



ERM and the Role of Actuaries

Harry Panjer, MA, PhD, FSA, FCIA, HonFIA, CERA, Professor Emeritus

University of Waterloo



Frank Redington



‘I have often regretted the casual way the (actuarial) profession compresses the varied complexity of its affairs into a colourless present value.’

‘The briefest glance at the past tells us one fundamental actuarial lesson, that our strength lies in no way at all in the infallibility of our forecasts; it lies in our power to measure and deal with our own fallibility, to face and assess our own uncertainty.’

The Business of Change: 2010 and Beyond





Agenda

- Define ERM
- Key Elements of ERM
- Application of ERM in insurance companies
- Risk Management Evolution
- Key Developments in Risk Management
- ERM – Opportunities for actuaries
- ERM – Value for corporations

The Business of Change: 2010 and Beyond



Definition of ERM

“ ...a uniform approach to risk identification, measurement and treatment ... across the organization”

(Aon’s website)

The Business of Change: 2010 and Beyond



Definition of ERM

“Enterprise Risk Management integrates the various risk related initiatives of the organization into a coherent and integrated framework.”

(BearingPoint’s website)

The Business of Change: 2010 and Beyond



Definition of ERM

“... the integrated management of business risk, financial risk, operational risk and risk transfer to maximize a firm's shareholder value.”

(James Lam)

The Business of Change: 2010 and Beyond



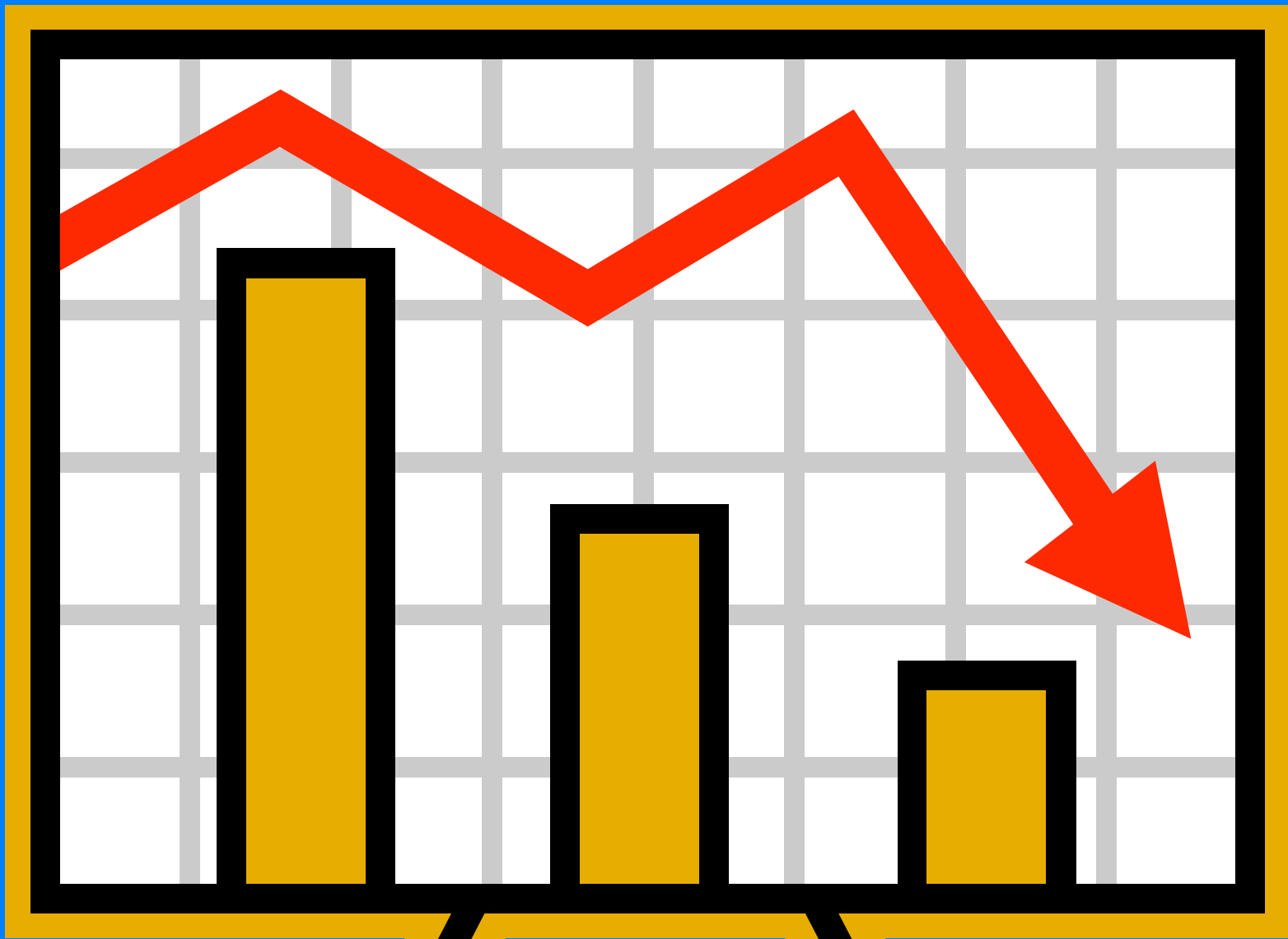
Definition of ERM

“ERM is the discipline by which an organization in any industry assesses, controls, exploits, finances and monitors risks from all sources for the purpose of increasing the organization’s short- and long-term value to its stakeholders”

(Casualty Actuarial Society)

The Business of Change: 2010 and Beyond





10

Who are the players in ERM?

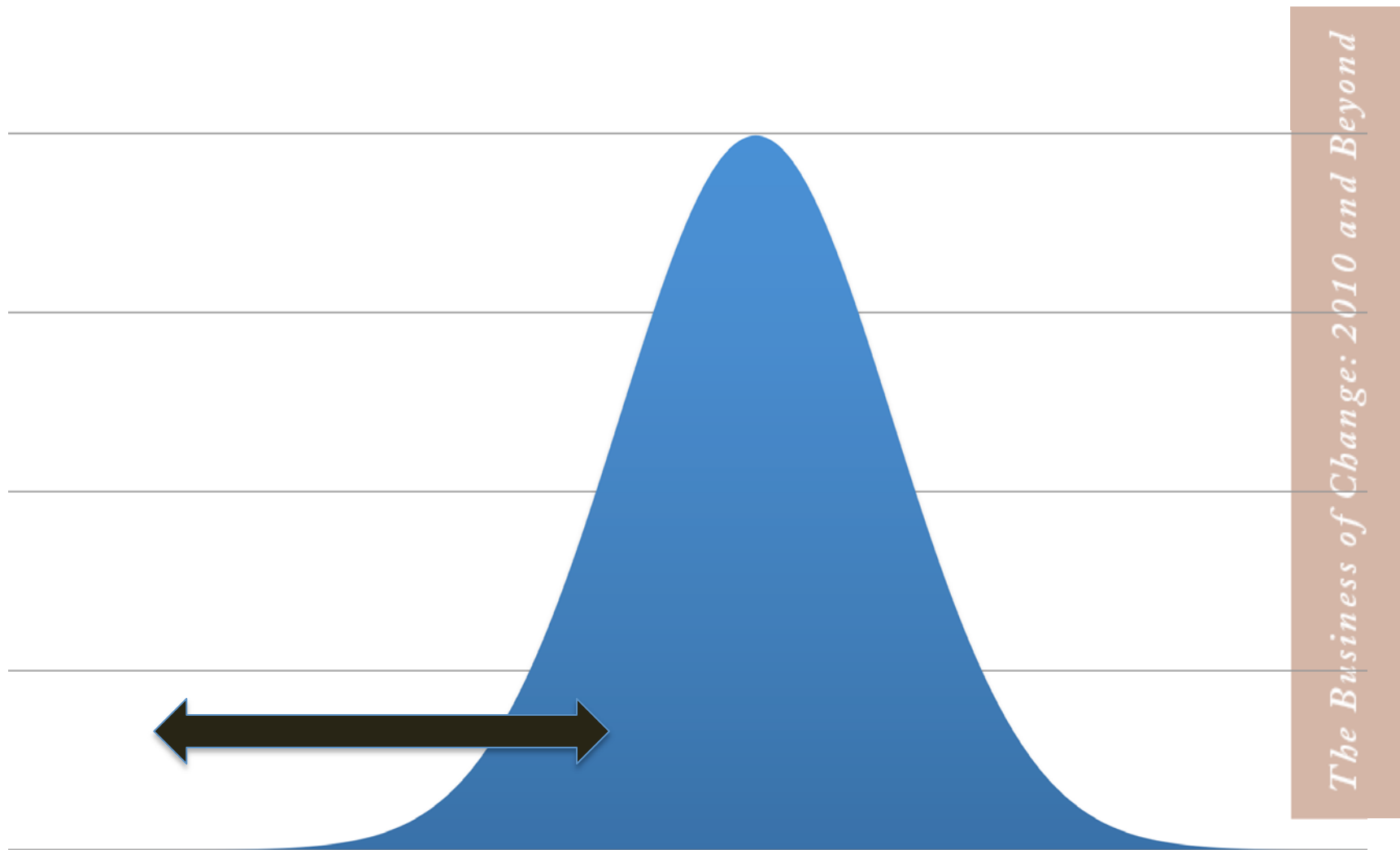
- Banks' and insurers' management and boards
- Bank and insurer regulators
 - BIS, BCBS
 - IAIS
 - national regulators of banks and insurers
- Professional groups
 - Auditors, actuaries, other risk professionals
- Rating agencies
 - Fitch, Moody, S&P, etc

The Business of Change: 2010 and Beyond



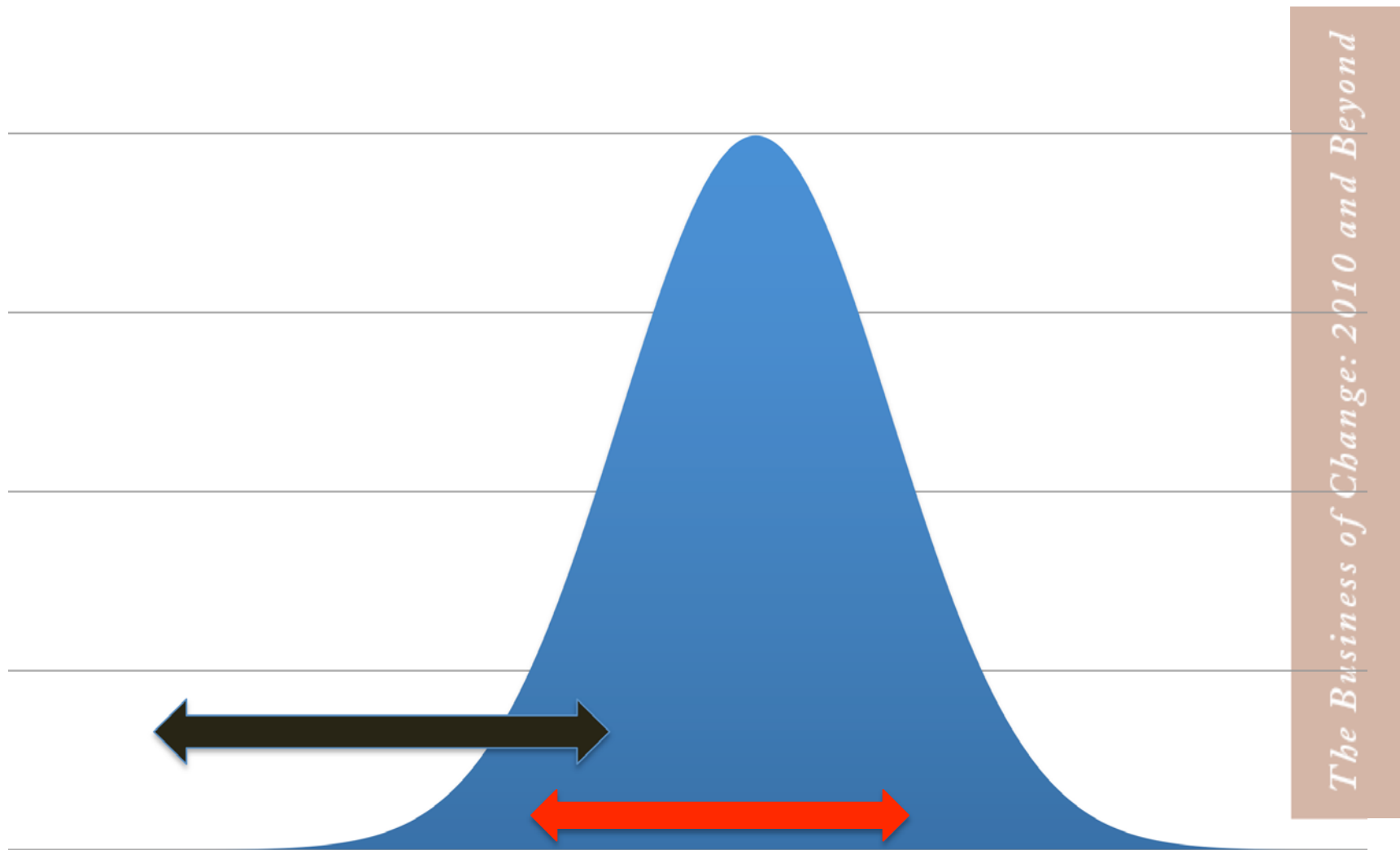
The Business of Change: 2010 and Beyond





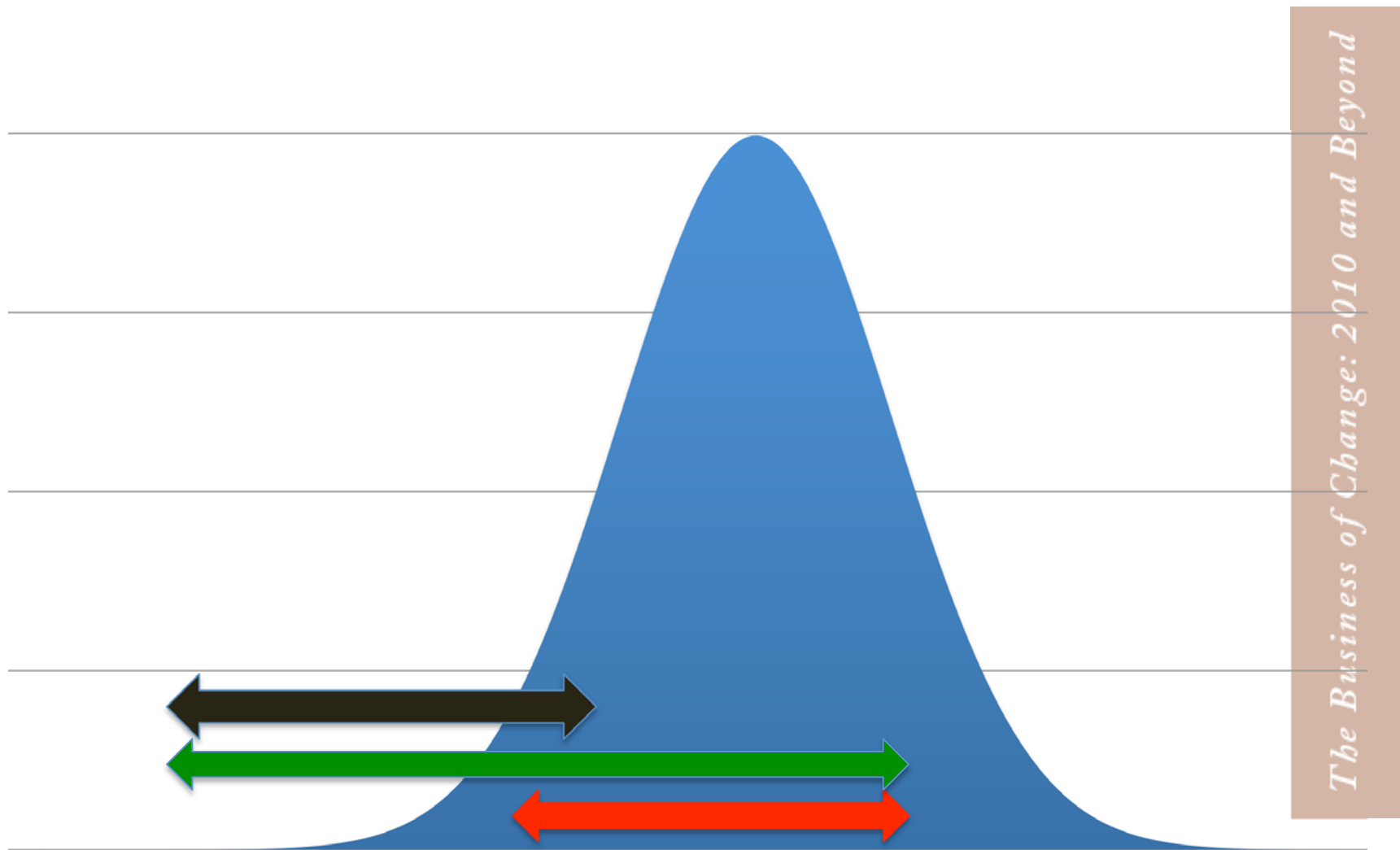
The Business of Change: 2010 and Beyond





The Business of Change: 2010 and Beyond





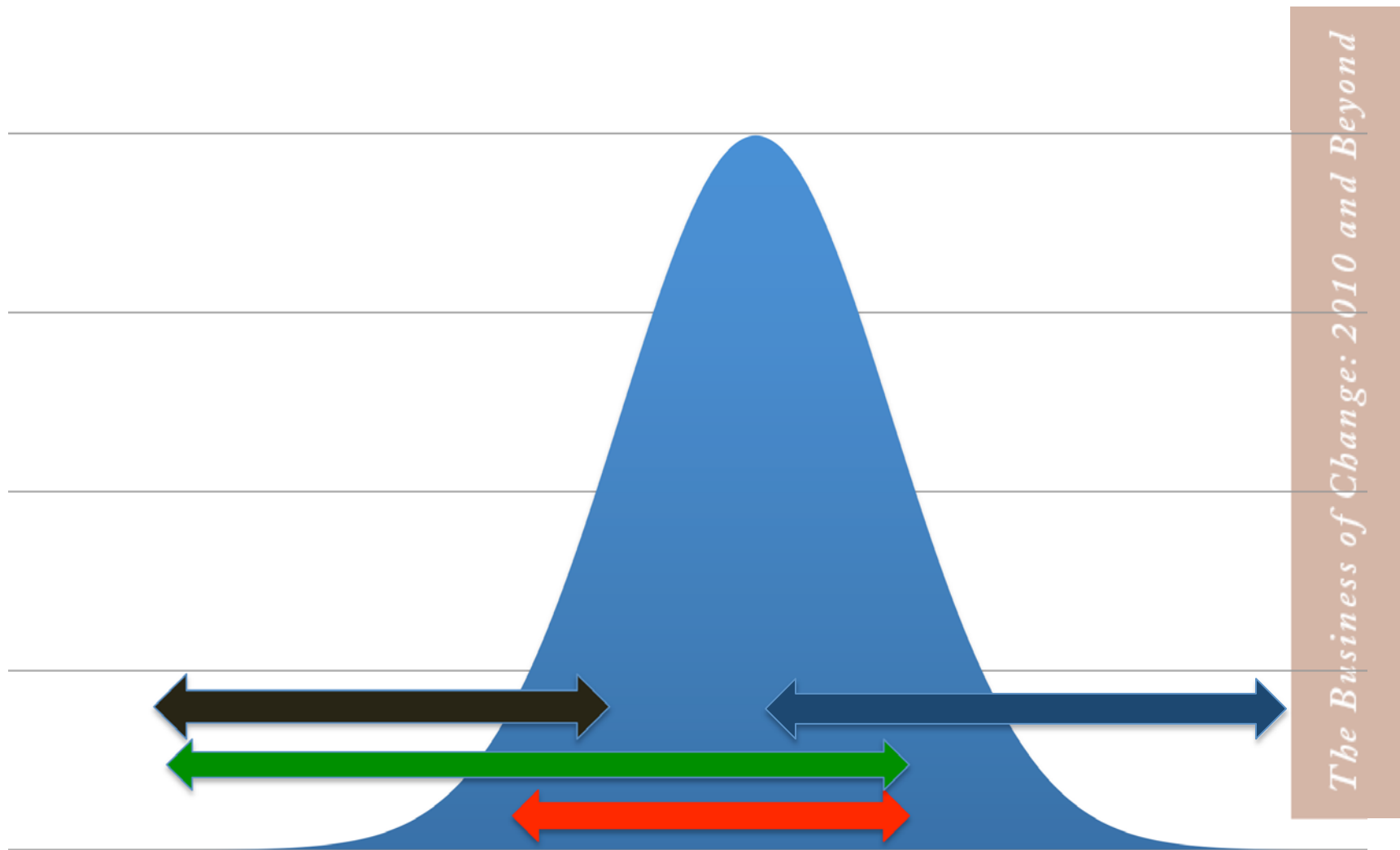
Regulator

Investor

Rating Agency

2008 CONVENTION

23 – 24 OCTOBER



The Business of Change: 2010 and Beyond



Regulator

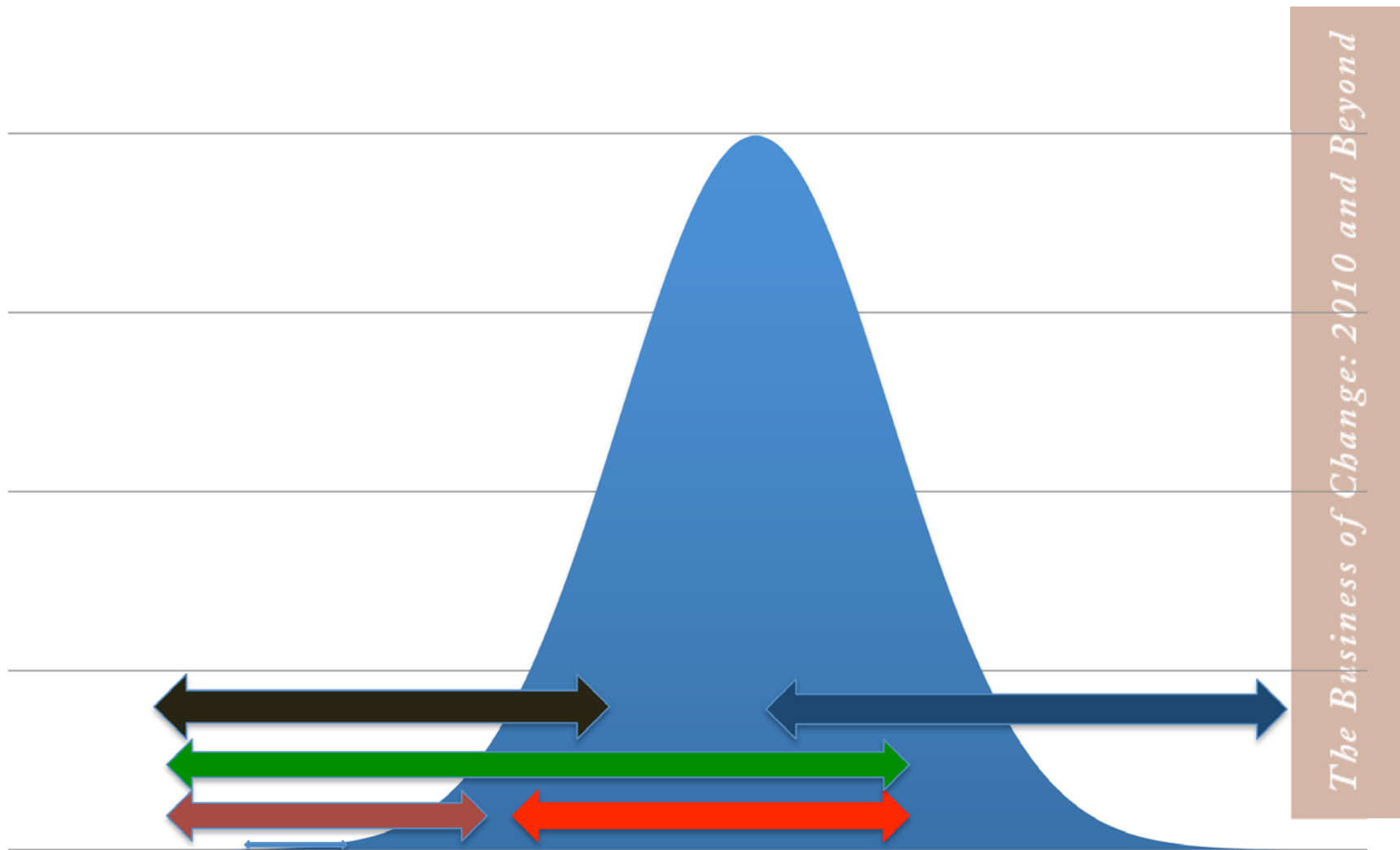
Rating Agency

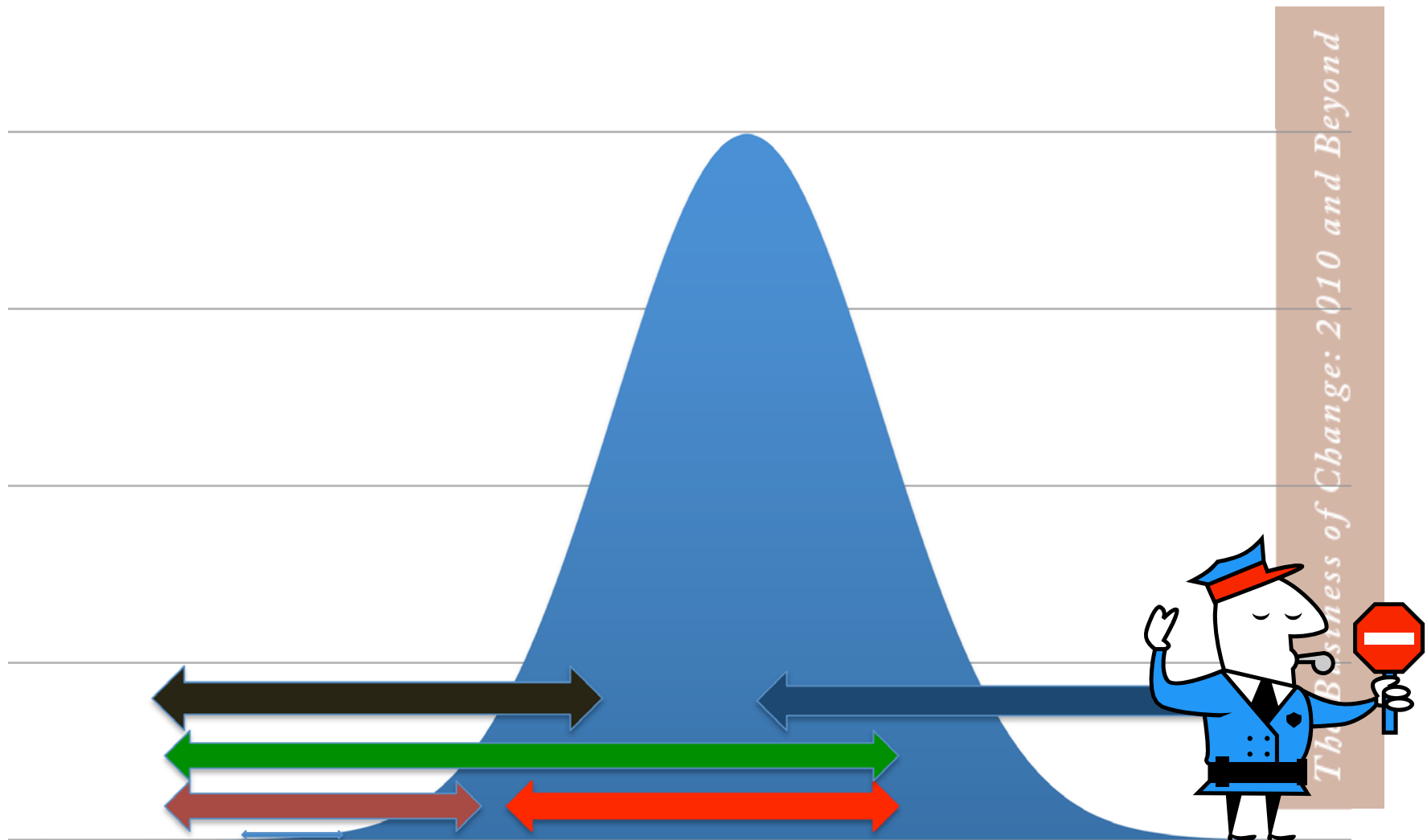
Investor

2008 CONVENTION

CEO with stock options

23 – 24 OCTOBER





18

Regulator

CRO

Rating Agency

Investor

2008 CONVENTION

CEO with stock options

23 - 24 OCTOBER

Acknowledging Risk: Development of the CRO

- Recognition of ERM by rating agencies has caused managements of traded companies to focus on risk exposure.
- Recognition of enterprise-wide risk has become an increasing part of governance of financial institutions.
- The senior management point person for risk: the CRO.

The Business of Change: 2010 and Beyond



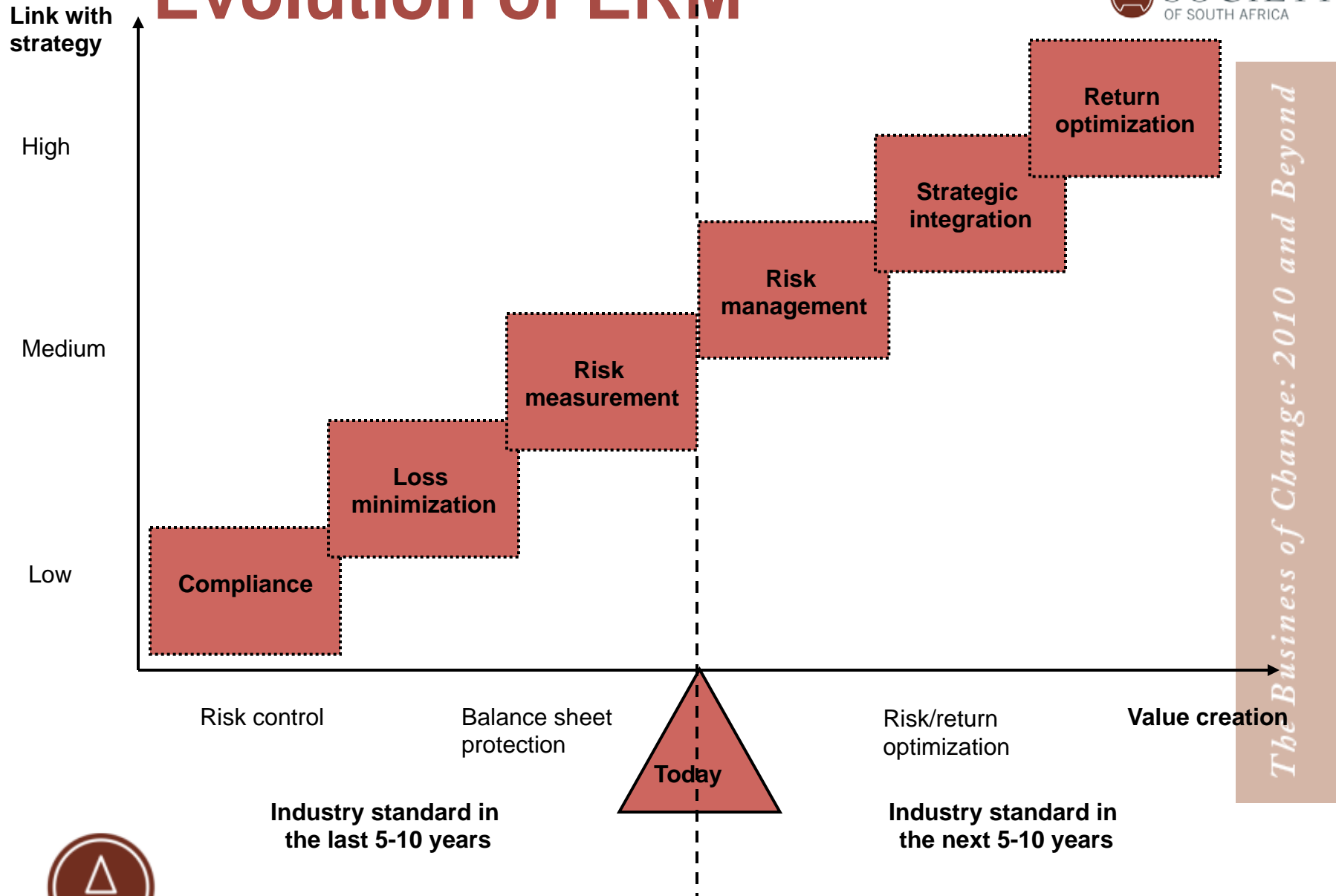
Measuring Risk: Economic Capital

- EC – the amount of capital required to sustain losses at a given risk tolerance level over some horizon
- EC – a common metric that attaches the cost of risk to strategic initiatives
- ERM adds value by exploiting risk by recognizing interdependencies in contrast to many regulatory capital regimes
- This must be translated into a more efficient decision-making about capital usage

The Business of Change: 2010 and Beyond



Evolution of ERM



ERM – Opportunities for Actuaries

- **First, let's consider challenges:**

- The profession is not well understood and substantially undervalued outside the insurance field.
- Actuaries are often perceived as narrow technicians.
- The profession is vulnerable to competition and other economic pressures.

- **Corollaries:**

- Actuaries have a very big advantage in the insurance field.
- Actuaries are highly technically skilled.
- Actuaries are well compensated.

The Business of Change: 2010 and Beyond



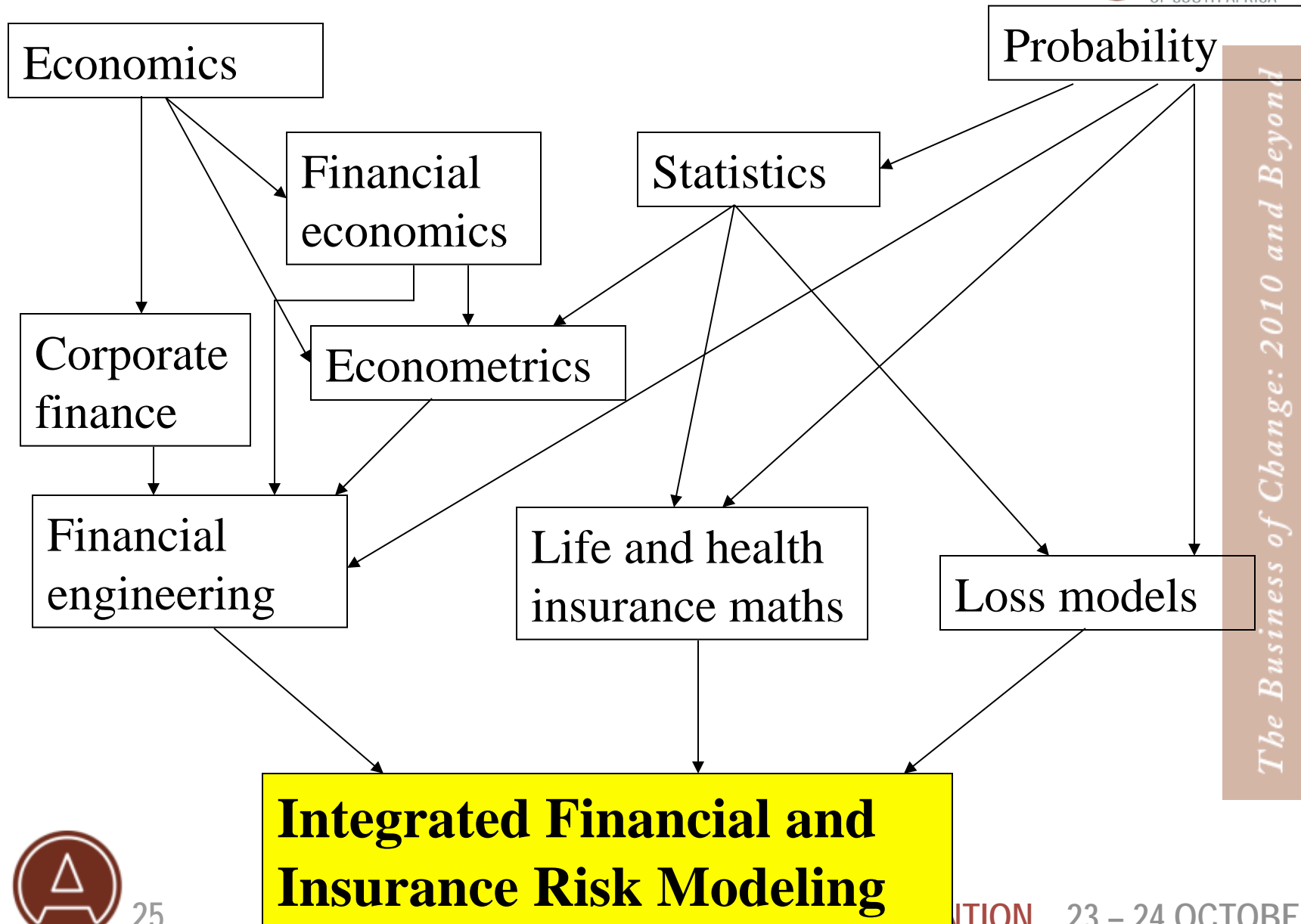
2
3

Actuaries' response to ERM

- Historical actuarial expertise is on exploiting product risk
- There is a growing actuarial knowledge base in the areas of
 - External risks, the occurrence of which is not under control of management
 - Interdependent risks
 - Co-ordination of risk management within entity
 - Transparency of the risk management system
 - Reputation risk
 - Quantification of risk: especially low frequency, limited data
 - Long term risk: scenario testing, stress testing

The Business of Change: 2010 and Beyond





A global ERM credential for actuaries?

- Background
 - Raised in IAA Enterprise and Financial Risks Committee (Nov 2006)
 - Discussed in Presidents Forum (April, October 2007, June 2008)
 - Commitment to support the development of this project by 8 associations
 - Strong interest by several others



The global risk management professional environment

- Financial and Enterprise RM is a rapidly growing field of activity for actuaries and other risk professionals.
- Most large financial institutions have a CRO and a team devoted to ERM.
- Two associations (GARP and PRMIA) have been created to organize risk professionals and certify them with credentials (FRM, PRM) worldwide.
- Established associations (e.g. CFA Institute) are also seen as providing risk professionals.
- The actuarial profession has been almost invisible to the buyers of FRM and ERM services (although numerous individual actuaries have become prominent).

The Business of Change: 2010 and Beyond



The global risk management professional environment

- The actuarial profession is competing in the ERM marketplace:
 - Many insurance companies have actuaries as CROs; but many do not.
 - CROs of other financial institutions could be actuaries. Why not?
 - Actuarial methods are used by other professionals RM in investment banks already (e.g. credit risk, credit derivatives, operational risk).
 - Basel II, Solvency II and other solvency initiatives create market opportunities for actuaries.



The global risk management environment

- Rating agencies are adding ERM as a key pillar in the assessment of financial institutions (e.g. S&P).
- Many (if not most) rated financial institutions are global in operations.
- GARP, PRMIA and others are developing their credentials as recognizable brands in the financial marketplace, including insurers.
- Regulators are expanding the scope of regulation to include ERM.



The global actuarial environment

- Actuarial credentials are essentially national in nature.
- Actuarial credentials are well recognized in insurance for specific functions deemed to be “actuarial”.
- Actuaries are not instantly recognized for risk management expertise.
 - SOA is working hard on this through a marketing campaign for the CERA.
- There exists no established brand that identifies actuaries globally as ERM experts.
- The actuarial profession can compete globally.

The Business of Change: 2010 and Beyond



What is a “global” credential?

- A single credential with a corresponding set of letters (e.g. XRX) that is widely recognized by buyers of ERM services and widely accessible by persons who want to acquire the designation.
 - For example, a person being an FIAA could also be an XRX. It has no ‘national’ connotations.
 - This is in fundamental contrast to how we now credential actuaries; i.e. country by country.
- Questions:
 - Do global credentials have an advantage over local credentials?
 - If so, how can the actuarial profession have a global RM presence **without** undermining its existing strengths?



The working model

- Develop a credential around a core body of risk management knowledge.
 - With appropriate standards for achievement of the designation.
- A group of actuarial associations act as “sponsors” of the designation.
- Allow each sponsor to determine how the standards are met; e.g. examinations, courses of study.
- Complete mutual recognition of XRX amongst sponsoring associations.



Other premises

- All XRXs are (by definition) actuaries and members of a sponsoring organization.

This means:

- Breadth in the program sufficient to cover core traditional actuarial subjects;
- An XRX meets IAA education syllabus requirements;
- Codes of conduct, discipline, etc apply as with other actuarial members;
- Expansion of the definition of the fields of practice of actuaries and the domain of actuarial science.

The Business of Change: 2010 and Beyond



Other premises

- A visible RM brand serves as a “hook” into the marketplace:
 - *“I am an XRX and I can help you!”*
- A visible RM brand serves as a differentiator amongst actuaries, increasing awareness and interest.
- The RM designation will not succeed unless individuals holding it are successful. However, if such individuals are successful, the brand may be attached to that success.
- To date the CERA of the SOA is building a momentum
 - Marketing campaign
 - Large number of persons completing requirements



Some recent developments

- SOA
 - has developed the CERA designation at ASA level
 - has a specialist ERM track at FSA level
- IA/FA
 - is developing syllabus at Core Applications and Specialist level
- IAAust
 - Is offering intensive CPD course in ERM for life and general insurers

The Business of Change: 2010 and Beyond



What has happened since Nov 2007?

- 8 associations have signed a Statement of Intent to develop the designation
- 2 working groups formed
 - Recognition – Chair: Fred Rowley, Australia
 - Syllabus – Chair: Harry Panjer, Canada
- 1 representative from each of the 8 associations on each working group
- Several other association have registered firm support



Signatories to the memorandum of understanding

- Actuarial Society of South Africa
- Colegio Nacional de Actuarios, Mexico
- Canadian Institute of Actuaries
- Casualty Actuarial Society
- Faculty of Actuaries
- Institute of Actuaries
- Institute of Actuaries of Australia
- Society of Actuaries

The Business of Change: 2010 and Beyond



Draft Syllabus

- The draft syllabus has been crafted in terms for “overall goals” and “learning objectives”
 - What should persons receiving the credential **know** and what should they be able to **do**?
- The syllabus content that is described is in addition to the current IAA education syllabus
 - All credential holders will also meet IAA requirements

The Business of Change: 2010 and Beyond



IAA syllabus + the following topics:

- ERM concept and framework
- Structure of the risk management function in an organization
- What constitutes good risk management practice
- Reporting of risk exposures
- Risk types: market, credit, operational, business, etc
- Modeling tools including extreme value theory
- Aggregation of risks including copulas
- Risk mitigation techniques
- Risk measures
- Economic capital

The Business of Change: 2010 and Beyond



Overall Goals of Credential - 1

The Global ERM designation indicates expertise in all aspects of Enterprise Risk Management including a thorough understanding of:

- the concept of ERM
- the drivers behind ERM – governance, regulation, improvements in understanding of risk and techniques for measuring and managing risk, enterprise value protection and creation etc
- practical aspects of ERM, including all elements of a robust risk management framework and its operation, and critical success factors
- standards and good practice in use around the world
- the different types of risk – financial, insurance, operational, and strategic
- the quantification of risk, including tools and techniques and supporting mathematics
- practices and techniques for the management of risk, including control, mitigation, transfer, avoidance, and exploitation of risk opportunities
- the economic value added by sound ERM
- important regulation and regulatory capital requirements

The Business of Change: 010 and Beyond



Overall Goals of Credential - 2

For the risks currently developed enough to be modeled effectively, designees should be proficient at the following tasks:

- Independently develop reasonable models to quantify risk by type and in aggregate
- Parameterize the models appropriately
 - understand when historical data is applicable
 - know when and how to apply current values
 - Be able to apply informed judgment
- Run the models to obtain relevant results
 - be able to focus on the key metrics
 - select appropriate number of iterations
 - be able to update the model as necessary
- Explain the models and the results to a variety of audiences
 - other technical ERM experts
 - managers of specific types of risk
 - individuals such as the CFO, CEO and board members

The Business of Change: 2010 and Beyond



Overall Goals of Credential - 3

In addition to modeling risk, global ERM designees should be able to perform the following tasks:

- Implement the basic steps in the risk management process for any individual type of risk and in aggregate
- Recognize how corporate governance issues can affect risk management within an organization, including organization structure and compensation incentives to accept or control risk
- Utilize the standard methods for reporting risk to boards and senior management
- Calculate regulatory capital requirements for insurers and banks
- Understand how rating agencies incorporate risk management in determining ratings
- Implement and explain economic capital models within an organization

The Business of Change: 2010 and beyond



Final Observations

- ERM is here to stay
- There is still much to learn about modeling
- Economic capital is a key measurement
- ERM is good for corporations
- ERM can be applied to any business
- Insurers and banks are at the forefront
- Actuaries should have the skill set

The Business of Change: 2010 and Beyond



Thank you for your attention

The Business of Change: 2010 and Beyond

