# CPA BEC - STUDY UNIT 10
# Risk Management and Profitability: Core Concepts

## A. Types of Risk

1. **Risk** is the possibility of an unfavorable event. **Investment risk** is analyzed in terms of the probability that the actual return will be lower than the expected return. The risk of a security may be considered individually or as part of a portfolio.

## B. Risk Measurement

1. A **probability distribution** is the set of all possible outcomes of a decision, with a probability assigned to each outcome. The **expected rate of return** on an investment is determined using an expected value calculation. The greater the **standard deviation** of the expected return, the riskier the investment. Investment decisions depend on risk, the risks and returns of alternatives, and the investor's attitude toward risk.
2. Risk and return should be evaluated for an entire **portfolio**. Its expected return is the weighted average of the returns on individual securities. The **diversification effect** is that portfolio risk is less than the average of the standard deviations. The returns are imperfectly correlated. The **correlation coefficient (r)** has a range from 1.0 to –1.0. It measures the degree to which any two variables, e.g., two stocks in a portfolio, are related. The **covariance** measures the volatility of returns together with their correlation with the returns of other securities.

## C. Portfolio Management

1. A feasible portfolio that offers the highest expected return for a given risk or the least risk for a given expected return is an **efficient portfolio**. A portfolio that is selected from the efficient set of portfolios because it is tangent to the investor's highest indifference curve is the **optimal portfolio**.
2. The investment should be based on **expected net cash flows** and **cash flow uncertainty evaluations**. **Firm-specific risk** or **unsystematic risk** is associated with its operations. This risk can be largely eliminated by proper diversification. The **relevant risk of an individual security** in a portfolio is its contribution to overall risk. The risk of an individual security that is unaffected by diversification is **market** or **systematic risk**. It is measured by the **beta coefficient**.

## D. Derivative Financial Instruments

1. A **derivative** is an investment in which the buyer purchases the right to a potential gain with a commitment for a potential loss. The purpose is to speculate or to hedge. It is an executory contract that results in cash flow between two **counterparties** based on the change in some other indicator of value.
2. **Options and futures** are derivatives. They are contracts by parties who agree to buy or sell assets at a specified price in the future. A **call option** gives the owner the right to purchase the underlying asset at a fixed price. The profit is the difference between the price paid and the value at the closing date, minus the brokerage fee. A **put option** gives the owner the right to sell the underlying asset for a fixed price. Options are valued using mathematical models.

3. A **futures contract** is a specific **forward contract**, which is simply an executory contract. The parties agree to the terms of a purchase and sale, but performance is deferred. A futures contract is a definite agreement that allows a trader to purchase or sell an asset at a fixed price during a specific future month. A futures contract is traded in a liquid market that permits buyers and sellers to net out their positions, with prices **marked to market** every day. **Hedging** uses offsetting commitments to minimize the impact of adverse price movements.

**E Ratios**

1. **Financial ratios** establish relationships among financial statement accounts at a moment in time or for a given period. The firm's ratios may be compared with its historical data and projections. Ratios also may be compared with those for other firms or with industry averages. **Liquidity ratios** measure the relationship of a firm's liquid assets to current liabilities. **Leverage ratios** measure the firm's use of debt to finance assets and operations. **Asset management ratios** measure the firm's use of assets to generate revenue and income. **Cost management ratios** measure how well a firm controls its costs. **Profitability ratios** measure earnings relative to some base, for example, productive assets, sales, or capital. **Growth ratios** measure the changes in the economic status of a firm over a period of years. **Valuation ratios** are broad performance measures. They reflect the principle that management's goal is to maximize shareholder value reflected in the stock price.

**F. Limitations of Ratio Analysis**

1. **Inherent limitations** include the effects of inflation and seasonal factors, a firm's incentive to **window dress** financial statements, lack of comparability when different firms choose different accounting policies, and use of accounting estimates.