NPTEL

Course Name: Security Analysis and Portfolio Management

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Session 40: Portfolio performance Evaluation-II

1. Write short note on Bond Market Line Evaluation.

Ans.

- Bond Market Line :a measure of risk such as beta coefficient for equities
- Difficult to achieve due to bond maturity and coupon effect on volatility of prices
- Composite risk measure is the bond's duration
- Duration replaces beta as risk measure in a bond market line
- The Bond Market Line differs from the SML in the selection of the measure of risk (duration v. beta) and the selection of a proxy for the market index

Bond Market Line Evaluation

- Policy effect: Difference in expected return due to portfolio duration target
- Interest rate anticipation effect: Differentiated returns from changing duration of the portfolio
- Analysis effect: Acquiring temporarily mispriced bonds
- Trading effect: Short-run changes

2. How to Analyze Sources of Return?

Ans.

Step- 1: Decomposing Portfolio Returns:

- Total return during a period is the income effect and a price change effect
- The yield-to-maturity (income) effect is the return an investor would receive if nothing had happened to the yield curve during the period
- Interest rate effect measures changes in the term structure of interest rates during the period
- The sector/quality effect measures expected impact on returns because of changing yield spreads between bonds in different sectors and ratings
- The residual effect is what is left after accounting for the first three factors
- A large positive residual would indicate superior selection capabilities
- Time-series plot demonstrates strengths and weaknesses of portfolio manager

Step-2: Analyzing Sources of Return:

- Total return (R) made up of the effect of the interest rate environment (I) and the contribution of the management process (C)

  $R = I + C$

- I is the expected rate of return (E) on a portfolio of default-free securities and the unexpected return (U) on the Treasury Index
  $I = E + U$

- C is composed of
  M = return from maturity management
  S = return from spread/quality management
  B = return attributable to the selection of specific securities

$$R = I + C$$
$$= (E + U) + (M + S + B)$$

3. How to undertake Portfolio Performance Evaluation of the Portfolio Manager?

Ans.

Portfolio Performance Evaluation of the Portfolio Manager can be broadly undertaken under the following aspects:

- Performance Attribution Analysis: Asset allocation Effect, Selection Effect
- Manager Universe Comparison: style
- Subjective Vs. Objective Comparison: Practical constraints
- Comparison with Existing Benchmark
- Choosing and Constructing the Benchmark: Objective and Strategy
- Multicurrency Investment: Currency risk management
- Balance Benchmark: Weighted average of all benchmarks

4. How to Compute Portfolio Returns?

Ans:

- To evaluate portfolio performance, it is essential to measure it
- Holding period yield, which equals the change in portfolio value plus income divided by beginning portfolio value:

$$\text{HPY} = \frac{(\text{Ending Value})}{\text{Beginning Value}} - 1$$

Computing Portfolio Returns:

- Dollar-weighted rate of return (DWRR): Internal rate of return on the portfolio's cash flows
- Time-weighted rate of return (TWRR): Geometric average return
- TWRR is better: Considers actual period by period portfolio returns, No size bias - inflows and outflows could affect results

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