Chapter 5: Risk analysis

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INTRODUCTION

In managerial decision making, managers do not know the exact outcome of each possible course of action. For example, the return on long-run investment depends upon the economic conditions in the future, the degree of future competition, consumer's taste, technological advances, the political climate, and many other such factors about which firms have imperfect knowledge. In such cases, we say that the faces 'risk' or 'uncertainty'. Most strategic decisions of the firm are of this type.

CONCEPT OF RISK AND UNCERTAINTY

Risk

Risk is defined as the chance of loss despite the fact that all possible outcomes and their probability of occurrence are known. According to Dominick Salvatore, "Risk refers to a situation in which there is more than one possible outcome to a decision and the possibility of each specific outcome is known or can be estimated."

Uncertainty

Uncertainty is defined as the situation when outcomes of managerial decisions cannot be predicted with absolute accuracy. According to Dominick Salvatore, "Uncertainty is the case when there is more than one possible outcome to a decision and where the probability of each specific outcome occurring is not known."

Causes of Risk and Uncertainty

The causes of risk and uncertainty are as follows:

- It is simply not possible to predict consumer behavior or change in production technology with complete accuracy.
- Probability of each outcome occurring is unknown.
- There is no way to estimate potential demand for new probability.
- Economic environment is uncertain.
- Many individuals are risk averter and like to avoid risk.

Types of Risk

Risk can be divided into different categories, which are as follows:

1. General Risks

i. Business risk

ii. Market risk

iii. Inflation risk

iv. Interest rate risk

v. Credit risk

vi. Liquidity risk

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2. Special Risks

i. Cultural risk

ii. Currency risk

iii. Government policy risk

iv. Expropriation risk

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Possible Risk Attitudes

There are three possibilities towards risk: aversion to risk, indifference to risk, and preference for risk.

- Risk seeking characterizes decision makers who prefer risk.
- Risk averter selects the less risky investment.
- Risk seeker selects the risker investment.

Utility Theory and Risk Aversion

Most managers prefer less risky project. However, some managers may choose risky project and some managers are indifference to risk. The reason for this is to be found in the principal of diminishing marginal, utility of money. The utility theory and risk aversion show the relationship between money income and its utility. On the basis of this relationship, we can find manager's preference. The soul of risk aversion is the main idea of diminishing marginal utility of money. The concept diminishing, constant and increasing marginal utility of money can be explained with the help of Figure

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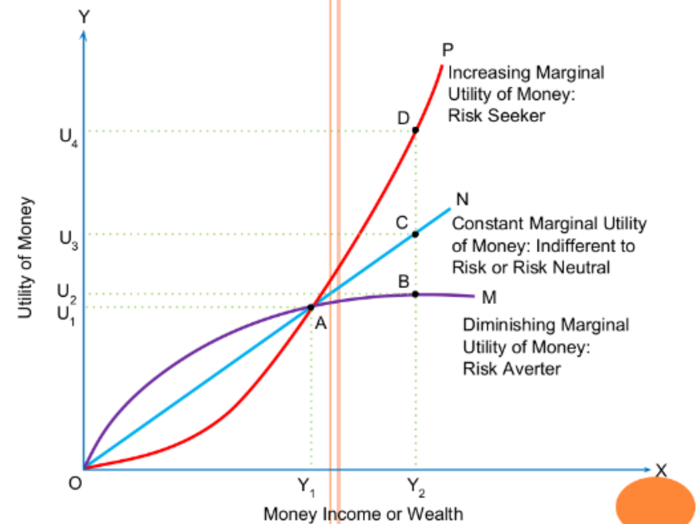
Figure 5-1: Marginal Utility of Money



Utility Theory and Risk Aversion *cont.*

From the figure, it is clear that

- If the person is risk averter, the utility curve of money will be concave or face downward, i.e. like OM curve.
- If the person is risk neural, marginal utility of money curve is straight line, i.e. line ON curve.
- If the person is risk seeker, the marginal utility of money curve will be convex or will face upward, i.e. like OP curve.

INFORMATION AND RISK

Asymmetric Information

Asymmetric information is the case which occurs when one party in an economic transaction (i.e., the buyer or seller of a product or service) has less information than the other party with regard to quality of a product or service. It is also known as the information failure. This asymmetry creates imbalance of power in transaction, which creates market failure.

The problem of adverse selection that arises from asymmetric information can be overcome or reduced by the acquisition of more information by the party lacking it.

Adverse Selection

Adverse selection is the case where sellers have information that buyers do not have, or vice-versa about the aspect of product quality. The problem of adverse selection arises not only in the market for used cars but also in any market characterised by asymmetric information, such as the market for individual health insurance.

The problem of adverse selection arises in the market for any type of insurance, i.e. for accidents, fire, floods, and so on. In each case, only higher-risk individuals buy insurance and this forces insurance companies to raise their premiums.

Signaling

Signaling is the case in which one party of transaction reliably conveys some information about itself to another party. This concept is concerned with the idea of asymmetric information, which says that in some economic transactions, difference in access to information upset the normal market for the exchange of goods and services. The best way is to convey information about quality to a buyer, which

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would be rational for low quality seller. This is known as signaling in economics. This reduces risk to both buyers and sellers.

Moral Hazard

Moral hazard is the case in which one party gets involved in a risky event knowing that it is protected against the risk and other party will incur the cost. In other words, it refers to the increase in the probability of an illness, fire, or other accident when an individual is insured than he/she is not. This problem arises when both parties have incomplete knowledge or information about each other.

If the problem of moral hazard is not reduced or some how contained, it could lead to unacceptably high insurance rates and costs and this defeat the very reason for insurance. One method by which insurance companies try to overcome the problem of moral hazard is by specifying the precaution that an individual or firm must take as a condition for buying insurance.

The Principal-Agent Problem

The principal-agent problem is the case where the owners of the firm want to maximise total profits or the present value of the firm where as the managers or agents of the firm want to maximize their own personal interest, such as their salaries, tenure, influence, and reputation. The main cause of principal-agent problem is the separation of ownership from control in the modern corporation from control in the modern corporations. The principal-agent problem which occurs due to the conflicting interest between managers (agents) and owners of the firm or business (principals) can be overcome by providing managers with voluntary retirement schemes.

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