CHAPTER 2

THEORETICAL ASPECT OF RISK ANALYSES

2.1 Evaluating and Managing the Risks You Face :-

Almost everything we do in today's business world involves a risk of some kind: customer habits change, new competitors appear, factors outside your control could delay your project. But formal risk analysis and risk management can help you to assess these risks and decide what actions to take to minimize disruptions to your plans. They will also help you to decide whether the strategies you could use to control risk are cost-effective.

definition of risk is:.

Financial risk is often defined as the unexpected variability or volatility of returns, and thus includes both potential worse than expected as well as better than expected returns. That is to say positive effect of risk and negative effect of risk on the business. If the effect is positive that is beneficial to the business and if the risk is negative that will be worse for the business.

□ statistics, risk refers to the probability of some event which is seen as undesirable. Usually the probability of that event and some assessment of its expected harm must be combined into a believable scenario (an outcome) which combines the set of risk, regret and reward probabilities into an expected value for that outcome.

In case of information security a "risk" is defined as a function of three variables:

1. the probability that there's a threat

2. the probability that there are any vulnerabilities

3. the potential impact.

2.2 Historical background of Risk

Scenario analysis(is a process of analyzing possible future events by considering alternative possible outcomes) matured during Cold War confrontations between major powers, notably the USA and USSR. It became widespread in insurance circles in the 1970s when major oil tanker disasters forced a more comprehensive foresight.[*citation needed*] The scientific approach to risk entered finance in the 1980s when financial derivatives proliferated. It reached general professions in the 1990s when the power of personal computing allowed for wide spread data collection and numbers crunching.

Definitions of risk

There are many more and less precise definitions of risk, they depend on specific applications and situational contexts. It can be assessed qualitatively or quantitatively.

Qualitatively, risk is considered proportional to the expected losses which can be caused by an event and to the probability of this event. The harsher the loss and the more likely the event, the greater the overall risk. Frequently in the subject matter literature, risk is defined in pseudo-formal forms where the components of the definition are vague and ill defined, for example, *risk* is considered as an indicator of threat, or depends uncertainty.

2 .3 RISK IN BUSINESS

In business we find two kinds of risks incidental and inherent risks.

Incidental risks:- are those which occur naturally in the business, but are not part of the core of the business.

Inherent risks :- have a negative effect on the operating profit of the business.

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2.3.1 FINANCIAL RISK

In finance, risk is the probability that an investment's actual return will be different than expected. This includes the possibility of losing some or all of the original investment. It is usually measured by calculating the standard deviation of the historical returns or average returns of a specific investment.]

In finance "risk" has no one definition, but some theorists, notably Ron Dembo, have defined quite general methods to assess risk as an expected after-the-fact level of regret. Such methods have been uniquely successful in limiting interest rate risk in financial markets. Financial markets are considered to be a proving ground for general methods of risk assessment.

"A fundamental idea in finance is the relationship between risk and return. The greater the amount of risk that an investor is willing to take on, the greater the potential return. The reason for this is that investors need to be compensated for taking on additional risk".

"For example, a US Treasury bond is considered to be one of the safest investments and, when compared to a corporate bond, provides a lower rate of return. The reason for this is that a corporation is much more likely to go bankrupt than the U.S. government. Because the risk of investing in a corporate bond is higher, investors are offered a higher rate of return".

The rapidly changing , increasingly complex global economy has created an expanding areas of risks to be managed if the viability and success of an enterprise are to be ensured.

The challenges and demands of contemporary markets. Customers, Regulatory authorities, employees and shareholders present organizations with an Interesting paradox. It is intelligent assumption of risk, not its avoidance that creates value in a company. This environment has caused a basic shift in the paradigm of risk management practice and has placed greater emphasis on the successful identification quantification, mitigation, control and financing of risk.

2.4 Definition of Risk:-

Risk is a difficult concept to define. Most definitions focus upon the negative consequences of risk assumption. But a risk manager is one who creates opportunities in an uncertain situation. It is impossible for an individual or an organization to avoid risk. All choices decisions and activities, even decisions not to act, contain risk. The challenge is to carefully select the risks that are assumed, quantify them properly and to ensure that the rewards attendant with the assumption of risk are greater than the potential for loss.

Meaning of Risk:-

Uncertainty about a situation can often indicate *risk*, which is the possibility of loss, damage, or any other undesirable event. Most people desire low risk, which would translate to a high probability of success, profit, or some form of gain.

> ***Risk* is the possibility of loss, damage, or any other undesirable event.**

For example, if sales for next month are above a certain amount (a desirable event), then orders will reduce the inventory, and there will be a delay in shipping orders (an undesirable event). If a shipping delay means losing orders, then that possibility presents a risk. The more you know about the potential risks, the better you can deal with them

2.5 MEANIING OF RISK ANALYSES:

is the science of risks and their probability and evaluation. It is a technique to identify and assess factors that may jeopardize the success of a project or achieving a goal. This technique also helps to define preventive measures to reduce the probability of these factors from occurring and identify countermeasures to successfully deal with these constraints when they develop to avert possible negative portfolio management problem.

A risk analysis involves identifying the most probable threats to an organization and analyzing the related vulnerabilities of the organization to these threats

Risk analysis is broadly defined to include risk assessment, risk characterization, risk communication, risk management, and policy relating to risk. Our interests include risks to human health and the environment, both built and natural. We consider threats from physical, chemical, and biological agents and from a variety of human activities as well as natural events. We analyze risks of concern to individuals, to public and private sector organizations, and to society at various geographic scales. Our membership is multidisciplinary and international.

there are two points to keep in mind when analyzing risk:

1. Where is the risk?

2.How significant is the risk?

2.6 CONTENTS OF RISK ANALYSES

Risk Assessment

involves identifying sources of potential harm, assessing the likelihood that harm will occur and the consequences if harm does occur.

Risk Management

evaluates which risk identified in the risk assessment process require management and implements the plans or actions that required to ensure that those risks are controlled.

Risk Communication

involves an interactive dialogue between stakeholders and risk assessors and risk managers which actively informs the other processes.

Risk analyses = Risk Assessment + Risk Management + Risk Communication

Risk analysis is a technique to identify and assess factors that may jeopardize the success of a project or achieving a goal. This technique also helps define preventive measures to reduce the probability of these factors from occurring and identify countermeasures to successfully deal with these constraints when they develop to avert possible negative effects on the competitiveness of the company

2.6.1 Risk Management

Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources.

The strategies include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk.

. Financial risk management focuses on risks that can be managed using traded financial instruments.

Objective of risk management is to reduce different risks related to a pre-selected domain to the level accepted by organisation. It may refer to numerous types of threats caused by environment, technology, humans, organizations and politics.

In ideal risk management, a prioritization process is followed whereby the risks with the greatest loss and the greatest probability of occurring are handled first, and risks with lower probability of occurrence and lower loss are handled in descending order. In practice the process can be very difficult, and balancing between risks with a high probability of occurrence but lower loss versus a risk with high loss but lower probability of occurrence can often be mishandled.

Intangible risk management identifies a new type of risk - a risk that has a 100% probability of occurring but is ignored by the organization due to a lack of identification ability. For example, when deficient knowledge is applied to a situation, a knowledge risk materializes. Relationship risk appears when ineffective collaboration occurs. Process-engagement risk may be an issue when ineffective operational procedures are applied. These risks directly reduce the productivity of knowledge workers, decrease cost effectiveness, profitability, service, quality, reputation, brand value, and earnings quality. Intangible risk management allows risk management to create immediate value from the identification and reduction of risks that reduce productivity.

Steps in the risk management process

Establish the context

Establishing the context involves

1. Identification of risk in a selected domain of interest

2. Planning the remainder of the process.

3. Mapping out the following: the social scope of risk management, the identity and objectives of stakeholders, and the basis upon which risks will be evaluated, constraints.

4. Defining a framework for the activity and an agenda for identification.

5. Developing an analysis of risks involved in the process.

6. Mitigation of risks using available technological, human and organizational resources.

identify potential risks.

After establishing the context, the next step in the process of managing risk is to identify potential risks. Identifying the risks means finding out the events which cause problems. The process of risk identification starts with the source of problems, or with the problem itself.

Source analysis Risk may come from internal soruce or external source to the system that is the target of risk management. Examples of risk sources are: stakeholders of a project, employees of a company or the weather over an airport.

Problem analysis Risks are related to identified threats. For example: the threat of losing money, the threat of abuse of privacy information or the threat of accidents and casualties. The threats may exist with various entities, most important with shareholders, customers and legislative bodies such as the government.

When either source or problem is known, the events that a source may trigger or the events that can lead to a problem can be investigated. For example: stakeholders withdrawing during a project may endanger funding of the project;

The chosen method of identifying risks may depend on culture, industry practice and compliance. The identification methods are formed by templates or the development of templates for identifying source, problem or event.

Common risk identification methods

Objectives-based risk identification Organizations and project teams have objectives. Any event that may endanger achieving an objective partly or completely is identified as risk.

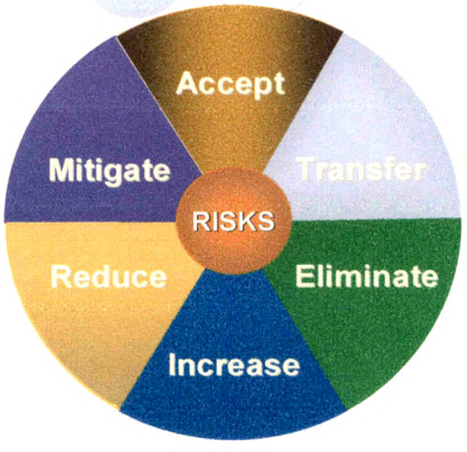
Scenario-based risk identification In scenario analysis different scenarios are created. The scenarios may be the alternative ways to achieve an objective, or an analysis of the interaction of forces in, for example, a market or battle. Any event that triggers an undesired scenario alternative is identified as risk

Taxonomy-based risk identification The taxonomy in taxonomy-based risk identification is a breakdown of possible risk sources. Based on the taxonomy and knowledge of best practices, a questionnaire is compiled. The answers to the questions reveal risks.

Common-risk Checking In several industries lists with known risks are available. Each risk in the list can be checked for application to a particular situation.

Risk Charting This method combines the above approaches by listing Resources at risk, Threats to those resources Modifying Factors which may increase or reduce the risk and Consequences it is wished to avoid. Creating a matrix under these headings enables a variety of approaches. One can begin with resources and consider the threats they are exposed to and the consequences of each. Alternatively one can start with the threats and examine which resources they would affect, or one can begin with the consequences and determine which combination of threats and resources would be involved to bring them about

Risk Management Options



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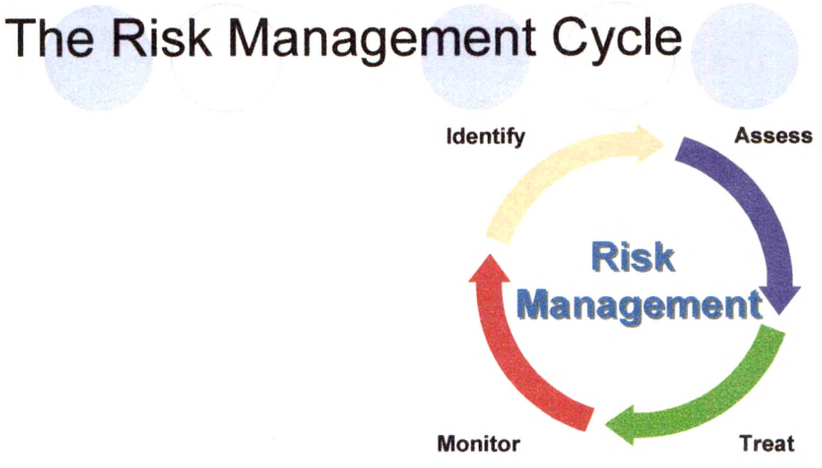
Accept Risk: Maintain status quo and accept the inherent risks

Transfer Risk: For example, from one business unit to another or from one business area to a third party (i.e., insurer)

Eliminate Risk: Through the dissolution of a key business unit or operating area

Increase Risk: Increase exposure to achieve anticipated higher returns

The Risk Management Cycle



- Identification of "Material Risks"
- Assessing the Risk levels based on current operating practices
- Appropriate Treatment of the identified and assessed Risks
- Monitoring the risks

2.6.2 Assessment of Risk

Once risks have been identified, they must then be assessed as to their potential severity of loss and to the probability of occurrence. These quantities can be either simple to measure, in the case of the value of a lost building, or impossible to know for sure in the case of the probability of an unlikely event occurring. Therefore, in the assessment process it is critical to make the best educated guesses possible in order to properly prioritize the implementation of the risk management plan.

•A risk assessment involves evaluating existing physical and environmental security and controls, and assessing their adequacy relative to the potential threats of the organization.

The fundamental difficulty in risk assessment is determining the rate of occurrence since statistical information is not available on all kinds of past incidents. Furthermore, evaluating the severity of the consequences (impact) is often quite difficult for immaterial assets. Asset valuation is another question that needs to be addressed. Thus, best educated opinions and available statistics are the primary sources of information. Nevertheless, risk assessment should produce

such information for the management of the organization that the primary risks are easy to understand and that the risk management decisions may be prioritized. Thus, there have been several theories and attempts to quantify risks. Numerous different risk formulae exist, but perhaps the most widely accepted formula for risk quantification is:

Rate of occurrence multiplied by the impact of the event equals risk

Later research has shown that the financial benefits of risk management are less dependent on the formula used but are more dependent on the frequency and how risk assessment is performed.

2.6.3 Potential Risk Treatments

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories which are known as 4 T's of risk management

Tolerate (retention)

Treat (mitigation)

Terminate (elimination)

Transfer (buying insurance)

Risk avoidance

Includes not performing an activity that could carry risk. An example would be not buying a property or business in order to not take on the liability that comes with it. Another would be not flying in order to not take the risk that the airplane were to be hijacked. Avoidance may seem the answer to all risks, but avoiding risks also means losing out on the potential gain that accepting (retaining) the risk may have allowed. Not entering a business to avoid the risk of loss also avoids the possibility of earning profits.

Risk reduction

Involves methods that reduce the severity of the loss. Examples include sprinklers designed to put out a fire to reduce the risk of loss by fire. This method may cause a greater loss by water damage and therefore may not be suitable. Fire suppression systems may mitigate that risk, but the cost may be prohibitive as a strategy.

Risk retention

Involves accepting the loss when it occurs. True self insurance falls in this category. Risk retention is a viable strategy for small risks where the cost of insuring against the risk would be greater over time than the total losses sustained.

All risks that are not avoided or transferred are retained by default. This includes risks that are so large that they either cannot be insured against or the premiums would be infeasible.. Also any amounts of potential loss (risk) over the amount insured is retained risk. This may also be acceptable if the chance of a very large loss is small or if the cost to insure for greater coverage amounts is so great it would hinder the goals of the organization too much.

Risk transfer

Means causing another party to accept the risk, typically by contract or by hedging. Insurance is one type of risk transfer that uses contracts. Other times it may involve contract language that transfers a risk to another party without the payment of an insurance premium. Liability among construction or other contractors is very often transferred this way. On the other hand, taking offsetting positions in derivatives is typically how firms use hedging to financially manage risk.

Some ways of managing risk fall into multiple categories. Risk retention pools are technically retaining the risk for the group, but spreading it over the whole group involves transfer among individual members of the group. This is different from traditional insurance, in that no premium is exchanged between members of the group up front, but instead losses are assessed to all members of the group.

Create a risk mitigation plan

Select appropriate controls or countermeasures to measure each risk. Risk mitigation needs to be approved by the appropriate level of management. For example, a risk concerning the image of the organization should have top management decision behind it whereas IT management would have the authority to decide on computer virus risks.

Implementation

Follow all of the planned methods for mitigating the effect of the risks. Purchase insurance policies for the risks that have been decided to be transferred to an insurer, avoid all risks that can be avoided without sacrificing the entity's goals, reduce others, and retain the rest.

Review and evaluation of the plan

Initial risk management plans will never be perfect. Practice, experience, and actual loss results will necessitate changes in the plan and contribute information to allow possible different decisions to be made in dealing with the risks being faced.

Risk analysis results and management plans should be updated periodically. There are two primary reasons for this:

1. To evaluate whether the previously selected security controls are still applicable and effective, and

2. To evaluate the possible risk level changes in the business environment. For example, information risks are a good example of rapidly changing business environment.

Limitations of assessment

1. loss of time:- If risks are improperly assessed and prioritized, time can be wasted in dealing with risk of losses that are not likely to occur.
2. Diversion of risks :- Spending too much time assessing and managing unlikely risks can divert resources that could be used more profitably.
3. Risks are unlikely to occur:- Unlikely events do occur but if the risk is unlikely enough to occur it may be better to simply retain the risk and deal with the result if the loss does in fact occur.

Prioritizing too highly the *risk management processes* could keep an organization from ever completing a project or even getting started. This is especially true if other work is suspended until the risk management process is considered complete.

Areas of risk management

As applied to corporate finance, risk management is the technique for measuring, monitoring and controlling the financial or operational risk on a firm's balance sheet.

The framework breaks risks into 3 types and also specifies methods for calculating capital requirements for each of these components.

market risk :- Which refers to the risk arising the price level and other market factors

credit risk :- risk arising out of credit transactions of the business.

operational risk:- which is relating to the operational activities of the enterprises which is also known as Enterprise risk management In enterprise risk management, a risk is defined as a possible event or circumstance that can have negative influences on the Enterprise in question. Its impact can be on the very existence, the resources (human and capital), the products and services, or the customers of the enterprise, as well as external impacts on society, markets, or the

Risk management and business continuity:-

Risk management is simply a practice of systematically selecting cost effective approaches for minimizing the effect of threat relating on to the organization. All risks can never be fully avoided or mitigated simply because of financial and practical limitations. Therefore all organizations have to accept some level of residual risks.

Whereas risk management tends to be pre-emptive, business continuity planning (BCP) was invented to deal with the consequences of realized residual risks. The necessity to have BCP in place arises because even very unlikely events will occur if given enough time. Risk management and BCP are often mistakenly seen as rivals or overlapping practices. In fact these processes are so tightly tied together that such separation seems artificial. For example, the risk management process creates important inputs for the BCP (assets, impact assessments, cost estimates etc). Risk management also proposes applicable controls for the observed risks. Therefore, risk management covers several areas that are vital for the BCP process. However, the BCP process goes beyond risk management's pre-emptive approach and moves on from the assumption that the disaster will realize at some point.

2.6.4 Risk Communication

The National Research Council (NRC) defines risk communication as "an interactive process of exchange of information and opinion among individuals, groups, and institutions." The definition includes "discussion about risk types and levels and about methods for managing risks." Specifically, this process is defined by levels of involvement in decisions, actions, or policies aimed at managing or controlling health or environmental risks.

2.6 RISK ANALYSIS PROCESS

The risk analysis process provides the foundation for the entire recovery planning effort.Regardless of the prevention techniques employed, possible threats that could arise inside or outside the organization need to be assessed. Although the exact nature of potential disasters or their resulting consequences are difficult to determine, it is beneficial to perform a comprehensive risk assessment of all threats that can realistically occur to the organization. Regardless of the type of threat, the goals of business recovery planning are to ensure the safety of customers, employees and other personnel during and following a disaster.
The relative probability of a disaster occurring should be determined. Items to consider in determining the probability of a specific disaster should include, but

not be limited to: geographic location, topography of the area, proximity to major sources of power, bodies of water and airports, degree of accessibility to facilities within the organization, history of local utility companies in providing uninterrupted services, history of the area's susceptibility to natural threats, proximity to major highways which transport hazardous waste and combustible products.

Potential exposures may be classified as natural, technical, or human threats. Examples include:

Natural Threats: internal flooding, external flooding, internal fire, external fire, seismic activity, high winds, snow and ice storms, volcanic eruption, tornado, hurricane, epidemic, tidal wave, typhoon.

Technical Threats: power failure/fluctuation, heating, ventilation or air conditioning failure, malfunction or failure of CPU, failure of system software, failure of application software, telecommunications failure, gas leaks, communications failure, nuclear fallout.

Human Threats: robbery, bomb threats, embezzlement, extortion, burglary, vandalism, terrorism, civil disorder, chemical spill, sabotage, explosion, war, biological contamination, radiation contamination, hazardous waste, vehicle

crash, airport proximity, work stoppage (Internal/External), computer crime.

All locations and facilities should be included in the risk analysis. Rather than attempting to determine exact probabilities of each disaster, a general relational rating system of high, medium and low can be used initially to identify the probability of the threat occurring.

The risk analysis also should determine the impact of each type of potential threat on various functions or departments within the organization. The planning process should identify and measure the likelihood of all potential risks and the impact on the organization if that threat occurred. To do this, each department should be analyzed separately.

2.7.1 The process of Risk Analysis Includes:-

1. Identify Threats:

The first stage of a risk analysis is to identify threats facing you. Threats may be:

Human ,Operational , Reputational Procedural Project Financial Technical

Natural - threats from weather, natural disaster, accident, disease, etc.Others. This analysis of threat is important because it is so easy to overlook important threats.

2. Estimate Risk:

Once you have identified the threats you face, the next step is to work out the likelihood of the threat being realized and to assess its impact.

One approach to this is to make your best estimate of the probability of the event occurring, and to multiply this by the amount it will cost you to set things right if it happens. This gives you a value for the risk.

3. Managing Risk:

Once you have worked out the value of risks you face, you can start to look at ways of managing them. When you are doing this, it is important to choose cost effective approaches - in most cases, there is no point in spending more to eliminating a risk than the cost of the event if it occurs. Often, it may be better to accept the risk than to use excessive resources to eliminate it.

2.7.2 Risk may be managed in a number of ways:

1.By using existing assets:

Here existing resources can be used to counter risk. This may involve improvements to existing methods and systems, changes in responsibilities, improvements to accountability and internal controls, etc.

2. By contingency planning:

You may decide to accept a risk, but choose to develop a plan to minimize its effects if it happens. A good contingency plan will allow you to take action immediately, with the minimum of project control if you find yourself in a crisis management situation. Contingency plans also form a key part of Business Continuity Planning (BCP) or Business Continuity management (BCM).

3. By investing in new resources:

Your risk analysis should give you the basis for deciding whether to bring in additional resources to counter the risk. This can also include insuring the risk: Here you pay someone else to carry part of the risk - this is particularly important where the risk is so great as to threaten your or your organization's solvency.

4. Reviews:

Once you have carried out a risk analysis and management exercise, it may be worth carrying out regular reviews. These might involve formal reviews of the risk analysis, or may involve testing systems and plans appropriately.

2.8 BENEFITS OF THE RISK ANALYSES:

Following are some benefits that we get from the Risk Analyses-

1) Perception of risk can be better defined.
2) Options, trade-offs, their effect on the project and their interactions can be defined.
3) They provide a consistence view of the problem situation because of systematization of thought.
4) Action taken-inside as well as outside the organization can be communicated in a better manner and thus it improves the credibility of plans.
5) While dealing with risk impact appropriate mixture of approaches is required. This requires a more proactive management.
6) In order to take advantages of opportunities better means are identified.
7) Risks that occur very often – reactions to these situations lead to better contingency planning.
8) When ways of prevailing or avoiding risks are found out, it provides a feedback into the designing and planning process.
9) Responsible selection and contingency planning in a sort of feed forward into the construction and operation of projects for mitigating the impact of risks.

10) Project exposure to risks can be reduced and the experience provides insight, knowledge and confidence for better decision-making.

11. Risk analysis forms the basis for risk management and crisis prevention.

2.9 TYPES OF RISKS:

1) Market Risk:

Market risk arises due to changes in demand and supply pressures in the markets. This is followed by changing flow of information or expectations. According to another observation market financial risk of uncertainty in the future market values of a portfolio of assets and/or liability.

2) Interest Rate Risk:

Interest Rate Risk refers to the uncertainty of future income caused by fluctuation in the general level of interest rates.

The interest rates depend upon nature of instruments, equity shares bonds debentures, loan etc. They also depends upon maturity periods and creditworthiness of the issuers the individual or the corporation.

3) Purchasing Power Risk:

Purchasing Power risk arises due to the impact of inflation or deflation on an investment. It is the situation arising out of inflation, the cost of production increases, the profit margin decreases, wages rise, hence the returns expected by investors change in terms of real returns. Input prices rise, because prices of raw materials rise, wages also rise and thus the cost rise. This is how inflation takes shape, till economic situation changes for good. Purchasing power risk is covered in the situations, inflation as well as deflation.

4) Business Risk:

Business risk is a forecast the assumptions of expected trend of income in the future. The factors that lead to variability in the future profits of business are sales, income etc. which depend upon some aspects such as market conditions of the product mix, input supplies, strength of the competition etc.

5) Financial Risk:

Financial Risk is associated with the method with which the activities of corporation are financed. The method of financing adopted by corporation arises out of problems related to liquidity, or debt servicing. Short term liquidity problems may arise due to bad debts or delayed receivables and fall in current assets or rise in current liability.

Financial risk can be estimated by reviewing the capital structure of corporation. Debt in the capital structure leads to fixed payment in the form of interests which has to be incurred at any cost. A Zero debt corporation does not face any financial risk.

6) Credit Risk:

Credit risk is risk resulting from uncertainty in a counter party's ability or willingness to meet its contractual obligations. This could be explained through an example in the following manner.

A corporation executes an interest rate swap with counterparty. If the interest rates move in favor of the corporation the counterparty will have to pay the corporation a net obligation. In such an obligation the counterparty may fail to perform such an obligation, the corporation faces a pre settlement credit risk.

7) Political Risk:

Political risk is the risk of change in the regime. It may changes the economic politicians of a country. Political risk refers to changes in value that arise due to political actions. Changes in tax laws in a country may benefit some corporations in the at country or they may affect some other corporation in the same country. Thus political risk exists for national as well as international corporations.

8) Technology Risk:

Technology risk is associated with bringing of new technology product to market and introducing new technology and information technology products as well as new technology systems are high risk ventures.

9) Program and Project Risk:

This risk is associated with the failure of a major project or programs and projects has now-a-days increased because the growth of many corporations takes place step-wise now. The risk has increased because of this type of an arrangement.

10) Liquidity Risk:

It means the ability of the firm to meet its obligations as and when they become due. Liquidity can be observed by having a reasonable percentage of current assets which include cash in hand, cash at bank, bills receivable and debtors, rate of turnover, credit standing, and money market conditions.

2.10 TECHNIQUES OF MEASUREMENT OF RISK

1. Risk Adjusted Discount Rate (RADR)

Risk adjustment is the real issue in the determination of the cut off rate for projects. When the discount rate is calculated after adjustment for risk, it is called risk adjusted discount rate popularly known as RADR.

Formula

$$RADR = Rf + Rp$$

Rf= Risk free rate

Rp= Risk Premium

This RADR can be calculated with the help of adjusted WACC approach.

According to this approach cost of capital can be taken as the basis and different risk premium can be adjusted in it for finding the risk adjusted discount rate.

Equation:

$$RADR = WACC + Rp$$

2. Break Even Point

It is a point at which company's profit is equal to its cost, means no profit and no loss.The BEP is calculated and compared with achievable capacity utilization. The difference indicates the safety margin.

3. Sensitivity Analysis

Sensitivity Analysis is the study of the key assumptions or calculations on which a management decision is based in order to predict alternatives outcomes of that decision if different assumptions are adopted. It is a "*what if*" technique that measure how the expected values in a decision model will be affected by changes in the data. Sensitivity analysis is a modeling procedure used in forecasting whereby changes are made in the estimates of the variables to establish whether any will critically affect the outcome of the forecast. It is a study to determine the responsiveness of the conclusions of an analysis to change or errors in parameter values used in the analysis, seeks to test the responsiveness of outcomes from decision models to different input values and constraints as a basis for appraising the relative risk of alternative courses of action.

2.11 Government Policies and Sugar Industry in India

Sugar is a controlled commodity in India. It is covered under the purview of the Essential Commodities Act, 1955. The government controls sugar capacity additions through industrial licensing, determines the price of the major input which sugarcane, decides the quantity that can be sold in the open market, fixes the prices of the levy quota sugar, etc.

The sugar Industry is also controlled by Sugarcane (Control) Order, 1966 or SCO, 1966, the Levy Sugar Supply Order 1979, plus the other relevant acts of the State Governments.

Government control over all aspects of the production and sale of sugar extends to the level of wholesalers in the distribution chain. All sugar wholesalers need to obtain a license issued by the government before they can begin to operate. Also they should confirm to government notifications for the amount of inventories they can maintain.

The government policies for the sugar industry are broadly classified in the following section for the better understanding.

Licensing policies : Till recently sugar is used to be amongst the 9 industries under licensing provision. The major criterion for issuing new licenses were as follows

New sugar factories should have minimum economic capacity of 2500 tcd with no maximum limit on capacity. However in industrially backward areas, co-operative & public sector new units are allowed with an initial capacity of 1750 tcd subject to the condition that the units would expand their capacities to 2500 tcd within a period of 5 years of going into production.

New sugar factories are permitted subject to the minimum distance of 15

kilometers between the proposed new sugar factory and an existing / already licensed sugar factory.

Other things being equal, preference in licensing is given to proposals from the co-operative sector, public sector, private sector, etc. in that order.

The past policies have helped in planned development of sugar industry taking into account economic size and availability of sugarcane and simultaneously avoiding unhealthy competition. The mushrooming growth of co-operatives, whose performance is worsening of late, is also an offshoot of these policies.

Further, a large number of parties have obtained licenses during 1990s but are not implementing them due to several reasons, leading to a blocking of the entry of other interested parties. To tackle this problem, the government has reduced validity of Letter of Intent (L o I) from three years to one year.

The sugar industry is delicensed since August 1998 and any interested party/person is allowed to set up a sugar mill in the country provided they satisfy few conditions.

The new sugar factory is at a minimum distance of 15 kilometers from an existing / already licensed sugar factory.

No incentive will be provided and new units have to adhere to levy quota regulation from first year of operations.

Pricing of sugarcane: Government of India regulates & controls the rates of sugarcane supplied to the mills by farmers. The rates are fixed based on the Bhargava committee recommendations. The Statutory Minimum Price (SMP) announced by GOI year on year is used as a benchmark by the state governments to fix their State Advised Price (SAP). The SAP could be a recovery linked average or just a flat rate.

The Central Government announces the Statutory Minimum Price (SMP) for sugar cane at the beginning of each season. The SMP has been increased every year since 1988, and was fixed at Rs. 79.50 per quintal for the 2005-06 sugar year (SY). Over and above this, the State Governments announce State Advised Prices (SAPs) in respect of sugar cane supplied to mills within their boundaries which are generally substantially higher than the SMP.

The above said pricing procedure has been adopted so as to protect the farmers & ensure them a good price for cane. Also it reduces the impact of cane prices on the cost structure of different mills depending on their location.

But for the past few years, state governments have been using SAP as tool for wooing the vote bank of farmers, causing severe damage to the economics of the sugar industry. In few states, the difference between SMP and SAP has been substantial (20 to 25% above SMP) leading to a pressure on operating margins of

sugar mills. The SAP prices for a few states is as given in table below.

State	SY1996-97 Range of actual cane price paid Rs per quintal (100 kg)
Uttar Pradesh	**72.00 - 76.00**
Maharashtra	**56.00 - 78.00**
Tamil Nadu	**45.90 - 75.30**
Karnataka	**60.00 - 73.00**
Andhra Pradesh	**50.00 - 63.00**
Gujarat	**45.90 - 64.80**
Haryana	**76.00 - 80.00**
Punjab	**76.00 - 80.00**
Bihar	**71.00 - 75.00**

Sugar pricing and distribution : Government enforces a dual pricing policy for the sugar industry. Presently 40% of the production is sold at a fixed price to the

government which is used for PDS and other market operations.

• The Government follows a policy of partial control on sugar distribution under a two-tiered pricing system since 1967. The first tier applies to `levy sugar™ and sugar mills have to supply quotas to the Food Corporation of India (FCI) at prices fixed by State Governments. The remaining domestic supplies plus imported sugar are sold at Free Sale Prices (FSP). The ratio of LSP to FSP is currently fixed by the government at 10%: 90%.

The new & expanded sugar plants are exempted from the levy quota for a period of five to eight years which makes the new sugar units more profitable. But mills under levy are free to sell the remaining 90 % of sugar (as 10% is supplied to government) in the open market at the market determined price.

The government controls supply of sugar in the open market through monthly sugar release notifications based on market conditions and thus influencing the open market prices to a great extent.

Though, the incentive scheme has achieved the objective of attracting more players, due to better margin than existing players, the returns for older units reduces substantially due to low increase in levy prices for controlling fiscal deficits. However new units face the problem of procuring sugarcane from the farmers and some times end up paying a premium to SAP.

Import Export Policy: Sugar exports were governed by the Sugar Export Promotion Act, 1958, which stipulates that the Government can use 20 per cent of the country's total production for sale abroad.

Till a very recent past imports and exports were routed through Indian Sugar and General Industry Export Import Corporation Limited (ISGIEC), a consortium of apex organizations of private and co-operative sugar mills and government agencies. The imports and exports are mainly resorted to when there is mismatch in domestic sugar production. The government decanalised exports in 1997 allowing private parties to export sugar. The government has also put sugar imports on Open General License (OGL) allowing private parties to import sugar.

The Government has placed imports of sugar under Open General License (OGL) since 1994. The imported sugar has been subjected to a customs duty of 20% from January 1999, so as to provide a level playing field to the domestic industry, which supplies sugar at levy prices to GOI, for PDS supply.

Excise and taxes : Some of the state governments impose purchase cess on the sugarcane purchases made by the sugar mills, which varies from state to state. The states of Assam, Nagaland, Rajasthan, Orissa, West Bengal & Goa which produce small quantities of cane, however, do not levy cess on the sugarcane purchases. Annexure 3 gives a brief account of the duty structure in major sugarcane producing states.

The GOI charges a higher excise duty on free sale sugar in comparison to levy quota, so as to recover the subsidy provided for PDS supply. In addition, under the Sugar Cess Act 1982, a cess is charged to sugar sold in the domestic market, which directly goes to Sugar Development Fund (SDF).

Currently the government levies an excise duty of Rs380 per ton on levy sugar and Rs710 per ton on free sale sugar. In addition Rs140 per ton is levied as cess for domestic sale of sugar.

Control on by-products : The center has recently handed over power to the state governments to control movement of molasses. The state governments used to control pricing of molasses and bagasse. In last few years, these controls are dispensed with. The molasses based alcohol however continues to be under the licensing provisions

GOVERNMENT POLICY OF DECONTROL :-

The present policy of decontrol 10% of production by each unit is supplied for public distribution system as levy sugar at Govt. notified prices admittedly below 20% of the actual cost of production. The levy sugar is to the public irrespective of their economic status. The balance 90% is sold in the free market against monthly release mechanism issued by the Government. This policy has

been continuing since 1967-68 except for brief periods of de-control during the years of surplus production and accumulated sugar stocks. Government announces the Statutory Minimum price (SMP) for sugarcane every year based on recommendations of the Commission for Agricultural Cost & Prices (CACP).

2.12 CONCLUSION

The risk analysis process is an important aspect of business recovery planning. The probability of a threat occurring in an organization is highly uncertain. Organizations should also develop written, comprehensive business recovery plans that address all the critical operations and functions of the business. The plan should include documented and tested procedures, which, if followed, will ensure the ongoing availability of critical resources and continuity of operations. A business recovery plan, however, is similar to liability insurance. It provides a certain level of comfort in knowing that if a major catastrophe occurs, it will not result in financial disaster for the organization.

IIIrd CHAPTER THE PROFILE OF PROMOTING COMPANY