

Calculation Methodology & Assumptions

Methodology guide detailing the calculation standards for Mutual fund and SIF Factsheet metrics .

Important: The methodology below should be read together with the applicable scheme documents, regulatory requirements and the underlying calculation/reporting system. No proprietary calculation convention is inferred where it is not disclosed in the factsheet.

Parameters

Parameter	Calculation methodology / formula	Assumptions / source basis
Absolute Return	NAV Return (%) = ((ENAV - SNAV) / SNAV) × 100 SNAV = Starting NAV ENAV = Ending NAV	Performance return calculation from point to point for period less than or = 1 year
CAGR	NAV Return (%) = ((ENAV / SNAV) ^ (365 / DD)) - 1) × 100 Variables SNAV = Starting NAV ENAV = Ending NAV DD= Date difference between the selected From Date and To Date	Performance return calculation for period more than 1 year
Simple Annualized	NAV Return (%) = ((ENAV - SNAV) / SNAV) × (365 / No. of days) × 100	Performance return calculation under one year for Debt schemes
SIP Return	XIRR of dated cash flows The XIRR is the annualised rate of return r that satisfies the following equation: $\sum [CF_t / (1 + r)^{(Date_t - Date_0) / 365}] = 0$ CF _t : Individual Cash flows: SIP investments are treated as negative cash flows and the final investments value as a positive cash flow Date _t = Date of each respective cash flow . Date ₀ = Date of the first cash flow R= XIRR/Annualized Rate of return 365= Number of days used for annualization	Rs 10,000 invested on the 1st day of every month. - Frequency: Monthly - Dividend Option: Reinvestment
Standard Deviation	Standard Deviation should reflect for the Fund as well as the relevant benchmark – $s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$ where, - s = Standard Deviation - x is the return series $\bar{x}$ is the mean of the return series - N is the no of values Note: Standard Deviation of returns may be measured considering the data using the formula STDEV.S() in Microsoft Excel	Monthly returns; annualised; last 3 years.
Beta (Slope)	Covariance of NAV returns vs Index returns/ Variance of Index returns Further, for Beta, as Benchmark Total Return may not be easily available /calculated, price return is suggested to be used.	Scheme returns against benchmark returns.

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Sharpe Ratio	$(R_i - R_f) / \text{Std Dev of Fund returns}$ Where, R_i = Fund Return R_f = Risk free Return (TREPs) TREPs would serve as a more appropriate risk free rate instead of MIBOR as Mutual Funds deploy idle cash in TREPs	Risk-free rate = FIMMDA-NSE MIBOR as on last day of the month .
Portfolio Yield	Weighted Average valuation yield of the assets – Disclosure required only for Debt funds.	YTM is annualised.
Average Maturity	Weighted avg maturity of the assets	
Modified Duration	Macaulay Duration / (1 + Annualised Yield)	Factsheet defines it as price sensitivity / percentage price change for a unit change in yield.
Macaulay Duration	Macaulay Duration is a measure of the average time it takes to receive a bond's cash flows. It is calculated by summing up all the multiples of the present values of cash flows and corresponding time periods and then dividing the sum by the market bond price. It can be calculated using the following formula: $\text{Macaulay Duration} = \frac{\sum_{t=1}^n \text{PV}(\text{CF}_t) * t}{\text{Market Bond Price}} = \frac{\sum_{t=1}^n \frac{t * C}{(1+Y)^t} + \frac{n * M}{(1+Y)^t}}{\text{Market Bond Price}}$ Where: PV(CF_t) – Present value of cash flow (coupon) at period t t – Time period for each cash flow C – Periodic coupon payment n – Total number of periods to maturity M – the Bond's maturity value Y – Periodic yield	PV-weighted average term to maturity.
Portfolio Turnover	Calculation method: Lower of purchase or sale during the period/Average AUM for the period.	The period to be considered is last one year. TREPS/CBLO/Repo/FD/Margin FD/MFU/SLB are not considered for purchase and sale. Should include Fixed income securities and Equity derivatives
BER	Applicable Base Expense Ratio	Excludes brokerage/transaction costs and statutory levies including GST.
TER	Weighted Average i.e. Total Expense of the month / Average Asset / number of days in month * days in a year	Month-end annualised TER.
Portfolio Allocation	Security/industry exposure ÷ net assets × 100	Month-end portfolio; percentages to net assets.
Risk Free Return	Risk-free rate = FIMMDA-NSE MIBOR as on last day of the month .	

Tracking Error	Step 1: Obtain the NAV values and the TR Index values for each day of the total time period required Step 2: Calculate the percentage change in the NAV and TR Index for each day over its previous day Percentage change in the NAV = $\frac{\text{NAV as on day (t)} - \text{NAV as on day (t-1)}}{\text{NAV as on day (t-1)}}$ Step 3: Calculate the difference between the percentage change in the NAV and the percentage change in the TR Index for each day Step 4: Calculate the standard deviation of the difference obtained from day(1) to day(n) in Step 5: Calculate the Annualised Tracking error as per the formula given below Annualised Tracking Error = Standard Deviation (obtained as per Step 4) $\sqrt{250}$	
Tracking difference	Tracking Difference = Scheme returns – Benchmark index returns	

- Note:
- Standard Deviation, Beta and Tracking Error is computed taking similar data points.
 - For Schemes that have completed 3 years, 3-year data shall be provided; and for Schemes that have completed more than 1 year but not completed 3 years 1-year data shall be provided.

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