Chapter 18: Risk Management

Definition and Classification of Risks

1. Definition of Risks
    a. Risk: the effect of uncertain future events on a company or on the outcomes the company achieves.
    b. Assessing risk requires the analysis of events that can have both positive or negative effects.
2. Classification of Risks
    a. Operational Risk: refers to losses arising from inadequate or failed people, systems, internal procedures and policies, and external events that affect a company's operations.
    b. Compliance Risk: refers to risk arising from a company failing to follow applicable laws, rules, and regulations.
    c. Investment Risk: refers to risk associated with investing resulting from fluctuations in the value of investments.

The Risk Management Process

1. Definition of Risk Management
    a. Risk Management: an interactive process used by organizations to support the identification and management of risk and reduce the changes and effects of adverse events while enhancing the realisation of opportunities and the ability to achieve company objectives.
    b. Risk Management strategies are defined by members of organizations at the level of the board. However, all shareholders and stakeholders have interest in risk management, and all employees are responsible for risk management. Improper risk management can damage profitability, reputation, market stability, and investor confidence and trust.

2. Steps in the Risk Management Process
    a. Set Objectives
        i. Much of a company's high level strategy is dependent upon events that have uncertainty. Thus, proper risk management is essential in achieving the goals of long-term strategy.
        ii. Risk Tolerance: the level of risk that a company is able and willing to take on. This is driven by a company's financial health, earning, cash flows, and equity.
        iii. Risk Appetite: the level of risk that a company is willing to take on.
    b. Detect and Identify Events
        i. It is essential for companies to have a well defined and effective framework for identifying risks, prepare for adverse effects, and reduce their effects. It is impossible to predict all possible events, and so it is important that a company attempt to identify and prepare for as many risks as possible.
    c. Assess and Prioritise Risk
        i. Risks should be assessed by their likelihood and the severity of their outcomes. Risks with higher likelihood and severity should be of greater focus. It is useful

to create measurements by which risks can be analyzed. These are referred to as 'key risk measures.'

d. Select a Risk Response
    i. Companies should design responses to risks in ways that are in accordance with their risk tolerance. There are a variety of responses that can be used, including tolerating, treating, transferring, and terminating.
    ii. Internal Risk Limits: standards set to guide companies' actions in accordance with their strategy and risk tolerance. These can include restriction of activities or limiting exposure to specific assets.
e. Control and Monitor
    i. Enterprise Risk Management (ERM): assists companies in managing all of their risks together in an integrated way rather than managing each risk separately. This is advantageous, as it aligns risk management activities with strategy at the highest level.
    ii. Risks should be controlled and monitored through processes that are iterative, analytical, structured, and effective.

3. Risk Management Functions
    a. Most financial institutions have designated risk management roles. The Chief Risk Officer is a C-Suite executive that oversees risk and reports directly to the Board.
    b. Companies often use a Three-Lines-of-Defence Risk Management Model. The first layer of defence is composed of employees and managers, who manage risk as part of their job functions. The next layer consists of Risk Management and Compliance divisions. Lastly, there is Internal Audit, which is typically an independent division.

4. Benefits and Costs of Risk Management
    a. Benefits of Risk Management:
        i. Supporting strategic and business planning
        ii. Incorporating risk considerations in all business decisions to ensure that the company's risk profile is aligned with its risk tolerance
        iii. Limiting the amount of risk a company takes, preventing excessive risk taking and potential related losses, and lowering the likelihood of bankruptcy
        iv. Bringing greater discipline to the company's operations, which leads to more effective business processes, better controls, and a more efficient allocation of capital
        v. Recognising responsibility and accountability
        vi. Improving performance assessment and making sure that the compensation system is consistent with the company's risk tolerance
        vii. Enhancing the flow of information within the company, which results in better communication, increased transparency, and improved awareness and understanding of risk
        viii. Assisting with the early detection of unlawful and fraudulent activities, thus complementing compliance procedures and audit testing

    b. The costs of establishing risk management systems include tangible costs, such as hiring dedicated risk management personnel, putting in place procedures, and investing in systems, and intangible costs, such as slower decision making and missed opportunities.

Operational Risk

1. Managing People
    a. Occupational Fraud: when an employee abuses their position for personal gain by misappropriating a company's assets or resources.
    b. Rogue Trading: when traders bypass management controls and place unauthorized trades, which can be done for personal enrichment or to make up losses.
    c. It is a useful practice to incorporate risk into compensation, rewarding investment professionals who achieve returns without excessive risk taking. This can be done proportionally, or by design compensation to include deferred compensation or claw-backs.
2. Managing Systems
    a. Technology presents operational risk in a variety of ways. Technical failures, hacking/data-breaches, insufficient technical personnel and resources, and compliance failure all cause operational risk.
3. Complying with Internal Policies and Procedures
    a. The functions of positions should be clearly defined and well understood. Key functions should be separated in ways that reduce operational risk.
4. Managing the Environment
    a. Political Risk: inherent to all countries are political variables that can affect financial institutions and the values of investments. These include monetary and fiscal policy, investment incentives, public investments, etc...
    b. Legal Risk: risk that an external party will sue the company for breach of contract or other kinds of violations. It is essential that a firm have a legal division that reviews and approves all contracts. The most important contracts can be reviewed and approved at the level of the Board.
    c. Settlement Risk: also known as counterparty risk, is the risk that a counterparty fails to fulfill their contractual obligations. This often occurs in the case of bankruptcy.

Compliance Risk

1. Introduction
    a. Compliance Risk: the risk that a company fails to comply with all applicable rules, laws, and legislation. This takes into account both legal and internal compliance.
2. Framework for Legal and Regulatory Compliance
    a. All firms must abide by statutory laws imposed by regulatory bodies. These include governments, agencies, stock exchanges, industry associations, and international agreements. The Basel Accords are international laws that dictate capital, liquidity, and leverage requirements of financial institutions.
    b. Failure to comply with regulation can result in fines, lawsuits, stripping of licenses, and even prison sentences. Most often, the greatest consequences are loss of reputation and loss of existing and potential business opportunities.

3. Example of Key Compliance Risks
    a. Corruption: the abuse of power for private gain. Tightening of laws and regulation regarding investigations, fines, and prosecutions have brought this to the forefront. Of particular importance is bribery.
    b. Tax Reporting: firms generally want to minimize tax burden, and they can do so through tax evasion or tax avoidance. Tax avoidance can be achieved through loopholes, the use of tax havens, or other grey areas. Tax evasion is outright illegal.
    c. Insider Trading: defined as trading a security when in possession of material information that is not public. Regulation regarding insider trading has tightened in recent years. It is important to establish division of activities and information in order to mitigate risk.
    d. Anti-Money-Laundering: legislation that aims to prevent money derived from criminal activities from entering the financial system and acquiring the appearance of being from legitimate sources. Financial institutions and professionals are required to perform due diligence to ensure the legitimacy of business associates, these are mandated through what are called know-your-customer laws.

Investment Risk

1. Introduction
    a. Market Risk: risk caused by changes in market conditions affecting prices
    b. Credit Risk: risk caused by the possibility of a borrower failing to fulfill a contractual obligation regarding payment of principal and interest of borrowed capital
    c. Liquidity Risk: risk caused by the degree of liquidity of assets, specifically regarding the effect on price that selling quickly causes.
2. Market Risk
    a. Market risk is caused by elements of market conditions including the market, ask, and bid prices of securities, interest rates, exchange rates, and investor sentiment.
    b. Risk Budgeting: a method of managing investment risk that involves quantifying total acceptable risk, budgeting it across divisions or managers, making investments in accordance with these requirements, and then monitoring performance.
3. Credit Risk
    a. Credit risk should be assessed taking into account both a borrower's ability and willingness to pay. The expected loss credit exposure is a function of the amount lent, the probability of default, and the value of the loss if default were to occur.
    b. Credit risk can be mitigated through requiring borrowers to post collateral. It is better for collateral to be a liquid and valuable asset.
    c. Assessment of creditworthiness should be done by using multiple sources of information and through internal analysis.
    d. Strategies to mitigate credit risk include setting limits on credit risk exposure, requiring collateral and imposing covenants in contracts, and transferring risk by using derivative instruments.
    e. Sovereign Risk: the risk that a government will not repay its debt due to either inability or unwillingness to do so.

4. Liquidity Risk
    a. Liquidity risk arises from an inability to buy and sell assets quickly without incurring losses.

Value at Risk

1. Use and Advantages of VaR
    a. Value at Risk is a measurement of risk that describes the probability and magnitude of the minimum expected loss of an investment. It is useful for the following reasons:
        i. It is a standard metric that can be applied across different investments, portfolios, business units, companies, and markets.
        ii. It is relatively easy to calculate and well understood by senior managers and directors.
        iii. It is a useful tool for risk budgeting if there is a central process for allocating capital across business units according to risk.
        iv. It is widely used and mandated for use by some regulators.
2. Weakness of VaR
    a. The main weakness of VaR is that it tends to underestimate the frequency of magnitude of losses. The magnitude portion arises from the fact that VaR is only designed to estimate the lowest possible loss.
    b. VaR assumes that returns are normally distributed and are predicted based on historical data. These assumptions can be invalid during times of economic turmoil.