Unit 4. Portfolio Analysis

Learning Objectives

- Introduce the concept of portfolio
- Describe the objectives of portfolio returns
- Learn the concept of diversification in a portfolio
- Describe the Modern Portfolio Theory
- Understand the Fundamentals of Capital Market Theory
- Interpret the concept of Capital Market Line and Security Market Line
- Understand the Capital Asset Pricing Model with Assumptions
- Calculate the expected return based on CAPM
- Understand the difference between Capital Market Line and Security Market Line

What is a Portfolio

- Portfolio is combination of individual investments
- Consider Investment of Mr Nayan

Security	Stock A	Stock B	FD in Bank	Bonds C
Amount, Rs Lac	5	4	10	6

- It's portfolio of 4 securities with following allocation

Security	Stock A	Stock B	FD in Bank	Bonds C	Total
Amount, Rs Lac	5	4	10	6	25
Allocation	25%	16%	40%	24%	100%

Why Constructing a Portfolio

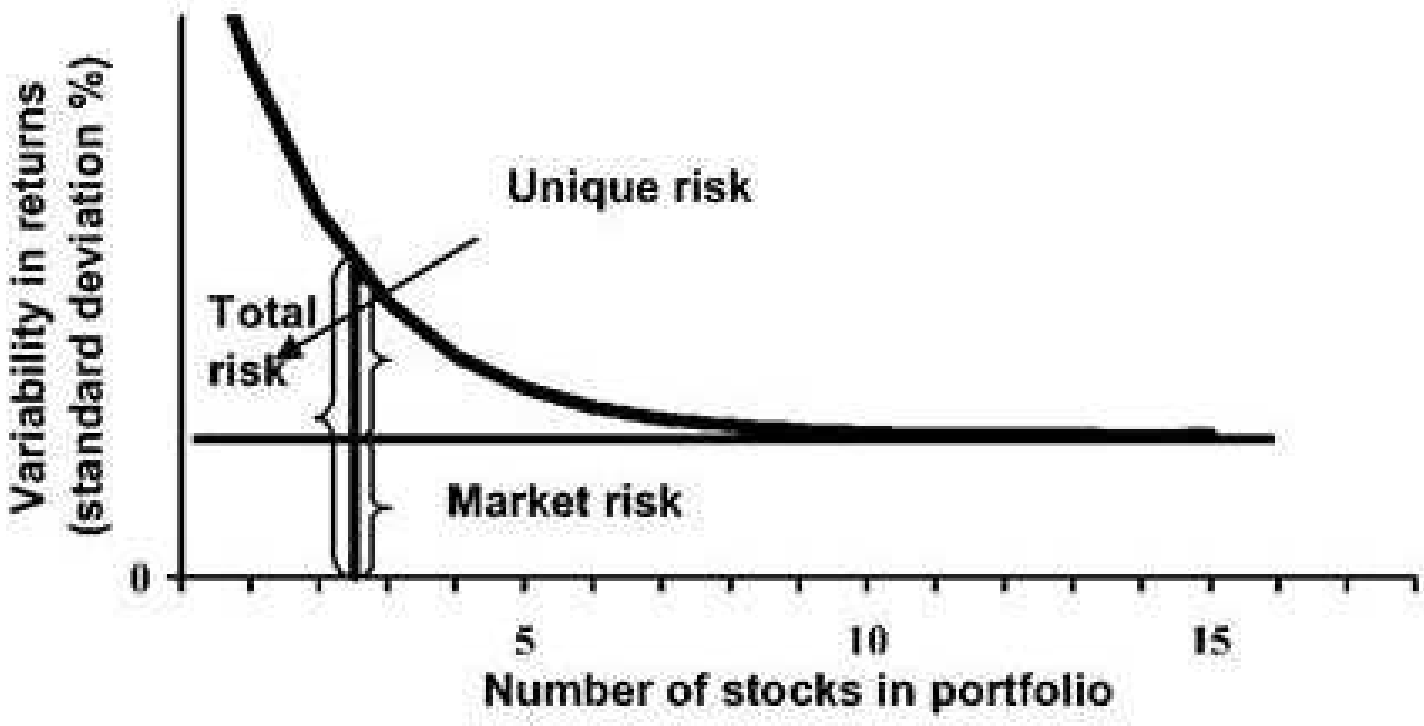
- “Do not put all the eggs in one basket” is the fundamental investment rationale
- Investment in single security is riskier than a portfolio
- A portfolio can be constructed where portfolio risk is lower than risk of sum of individual securities
- To reduce risk an investor construct a diversified portfolio of Asset constrains Equity, Bonds, Real Estate, Bullion etc

Objectives of Constructing Portfolio

- An investor can construct a portfolio to meet his financial objectives, these could be
  - **Capital Preservation**
  - **Capital Appreciation**
  - **Income**
  - **Combination of above**
- Portfolios effectively reduces risk through diversification

Portfolio and Diversification

- Diligently constructing a Portfolio reduces risk



Strategies to Diversification

- Primary strategies in **improving** diversification
- Spread the portfolio among multiple investment avenues or asset classes
  - For example Equity, Debt, Real Estate, Bullion, Cash
- Further diversification within the asset class
  - For Example with Equity – Large Cap, Mid Cap, Small Cap etc
- Selection of securities across industries & geographies
  - For Example stocks of companies with business in India, International etc

Why Diversification Reduces Risk

- Diversification reduces risk (this could reduce potential return too) because of different movement of securities
- Strength of relationship between two securities is measured by Coefficient of Correlation (ρ)

ρ Value (-1<ρ<+1)	+1	-1	+ Value	- Value	0
Relationship	Perfectly "+" Correlation	Perfectly "-" Correlation	Movement in same direction	Movement in opposite direction	No Correlation

Covariance

- In a portfolio there are at least two securities therefore study of covariance is important
- Co-Movement of returns of two assets is measured by Covariance
- $Cov_{12} = \rho_{12}\sigma_1\sigma_2$ (ρ_{12} Coefficient of Correlation, σ_1 & σ_2 Standard deviation)

Covariance	+ High	+ Low	- Low	-High
Benefits of Diversification	Very Little	Little	High	Very High

- Coefficient of Correlation $\rho_{12} = \frac{Cov_{12}}{\sigma_1\sigma_2}$

Portfolio Management - The Portfolio Management Process

- The portfolio management process is the process an investor takes to aid him in meeting his investment goals.

  The procedure is as follows:
- ***Create a Policy Statement*** -A policy statement is the statement that contains the investor's goals and constraints as it relates to his investments.
- ***Develop an Investment Strategy -*** This entails creating a strategy that combines the investor's goals and objectives with current financial market and economic conditions.
- ***Implement the Plan Created*** -This entails putting the investment strategy to work, investing in a portfolio thatmeets the client's goals and constraint requirements.
- ***Monitor and Update the Plan*** -Both markets and investors' needs change as time changes. As such, it is important to monitor for these changes as they occur and to update the plan toadjust for the changes that have occurred.

Policy Statement

A policy statement is the statement that contains the investor's goals and constraints as it relates to his investments. This could be considered to be the most important of all the steps in the portfolio management process. The statement requires the investor to consider his true financial needs, both in the short run and the long run. It helps to guide the investment portfolio manager in meeting the investor's needs. When there is market uncertainty or the investor's needs change, the policy statement will help to guide the investor in making the necessary adjustments the portfolio in a disciplined manner.

Expressing Investment Objectives in Terms of Risk and Return

Return objectives are important to determine. They help to focus an investor on meeting his financial goals and objectives. However, risk must be considered as well. An investor may require a high rate of return. A high rate of return is typically accompanied by a higher risk. Despite the need for a high return, an investor may be uncomfortable with the risk that is attached to that higher return portfolio. As such, it is important to consider not only return, but the risk of the investor in a policy statement.

Factors Affecting Risk Tolerance

- An investor's risk tolerance can be affected by many factors:
- ***Age***- an investor may have lower risk tolerance as they get older and financial constraints are more prevalent.
- ***Family situation*** - an investor may have higher income needs if they are supporting a child in college or an elderly relative.
- ***Wealth and income*** - an investor may have a greater ability to invest in a portfolio if he or she has existing wealth or high income.
- ***Psychological*** - an investor may simply have a lower tolerance for risk based on his personality.