Introduction to SAS® Risk Management

SAS EMEA Strategy
Mika Hakuni
Agenda

- Introductions
- Some perspectives
- What is SAS® Risk Management?
- Summary
About data and analytics

‘Risk analytics is clever maths, but the hard slog is the integration’
About reporting

“Reporting is one of those areas that the majority of risk software vendors would rather not talk about.”


*(Report analyzed the reporting capabilities of several risk providers, among others Algorithmics, IRIS, MKI Risk, SunGard, Barra)*
SAS® Risk Management
Some questions

- Do you have a consolidated picture of the risks?
- Can you model and evaluate Market, Credit and Operational Risks in the same environment?
- Can you identify value at risk by geography, business unit or market segment?
- Are you able to link risk to profitability?
- Are you ready for Basel 2?
ERM

OPERATIONAL RISK

CREDIT RISK

MARKET RISK

BUSINESS RISK
Integrated Risk

Integrated Risk Framework

- Regulatory Capital
- Market Risk VaR
- Credit Risk VaR
- Economic Capital
- Operational Risk VaR

Evolution of Risk Decision-Making

1980s
Focus on Revenue and Cost Management
- Mark-to-market
- Activity-based costing
- Transfer pricing

1990s
Focus on Risk Control (historical focus)
- Value at Risk
- Risk-adjusted performance
- Portfolio Management

2000+
Shareholder Value
Integrated Risk & Profitability
- Fully integrated profitability and risk information
- Forward-looking, not just static, management tools

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Risk Aware Organization

- **Risk Based Decision Making**
  - RAROC, Portfolio Optimization, Capital Allocation, …

- **Risk Measurement**
  - Value at Risk, Marginal VaR, Credit VaR, Operational VaR, …

- **Modeling**
  - Volatilities, Correlations, ARCH, GARCH, loss probabilities …

- **Consolidation of data**
  - Position data, market data, performance data, loss data …
SAS® Risk Management

Collect → Analyze → Report

SAS Risk Management

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Customer evidence

- Banking
- Asset Management
- Energy sector
- Market Risk
- Credit Risk
- Operational Risk

Okobank

Risk Dimensions™ software gives Okobank the flexibility to anticipate future risks and rewards

Dominion

Managing risk, generating rewards with SAS®
Year 2002:

SAS releases version 3.3 of Risk Dimensions®

Industry specific solutions of Risk Dimensions® are launched under SAS® Risk Management umbrella
Collect

- Transparent access to DBMS systems and other data sources
  - DB2, Sybase, Oracle, Informix, MS Excel, Ingres, flat files,…

- One risk warehouse
  - Designed for large amounts of data
  - Based on metadata driven architecture
  - Leverages on SAS® Rapid Warehousing Methodology
Collect

/* 5. EquityPortfolioDataImport.sas */

/* This program reads equity positions from */

PROC IMPORT OUT= POSITION.EQUITIESFILE= 'C:\SAS Demo Environment\Ray Data\SASSEUROCOM REPLACE;
GETNAMES=YES;
RUN;

PROC RISK;
   ENVIRONMENT OPEN = Root.mdb;
   INSTDATA Equity_EUR_FILE = POSITION.EQUITIES;
   SOURCES Equity_Total LABEL = "Equity Fos"
   READ SOURCES=Equity_Total OUT=Equity_Total
   ENVIRONMENT SAVE;
RUN;
Analyze

- **Risk Engine:**

- **Modeling subsystem:**
  - Time series modeling, estimation, forecasting.

- **Statistical and Mathematical functionality:**
  - Optimization, Matrix calculations, Principal Component Analysis

- **Exploratory Graphics**
  - Interactive histograms, scatter plots, rotating 3-D plots
Report

- From ad-hoc reports to scheduled batch reports
- High-performance reporting via OLAP
- Various formats, including HTML and PDF
- Possibility to integrate SAS Portal as a way to distribute reports
Summary:
What is SAS® Risk Management?

- Integrated risk analysis environment
- True end-to-end
- Open, flexible and extensible system

Note:
SAS is not a “black-box” solution. Instead, you design the strategy, we enable it with technology.
Result: you retain the flexibility and transparency.
Shaping the Intelligence Layer

SAS can provide the complete Intelligence layer:

- Would you like to know more about your suppliers, customers,...?
- Do you want to build predictive models using data mining?
- How about using risk figures in your score cards?
- And budgeting problems using Financial Management solutions?
Final thoughts

Joe Cooper
Principal Risk Management Analyst

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