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Table of contents

Preface [12pp, new]

Part One: Types of Risk

Chapter 1 [18pp.]: “Introduction” [new]

Chapter 2 [20pp.]: “The Multiplication of Risks” [new]

Chapter 3 [10pp]: “A Simple Formula for Risk Management” [new]

Chapter 4 [5pp.]: Feuilletons:

No. 1: “Mr. Bush’s Panopticon” (2003)


No. 4: “The Risks of Policy Choices: The War in Iraq and the Doctrine of Pre-Emption” [Policy Options, vol. 24, no. 05 (May 2003), pp. 41-44]

No. 5: “Mel Gibson’s Mistake – and the Middle East War” (2006)


No. 7: “Design for a Risk Forecasting Exercise” (2000)


Part Two: Risk Decision-Making

Chapter 5 [25pp.]: “Risk Management and Precaution: Insights on the Cautious Use of Evidence” (with S. E. Hrudey) [Environmental Health Perspectives, 111, no. 13 (October 2003), 1577-81]

Chapter 6 [60pp.]: “Men having Sex with Men Donor Deferral Risk Assessment” (with M. Tyshenko & D. Krewski) [Transfusion Medicine Reviews, Vol. 22, No. 1, 2008: pp. 35-57]


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Chapter 8 [22pp.]: “Risk Management: Why and When Decisions Fail” [American Water Works Association, October 2005]


Chapter 10 [12pp.]: “Expert Witness Statement to the Commission of Inquiry into the Investigation of the Bombing of Air India Flight 182” (December 5, 2007)

Chapter 11 [17pp.]: “The Interface of Science and Policy: Ozone and Climate,” November 2005


Part Three: Risk Communication


Part Four: Black Holes of Risk

Chapter 19 [80pp.]: “Systemic and Super-Systemic Risk in the Financial Sector” [new]

Chapter 20 [20pp.]: “Betting the Planet: Controlling the Downside Risk” [new]

Total Pages in Manuscript: ~500

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Risks are everywhere. Which is actually good news for humans, those clever apes, who for the most part are inveterate risk-takers. Picture in your mind the young male jihadist as he straps on his explosives-filled vest. Then imagine his thoughts in the instant prior to detonation, as his mind fills with images of the six dozen lovely virgins who, he has been assured, await him in Paradise. Put aside for a moment the conundrum represented by the abstract idea of out-of-body sexual experiences, and consider only the near-certainty that during his preparations for martyrdom he had failed to carry out a brief Internet search with “seventy-two virgins” in the subject line. For had he done so he would have easily stumbled on the newspaper reports about a distinguished German linguistic scholar, an authority on the languages of ancient Semitic cultures in the Middle East, who has argued that the authorized text of the Koran suffers from persistent mistranslations of ancient texts, one of which concerns the ladies in question. Alas, it seems as if the word usually translated as “virgin” might be more adequately rendered as “white raisin.”

Like the disappointed martyr, most of us living in the information-rich age of the World Wide Web no longer have the excuse that we could not possibly have foreseen the disaster looming in the distance.

Most of our predecessors could have reasonably excused themselves on just these grounds. So the caretakers at the Grand Library of Baghdad, which was undoubtedly the unsurpassed glory of the civilized world in the thirteenth century, might be forgiven for not having anticipated the day in 1258 when a passel of rude horsemen originating in far-
off Mongolia would consign their entire collection to the waters of the Tigris River, which it is said ran black from the ink leached out of thousands of precious manuscripts. And even very much later, in the nineteen-twenties, it is understandable that most German Jews, proud citizens of a cultured land justly renowned for its dominant position in humanity’s bold new science, atomic physics, would have had no inkling of the catastrophe awaiting them in the resurgence of barbarism a mere decade later.

We are so much wiser and better-informed now. True, there is still in our behaviour much fodder for commentators to chew on, especially when it comes to our inability to do simple risk-risk comparisons. A favourite example is the temporary shunning of air travel after the events of September 11, 2001: Risk experts gleefully have done the easy calculation to estimate the excess fatalities per passenger-mile faced by those who chose to drive their cars rather than to fly for long-distance trips. To be sure many small tragedies are scattered across populations when individuals stubbornly prefer some obscure fad to good evidence and expert opinion: Parents who are determined to believe that vaccinations cause autism, for example, endanger and sometimes unwittingly kill their children out of a perverse excess of concern for their well-being. There are still too many episodes of such idiocy, but one should also keep in mind that on the whole modern societies have come a long way, in a relatively short time, from a past during which seeking medical attention for any ailment greatly increased one’s risk of additional misery and death.

Those who take delight in cataloging the public’s egregious failures in learning how to handle risks more sensibly almost always overlook the equally-obvious, and far more
consequential, mistakes made by industry and big governments, which arguably have fewer excuses for their persistent mismanagement of risk.\textsuperscript{4} There is a real danger in focusing too much attention on small personal and family tragedies resulting from the difficulties ordinary folk have in making sensible decisions under conditions of uncertainty. The danger is that in doing so we neglect a far more damaging tendency in our society, namely, an urge to make huge and extremely risky bets by those who should know better. This is a curse that afflicts the most powerful economic and political elites on the planet, who have in effect packaged their national economies into a set of exotic black boxes and are using them as collateral at the casinos.

The collapse of the hedge fund Long-Term Capital Management (LTCM) in September 1998, which threatened the liquidity of global financial markets and prompted an urgent rescue mission by the U. S. Federal Reserve Bank, prefigured in every essential detail the colossal financial crisis which began a decade later. One would have expected the LTCM episode to serve as a warning against the madness of infinite leverage and the faith in mathematical modeling of risk for derivatives, and to reinforce the need for close regulation of the banking sector as a necessary cure for excessive risk-taking. Instead, under Bush the Son the deregulatory mania was given free rein, and the captains of capital used LTCM and Enron as models for refashioning the entire financial sector into a colossal Ponzi scheme, the unraveling of which is only in its initial stages.

It is as if collectively we have been deceived by our presumed sophistication with the tools of risk management.\textsuperscript{5} More accurately, we allowed the financial elite to abuse their limited facility with statistical manipulation to disguise a level of imprudent risk-
taking so monumental in scope that, as of now, no one knows where the ultimate limit of the downside risk may be. Like the hapless librarians of medieval Baghdad, the citizens of contemporary nations ranging in size from Iceland to China had no inkling of what calamities were about to strike.

This is what is new in our situation today: Risk management has been recruited into the service of a grand game, to be manipulated by economic and political elites who make larger and larger bets on future outcomes for short-term advantage. Citizens are easily dazzled by the interim gains in which they are allowed to share, and are thus blind to the reality that every bet entails exactly the same remorseless logic: the scale of the potential downside loss increases in proportion to that of the potential upside gain. Of course, every bettor thinks that losses can be recouped in the new day. None of them wants to face the possibility that bets made collectively by many nations tightly interlocked in global markets may not be at all different in kind from those made by the individual gamblers who cannot stop until bankruptcy intervenes: As the families of those unfortunates know all too well, there are some types of ruination from which recovery is impossible, ever.

What can explain the apparently puzzling fact that the elites of the wealthiest nations are the ones who lead the way in seeking to turn their productive economies into casinos? In part, perhaps, it is because they detect the hoof-beats of the thundering herd behind them – the formerly placid underdeveloped nations, lead by the vast populations of India and China, who are determined to secure for themselves the same paradise of consumption so far restricted to the fortunate West. Perhaps it is also because those
fortunate ones know what the wealthy minority in human societies has always known, namely, that exploiting the advantages of wealth depends in large part on the existence of a vast pool of poverty and dependency in the surrounding social environment. Great retinues of servants, slaves, serfs and sycophants are what make the possession of wealth truly enjoyable. Only when relative advantage is very large, in terms of the distance between the well-off and the rest, is it of any real benefit. Too little inequality spoils the fun.

Blithe indifference to the inherent limitations of risk management, an orientation arising in the rapaciousness of the already-fortunate, is thus the proximate cause of the current financial meltdown. It exists alongside its diametrical opposite, an irrational resistance to the need for precaution in areas of decision-making where the unique strengths in the risk management approach have been deployed. Nothing illustrates this countervailing tendency better than the world’s reaction to the risk of climate change, which amounts to a colossal wager that we need not take this risk seriously unless and until it can be demonstrated that any risk mitigation we undertake won’t act as a brake on steady GDP growth for any nation on the planet.

The recommendation to avoid “dangerous anthropogenic interference with the climate system” was agreed to in the United Nations Framework Convention on Climate Change in 1992. Capping total global greenhouse gas emissions as soon as possible, then slowly ratcheting them down again, are the only available risk control measure. The world’s response was straightforward: Emissions have risen steadily since that time, and for certain large actors have done so at an accelerating rate. At least the developing world,
notably India and China, has a reasonable excuse – rapid economic growth is now regarded as a necessity, not a luxury, for them. Opposition to the Kyoto Protocol in the developed world, led until recently by the United States and Australia (with some later help from Canada), was accompanied by a well-orchestrated attack against the professional integrity of scientists affiliated with the Intergovernmental Panel on Climate Change, the largest association of working scientists ever to be assembled on one issue. Otherwise seemingly intelligent persons have been whispering about the “hoax” perpetrated by climate scientists, proving only that the distemper of mind afflicting the Holocaust-deniers – symptomized by the selective use of evidence – is an infectious disease. Little do the whisperers realize that the joke (such as it may be) is on them, because if climate science is a hoax, so too is the entirety of modern science, for the former shares all of the latter’s methodological protocols. There is a delicious irony contained in the apparent paradox here: For if, however unlikely the prospect, the current scientific consensus on climate change turns out to be very wrong, rather than being in need of constant refinement (the normal case), this fact will be discovered and confirmed by the same scientists, using the same methods, which are responsible for the current consensus. 

These twin expressions of a misunderstanding of risk management by those at the helm of the most powerful economic and political forces – a lack of appreciation of its strengths as well as its limitations – define in great part the character of our age and its future.
In the first three short chapters of Part One I give an overview of both the benefits and dangers associated with the modern philosophy of risk management as it is practiced by governments, industry, and private individuals. A special focus of this discussion is an enumeration of the many different reasons why our attempts at good risk management still fail, and sometimes fail miserably, to live up to a set of reasonable expectations for the protection of public health and safety. There the earlier admonition about the importance of controlling the downside risk is rephrased as follows: The core objective of risk management should be to anticipate and prevent or mitigate harms that may be avoidable. Chapter 4 presents a sample from the wide range of issues that can be encompassed by a risk-based approach, in the form of nine short “notes” on diverse topics written over a period of fifteen years.

Part Two is a compilation of nine longer studies, either published in peer-review journals or otherwise disseminated in the period 2001-2008, on the risk-based approach to decision-making, which illustrate both the considerable strengths, as well as the persistent weaknesses, in that approach as it is now practiced, dealing with issues that range from the safety of blood and drinking water to the risk assessment of nuclear waste, climate change, and aviation security. Then Part Three looks at risk communication practice, which is the aspect of risk management dealing with the need for a sustained, two-way dialogue between risk managers, on the one hand, and stakeholders and the general public, on the other, that is a necessary precondition for building public confidence in the whole risk management enterprise. The fact that this need often goes unfulfilled is another reason for the repeated failings in that enterprise.
Part Four, “Black Holes of Risk,” opens with a long study on how and why the current global financial crisis arose, using the concepts of “systemic risk” and “super-systemic risk” that have been developed in the academic literature on banking and finance. The final chapter starts by wrapping up the preceding discussions in the form of an overall problem-statement: The multiplication of new types of planet-scale risks plus the inherent difficulties in carrying out good risk management plus our collective recent proclivity to make bigger and bigger bets in risk-taking equals the growing potential for encountering some perilous downside consequences. I then ask how we might lessen the chance of falling into those black holes of risk. Here I use some recent contributions to the literature on the precautionary principle as a basis for making a practical proposal that we should seek to gain much-needed experience in controlling the downside risks by engaging in modest experiments, involving international cooperation, in prudent (anticipatory) risk management. I argue that we could do so, using both the “options purchase” approach advocated by Cass Sunstein and the cost-effectiveness doctrine, with relatively small expenditures and a reasonable expectation of important benefits.

Acknowledgments
[to follow]
Endnotes (all URLs accessed as of April 2009):


2 For example, Dan Gardner, Risk: The Science and Politics of Fear (Toronto: McClelland & Stewart, 2008).


4 The evidence is provided in some of the essays collected in this volume, in two earlier books by the same author (Mad Cows and Mother's Milk and In the Chamber of Risks), and legions of additional case studies by other authors.


7 The low probability of the contrary case (that the current consensus is very wrong) dictates the sensible policy choice, which is to begin implementing the risk control measures – as opposed to promising to begin implementing them sometime in the future – now, in view of the length of time that will be required to complete the process. In addition, there are entirely separate policy considerations, namely, the strong case for internalizing externalities across all forms of energy supply, that yield the same policy choice.