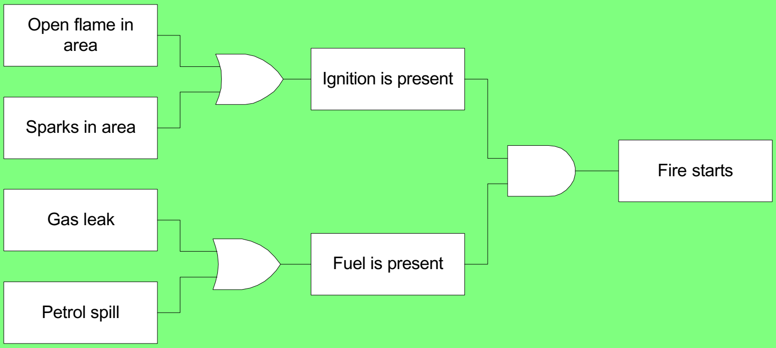

Operational risk management

Controlling opportunities and threats

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Foreword

The principles and techniques outlined in this book are designed to enable an appreciation of the issues that face operational risk management. A number of techniques have been introduced that can allow strategies to be formulated to deal with risks in a cost-effective manner. These techniques show the options that are available when making decisions about risk.

An emphasis has been placed on determining the optimum level of risk management that an organization should implement. This is done in the context of examining the cost of risk management strategies and their effect on profits. Further to this, techniques for determining the most effective strategies for organizations of differing strengths are examined. These techniques take into account factors such as an organization's required minimum profit level and its maximum sustainable loss. By comparing these factors with the potential profits available to an organization, risk profiles and associated risk strategies are developed.

Risk taking has been an essential element of business for countless years. There are many examples of entrepreneurs that have taken high risks in business and have reaped very high rewards. There are also many more examples of those whose risk taking has resulted in failure. One of the difference between successful and failed risk takers is often assumed to be either luck or having a talent for knowing what risks to take. Another difference is whether the risks have been properly identified and managed or not. Many business ventures fail in their early years of operation. A factor that contributes to this is a failure to understand and deal with the risks that the business venture will have. The principles described in this book are designed to minimize the effects of luck in risk management decisions. Although it is recognized that some risks must be taken if any gains are to be made, a scientific approach can put the odds of winning in favor of the person taking the risks. The techniques described in this book may be applied to any industry.

It is the belief of the author that the application of a structured approach to risk management gives organizations a competitive edge in their market. A structured, quantitative approach to risk management provides controls that are not common to an approach based on experience alone.

CHAPTER 1
Introduction to risk management

What is risk management?

For the purposes of this book, we will define risk management as the identification and management of opportunities and threats.

A fundamental aspect of any organization is that all activities involve risk. Gains can only be realized when risks are taken. Risk management enables organizations to determine the level of risk that will provide the maximum overall gains.

When properly applied, risk management techniques have the potential of increasing an organization's profits over a period by minimizing losses. They allow clear decisions to be made about what level of risk is acceptable and what strategies are most appropriate for dealing with risks. A further benefit of properly applied risk management techniques is that organizations can obtain a significant competitive advantage by minimizing their risk management costs and identifying the real costs and gains of their activities.

Types of risk

There are four main general areas of risk. These are:

- Strategic risk;
- Market risk;
- Credit risk; and
- Operational risk.

These four areas are simple categories of business risk. The nature of business risk is that it cannot always be neatly classified into a particular category and as such, the areas of risk management often cross over each other. A general illustration of these four categories follows:

Business Risks

Strategic	Market	Credit	Operational
Investment	Interest Rates	Debtors	Personnel
Acquisitions	Exchange Rates	Settlement	Property
Property	Liquidity		Technology
Development			Legal
Market			Regulatory
Development			Reputational

Table 1.1 Business Risks.

Strategic risk

Strategic risk management is an area that deals with an organization's strategic directions. It examines the decisions that an organization makes about the direction it is going and evaluates the costs, benefits, opportunities and threats.

Strategic risks are taken when organizations embark on new ventures or change the way they are currently carrying out a significant activity.

The decision of an organization to outsource an activity is an example of a strategic decision that has a number of associated risks. An outsourcing decision may have a number of economic advan tages and may enable an organization to achieve its objectives. It may also expose the organization to a number of new risks, which will be controlled by the company providing the outsourced functions. For example, if the outsourcing company goes into liquidation, then the organization receiving its services may be suddenly left without a critical service.

Another typical strategic risk may involve the purchase of a company. The risks involved in a company purchase are numerous and include operational risk issues such as legal, contract, personnel and credit settlement risks. Further, the expected performance of the purchased company under new ownership is a strategic risk.

Strategic risk also deals with such issues as investments. The performance of investments will include the area of market risk in exchange rates if the investment is international or if it concerns importing or exporting. In this case the market risk of adverse exchange rate fluctuations may reduce the value of the investment. If the investment has been leveraged against borrowed funds, then it will also include the market risk of interest rates.

In many ways strategic risk is closely linked to other areas of risk and in many organizations, its management is combined with operational risk.

Market risk

Market risk deals with the risks associated with movements in prices and rates. It is of particular interest to international organizations, importers and exporters where currency exchange rates may affect their profitability. As market risk deals with the volatile areas of prices and rates, it is an area of risk management that requires constant monitoring and management. Market risk often overlaps into the area of strategic risk. This occurs when strategic investments are used as a strategy for managing market risks. An example of this is in the area of financial derivatives. Where an organization is exposed to the market risk of exchange rates, the risk may be managed, or hedged, through the purchase of currency derivatives which have the opposite price movements to the currency exchange rates that are being protected. If an organization is involved in importing or exporting, this strategy may be of particular importance. Alternatively, such an organization may protect their currency exchange rates by participating in both importing and exporting activities.

Market risk also includes the area of liquidity risk. Liquidity risk occurs when an organization's ability to trade is dependent on market prices for funding.

Credit risk

Credit risk is associated with losses that occur when debtors are unable to meet their repayment obligations. Debtors include those with cash loans and business clients with accounts. Poor credit risk management is an area that causes many businesses to go into bankruptcy. A typical example is where a small company provides its services to another on a sub-contract basis. The sub-contractor may extend a line of credit to their client in their terms of payment. If the client enters bankruptcy then the sub-contractor may follow.

An area of credit risk that is of particular importance to financial institutions is settlement risk. Settlement risk occurs when there is a period of time between two parties settling a contract. An example of this can be seen in foreign exchange settlements between financial institutions. This is often referred to as a Herstatt risk, named after a German bank that failed in 1974. This involves the period between one financial institution paying their foreign exchange settlement obligations and when they receive payment from the other party. If anything prevents the second party from settling the second half of the foreign currency exchange, then those who made the first payment will receive nothing in return. In the area of financial institutions, the amounts involved may be in the billions of dollars and the two settlements may occur at different times due to different time zones. A number of strategies have been developed to deal with this area of risk such as capital allocation to the risk in conjunction with pooling of settlement funds or more recently, continuously linked settlements through the use of technology. These strategies however may in themselves have liquidity and technology risks associated with them.

Operational risk

Operational risk is the area that this book is examining in detail. It deals with the day-to-day risks faced by an organization in areas such as:

- Personnel risk;
- Property risk;
- Technology risk;
- Legal risk;
- Regulatory risk; and
- Reputation risk.

Personnel risk deals with the risks that effect the safety or stability of personnel within an organization. The risks associated with the safety of personnel include areas such as workplace accidents. These are generally managed through occupational health and safety management.

Another personnel risk is in the area associated with the value that personnel contribute to an organization and the investment that the organization has put into them. The value includes the experience and training that they have gained, the criticality of their position in the organization and the cost of replacing the personnel should they leave for any reason.

Property risk generally deals with the fixed assets of an organization and the risks of the value of these assets being diminished. Property risk management will work closely in areas such as security and fire management, which deal with direct threats to these assets.

Technology risk, which is often included in property risk, looks at the technology that an organization has and the risks of it being unable to carry out the function that it was designed for. It may include areas such as equipment failures and technology becoming outdated.

Legal risk covers areas such as the legality of contracts and the risks of litigation. This is often a large area for organizations to manage, as it will be concerned with all contracts such as purchase orders, employment contracts and major contract agreements.

Regulatory risk deals with the rules that an organization must legally follow during normal operations. It will include areas such as company reports and financial accounting standards. These risks are generally straightforward to manage but may present very high risk if they are incorrectly managed.

Reputation risk is an area that can be very difficult to quantify. The value of an organization is often largely dependent upon the value of its goodwill. The goodwill itself is dependent upon the organization's reputation. This area of risk is one that may be very easily damaged through adverse publicity or through the efforts of competitors. When attempting to quantify this risk it is often useful to start by looking at the cost of promotion that would be necessary to recover from a loss in this area.

Many areas contribute to these risks. These will be addressed in this book according to traditional areas of responsibility within an organizational structure. These areas include:

- Security;
- Fire;
- Occupational health and safety;
- Environmental issues;
- Technology failures;
- Natural disasters;
- Industrial relations;
- Litigation;
- Legislative compliance;
- Business activities; and
- Payment and processing systems.

Security is an area that directly affects the risk areas of personnel, property and technology. To a lesser extent, it also can include the areas of legal and reputation risk. For example, security may be relevant to personnel in the areas of assault and robbery. It will also affect property and technology in the areas of theft and malicious damage. Legal and reputation risks may be affected by security in the area of protecting confidential information.

Fire control and management affects all of the areas of personnel, property, technology, legal, regulatory and reputation risk. Personnel, property and technology can all suffer substantial losses in the event of a significant fire. These losses can be high enough to destroy an organization if their risks are not properly managed. Failure to manage fire risks may also affect the areas of legal, regulatory and reputation risk. If fire risks are not managed, then an organization may incur significant legal penalties and loss of reputation.

Environmental, health and safety directly effects personnel, legal, regulatory and reputation risks. This is also an area where risk management of these areas can provide increases in an organization's gains. When effective environmental, health and safety programs are put in place, opportunities also exist to increase staff morale and productivity. An organization's reputation may also be enhanced through these programs.

Technology failures affect personnel and technology risk. Personnel are affected when technology is linked to staff health and safety. For example, the failure of a piece of technology may cause industrial accidents or fires. Technology risk is affected if the failure leads to a loss of production.

Natural disasters can directly affect personnel, property, technology and reputation. When a natural disaster such as a flood or earthquake occurs, the effect on these areas may be enough to put an organization out of operation. Natural disasters may not be able to be accurately predicted, but organizations can take steps to minimize their exposure to them and manage the consequences if they do occur.

Industrial relations is an area of risk that affects personnel and reputation. Industrial relations is often concerned with maintaining low staff costs. However a risk management approach will also take into account other costs and benefits. The cost of staff replacement through resignations is one of the areas that risk management can address. Whenever a person in an organization is replaced, there are significant costs associated with recruitment and training of new staff. There are also costs associated with low staff productivity due to low morale or lack of experience. Good industrial relations minimize these risks and can provide an organization with a competitive edge through low staff replacement costs and highly experienced staff.

Litigation or legal risk is an area where an organization can benefit from a risk management approach. When faced with a legal claim, an organization will need to decide if they are going to defend the claim or negotiate a settlement. Risk management tools can assist in this decision making process.

Legislative compliance is an area where organizations need to continuously monitor changes to minimize their exposure to losses. Legislation is an area that constantly changes and it is possible for an organization to have procedures and contracts in place that are out of date. For example, health and safety legislation may change and impose new standards of managing workplace risks. If the new standards are not implemented in an organization and a workplace accident occurs, then significant penalties may be imposed on the organization and its management. Legislation may also change in more complex areas such as the requirements of business loans. Failure to comply with new legislation in this area may result in debtors not having to repay interest on loans. Naturally, this is an area of significant interest to financial institutions.

Day-to-day business activities have risks in areas such as contracts and the estimation of time and material costs. Risk management of these areas has the potential to make significant improvements in an organization's profitability. If for example, an organization is experiencing continual losses in a particular area, it may be partly due to inappropriate management of the risks. By applying risk management techniques, it may be possible for an organization to define what activities or projects that they should participate in, which ones they should outsource and which ones they should avoid altogether.

Finally, payment and processing system errors contribute to losses and are also an area of interest to operational risk.

Although we have discussed operational risk in the context of a number of classifications, it is important to remember that they are all interconnected. If the risks are treated in isolation, then conflicts and inefficiencies may arise. This is often seen in the areas of security and fire for example. The needs of security may be for locked doors whereas fire safety may require the doors left unlocked. By taking an overall operational risk management perspective, these risks can be prioritised and treated accordingly. An overall perspective can also provide opportunities for treating a number of risks in a single manner. A particular area of an organization may have significant security risks associated with poor industrial relations. Instead of investing in costly security measures, an outsource strategy may address both risks at once and provide higher benefits at lower cost.

Treating risks with an overall operational risk perspective also allows organizations to maximize the effectiveness of their current resources. When developing risk management strategies, the human, technological and physical resources of the organization may be applied. An overall perspective will allow the most appropriate resources to be used in the most appropriate manner. This is an area where significant cost savings in managing risks may be available.

Operational risk management is an area where organizations have the opportunity of turning losses into profits. It provides the tools needed to do this.

A major challenge in operational risk is the quantification of the value at risk. The historical data necessary for quantifying the value at risk is far more fragmented in operational risk than in the areas of market or credit risk. As a result, operational risks are often measured in terms of high or low risk priority ratings. However, the data necessary for making quantitative operational risk measurements is available in most cases, but requires significant research to collate and evaluate.

When we examine the entire operational risks of an organization it is necessary to also look at the areas of credit, market and strategic risk. Although this book is dealing with operational issues, all risks facing an organization are interrelated. It is important to remember that the different categories of risk are only management definitions to enable effective application of staff skills within an organizational structure. For example, a major operational project such a building construction or a technology implementation will come across issues of finance (including credit risk), the stability of the financier (market risk issues), strategic risk and of course the operational risk issues associated with contracts and costs.

The areas of risk management are often isolated functions within large organizations, both structurally and strategically. It may be argued that to achieve the full benefits from risk management techniques, that these areas be combined within an organization's structure.

Risk management perspectives and terminology

A number of different approaches to risk management are discussed in this book. The approaches will vary according to the general requirements of the stakeholders that they are applicable to.

For example, the main goal of risk management in financial institutions will generally be to protect depositor funds. This is a regulatory requirement of local and international banking authorities. In this case, the risks associated with areas such as the institution's reputation, which effect shareholder rather than depositor funds, may not necessarily be included in their primary risk management goals.

Another perspective of risk management may be seen in the area of occupational health and safety. In this area, the primary objective may be one of protecting personnel rather than finding an optimum level of risk management. This may result in a safety management rather than risk management perspective.

In a general organizational risk management perspective, the goal of risk management is usually to minimize the overall costs associated with losses while maintaining the lowest cost of risk management.

The various approaches to risk management do however have a number of elements in common. Although the terminology in some approaches can differ, the overall approaches usually include a process similar to the following:

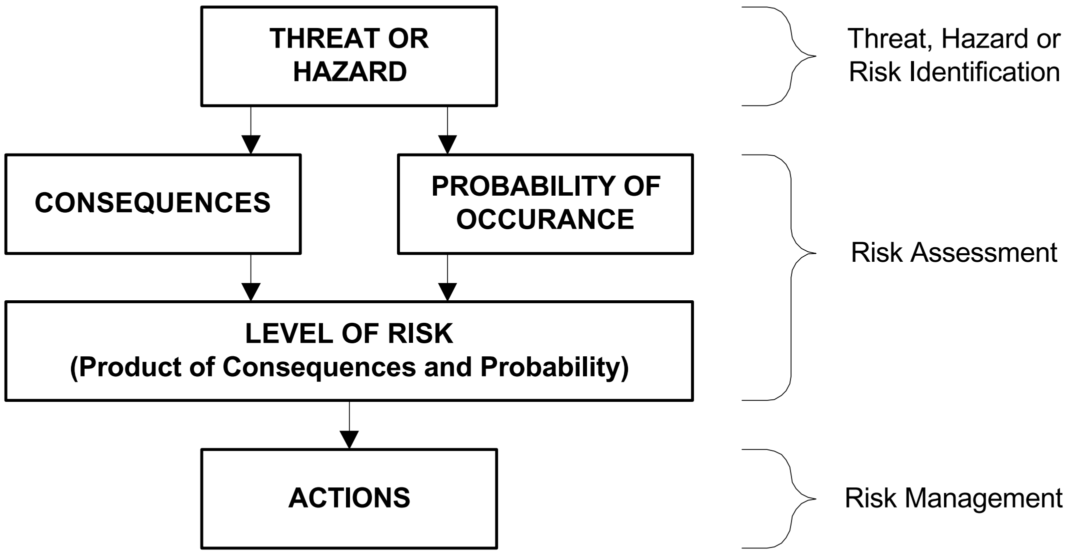

Figure 1.1 **General risk management process.**

In the above general process, the threats, or hazards, are first identified. These are the incidents that an organization needs to be protected against. Therefore, as an early step in a risk management process, these threats or hazards need to be identified. Some fields of risk management may also refer to these accidents or incidents as risks.

The next step in a risk management process is usually referred to as the risk assessment phase. In this, the consequences of an incident and the probability of it occurring are determined. The consequences may be referred to in qualitative terms such as low or high or may be expressed in quantitative terms such as possible level of financial loss. The probability of an incident occurring may also be expressed qualitatively or quantitatively. A qualitative measure of probability may be expressed in terms of likely or unlikely whereas a quantitative measure may be expressed as the expected number of incidents per annum.

From the consequences and probabilities, a level of risk may be determined for each threat or hazard. This is usually the product of the consequences and probability measures.

Finally, actions are carried out to reduce the level of risk in areas where it is unacceptable. This is sometimes referred to as the risk management phase, but the entire process is often termed this as well.

The above is a very basic risk management process and is included in a number of various risk management methodologies. The different methodologies will usually add elements of supervision, monitoring and review to various degrees and may recommend specific processes to be carried out in the risk assessment phase.

The main perspective that this book focuses on is the methodologies that may enable organizations to determine the optimum level of risk that they should be taking to maximize their profitability.