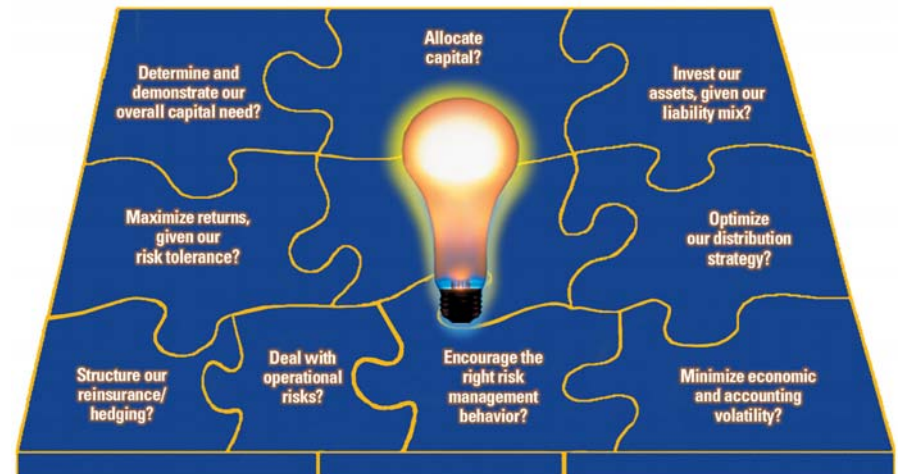


Sarbanes-Oxley and ERM

ERM Symposium

Jack Gibson

July 30, 2003



Today's discussion

**Sarbanes-Oxley
Highlights**

**Application of ERM
Risk Framework to
Sarbanes-Oxley**

**Stochastic Modeling
Applications**

Sarbanes-Oxley Highlights

Application of ERM
Risk Framework to
Sarbanes-Oxley

Stochastic Modeling
Applications

What is Sarbanes-Oxley?

- Signed into law on July 30, 2002, by President Bush
 - As a response to recent corporate accounting scandals
 - To deter and punish corporate and accounting fraud and corruption
 - To improve the quality of financial reporting, independent audits and accounting services for public companies who are SEC registrants
- Act contains 11 different titles

What is covered?

I. Creation of a Public Company Accounting Oversight Board

- Five-person panel, reporting into the SEC, that will have oversight of public accounting firms (PAFs), including registration of PAFs and establishing and enforcing professional standards for PAFs
- The Board can only be dissolved through an Act of Congress
- Within 270 days of enactment, it can prohibit the listing of an issuer not in compliance with the provisions set forth in this Act
- Mandate that all PAFs must be registered in order to audit public companies

Continued...

What is covered?

II. Auditor Independence

- Makes it unlawful for PAFs to offer select, non-audit services, including actuarial services
- Calls for auditor partner rotations every five years and regular audit reports to the Issuer Committees on auditor/management communications and policies/procedures planned for the audit
- Contains a pre-approval clause for select non-audit work and clearly defines conflicts of interest, including making it unlawful to use an audit firm if the senior financial person had been employed by that firm, within a year of the audit
- Commissions a study for the mandatory rotation of registered PAFs that will be completed within one year of the enactment of this Act

Continued...

What is covered?

III. Corporate Responsibility

- Mandates the creation of an issuer Audit Committee, made up of independent members of the issuers' BODs. It defines independent as non-compensated by the issuer or a subsidiary. It puts the oversight of the PAF under the Audit Committee control
- Mandates that the CEO/CFO of the issuer sign all financial statements and forfeit certain bonuses/profits as a result of misconduct
- Prohibits D&Os from trading on pension funds during blackout periods and calls for the barring or penalization of D&Os declared unfit

Continued...

What is covered?

IV. Enhanced Financial Disclosures

- Mandates that broader reports be prepared in accordance with GAAP to include off-balance sheet transactions and prohibits the company from extending personal loans to executives
- Mandates that annual report must include an internal control report and that the registered accounting firm must attest to management's assertions regarding internal controls
- Mandates disclosure within a 24-hour period of transactions by the D&Os and owners

Continued...

What is covered?

V. Analyst Conflicts of Interest

- National Securities Exchanges and registered securities associations must adopt conflict of interest rules for research analysts who recommend equities in research reports

VI. Commission Resources and Authority

- Increases SEC appropriations by \$20 million for hiring 200 resources and updating technology
- Commission may censure or deny any person brought before them

VII. Studies and Reports

- Five studies will be commissioned on various subjects

Continued...

What is covered?

VIII. Corporate and Criminal Fraud Accountability

- Makes it a felony to “knowingly” destroy or create documents to impede, obstruct or influence an existing investigation
- Increases jail time to ten years and/or a fine
- Requires all auditors to maintain review work for five years and extends the statute of limitations on securities fraud claims to five years from the time of the fraud or three and a half years from the discovery
- Increases penalty for defrauding shareholders to not more than 25 years in prison
- Includes a “whistleblower protection” clause

Continued...

What is covered?

IX. White-Collar Crime Penalty Enhancements

- Increases mail and wire fraud penalties from five years to ten years and creates a crime for tampering with records
- SEC can freeze extraordinary payments to D&Os and other controlling persons. Creates criminal penalties for D&Os that certify periodic reports that do not comply with the Act

X. Corporate Tax Returns

- Returns must be signed by chief executive

XI. Corporate Fraud and Accountability

- Tampering with records/documents can result in up to 20 years in prison and the potential to have assets frozen. If found guilty of misconduct, can be prohibited from serving as D&O of any publicly held company

Continued...

Several provisions shift greater responsibility and liability to CEOs and CFOs

- CEO and CFO must sign all financial statements and forfeit certain bonuses and profits as a result of misconduct
 - Topic 302/906: “CEO/CFO Certification of Annual and Quarterly Reports”
 - Topic 304: “Forfeiture by CEO and CFO of Certain Bonuses and Profits”
- Annual report must include an “internal control report” stating that management is responsible for an adequate internal control structure and the registered accounting firm must attest to, and report on, management’s assertions regarding internal controls
 - Topic 404(a): “Internal Control Reports”
 - Topic 404(b): “External Auditor Attestation Related to Internal Controls”

Continued...

Several provisions shift greater responsibility and liability to CEOs and CFOs

- The Act makes it a felony to “knowingly” destroy documents to obstruct an existing investigation
 - Topic 802: “Criminal Penalties”
- It also increases mail and wire fraud penalties
 - Title IX: “White-Collar Crime Penalty Enhancements”

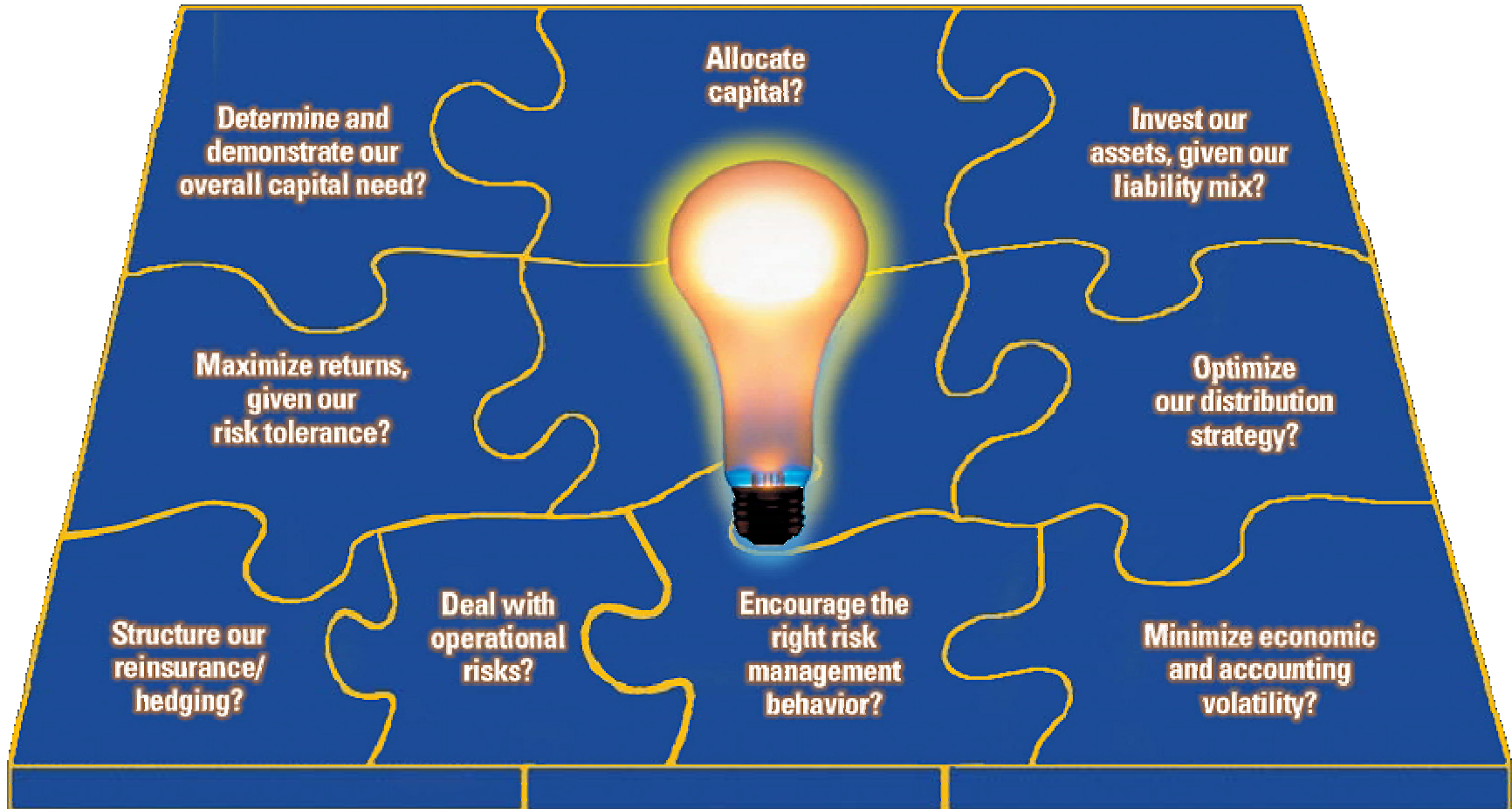
Sarbanes-Oxley is driving CEOs and CFOs to increase pressure internally on their direct reports for more and better information and greater transparency of the risks their companies face

Sarbanes-Oxley
Highlights

**Application of ERM
Risk Framework to
Sarbanes-Oxley**

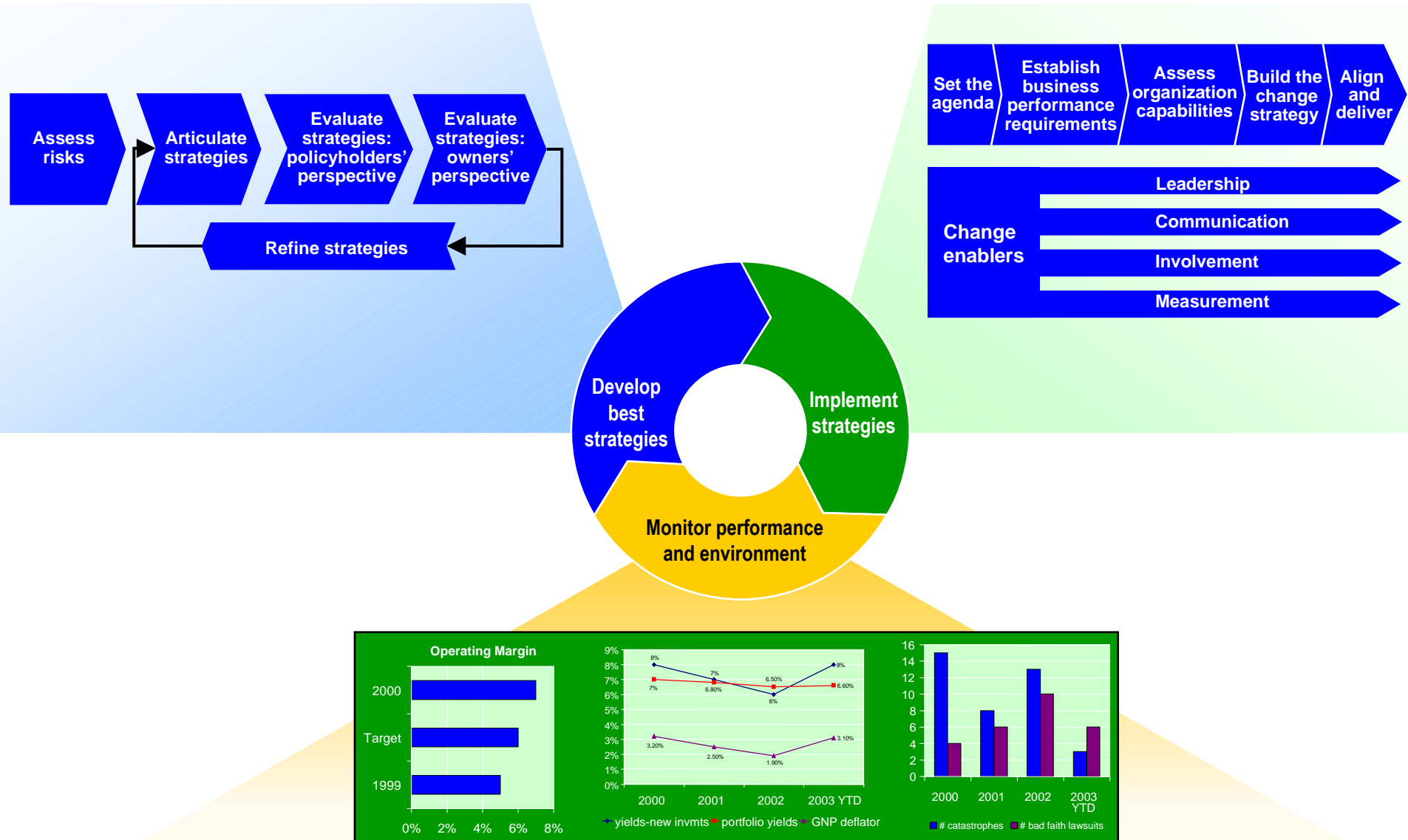
Stochastic Modeling
Applications

Companies want to see risk more clearly to proactively address problems before they occur

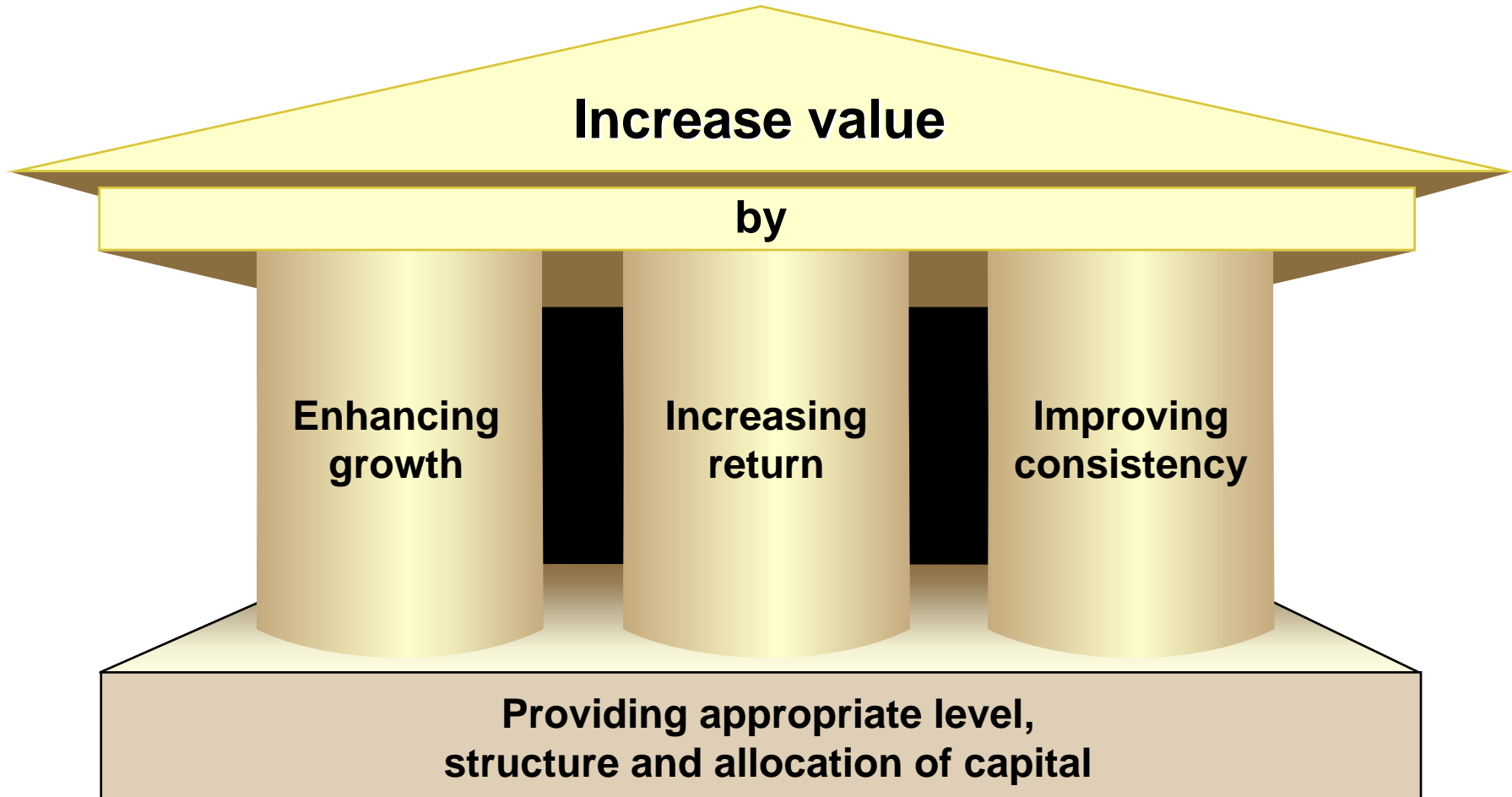


These questions need to be answered within the context of a comprehensive and coherent risk management framework

ERM creates value by developing, implementing and monitoring the right management strategies

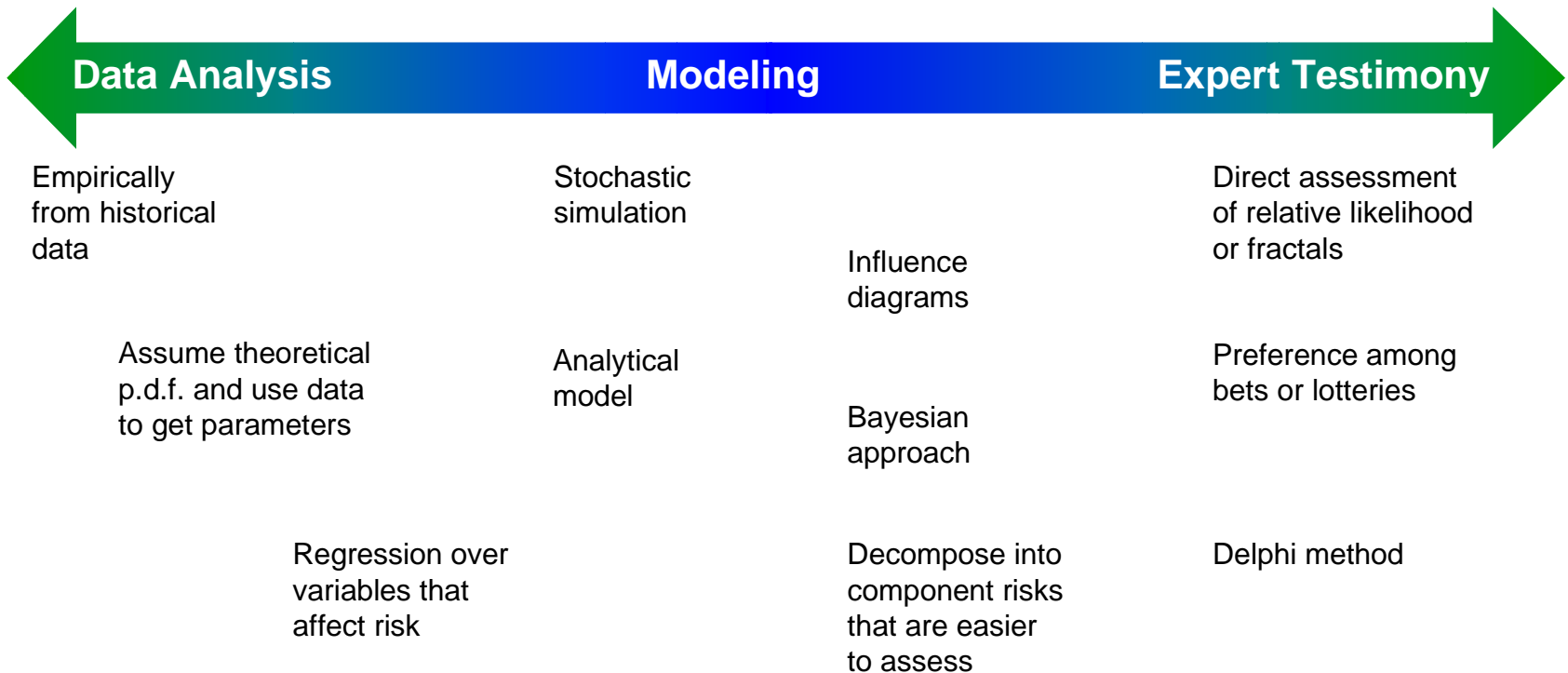


ERM helps management achieve its primary objective of increasing enterprise value



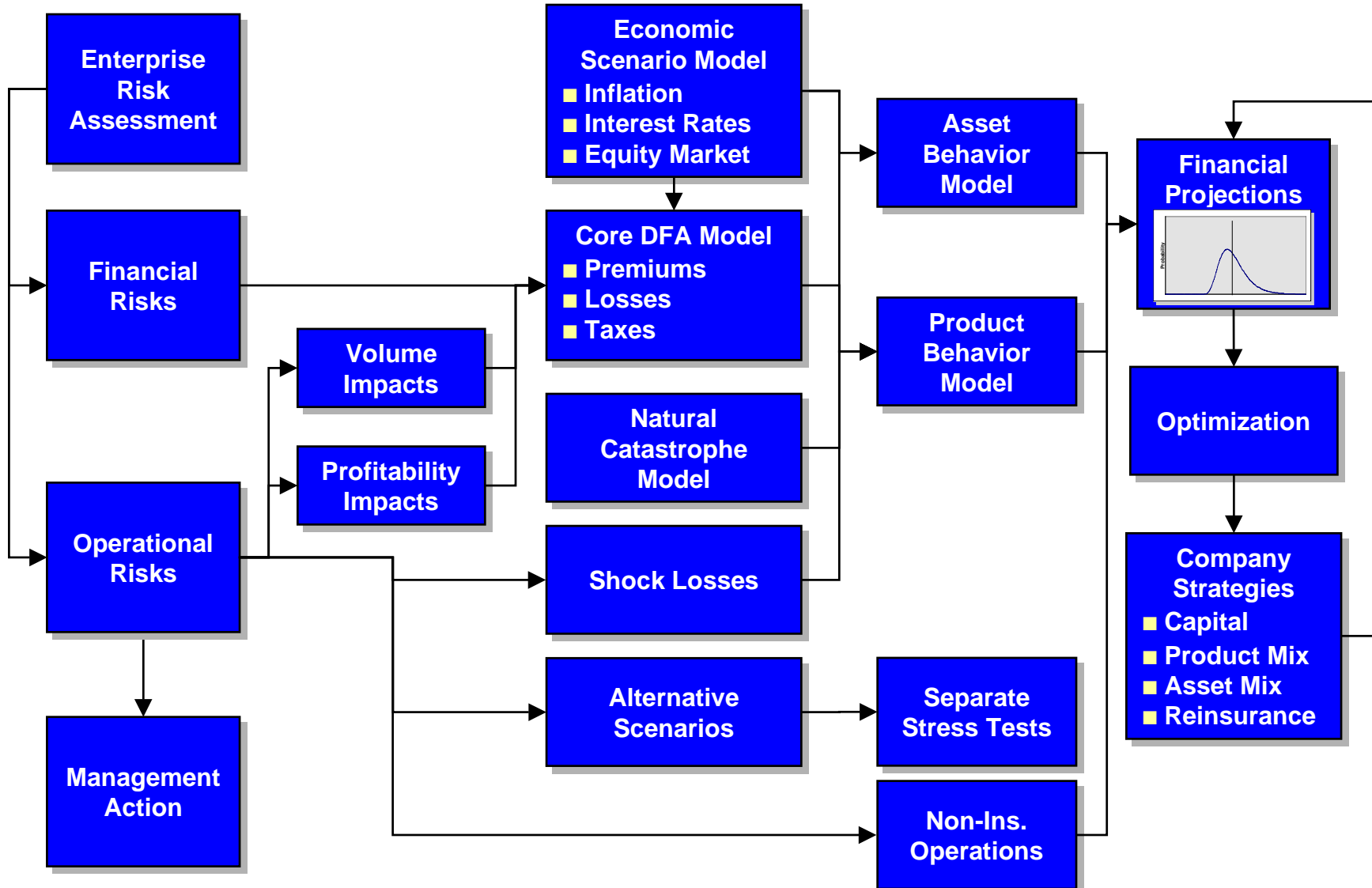
Different tools are needed for different types of risks

- There is a continuum of methods for developing probability distributions, based on the relative availability of historical data and expert input



Each method has advantages/disadvantages over the others and requires varying analytical skills and experience; one must match method to facts and circumstances

Example: One company's risk modeling approach



A risk table can provide a relatively simple way to prioritize risks

Risk Factors	Likelihood	Severity	Quality of Controls	Composite Score (1 – 5)
Negative government, legal and media actions	●	●	○	5
Uncompetitive administrative costs, including costs of personnel practices	●	○	◐	3
Leadership inability to overcome cultural resistance to necessary changes	◐	◐	○	3
Competition from new entities with more efficient business models	◐	●	○	4
Possibly incorrect IT strategy, architecture and direction	○	●	◐	3
Poor positioning to compete by ourselves in the new e-business world	◐	◐	◐	3
Poor strategic focus, direction and execution through our people	●	●	◐	4
Poor market knowledge and research	○	○	◐	2

● High ◐ Medium ○ Low

Sarbanes-Oxley
Highlights

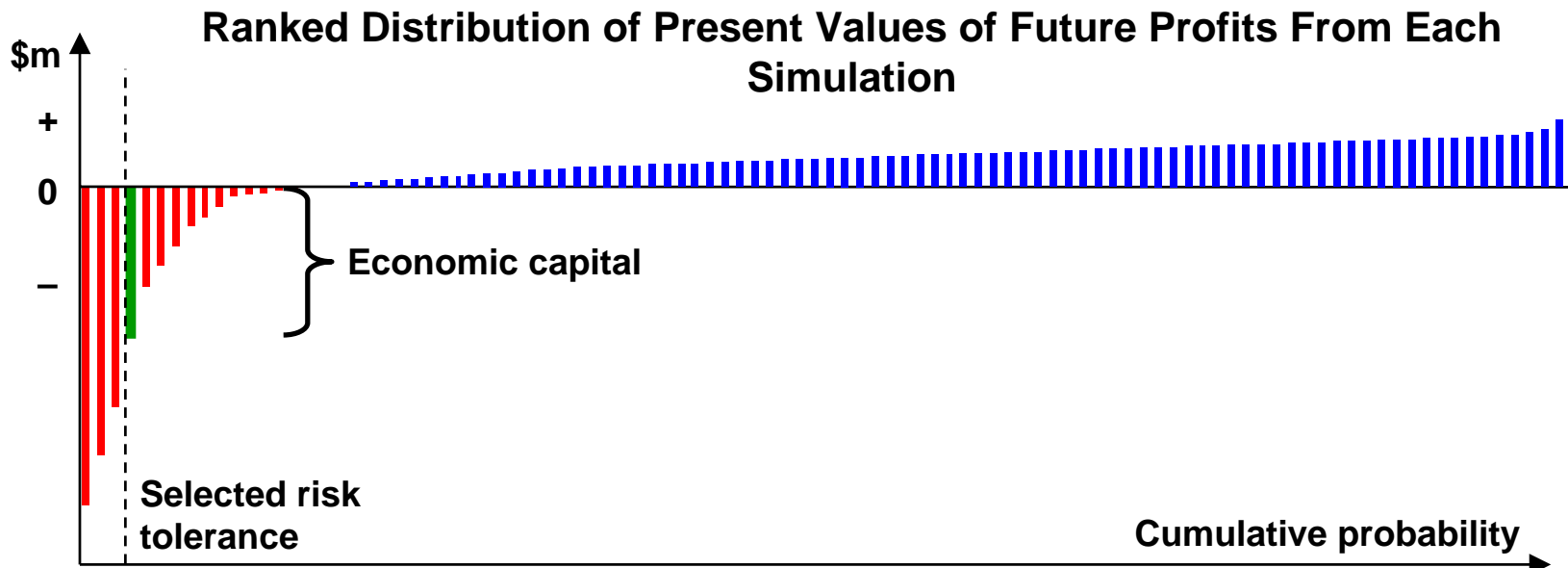
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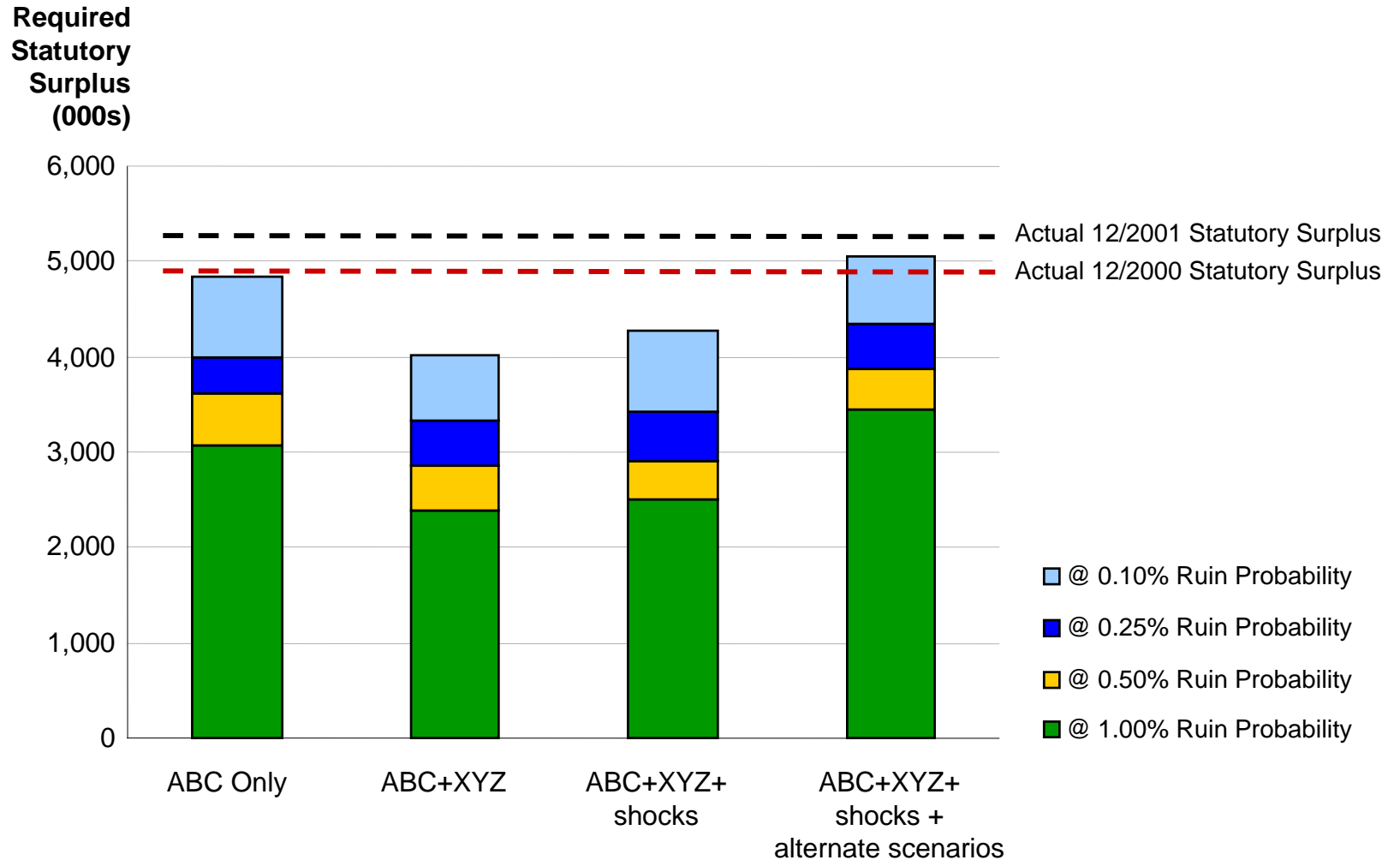
Stochastic modeling is particularly useful to CFOs in a Sarbanes-Oxley environment

Common Applications Include:

- Understanding expected volatility of future earnings
- Understanding the implications of key assumptions being wrong
- Calculating capital and reserve requirements
- Improving the product design and pricing process
- Determining economic capital
- Developing meaningful risk-adjusted return targets
- Developing the cost of options and guarantees



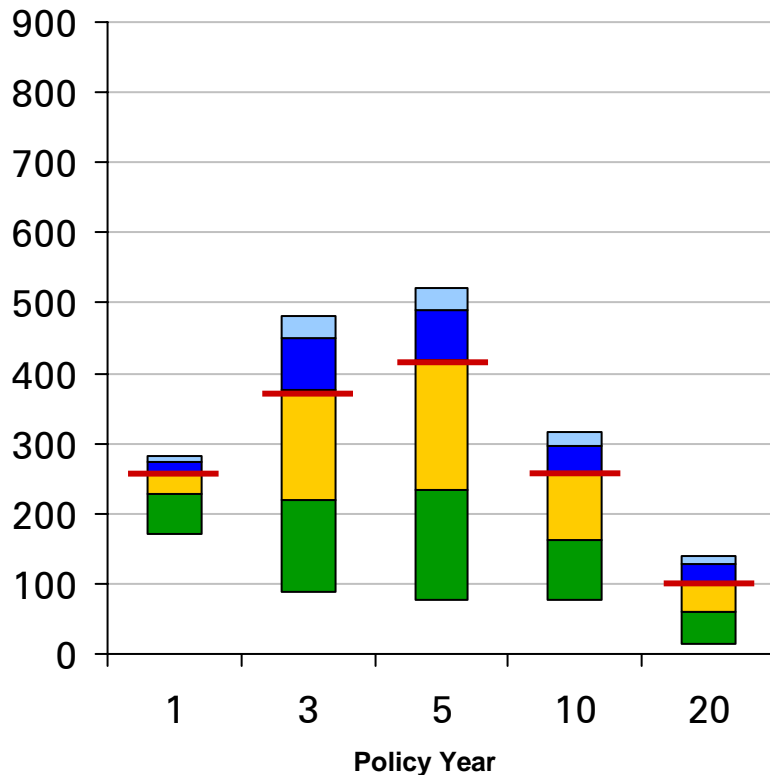
Stochastic modeling to determine capital adequacy



Stochastic modeling to improve product design

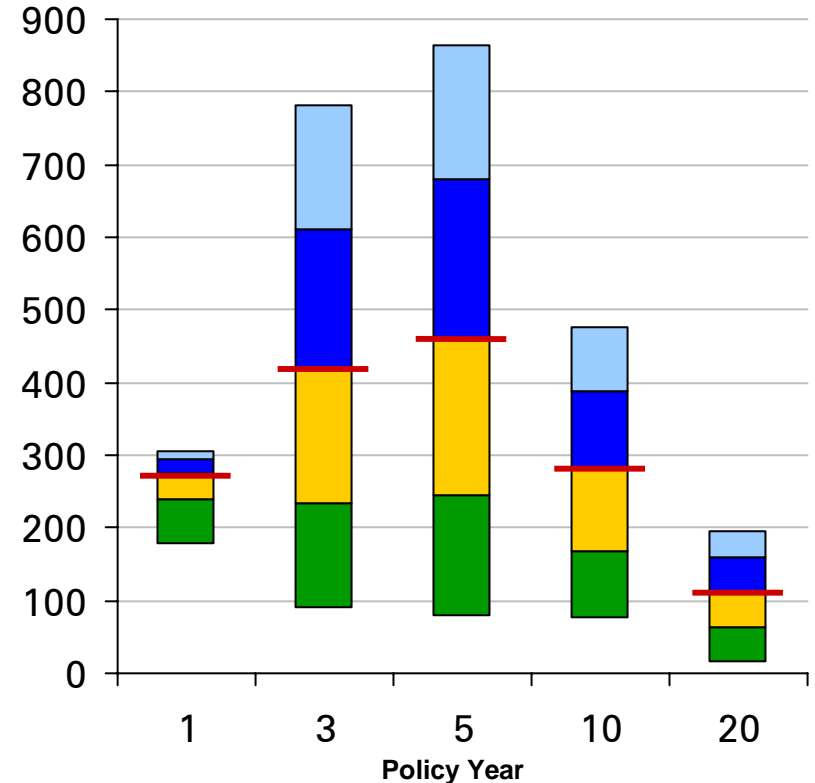
GAAP Earnings for Product Design A

GAAP Earnings



GAAP Earnings for Product Design B

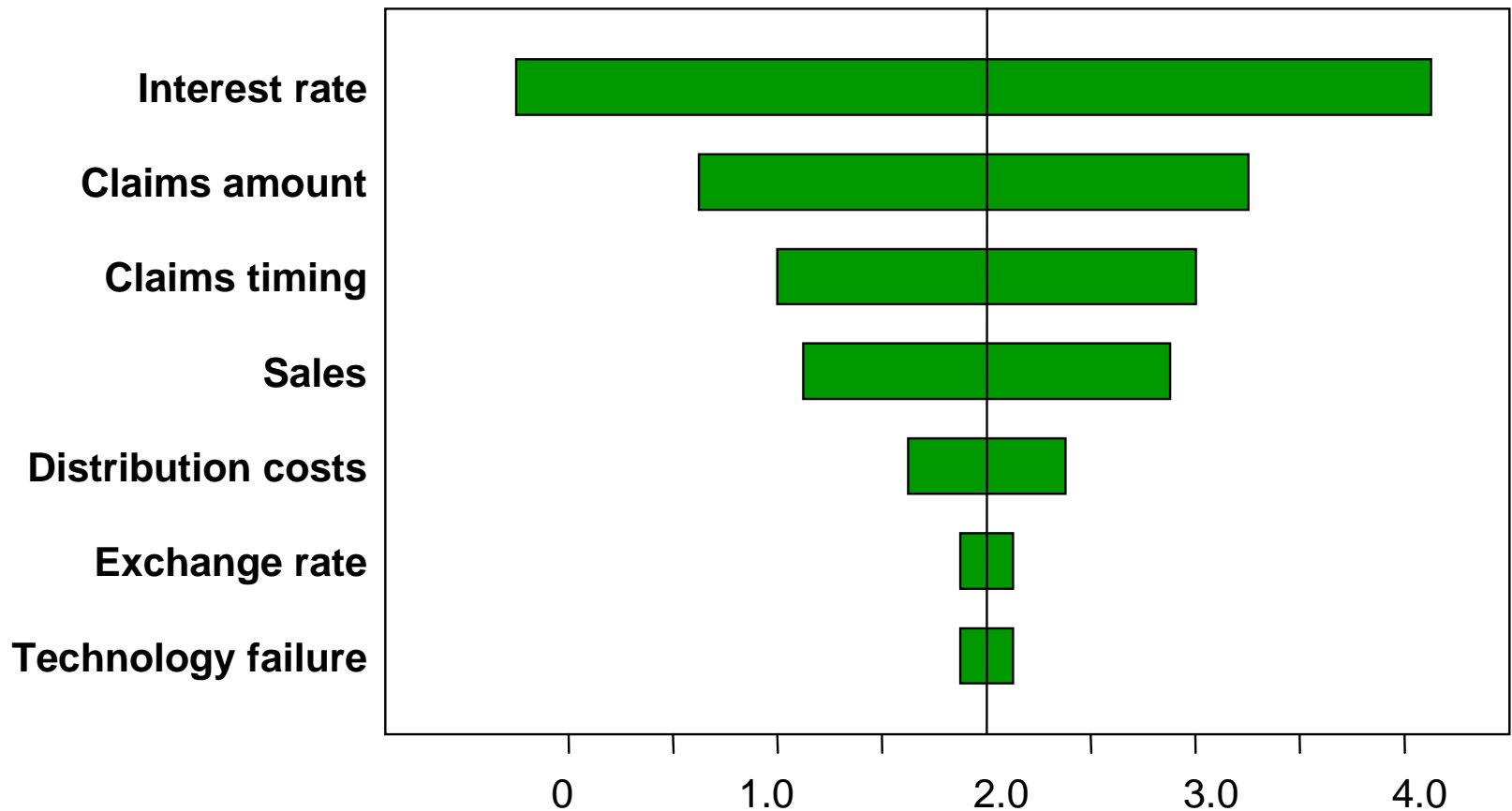
GAAP Earnings



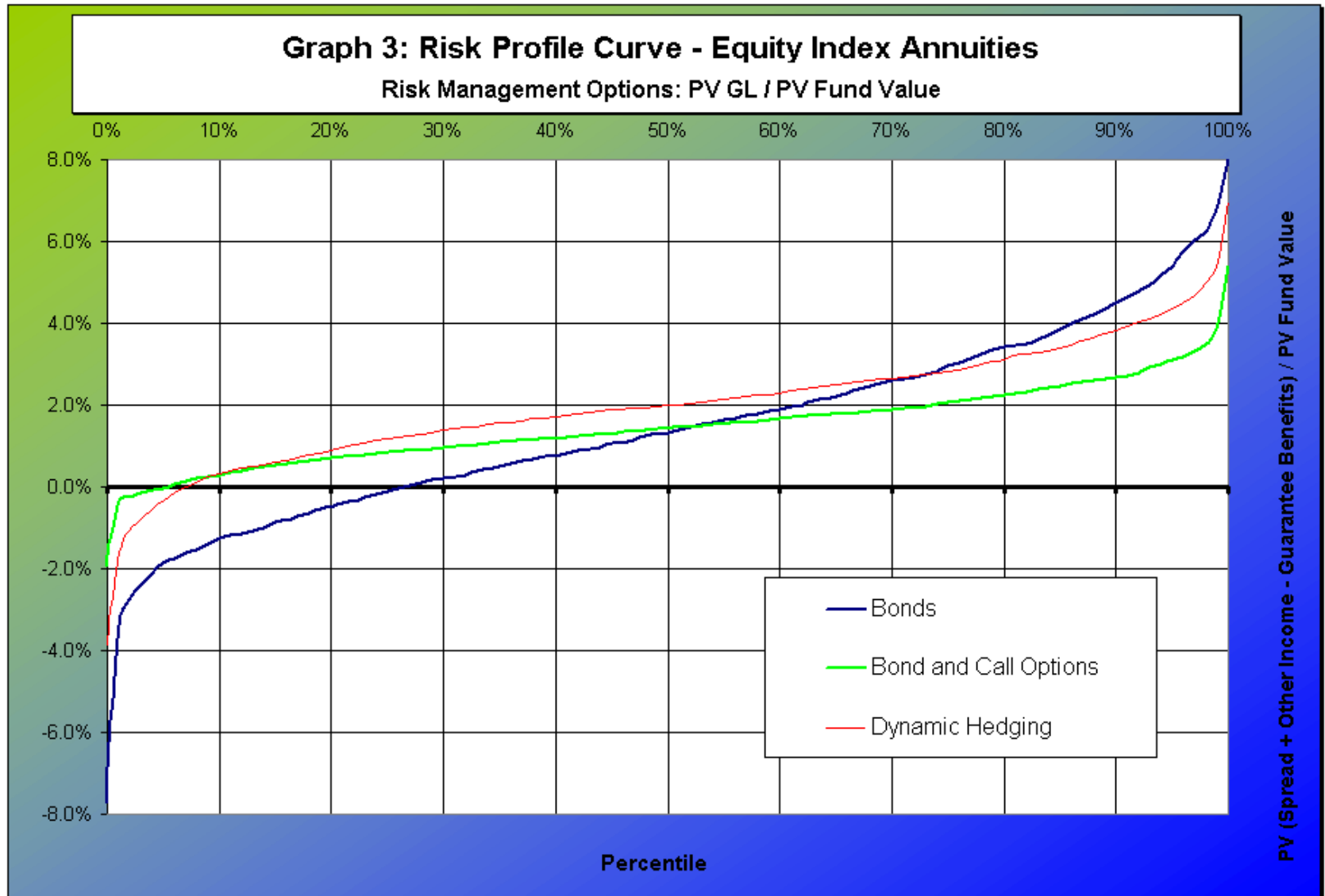
- 75th to 90th Percentile
- 50th to 75th Percentile
- 25th to 50th Percentile
- 10th to 25th Percentile
- Median

Stochastic modeling to assess potential sources of volatility

- Tornado graph illustrating the relative impact of each source of risk on the deviation of earnings from the expected value



Stochastic modeling to analyze different risk management options



Tillinghast is extending the theory and application of stochastic modeling techniques

Papers for SOA/CIA Stochastic Modeling Symposium

- “Efficient Stochastic Modeling Utilizing Representative Scenarios” — focuses on efficient use of a small number of representative cash-flow scenarios while providing representative results, even in the tail of the distribution
- “Stochastic Modeling of Mortality” — focuses on applications for economic capital and for evaluating reinsurance
- “The Impact of Dynamic Policyholder Behavior on Capital Requirements” — focuses on required capital levels for variable annuities from policyholder behavior patterns
- “Long-Term Equity Returns” — includes a distribution of compound equity market returns developed from monthly historical data using a number of models

In conclusion...

- Sarbanes-Oxley has raised the stakes in an already difficult environment
 - Executives now have an even greater “need to know” and are increasing internal pressure for improved management information
- ERM and stochastic modeling applications can be used more extensively by management to:
 - Gain a higher degree of comfort with financials
 - Provided additional information that could impact their financial statements directly and/or how they explain them to various stakeholders