

Risk Management REVIEW

Wharton

RISK MANAGEMENT
AND DECISION
PROCESSES CENTER
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A Fond Farewell



On November 1st, a luncheon was held in Honor of Pat McNulty's 10 years of service to the Risk Center. Pat will no longer have full time involvement with the Center, but we expect to see him at the office as the occasion arises.

Pat has been a mainstay with respect to the Center's agreement with the Chemical Preparedness and Prevention Office (CEPPO). He was the project manager of the Third Party Audit Project for Risk Management Plans (RMPs). Indeed, it was Pat's initiative and energy that were a primary driver for the definitive experiment on the appropriate design of third-party audits in cooperation with Department of Natural Resources and Environmental Control (Delaware) (DNREC) and Environmental Protection Agency (EPA) Region III. The results of the experiment demonstrated that auditors, including insurance loss prevention engineers, could acquire sufficient knowledge and skills through a short intensive training course in the handling aspects of ammonia and chlorine and RMP protocols to conduct an audit with findings that did not materially differ from those of inspectors from EPA and DNREC.

Pat was also an innovator in the teaching program in the Department of Operations and Information Management. He developed, with Irv Rosenthal, the first offering at the Wharton School of a course that has since become a mainstay of the MBA Environmental Major, *The Environment and the Firm*. This course deals broadly with Environmental, Health and Safety strategies for companies and attempted to provide a basis of literacy for MBA students about sustainability practices for striking a meaningful balance between the economic value added by firms and their environmental impacts.

Pat was also the editor of this Newsletter from its very inception in 1993. Without his gentle prodding much of the news printed here would not have reached the publisher in a timely fashion.

Pat will be missed for his role in the above activities as well as his insights regarding the role of public-private partnerships for managing chemicals with significant risk potential. Most of all, however, Pat will be missed as a wonderful colleague and a true gentleman.

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The Future of Terrorism Insurance



Last month Congress passed a terrorism insurance bill, that President Bush signed on November 26, that provides protection to insurers against catastrophic losses from future attacks and incidents. A

principal reason for the passage of this legislation is the absence of widespread coverage since 9/11/01. A number of leading trade associations and individual companies from the transportation, real estate, manufacturing, construction, entertainment and retail sectors formed the Coalition to Insure Against Terrorism last spring and urged Congress to provide some type of federal backstop as a way of encouraging private insurers to market terrorism coverage. They were clearly successful in their efforts.

The issue of protection and insurance against extreme events has been a focal point of the Wharton Risk Center's research agenda since its inception. In fact, the absence of widespread terrorism coverage since September 11th raised a number of questions as to why insurers were not willing to provide coverage against this risk. We concluded that one of the principal reasons for their lack of interest is the absence of solid predictions as to the chances of terrorist activities that will produce catastrophic losses. For those insurers who have provided coverage, the premiums were generally extremely high reflecting the large uncertainties surrounding the estimates of expected losses and a focus on worst cases scenarios.

Now that new terrorism insurance legislation has been passed there is a need for all insurers to determine how to price the risk more accurately. There may also be ways to supplement private insurance with other types of coverage. During the past ten years financial institutions have promoted new instruments such as catastrophe bonds to provide protection against catastrophic events such as severe

hurricanes and earthquakes. Could this new financial instrument be extended to cover losses from terrorist attacks? On the surface one would anticipate that investors should find a *terrorist cat bond* an attractive option if they received a high enough return on their investment should the bond not be used for paying off losses.

Two factors may help explain the lack of interest in cat bonds for covering the terrorist risk. Investment managers may fear the repercussions on their reputation of losing money by investing in an unusual asset. Unlike investments in traditional high yield debt, money invested in a terrorist cat bond can disappear almost instantly and with little warning. Those marketing these new financial instruments may be concerned that if they suffer a large loss on the cat bond, they will receive a lower annual bonus from their firm and have a harder time generating business in the future. In other words, the short-term incentives facing investment managers differ from the long-term incentives facing their employers. If this is a major problem in marketing cat bonds, then there is a need to develop strategies for bringing the principal (employer and its shareholders) and its agents (investment managers) into alignment.

A second reason why there has been no market for terrorist cat bonds is the reluctance of reinsurers to provide protection against this risk following the World Trade Center and Pentagon attacks of September 11th. Investors see reinsurers as experts in this market. When learning that the reinsurance industry believes that the terrorist risk is uninsurable, they were not willing to provide funds to cover losses from these highly uncertain events unless they received a sufficiently high interest rate to overcome their loss and ambiguity aversion.

The new terrorism insurance legislation implies that the federal government views its role as temporary. It is only a three-year program lasting through 2005. After that date there is the expectation that the private sector will find ways to cover the terrorism risk without

having to rely on the federal government for assistance. New financial instruments such as catastrophe bonds could supplement private insurance to cover this risk.

There are a number of open questions that need to be addressed today for determining the nature of the terrorist risk for different types of losses and the pricing of insurance by the private sector. Some of them are listed below:

- Can one develop meaningful scenarios to estimate the probability of future terrorist activities occurring?
- Can one develop estimates of the losses from these events for which the insurer will be held responsible?
- How likely is it that losses from terrorist activities will be highly correlated? How will this correlation affect the premiums charged by insurers?
- Will the premiums charged by insurers be affordable to those who are demanding terrorist coverage? How much extra premiums will the insurer want to charge due to the ambiguity of the terrorist risk?
- What standards and regulations are appropriate for dealing with terrorism to both reduce future losses and increase the supply of private insurance coverage at affordable prices?

In their articles in this Newsletter, Erwann Michel-Kerjan and Burkhardt Pedell discuss current activities on terrorism and interdependent security at the Wharton Risk Center in conjunction with Columbia University, Ecole Polytechnique in Paris and the University of Munich. We look forward to working closely with these institutions, our Corporate Associates and Sponsors to address these and other issues over the coming months.

Howard C. Kunreuther
Co-Director

Trust In Corporate America



Recent events have shaken the very foundations of American capitalism. Companies that were considered leaders and innovators have recently become notorious for bad management and even fraud. Enron,

WorldCom, Lucent, Qwest, and Xerox have all been toppled like idols with clay feet. Along with them, auditors, once the most highly trusted of all professionals, have fallen. Arthur Andersen has been disgraced and is now no more. The failings of corporate governance are apparent. Trust in the corporate sector has fallen to a new low. This is important not just as a social phenomenon; the economic stakes in restoring public trust are immense.

Adam Seligman describes the importance of trust for economic and social exchange in his splendid book, *The Problem of Trust* (Princeton University Press, 1997). He notes that it is precisely at moments of great uncertainty about the future that public trust is essential for exchange. The current environment could hardly be more uncertain: economic slowdown, market volatility, concerns about terrorism, disruptions in energy and brokerage markets, post Enron, and losses in traditionally stable sectors such as reinsurance all add up to uncertainty. We have confronted and overcome such difficulties in the past; the difference now is that public trust has

all but disappeared. Problems that would normally be overcome through a straightforward cost-benefit calculus of alternatives seem to run into a quagmire of doubt and mistrust at every corner, especially in the quasi-public arena of regulated industries. The normal "logical" course of action is met at every step by skepticism, slow and adversarial confrontations of evidence and counter-evidence, and general cynicism about the motives of all parties, public and private, involved.

One response to this has been increased regulatory activity. For example, Congress passed in July the Sarbanes-Oxley Bill, which places increased responsibility on senior executives to be personally accountable for financial reports in business activities they direct. There are also various proposals before the Securities Exchange Commission (SEC), the watchdog for U.S. securities markets, to change audit practices, increase the "independence" of corporate boards and change accounting for executive compensation (e.g., requiring the expensing of options). The latter follows the revelation of the Conference Board Commission on Corporate Governance in September that CEO compensation in Fortune 500 companies had risen from 42 times the level of the average American employee's compensation in 1980 to more than 540 (that's right five-hundred-forty!) times the average employee's compensation in 2000. These figures, together with media coverage of accounting scandals and significant drops in the value of pension funds for normal citizens, are a prime reason for eroded

trust in the American public corporation.

The spillover into all areas of business continues. What is to be done? Most commentators and researchers have focused on "increased transparency", meaning that increased efforts must be undertaken by corporations to share their operating principles, their objectives and their results with investors and other stakeholders. This sharing must be open and collaborative, and must be prepared not just to announce but also to listen. It will not do to simply assert that new SEC rules or new internal audit procedures have been introduced. A strong and continuing effort to reset the foundations of the companies' social franchise must be undertaken. Companies that fail to respond to this challenge, in a spirit of openness with their investors, customers and host communities, will see their market value eroded and their employees leave for higher ground. In the interim, we will all have to learn to accommodate a general sense of mistrust in the public corporation and much greater scrutiny from the boardroom to the plant floor.

Paul R. Kleindorfer
Co-Director

Congratulations

We are pleased to report that The Faculty Council of the School of Business and Economics of the Johann Wolfgang Goethe University (a.k.a. The University of Frankfurt, Germany) awarded, on December 6, 2002, Center Director Paul

Kleindorfer the degree of "Doctor Rerum Politicarum Honoris Causa" in consideration of Dr. Kleindorfer's numerous academic contributions to the sciences of economics and business administration, as well as in consideration of his achieve-

ments in establishing and supporting important academic and research programs between the Wharton School and the Goethe University over the past decade.

Governmental Intervention, Risk, and the Cost of Capital



Governments intervene in a variety of markets in many different ways. They impose taxes and tariffs as well as mandatory social security contributions, pay subsidies to certain businesses, supply

certain goods through government sponsored enterprises, such as the Postal Service, and regulate the price setting of some private firms, such as utilities and insurance companies. These interventions can shift the distribution of risk between different private agents as well as between the public and the private sectors. In particular, for companies subject to price regulation, regulation directly influences the distribution of risk between the regulated companies and their retail and wholesale clients by setting limits on prices and by allowing or requiring adjustments in prices when the financial results of the regulated company are outside certain bounds.

But the appropriate sharing of risk between company shareholders and customers is still not very well understood. The analysis of utility rate regulation from an accounting and finance perspective is one of the focal research fields of the Institute of Production Management and Managerial Accounting at the Munich School of Management. The risk faced by a rate-regulated firm depends largely on the design of the regulatory system and the process used by regulators and companies to determine approved rates. The results of this process, and the level of profits achieved by the regulated company, are reflected in its financing cost in debt and equity markets. As the historical cost of debt and an estimate of the future cost of equity enter the rate determination process as input data, this process is quite complex in practice. This problem is aggravated by the fact that a regulator always possesses discretionary power, and the resulting uncertainty about the outcome of the regulatory process gives rise to additional prob-

lems of assessing how the market will or should react to regulatory decisions. In the context of rate regulation, regulatory risk is manifested in a variety of regulatory directives that determine the overall regulatory system, the regulatory process, the calculation of rates and accompanying measures taken by the regulator. It depends on numerous firm, environmental and political factors, like firm size, power of interest groups and the time elapsed since the last regulatory review. The conceptual and empirical analysis of regulatory risk is relevant for a proper assessment of the cost of capital in regulatory hearings and, on a wider perspective, for the efficient design of regulatory systems. An ongoing research project on these issues is being undertaken by the author. This project is a comparative project between Europe and the United States, and my stay at the Wharton Risk Center this Fall has been focused on understanding the theory and empirical research of U.S. scholars on this matter.

Another field where governmental intervention changes the distribution of risks considerably and even more explicitly are public private partnerships (PPP) for the insurance of special risks. Here the government directly supplies coverage for risks that are considered (at least temporarily) uninsurable without public participation. One example for this is credit insurance for export business with countries considered politically unstable. Other areas that have gained much importance and prominence over the last few years are the insurance of natural catastrophes and terrorism. Solutions with more or less governmental involvement for the coverage of terrorism risks have existed for many years in countries, like Israel, Spain and the UK, that have been confronted with the threats of terrorism for a long time. In other countries, like the US and Germany, terrorism risk was included in existing insurance contracts for production facilities and buildings. These risks are now largely excluded by insurers after the terrorist attacks on the World Trade Center in New York City in September 2001, creating an urgent need to establish new solutions. In the US, the 'Terrorism Risk Insurance Act' (bill H.R. 3210) was passed

by the Congress on November 19th, 2002, and signed by President Bush on November 26th, 2002, establishing a PPP for the coverage of terrorism risk. In Germany, a new special insurance company, Extremus AG, commenced operating November 1st, 2002.

Extremus AG is structured as follows: Major insurance and reinsurance companies hold shares and signed a risk layer of 1.5 billion Euro. Further national and international reinsurance companies signed a second layer of 1.5 billion Euro without holding shares. If losses surpass 3 billion Euro, the federal government will cover damages with a third layer of 10 billion Euro; in exchange it gets part of the insurance premiums. Extremus AG accepts only risks with a minimum amount insured of 25 million Euro. The agreement with the government is limited until 2005.

This construction differs in some aspects from the cost sharing mechanism in the US 'Terrorism Insurance Act'. Here, insurance companies have a deductible of 7% in 2003, 10% in 2004 and 15% in 2005 of the prior year's earned premium. Above this deductible the government covers 90% of insured losses up to 100 billion USD. Over the years the cap on the governmental payment will be decreased from 90 billion USD in 2003, to 87.5 billion USD in 2004, to 85 billion USD in 2005. There is no minimum amount insured, but the minimum loss for the government to step in has to be 5 million USD.

Different structures of PPP for the insurance of terrorism risk can be expected to have a different impact on the availability and cost of private capital. A systematic analysis of this issue is fruitful ground for a joint research project of the Risk Management and Decision Processes Center and the Munich School of Management with the involvement of American and European insurance and reinsurance companies.

Burkhard Pedell
Munich School of Management
Postdoctoral Fellow at the Risk
Center, Fall, 2002

New Vulnerabilities In Critical Infrastructures



Terrorism and malevolence are not new risks. But the perception of the scale of their possible impacts changed last year with the terrorist attacks against the WTC and the Pentagon as well as the anthrax attacks.

What are the common characteristics of these attacks? Both made use of key networks of mass transportation: commercial aviation and the Postal Service. They took advantage of the vast capacity of those two complex networks to have a large-scale impact.

The US President's Commission on Critical Infrastructure Protection already recognized in 1997 these two networks as being "critical" to the country's defense and economic security: their incapacity could immediately have a debilitating national impact.

The nature of those attacks is thus far more eventful than more "conventional" terrorism such as car or luggage bomb. The anthrax attacks demonstrated the *asymmetric value* of terrorism using large-scale networks: a small-scale but carefully targeted attack can cause large-scale reactions because of strong interdependencies and possible cascading fallout. For instance, introducing a pathogenic agent into a nationwide distribution network may require small financial investments from terrorists compared with the debilitating national impact of such an action on health and business continuity of the country. On 9/11, the terrorists did not use advanced technology to attack the country. By using only box cutters, they hijacked commercial aircraft and crashed them into civilian and government targets. Before that date, nobody seriously considered the possibility to use the capacity of aircraft or mail to serve as a weapon. In 2001, both aircraft and pieces of mail have become weapons of mass destruction. Terrorists have only to be lucky once.

At the Wharton Risk Center, work on bio-terrorism (anthrax, smallpox) in critical infrastructures and terror-

ism insurance of commercial aviation is part of the joint project on Interdependent Security (IDS) with Columbia University.

Our research has identified the following four aspects of terrorism within the framework of catastrophic risk management.

First, terrorism is widely recognized as an *extreme risk*. The 9/11 attacks constitute the most costly event in the history of world insurance and reinsurance industry: \$50 billion only for insured losses. Some current scenarios show that new attacks may even inflict higher amount of damage (impacts on business continuity and workers' compensation).

Second, there exists an "*evolving uncertainty*": terrorists can purposefully choose their targets and adopt their strategy of attacks based on their information on our vulnerabilities.

Third, terrorism is a specific risk in the broad research field of the *economics of information*. Indeed, there is always a high degree of uncertainty associated with terrorism, and the risk information is not equally shared among all the parties who try to manage the risk. There exists actually an asymmetry of information between governments who can have information through intelligence services but decide to keep it secret for security reasons and the private insurers and citizens who are not given access to that information. Moreover, it can also be considered that governments influence the level of potential attacks: not only as they can reinforce security measures in highly exposed areas but also because political decisions on the international scene may influence the desire of terrorists to attack the country. That can have important impact on risk coverage. This appears to be a catastrophic risk for which such a configuration can be observed: an insured/insurer business relationship in which a third agent – here the government – can influence the occurrence of that event and is also the most informed part.

Fourth, a *global interdependency*: an event against a single firm operating in a given industry in a country is sufficient to have major economic and social impacts on the whole industry at an

international level. For instance, after 9/11, insurers decided to cancel all their policies covering civil aviation against terrorism (material damage, passenger liability, 3rd party liability) with only seven-days notice, i.e. a worldwide measure of cancellation.

Given the characteristics of terrorism outlined above, a group of researchers at the Risk Center and at my home institution in Paris, the Ecole Polytechnique, are examining the following issues and questions:

On bio-terrorism:

- How has the anthrax crisis been managed in the US and in Europe? What are the key lessons for risk and crisis management in critical infrastructures?
- What relevant partnerships can be established to assess internal vulnerabilities, prevent future attacks and manage their consequences if any?

On commercial aviation and terrorism risk insurance:

- What are the impacts of 9/11 events and the global interdependency on the availability and price of coverage for the 3rd party liability insurance?
- How can risk mitigation be combined with insurance to improve interdependent security among different airlines and airports in the world?
- What risk coverage schemes can be established to preserve the business continuity of worldwide commercial aviation? What would be the role of the different stakeholders?

Please provide me with your comments on these questions at erwannmk@wharton.upenn.edu

Erwann Michel-Kerjan
Postdoctoral Fellow at the Risk Center, Fall, 2002/Spring 2003

Third Party Audits for RMP



Last Spring the initial meeting of the Team working on the Third Party RMP Auditor Certification process occurred. It considered the back-

grounds that candidates for certification should have and resolved that the applicant should have a engineering or science degree with experience in the process industries and a familiarity with auditing. While the latter could be obtained through training, it is most desirable that these capabilities have been part of previous job content.

The Team was introduced to BEAC, the Board of Environmental, Health and Safety Auditor Certifications, as a potential the potential organization to manage the certification process. BEAC is the only EHS auditing certifier and is the offspring of the Environmental Auditing Roundtable and the Institute of Internal Auditors. BEAC's certification programs recognize the auditing professional and promote high standards of ethical practice and professional competence. To earn the Certified Professional Environmental Auditor designation, candidates must meet the highest qualification standards including the completion of examinations that cover all aspects on an audit which in our case would cover RMP. CEPPPO would work with BEAC to develop the exam, to select an Oversight Board and to fully develop the certification process. Underwriters Laboratories have been contacted to determine if they have the capabilities for auditor certification but this is not one of their activities.

The Third Party Audit RMP project has been slowed by a shift in focus at CEPPPO to initiatives relating to security at facilities handling hazardous materials as a result of 9/11. Intra EPA discussions concerning the revisions to 112 (r), that would encourage third party RMP auditing, have as a point of contention the relaxation of penalties if a non-egregious non-compliance is cited. The normal fine for non-compliance is a combination of an

economic benefits penalty and a gravity penalty. Current Agency policy will waive the gravity penalty component if a facility self reports a non-compliance and meets other criteria, but the economic benefits penalty will still be levied. To encourage third party auditing, especially for smaller, less complex sites, the draft revision proposes to drop even the economic benefits penalty if any violations are remedied in a timely fashion. We are trying to understand what the amount of a typical economic benefits penalty is and determine if it will effectively be a barrier to the commitment to a third party audit. We plan on meeting with the Office of Enforcement and Compliance Assurance in December to discuss the above points.

A survey is under development, apart from CEPPPO, that will query ammonia and chlorine facilities about their intentions with regard to undergoing third party audits for RMP. We hope to distribute it to members of the International Institute for Ammonia Refrigeration, the Chlorine Institute and the American Waterworks Association among others, to establish an estimate of how many facilities will avail themselves of the opportunity for the third party audit. The sites that will respond to the survey are, for the most part, simple facilities in contrast to complex chemical plants, which if taken off the list for EPA to inspect because of undergoing the third party audit, will allow the Agency to focus on the more complex facilities. The survey should be out in the first Quarter 03.

Peter J. Schmeidler

CORPORATE ASSOCIATES

The Corporate Associates program is a vital part of the Risk Center's operation. Corporate Associates sit on the Center's Advisory Committee, participate in roundtable discussions and offer information and insight into the value, direction and timing of research projects. The Center currently receives approximately \$265,000 annually from Corporate Associate Members.

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Near Miss in the Financial Sector



Recently, the idea of applying the near-miss concept to managing operational risk in financial institutions has been explored through the collaboration of Ulku Oktem and Alex Muerman

(Wharton School Insurance and Risk Management Department). A paper "The Near-Miss Management of Operational Risk" was published in the Fall 2002 special issue of *Journal of Risk Finance*, recommending the "Near-Miss" concept as an *Advanced Management Approach* for operational risk to be implemented as a supervisory review process under Pillar Two of "The New Basel Capital Accord"

Following the devastating events in financial institutions, such as Barings' insolvency, Allied Irish Banks' loss of \$750 million due to rogue trading, the \$2

billion settlement of class action lawsuit against Prudential Insurance due to fraudulent sales practices, and the terrorist attacks of September 11, regulators focused on management of operational risk. The Basel Committee reaffirmed its position on capital requirement under Pillar One for operational risk in its July 10, 2002 meeting. However, it acknowledged the importance of Advanced Measurement Approaches under which banks would be allowed to determine capital requirement based on their internal operational risk assessment subject to qualitative and quantitative standards set by the Basel Committee. Oktem and Muerman illustrated that due to the idiosyncratic nature of operational risk issues the near-miss concept can be used as an advanced management approach to internally assess and manage operational risk in a dynamic and integrated way.

More recently, a mistake made by a Bear Stern's trader points out the potential benefit of developing near-miss

systems for financial institutions. On October 2, 2002 a Bear Sterns' trader mistakenly asked to sell \$4 billion S&P 500 stock index futures although the trader intended to place an order for \$4 million. This clerical mistake was caught and most of the trade was cancelled but not before \$622 million went through and market had a slide. Michael Haney, senior analyst, with brokerage advisory firm Celent Communications, said this type of error is "rarely seen" on the Big Board, but it "reemphasizes the need for the industry to focus more on operations risk management procedures." (CBS. MarketWatch.com, October 3, 2002)

The next step along these lines will be to identify financial institutions that would be willing to participate in a study for further evaluation and development of this new application of the near-miss concept.

Ulku Oktem

Remembering Jim Makris

We were very shocked and saddened to learn that Jim Makris, former director of the Chemical Emergency Prevention and Preparedness Office (CEPPO) at the U.S. Environmental Protection Agency (EPA), passed away in August 2002 after an accident at his home. The two of us along with many others were at a festive retirement party for Jim at the EPA in early July where he received a number of well-deserved honors for his leadership and extraordinary contributions in helping to reduce losses from natural disasters and chemical accidents.

Jim was a special friend to many of us at the University of Pennsylvania over the years. He had the ability to see the long-term implications of research that the Wharton Risk Center has been undertaking since 1993 under the auspices of an EPA Cooperative Agreement with CEPPO. He encouraged us to take the time to assemble an extensive data base on major chemical accidents and

explore the role of strategies such as the use of third party inspections and insurance for supplementing government regulations such as Sect. 112(r) of the Clean Air Act Amendments.

Jim was highly supportive of the off-the-record Roundtables that the Risk Center has held over the years on these issues. He participated in many of these, and he always emphasized the importance of bringing together interested parties from environmental interest groups, private industry and government agencies to interact with the research community on developing public-private partnerships for dealing with the risks of major accidents. He also helped facilitate dialog within the EPA so we could better understand the challenges in implementing these proposed programs.

Before leaving EPA, Jim Makris played an important role in ensuring that the EPA/Wharton Cooperative Agreement on Major Accident Prevention would be renewed for another four years.

We look forward to working with Deborah Dietrich and her colleagues at CEPPO on the issues that have been part of our research agenda over the past 10 years. It is this type of continuity that Jim Makris would strongly endorse. We feel a special sense of purpose in continuing this work in honor of Jim's memory.

Marianne Horinko, assistant EPA administrator, summed it up in her recommendation for Jim's Distinguished Career Service Reward. "Jim Makris has had a truly distinguished career at EPA. He has brought to the Agency - and, through the Agency, to the entire country and much of the world -- the gifts of common sense, uncommon good judgment in moments of emergency, trust in the ability of local leaders and the common citizen to protect themselves from chemical hazards, and the wisdom to promote accident prevention as the most effective component of chemical safety at the local level."

**Paul R. Kleindorfer
Howard Kunreuther**

Upcoming Events for the Risk Center

December 10, 2002 – The center is holding its Advisory Committee meeting at Wharton. Results from current research at the Center will be presented and small groups will focus on future research that the Center could undertake with respect to “Effective Private-Public Partnerships for Dealing with Extreme Events”. The events of September 11th have raised the question as to what are the appropriate roles of the private and public sectors in mitigating the possible consequences of future catastrophes, whether they are malevolent or random occurrences, and providing funds for recovery.

December 12, 2002 – “Near Miss Project Review Meeting” – The Wharton Risk Center has been involved in a set of studies on what we can learn from near misses with respect to future organizational planning activities and will review the progress of these studies to date and future activities.

January 29-30, 2003 – “Environmental Management Systems and Financial Incentives in the Public Sector Workshop” at the University of Pennsylvania. This conference has two goals: 1) to identify relations and benefits between entities in the public sector who implement environmental management systems (EMS), including ISO 14001, and the three “financial communities” (I.e. insurance, bonds, and investments/access to capital). 2) Determine the potential impact on environmental policy in the public sectors through case studies. This conference is being sponsored by the US Environmental Protection Agency, UPenn’s Institute for Environmental Studies, Wharton’s Risk Management & Decision Processes Center and the Global Environment & Technology Foundation.

March 4, 2003 – “RMP Roundtable to Examine RMP*Info 2004” The next round of data under the RMP Rule is expected to be collected in 2004. The Cen-

ter will be sponsoring a major Roundtable on what can be expected under RMP in the next round. First, we will discuss the results that have been harvested thus far from the first round of data, with an eye on determining how these might be usefully elaborated when the second round comes in. Second, we will be discussing changes expected, mostly minor, to the nature of the electronic submission process in the next round, and some expected changes in the nature of the data submitted. Finally, we will be discussing data quality assurance and the strategies various companies and sectors are using to implement compliance with the RMP rule going forward. We expect a fascinating day, looking back at results obtained thus far, and an exciting discussion on what policy and company strategy issues can be further leveraged using the RMP data going forward.

Managing and Financing Extreme Financial Risks

On October 11, 2002, the Risk Center in conjunction with the Earth Institute of Columbia University, hosted a meeting on the topic of Managing and Financing Extreme Financial Risk. A series of panels addressed different aspects of the title theme. The Panel on the Role of Risk Transfer Mechanisms in Managing Extreme Events emphasized the challenges that reinsurers face after 9/11. It was recognized that terrorism is not a new risk but it is now center stage. There are at least two main differences between natural and technical disasters and terrorism. Terrorism risks are continually changing because of purposeful planning. Information required by the private sector for market operation is kept secret for security reasons. What is the impact of this information asymmetry?

The Role of Modeling in Managing Extreme Events Panel examined how the modeling firms have the ability to collect, put together and integrate many sources of information. These firms

have developed particular scenarios for examining the risks and vulnerabilities of different venues. Using terrorist models that required a year to develop, insurers and reinsurers are able to better price the coverage of terrorism risk.

The New Strategies for Extreme Events Panel indicated that new forms of cooperation between public and private agents and between different supply chain agents is needed on a global basis. A key issue addressed, especially related to terrorism insurance, is the secure transfer of available and reliable information between the global set of participants.

Two major issues that will be highlighted in the future are incomplete information about risks and interdependence of risks. The questions raised are the impacts of lack of information for insurance and reinsurance as well as for modeling firms, the additional information needed to make better decisions and how to provide and share this information between insurers and reinsurers and other

actors in the public and private sectors. Concerning interdependence, the issues include the definition of a methodology to measure the impact of interdependencies in order to gain a better understanding of the nature of these risks. How can industrial actors deal with the security of the other actors in the supply chain? Can reinsurers and intermediaries provide protection against interdependent risks over the whole supply chain?

The attendees expressed a need to take a long term and proactive perspective for future research and to involve representatives of other concerned parties like companies in the industrial and transportation business as well as governmental agencies. Roundtables beginning in the Spring 2003 will be organized on a regular basis.

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COMINGS AND GOINGS

The Risk Center's new address. The Risk Center moved into the newly built Jon M. Huntsman Hall. The proper address is Jon M. Huntsman Hall, 3730 Walnut Street, Suite 500, Philadelphia, PA 19104-6340. All phone numbers have remained the same.

Kiwan Lee has left the Center to accept a position at the Wharton Computing and Information Technology group.

Erwann Michel-Kerjan joined the Center in September as a Post Doc Visiting

Scholar from Ecole Polytechnique in France for the Fall/Spring semester period of September 1, 2002 to August 31, 2003. He is working on problems of interdependent security and terrorism insurance.

Burkhard Pedell joined the Center in September as a Post Doc Visiting Scholar from the Ludwig-Maximilians University in Munich for the Fall Semester period of September 1, 2002 to December 31, 2002. He worked on financial risk man-

agement problems as well as terrorism insurance in Europe.

Peter Schmeidler, a Senior Consultant in the Risk Center, has taken over responsibility of Editor of the Risk Management Review. He is taking the lead on the role of third party inspections in implementing Section 112(r) of the Clean Air Act Amendments as part of the EPA Cooperative Agreement.

Keeping in Touch

If you would like to be added to our mailing list, please telephone, mail, email or fax the information to the right to the Risk Center (telephone, 215-898-5688; fax 215-573-2130; email, risk@wharton.upenn.edu.
If you want to be removed from our mailing list, please let us know.

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