When evaluating the **performance of a mutual fund manager**, several **quantitative and qualitative metrics** are used to determine how efficiently they generate returns relative to risk, benchmarks, and peers. Below is a detailed breakdown of the **key performance metrics**:

□ 1. Return-Based Metrics

a) Absolute Return

- The total percentage gain or loss over a period.
- **Formula:**
  $$\text{Absolute Return} = \frac{\text{(Ending Value – Beginning Value)}}{\text{Beginning Value}} \times 100$$
- Shows how much the fund has grown in nominal terms, but does **not consider risk or benchmark performance**.

---

b) Annualized Return (CAGR)

- Indicates the average rate of return per year over a period.
- **Formula:**
  $$\text{CAGR} = \left(\frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\frac{1}{n}} - 1$$
- Useful for comparing performance over different time frames.

---

c) Benchmark Comparison

- The fund manager's performance is compared to a **benchmark index** (e.g., Nifty 50, S&P BSE Sensex).
- **Alpha** (explained below) is derived from this comparison.

⚖️ 2. Risk-Adjusted Performance Metrics

a) Sharpe Ratio

- Measures **excess return per unit of total risk** (standard deviation).
- **Formula:**
  [
  \text{Sharpe Ratio} = \frac{R_p - R_f}{\sigma_p}
  ]
  where
  (R_p) = Portfolio return,
  (R_f) = Risk-free rate,
  (\sigma_p) = Standard deviation of portfolio returns.
- **Higher is better.** Indicates superior risk-adjusted performance.

---

b) Treynor Ratio

- Measures **excess return per unit of systematic risk (beta)**.
- **Formula:**
  [
  \text{Treynor Ratio} = \frac{R_p - R_f}{\beta_p}
  ]
- Useful when comparing **diversified portfolios**.

---

c) Jensen's Alpha

- Measures the **excess return over expected CAPM return**.
- **Formula:**
  [
  \alpha = R_p - [R_f + \beta_p (R_m - R_f)]
  ]
  where
  (R_m) = Market return.
- Positive alpha indicates **manager's superior stock-picking or market-timing ability**.

---

d) Information Ratio

- Measures active return relative to **tracking error**.
- **Formula:**
  [

\text{Information Ratio} = \frac{R_p - R_b}{\text{Tracking Error}}
]
where
(R_b) = Benchmark return.

- Evaluates **consistency of outperformance**.

---

e) Sortino Ratio

- Modification of Sharpe ratio that considers **only downside risk**.
- **Formula:**
  [
  \text{Sortino Ratio} = \frac{R_p - R_f}{\text{Downside Deviation}}
  ]
- Penalizes only harmful volatility, making it more realistic.

📉 3. Risk Metrics

a) Standard Deviation

- Measures **total volatility** of fund returns.
- Higher standard deviation = higher risk.

b) Beta

- Measures fund's **sensitivity to market movements**.
  - Beta > 1 → more volatile than market
  - Beta < 1 → less volatile than market

c) Tracking Error

- Measures **how closely the fund tracks its benchmark**.
- **Low tracking error** → fund mirrors benchmark closely.

💡 4. Performance Consistency Metrics

a) R-Squared

- Measures **how much of the fund's movement** is explained by the benchmark.

- Range: 0–100%.
  High R^2 (>85%) means fund moves closely with benchmark.

b) Upside/Downside Capture Ratio

- Indicates how the fund performs **in rising and falling markets**.
  - Upside capture > 100 → outperforms in bull markets
  - Downside capture < 100 → loses less in bear markets

👩‍💼 5. Qualitative Metrics

- **Investment philosophy & discipline** – Consistency with stated strategy.
- **Experience & stability** of fund manager/team.
- **Portfolio turnover ratio** – Higher turnover implies more trading and possibly higher costs.
- **Adherence to fund objectives** – Whether the manager sticks to stated risk-return profile.

📊 Summary Table

Category	Metric	Purpose
Return	Absolute Return, CAGR	Measure total/annualized returns
Risk-Adjusted	Sharpe, Treynor, Alpha, Sortino, Information Ratio	Measure efficiency of return vs. risk
Risk	Beta, Std. Deviation, Tracking Error	Assess volatility and benchmark deviation
Consistency	R^2, Capture Ratios	Evaluate reliability across market cycles
Qualitative	Philosophy, Experience, Turnover	Assess management quality & discipline

---

Would you like me to create a **visual chart or flow diagram** summarizing these metrics (e.g., "Mutual Fund Manager Performance Evaluation Framework")? It would be excellent for lecture slides or classroom display.