

“Assessing and Managing Operational Risk”
Wharton Financial Institutions Center
Risk Roundtable

Sponsored by Oliver, Wyman & Company
April 18-19, 2001

On Thursday, April 18, 2001, risk practitioners and academics from around the world convened for the Fifth Annual Risk Roundtable, sponsored jointly by the Wharton Financial Institutions Center and the Oliver Wyman Institute, the academic liaison of Oliver, Wyman & Company. This year’s conference, entitled “Assessing and Managing Operational Risk,” focused on the lessons learned from recent operational losses, as well as methodologies for measurement of operational risks and appropriate steps to manage these risks.

Executive Summary

The conference began Thursday evening with the keynote address by John Drzik, Chairman of Oliver, Wyman & Company. Drzik kicked off the agenda by probing the limitations of operational risk management. “While there has been a lot of progress in efforts to quantify operational risk, it is being over-emphasized as a solution. Operational risk management is more about improving management practices than measurement.”

Over the course of three sessions held throughout Friday, we heard various speakers from industry, academia and regulatory bodies express their views on assessing and managing operational risk. An open discussion forum where conference participants posed questions to the speakers and voiced their own comments followed each of the sessions.

The first session, titled “What Have We Learned about Operational Risk from 9/11”, had speakers looking at how their respective companies had prepared for such a scenario, how they fared and the lessons that should be taken away from 9/11. The main focus was on how companies could ensure business continuity through stress scenarios. Attention was also paid to indirect effects borne by all participants in the financial services industry.

“What Do We Know About Measuring, Managing and Insuring Operational Risk?” was the key question that was posed during the second session. Industry specialists and academics expressed their views on current ability to measure operational risks. Limitations of current methodologies and potential future direction for development of management of operational risk were discussed.

The third and final session concentrated on the “Private- and Public-Sector Policy Initiatives.” Here, we heard about the current Basel Committee viewpoint on operational risk, as well as private-sector comments on the Basel Committee viewpoint and potential improvements that could be made with respect to the Basel Committee’s framework

Keynote Address, April 18

The conference began Thursday evening with a keynote address by **John Drzik**, Chairman of Oliver, Wyman & Company, which addressed the limitations of operational risk measurement and pushed improved management practices as a more appropriate solution. In addition, Drzik challenged whether or not capital was indeed the best regulatory mechanism to manage operational risk, stating that “an ounce of supervisory prevention is worth a pound of capital cure.” Instead of focusing on capital requirements, he said that the most useful role for regulators is to promote effective management of operational risk by requiring institutions to demonstrate that the appropriate steps to control operational risks are being taken.

The Conference Day, April 19

Friday’s agenda comprised three sessions, each of which consisted of brief presentations by leading academics and practitioners in the field, followed by discussions.

1. What Have We Learned about Operational Risk from 9/11?
2. What Do We Know About Measuring, Managing and Insuring Operational Risk?
3. Private- and Public-Sector Policy Initiatives

The sessions were moderated by **Frank Diebold**, Professor of Economics and Statistics at the University of Pennsylvania and Founding Member of the Oliver, Wyman Institute and **Richard Herring**, Professor of International Banking and Co-Director of the Wharton Financial Institutions Center. The following is a summary of the each of the sessions.

Session 1: What Have We Learned about Operational Risk from 9/11?

Richard Berner, Chief U.S. Economist at Morgan Stanley, began the first session with an account of what Morgan Stanley faced during 9/11 and in the aftermath. Berner briefly discussed the disaster and steps that Morgan Stanley had taken prior to the event. Morgan Stanley’s extensive preparations were critical to their successfully negotiating the disruption with minimal loss of life and only a limited business interruption. Despite their impressive recovery, Berner mentioned some of their failures in preparation and highlighted some of the long term steps Morgan Stanley had taken post 9/11 to prepare for other potential events. These included geographical diversification in terms of their office buildings and improved crisis management procedures. Berner concluded by emphasizing that business continuity planning should shift away from a “Build and React” to a “Integrate and Mitigate” paradigm.

James Koster, Managing Director at Depository Trust and Clearing Corporation (DTCC), started off with a quick description of how critical their functions are to the financial services industry. Koster continued by highlighting how, previously, contingency plans looked at foreseeable operational risks and how, in the future, they will consider risks that are non-foreseeable. He detailed an inclusive list of preparations to minimize losses from a 9/11-type event:

- Strong organizational commitment to business continuity
- Well defined risk management function
- Alternate locations a safe distance away
- Robust technical recovery strategy
- Continual audit of the risk management procedures

Koster then outlined a prioritized list of losses, which ranged from personnel losses,

communication impairment, and technical failure through to infrastructure damage and counter-party readiness. He argued that any plan should have steps to deal with the most pressing issues to business continuity first. This was reinforced when he contextualized it to DTCC which, by regulation, is required to have a 3-hour basic recovery plan due to its critical nature in the functioning of the financial services industry. Koster wrapped up by conceding that although the previously outlined comprehensive plans were ideal, a cost benefit analysis had to be done before implementation of plans with marginal benefits.

Sandra Krieger, Senior Vice President and Head of Domestic Reserves Management and Discount, Federal Reserve Bank of New York, began by commending Morgan Stanley and DTCC on their readiness. She went on to highlight a few issues which were pressing to disaster recovery. She emphasized geographical diversification and advocated planning for extended business disruption, rather than just a 2-3 week alternate plan. Krieger then moved on to one of her observations during 9/11, the interdependencies that manifested themselves due to multiple banks facing similar stresses at the same time. She gave examples such as an industry wide liquidity shortage which was alleviated somewhat by an implicit cooperation in the immediate aftermath of 9/11 but was quickly replaced by competitive practices and elevated overnight rates. She also noted that banks that had outsourced their disaster recovery were faced with suppliers who could not simultaneously deliver to all their clients. In closing, she emphasized the importance of hypothetical stress testing of a firm's backup systems against an increased scope of scenarios, where a city-wide disruption, such as 9/11, should be a minimum stress scenario.

Session 1 Discussion

Industry members on the floor reiterated the cooperation vs. competition aspect during 9/11 which they faced and how they managed the diametrically opposite attitudes. Some participants recalled previous events, such as the BoNY software failure and 1993 WTC bombing attempt and proposed that these events helped in being much better prepared for 9/11. Others, while recognizing the paradigm of interdependencies that was likely to be upset during a major stress scenario felt the cost benefit analysis was key to determining the appropriate steps to take in preparing for such scenarios. Further discussion delved into specific costs such as costs for diversification and redundant systems as well as who will bear these costs.

Session 2: What Do We Know About Measuring, Managing and Insuring Operational Risk?

Doug Hoffman, President of Operational Risk Advisors opened by explaining how operational risk measurement and management have been going on for a long time, but consolidation and standardization had only just started in the field. He gave analogy that operational risk at the blocking and tackling level had been going on for a while. In trying to move towards a more holistic approach to operational risk management, he drew from his book, *Managing Operational Risk*, and spoke of 6 key tenets:

1. Enterprise-wide culture and commitment
 2. Governance for operational risk management
 3. Potential responses to operational risk
 4. Dynamic risk identification, measurement and responses
 5. The role of regulation, and
 6. Technological changes improving our ability to measure and manage operational risks
- In closing, he spoke of the importance of adopting these measures and moving towards best practices in operational risk management. Relating this back to his earlier analogy, this would move operational risk from being a "blocking and tackling" function to having a comprehensive role in the enterprise wide game plan.

Andy Kuritzkes, Vice Chairman of Oliver Wyman & Company, opened with a taxonomy of the various different types of risk a bank faces and where operational risk fits into the framework. He argued that if risk is defined as earnings volatility, then operating risk should refer to all residual non-financial risk once financial risks (credit, market, ALM, insurance) have been stripped out. Non-financial risks, in turn, can be subdivided into three categories: internal event risks (losses due to internal failures); external event risks (losses due to uncontrollable external events); and business risks (losses due to residual earnings volatility, not resulting from event risks). He addressed other problems of definition, bringing up issues like indirect losses such as reputation risk and the fact that these are not addressed in the BIS II definition of operational risk. He then presented a couple of analyses which roughly sized all non-financial risk to 2.0% of assets and sized BIS II operational risk, defined as internal and external event risk, to 0.8% of assets. He recounted some of the limitations in his analysis while measuring operational risks. Wrapping up, he suggested that while operational risk measurement is important, holding capital may not be the ideal method to deal with operational risk, citing alternatives such as improved internal controls and insurance as being better for certain types of operational risk.

Alexander Muermann, Assistant Professor of Insurance and Risk Management at the Wharton School, recalled his time at Warburg Dillon Read where he was in a task force charged with measuring operational risk. His historical account of the definitional problems they faced then showed that although progress has been made, many similar definitional problems remain. Muermann went on to detail the problems he faced with some technical aspects of operational risk measurement, such tail measurement in extreme value theory. He also commented that aside from measurement, management of operational risk is bank specific, in terms of specific incentives, insurance and operational risk derivatives that banks used to limit their capital exposure. He concluded provocatively by suggesting perhaps regulatory capital is not necessary, given the bank-specific nature of operational risk and that capital allocation may not have necessarily avoided major events such as the Barings fallout.

Peter Ulrich, Managing Director at Enterprise Risk Management began by coining the phrase “supercatastrophe” to refer to events on the scale of 9/11. The key difference between smaller scale events and a supercatastrophe was the correlation of the resulting losses. He contrasted the previous paradigm of property losses being the major ones to the current paradigm of human loss being the major loss. Similarly, natural events have been supplemented by human acts in terms of being the principle causes large-scale events. Ulrich drew on his knowledge on work with earthquakes and commented that supercatastrophes resulting from terrorism can be modeled in a way similar to modeling earthquakes. Using several scenarios including a truck bomb, a dirty nuclear bomb and an earthquake, he showed the extent of damage that would be caused by each of them. He went on to argue that given some measure of these losses is available they should be insurable. Unfortunately, insurance may not be terribly effective in terms of avoiding the direct and indirect consequences resulting from loss of personnel. He wrapped up the session by stating that understanding the risks a firm was dealing with was critical to taking steps to mitigate them. As an example, building a second office 5 miles away to diversify geographically might be a good option against terrorism risk in New York City, but it would be ineffective against the risk of a major earthquake affecting the entire West Coast.

Session 2 Discussion

Participants asked panelists to elaborate on their suggestions that holding capital may not be the best way to deal with operational risk. Elaboration included clarifying that measurement should not be completely ignored, rather that focus should be shifted to internal controls. In addition, a panelist reiterated the issue of whether regulatory capital was appropriate, given the specific

nature of operational risk. Other comments were directed towards how we could better incorporate indirect losses and shareholder losses into the framework for direct losses and the natural follow-on question of whether the current industry definition of operational risk was adequate given the variety in the types of losses.

Session 3: Private- and Public-Sector Policy Initiatives

Richard Koss, Senior Vice President and Head of Global Fixed Income Management at Brown Brothers Harriman kicked off the session by comparing the differences between his firm's unlimited liability partnership and typical corporations and their ability to deal with large scale events like 9/11. He raised some interesting aspects of previous problems, such as cooperation vs. competition during times of stress, which were different at partnerships and small, privately held firms. Partnerships are also much more careful about operational risk, since management is directly affected by losses and there is no principal agent problem faced by typical corporations. Koss spoke in depth about repo instruments that have little or no credit and market risk but a large amount of operational risk associated with them. He described the economics of repo positions that he had during 9/11 and the effects that 9/11 had on his positions and his subsequent strategies to minimize exposures and losses.

Stefan Walters, Vice President and Head of Markets and Liquidity at the Federal Reserve Bank of New York and Basel Committee member spoke mainly of the work Basel has been doing on operational risk. He conceded that in an ideal world, Pillar One (regulatory capital) would be made redundant by Pillar Two (internal controls including measurement). However, given that internal measurement was not close to adequate, regulatory capital would be an incentive for banks to develop their own measurement techniques. He further elaborated on the three stages of measurement sophistication which would hopefully have progressively lower amounts of capital associated with them. He focused on the most sophisticated of the three, the Advanced Measurement Approach (AMA) and mentioned potential methods of implementation with key inputs being internal data, external data or expert opinion, as well as benefits and pitfalls to the AMA approach. In short, he presented a comprehensive summary of the Basel Committee's views on the current state of operational risk measurement and their vision of how they expect it to evolve.

Karen Petrou, Executive Director of the Financial Guardian Group started off by saying she would play devil's advocate to Stefan Walters and the Basel Committee's viewpoint. She reinforced two points made in session 2:

1. The role of regulators should not be to prevent individual bank failure through unwise risk taking. Rather, it should be to prevent systemic bank failure due to poor industry-wide risk management. Hence, regulatory capital across the board may not be best course of action.
2. Pillar Two and the role of insurance should be where the focus of regulators lie. This would allow banks to measure their own risks and mitigate them appropriately.

Petrou went on to comment on the differences between the US, EU and Japanese banking systems and how these difference would lead to capital being a natural solution in the EU and Japan. However, internal controls and better measurement were the best solution in the US. The major differences were the level of supervision being much higher in the US but the scope of regulation being less in the US as only banks were regulated. She further reinforced this point by mentioning the difficulties in data collection and subsequent difficulties in accurately measuring operational risk.

Session 3 Discussion

One of the participants asked whether this would be an appropriate time to start building a loss

database, or whether holding off until a steadier definition of operational risk had been reached would be a better idea. Stefan Walters answered that starting now would be a good idea, but the database should be kept flexible for future changes. A couple of comments were directed to Stefan Walters asking for clarification on whether accurate measurement was the focus of Basel's intent or whether it was merely to get a thought process in place. He confirmed that for now, the thought process was what the Basel Committee was looking for. Data issues were raised and the panelists almost unanimously concluded that although there was not enough data available right now, the data availability situation was improving. As long as banks continued the process of data collection, they would be able to implement operational risk measurement using internal data with accuracy in the near future.