

# Reinventing Risk Management

Modern ERM -The New Risk Management Paradigm

Products and Services

## OUR PERSPECTIVE

# WHY DOES RISK MANAGEMENT NEED TO BE REINVENTED?

The global financial crisis has revealed the need for a paradigm shift in risk management practices.

### IN THE FINANCIAL SERVICES INDUSTRY

- Traditional economic capital models systematically underestimate risk because they do not adequately incorporate the impact of rare “black swan” events – evidenced by the fact that “one in a hundred year” events seem to occur every 10-15 years.
- Most risk models cannot combine hard data, soft data and expert opinion in an objective, transparent and theoretically valid manner.
- Biased models create “risk-reward arbitrage” opportunities, allowing unethical managers to deliberately engage in high-risk activities while appearing to operate within stakeholder risk tolerances.
- Because performance is generally benchmarked against peers, irresponsible behavior at one organization can lead to a “follow the herd mentality” and cause an industry trend (i.e., systemic risk).
- Many senior officers and corporate board members do not have a strong knowledge of risk management and often just assume that risk is being managed appropriately.

### IN THE BROADER CORPORATE UNIVERSE

- Traditional Enterprise Risk Management (ERM) and Governance Risk and Compliance (GRC) frameworks view risk as the probability of a loss. Under this view, risk management is synonymous with risk control.
- Risk management actually means factoring risk into strategic and tactical business decisions, but this is not feasible under a traditional ERM or GRC approach.
- Traditional ERM and GRC approaches do not provide risk metrics that facilitate risk-reward or risk-control optimization.
- Many traditional ERM and GRC efforts fail to establish a viable risk taxonomy. As a result they do not distinguish between and among causes, events and effects. This not only creates confusion, it also obscures the root causes of the most significant losses.

### ADOPTING A MODERN ERM FRAMEWORK WILL ALLOW ORGANIZATIONS TO ACCOMPLISH THE FOLLOWING

- Facilitate the holistic management of all risks across the enterprise, based on a consistent definition of risk and a comprehensive risk architecture/taxonomy.
- Accurately incorporate the impact of rare “black swan” events into risk measures and risk-based profitability metrics.
- Embed a risk culture that reflects and harmonizes the goals of key decision makers and external stakeholders.
- Create a structured and transparent process for factoring risk into the business decision-making process — at both a tactical and strategic level. Specifically, provide managers, senior managers and C-level executives the tools and information they need to optimize risk-reward, risk-control and risk-transfer in the context of cost-benefit analysis.
- Reduce information asymmetries between managers and stakeholders to help confirm that managers are pursuing strategies that conform to the risk tolerance standards of the stakeholders.

Our truly holistic approach addresses the weakness in existing frameworks and meets the core requirements of C-level staff across all industries.

## OUR PRODUCTS AND SERVICES

Stamford Risk Analytics offers a range of risk management products and services including Targeted Research Projects, Educational Seminars and Advisory and Consulting Services. We also offer four unique Software Products. All our software products leverage the newly developed annualized loss exceedence curve (ALEC) methodology (patent pending), which is causing a paradigm shift across the risk management industry. These products transform risk management from a compliance exercise into a process that facilitates informed decision making and adds tangible value.

### SOFTWARE PRODUCTS

#### **Business Decision Analyzer**

The Business Decision Analyzer (BDA) is the industry's first risk management tool designed for the senior executive. It enables CEOs, CFOs and other C-level officers to make more informed risk-based strategic decisions. Specifically, it allows executives to conduct risk-reward, risk-control and risk-transfer optimization in the context of cost-benefit analysis at the risk tolerance level of the stakeholders. This highly intuitive and user-friendly tool requires virtually no prior knowledge of mathematics or statistics.

The BDA can be used to analyze the feasibility of new business opportunities, as well as investments in risk mitigation and risk transfer (insurance). Its many unique features include the ability to incorporate hard data, soft data and/or expert opinion (scenario data) – or any combination of the three – into the risk analysis process.

The BDA also includes an ultra-high speed Monte Carlo simulation engine which can produce virtually instantaneous results. This “immediate feedback” has proven to be very useful in “what-if/ scenario analysis.”

#### **Model Validator**

The Model Validator allows an analyst to validate the core assumptions underlying a property-casualty actuarial model. Specifically, it enables users to empirically validate many complex actuarial modeling concepts in a “controlled environment.” Examples: How sensitive are model results to changes in the data collection threshold? What is the impact of a severity cap? Is it theoretically valid to separately fit frequency and severity distributions when the data are heterogeneous? Are some frequency/severity distributions universally better or worse than others? How reliable are the standard goodness-of-fit tests and how useful is graphical analysis? How can one combine data from different sources (e.g., internal, external and scenario data) in a practical and theoretically valid manner? How does severity fitting using maximum likelihood estimation (MLE) compare to frequency and severity fitting under the ALEC fitting method?

#### **OpRisk Modeler**

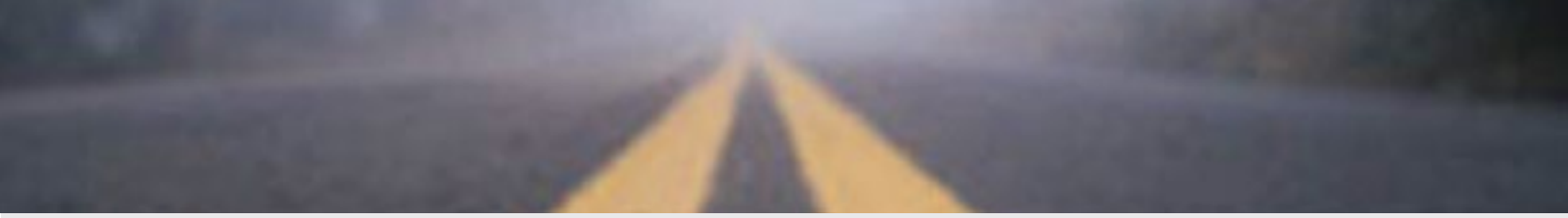
The OpRisk Modeler is the industry's most advanced tool for modeling operational risk. It allows a user to model operational risk under a loss distributions approach (LDA) and/or a scenario approach. The tool offers a comprehensive set of features including loss scaling and severity fitting through MLE. It also supports advanced graphical analysis. The OpRisk Modeler is unique in many ways. It is the only operational risk modeling tool that offers functionality to simultaneously fit frequency and severity through the ALEC method. It is also perhaps the only such tool that allows the user to combine information from internal, external and scenario data in an objective, transparent and theoretically valid manner. The OpRisk Modeler also includes an ultra-high speed Monte Carlo simulation engine which allows users to calculate Value at Risk (VaR) and Conditional Tail Expectation (Tail VaR) under different correlation assumptions, with or without insurance.

#### **Stress Economic Capital Assessor**

The Stress Economic Capital Assessor (Stress EC Assessor) allows senior executives to measure exposure to market, credit, operational and other risks – on a stressed basis. It is perhaps the only risk modeling tool that allows one to use data across multiple economic cycles – in an objective, transparent and theoretically valid manner. It is also perhaps the only economic capital modeling tool that can be used to conduct practical “what if” scenario analysis, where the stress scenarios are described in terms of both frequency and severity.

The Stress EC Assessor helps an executive answer many important questions. Examples: What is the probability that our investment portfolio will lose more than 25% of its value in any ten-day period over the next five years? Suppose a 20%+ one-day decline in stock prices occurs on average once every fifteen years, what does that imply about the firm's true 99% level exposure on an annualized basis?

This highly intuitive and user-friendly tool is ideal for senior executives and requires virtually no prior knowledge of mathematics or statistics. In fact, the Stress EC Assessor helps C-level executives and corporate board officers better understand how risk models work (and why they sometimes don't work) as well as the business assumptions upon which their own firm's risk models are based.



*A key goal of risk management is to create a transparent process to ensure that business decisions are made within the risk tolerance standards of the stakeholders.*

Stamford Risk Analytics has a unique mission. Our goal is to help our clients – across all industries – understand the benefits of Modern ERM and to assist them in adopting this holistic approach to managing risk. Modern ERM addresses the most important risk management business problems. It is currently the only risk management framework that is based on a uniform definition of risk, an intuitive and consistent risk taxonomy and an integrated measurement-management methodology.

The firm is headed by globally recognized thought leader, Ali Samad-Khan. His provocative articles and white papers have served as a catalyst for change in the way organizations manage risk. For his pioneering work, he was named “one of the 100 most influential people in finance” by Treasury & Risk Management magazine.

---

Stamford Risk Analytics, LLC  
One Stamford Plaza  
263 Tresser Boulevard, 9th Floor  
Stamford, CT 06901  
UNITED STATES

Telephone: +1 203 559 0883  
Facsimile: +1 203 978 0856  
[www.stamfordrisk.com](http://www.stamfordrisk.com)