

## **Assessing Insurers' Economic Capital Models Discussion on Methodology and Application**

David Ingram, Senior Director  
Enterprise Risk Management

Financial Institutions Ratings

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# Agenda

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## ***Introduction & Background***

1. Standard & Poor's View Of ERM
2. The Use Of ECMs Within ERM

## ***Assessing Insurers' Economic Capital Models***

3. ECM Review Project Timeline and Status
4. Discussion on Application Guide and Process
5. Preliminary Discussion on Methodology and Criteria

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Introduction & Background

# Standard & Poor's view of ERM

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# The Value of Good Risk Management

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The **purpose** of Risk Management is to...

- Identify and monitor significant risks
- Set risk limits for each risk to reflect the company's risk tolerances, competencies and resources
- Design program to measure all risks consistently with fundamental objectives of the enterprise.
- Execute the risk management programs to limit losses to within the company's risk tolerances

The **product** of Good Risk Management ...

**... is a controlled risk taking environment**

# What Is the Difference Between Risk Management and ERM?

*An ERM Program comprehensively applies Risk Management:*

- Across ALL of the significant risks of the Enterprise
- Consistently across the risks
- Consistently with the fundamental objectives of the enterprise

*An ERM Program reflects risk capital in:*

- Strategic decision making
- Product design and pricing
- Strategic and tactical investment selection
- Financial performance evaluation

*The product of a fully-realized ERM Program is  
**the optimization of enterprise risk adjusted return***

# ERM Evaluation Components

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# ERM Quality Classifications

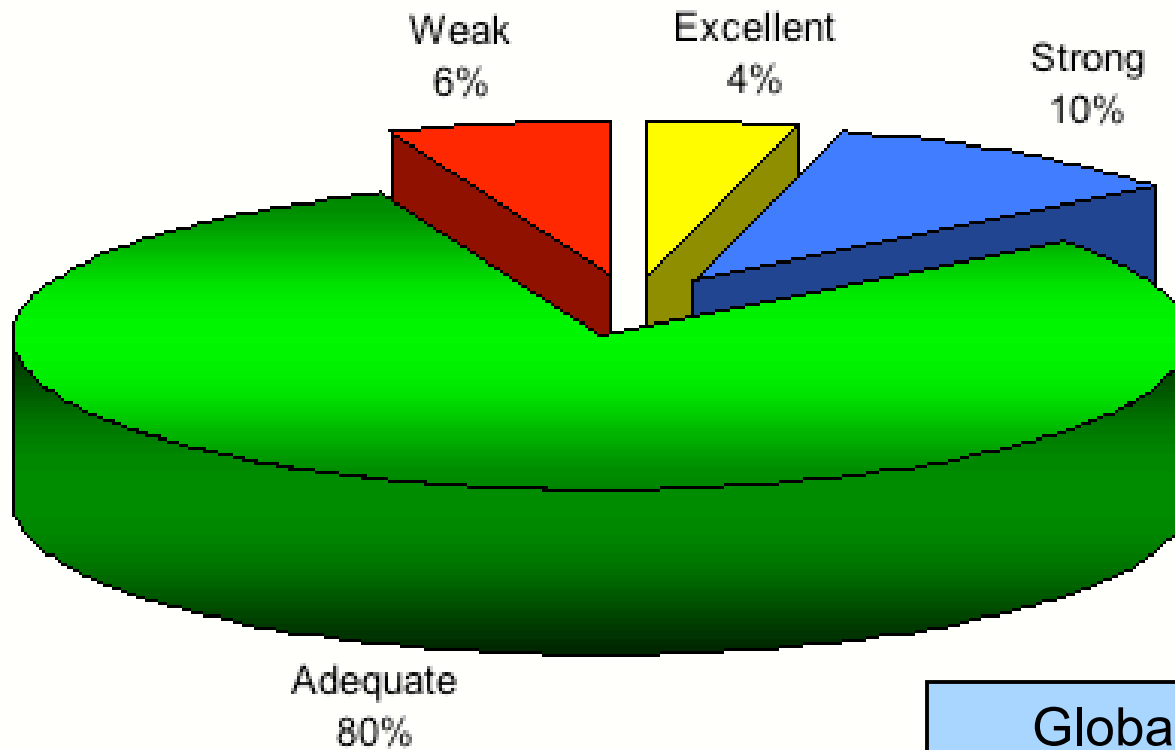
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<b>Excellent</b>	<ul style="list-style-type: none"> <li>▪ Advanced capabilities to identify, measure, manage all risk exposures within tolerances</li> <li>▪ Advanced implementation, development and execution of ERM parameters</li> <li>▪ Consistently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

# Our findings – North America & Bermuda

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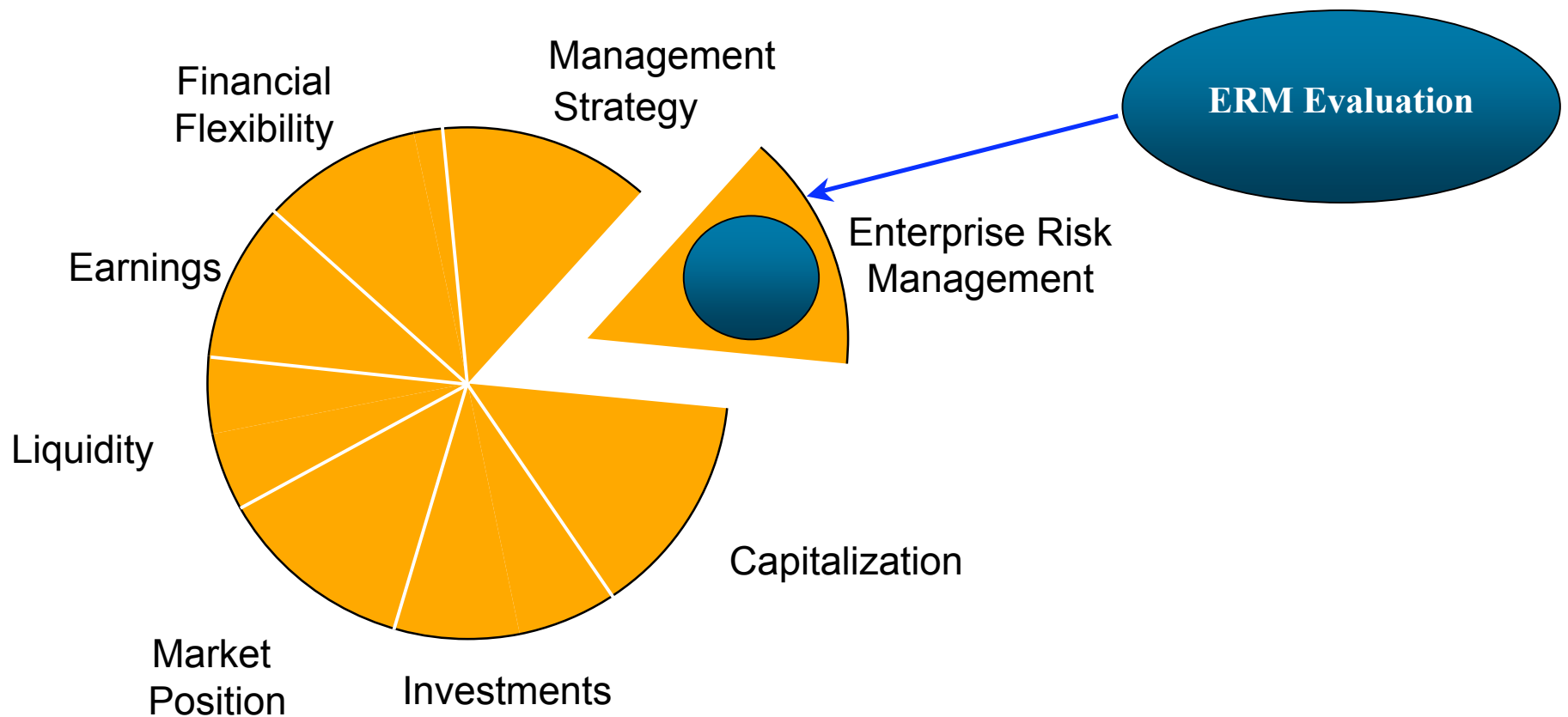
North America & Bermuda  
ERM Score Distribution, As Of April 2008  
Total Companies: 145



Global results show a similar distribution

# ERM Evaluation in the Ratings Process

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Introduction & Background

# The use of ECMs within ERM

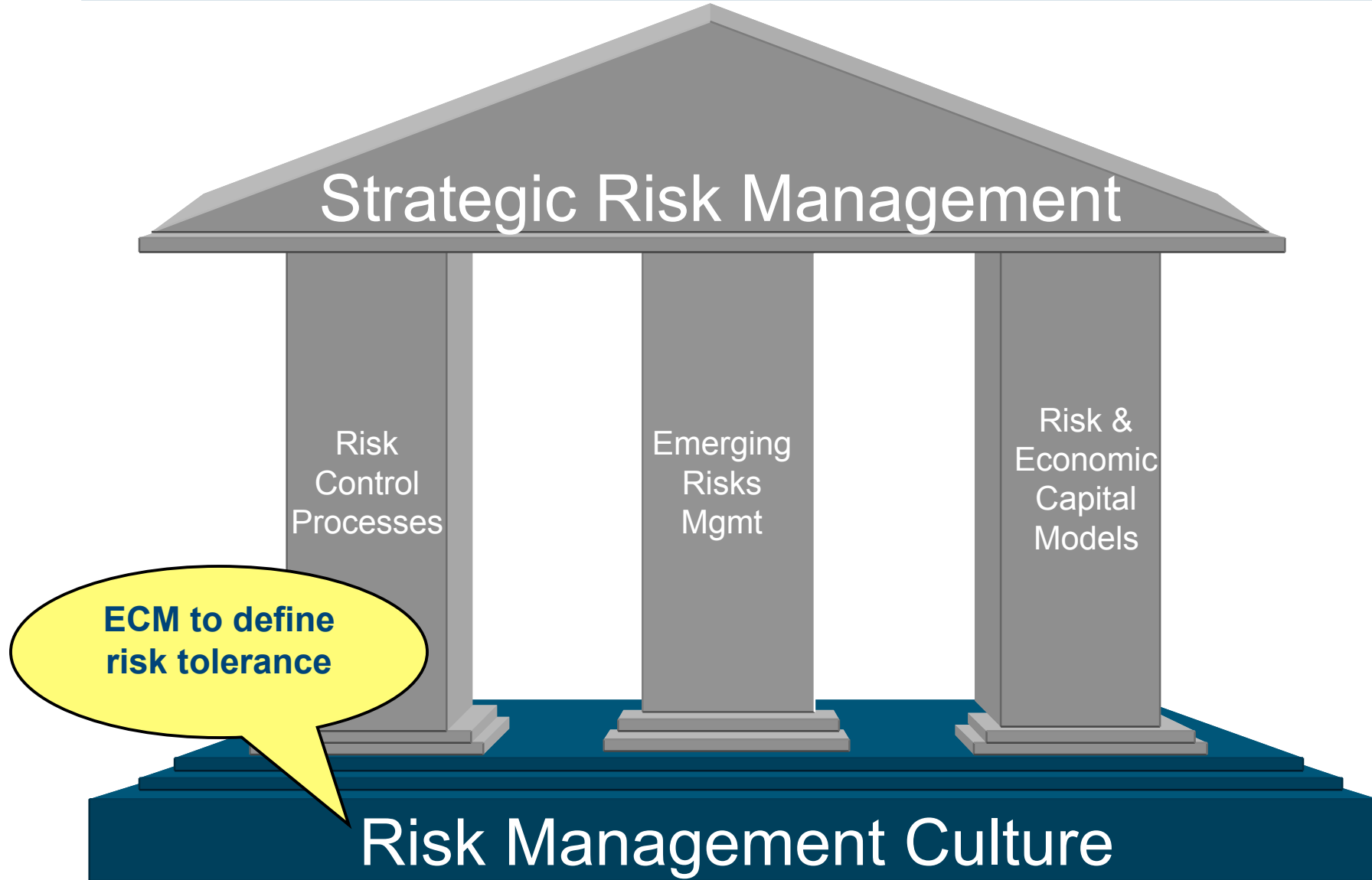
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# ERM Evaluation Components – where is ECM used?



# ECM within Risk Management Culture

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# ECM within Risk Management Culture

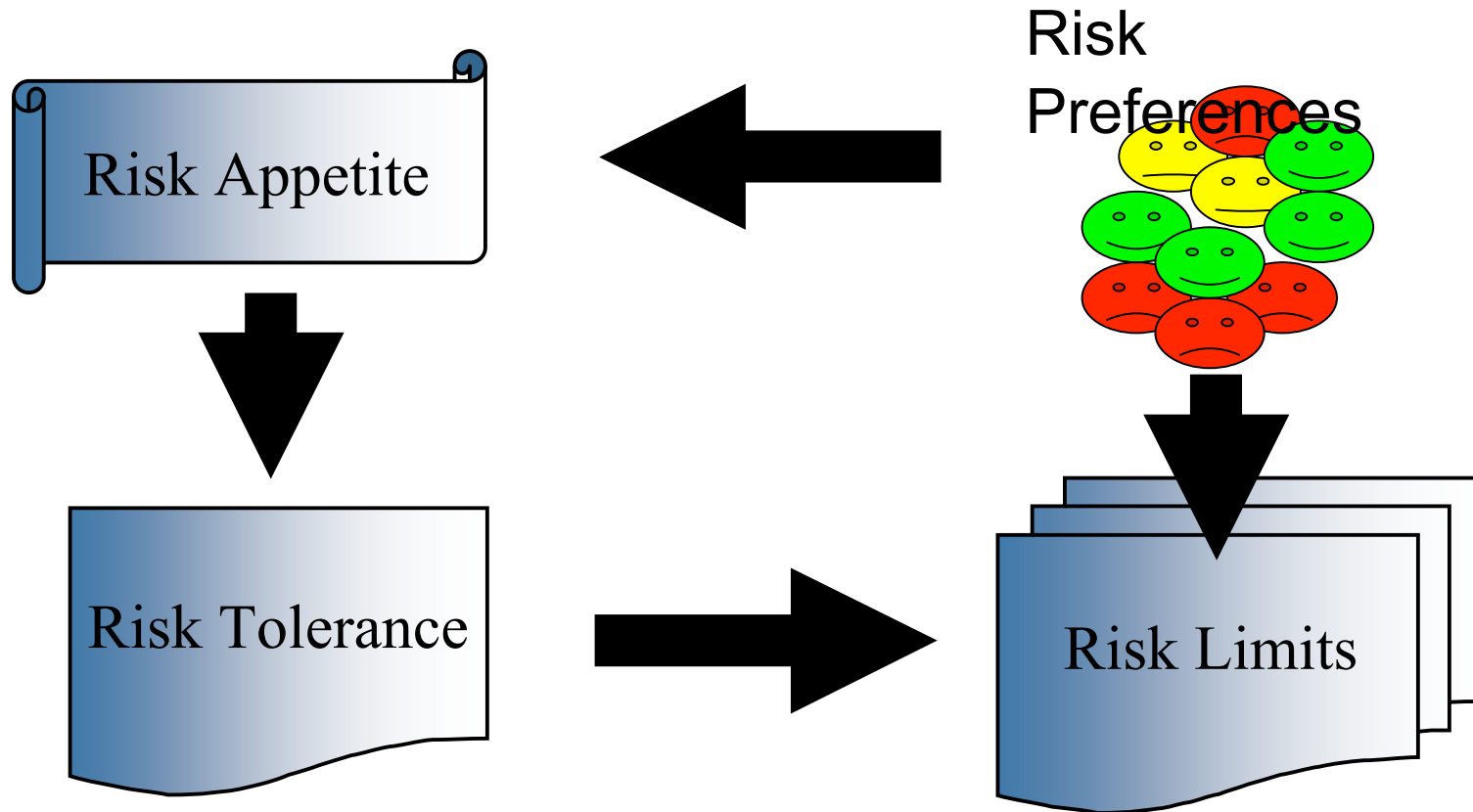
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## ***What do we look for:***

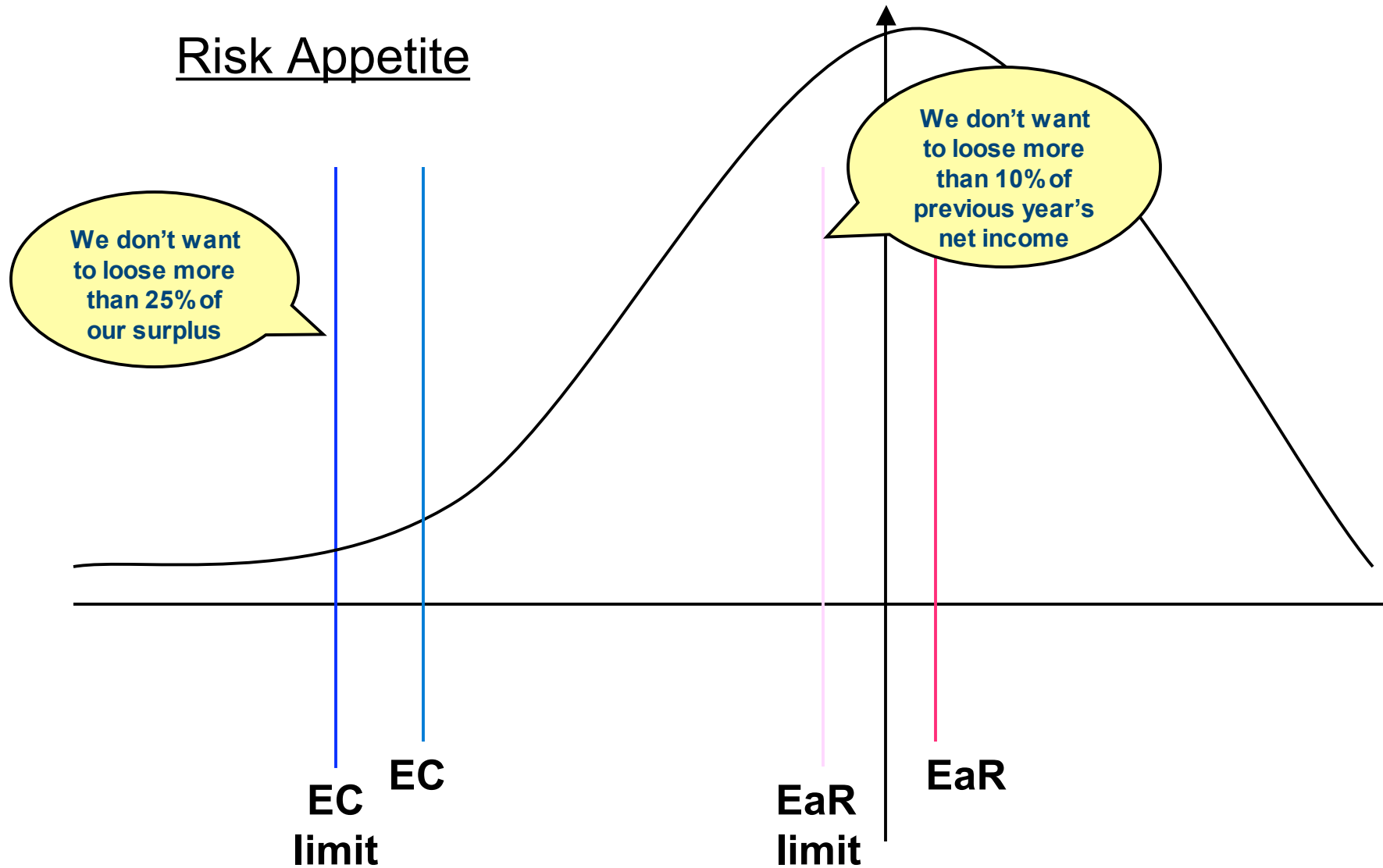
- Highly qualified risk management staff
- Regular communication with board on risks positions and risk management programs
- Clear and wide known risk management policies and procedures
- Company's governance structure supports effective risk management
- Risk measurement and monitoring is independent from risk taking and management
- *Clearly articulated risk preference, appetite and tolerance, translated into risk limits*
- *Manager's compensation is linked to the achievement of risk management objectives (RoEC, RoEV)*

# ECM within Risk Management Culture

## Process to set or adjust tolerance and limits



# ECM within Risk Management Culture



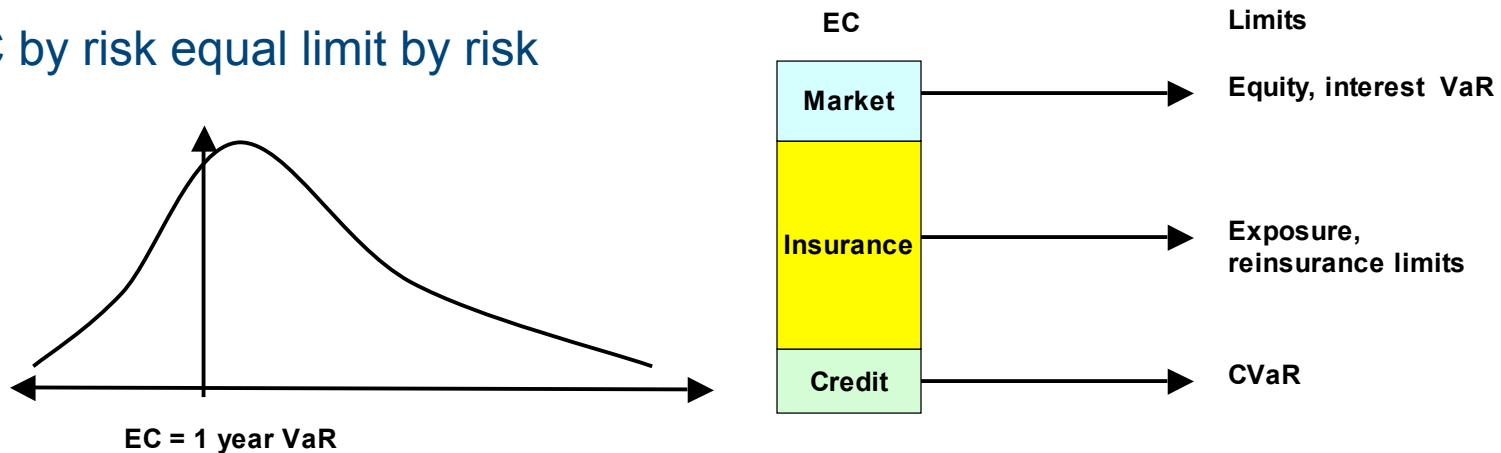
# ECM Within Risk Control Processes

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# ECM in Risk Limits

- EC by risk equal limit by risk



- Limits expressed in other terms than EC are then checked against overall EC tolerance and adjusted
  - Rating for credit risk, % of assets for market risk, premium for exposure?
- Risk positions tested against EC and EaR tolerances
- EC assigned to subsidiaries and/or business divisions
- **Return Adjusted Limits**

# ECM within Strategic Risk Management



# ECM within Strategic Risk Management

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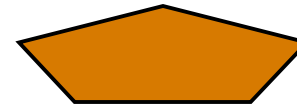
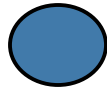
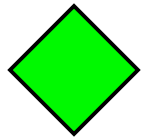
## *What do we look for:*

- **Consistent view across all risks**
- Capability to assess trade-offs between different risk types
- Assessment of risk adjusted returns
- Capital budgeting
- Strategic investment allocation

**Objective: To Optimize Risk-adjusted Returns**

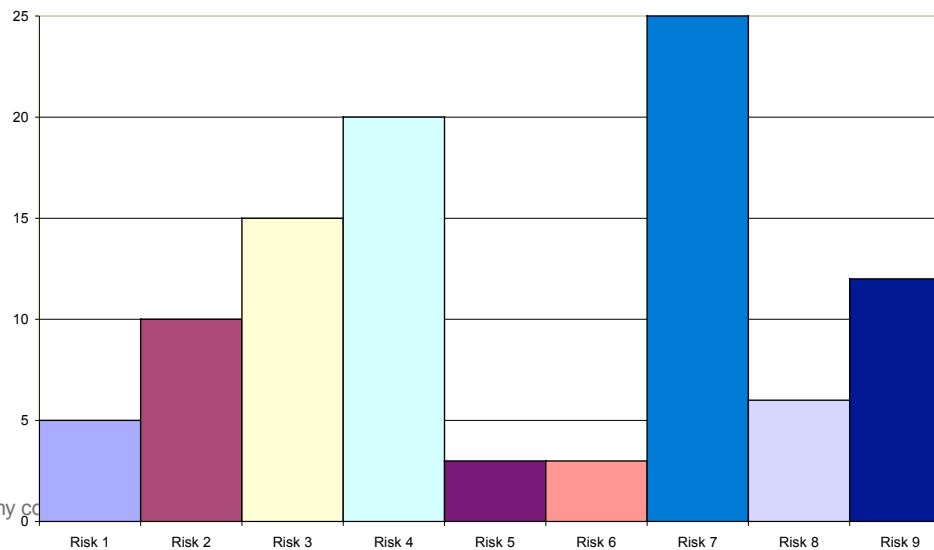
# ECM within Strategic Risk Management

## *Traditional views of risks*



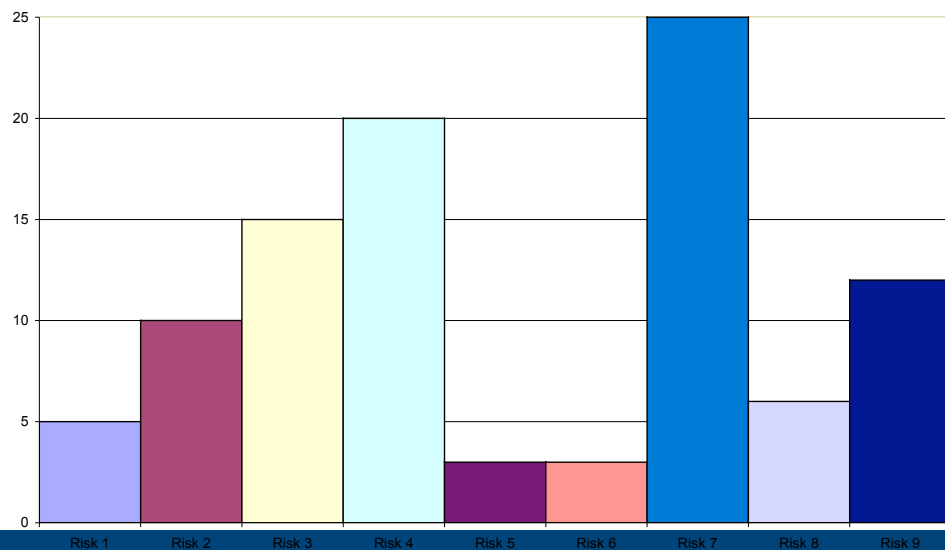
*Economic Capital to measure all risk on the same basis*

**Economic Capital**



# Economic Capital within Strategic Risk Management

Economic Capital



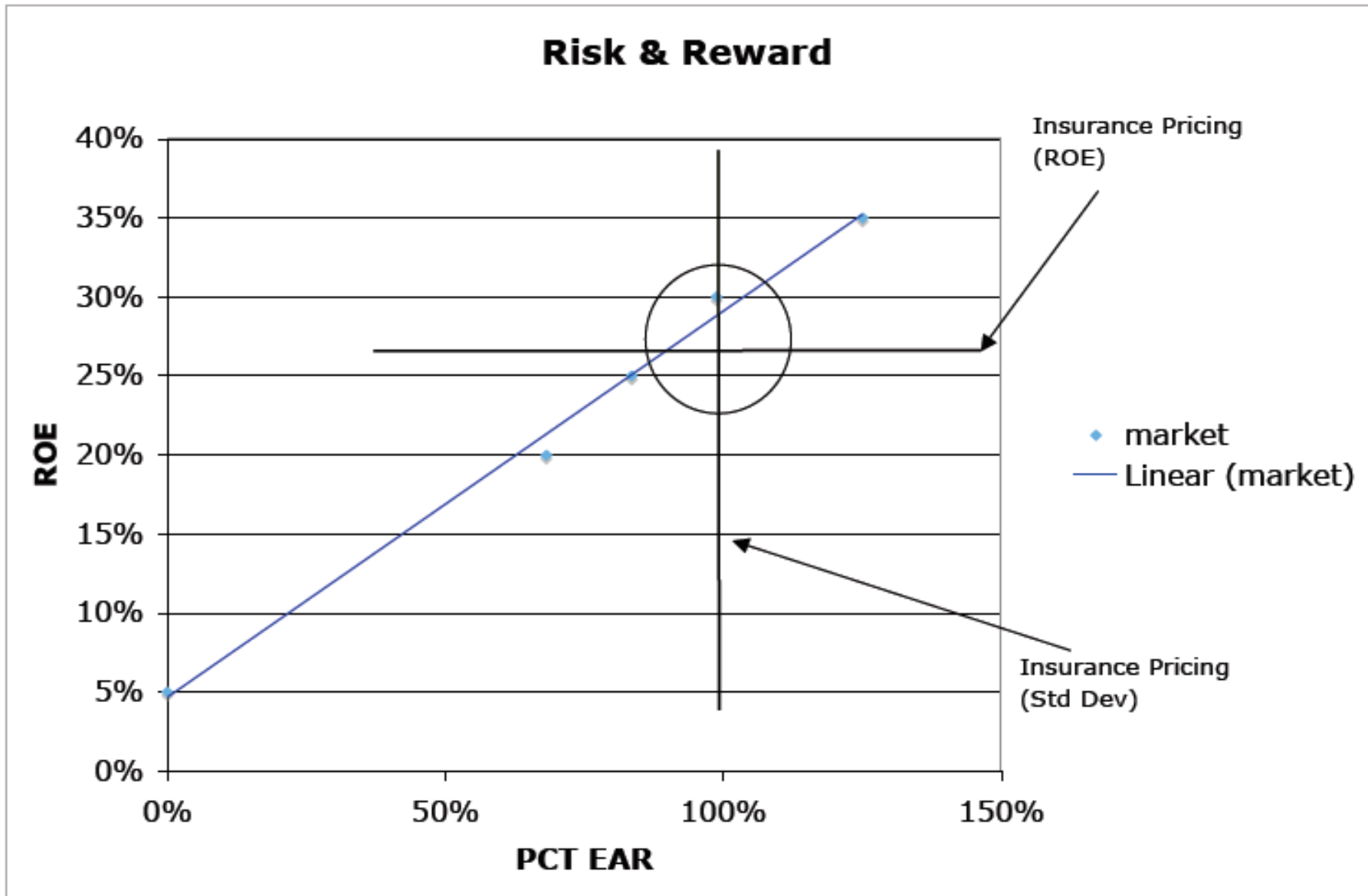
PROFITS	
Business A	4.20
Business B	3.10
Business C	1.10
Business D	3.80
Corporate	(1.80)
<b>Total</b>	<b>10.40</b>

***Economic Capital as the basis for Risk Adjusted Return***

## Return on Capital

## Value Added (after cost of capital)

# Pricing for Risk – is ECM Enough?



# ECM within Risk Models

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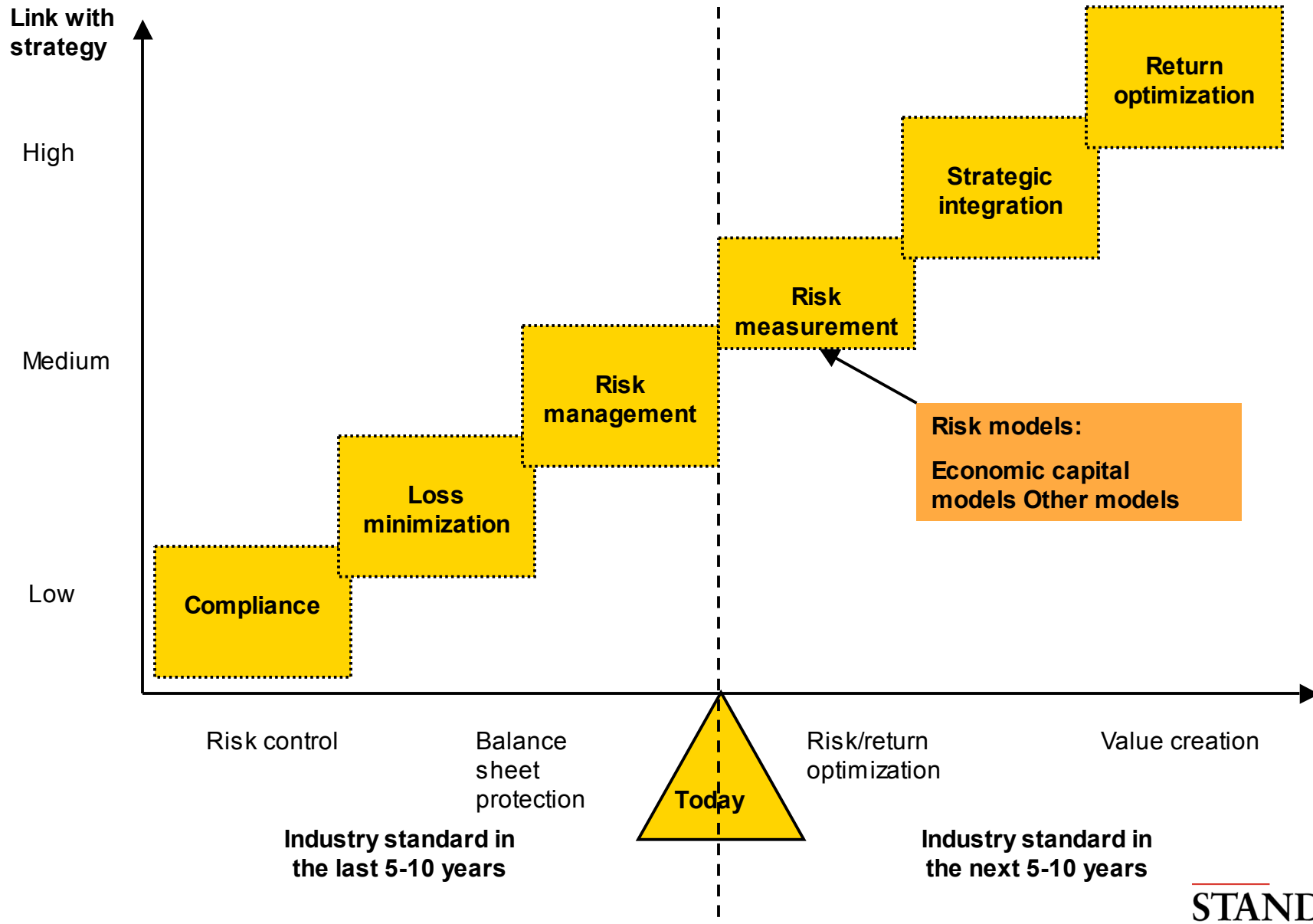
# ECM within Risk Models

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## *What do we look for:*

- High level discussions of how is ECM used and applied in the organization
- Ownership and embracement of ECM
- Dependencies on ECM within the firm's ERM process and overall strategic vision
- Risks that are captured or overlooked
- Risk levels defined by the firm's ECM versus Standard & Poor's RBC
- Capital adequacy versus capital optimization
- Seasoning of the ECM

# Conclusion: the Evolution of ERM and the Role of ECM



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Assessing Insurers' Economic Capital Models

# ECM Review Project Timeline and Status

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# Why Economic Capital Model Analysis?

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- S&P's Economic Capital Model Review will enhance and build upon S&P's analysis of insurers' Enterprise Risk Management capabilities.
- ECM Review is the next step in the evolution of our credit analysis
  - Deepen our assessment of risk management
  - Augment our understanding insurer's capital needs
  - Enrich our forward looking view of credit and ratings

# Current S&P Outlook and Research

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## Evolution of The ECM Review Process

Date	Milestone
February 2007	Published “Request For Comment: Economic Capital Review Process For Insurers” to start the process to determine guidelines for establishing criteria and procedures
September 2007	Published “Economic Capital Review Process For Insurers: Criteria Update” to follow up on issues raised through the request for comment process
May 2008	Published “Application Guide: Assessing Insurer’s Economic Capital Models” and “Methodology: Assessing Insurer’s Economic Capital Models” to describe process and impact of the initial phase of the ECM Reviews

# What To Expect Next

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Date	Activities
May – December 2008	<ul style="list-style-type: none"><li>– Perform first 5 ECM reviews through to mid-November</li><li>– Opinion on all 5 companies will be finalized at 1 Rating Committee meeting to be held towards the end of November. This meeting will include Insurance Analysts and ECM Analysts</li><li>– After this meeting, a detailed ECM review report will be delivered to the reviewed insurer</li><li>– Summary of the ECM review report will be incorporated into the reviewed insurer's Full Analysis article</li></ul>
Fall 2008	Develop plan for involvement of Advanced Analytics
Spring 2009	Publish further Criteria based on first 5 reviews
January – December 2009	Begin new reviews and repeat 2008 reviews

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Assessing Insurers' Economic Capital Models

# Discussion on Application Guide and Process

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# ECM Assessment – Overview

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- **Standard & Poor's has developed its process for evaluating insurers' internal economic capital models. Incorporates:**
  - Broad industry feedback
  - Findings from specific ECM discussions with market participants
  - Research of commonly applied practices
- **ECM assessments will be voluntary subject to a screening process**
  - Companies with robust ERM constructs
  - Quality of documentation
  - Willingness and readiness of the firm
  - Complexity and scope of the company and their model
- **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**

# ECM Assessments – Eligibility

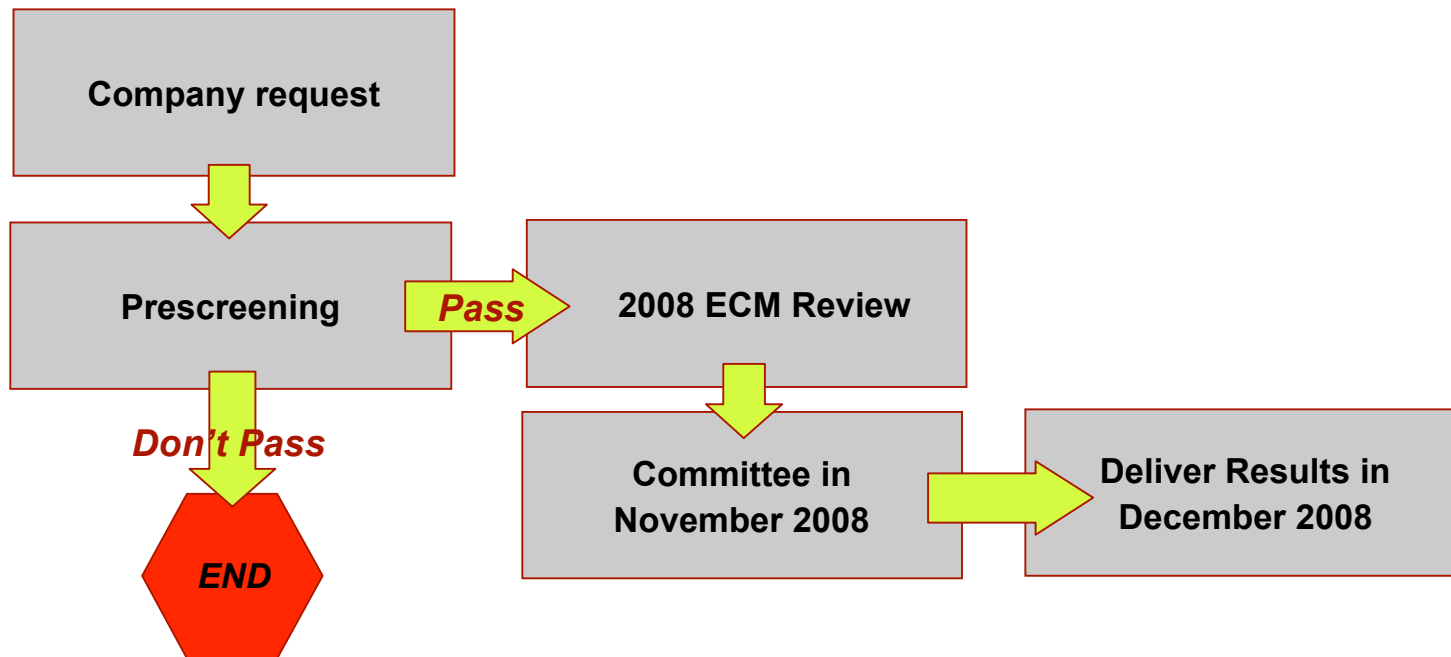
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## For Insurers with **Strong or Excellent ERM**

- Standard & Poor's has developed a robust process for evaluating insurers' 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

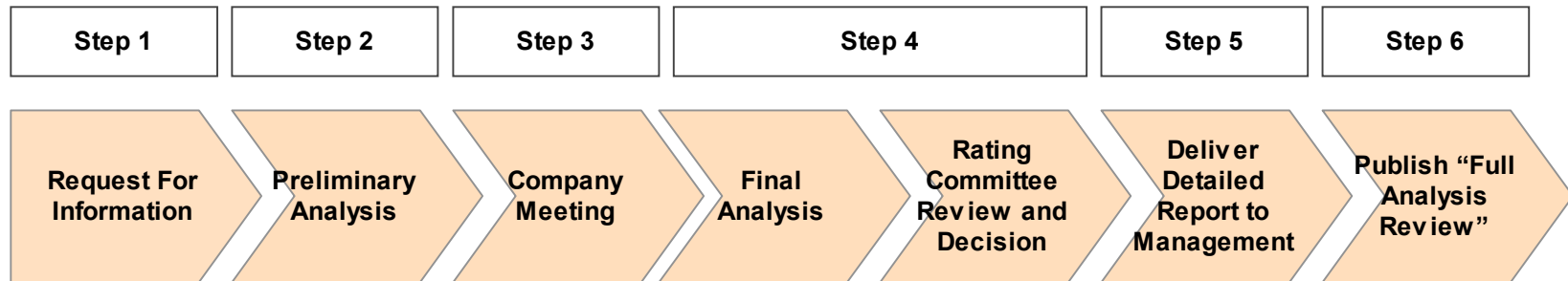
# 2008 ECM Review Timeline

ECM Reviews will be a primarily qualitative assessment through 2008; Quantitative Analysis to be implemented in 2009



# Process For Each Review

Each company will be reviewed using a 6-step process

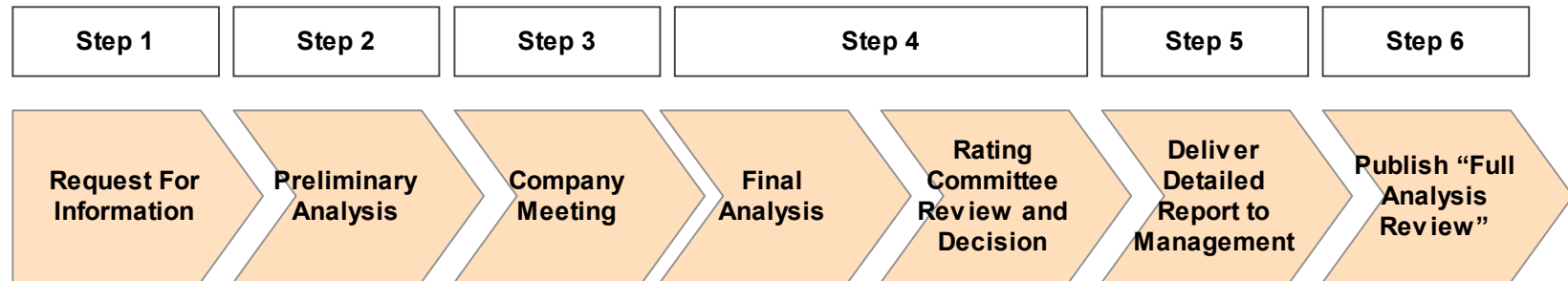


## Step 1 – Request for information around nine broad areas

- Model set-up
- Model validation and control processes
- Asset valuation
- Liability valuation
- Risk modeling
- Assumptions setting
- Diversification/aggregation
- Risk-mitigation activities
- Stress and scenario testing
- Results of the model

# Process For Each Review

Each company will be reviewed using a 6-step process



## Step 2 – Preliminary analytical review

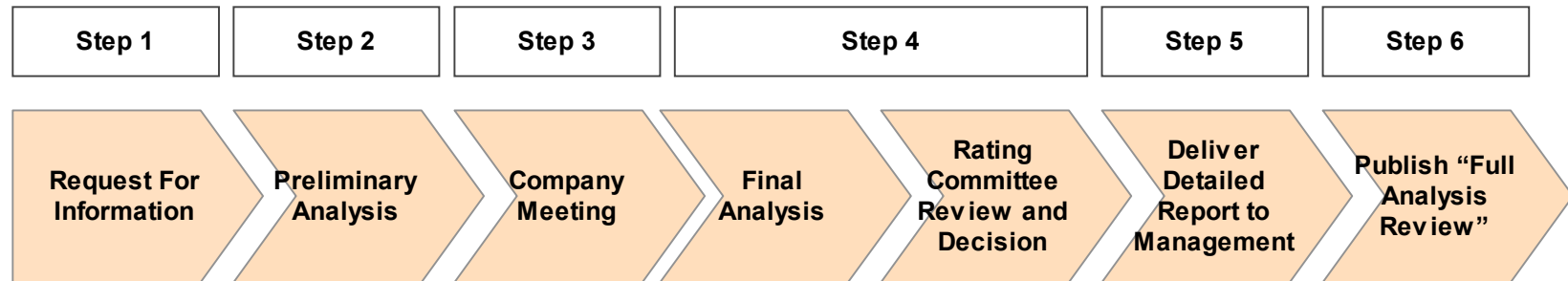
- Further review of use test
- Benchmark comparisons (v. S&P RBC, v. Peer results)
- Validation exploration
- Review of any independent external documentation

## Step 3 – Review meeting with company

- Will include management, specialists and perhaps third party representatives
- Discuss initial findings
- Further exploration of key model components or processes

# Process For Each Review

Each company will be reviewed using a 6-step process



## Step 4 – Final analysis and rating committee decision

- Development of a detailed report of findings
- Recommendations presented and discussed in a committee setting

## Step 5 – Presentation of conclusions to company management

- Final report reflecting our findings and our conclusions delivered
- ECM credibility factor discussion
- Will reflect our view of required capital

## Step 6 – Summary of findings made public

- Summary of ECM review report published on RatingsDirect

# Schedule for 2008 Reviews

The ECM Review Report for all 5 companies will be finalized at the same time during the committee meeting in November

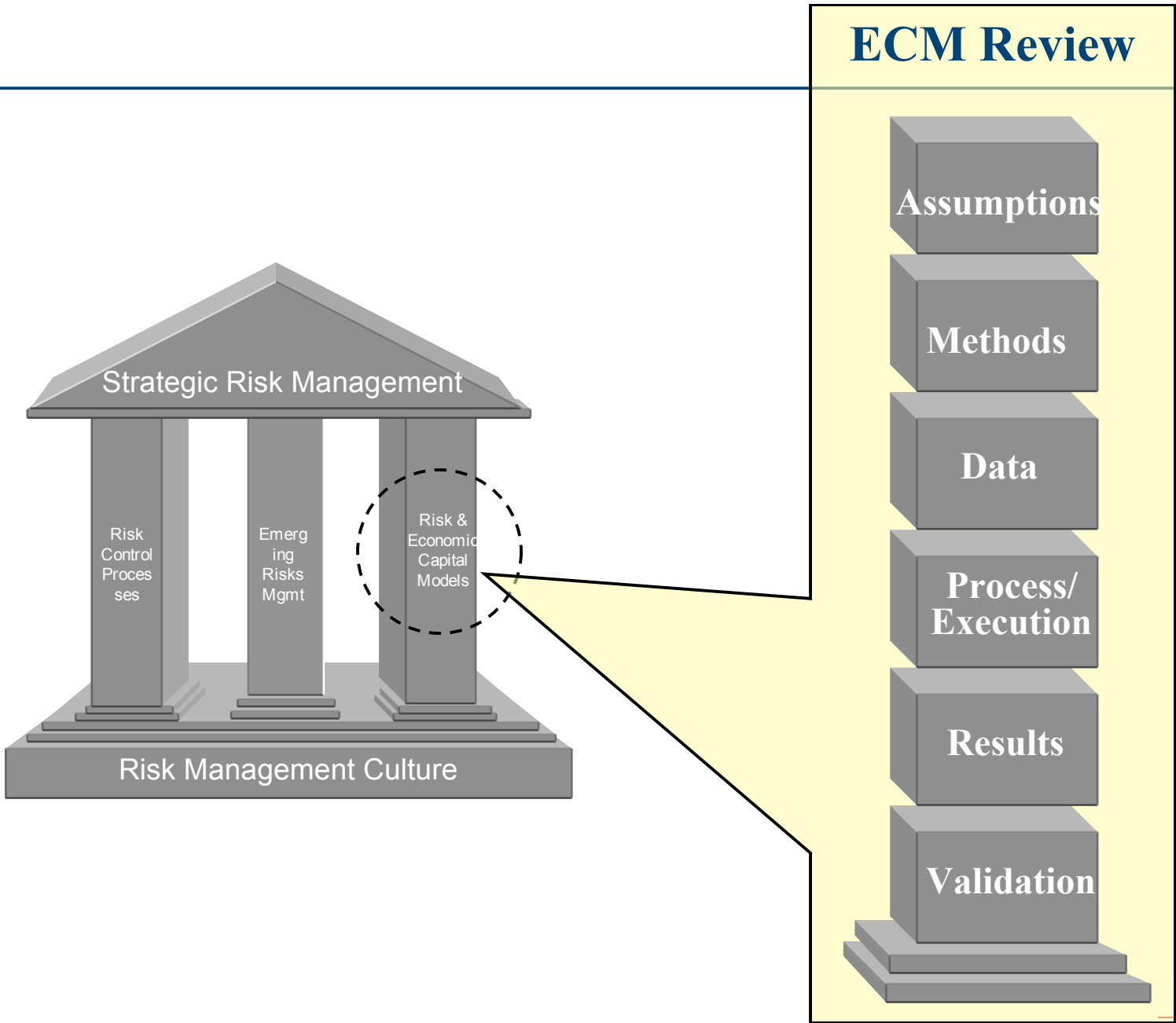
<b>Step 1</b>	<b>Step 2-3</b>	<b>Step 4</b>	<b>Step 5</b>
<b>RFI</b>	<b>Preliminary Analysis Company Meetings</b>	<b>Final Analysis Rating Committee</b>	<b>Deliver Detailed Report</b>

May	June	July	August	September	October	November	December
M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	M T W R F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Company 1								
Company 2								
Company 3								
Company 4								
Company 5								

Request-for-information  
(Step 1) to commence  
upon client engagement

Our goal to deliver the  
detailed report (Steps 5)  
for all companies by  
early December



**ECM Review**

Assumptions

Methods

Data

Process/  
Execution

Results

Validation

Strategic Risk Management

Risk  
Control  
Processes

Emerg  
ing  
Risks  
Mgmt

Risk &  
Economic  
Capital  
Models

Risk Management Culture

# ECM Assessment – The Review Framework

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**Six categories of focus across each function or model.  
These will influence the “M-factor”**

## 1. Assumptions

- What are they and how were they developed

## 2. Methodology

- Effectiveness of risk identification and quantification
- Diversification and capital fungibility

## 3. Data quality

- Data source and integrity
- Data application – asset/liability valuation, setting parameters

# ECM Assessment – The Review Framework

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## Six categories of focus across each function or model

### 4. Process and execution

- Model construction and effectiveness
- Model integration – data, model components, outputs, reports

### 5. Results

- Versus internal benchmarking database
- Versus Standard and Poor's capital model results

### 6. Testing and Validation

- Quality of the firm's approach to assure the model is sound
- Stress and scenario testing considerations

# ECM Assessment – Third-Party ECM Evaluations

We hope to leverage any independent ECM assessments and validations to enrich our analysis

Some likely considerations when reviewing analysis of a third-party:

- **Assessment Process** – the external party’s criteria and how it aligns with Standard & Poor’s criteria
- **Scoring** – the grading scale, benchmarking, comparisons to best practices
- **Reviewer qualifications** – Person(s) doing the review, their expertise, how the reviewer was chosen
- **Other factors** –
  - The scope of the external review
  - The motivation for the review
  - The age of the review

# **ECM Assessment – Third-Party ECM Evaluations**

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- **Will require access to the entire report prepared by the 3<sup>rd</sup> party**
- **Will prefer to have direct access to the 3<sup>rd</sup> party for any follow-up questions**
- **Will not be relying on 3<sup>rd</sup> party opinion**
- **Will tend to focus on the process that the 3<sup>rd</sup> party followed to form their opinion**
  - Rather than on the specifics of their opinion
  - Focus on validations that they performed

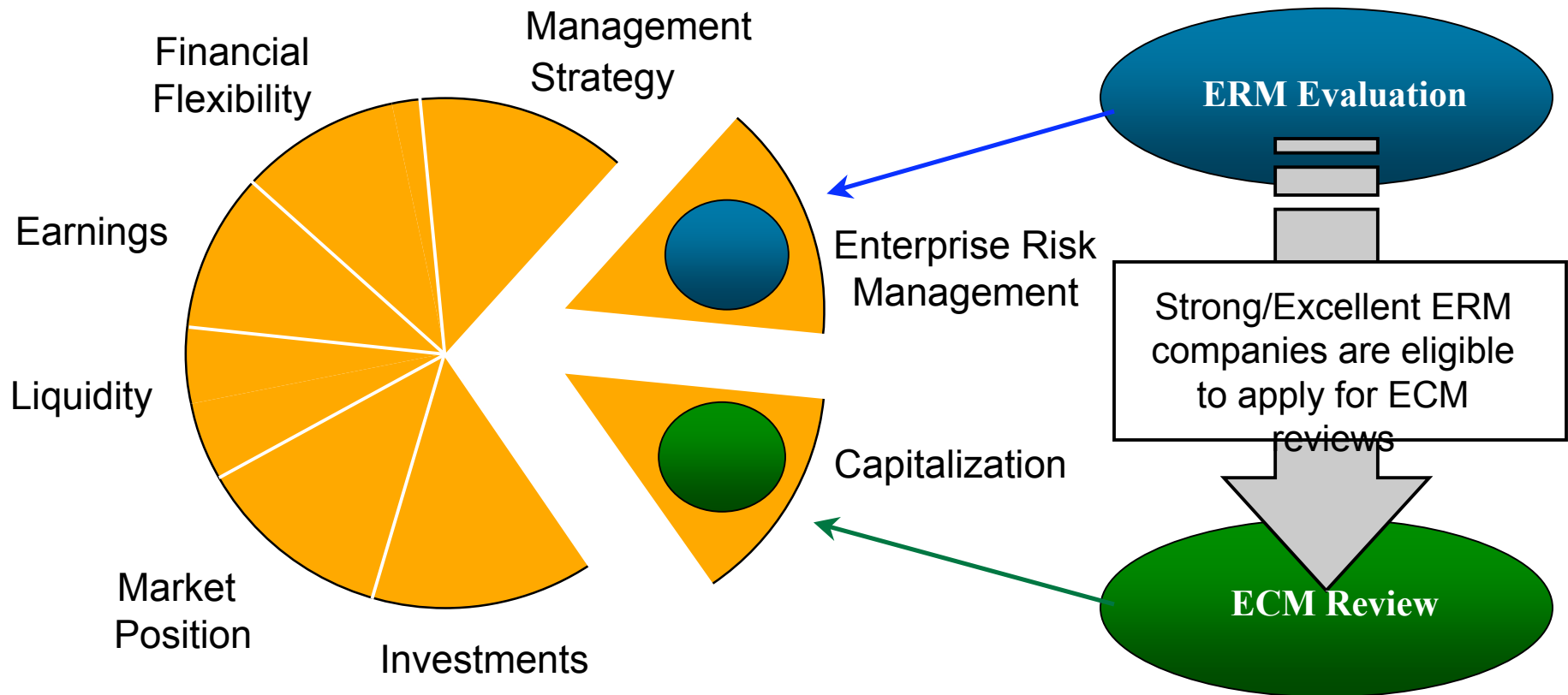
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Assessing Insurers' Economic Capital Models

# Preliminary Discussion on Methodology and Criteria

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# Relating ERM to ECM in the Ratings Process



# ECM Assessments – Quantifying Credibility

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- Standard & Poor's will blend the results of its RBC model output with the ECM output of the insurer. There will be a credibility "M-factor" applied to achieve this weighted average
- The level of credibility or "M-factor" will vary given several considerations
  - Initial level of confidence expect to be low
  - Over time we expect to place greater reliance on the insurer's ECM results
- Will make adjustments to reflect balance sheet valuation definition differences

# ECM Assessments – Quantifying Credibility

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Adjustments will be made to make for consistency between the two models using a total balance sheet approach

- We will establish total resources required. This is broadly defined as:

$$\text{TRR} = \text{Liabilities assumed in determining required capital} + \text{Required capital}$$

- For the Standard & Poor's RBC model determine TRR → adjustments made to total available capital (TAC) will be attributed back to the B-S as asset or liability adjustments
- For the firm's ECM → use information the company provides with adjustments made to assure consistency with the Standard & Poor's RBC
- This is one step to align models that are determined with different asset and liability valuation definitions (*see appendix for further details*)

# Questions?

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# Appendix

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# ECM Reviews – Explaining TRR

## Example to illustrate Total Resources Required (TRR)

	Assets	Liabilities and surplus
<b>Current Process</b>		
Total assets (accounting)	1,000	
Total liabilities (accounting)		700
Total surplus (accounting)		300
<b>Adjustment to total adjusted capital</b>		
Reserve review		(50)
Deferred acquisition cost / VIF adjustment		100
Total adjusted capital		350
<b>Risk-based capital needs</b>		<b>200</b>
<b>Excess capital</b>		<b>150</b>

**NOTE:** In this example, we allocate all of the valuation adjustments made to arrive at TAC in the capital model either to accounting assets or liabilities. We then compare adjusted liabilities plus RBC to adjusted assets to determine excess capital.

	Assets	Liabilities and surplus
<b>Total resources required (S&amp;P RBC basis)</b>		
Total assets (accounting)	1,000	
Total liabilities (accounting)		700
Total surplus (accounting)		300
<b>Total Liabilities</b>		<b>700</b>
<b>Net adjustments (50-100)</b>		<b>(50)</b>
<b>Risk-based capital</b>		<b>200</b>
<b>Total resources required</b>	<b>850</b>	
<b>Excess capital</b>	<b>150</b>	

	Assets	Liabilities and surplus
<b>Total resources required (insurer economic capital basis)</b>		
Total assets (accounting or model)	1,100	
Total liabilities (accounting or model)		600
Total surplus (accounting or model)		500
<b>Total Liabilities</b>		<b>600</b>
<b>Economic capital</b>		<b>300</b>
<b>Total resources required</b>	<b>900</b>	
<b>Excess capital</b>	<b>200</b>	

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# Actuaries & ERM

IAA Enterprise & Financial Risks Committee

International Network of Actuarial Risk Managers

North American Joint Risk Management Section

# **IAA Enterprise & Financial Risks Committee**

- **Responding to the IAIS**
- **Facilitating Training & CPD regarding ERM**
- **Facilitating Development of a web-based ERM library**
- **Provide advice & assistance in development of global ERM credential**
- **Serve as ERM & risk knowledge resource**

# **International Network of Actuarial Risk Managers (INARM)**

- **Is not an organization!**
- **Is a network.**
  - Participants are members of existing actuarial organizations
- **Network offers a chance for actuaries interested in ERM a forum for communications**
  - Sharing
  - Questioning
  - Personal reactions to events
- **Virtual ERM Coffee Shop**

## **Listserv**

- **About 300 participants.**
- **Any participant can send an email.**
- **Recent extended discussion of own credit adjustment to fair value**
- **Notices of publications & events around the world**

(see public listservs on SOA site)

## **Riskviews Blog**

- **Includes archive of emails from listserv**
- **Plus postings on other topics**  
–(190 total @ 1 June)
- **Has about 200 hits per week since inception**

[Riskviews.wordpress.com](http://Riskviews.wordpress.com)

## **ERM Reading Groups**

- **4 groups to read 4 books & discuss**
- **Selected from a list of 40 books that was compiled from the listserv participants**

[Ermbooks.wordpress.com](http://Ermbooks.wordpress.com)

## **LinkedIn Group**

- **Allows participants to share their professional information**
- **Can easily “connect” with 250 members of INARM group from 25 countries**
- **Over 20 million total on LinkedIn**

[www.linkedin.com](http://www.linkedin.com)

## **Joint Risk Management Section**

- **Founded in 2003**
- **Jointly sponsored by SOA, CAS & CIA**
- **Now has about 3000 dues paying members**
- **Newsletter**
- **Research**
- **ERM Symposium**
- **<http://www.soa.org/professional-interests/joint-risk-management/joint-risk-management-detail.aspx>**

**What we think, or what we know, or what we believe is, in the end,  
of little consequence. The only consequence is what we do.**

**John Ruskin**