

Toward a New Risk Architecture

Erwann O. Michel-Kerjan

Wharton School

Prepared for *The Irrational Economist* Conference and Bookwriting
The Wharton School, University of Pennsylvania
December 4 and 5, 2008

Abstract

From Local Catastrophes to Global Risks ---The conference organized in honor of Howard Kunreuther in December 2008 will combine the contributions of many complementary fields pertaining to catastrophe management. In this short paper I would like to build on these and other work by Howard over the years and make a broader proposition—the need for a new risk architecture.

In many ways, the catastrophe risk management field is at a crossroads today as we are faced with disasters of a totally new scale. And while a tremendous amount of research has been done to better understand disasters in past decade, there have been recent important events that have seriously challenged the established paradigm.

Not very long ago, disasters were considered to be low probability events because they did not occur often. In a sense, that assumption was reassuring for the economist: the expected losses of these disasters (understood here as the potential loss associated with a disaster multiplied by the probability of that event occurring) was often relatively low.

But in the first few years of the 21st century, the world has faced a string of catastrophes of a totally new dimension: the September 11, 2001 terrorist attacks; a major blackout in August 2003 that deprived electricity to over 50 million North Americans in just a few seconds; and seven hurricanes that hit the United States within a 15-month period—to name a few just in the United States. And catastrophes are often even more destructive when they occur in poor or developing countries: for instance, the Indian Ocean tsunami in December 2004, or the major earthquake in the Sichuan province in China in May 2008 that killed nearly 50,000, only a few weeks after a major cyclone killed over 100,000 in Myanmar (Burma). In fact, there has not been a 6-month period in the past few years without a major crisis that simultaneously affected several countries or industry sectors.

A New Era Calls for a New Model: A Proposition --- While the aforementioned extreme events all seem quite different—different types of catastrophes, different countries, and different impacts on the rest of the world—are they yet related in the sense that they define a new pattern in their scale and frequency? If so, as I think they are, it is clear that there is a need for a new vision of our risk architecture.

A new architecture is based on six strong founding pillars. The first pillar, and certainly the most defining one of the 21st century, is interdependence: as a result of a growing globalization of social and economic activities the world is becoming more and more interdependent (not only geographically, but also across risks and over time). While this is not totally new, we have reached a degree of interdependence that no other society has experienced before us: what happens on one continent today can affect those on another continent tomorrow. Conventional thinking holds that individual countries and individual organizations have the capacity and expertise to manage catastrophic risks. In an increasingly globally interdependent world, this is not true. Also, there is an unnoticed paradox: being selfish in a highly interdependent world means taking care of others (since their failure can affect you). The recent crisis in the financial markets illustrates profoundly the limit of the “decoupling” theory. The other five pillars of this new risk architecture include: a radical change in scale, from local to global risks; a new loss/gain dimension, with extreme costs but also possible large opportunities; a somewhat confusing distribution of the role and responsibilities of different stakeholders (who is in charge, and of what?); an increasing celerity, as we are moving toward a just-in-time society; more decisions are made under uncertainty than well-defined risk, if not ignorance.

While this is a simplified framework, these six features fit a large number of recent catastrophes and crises we all have witnessed in different parts of the world and across industries. Several types of global risks illustrate these six pillars: international terrorism, large-scale natural disasters, global climate change, and nuclear non-proliferation.

It is essential that we gain greater understanding of how each one of the six pillars is critical for the development of a new and better (that is, more adapted) catastrophe risk management and financing architecture.