**AFM**

**UNIT-3**

**Risk analysis in Capital Budgeting**

**Risk**

**Risk** refers to the possibility that the actual financial performance of an investment or a business activity will be different from the expected outcomes.

 Risk involves uncertainty about the effects/implications of an activity with respect to something that humans value (such as health, well-being, wealth, property or the environment), often focusing on negative, undesirable consequences.

**Types of Risk**

In finance, risk is multifaceted and can be categorized into several types, each with unique characteristics and implications. Here are the main types of financial risk:

1. **Market Risk**: This type of risk arises from fluctuations in market prices.
   * **Equity Risk**: The risk of changes in stock prices.
   * **Interest Rate Risk**: The risk of interest rate fluctuations affecting the value of investments, particularly bonds.
   * **Currency Risk (Foreign Exchange Risk)**: The risk of exchange rate movements impacting the value of foreign investments.
   * **Commodity Risk**: The risk of changes in commodity prices (e.g., oil, gold) affecting investment values.
2. **Credit Risk**: The risk that a borrower will default on their obligations, leading to financial loss for the lender. It can be further divided into:
   * **Default Risk**: The risk that a borrower will be unable to make the required payments.
   * **Credit Spread Risk**: The risk that the spread between interest rates for different borrowers will change unfavourably.
3. **Liquidity Risk**: The risk that an entity will not be able to meet its short-term financial obligations due to the inability to quickly convert assets into cash without significant loss in value.
   * **Asset Liquidity Risk**: The risk that an asset cannot be sold without a significant price reduction.
   * **Funding Liquidity Risk**: The risk that a firm will not be able to meet its financial commitments when due.
4. **Operational Risk**: The risk of loss resulting from inadequate or failed internal processes, people, systems, or external events.
   * **Process Risk**: Failures or inefficiencies in business processes.
   * **People Risk**: Losses caused by human error, fraud, or other human factors.
   * **System Risk**: Failures in information technology and systems.
   * **External Events**: Natural disasters, cyber attacks, and other external disruptions.
5. **Reputational Risk**: The risk of damage to an organization's reputation, which can lead to loss of customers, revenue, and overall market value.
6. **Business Risk**: The risk associated with the specific industry or environment in which a company operates, including changes in demand, competition, and regulatory conditions.
7. **Systemic Risk**: The risk of collapse of an entire financial system or market due to the interconnectedness of financial institutions, which can lead to widespread financial instability.
8. **Regulatory Risk**: The risk of changes in laws and regulations affecting business operations, potentially leading to increased costs, legal penalties, or restrictions on business activities.
9. **Country Risk (Political Risk)**: The risk associated with investing in a particular country, including political instability, economic volatility, and changes in the business environment.
   * **Political Risk**: Risk of government actions that could affect the business environment, such as expropriation or changes in tax policy.
   * **Economic Risk**: Risk of economic instability, such as recession, inflation, or currency devaluation.
10. **Model Risk**: The risk of inaccuracy or failure in financial models used for decision-making, which can lead to incorrect risk assessments and financial losses.
11. **Legal Risk**: The risk of financial loss due to legal actions, non-compliance with regulations, or contractual disputes.
12. **Strategic Risk**: The risk of adverse business decisions, improper implementation of decisions, or lack of responsiveness to industry changes.

**Risk and Uncertainty**

Risk and uncertainty are concepts used in finance, economics, and decision-making to describe situations where the outcomes of decisions or events are not known in advance. However, they have distinct meanings and implications:

**Risk**

Risk refers to situations where the probabilities of different outcomes are known or can be estimated. It involves measurable uncertainty. In other words, you can assign a likelihood to each potential outcome based on historical data, models, or other information. Because these probabilities are known, risk can often be quantified and managed using various strategies and tools.

* **Example**: Investing in the stock market involves risk. Historical data can provide probabilities for potential returns or losses over a given period. Financial instruments such as options or diversification can be used to manage or mitigate these risks.
* **Management**: Risk can be managed through techniques like diversification, insurance, hedging, and the use of financial derivatives.

**Uncertainty**

Uncertainty, on the other hand, refers to situations where the probabilities of outcomes are unknown or cannot be reliably estimated. It involves immeasurable or non-quantifiable uncertainty. This lack of information makes it difficult to predict future events or outcomes, making planning and decision-making more challenging.

* **Example**: Launching a completely new and innovative product in the market involves uncertainty. There might be no historical data or similar products to gauge the potential success or failure, making it hard to predict customer acceptance or market dynamics.
* **Management**: Managing uncertainty often involves qualitative approaches such as scenario analysis, expert judgment, flexibility in decision-making, and adaptive strategies to respond to unforeseen events.

**Techniques of measuring risk**

1. Risk adjusted discount rate
2. Certainty equivalent Approach
3. Probability Approach
4. Standard Deviation
5. Sensitivity Analysis
6. Decision Tree Analysis