

L6: Technological Innovations

Delivering on the ERM Promise

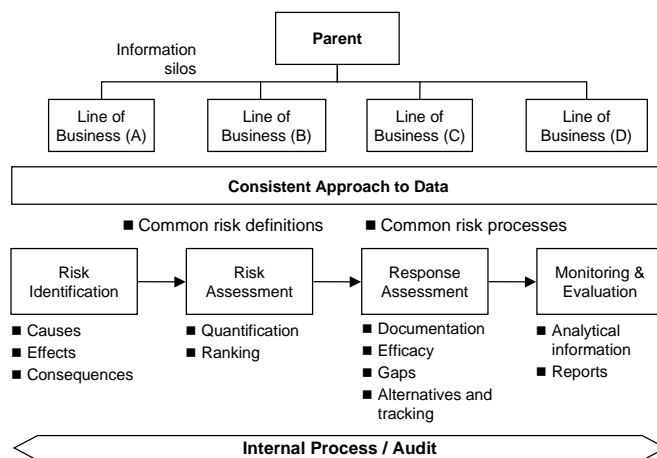
ERM

2006 ENTERPRISE RISK MANAGEMENT Symposium

A Consistent Approach to Data Drives ERM

Strategic Value Emanates From:

- Data
- Methodology
- Decision-making



ERM

2006 ENTERPRISE RISK MANAGEMENT Symposium



Our Program

- Moderator
 - Evan Busman from Towers Perrin
- Panelists
 - Ken Parker from RiskMetrics
 - Dan Rodriguez and Mickey Chadha from Morgan Stanley
 - Stephan Schoess and Greg Sterijevski from The Options Clearing Corporation
- Session Format
 - Short presentations
 - Moderator questions and panelist discussion
 - Audience questions and panelist discussion

Role of Enterprise Architecture & Software Services in effective implementation of ERM

Ken Parker
RiskMetrics Group



Ken Parker, ken.parker@riskmetrics.com

www.riskmetrics.com
April 11, 2006 slide 1

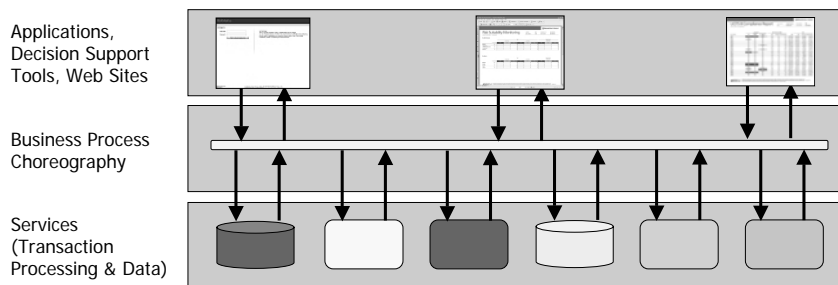
Enhancing the Business Model through ERM

- › By business process re-engineering supported by your Enterprise Architecture
- › By utilizing Software-as-a-Service (SaaS) as part of your business processes

Role of Enterprise Architecture

- › Effective implementation of ERM requires many things:
 - Enterprise Architecture
 - Data repositories with high quality data
 - Transparent transactional systems
 - Integration of disparate data from many systems
 - Flexible processing architecture and workflow (BPM)
 - Decision support tools leveraging integrated data and workflows
- › Architectural concept called SOA is becoming the enterprise “Weapon of Choice”
 - Modular system of well defined service providers and service consumers
 - Data, components and systems wrapped behind service definitions
 - Messaging architecture based on standards
 - Supports incremental implementation
 - An architectural view that supports agility, adaptability, responsiveness

SOA Enterprise Architecture



Business Process Re-engineering

- › Business Processing Re-engineering and SOA go hand in hand
- › Service and Data providers can be internal or external to the Enterprise
- › Revisit build vs. buy
 - 80% of business processes are standardized/commoditized
 - 20% provide competitive differentiation
 - Regulatory compliance may not be a source of competitive advantage
- › Software-as-a-Service (SaaS) can enhance business model
 - Agility and speed of deployment of ERM processes
 - Integrate best-of-breed data, methodology and tools
 - Demonstrable ROI
- › SaaS model evolving rapidly from the “Traditional ASP”
 - Web Services
 - Customization and development platforms/communities
 - Vertically integrated services for specific industries and business areas
- › SaaS as a platform for Business Process Outsourcing

ERM SaaS Examples

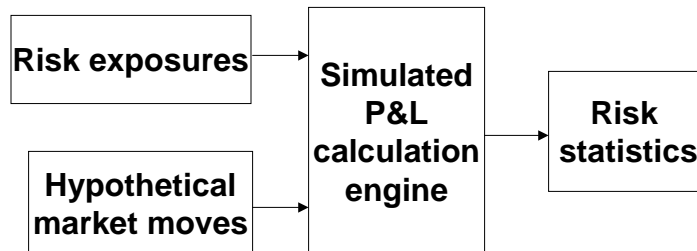
- › Consistent Global Terms and Conditions Data
 - Golden Copy Service (Bulk or On-demand)
- › Risk Measurement and Valuation Services
 - Grid based processing for scenario generation, risk measurement & pricing
 - Pay for what you use
- › Decision Making and Compliance Tools
 - Risk Suitability Compliance
 - Risk Budgeting
 - Pre-Trade Compliance Services

Enterprise Risk Management Solutions: Delivering on the Promise

Market Risk Department
Morgan Stanley
April 25, 2006

Fundamentals of Enterprise Risk Management (DMD)

- An overview of the basic calculation process of risk statistics indicates that we need to have three primary building blocks for effective risk measurement.
 - *Data*: risk exposures with valid terms and conditions defined a security master * market moves
 - *Methodology*: accurate P&L function
 - *Distribution*: decision support tools



ACT

- **Accurate, Comprehensive** and **Timely** risk measures must be combined with representative market risk factors in a rigorous methodology to create effective decision support tools for senior management to make valid market risk management decisions.
- To ensure the accuracy of risk measures, there must be a rigorous *model validation function* in place and frequent comprehensive *backtesting* that ensures that risk exposures representing mark-to-market fluctuations of a given portfolio are representative of actual market risks incurred by the portfolio.
- Hypothetical P&L testing is critical for evaluating the comprehensiveness of the risk representation.
- To be useful for senior management, this risk information must be delivered in a timely manner and in a form that can be easily consumed by decision makers.

Successful Implementation (flexible yet robust)

- To accommodate a rapidly evolving portfolio such as that of Morgan Stanley's Institutional Securities Group, the Risk Modeling Group must work very closely with Market Risk IT. Work must be done within a flexible architecture that is robust enough to accommodate increases in the quantity of risk measures, as well as entirely new different risk measures on a regular basis.
- Analytics must take a product-centric view of the incorporation of new risk exposures and provide a clear depiction of the relevant market risks to Market Risk IT, which then implements solutions compatible with the overall architecture of the delivery system, without sacrificing dependability of the system.
- Increasing regulatory requirements demand that investment banking firms deliver this functionality in order for them to meet Basel II requirements.

ERM INFRASTRUCTURE

ERM SYMPOSIUM 2006

The Options Clearing Corporation
Risk Management



The Options Clearing Corporation

Outline

- Introduction
- Data-Related Issues
- Methodology
- Decision Making
- Q&A

Introduction

- **Main Business Activities**
 - Clearing
 - Settlement
 - Risk Management
- **Peripheral Business Activities**
 - Stock Loan/Borrowing
 - RBH Calculation
 - Vendor of Data

Data-Related Issues

- **Input Data**
 - Importance
 - Usefulness
 - Quantity
 - Reliability
- **Data Editing**
 - General Techniques
 - Methodology-based Approach

Methodology

- Solutions to Question(s)
- Internal Consistency
- Robustness
 - “Pure Data”
 - Non-Parametric Techniques
- Process
 - Key Parameters
 - Methods, Data, Adjustment of Methods
 - Methodology and Decision Making

Decision-Making

- Scope of Use
 - Inside
 - Outside
- Policy vs. Methodology
- Iterative Process?

Q&A