NPTEL

Course Name: Security Analysis and Portfolio Management

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Session 27: Markowitz Optimal Portfolio Selection Model

1. How to select the securities for investment?

Portfolio Selection based on three fundamental characteristics:

- Diversification to avoid unsystematic risk
- Diversification should be on the correlation between the different securities
- The correlation should be negative

2. Explain Markowitz Theory of Optimal Portfolio Selection?
   Ans.

Markowitz Theory:

Markowitz portfolio selection model generates a frontier of efficient portfolios which are equally good. Different investors will estimate the efficient frontier differently. Does not address the issue of riskless borrowing or lending and element of uncertainty in application

- It is based on the risk and investor preference
- It discusses about the choosing the best option on the efficient frontier
- Optimal Portfolio: Higher Indifference curve Gives Higher level of utility. Selection of efficient portfolio in the efficient frontier is the point where efficient frontier is tangent to the indifference curve

Markowitz Portfolio Optimisation:

- The optimal portfolio of an investor would be one from the opportunity set that maximizes utility

Utility = Expected Return of the portfolio – Risk Penalty

$$\text{Risk Penalty} = \frac{\text{Variance of the portfolio}}{\text{Risk Tolerance}}$$

- Risk Tolerance varies between 0 to 100
- The size of the risk tolerance number reflects the investors willing ness to bear more risk for more return

3. How the nature of Indifference Curve will be different for Different types of investors?

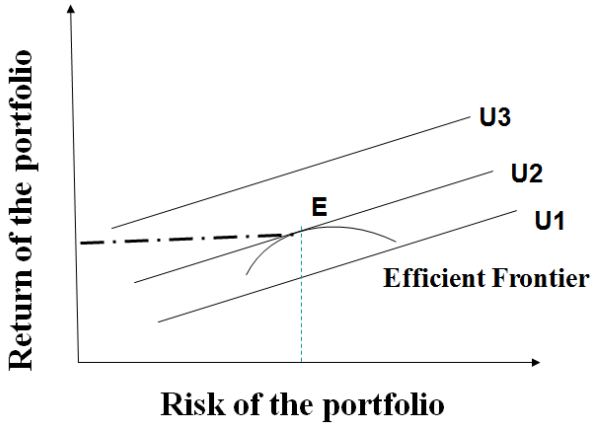
Ans:

Nature of Indifference Curve for Different Investors:

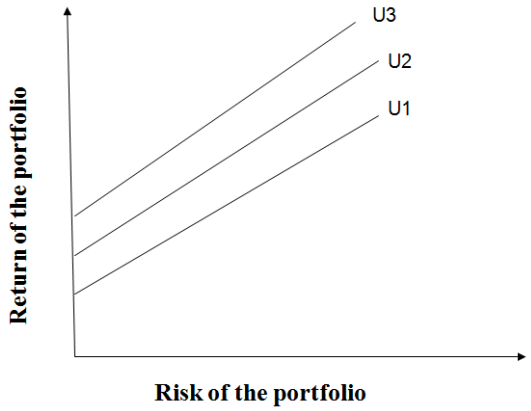
- The degree of slope associated with indifference curves will indicate the degree of risk aversion
- The indifference curves are assumed to be positive sloping for most rational investors
- For risk lovers indifference curves are negatively sloped and convex towards the origin

Nature of Indifference curve for different set of individual investors:

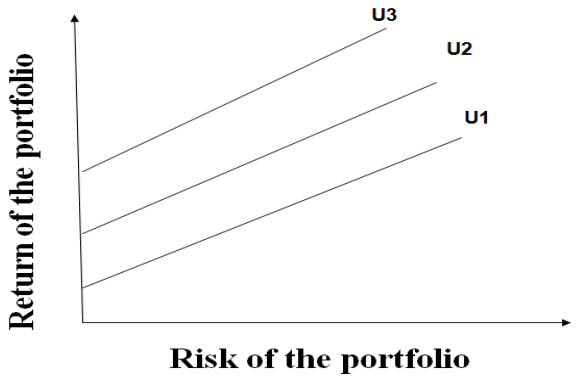
Efficient Map and Efficient Frontier for Hypothetical Investor



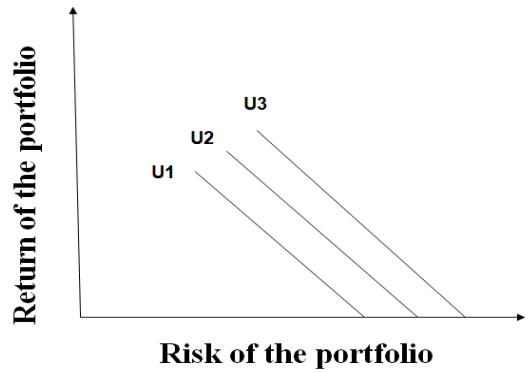
Risk Fearing Investor's Indifference Curves



Less Risk Fearing Investor's Indifference Curves



Risk Lover Indifference Curves



4. Why investment theory talks about an Optimal Portfolio?

Ans.

- Optimal Portfolio: Higher Indifference curve Gives Higher level of utility

  Portfolio in which the risk-reward combination is such that it yields the maximum returns (provides the highest utility) possible under the current and anticipated circumstances. Thus, an optimal portfolio is the portfolio that considers the investor's own greed and/or how risk averse he/she. Although Markowitz Theory of Optimal Portfolio is quantitative, Individual investor's optimal portfolio is subjective.