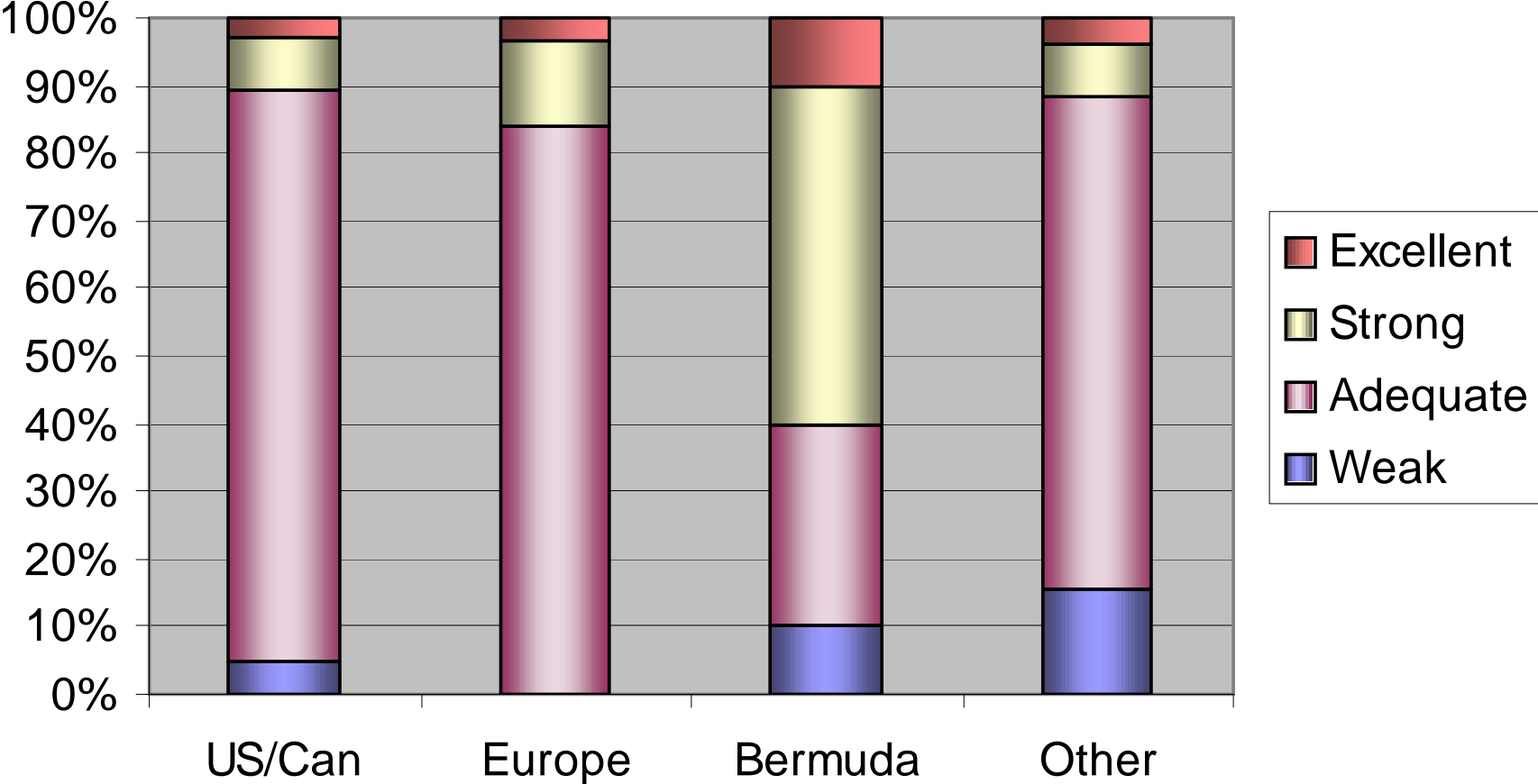


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Global ERM Score Distributions

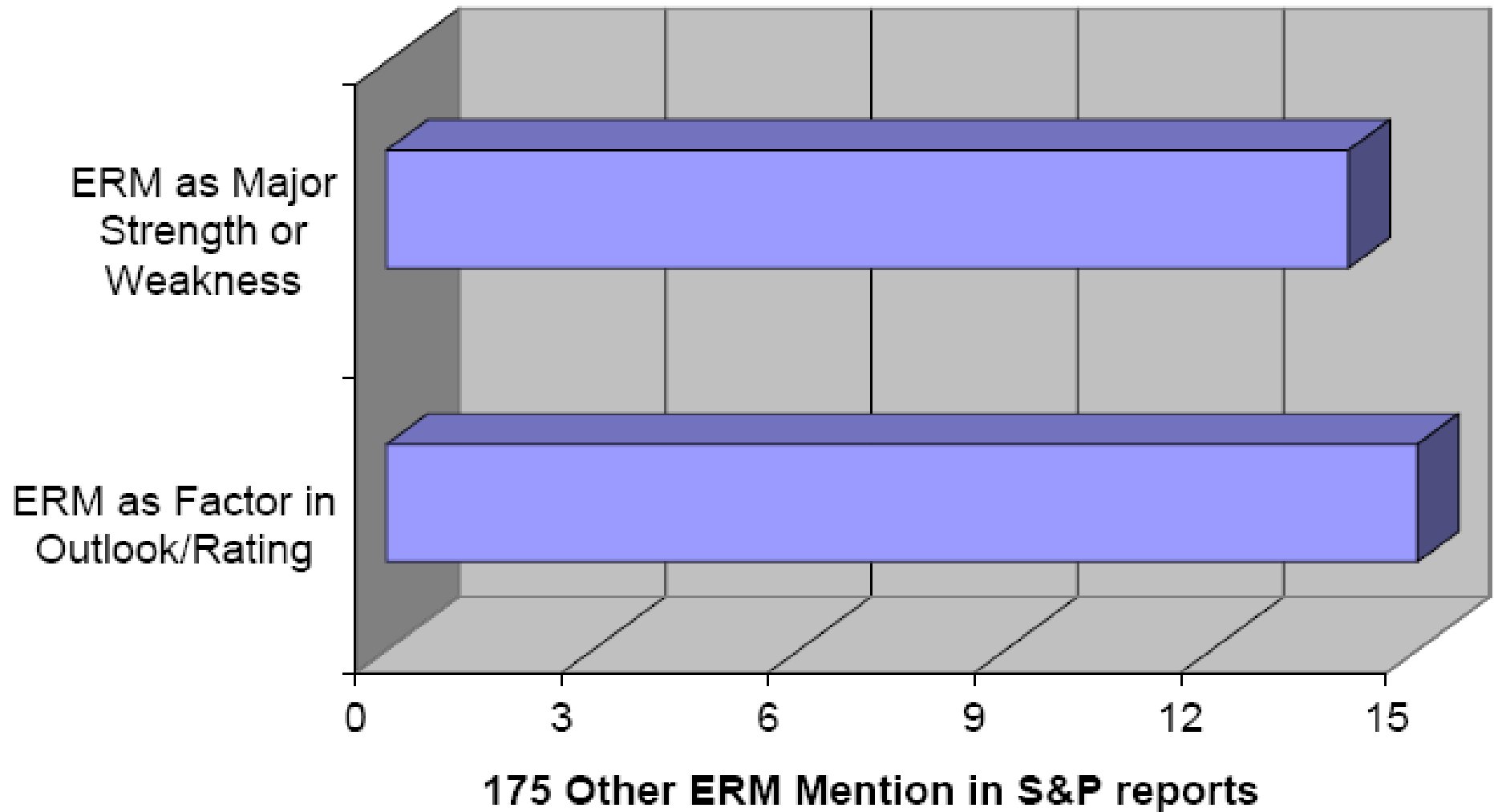


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ERM in S&P Publications



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Evaluating Banks' Enterprise Risk Management

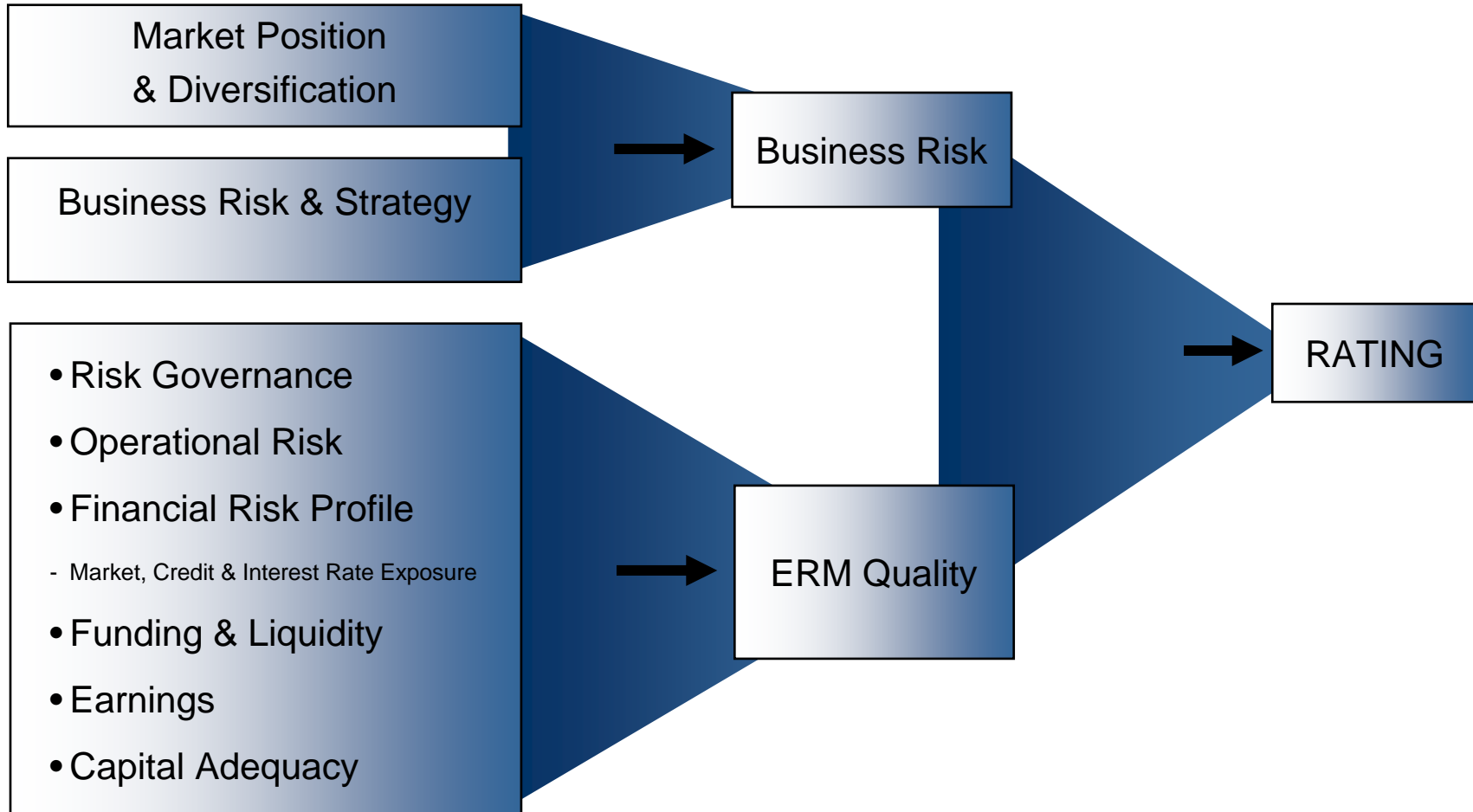
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Financial Institution's Ratings Process

Getting to the Counterparty Credit Rating



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Evolving Risk Assessments From TRM to ERM

- Improve the depth and consistency of our risk management analysis.
- Build on the TRM exercise and expand to other risk areas
- Move to a “top-down” approach.
- Apply to all financial institutions globally.
- Flexible framework that can be tailored to each institution.

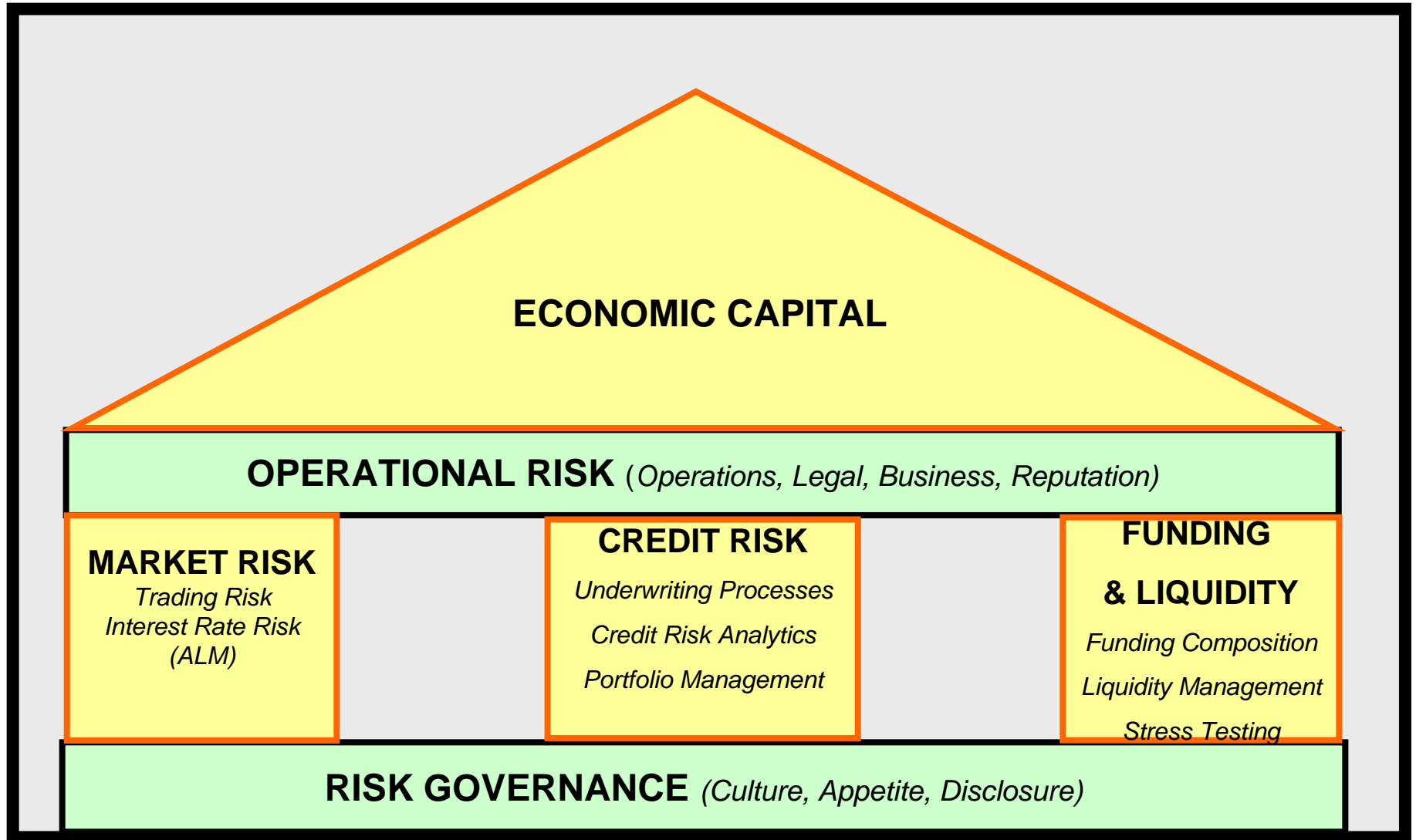
In short, we want to expand on our existing work on risk management using a more structured, coherent approach

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ERM Evaluation Components



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ERM Evaluation Template and Committee Process

Institution Name		Assessment & Comments			
		1=Weak	2=Adequate	3=Strong	4=Excellent
Overall ERM Assessment		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A.	Risk Governance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Risk Culture</i> <i>Risk Appetite</i> <i>Risk Quantification/aggregation</i> <i>Risk Reporting and Disclosure</i>					
B.	Market Risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Trading</i> <i>ALM</i>					
C.	Credit Risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Underwriting Processes</i> <i>Portfolio Management</i> <i>Credit Risk Analytics/Modeling</i> <i>Reserving & Risk Mitigation Policies</i>					
D.	Operational Risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Definition</i> <i>Measurement</i> <i>Managing & Reporting</i> <i>B/O Infrastructure & Operations</i>					
E.	Funding & Liquidity Risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Funding Composition</i> <i>Day-to-day Liquidity Management</i> <i>Liquidity Stress Testing</i>					

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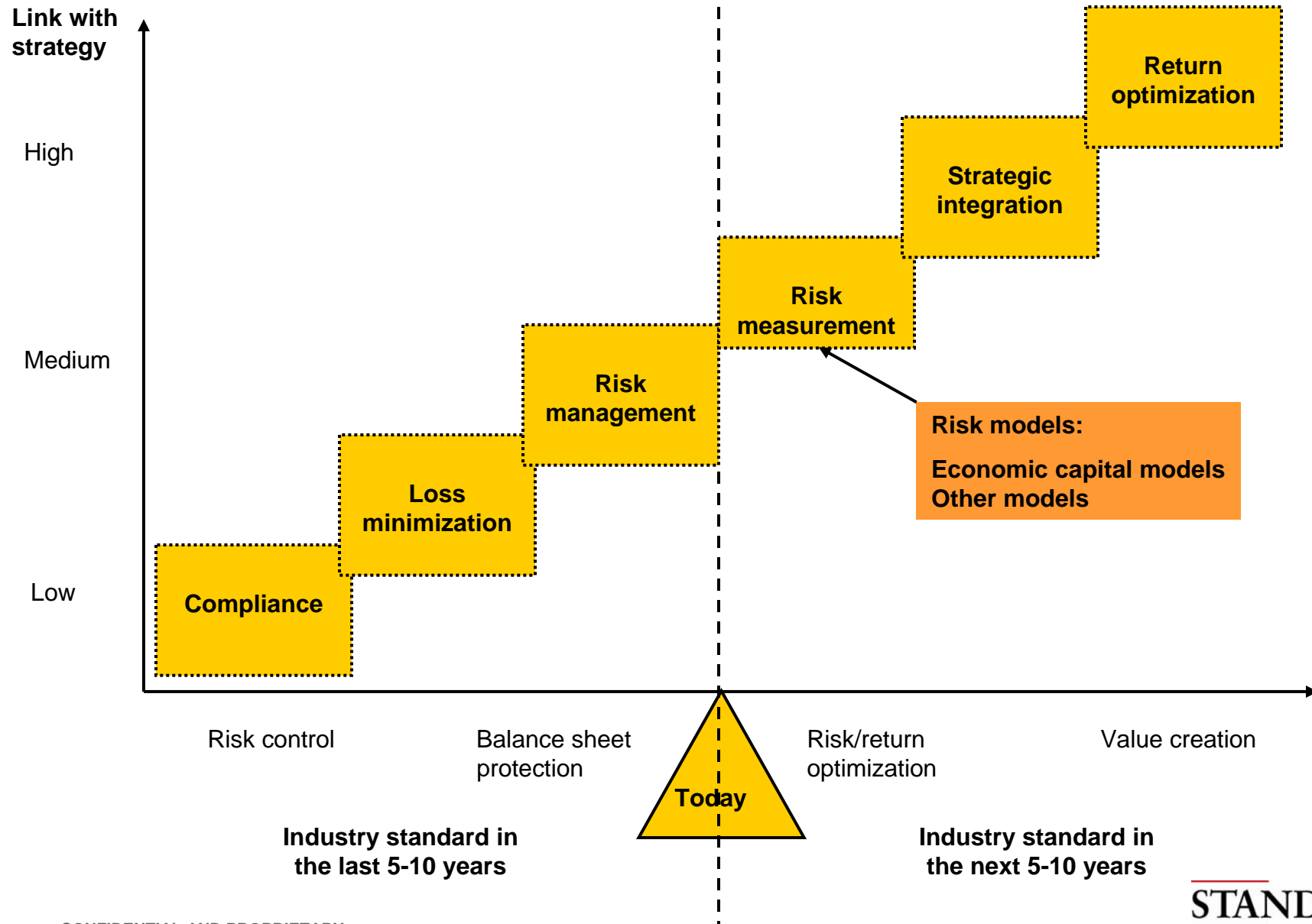
Evaluating Economic Capital Models

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Evolution of Enterprise Risk Management



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Economic Capital Model Review

For Institutions with **Strong or Excellent ERM**

- Standard & Poor's will develop robust processes for evaluating institutions' internal economic capital models
- To be performed only for companies with effective ERM
- Evaluations of economic capital will be used in conjunction with existing static, risk-based measures
- Dynamic approach will enhance our existing and prospective view of capital adequacy

Standard & Poor's can incorporate benefits of uncorrelated risks (diversification)

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Evaluating Economic Capital Models

Process for Evaluation:

- Framework of assumptions to review
 - For each risk
 - Establish a range for each assumption to be stressed
- Remote events analyzed, using realistic disaster scenario analysis/tail event stress analysis
- Model mechanics reviewed and standardized, where possible
- Testing procedures employed
 - To evaluate the consistency of one firm's model output for a given set of data with that of its peers

Findings will be incorporated into the companies' ratings

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Appendix

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ERM Summary Chart - Insurers

	Opinion	Comments
Overall	Excellent, Strong, Adequate, Weak	Key reason(s) for conclusion
Risks	Credit, Market, Insurance, Operational (or sub risks of those broad categories)	A Summary of the Risk Profile of the company. Discussion of changes to the risk profile over the past several years and how management expects it to change over the next several years. Description of the products or investments that give rise to the major risks.
Earnings Vol / Loss Experience	High, Medium, Low Volatility	Summarize 5 year history of earnings volatility &/or loss experience
Importance of ERM to Rating	Very high, high, moderate, low, very low	Indicate whether this ERM opinion should have high impact on rating. Will be high if company has complex risks and/or tight surplus position. Most Health Insurers have low to moderate risks, but some have low surplus positions which could make ERM of high importance.
Review		
Risk Management Culture	Excellent, Strong, Adequate, Weak	<ul style="list-style-type: none"> ▪The degree to which risk and risk management are important considerations in the every day aspects of corporate decision-making. ▪The staffing and organizational structure of the people who are charged with executing the risk-management function in the insurer. ▪The risk management governance structure that is indicative of a high degree of influence on decision-making by risk-management staff. ▪Communication of risk and risk management—both inside and outside of the insurer—An insurer with a strong risk-management culture will have a very transparent risk-management process within the company and with other interested parties through their public communications.

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ERM Summary Chart – Insurers

Risk Controls - Credit	Excellent, Strong, Adequate, Weak	Types of Credit Risk Management Programs: a)Traditional Underwriting standards & concentrations limits b)Sell discipline tied to spread monitoring c)Portfolio Credit Approach supported by Credit VaR model d)Credit Derivative use to refine exposures Best companies have multiple programs. S&P will look at quality of program and effectiveness of execution.
Risk Controls - Interest	Excellent, Strong, Adequate, Weak	Types of Interest Risk Monitoring Metrics: a)Duration, DV01 b)Convexity c)Key Rate Duration, Partial Duration Best companies will use multiple measures, clear tolerances, frequent measurement and frequent rebalancing with clear practices for violations. S&P will also look for attention to minimum guarantees.
Risk Controls - Equity	Excellent, Strong, Adequate, Weak	Looking for company to have a clear idea of the amount of risk they are taking given their equity market exposures and a program for maintaining that risk at a predetermined level. If they are hedging risks, S&P will look for disciplined program with a sophisticated control structure.
Risk Controls – Insurance	Excellent, Strong, Adequate, Weak	S&P is looking for robust underwriting and monitoring processes that are tied to pre-planned actions for significant deviation from expectations.
Risk Controls – New Product	Excellent, Strong, Adequate, Weak	Formal process of identifying and planning for the changes to the insurer’s risk profile due to the introduction of a new product, coverage or investment program. S&P will especially look for a product development process that allows meaningful impact of risk analysis on the product.

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ERM Summary Chart – Insurers

Risk Controls - Operational	Excellent, Strong, Adequate, Weak	Concentration will vary by insurer. Review may focus on Internal Audit, Regulatory & Compliance Risks, IT, Distribution Risk, Outsourcing, Business Continuity and/or risks from major new projects and acquisitions.
Extreme Events & Emerging Risk Mgt	Excellent, Strong, Adequate, Weak	Insurers quality of processes to imagine, assess, prepare for and monitor future risks that are not currently a part of the everyday risk control processes. Might include, but is definitely not limited to Cat reinsurance.
Risk Models	Excellent, Strong, Adequate, Weak	S&P will look for an insurer to have capabilities to assess their risk positions with measurement systems that provide timely and actionable information.
Strategic Risk Management	Excellent, Strong, Adequate, Weak	The ability and practice to look across the insurers diverse risks to make decisions about optimizing their risk adjusted returns. This requires both the capability to assess trade-offs between different risk types and an assessment of risk adjusted returns. Would include capital budgeting and strategic investment allocation.
Outlook	Positive, negative, neutral	Many companies will have positive outlook for ERM due to developing nature of ERM

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SPEECH
“ERM AND THE REGULATORY FRAMEWORK”

BY
EUGENE A. LUDWIG

ENTERPRISE-RISK MANAGEMENT SYMPOSIUM
OF
THE SOCIETY OF ACTUARIES, THE CASUALTY ACTUARY SOCIETY, AND THE
PROFESSIONAL RISK MANAGERS INTERNATIONAL ASSOCIATION (PRMIA)

MARCH 30, 2007

Introduction

It is an honor to be here with you today. The Society of Actuaries, The Casualty Actuary Society and the Professional Risk Managers International Association are leaders in the important area of enterprise-wide risk management (ERM).

Today, I have been asked to say a few words about ERM and the regulatory framework. This is a relatively new and dynamic area. Both the ERM science and the regulatory framework are in a state of flux, but as I will point out in a moment, the regulatory framework is clearly becoming more prescriptive in nature, and companies will be outliers at their peril.

Discussion

Enterprise-wide risk management is a relatively new concept in the long history of finance. Historically, risks were managed by line executives who had responsibilities for their own balance sheets. CEOs of banks understood that credit was where most of the risks were. They had a chief credit officer, who was the closest thing to an ERM manager as the firms got.

Other kinds of financial services firms historically took a similar approach to structuring risk management. So, broker dealers relied heavily on line executives as their risk and compliance officers and a compliance department as key to managing their risks. And, insurance companies did much the same, relying on their actuaries as the key risk professionals at the corporate center.

However, since the early 1990s, as you know, a new element in the risk management firmament has emerged: an enterprise-wide risk management function. This concept attracted wide attention after a series of high-profile business scandals and losses generated a desire for improved corporate governance and risk management. The influential Committee of Sponsoring Organizations of the Treadway Commission (COSO) responded with “Enterprise Risk Management—Integrated Framework.” This focuses the existing internal controls framework on risk management.

Even earlier, the concept took hold in the banking industry, at least at the larger banks, and grabbed the attention of the regulatory mechanism at about the same time. The reasons for its growth in the industry and its attractiveness to regulators are more or less the same – the increasing complexity of modern finance and modern financial institutions and the increasing size of these institutions.

It is one thing, if you have a bank that does nothing much more than take deposits and make loans, stays under about \$25 billion in assets, and operates in one state or two. It is quite another thing, to have a bank with 89 different businesses, with 100,000 plus employees, with operations in 65 countries, and with \$1 trillion plus in assets.

Oh yes, even in a more modern, more complex business environment, some financial businessmen will say that real risk management still goes on with the line officers in the businesses and that ERM is merely window dressing and expense. However, common sense suggests that, at a minimum, a board and senior management of a large, complex institution should want to have some function that understands the risks across the businesses and can explain those risks to them. How else could a board or senior management responsibly govern?

After all, how risks are correlated across a group of businesses, the extent to which the businesses provide diversification, and whether or not one business could destroy the entire enterprise are issues that any responsible person at the top of a large organization would want to know. To address these issues in a comprehensive way, it is hard to imagine anything other than some type of centralized function, whether we call it an ERM function or not.

Regulators are perhaps even more in need of modern financial services enterprises having such a centralized function, because in part regulators are further removed from the businesses themselves. However, regardless of whether regulators think the picture presented by a centralized ERM function is helpful to them, regulators are convinced, at least bank regulators, that you cannot responsibly govern a large complex financial services enterprise without such a function. This view is now shared by most if not all financial services regulators of complex organizations.

But from a regulator's point of view, you might be asking yourselves, is measuring and reporting the risks enough? Is that the key function, from a regulators perspective, for an ERM program? Furthermore, what kind of measurement and reporting are the regulators looking for? Let me answer each of these questions in turn.

First, the regulators have been quite clear that a financial firm has the responsibility to “identify, measure, manage and control” risks. However, the regulators have not been rigid about insisting that all these functions reside under a **chief risk officer**. Rather, they say that the ERM **program** should have three lines of defense. Line management is the first line of defense in managing and controlling risks. The risk officers come second. And, internal audit is third. This three-lines-of-defense approach, and how it is governed, is central to designing an ERM program that is acceptable to the regulators. However, exactly what the second and third lines of defense do in terms of managing and controlling risks is a little less clear.

Over time, this will change. In my view it will become clearer that the corporate center risk functions have management and control responsibilities in respect of risks. It will also be clearer what those responsibilities are and how they are to be organized.

Second, while the regulators are not entirely prescriptive yet in terms of how an ERM program should identify, manage and control risks, the regulators are becoming more and more prescriptive in terms of how the enterprise measures and reports risk. On the measurement front, whether or not Basel II ever gets adopted in the U.S. or whether or not the advanced methods approach ever explicitly applies to your institution for capital purposes, implementation of the essence of Basel II is where U.S. regulators are going. Look at the Proposed Supervisory Guidance for Basel II Implementation issued by the U.S. regulatory agencies last month. It lays out expectations for the quantification of credit risk and operational risk as well as for the internal capital adequacy assessment processes. This is a roadmap the regulators will follow in reviewing banks' Enterprise Risk quantification processes. More and more we are seeing the regulators require ERM programs to have sophisticated quantification capabilities. There is no doubt in my mind that the future in this area will belong in large part to the quant and to the modeler. We are only in the early innings of what is going to be a very long ballgame in this regard.

I would go further and say that the clear success over the last 20-30 years in using models and quantification tools to measure risk reinforces the ERM concept. This success makes it more likely that regulators will want to see a robust ERM function in non-bank financial firms and in smaller financials, not just in large, complex banking organizations.

Third, reporting is in many ways is the brave new world of ERM regulation. What with Basel II and the economic capital rules and guidelines that the regulators have prescribed, there is a reasonably fulsome picture emerging of what the regulators expect in terms of ERM measurement. The same cannot be said yet for reporting. But, it is coming.

The regulators want to see comprehensive reports, but at the same time they want to see reports that are sufficiently informative, sufficiently in plain English, that the reports are informative to senior management and to the board of directors. In this regard, I will say that the majority of ERM reports we see are inadequate. They fail in a variety of ways. They at times are not sufficiently comprehensive; they rarely roll up risks in a coherent way across the entire enterprise; they usually are too detailed for the audience; and they rarely triage the risks from most risky to least risky -- a tough task to perform, but one that one ought to be doing constantly if one heads an ERM program. Typically, reports are an aggregation of prior existing reports, so they predate an attempt to create a true ERM framework.

On the other hand, a few institutions do have stronger risk reporting. Such reports reflect a thoughtful attempt to create a true ERM perspective as opposed to piecing together reports from existing pieces. Some of these risk reports are even in part computer generated and combine both helpful graphics and discursive text in a way that assists the board in setting a financial institution's risk appetite -- a clear board governance responsibility under an ERM program that

is acceptable to the regulators. Such reports also help senior management do its job and make more informed strategic decisions about the enterprise.

Conclusion

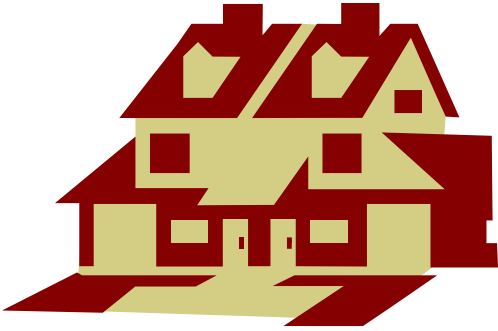
In sum, ERM is a relatively new concept in the financial services sector. The regulators have embraced it and regulations require it. Regulators today allow some flexibility in respect of what constitutes an adequate ERM program. However, regulators in this area will become ever more prescriptive. Currently, regulators are requiring that ERM programs do more in the area of modeling and quantification. In the near future, we will see more demands being made in terms of the reporting aspects of an ERM program.

ENTERPRISE RISK MANAGEMENT IN FINANCIAL REGULATION



**James B. Lockhart III, Director
Office of Federal Housing Enterprise Oversight
Enterprise Risk Management Symposium, Chicago, Illinois
March 30, 2007**

OFHEO's Mission



To promote housing and a strong national housing finance system by ensuring the safety and soundness of Fannie Mae and Freddie Mac.



OFHEO's Strategic Goals

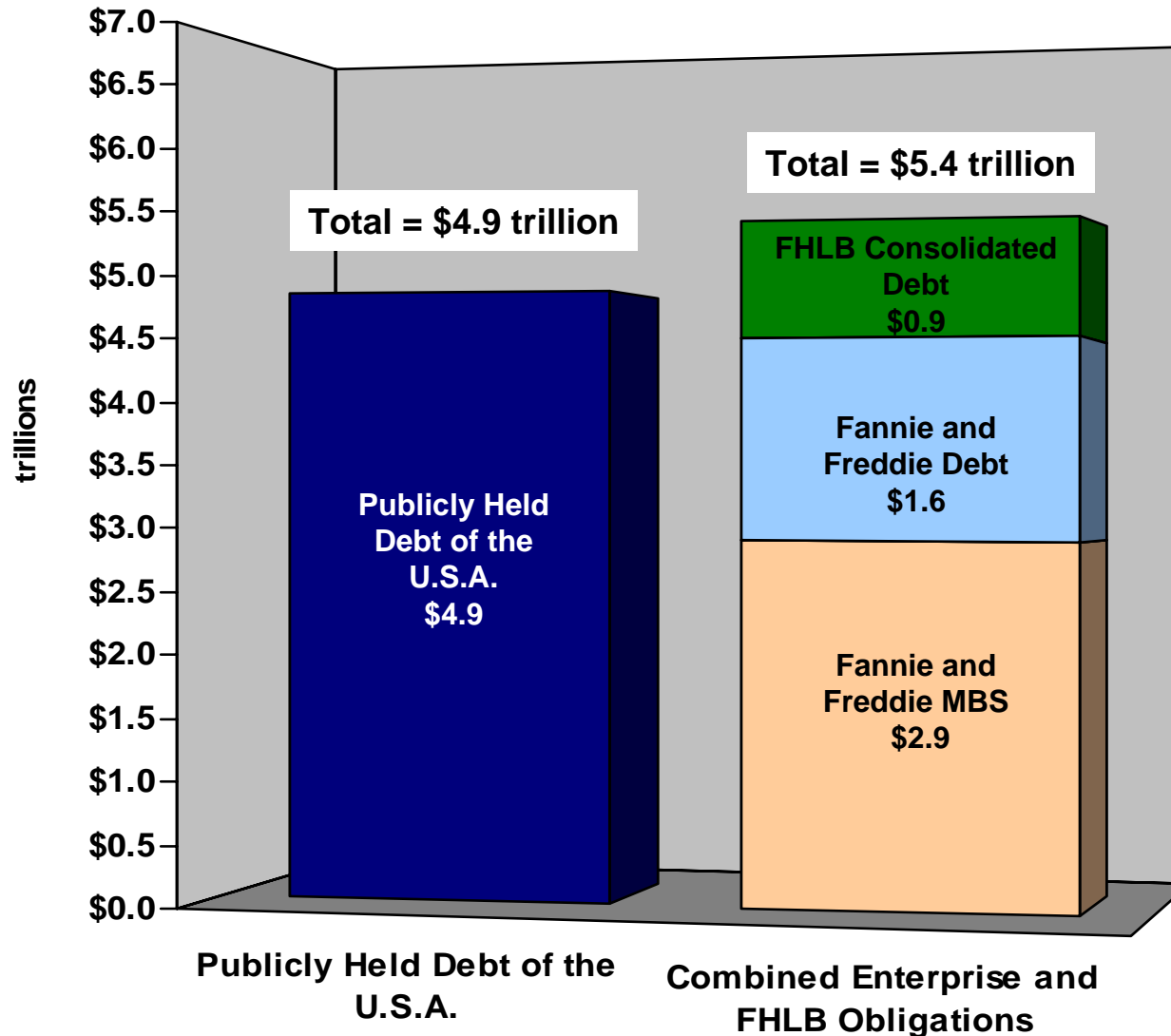


1. Enhance supervision to ensure the Enterprises operate in a safe and sound manner, are adequately capitalized and comply with legal requirements.
2. Provide support for statutory reforms to strengthen our regulatory powers.
3. Continue to support the national policy of an efficient secondary mortgage market which promotes homeownership and affordable housing.

The Housing GSEs are Huge



Relative Size of Enterprise Obligations
(December 2006)



ERM is Key for Financial Institutions



- Integral part of successful management of a financial institution
- Strong foundation for safety and soundness supervision

ERM is a Core Function of Management



- Enterprise Risk Management is an integrated management approach for increase shareholder value by effectively:
 - managing credit, market, and operational risk
 - Integrating risk considerations into business decisions
 - transferring risk
 - managing economic capital

ENTERPRISE RISK MANAGEMENT FOCUS



- ERM focuses on understanding and managing risk, not eliminating it in order to increase returns.
- ERM requires a strong risk management culture.
- ERM is a problem solving framework that focuses on making good business decisions.

Safety and Soundness Regulation



- The purpose of safety and soundness regulation of financial institutions is to prevent excessive risks of failure. The goal is to avoid failures, as failures may have substantial costs to customers, markets, other institutions and the financial system.
- These powers are especially important when market discipline is weakened by legal or inferred guarantees.
- ERM helps focus regulators on allocating resources to key supervisory tools:
 - capital standards
 - examinations
 - enforcement powers

FEDERAL RESERVE HAS EMPHASIZED ERM



Governor Bies says ERM includes:

- Aligning the entity's risk appetite and strategies;
- Enhancing the rigor of risk-response decisions;
- Reducing the frequency and severity of operational surprises and losses;
- Identifying and managing multiple and cross-enterprise risks;
- Proactively seizing on the opportunities; and
- Improving the capital deployment effectiveness.

Remarks at the National Credit Union Administration 2007 Risk Mitigation Summit.
January 11, 2007

FDIC AND OCC



FEDERAL DEPOSIT INSURANCE CORPORATION (FDIC)

“The FDIC is adopting an Enterprise Risk Management (ERM) approach to identifying and analyzing risks on an integrated corporate-wide basis....This change was intended to facilitate a shift to a more proactive and enterprise-wide approach to risk management. The focus will be on directing resources to areas of greatest risk.” (2004 Annual Report)

OFFICE OF COMPTROLLER OF THE CURRENCY (OCC)

“The OCC expects banks to have an integrated approach to risk management to identify, measure, monitor and control risks in an institution. (OCC Bulletin 98-3).”

OFHEO'S ERM SUPERVISION



- Consent orders with OFHEO required:
 - Enterprises to hire Chief Risk Officers
 - Directors and management to get more involved in risk management

- Risk management improvements at the Enterprises include:
 - Operational, credit and market risk teams
 - Data including operational losses
 - Model validation
 - New products review

- The Enterprises have developed economic capital measures derived from existing models.

RISK-BASED EXAMINATIONS



- Exam resources are limited as OFHEO is extremely small compared to Fannie and Freddie.

- Short, targeted exams facilitate organizational learning:
 - Exam teams can draw on agency experts.
 - Recent concerns can be explored before committing more resources.

- Risk-based exams complement the depth of knowledge provided by resident examiners.

Operational Risk is a Key Focus



- **Operational Risk** is the exposure to loss from inadequate or failed internal processes, people, and systems, or from external events.
 - Operational losses include all direct and indirect economic losses including those related to legal liability, reputational setbacks, and compliance and remediation costs.
 - Joint task force developing a database
- Requires the combined efforts of senior operating, financial and systems management as well as ERM, compliance and internal audit groups.
- Significant problems in any of these areas could not only harm an Enterprise, but also the mortgage markets and other financial institutions.

OFHEO ERM AGENDA/CHALLENGES



- Incorporate ERM in policy formation and implementation
- Operational and Financial Remediation
- Promote a strong GSE risk management culture
 - Systems, controls, and model risks
 - New products and emerging credit risks
- Work with other regulators on common issues
- Revise risk-based capital rules – economic capital
- Use three pillars of Basel more effectively

Basel II Pillars



OFHEO



Capital
Rules



Regulatory
Strength



Market
Discipline

OFHEO, Fannie Mae and Freddie Mac have a long way to go

New, Stronger Regulator Needed



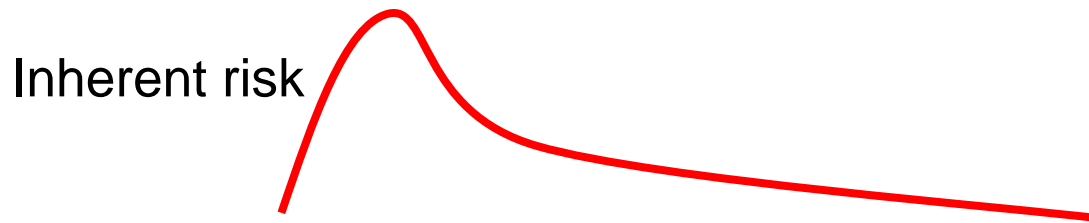
- More bank regulator-like powers
- Strength through combining the GSE regulators (OFHEO and FHFB)
- Mission and new product authority (HUD)
- Stronger independence – litigation and budget
- Ability to strengthen capital requirements
- Clear guidance to regulate portfolios

ERM and Regulation

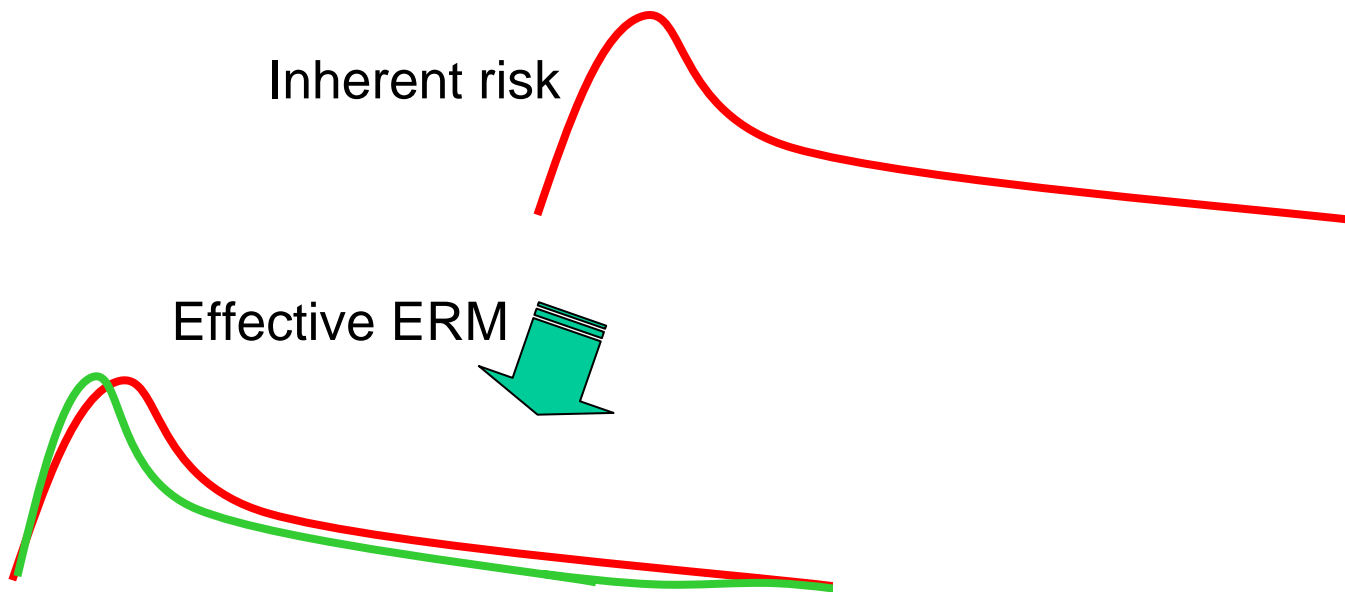
Charles Taylor
Director, Operational Risk
Risk Management Association

ERM Symposium, March 30th 2007, Chicago

Enterprise and Public Interests are Not the Same

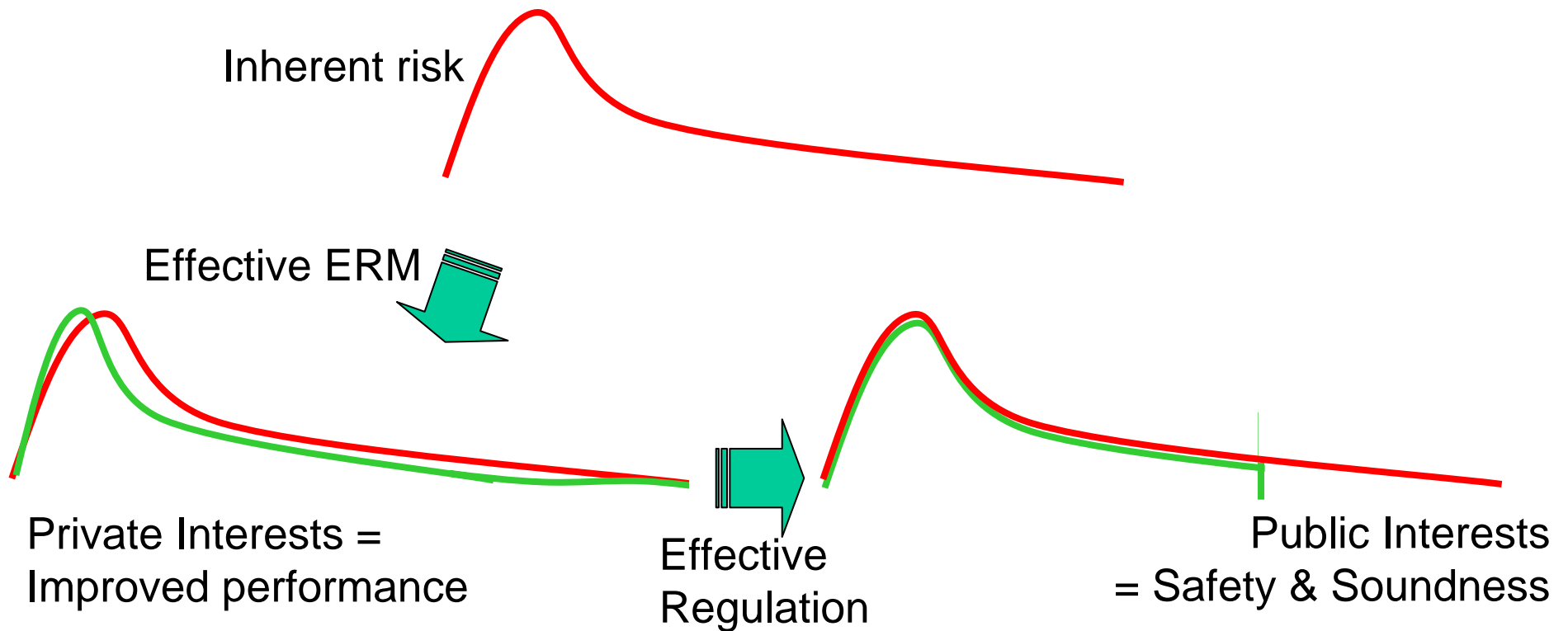


Enterprise and Public Interests are Not the Same

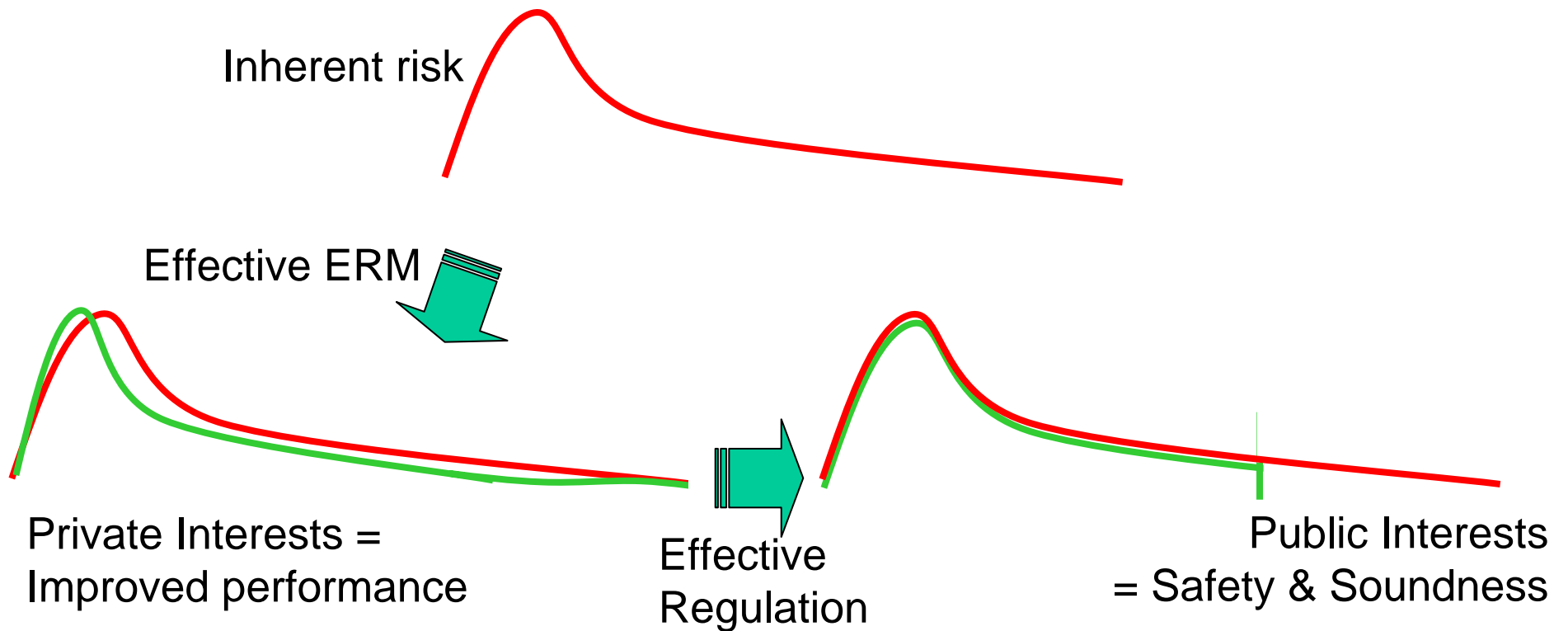


Private Interests =
Improved performance

Enterprise and Public Interests are Not the Same



Enterprise and Public Interests are Not the Same



The natural safety and soundness focus of regulation is on extreme tail events

Needed: a Causal Theory of Tail Events

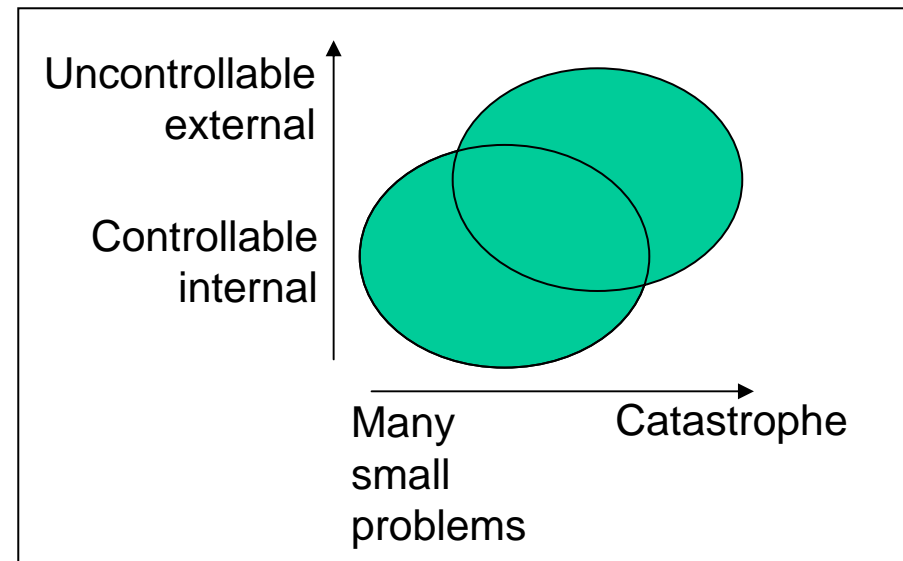
Origins:

- Several controllable little internal mishaps
- An uncontrollable external catastrophe
- Amplifiers
 - A combination of the two
 - Malfeasance
 - Reputational impact
- Pattern

Needed: a Causal Theory of Tail Events

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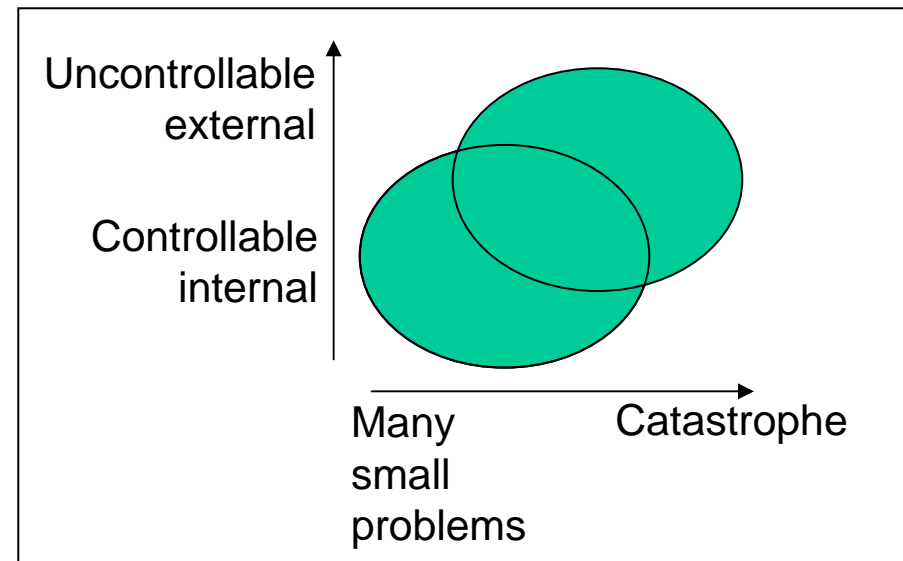
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Regulators have the stronger interest in the development of such a theory

A Layered Approach to ERM

Understand

- Many mishaps
- External catastrophe
- Amplifiers
 - Combination
 - Malfeasance
 - Reputational
- Pattern

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Identify & Assess

- KRIs
 - Practices
 - Culture
 - Etc.
- Internal & External Data
- Near Miss Data
- Scenario analysis

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- Strategic Positioning
- BCP
- Short Reaction Time
- Selection and Retention
- Incentives

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Distribute or Absorb

- Income
- Capital
- Transfer

Summary

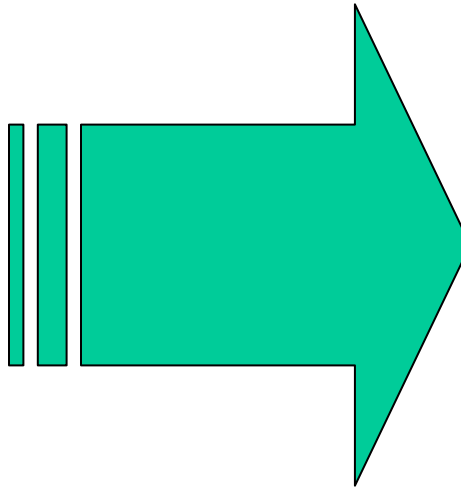
ERM: Business Value Definition

Enhancing
shareholder value
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Summary

ERM: Business Value Definition

Enhancing shareholder value through the integrated management of risk



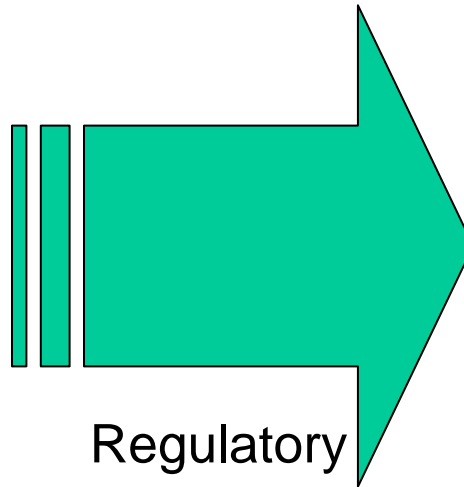
ERM: Regulatory Value Definition

Reducing systemic impacts through the integrated management of risk

Summary

ERM: Business Value Definition

Enhancing shareholder value through the integrated management of risk



Regulatory Delta

ERM: Regulatory Value Definition

Reducing systemic impacts through the integrated management of risk

Capital
KRIs
Loss Data
Near Miss Data

Tail Theory
Scenario Analysis
Culture Management

ERM and Regulation

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