



## New Tools Needed for Managing Uncertainty

**Traditional risk management frameworks have failed to prevent major environmental, social and governance disasters. New ideas are needed from outside corporations.**

OW Bunker was once one of the world's biggest traders of bunker oil. It had operations in 29 countries and claimed to control around 7 percent of worldwide bunker trade. The company went public in March 2014 on the NASDAQ OMX Copenhagen Exchange and its shares rallied 20 percent on the first day of trading. But in a matter of months, OW Bunker was no more. By November 7th, the company declared bankruptcy.

Company governance had failed OW Bunker's investors and a series of risk management problems soon emerged...

BP's Deepwater Horizon oil spill and Bangladesh Savar building collapse provide other well-known examples of catastrophic environmental and social failures with deep human and economic repercussions. For investors who must own shares exposed to these catastrophes, the consequences on financial performance can be devastating.

### **Diversification is not the answer**

However, as tragic as these incidents may be, their financial impact on well-diversified investors may be limited as portfolio managers may be able to diversify idiosyncratic risk away. In contrast, systemic issues such as those associated with global warming may have a more profound impact on

investors and companies as most sectors in most countries are likely to be affected. Aside from the catastrophic hazards that debilitate organisations in a short period of time, these more structural issues are potentially more lethal in the longer run. For example, Global annual economic losses from an additional temperature increase of 2°C are estimated to be between 0.2 percent and 2 percent of income according to the Intergovernmental Panel on Climate Change (IPCC), a scientific intergovernmental body under the auspices of the United Nations. Shocks of this magnitude are likely to affect investment returns.

Understanding the risk reward framework is difficult for practitioners and academics alike. Traditional methods of financial modelling have struggled to address these issues. For example, a recent study by Dimensional Fund Advisors indicated that 81 percent of active equity mutual fund managers failed to beat their benchmarks over a ten year period ending in 2013 and only 52 percent of actively managed equity funds survived over this period. This failure is likely to be exacerbated as the world gets more integrated and more chaotic. Perhaps as a consequence of the underperformance of active management industry, exchange traded funds (ETFs) and index funds have experienced a strong development. However, diversification is unlikely to be the financial solution to global issues such as

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climate change or even to an increase in social and financial inequality.

### **New tools are needed**

New concepts, new tools and new paradigms have to emerge. Collaboration between the financial sector and academics could help. For example, a leading investment bank has recently started to use a more structured approach to risk forecast. Facilitated by a deep interaction between the developing team and academia, the systematic scenario analysis requires that analysts not only issue a point forecast but also a range of possible outcomes. This is not the first time that such a collaboration would be fruitful. Index funds were the brainchild of the academic research in the sixties and seventies that have developed the notion of efficient markets. Behavioural finance became mainstream decades after it was first investigated in academic seminars.

So what might these new tools look like? A few trends are emerging.

First, the reporting around sustainability issues is becoming more robust, more sophisticated and more consistent. Integrated reporting is becoming mainstream internationally while the Sustainability Accounting Standards Board (SASB) was incorporated in 2011 as a U.S. non-profit organisation to develop and disseminate sustainability accounting standards. The debate is currently ongoing in intellectual circles (and academics are playing an important role in this process) but will plausibly move to regulatory and then legal circles in a relatively near future. Naturally, reporting is not neutral and influences strategic and tactical decisions that firms routinely make. For audit committees, already facing a barrage of regulatory issues, these new dimensions will have to be integrated into the corporate jigsaw puzzle.

Second, management styles are evolving. In a world where managers and investors face clearly identified threats, power gets concentrated in the hands of the most capable experts who then develop controls and procedures to address the potential hazards. This approach works less well for managing uncertainty, hazards for which the likelihood or even the nature is much less understood. For example, Daniel Bouton, former CEO of Société Générale, allegedly said after the Jérôme Kerviel incident that “we are a world leader in the most sophisticated sector in the world! We have the greatest mathematicians, we hire a third of the graduates from Polytechnique every year, our mission is precisely to negate all risks through the sheer power of calculations, of correlations, of controls. This is happening to us!” All the risk

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management apparatus did not help SocGen with the uncertainty associated with human behaviour. As a result, some organisations are evolving toward complex adaptive systems where the knowledge and the power are systematically distributed within the organisation.

Third, economists are starting to develop a framework to optimally allocate uncertainty. A traditional approach to risk management at the macro level has been to either concentrate it in the hands of a few sophisticated parties with a large capacity to absorb losses (insurance companies, for example) or to securitise it to spread it among a large number of market participants. However, insurance companies are notoriously adverse to ambiguity, effectively closing the first channel. This essentially leaves the second option. For example, think of an agricultural biotechnology firm that develops a genetically modified crop that reduces the risk induced by pesticides and increase crop yields. The firm passes the uncertainty regarding the effect of this technology on health to consumers and to society at large. However, the company has also exposed itself to catastrophic lawsuits. Is there a way to separate the normal business risks from the uncertainty associated with the potential environmental damages? For example, is it possible to issue a new type of catastrophic bond that offers a buffer in case of environmental or social catastrophe? Research on how to price uncertainty in a portfolio has made progress but much remains to be done to fully understand this question.

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