1.5 Perils and Hazards

As we mentioned earlier, in English, people often use the word "risk" to describe a loss. Examples include hurricane risk or fraud risk. To differentiate between loss and risk, risk management professionals prefer to use the term **perils** to refer to "the causes of loss." If we wish to understand risk, we must first understand the terms "loss" and "perils." We will use both terms throughout this text. Both terms represent immediate causes of loss. The environment is filled with perils such as floods, theft, death, sickness, accidents, fires, tornadoes, and lightning—or even contaminated milk served to Chinese babies. We include a list of some perils below. Many important risk transfer contracts (such as insurance contracts) use the word "peril" quite extensively to define inclusions and exclusions within contracts. We will also explain these definitions in a legal sense later in the textbook to help us determine terms such as "residual risk retained."

Table 1.4 Types of Perils by Ability to Insure

Natural Perils		Human Perils	
Generally Insurable	**Generally Difficult to Insure**	**Generally Insurable**	**Generally Difficult to Insure**
Windstorm	Flood	Theft	War
Lightning	Earthquake	Vandalism	Radioactive contamination
Natural combustion	Epidemic	Hunting accident	Civil unrest
Heart attacks	Volcanic eruption	Negligence	Terrorism
	Frost	Fire and smoke	
		Global	
		E-commerce	
		Mold	

Although professionals have attempted to categorize perils, doing so is difficult. We could talk about natural versus human perils. **Natural perils** are those over which people have little control, such as hurricanes, volcanoes, and lightning. **Human perils**, then, would include causes of loss that lie within individuals' control, including suicide, terrorism, war, theft, defective products, environmental contamination, terrorism, destruction of complex infrastructure, and electronic security breaches. Though some would include losses caused by the state of the economy as human perils, many professionals separate these into a third category labeled economic perils. Professionals also consider employee strikes, arson for profit, and similar situations to be **economic perils**.

We can also divide perils into insurable and noninsurable perils. Typically, noninsurable perils include those that may be considered catastrophic to an insurer. Such noninsurable perils may also encourage policyholders to cause loss. Insurers' problems rest with the security of its financial standing. For example, an insurer may decline to write a policy for perils that might threaten its own solvency (e.g., nuclear power plant liability) or those perils that might motivate insureds to cause a loss.

Hazards

Risk professionals refer to **hazards** as conditions that increase the cause of losses. Hazards may increase the probability of losses, their frequency, their severity, or both. That is, **frequency** refers to the number of losses during a specified period. **Severity** refers to the average dollar value of a loss per occurrence, respectively. Professionals refer to certain conditions as being "hazardous." For example, when summer humidity declines and temperature and wind velocity rise in heavily forested areas, the likelihood of fire increases. Conditions are such that a forest fire could start very easily and be difficult to contain. In this example, low humidity increases both loss probability and loss severity. The more hazardous the conditions, the greater the probability and/or severity of loss. Two kinds of hazards—physical and intangible—affect the probability and severity of losses.

Physical Hazards

We refer to **physical hazards** as tangible environmental conditions that affect the frequency and/or severity of loss. Examples include slippery roads, which often increase the number of auto accidents;

poorly lit stairwells, which add to the likelihood of slips and falls; and old wiring, which may increase the likelihood of a fire.

Physical hazards that affect property include location, construction, and use. Building locations affect their susceptibility to loss by fire, flood, earthquake, and other perils. A building located near a fire station and a good water supply has a lower chance that it will suffer a serious loss by fire than if it is in an isolated area with neither water nor firefighting service. Similarly, a company that has built a backup generator will have lower likelihood of a serious financial loss in the event of a power loss hazard.

Construction affects both the probability and severity of loss. While no building is fireproof, some construction types are less susceptible to loss from fire than others. But a building that is susceptible to one peril is not necessarily susceptible to all. For example, a frame building is more apt to burn than a brick building, but frame buildings may suffer less damage from an earthquake.

Use or occupancy may also create physical hazards. For example, buildings used to manufacture or store fireworks will have greater probability of loss by fire than do office buildings. Likewise, buildings used for dry cleaning (which uses volatile chemicals) will bear a greater physical hazard than do elementary schools. Cars used for business purposes may be exposed to greater chance of loss than a typical family car since businesses use vehicles more extensively and in more dangerous settings. Similarly, people have physical characteristics that affect loss. Some of us have brittle bones, weak immune systems, or vitamin deficiencies. Any of these characteristics could increase the probability or severity of health expenses.

Intangible Hazards

Here we distinguish between physical hazards and **intangible hazards**—attitudes and nonphysical cultural conditions can affect loss probabilities and severities of loss. Their existence may lead to physical hazards. Traditionally, authors of insurance texts categorize these conditions as moral and morale hazards, which are important concepts but do not cover the full range of nonphysical hazards. Even the distinction between moral and morale hazards is fuzzy.

Moral hazards are hazards that involve behavior that can be construed as negligence or that borders on criminality. They involve dishonesty on the part of people who take out insurance (called "insureds"). Risk transfer through insurance invites moral hazard by potentially encouraging those who transfer risks to cause losses intentionally for monetary gain. Generally, moral hazards exist when a person can gain from the occurrence of a loss. For example, an insured that will be reimbursed for the cost of a new stereo system following the loss of an old one has an incentive to cause loss. An insured business that is losing money may have arson as a moral hazard. Such incentives increase loss probabilities; as the name "moral" implies, moral hazard is a breach of morality (honesty).

Morale hazards, in contrast, do not involve dishonesty. Rather, morale hazards involve attitudes of carelessness and lack of concern. As such, morale hazards increase the chance a loss will occur or increase the size of losses that do occur. Poor housekeeping (e.g., allowing trash to accumulate in attics or basements) or careless cigarette smoking are examples of morale hazards that increase the probability fire losses. Often, such lack of concern occurs because a third party (such as an insurer) is available to pay for losses. A person or company that knows they are insured for a particular loss exposure may take less precaution to protect this exposure than otherwise. Nothing dishonest lurks in not locking your car or in not taking adequate care to reduce losses, so these don't represent morality breaches. Both practices, however, increase the probability of loss severity.

Many people unnecessarily and often unconsciously create morale hazards that can affect their health and life expectancy. Such hazards include excessive use of tobacco, drugs, and other harmful substances; poor eating, sleeping, and exercise habits; unnecessary exposure to falls, poisoning, electrocution, radiation, venomous stings and bites, and air pollution; and so forth.

Hazards are critical because our ability to reduce their effects will reduce both overall costs and variability. Hazard management, therefore, can be a highly effective risk management tool. At this point, many corporations around the world emphasize disaster control management to reduce the impact of biological or terrorist attacks. Safety inspections in airports are one example of disaster control

management that intensified after September 11. See Note 1.48 "Is Airport Security Worth It to You?" for a discussion of safety in airports.

Is Airport Security Worth It to You?

Following the September 11, 2001, terrorist attacks, the Federal Aviation Administration (now the Transportation Security Administration [TSA] under the U.S. Department of Homeland Security [DHS]) wrestled with a large question: how could a dozen or more hijackers armed with knives slip through security checkpoints at two major airports? Sadly, it wasn't hard. Lawmakers and security experts had long complained about lax safety measures at airports, citing several studies over the years that had documented serious security lapses. "I think a major terrorist incident was bound to happen," Paul Bracken, a Yale University professor who teaches national security issues and international business, told *Wired* magazine a day after the attacks. "I think this incident exposed airport security for what any frequent traveler knows it is—a complete joke. It's effective in stopping people who may have a cigarette lighter or a metal belt buckle, but against people who want to hijack four planes simultaneously, it is a failure."

Two days after the attacks, air space was reopened under extremely tight security measures, including placing armed security guards on flights; ending curbside check-in; banning sharp objects (at first, even tweezers, nail clippers, and eyelash curlers were confiscated); restricting boarding areas to ticket-holding passengers; and conducting extensive searches of carry-on bags.

In the years since the 2001 terrorist attacks, U.S. airport security procedures have undergone many changes, often in response to current events and national terrorism threat levels. Beginning in December 2005, the Transportation Security Administration (TSA) refocused its efforts to detect suspicious persons, items, and activities. The new measures called for increased random passenger screenings. They lifted restrictions on certain carry-on items. Overall, the changes were viewed as a relaxation of the extremely strict protocols that had been in place subsequent to the events of 9/11.

The TSA had to revise its airline security policy yet again shortly after the December 2005 adjustments. On August 10, 2006, British police apprehended over twenty suspects implicated in a plot to detonate liquid-based explosives on flights originating from the United Kingdom bound for several major U.S. cities. Following news of this aborted plot, the U.S. Terror Alert Level soared to red (denoting a severe threat level). As a result, the TSA quickly barred passengers from carrying on most liquids and other potentially explosives-concealing compounds to flights in U.S. airports. Beverages, gels, lotions, toothpastes, and semisolid cosmetics (such as lipstick) were thus expressly forbidden.

Less-burdensome modifications were made to the list of TSA-prohibited items not long after publication of the initial requirements. Nevertheless, compliance remains a controversial issue among elected officials and the public, who contend that the many changes are difficult to keep up with. Many contended that the changes represented too great a tradeoff of comfort or convenience for the illusion of safety. To many citizens, though, the 2001 terrorist plot served as a wake-up call, reminding a nation quietly settling into a state of complacency of the need for continued vigilance. Regardless of the merits of these viewpoints, air travel security will no doubt remain a hot topic in the years ahead as the economic, financial, regulatory, and sociological issues become increasingly complex.

Questions for Discussion

1. Discuss whether the government has the right to impose great cost to many in terms of lost time in using air travel, inconvenience, and affronts to some people's privacy to protect a few individuals.
2. Do you see any morale or moral hazards associated with the homeland security monitoring and actively searching people and doing preflight background checks on individuals prior to boarding?
3. Discuss the issue of personal freedom versus national security as it relates to this case.

Sources: Tsar's Press release athttp://www.tsa.gov/public/display?theme=44&content=090005198018c27e. For more information regarding TSA, visit our Web site at http://www.TSA.gov; Dave Linkups, "Airports Vulnerable Despite Higher Level of Security,"*Business Insurance*, 6 May 2002; "U.S. Flyers Still at Risk,"*National*

Underwriter Property & Casualty/Risk & Benefits Management Edition, 1 April 2002; Stephen Power, "Background Checks Await Fliers," *The Wall Street Journal*, 7 June 2002. For media sources related to 2006 terrorist plot, see http://en.wikipedia.org/wiki/2006_transatlantic_aircraft_plot#References.

KEY TAKEAWAYS

- You should be able to differentiate between different types of hazards.
- You should be able to differentiate between different types of perils.
- Can you differentiate between a hazard and a peril?

DISCUSSION QUESTIONS

1. What are perils?
2. What are hazards?
3. Why do we not just call perils and hazards by the name "risk," as is often done in common English conversations?
4. Discuss the perils and hazards in box Note 1.48 "Is Airport Security Worth It to You?".