1 The strategic nature of corporate risk management

Contemporary institutions are exposed to a variety of risks ranging from natural catastrophes and uncontrolled human behaviours to different strategic exposures that may hit the organization in unexpected ways. This chapter describes, partially by illustrative examples, the diverse nature of the corporate risk landscape and how related exposures seem to increase. The chapter discusses how different approaches to risk management may enable corporate executives to deal more effectively with these important challenges. The relationship between positive risk management outcomes and performance is explored and the question about uncovering an effective risk management model is developed.

1.1 The nature of risk management

Risks are everywhere, as evidenced by many corporate events reported in the popular press, including major corporate scandals around once venerable companies like the Maxwell group, Baring Brothers, WorldCom, Enron, Parmalat and so on. We also witness a steady increase in man-made disasters around the world and even the emergence of mega-catastrophes caused by wilful human actions that have both direct and indirect economic effects. These developments have intensified our focus on corporate and public risks and the risk management processes that may be needed to circumvent the adverse economic impacts from such events. All the while, we have seen a public risk perception aimed at reducing system errors, operational malfunctions and uncontrolled human behaviours that affect the way in which we try to deal with corporate risks.[1]

Hence, corporate risk management has become an essential topic and arguably constitutes a new lens through which we may conceive corporate strategy development – because poor risk management may lead to bankruptcy, whereas good risk management practices can excel corporate performance outcomes. Hence, risk management may be seen as a process that lets the organization achieve its full potential and gain optimal economic returns, or to use strategy jargon, effective risk management may be seen as a way in which to create sustainable competitive

[1] See, e.g. J. Adams (1995). *Risk*. Ruthledge: Abingdon, Oxon; and M. Power (2004). *The Risk Management of Everything: Rethinking the Politics of Uncertainty*. Demos: London.

advantage. Yet, we do not fully comprehend how the many complex managerial processes relate to strategic risk management practices. We have seen the introduction of formal enterprise-wide risk management frameworks that may help us contain specific exposures, but these approaches do not necessarily constitute sufficient conditions for effective risk management outcomes. Indeed, the invention of operational risk as a concept may be trying to frame the unframeable.[2] Hence, there may be too many aspects of risk that cannot be contained within simple formalized control systems. That is, the importance of risks and the importance of strategic risk factors and related corporate responsiveness in increasingly turbulent market environments point to a need for an extended view of the risk management process.

Where risk events typically are conceived as hazards and dangers caused by identifiable triggers, such as accidents, human error, natural phenomena, etc., conventional risk management seeks to reduce the potential for downside losses derived from such events. However, risk can also be interpreted as the volatility of performance outcomes, in which case the risk management task is seen as the ability to remove possibilities for underperformance while being cognizant of the upside gains associated with emerging business opportunities. Hence, there is a strategic element to the risk management concept that should also consider the potential for new opportunities arising from dramatic changes in the business environment and these may actually constitute some of the most important risk management concerns.[3]

While the nature of common downside risk events is well defined and accounted for in statistical records, many of the emerging operational and strategic risks are less precise and thus much harder to describe and predict. Much of the contemporary risk management literature is supported by calculable odds for identifiable risk events determined by analysis of objective historical records. However, true uncertainty arises when one is unable to determine the odds or even foresee the future risk events.[4] There seems to be a trend towards higher uncertainty due to the emergence of new risks caused by terrorist acts, natural catastrophes, political events, path breaking technologies and continuous innovation.

1.2 The significance of potential risk effects

Risk management as a professional discipline is nothing new. The insurance industry has operated for centuries on the basis of practices that allowed economic entities with specified risks to obtain cover by diversifying the

[2] M. Power (2005). 'The Invention of Operational Risk'. *Review of International Political Economy* 12(4), pp. 577–99.
[3] See, e.g. A. J. Slywotzky and J. Drzik (2005). 'Countering the Biggest Risk of All'. *Harvard Business Review* 82(4), pp. 78–88.
[4] See F. Knight (2006). *Risk, Uncertainty, and Profit*. Dover Publications: Mineola, New York for an early discussion of the distinctions between the concepts of risk and uncertainty.

exposures across many insured parties through the intermediation of professional insurance companies. Similarly, there is really nothing new to the various risk events we see play out today as they affect individuals, institutions and societies. The history is replete with examples of accidents, operational disruptions, fraud cases, political unrest and market collapses, which all constitute incidents with adverse effects on business and economic activity. However, there may have been a change in the underlying causes of adverse risk events with increasing importance in new areas like technology risk, computer hacking, hypercompetitive disruptions, mega-terrorism, etc. The impact of these incidents has been further aggravated by increasing dependence on communication and information technologies and the chase for economic efficiencies in more tightly connected multinational business structures.

The sheer magnitude of potential economic repercussions has brought risk management to a new level of attention as the public has witnessed the (sometimes) exorbitant personal gains derived from corporate fraud and excessive losses from extreme weather conditions, terrorist events and so forth. As populations grow and business activities expand, the accumulation of economic assets also increases, while the coupling between international economies intensifies. As a consequence, the potential losses on economic assets caused by disruptive events also increase as an inevitable outcome of economic growth. All the while, there seems to be a general increase in the risk consciousness of modern society where economic and human losses experienced in yesteryear appear excessive under the current day. In other words, the public risk perception has become increasingly sensitized to the adverse consequences of potential exposures. The increased risk alertness has also affected politicians and lawmakers in their capacity to impose new legislation and rules that public companies must abide by as witnessed by the growth in regulatory frameworks and corporate governance guidelines.

In practice, the risk management initiatives are overwhelmingly concerned with the elimination of potential losses with a focus on cost reduction. The principle of insurance carries with it an idea that exposures beyond individual control can be covered by sharing these risks over a larger diversified portfolio of insurance takers that are unlikely to be hit by accidents at the same time. That is, some accidents cannot be avoided, but it is possible to cover against their adverse economic effects in advance by engaging in insurance contracts. On the other hand, the very size of loss effects is also influenced by human intervention and timely risk mitigation efforts. Indeed, the history of risk management is arguably one of human ingenuity and effort that against the odds of nature have improved the living conditions for mankind over time.[5] Hence, large risk effects are increasingly seen as, at least partially, caused by human error that could be prevented through advance precaution, timely actions, appropriate mitigation efforts and installation of early warning systems to increase general

[5] See P. Bernstein (1996). *Against the Gods: The Remarkable Story of Risk*. John Wiley & Sons: New York.

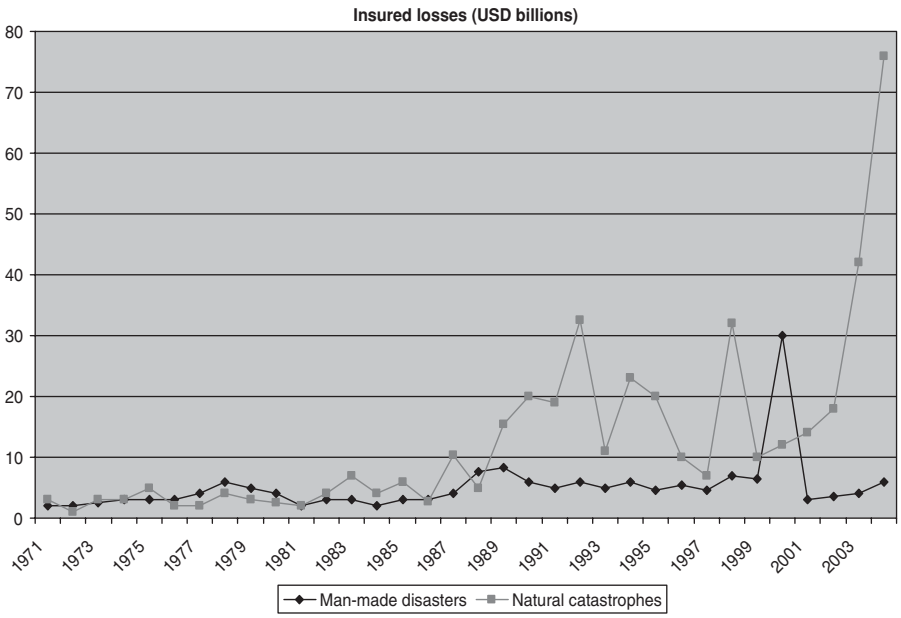

Figure 1.1 *Environmental hazards: exponential growth in insured disaster losses*
Source: Sigma No. 2/2007, Natural Catastrophes and Man-Made Disasters in 2006, Swiss Re.

preparedness and improved responses in the face of major incidents. This view of risk management is supported by the events frequently reported in the press where institutional losses typically arise from negligence, economic fraud and insufficient internal controls.

Yet, many things may be going on that are beyond direct human influence and managerial control. While economic exposures are rising due to a general expansion of the economic infrastructure and placement of productive assets in exposed areas, they also increase due to the higher connections between international markets and through tighter integration of multinational operations. For example, an earthquake in Taiwan may have severe effects on the global sourcing of major corporations because such an incidence can break Internet connections between major production units where manufacturing processes are integrated by information technology. The frequency of earthquake events per se does not seem to increase, but the exposed economic infrastructure is extended. However, there seem to be other climatic changes that increase economic losses in exposed areas due to wind storms, hurricanes and flooding events. The overwhelming consequence of these developments is that the insured losses from man-made disasters and natural catastrophes have been increasing dramatically (Figure 1.1).

Table 1.1 lists the most costly insurance losses caused by man-made disasters and natural catastrophes over the past thirty-five years.[6] It appears that most

[6] It is worth noting that the insured losses predominantly relate to developed economies where insurance penetration generally speaking is quite high, whereas economic assets in less-developed

Table 1.1 *The 40 most costly insurance losses over the past decades (1970–2006)*

Loss (US$ million)	Victims	Date	Events	Countries
66,311	1,836	08.2005	Hurricane Katrina; floods, damage to oil rigs	US, Gulf of Mexico
22,987	43	08.1992	Hurricane Andrew; flooding	US, Bahamas
21,379	2,982	09.2001	Terror attack on the World Trade Center	US
19,040	61	01.1994	Northridge earthquake	US
13,651	124	09.2004	Hurricane Ivan; damage to oil rigs	US, Barbados
12,953	35	10.2005	Hurricane Wilma; torrential rain, floods	US, Mexico, Jamaica
10,382	34	09.2005	Hurricane Rita; damage to oil rigs	US, Mexican Gulf
8,590	24	08.2004	Hurricane Charley	US, Cuba, Jamaica
8,357	51	09.1991	Typhoon Mireille	Japan
7,434	71	09.1989	Hurricane Hugo	US, Puerto Rico
7,204	95	01.1990	Winter storm Daria	Benelux, France, UK
7,019	110	12.1999	Winter storm Lothar	France, Switzerland, UK
5,500	22	10.1987	Storm and floods	France, Netherlands, UK
5,485	38	08.2004	Hurricane Frances	US, Bahamas
4,923	64	02.1990	Winter storm Vivian	Europe
4,889	26	09.1999	Typhoon Bart	Japan
4,366	600	09.1998	Hurricane George; flooding	US, Caribbean
4,100	41	06.2001	Tropical storm Alison; heavy rain, flooding	US
4,022	3,034	09.2004	Hurricane Jeanne; flooding, landslides	US, Caribbean
3,826	45	09.2004	Typhoon Songda	Japan, South Korea
3,512	45	05.2003	Thunderstorms, tornadoes, hail	US
3,415	70	09.1999	Hurricane Floyd	US, Bahamas, Colombia
3,409	167	07.1988	Explosion on platform Piper Alpha	UK
3,315	59	10.1995	Hurricane Opal; flooding	US, Mexico
3,270	6,425	01.1995	Great Hanshin earthquake in Kobe	Japan
2,905	45	12.1999	Winter storm Martin	France, Spain, Switzerland
2,736	246	03.1993	Blizzard, tornadoes, flooding	US, Canada, Mexico
2,587	38	08.2002	Several floods	Austria, Germany, Spain, UK
2,516	26	10.1991	Forest fires, draught	US
2,505	–	04.2001	Hail, floods, tornadoes	US

(*cont.*)

Table 1.1 *(cont.)*

Loss (US$ million)	Victims	Date	Events	Countries
2,364	30	09.2003	Hurricane Isabel	US, Canada
2,331	39	09.1996	Hurricane Fran	US
2,305	20	12.1999	Winter storm Anatol	Scandinavia, UK
2,299	4	09.1992	Hurricane Iniki	US, North Pacific
2,217	–	08.1979	Hurricane Frederic	US
2,155	23	10.1989	Explosion in petrochemical plant	US
2,134	220,000	12.2004	Earthquake, tsunami in the Indian Ocean	Indonesia, Thailand
2,091	49	08.2005	Rain, floods, landslides	Germany, Switzerland
2,044	2,000	09.1974	Tropical cyclone Fifi	Honduras
2,009	100	07.1997	Heavy rain, flooding	Czech Republic, Poland

Source: Sigma No. 2/2007, Natural Catastrophes and Man-Made Disasters in 2006, Swiss Re.

of the significant losses relate to natural catastrophes like hurricanes, storms and earthquakes that may have significant adverse effects on the level of economic activity (see Box 1.1 *The Hyogo-Ken Nanbu earthquake (Kobe)*, Box 1.2 *The Hengchun earthquake (Taiwan)* and Box 1.3 *Global supply chain risks*).[7] However, we also note that the terrorist attack on the World Trade Center in September 2001 emerges as the second largest insured catastrophe loss, while two other man-made disasters figure in the list of the forty most costly insurance losses, namely the explosion on the oil rig Piper Alpha in 1988 and the explosion in a petrochemical plant in 1989. The list of man-made disasters includes other events like fires, plane crashes, boats capsizing, trains derailing, collisions, etc.

Box 1.1 The Hyogo-Ken Nanbu earthquake (Kobe)

One of the worst earthquake catastrophes for years occurred on 17 January 1995 on the western Honshu Island in southern Hyogo. As a consequence of this event, more than 6,000 people perished in and around the city of Kobe, which is Japan's most important port, disrupting the international commercial traffic to and from Japan. An earthquake may show direct

countries often are uninsured. On average, around half of the direct economic losses suffered in OECD countries are covered by insurance contracts, whereas only around 5 per cent of direct economic losses in emerging markets have insurance cover. See, e.g. T. J. Andersen (2005). 'Applications of Risk Financing Techniques to Managing Economic Exposures to Natural Hazards'. Technical Paper Series, Inter-American Development Bank: Washington, DC.

[7] These illustrative inserts present well-publicized risk events discussed in many public news media and the information contained in these inserts derive from multiple sources and are not ascribable to a single origin.

physical effects around fault ruptures where the surface is displaced, while secondary effects arise from seismic waves from the fault lines that may cause various aftershocks. In Kobe, most of the devastation was caused by aftershocks as building structures collapsed and fires started around broken gas lines, etc. The direct economic effects relate to the damage imposed on the economic infrastructure that requires substantial resources to reinstall. However, there may also be significant secondary economic effects associated with the disruption of economic activity, displacement of human capital and negative influences on business confidence.

Box 1.2 The Hengchun earthquake (Taiwan)

The Hengchun earthquake occurred around the southwest coast of Taiwan on 26 December 2006 off Hengchun in the Luzon Strait that connects the South China Sea and the Philippine Sea. The earthquake caused some injuries and a few deaths as nearby structures collapsed and the earthquake could be felt in Taipei some 450 km north of Hengchun as well as in Hong Kong and China. A nuclear power plant was on high alert due to serious vibrations. However, the major economic effects were related to the direct and indirect damages caused to several under-sea cables that interrupted telecommunication services to other parts of Asia. The associated disruption of Internet services had serious effects on financial market transactions and broke the connections between multinational business entities and seriously affected their global sourcing networks.

Box 1.3 Global supply chain risks

Numerous catastrophes from the Kobe earthquake in 1995 to Hurricane Katrina in 2005 illustrate that we routinely underestimate the potential business disruption caused by these events. The Kobe earthquake killed more than 6,400 people, destroyed 100,000 buildings causing an estimated US$100 billion in total damages and closed Japan's largest port for two months, thereby disrupting the production and transportation structure of major multinationals, including Toyota. Prior to Hurricane Katrina, many companies diversified their transportation risks by contracting with multiple shippers. However, Katrina closed all traffic through New Orleans, thereby disrupting the business flow of companies that relied on international access via the Mississippi River. Similarly, over-dependence on business activities in a single geographical location may increase disruption exposures to extreme events like the unexpected Hengchun earthquake in 2006.

Some of the major corporate risk events that have hit the newspaper headlines over the past decades include numerous incidents that are closely linked with

excessive financial market activities gone awry, while another group of incidents mainly relates to situations of economic fraud and misreporting (see Box 1.4 *Baring Brothers – wild trading*, Box 1.5 *Orange County – exotic instruments*, Box 1.6 *Maxwell Group – diversion of funds*, Box 1.7 *Parmalat – forgeries and fraud* and Box 1.8 *Enron – misleading accounting*). The major part of these intensely reported incidents points towards failed corporate governance as a major culprit in these developments, since a major role of the executive board is to control corporate activities. The events also raised issues regarding the integrity of the CEOs and their responsibility for corporate accounting practices.

Box 1.4 Baring Brothers – wild trading

Baring Brothers was the oldest merchant bank in the UK, but went bankrupt in 1995 when Nick Leeson, a derivatives trader in their Singapore branch, took unauthorized positions in various futures contracts and kept them hidden by booking the transactions on an unused error account. When the accumulated losses from these positions were eventually uncovered, they amounted to the staggering sum of £827 million, enough to erase the entire capital reserve of this venerable and highly esteemed institution.

Box 1.5 Orange County – exotic instruments

Orange County, located in Southern California around Santa Ana with a population of around 2.8 million people, had to declare bankruptcy in 1994 due to losses from investment in interest rate instruments speculating in a positive yield curve with lower short-term rates. As the Federal Reserves Bank against expectations increased the interest rate level, these geared transactions became unprofitable and resulted in total losses of around US$1.5 billion.

Box 1.6 Maxwell Group – diversion of funds

When Robert Maxwell fell from his yacht in 1991, a neat sum of £550 million was missing from his companies. This looting of the companies and their pension funds within the Maxwell Group may have reflected inadequacies of the existing accounting standards as well as the auditing practices adopted by Coopers & Lybrand Deloitte, the long-term accountant for most of the Maxwell companies. A key failing in this case may have been the extraordinary power wielded by Robert Maxwell himself, who was a very dominant person with no intention to share management responsibility. Hence, the highly centralized management style with power concentrated around a single involved executive spelled trouble.

Box 1.7 Parmalat – forgeries and fraud

In 2004 we saw the unravelling of Italy's food giant Parmalat, producer of popular dairy products, biscuits and beverages. The company founder Calisto Tanzi was formally charged for siphoning at least €500 million to a family-owned subsidiary where numerous companies were set up to generate fake profits for the Parmalat subsidiaries, including document forgery to verify a deposit account of $4.98 billion. This was finally revealed after Tanzi met with the Blackstone Group to discuss the sale of the 51 per cent family stake where subsequent scrutiny by the US Securities and Exchange Commission (SEC) indicated that there were hardly any liquid assets, but rather a debt position of €10 billion. The fraudulent activities allegedly took off after the stock went public in the early 1990s due to pressures to meet expectations of global investors.

Box 1.8 Enron – misleading accounting

Enron engaged in a number of complex tax schemes which shifted debt into a series of almost non-existent companies set up by Enron executives and thereby reported more than $2 billion in profits over a long period of time when the company was actually losing money. Enron appeared to be profitable, but in fact was rather engaged in transactions with no true business purpose other than to appear profitable. In other words, the company's management seemed to inflate deliberately the short-term earnings of the company and in the process enriched several of the senior executives, while the eventual collapse of the company in 2002 caused serious financial harm to investors, employees and other stakeholders.

It is hardly surprising that these events spurred a significant increase in the business volume among institutional sellers of compliance services, much of which was further induced by formal regulatory requirements. Yet, one may question the virtue of check lists and formal internal controls that too often serve as tools to let the executive board show that it has acted in good faith and has done nothing wrong in case potential scandals inadvertently arise in the press. The increased requirements for formal control systems and personal accountability have clearly led to increased scrutiny of internal processes and formalized reporting practices. However, it may also at the same time have created a defensive corporate mentality of imposing inhibiting internal controls rather than instituting a proactive organizational environment to encourage innovative responses in the face of environmental challenges and new risks. The importance of remaining vigilant and responsive may be illustrated by reported technology and public policy developments that have affected companies like Eastman Kodak and Coloplast

among many others (see Box 1.9 *Eastman Kodak – reshaping the photographic industry* and Box 1.10 *Coloplast – vulnerability to political developments*).

Box 1.9 Eastman Kodak – reshaping the photographic industry[8]

Until the 1980s, Eastman Kodak had for more than 100 years been the most successful company within the photographic industry due to its ongoing efforts utilizing incremental technology improvements to enhance internal capabilities, innovate processes and expand product offerings. This ability made Kodak outstanding within the area of photographic film making.

However, the introduction of digital imaging in the late 1980s changed the competitive landscape fundamentally, with the result that Kodak's chemically based business model became obsolete. An attempt to develop expertise in computer-based digital photography was relatively unsuccessful and, consequently, the change in technology was the onset to Kodak's decline.

As a consequence, the baton was passed on to Sony in 1989 when the company launched a camera based on electronic digital technology, where the image could be viewed immediately on the screen without any need for further processing – a radical departure from the chemical tradition pursued by Kodak.

Box 1.10 Coloplast – vulnerability to political developments[9]

The Danish medico company Coloplast is one of the leading suppliers of ostomy care products in Europe. Forty per cent of the company's turnover is within this product category, while products within urology and continence care and wound and skin care make up the rest. Most of the company's products are sold to public sector institutions and reimbursed by national healthcare authorities. Consequently, the company is vulnerable to developments in the political environment and changes in public healthcare policies.

This risk actually materialized when the German Government announced in 2004 that a new healthcare reform was under way that among other things would cut reimbursement prices for ostomy products by 13 per cent, effective from January 2005. Since Germany was Coloplast's biggest market for ostomy products, this constituted a major risk exposure. The German healthcare reform meant that the company's profit margin for the year 2004/2005 was reduced by 1.5 percentage points, leading to a reduction in operating profits for the year of around 9 per cent.

[8] Based on J. M. Utterback (1995). 'Developing Technologies: The Eastman'. *The McKinsey Quarterly* 1, pp. 130–44. For an interesting account of many other failures to adapt new technologies, see C. M. Christensen (1997). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Harvard Business School Press: Boston, Massachusetts.

[9] Based on information from company annual reports and various newspaper articles.