

**NPTEL**

**Course Name: Security Analysis and Portfolio Management**

**Department: VGSOM, IIT Kharagpur**

**Instructors: Dr. Chandra Sekhar Mishra & Dr. Jitendra Mahakud**

---

**Session 39: Equity Portfolio Performance**

1. Write short note on:
  - i. Sharpe Portfolio Performance Measure.

Sharpe Portfolio Performance Measure can be defined as Risk premium (Total Portfolio Return – Risk-free Rate) earned per unit of risk (quantified by the standard deviation of the portfolio). Sharpe ratio is a measure of the performance of the portfolio compared to the risk taken beyond the risk free rate of investment.

Sharpe Ratio = Total Portfolio Return – Risk-free Rate / Standard Deviation of Portfol

- ii. The Information Ratio Performance Measure.

$$S_i = \frac{\bar{R}_i - \overline{RFR}}{\sigma_i}$$

The Information Ratio Performance Measure is an Appraisal ratio. It measures average return in excess of benchmark portfolio divided by the standard deviation of this excess return

$$IR_j = \frac{\bar{R}_j - R_b}{\sigma_{ER}} = \frac{\overline{ER}_j}{\sigma_{ER}} = \frac{\alpha_j}{\sigma_U}$$

- iii. Jensen Portfolio Performance Measure.

Jensen's alpha developed by Michael C. Jensen, uses the capital asset pricing model (CAPM) to determine the amount of the return that is firm-specific over that which is due to market risk. Alpha is a coefficient that is proportional to the excess return of a portfolio over its required return, or its expected return, for its expected risk as measured by its beta.

Jensen's Alpha = Total Portfolio Return – Benchmark Portfolio Return  
= Total Portfolio Return - [Risk-Free Rate – Portfolio Beta x (Market Return – Risk-Free Rate)]

It helps to measure how much of the portfolio's rate of return is attributable to deliver above-average returns, adjusted for market risk. The higher the ratio, the better the risk-adjusted returns.

2. What are the Components of Investment Performance?

Ans:

Components of Investment Performance can be evaluated by assuming the investor has a target level of risk for the portfolio equal to  $\beta_T$ , the portion of overall performance due to risk can be assessed as follows:

$$\text{Risk} = \text{Manager's Risk} + \text{Investor's Risk}$$

$$[R_x(\beta_a) - RFR] = [R_x(\beta_a) - R_x(\beta_T)] + [R_x(\beta_T) - RFR]$$

3. What do you understand by Benchmark Portfolios and what are the characteristics of Benchmark Portfolios?

Ans:

- Benchmark Portfolios are Performance evaluation standard. Usually a passive index or portfolio Provide value weightings and provide constraint to portfolio manager. Investors may need benchmark for entire portfolio and separate benchmarks for segments to evaluate individual managers.
- Characteristics of Benchmarks Portfolios are: Unambiguous, Investable, Measurable, Appropriate, Reflective of current investment opinions and must be specified in advance.

4. What are the factors that affect use of Performance measures of an Equity Portfolio?

Ans: Major factors that affect use of Performance measures of an Equity Portfolio:

- Market portfolio is difficult to approximate
- Benchmark error can affect slope of SML, calculation of Beta with greater concern with global investing and one of measurement problem.
- Sharpe measure not as dependent on market portfolio