Avoiding Multiple Versions of the Truth: Getting it right

How a good data consolidation strategy is critical for the success of risk management
Data consolidation in the heart of enterprise risk management

1. Data consolidation in the heart of enterprise risk management
2. Ensuring internal and external data excellence
3. Servicing multiple risk management engines with centralized data
Source: The Economist 27 Feb 2010
The Evolution of Risk Management

Through the time the need for more data and more integration has increased

- Fewer risks
  - Simple transactions
  - Silo approach

- Increased risks
  - Increased metrics
  - Complex products

- Enterprise Risk Management
ERM puts Risk Management is at the crossroad of bank’s data
Question:

What do you consider as the most challenging “Data” issue?

- A - Unique Customer Identification across the institution?
- B - Risk Aggregation (eg: How to merge a daily-VaR and 1Y-Credit Risk)?
- C - Reconciling the output numbers from Risk and from Finance?
- D - Running consistent scenarios on Margin and Capital?
Basic example of the silos’ effect in daily decisions

Risk and Performance are very often measured separately

» Different systems, Different teams:
  » Performance is based on accounting indicators
    » Eg : Operating Profit = Revenues vs costs
  » Capital allocated to risky assets does not care about their profitability
    » Basel 2 RegCap = 8% * RWA

» Not “Industrial” tool to help capital allocation process (“Granularity” issue)

But Adequate pricing requires information across silos

» How can I choose between 2 deals with limited capital available ?

» Where should the bank allocate capital :
  » Which business line? Which country ?
  » Which customer segment ? Which product line ?
  » When ?
**It’s easier said than done**

» Challenge 1: Find the right source
   - Relevant data is buried into multiple systems and units
   - Silos never get synchronized

» Challenge 2: Transform disparate data into meaningful information
   - All silos have a partial version of the truth
   - Information structure is never homogeneous across systems
   - Data consistency is a challenge

» Challenge 3: Present the right information to the right people
   - Risk measures cannot be simply added.
   - Static indicators vs Dynamic indicators: It’s not just about reporting
   - What level of aggregation/detail should be available?
How many systems do you need to…

Credit Risk
Market Risk
Operational Risk
Liquidity Risk …

Financial Income
Non-Financial Income
Product Processing costs
Sales & Marketing costs
Overhead costs…

Compute Capital
Consolidate Risks

Revenues & Costs

Risk Adjusted
Performance Measurement

Compute Margins / Allocate Costs

Originated Exposures

Measure Profitability
Generate Reports for Management

Perform simulations & stress-testing scenarios

New Business Origination
Real-time analysis (scoring, pricing, settling, hedging, …)

Risk Monitoring vs Defined Limits

Risk Appetite & Capital Allocation

Limits

Monitors Exposure Concentration on key business dimensions

Limits Policies

Allocate capital to businesses

Measure new exposures Risk & Performance in real-time

Ex-post RAROC

Ex-ante RAROC

Compute Margins
Allocate Costs

Moody’s ANALYTICS

Avoiding Multiple Versions of the Truth: Getting it right, February 2011
Consolidating data – from silos to a data mart

Multiple sources of data…

» Credit Risks (Default, Transfer, Securitization, Concentration, Residual, Settlement Risks)

» Market risk (IR, Positions, Forex, Options, Commodities risks,…)

» Interest Rate Risk in the banking book, Liquidity Risk, …

» Operational risk

» Other risks (Strategic, Reputation, Capital, Pension risks,…)

…Need to feed a single data mart

» Data needs to be correctly represented (customer data, transaction data)

» Data mapping should be performed by experts
A consolidated platform requires key features

- **Asset and liability Data**
- **Data loading platform**
- **ETL Platform**
- **Handling large amounts of detailed historical data**
- **Data Quality Checks**
- **GL Reconciliation Adjustment & Audit**
- **The solution allows a grid of calculation server to reduce calculation time (really useful with MC simulation for instance)**

Diagram:
- Source Systems
- History Data Series
- Calculation Servers
- Workspace
- Data Mart
- Results
- Data Quality Checks
- GL Reconciliation Adjustment & Audit
Data consolidation is not enough - Ensuring data quality is critical

» Data coming from several sources may have errors
  – Source systems may contain inaccurate data
  – Data may be corrupted during the interfacing process

» Quality of data is critical
  – Garbage in, garbage out – no matter the quality of the calculation engines, if it is not based on good data, the results will not be correct

» Data quality checking should be performed at data mart level
  – Centralizing the rules enable best management and organization
How to guarantee good data quality?

» Correct Data Modeling

» Internal data quality

» External data quality

Contract level checks for missing fields
- Is the currency code present?
- Are all the required amounts informed?

Contract level checks for coherency of fields
- Are the two legs of the swap informed? Are they different?
- Is maturity date after trade date?
- Does the customer code belong to the customer table?

External data checking to verify completeness and consistency of data
The ultimate quality check – General Ledger Reconciliation

Contract 001
- Account xxxxx - 9999
- Account yyyyy - 9999
- Account zzzzz - 99999*
- ....

Contract 002
- Account xxxxx - 9999
- Account yyyyy - 9999
- Account zzzzz - 99999*
- ....

Contract 003
- Account xxxxx - 9999
- Account yyyyy - 9999
- Account zzzzz - 99999*
- ....

....

Aggregation process by account number

Generated GL

Bank’s GL

GL reconciliation
Benefits of a good data management

» Project trust throughout the company
  – 70% of risk projects fail because of data modelling
  – Calculations engine can be state of the art, but wrong data will always give wrong results
  – Good data management will gather supporters to the project. Bad data management will gather enemies against it

» Establishment of a « single point of truth »
  – No more endless searches for the correct source of data
  – No more endless reconciliations between several sources of data

» Consolidate data view
  – Immediate reporting on products and exposures
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