

ERM and Economic Capital

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Agenda

- **ERM overview**
- **Economic capital**
- **Rating agencies' perspectives**
- **Highlights from Tillinghast ERM survey**
- **ERM and the recent financial crisis**
- **EC and reinsurance**
- **EC and Japan**
- **Conclusion**

ERM Overview

Definition

- **What is ERM?**
 - “How an organization assesses, controls, exploits, finances and monitors risk from all sources for the purpose of increasing the organization’s value to stakeholders.”

Growing Interest

- **Why is ERM becoming so attractive?**
 - Recent corporate disasters
 - Increasing competition
 - Increasing exposure to market volatility
 - More complex business models
 - Growth of secondary market for transfer of risk

Growing Interest

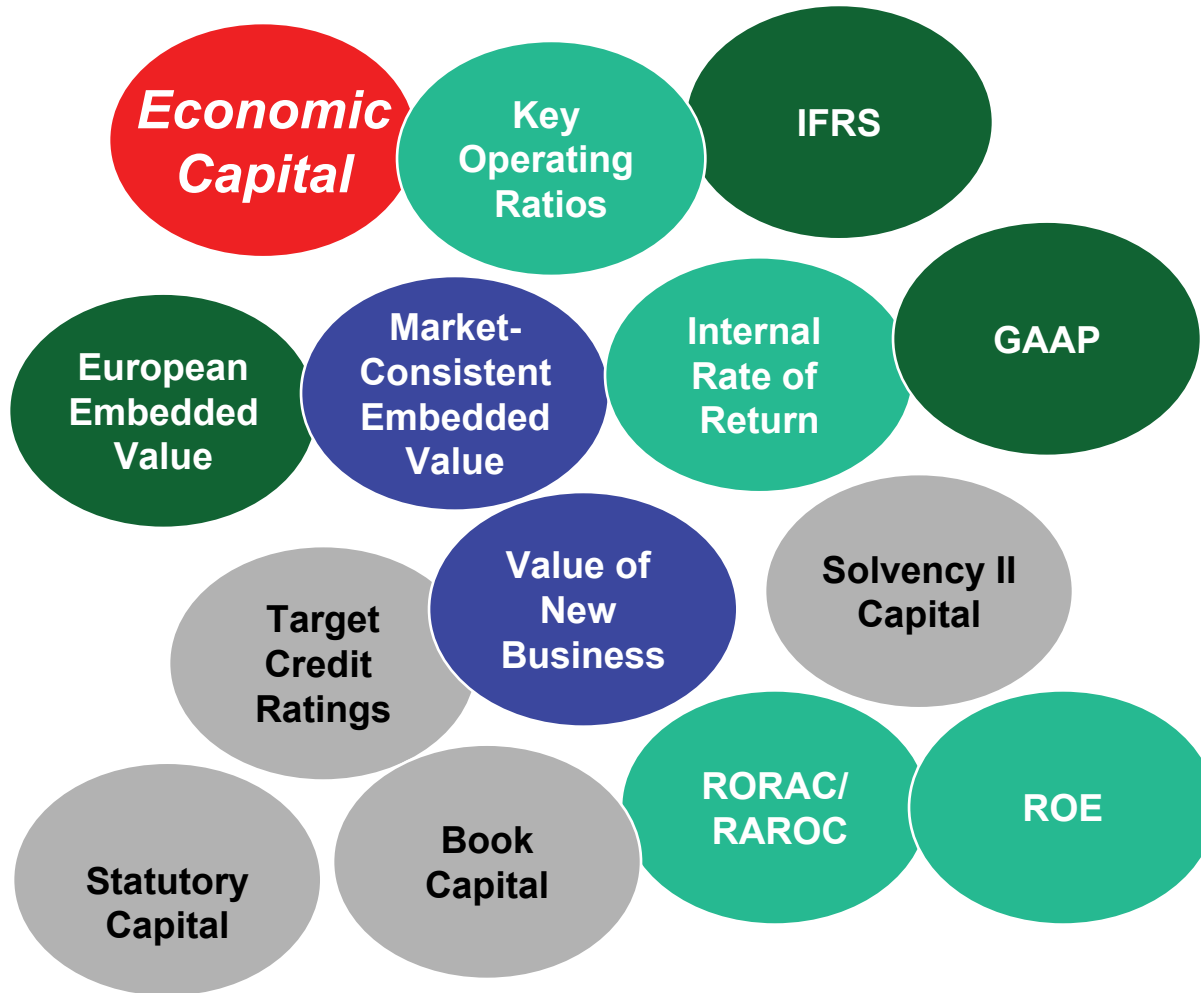
- **Why is ERM becoming so attractive?**
 - More stringent regulatory environment
 - Emergence of better risk mitigation techniques
 - Global initiatives on risk management
 - Tangible results from early ERM adopters
 - Rating agencies incorporating ERM in assessments
 - Increasing demand from stakeholders in understanding insurance risks

Growing Interest

- **Another driver is dissatisfaction with historical ERM approach**
 - Risk management was performed in silos
 - Focus was on satisfying regulatory requirements
 - Different risks were “owned” by different organizational units and managed independently

Economic Capital

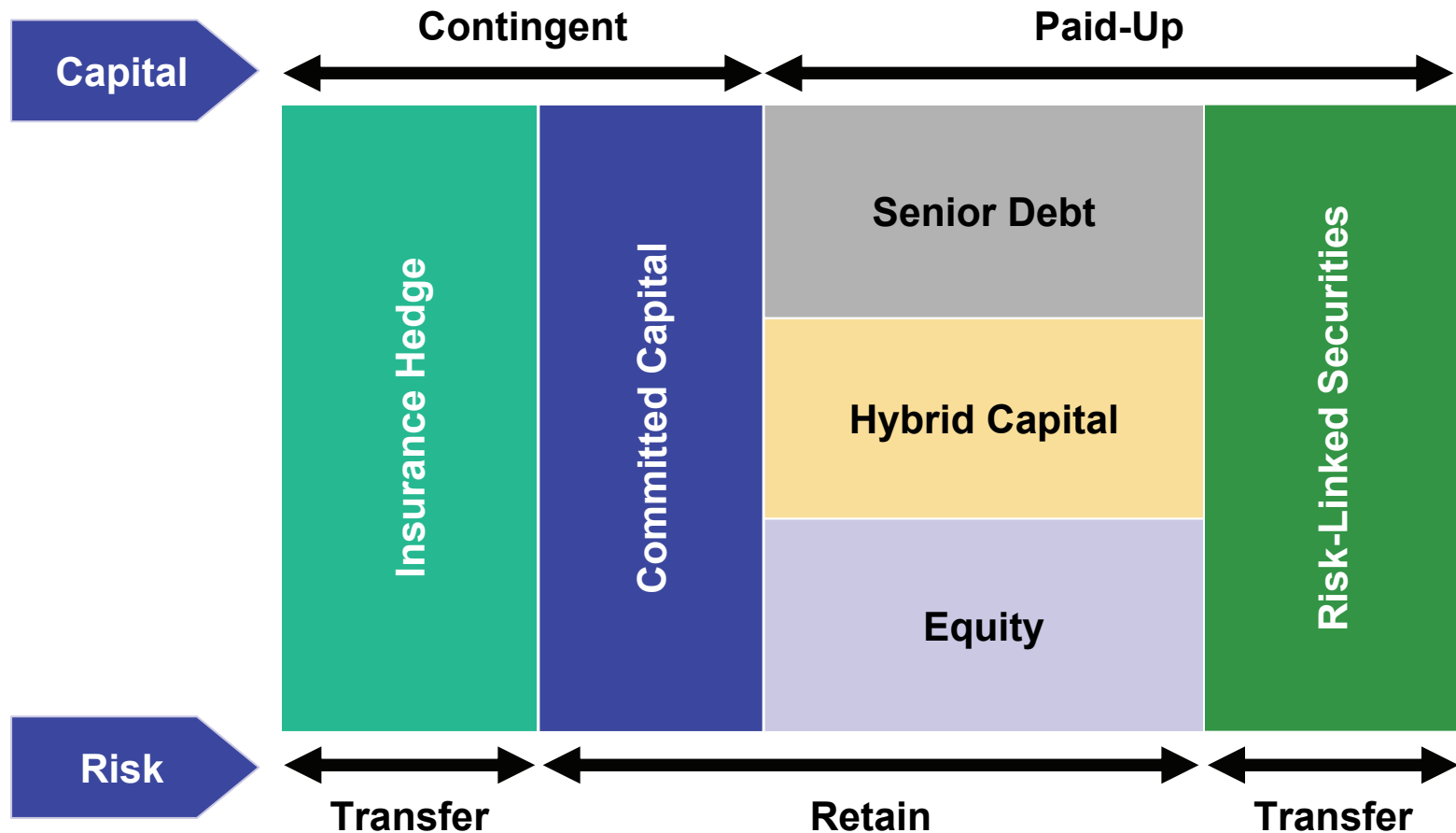
Management is Dealing with Many Complex Metrics



Company Leadership Must Overcome

- Inconsistency
- Confusion
- Information Overload

The Complete Picture Supports Better Business Decisions



Why EC Now?

- Multinational companies and large domestic companies have adopted EC following European regulations requiring use of EC metrics
- Solvency II is having global impacts, including the subsidiaries of multinationals
- EC has proven to be an effective device in measuring appropriate capital needs and is being used by more and more companies
- Because it has proven effective, more and varied North American firms are implementing and considering implementing EC
- Rating agencies agree and are starting to incorporate EC models in their view of insurance companies

The Risk/Capital Connection

From an economic perspective, risk and capital management work together

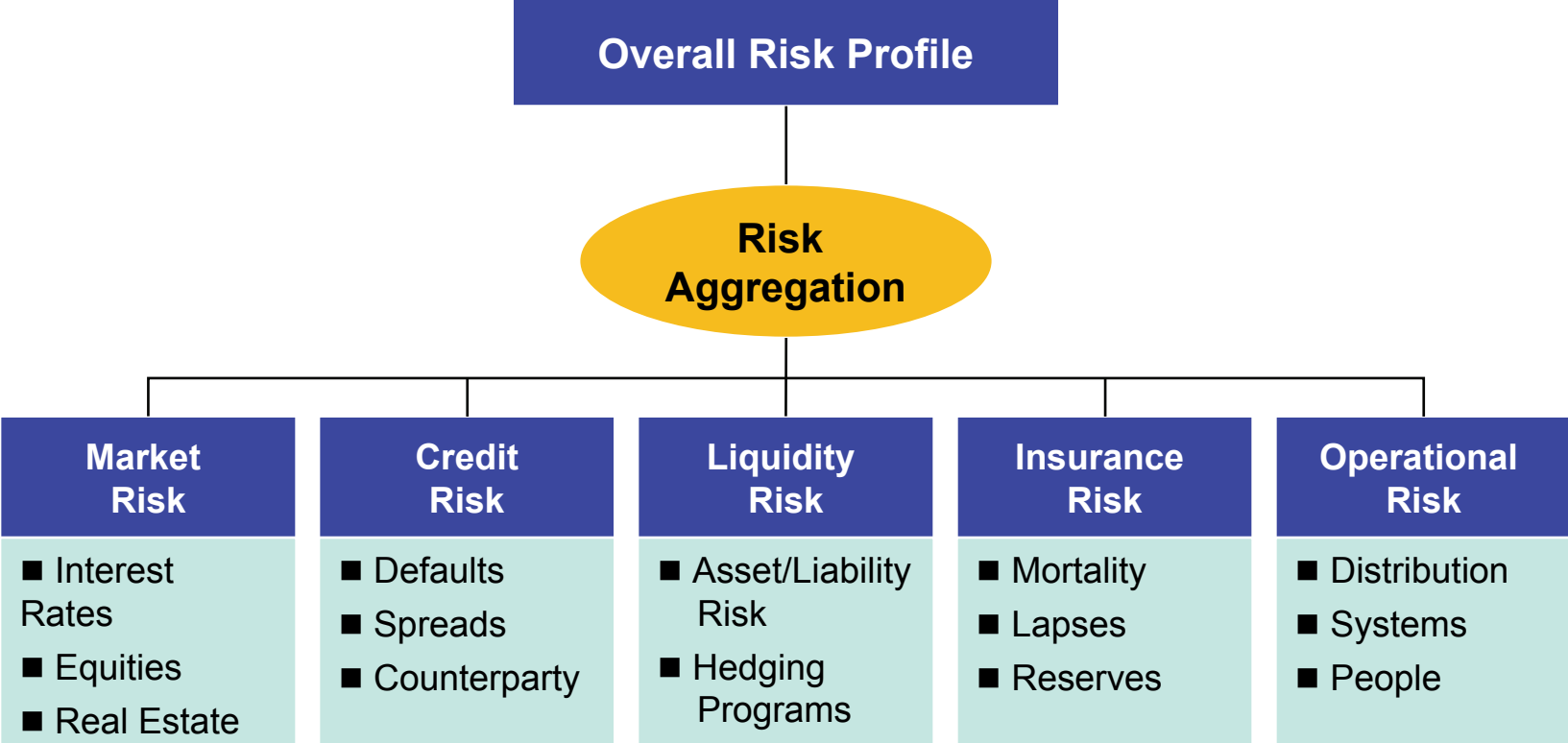
- **Capital management delivers the optimal capital resources — both paid-up (equity, debt, preferred, hybrid) and contingent (line of credit, insurance, interest rate swaps, commodity hedge) — sufficient to:**
 - Support the needs of a firm
 - Cover the risk exposures that the firm faces
- **Risk management ensures the firm's operational and financial exposures are controlled and supportable by its capital resources**

The Risk/Capital Connection

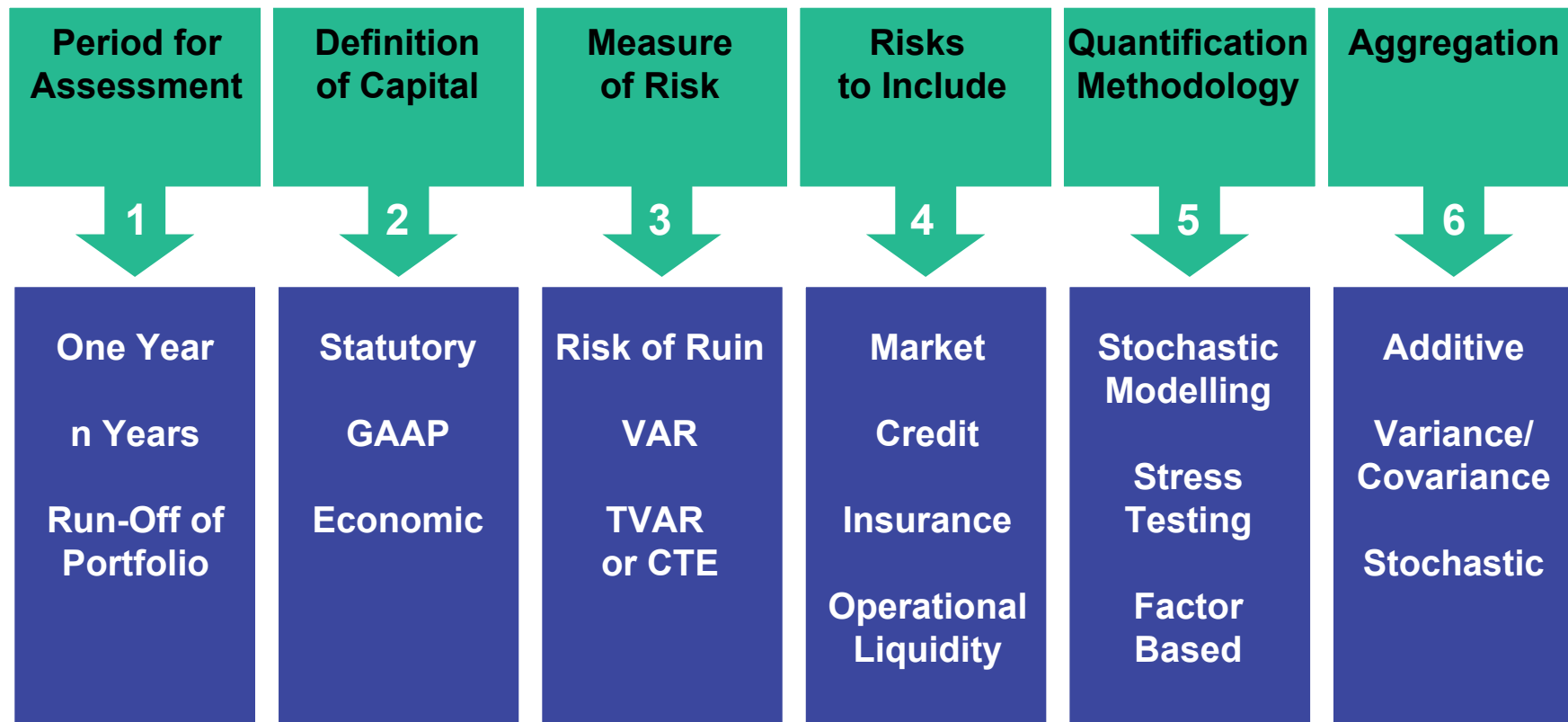
Capital resources have two basic purposes:

- **Operational capital**
 - used to produce goods and services such as plant, equipment, patents, staff, inventory
- **Risk capital**
 - used to support inherent volatility in operations such as varying economic conditions, catastrophic events and uncertainties in revenues and costs

EC Calculations Include All Material Risks



Six Key Decisions to Make in Building an EC Model



Decisions drive EC approach and should reflect company objectives

Asking the Right Questions to Develop Appropriate EC Models

- For what purposes will EC be used?
- What risks will be reflected in EC?
- To what degree will the risks be integrated?
- What is the shape of the value distribution?
- How is the value distribution obtained?
- How will risk be attributed to transactions?

What do Companies Require From an Economic Capital System?

Use

Continuous solvency monitoring for rating and regulation

Economic profitability measurement by business and product

Pricing of existing and new business

ALM and risk management strategies

Strategic decision making; Mergers and Acquisitions

Business Requirements

- Fully reflect the business, structure and risks
- Provide Economic Capital on a stand alone, combined and fully allocated basis, at multiple confidence levels and at multiple levels of granularity
- Generate appropriate management information for use in all appropriate business decisions
- Build upon the existing actuarial systems
- Include all insurance, banking and fund management business on a consistent basis
- Provide immediate updating and what-if analysis
- Be of a robust, enterprise standard

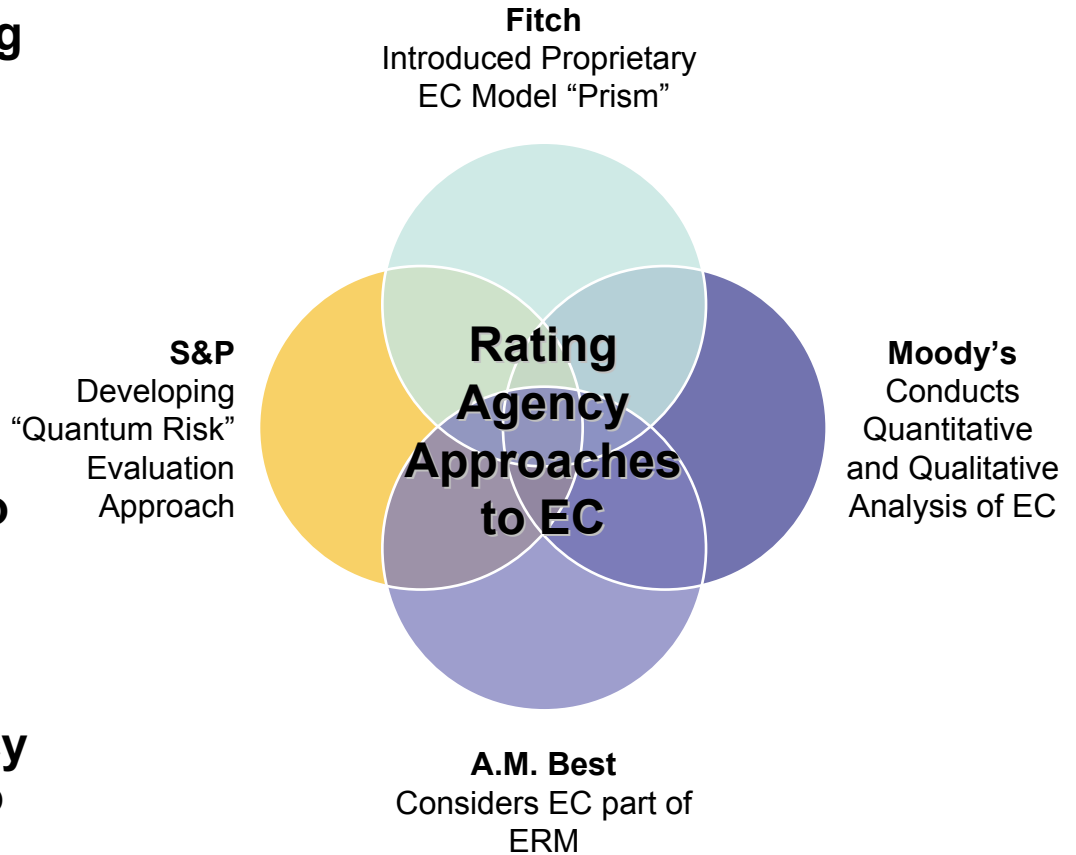
Technical Requirements

- Allow for all non-fungibility constraints
- Allow for the tax implications of the group
- Reflect heavy-tailed distributions and allow for tail correlation
- Reflect the non-linearity and non-separability of losses
- Allow for and allocate diversification benefits
- Accept input from multiple systems in multiple forms
- Be flexible enough to allow for changes in business mix, legal structure and reporting requirements
- Allow distributed access

Rating Agencies' Perspectives

Rating Agencies' View of EC Have Changed

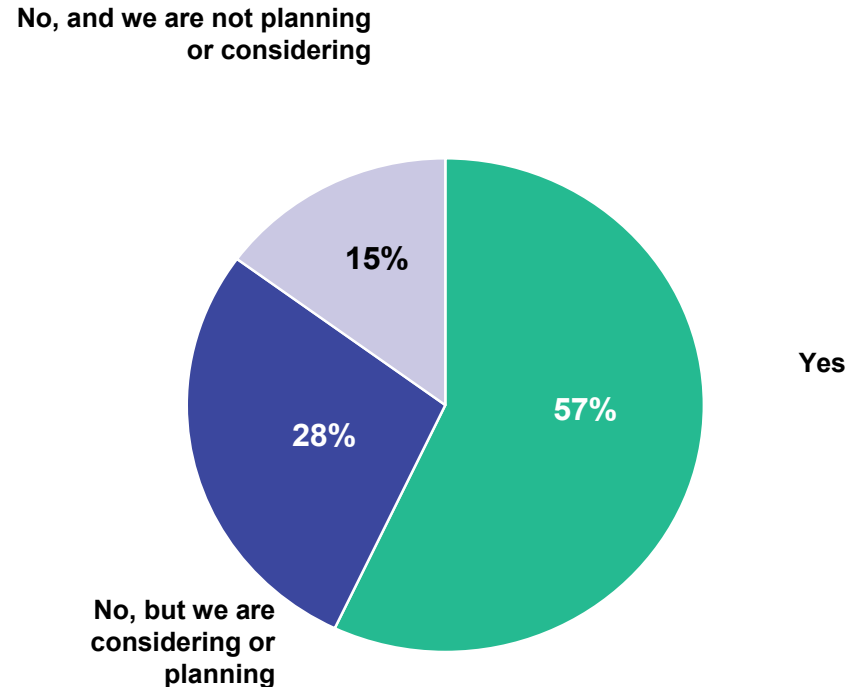
- Rating agencies are increasingly considering proprietary EC models when assessing capital adequacy
- Building economic models into their rating process during ERM reviews
- Expecting companies to demonstrate balance between qualitative and quantitative ERM
- Linking capital adequacy requirements directly to ratings



Tillinghast ERM Survey

EC: The Core Metric Used in an ERM Framework

- **57% of respondents are already calculating EC:**
 - Companies in the U.K. (87%), Bermuda (73%) and continental Europe (70%) have embraced calculating EC more than those in the U.S. (44%) and Canada (37%). Asia/Pacific (59%) lies between these extremes
 - Almost 85% of large companies and nearly 70% of medium-size companies calculate EC, whereas less than 40% of small companies do so
 - Multiline insurers (67%) and reinsurers (79%) are more likely to calculate EC compared to just over 50% of life and P/C companies

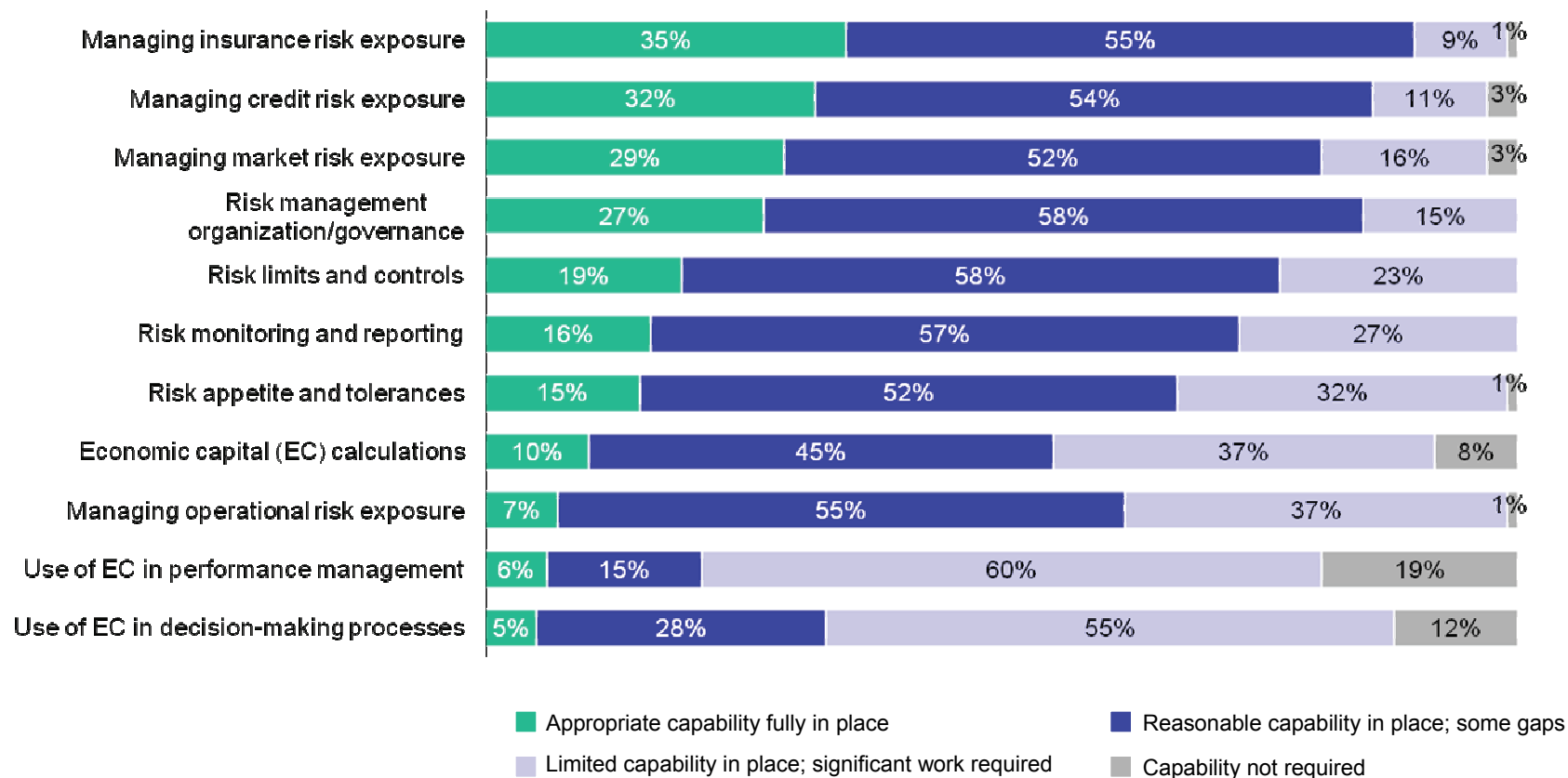


Source: Tillinghast ERM survey

While Many ERM Components are Largely in Place, Significant Work is Required to Make Effective Use of Economic Capital

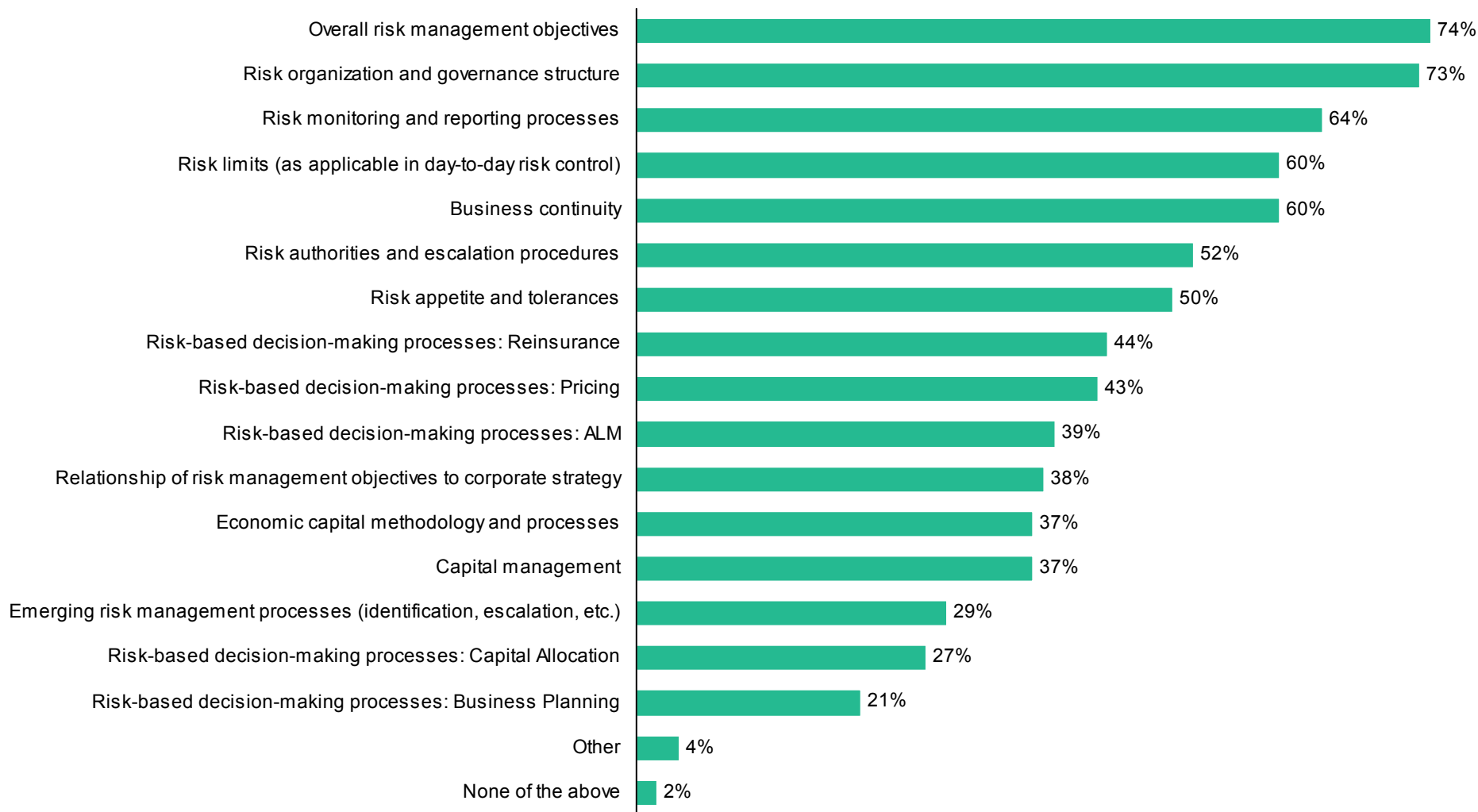
- European respondents are more comfortable with their EC calculation capabilities (71%) compared to respondents in North America (47%) and Asia/Pacific (49%)
- Companies are significantly less comfortable with managing operational risk exposures compared to insurance, credit and market risk exposures
- Despite the ongoing credit crisis, most companies are fairly comfortable with their capabilities around management of credit risk exposures

While Many ERM Components are Largely in Place, Significant Work is Required to Make Effective Use of Economic Capital



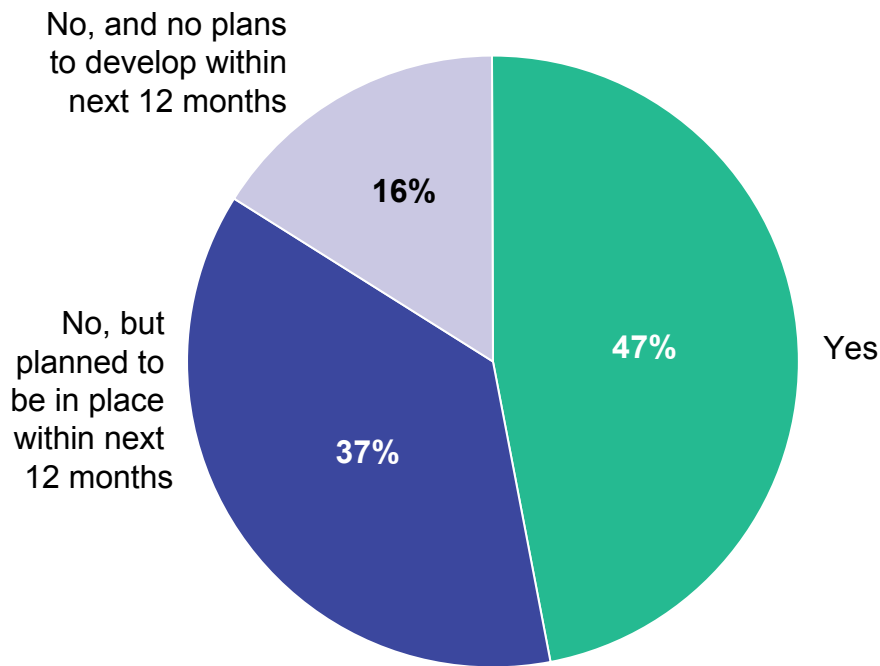
Base: Total Respondents for Q.3 How would you assess your current risk management capabilities in each of the following areas?
Please select one level of capability for each area.

Documentation of Risk Policies is More Extensive in the Areas of Governance and Risk Control Compared to EC and Risk-Based Decision Making



Base: Total Respondents for Q.9 For which of the following do you have clearly documented risk policies? Please select all that apply.

Within 12 Months, 84% of Respondents Expect to Have a Documented Risk Appetite/Tolerance Statement in Place

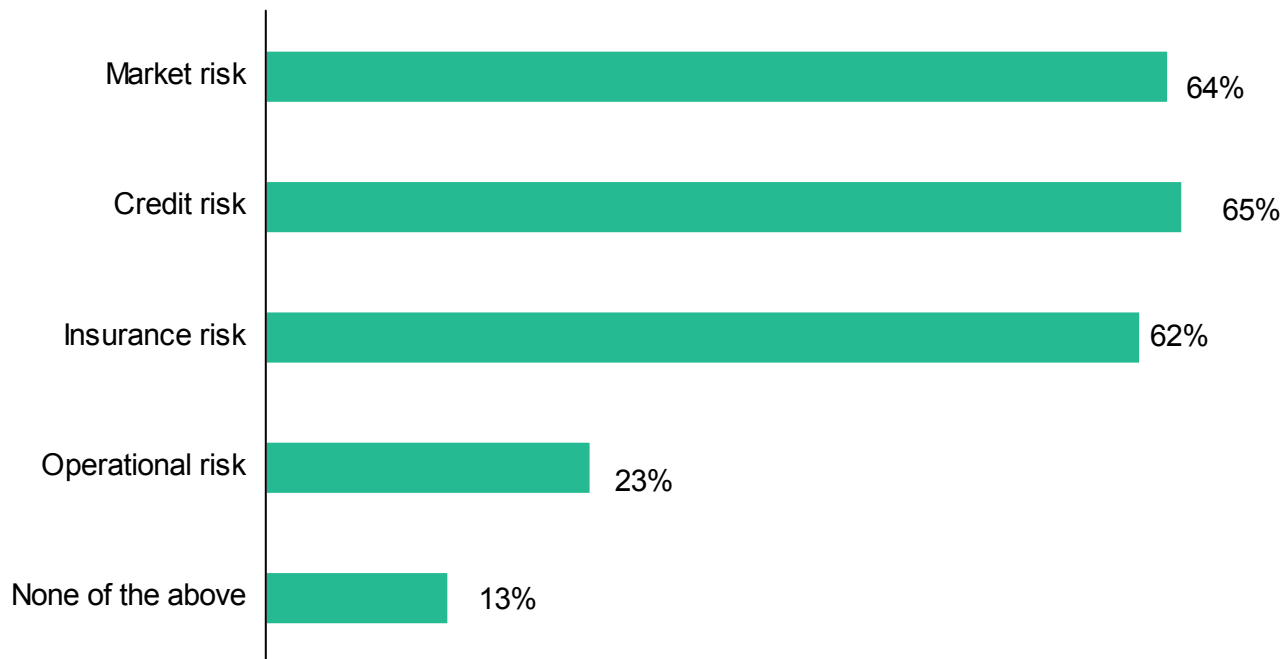


- The development of risk appetite/tolerance statements is less advanced among smaller companies

	In place	Planned within 12 months	Not planned
Small	34%	44%	22%
Medium and Large	57%	33%	10%

The Majority of Companies Have Risk Limits for Their Major Risks, but Only 23% Have Limits Around Operational Risk

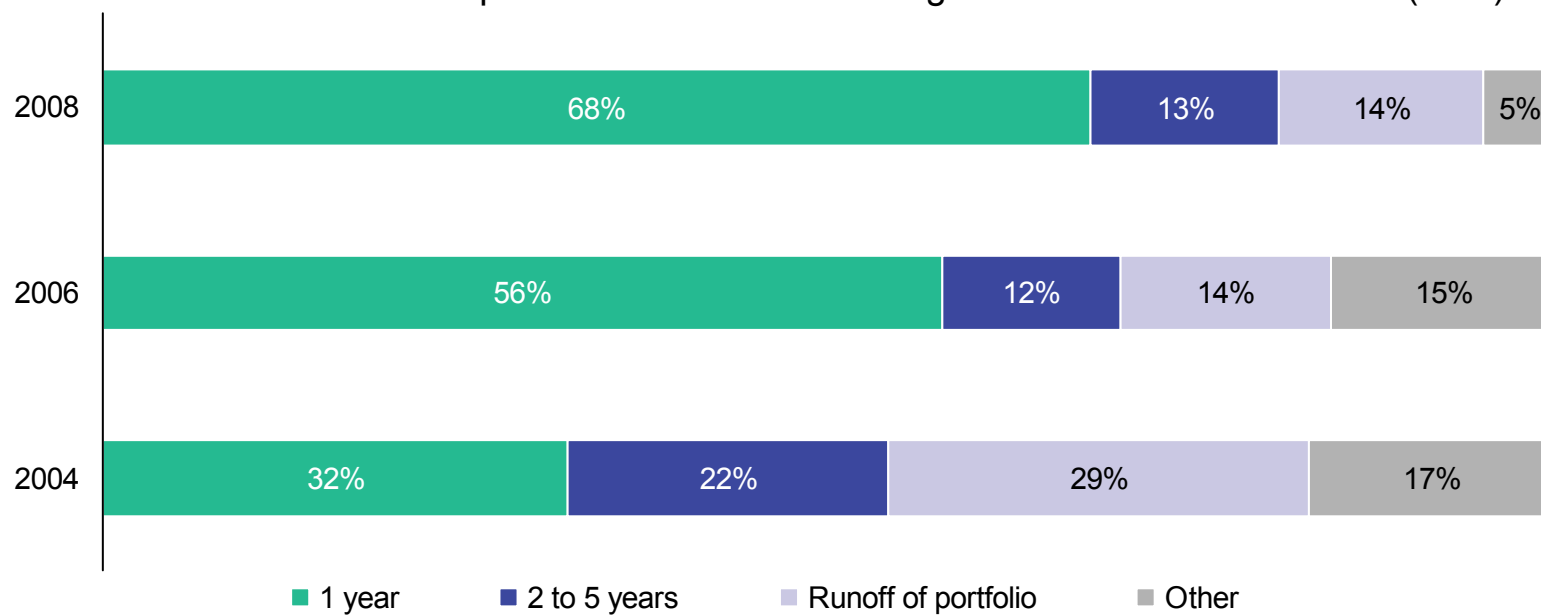
- In general, a higher percentage of European companies have set limits to govern risk taking than in North America. Asia/Pacific further lags North America in this respect
 - For example, credit risk: Europe 81% vs. North America 63% vs. Asia/Pacific 43%
- In Asia/Pacific, 29% of respondents indicate that their companies have not set limits for any of these risks (Japan 47%)



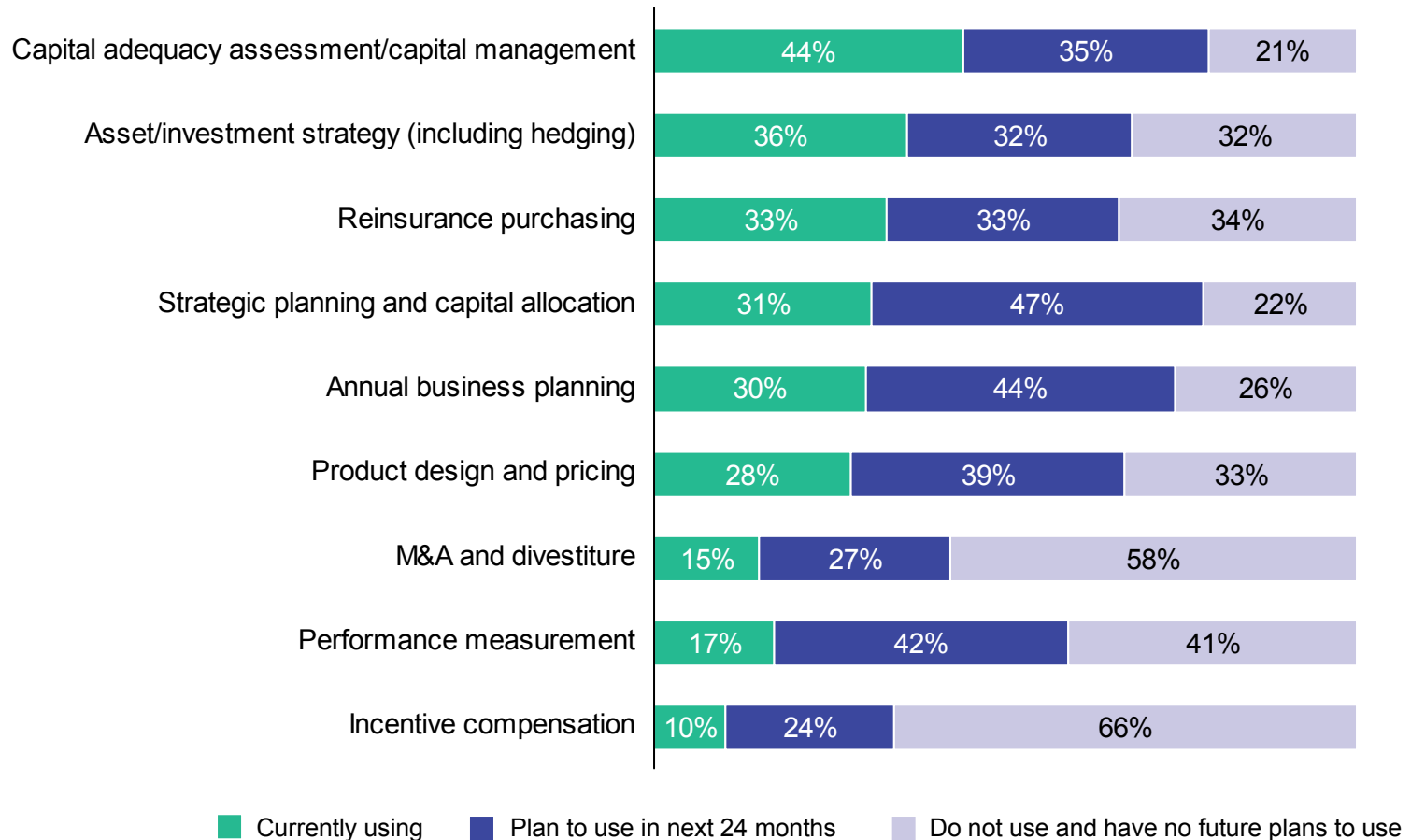
Base: Total respondents n=359 for Q.14 For which of the following types of risk have you set limits to govern day-to-day risk taking within the business? Please select all that apply.

There is a Trend Toward Calculating EC Over a One-Year Risk Horizon

- **Use of a one-year horizon is most common:**
 - In Europe (79%) and Asia/Pacific (75%) vs. North America (57%)
 - Among multiline insurers (78%) vs. life (70%) and P/C (62%)
- **Use of a two- to five-year period and of the runoff of the portfolio have, however, remained relatively stable since 2004:**
 - Use of a two- to five-year period occurs most among North America P/C insurers (38%)
 - Use of runoff of the portfolio occurs most among North America life insurers (31%)



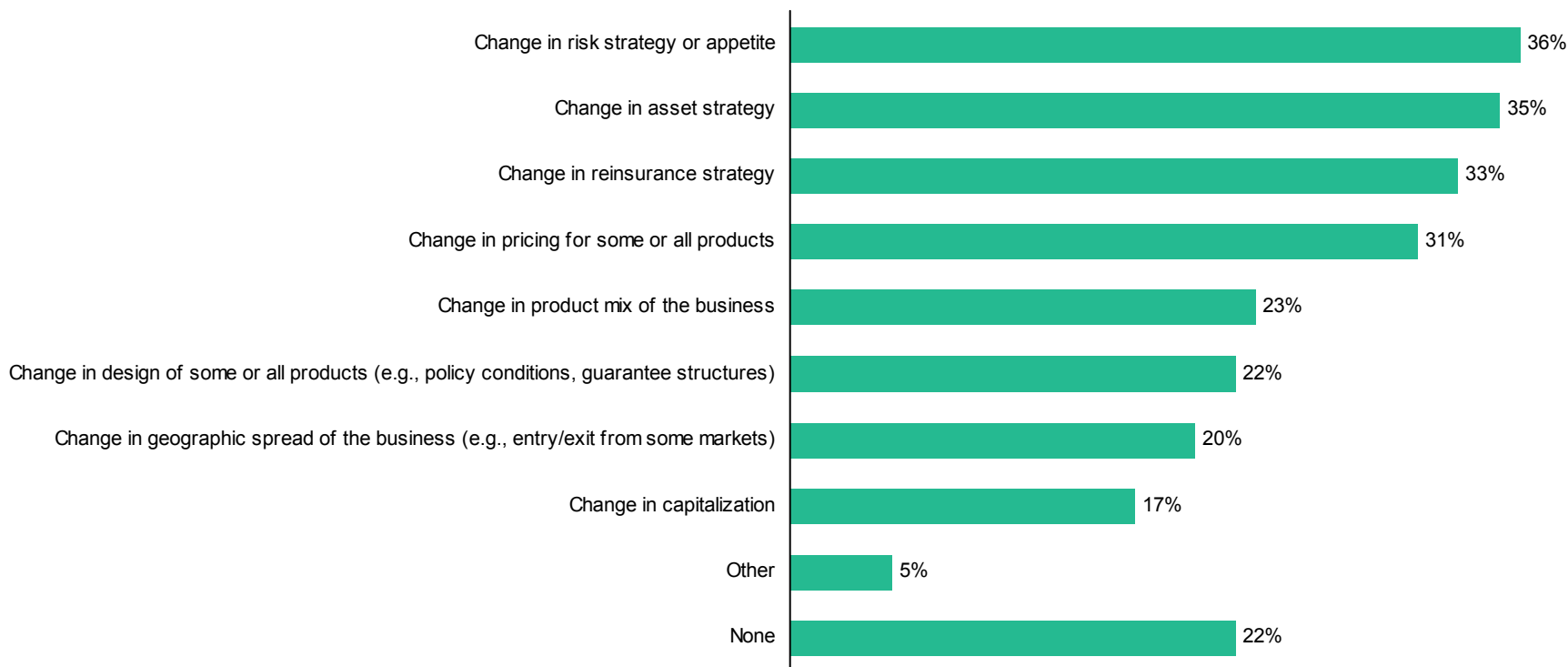
Utilization of EC in Decision Making is Set to Change Dramatically Over the Next Two Years



Base: Total Respondents for Q.23 Do you currently use or plan to use Economic Capital in decision making for the following areas?
Please select one response for each area.

For Almost 80% of Respondents, Key Business Changes Have Resulted From Their ERM Activities in the Past Two Years

- In general, ERM programs have had greater influence in large companies than in smaller
- Particularly notable changes resulting from ERM programs have been:
 - For life companies, changes to asset strategy (43%)
 - For P/C companies, changes to reinsurance strategy (42%)
 - For reinsurers, changes to pricing (50%) and geographic spread (44%)



Base: Total Respondents for Q.25 Over the past two years, what key business changes have resulted from your ERM program? Please select all that apply.

ERM and the Recent Financial Crisis

What Failed? ERM Concept OR Management?

- **There have been weaknesses and some failures in the execution of ERM**
 - Modeling risk is high sensitivity to assumptions – BUT are the right assumptions used?
 - Extreme tail is not fully appreciated - attitude of can't possibly happen
 - In some cases, risk managers recognized risk-related deficiencies but were ignored by senior management
 - In ERM, corporate culture is everything, if senior management doesn't buy in, ERM is of little or no value
 - Risk management is more critical than ever
 - ERM as a concept has not failed

EC and Reinsurance

Reinsurance is Used Throughout the World to Manage Business Based on EC

- To define a company's risk appetite and risk transfer objectives
- To reduce risk and volatility
- To provide a competitive alternative to debt or capital financing
- **Examples:**
 - USA: Financing redundant reserves (XXX term business)
 - Canada: Supporting mortality improvement assumptions
 - UK: Unlocking embedded value
 - Japan: Providing new business surplus relief

EC and Japan

While Interest in Managing Business Using EC Concepts is Growing, Regulatory Changes May Accelerate this Process

- FSA is increasing solvency standards: target capital factors are increasing in March 2012
- FSA has also announced the long term intention to move to EC
- Implications?
 - In Canada, EC was practiced by larger companies but wider use of EC only emerged after strong push from regulator (OSFI)
 - Experience suggests that moving to an EC framework is a significant commitment, perhaps companies in Japan should begin making plans to implement EC now.
 - One key area of EC focus would be ALM, where Japanese insurance industry has not managed ALM risk very effectively.

Conclusion

EC Will Grow in Importance, Increasingly Becoming a Differentiator for Success in the Marketplace

- **EC is growing in importance**
 - The majority of large domestic and multinational insurance companies are planning and implementing EC
- **EC is a key metric within an ERM framework**
 - EC is important to each company in today's complex environment
 - Rating agencies, as well, are increasing their focus on EC

EC Will Grow in Importance, Increasingly Becoming a Differentiator for Success in the Marketplace

- **EC represents a considerable undertaking**
 - It requires analysis before and during implementation
 - Companies need to get started quickly while maintaining a holistic approach to risk management
- **EC provides key ERM measurement data for**
 - EC management
 - Leveraging throughout the enterprise in decision making about pricing, acquisitions, hedging and managing tail risk

Questions

