NSF Financial Information Workshop July 21-22, 2010

Risk management in the small – breakout session

Objective of session

- "Risk management in the small" = ERM Data at firm level
    - Implications only within single firm, and not issues related to multiple firms and systemic issue
    - Enterprise risk management applications including: market risk, credit risk, liquidity risk, asset-liability management, etc.

- Objective of this breakout session is to report on a series of topics appropriate to create a research agenda related to
    - The data requirements for enterprise-wide (firm-level) risk management applications
    - The Connection between firm-level data management and operational risk

Some Key high level objectives of research

- Many firms have been collecting data and building enterprise risk systems for the last 20 years
    - Start with the current knowledge... reach to difficult problems. We can bring good experience in finding the "pain points" for these institutions
- Bring transparency to all stakeholders of the firm – senior management, shareholders/debt holders, regulators ratings agencies
    - Different information for different levels
- Reduce operational risk

Background

Start from the fact that the OFR will collect principally the following four kinds of data in a standardized, systematic and systemic manner from financial institutions:

1) Counterparty data: Counterparty attributes as far as privacy allows including ID, hierarchical relations
2) Contract date: Sufficiently detailed which allow to derive cash-flows and eventually value, income, sensitivity and risk. Following clear definitions of contract types
3) Position and portfolio information
4) Market data....

Each bank has to map each financial contract (inside the boundary of the system) into one of these contract types and link it properly to a counterparty, for example. Once this is correctly done, it is possible to do analytics on a systemic level. Especially it is possible to do things like stress tests after adding market information (yield curves etc. which the OFR can directly get from providers).

The system will function as perfectly as perfectly the data mapping on the baking side is done. Logically a good part of the focus of regulation at the bank level should switch to data entry to ensure its quality. Here we can see a lot of operational risks which should be studied at an early stage.

What information management needs are implied by "living wills" for systemically important institutions?

- Descriptions of instruments and positions
- References to counterparties
- Descriptions of events, conditions, and reactions
- References to entities, actions, and consequences
    - Who decides, what can they decide, and under what circumstances?
    - Who is affected and what is their recourse?
- Descriptions of business processes to be set in motion by decisions: actions, time to complete, objectives, obstacles, recourse.

What information management needs are implied by regulatory scrutiny of Living Wills?

- validation and sufficiency
- simulation of risk events: e.g. probability of Default and Loss Given Default under risk scenarios

Research areas

1. Representation and standardization of firm-wide data
    - Traceable representation of firm-wide wide data for
        - Instruments
        - Positions
        - Market data
        - Model requirements
    - Integration and reporting of information from multiple sources, prime brokers for “alternative” institutions like hedge funds, etc.
    - Data standardization and impact on Firm-specific risk management
    - Static vs dynamic data...
    - Detailed definition of the context of specific financial problems

2. Data representation, reporting and analytics
    - Descriptions of events, conditions, and reactions
    - Mapping of contracts to computable models... language, automated reasoning
        - Common semantic structure for our industry
        - Simulation of events
    - Reporting tools and risk
        - Various stakeholders (internal and external)

3. Management science: supply chain modelling related to information management, etc...
    - Risk management function model... information flow
    - Data warehousing

4. Data management and operational risk
    - Data management processes and methodology
    - Validation and sufficiency
    - Maturity model - e.g. precedent in software industry
    - Business contingency – lots of effort on Oprisk measurement (e.g. OpVaR) but less on standardized procedures, contingencies, controls, mitigations...

5. Connection of data requirements - modelling - management - operational risk
    - Best practices across the industry
    - Practices and procedures
    - Economical and empirical research on the benefits, costs of standardization, reduction of operational risk, etc.

6. Specific financial risk modelling and management problems
    - Counterparty credit risk: identifying entity, subsidiaries etc
        - CP hierarchies
        - Mapping of identifiers
        - Recording over time... changes
        - look-through analysis
    - Liquidity risk – cash-flow management
        - CP and collateral flows
        - Off and on-balance sheet... accounting principles
    - Efficient data representation and communication for complex financial instruments
        - E.g. MBSs, structured derivatives and baskets, etc.