Emerging Risks with the Potential For Catastrophic Losses

30 June 2011

iNTeg-Risk /IRGC Joint Session on Emerging Risks
Stuttgart, 6 June 2011
Panel Discussion

Expanded Opening Remarks by
William Leiss, OC, PhD, FRSC
Scientist, McLaughlin Centre
University of Ottawa
1 Stewart St., Room 311
Ottawa, ON K1N 6N5
wleiss@uottawa.ca

I am particularly concerned with emerging risks with the potential for catastrophic losses, which will be, in my view, an integral feature of an increasingly globally-interconnected world. Of course, this is an overriding concern for both the insurance and reinsurance industries as well as for governments (in their capacity as insurers of last resort for their citizens). In my presentation at the iNTeg-Risk conference I mentioned three such events in the past three years: the global financial crisis (ongoing since late 2008, with no end in sight and with almost incalculable levels of realized and projected losses around the globe); the BP spill in the Gulf of Mexico (2010); and the nuclear industry crisis in Japan (2011).

In order to dramatize the seriousness of the potential for catastrophic losses, in my presentation I referred to the choices we make about emerging risks (particularly the choice to remain indifferent to the downside risks) as equivalent to a series of very large bets laid down in the natural and technological casinos.

Under the assumption that the key feature of effective risk management is to "anticipate and prevent or mitigate harms that may be avoidable," these three crises represent preventable tragedies, that is, failures in risk management – because, as demonstrated by well-founded retrospective analysis, all three cases reveal failures in foresight and prudent precaution, based on known risk factors, that should not have been tolerated by organizational actors in industry and government in the years leading up to the onset of the crises. For example, in the worst of the three, the financial crisis, decades of systematic deregulation in this sector, particularly in the U.S. and the UK, led to a decade of truly reckless risk-taking involving innovative financial instruments that introduced high levels of instability into the global banking sector.

What is often overlooked in catastrophic loss, in addition to the immediate direct and indirect costs, is the restricting of future options for action in response to the next crisis. Especially in the case of preventable tragedies, the result is to severely constrict the ability of nations to marshal resources for future threats. In the case of the financial crisis, in the single year 2009 governments in the largest Western economies added 20% to their accumulated debt-t0-GDP ratios, and these numbers will continue to rise relentlessly over the coming years. (A well-known paper by Reinhart and Rogoff argues that economic growth is increasingly constrained at

debt-t0-GDP ratios exceeding 90%.) The resources that governments have been forced to direct to preventing yet more serious damage to their economies from the financial-sector bailouts were, essentially, wasted (because measures were available that should have and could have prevented the financial collapses from occurring).

I present below a highly-simplified scheme for addressing emerging risks with catastrophic loss potential. (This scheme may be most suited to the case of the reinsurance industry, which would have potential exposure to a very broad set of risks and risk factors.)

1. Scan the social/natural environment for emerging risks, rank them in terms of potential impacts [losses] only (ignoring likelihood or probability of occurrence), and select a manageable set of potentially high-impact emerging risks for detailed analysis.

   NOTE: The need here is only for getting very rough indications of total losses of all kinds under worst-case scenarios.

2. In the set chosen for analysis, look for "key indicator variables" that give evidence of high volatility or problematic trend lines over relatively short periods and assign high priority for ongoing attention where relevant exposures warrant.

   EXAMPLE: In the run-up to the financial crisis, the total value of the global derivatives market was in exponential-growth mode. In 2001 the value of credit default swaps was less than $1 billion; by mid-2008, it was $62 trillion. CDSs and other derivatives were novel financial instruments and were unregulated, a result of a specific set of events during the Clinton administration. (Throughout this period these figures were publicly reported quarterly by the Bank of International Settlements.) In my book (Leiss 2010), on p. 49, I show a graphic illustrating the rate of growth in this market between 2001 and 2008; the slope approaches the vertical in the later stages. This is a growth curve that is bound to crash (it is eerily similar to the ecological schemata of predator-prey population dynamics just before the prey population crashes).

3. Set up a watching brief on the on the selected risks and consider mitigating or hedging the firm's potential losses.

Of course much would need to be done to refine this scheme. But where complexity is the order of the day, the analytical scheme needs to have the virtues of simplicity and sharp focus.

Finally, prudent anticipation and pro-active mitigation (hedging one's bets, especially where the stakes are very large) is the indispensable need in risk management. For example, it is already clear that humanity will almost certainly have to entertain geo-engineering the planet's climate, on a vast scale, to counteract the effects of inevitable large future increases in GHG emissions. There are enormous and very poorly characterized risks associated with this option. Those in the business of catastrophic loss mitigation should begin better characterizing those risks, and their exposure to them, sooner rather than later.

References:

International Risk Governance Council (IRGC), "The Emergence of Risks: Contributing Factors," Geneva, 2010, 59pp:
http://www.irgc.org/IMG/pdf/irgc_ER_final_07jan_web.pdf

Michael G. Maila, "Contributing factors to the emergence of risks in financial markets and implications for risk governance," IRGC, October 2010, 10pp:
http://www.irgc.org/IMG/pdf/Financial_markets_Maila.pdf

William Leiss, *The Doom Loop in the Financial Sector, and Other Black Holes of Risk* (University of Ottawa Press, 2010).