



Portfolio Evaluation



The Concept

- ❖ Portfolio manager evaluates his portfolio performance and identifies the sources of strength and weakness.
- ❖ The evaluation of the portfolio provides a feed back about the performance to evolve better management strategy.
- ❖ Evaluation of portfolio performance is considered to be the last stage of investment process.



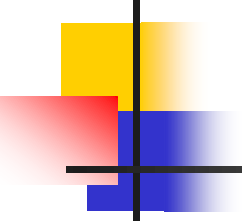
Sharpe's Performance Index

- ❖ Sharpe index measures the risk premium of the portfolio relative to the total amount of risk in the portfolio.
- ❖ Risk premium is the difference between the portfolio's average rate of return and the risk less rate of return.



Formula for Sharpe's Performance Index

$$S_t = \frac{R_p - R_f}{\sigma_p}$$

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- R_p – Portfolio's average rate of return
 - R_f – Riskless rate of return
 - σ_p - Standard deviation of the portfolio return
 - The larger the S_t , better the fund has performed



Treynor's Performance Index

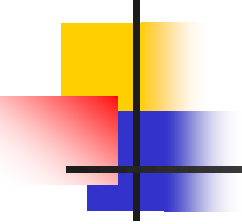
- ❖ The relationship between a given market return and the fund's return is given by the characteristic line.
- ❖ The fund's performance is measured in relation to the market performance.
- ❖ The ideal fund's return rises at a faster rate than the general market performance when the market is moving upwards.
- ❖ Its rate of return declines slowly than the market return, in the decline.



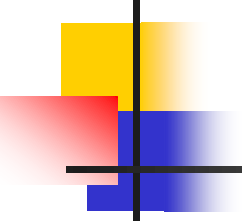
Treynor's Index Formula

$$R_p = \alpha + \beta R_m + e_p$$

- ❖ R_p = Portfolio return
- ❖ R_m = The market return or index return
- ❖ e_p = The error term or the residual
- ❖ α, β = Co-efficients to be estimated



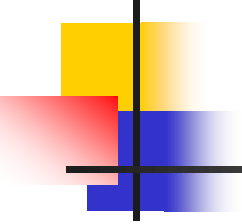
Beta co-efficient is treated as a measure of undiversifiable or systematic risk.



$$T_n = \frac{\text{Portfolio average return} - \text{Riskless rate of interest}}{\text{Beta co-efficient of portfolio}}$$



$$T_n = \frac{R_p - R_f}{\beta_p}$$

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- The larger the T_n , better the fund has performed
 - Larger T_n is more desirable because it earned more risk premium per unit of systematic risk .



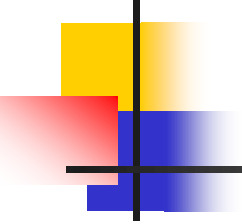
Jensen's Performance Index

- ❖ The absolute risk adjusted return measure was developed by Michael Jensen.
- ❖ It is mentioned as a measure of absolute performance because a definite standard is set and against that the performance is measured.
- ❖ The standard is based on the manager's predictive ability.



Jensen Model

- The basic model of Jensen is:
- $R_p = \alpha + \beta (R_m - R_f)$
 - R_p = average return of portfolio
 - R_f = riskless rate of interest
 - α = the intercept
 - β = a measure of systematic risk
 - R_m = average market return

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- ❖ α_p represents the forecasting ability of the manager. Then the equation becomes

$$R_p - R_f = \alpha_p + \beta(R_m - R_f)$$

or

$$R_p = \alpha_p + R_f + \beta(R_m - R_f)$$