

MUTUAL FUNDS

NAV

mutual fund return

Investor return

Money/Rupree weighted

Time weighted

* return: check monthly or annualised return
x — 3m
? — 12m

Net Asset Value (NAV)

$$= \frac{\text{net assets}}{\text{no. of units}}$$

Net assets = Cash *
(+) Investments at MV
(+) receivables (div)
(-) accrued exp
(-) liabilities

don't forget opⁿ cash bal
(= fund - inv - exp)

units = amt / value per.

when we buy = $\frac{\text{amt invst}}{\text{opⁿ NAV}}$

Mutual fund Return

$$\text{MFY} = \frac{\text{div dist} + \text{cap g. dist} + \text{cap appⁿ}}{\text{Opⁿ NAV}} \times 100$$

cap appⁿ = CL * NAV - Opⁿ NAV
1st year cl = 2nd year opⁿ.

also called return to fund manager.

Reinvestment (MF return)

Instead of dividend we get addⁿ units
redist (NAV)
x — 1 unit

div + cl — ? units (y)
(if x reinvest)

also units ↑ NAV ↑
while calculating returns units x ↑
in fact NAV ↑ units being same.

$$\text{cap appⁿ} = \text{CL} \cdot \text{NAV} \star$$

(→ opⁿ NAV)

÷ old units only

old units = 1
+ new = y
total = z
x WAP'u $\frac{\text{CL} \cdot \text{NAV}}{\text{actual CL NAV}} = \star$

$$\text{Return} = \frac{\text{div received} + \text{CL} + \text{cap app}}{\text{purchase price}} \times 100$$

$$\text{cap appⁿ} = \text{SP} - \text{C.P}$$

$$\text{BP} = \text{NAV} + \text{load entry}$$

$$\text{SP} = \text{NAV} - \text{load exit}$$

SP when value of fund ↑ : ↑ fund ↑ value of my invst.
↑ NAV = (return - exp) of fund.
★ SP = C.P + ↑ NAV (same as CLⁿ NAV)

Types of investor return

Money wtd /

Rupree wtd

based on CF's

"IRR of fund"

Time wtd.

$$= \sqrt[n]{(1+r_1)(1+r_2) \dots (1+r_n)} - 1$$

if 2 years

$$r_1 = 20\% \quad r = \text{Inv return}$$

$$r_2 = 10\%$$

$$\text{IRR} = \text{LR} + \frac{\text{NPV(LR)}}{\text{NPV(LR)} - \text{NPV(HR)}} \times \text{diff}$$

Investor wants to earn 15%
how much should MF earn?

$$\text{return to inv} = 15\% \text{ of PP} = x$$

Mutual fund

Receive

(→) entry load

amt 4 invst

(→) Initial exp.

$$\text{MF invst} \cdot y \cdot \text{req} = x$$

$$\therefore \% = \frac{x-y}{y} = 2\%$$

(+) annual rec = a%

$$\text{MFROR} = \underline{\underline{25\% (2+a)}}$$

$$\text{Time wtd} = \sqrt[2]{\frac{(1+r_1)}{(1+r_2)}} - 1$$

Time ROR remains same even if div are reinvested.
bcoz we first receive & then reinvest.

issued at 3% sales load : CP = entry load PP X SP

MF performance evaluation Ratio's

Sharpe Treynor Jensen
 - total risk - systematic risk

- reward to volatility ratio
- excess return generated

$$\alpha = R_p - [R_f + \beta(R_m - R_f)]$$

must be +ve.
 +ve → MF outperform
 -ve → underperform market.

$$= \frac{R_p - R_f}{\sigma}$$

DESBAC

$$= \frac{R_p - R_f}{\beta}$$

DEBASC

DEBASC

eg: Ranking
 return as ↑ as possible.

DEC → well diversified.

Which ratio?

well diversified
 unsystematic risk is diversified

$$\therefore \sigma = \beta$$

∴ any ratio.

x well diversified

total risk

$$\therefore \text{Sharpe } (\sigma)$$

Unsystematic risk

$$= \text{total risk} - \text{systematic risk}$$

$$= \text{variance} - (\text{var of mkt} \times \beta^2)$$

$$\beta = \frac{\text{correlation } (s, m) \sigma_{secu}}{\sigma_{mkt}}$$

$$\sigma_{mkt} = \text{correlation} \times \frac{\sigma_{secu}}{\beta}$$

$$\text{var} = \sigma^2$$