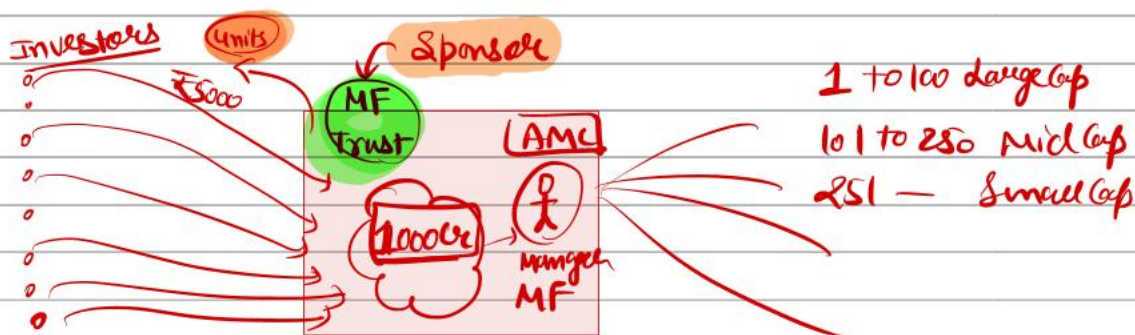




Mutual Funds.



Intro



Concept ① Calculation of NAV (Net Asset Value)

Closing Market Value of Investments	XXX
(Number of Securities x Closing Market Price)	
+ Receivables	XXX
+ other Accrued Income (on daily basis)	XXX
+ closing Cash balance	XXX
- liabilities (expenses payable, o/s exp)	(-)
- External liabilities	(-)
Net Asset Value of Scheme	XXX
÷ Number of outstanding units of scheme	÷ 27
NAV per unit (of Scheme)	✓

Note: ①

Closing Market Price for valuation

Listed Security

Closing Market Price (Trusted).
from market is used

unlisted Security

(Market Value or Book Value) lower is used.

Note (2) If we have to calculate CMP (Closing Market Price) when Index values are given.

ex:	1/4/2027	31/3/2028
Nifty 50	30,000	31,800
Share xyz	₹100	?

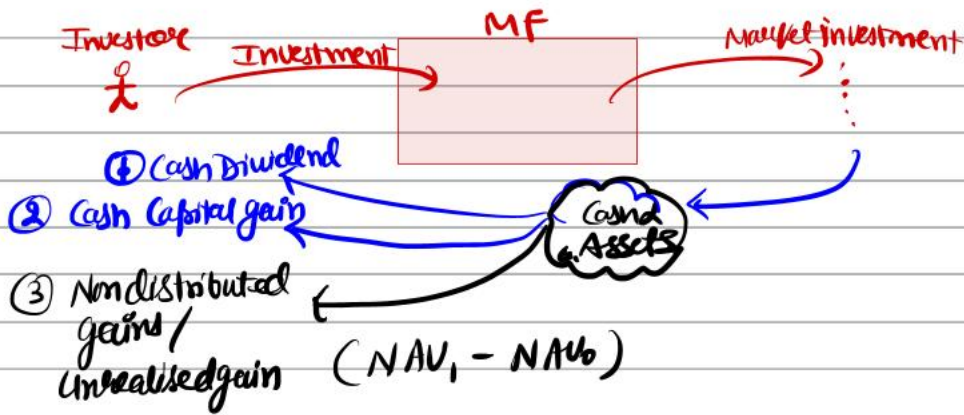
In absence of information, we will assume that Share xyz prices will vary in same proportion as Nifty 50.

$$\frac{₹100}{30,000} = \frac{x}{31,800}, \quad \boxed{x = ₹106}$$

Note (3) If MF Scheme pays Cash Dividend & Cash Capital Gain distribution then NAV will fall by same amount.

(jaisi agar MF apko '₹2' cash dividend dega, toh apke NAV '2' kam hojayege.)

Concept (2) Calculation of Return under Mutual Fund



Step (1) Calculating Holding Period Return (HPR)

(yani, jitne samay apne units hold kiye hai uski return)
(It can be for 1 day, 1 month, 10 months, 10 years anything)

$$\text{Holding Period return} = \frac{(NAV_1 - NAV_0) + \text{Cash dividends} + \text{Cash Capital gains}}{NAV_0}$$

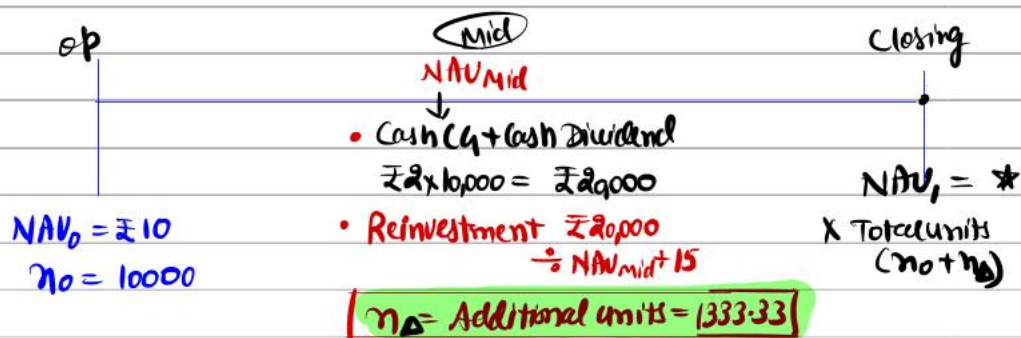
yaha par hum full period of holding ki return nikal rahi hai
not Annual return.

Step (2) Convert Holding Period Return to Annualized Return.

$$\text{Annual Return} = \left(\frac{\text{Holding Period return} \times 12 \text{M} / 52 \text{ weeks} / 365 \text{ day}}{\text{Holding Period}} \right)$$

Concept (3) Calculate Return of MF in case of Reinvestment of Div/Cg.

- MF will tell you the amount of Dividend/Capital gain
- then Reinvest that amount and issue you more MF units at that day's NAV.



Step 1 Calculate amount available for reinvestment

$$(\text{Cash Cg} + \text{Cash Dividend}) \times \text{Number of units originally held} = \checkmark$$

n_0

Step 2 Additional units issued (Purchase by investor)

$$\frac{\text{Reinvestment amount}}{\text{Price of issue (NAV at that date)}} = n_A$$

Step 3 Calculate Total closing NAV,

$$\Rightarrow (n + n_A) \times NAV_1 = \text{Total Value of all units at end}$$

$$n_0 = 10000 \text{ units}$$
$$NAV_0 = ₹10$$

$$(n + n_A) = n_1 = 11333.33 \text{ units}$$
$$NAV_1 = ₹218$$

Step ④ Now calculate Holding Period Return and annualised return.

Note ① Both investment date and closing date (or date) are included in period of holding.

Note ② If question specify the number of days in a year.
(1 year = 365 days) or (1 year = 360 days)
then question wants you to solve day wise and not month wise.

Note ③
$$\text{Holding Period} = \frac{\text{Holding Period Return} \times 365}{\text{Annualized Return (effective yield)}}$$

Concept ④ Entry & Exit load.

Entry load → you have to pay some extra amount over NAV when buying M.F.

Exit load → you get amount lower than NAV when you sell M.F.

(Front end load)

① Entry load $\Rightarrow \text{NAV} + \text{Entry load\%} = \text{Issue Price}$

$$\text{Entry load\%} = \frac{\text{Issue Price} - \text{NAV}}{\text{NAV}} \times 100$$

(Back end load)

② Exit load $\Rightarrow \text{NAV} - \text{Exit load\%} = \text{Redemption Price}$

$$\text{Exit load \%} = \frac{\text{NAV} - \text{Redemption Price}}{\text{NAV}} \times 100$$

Concept (5) Total Risk

→ Standard Deviation / Variance
 σ σ^2

Systematic Risk

→ These risks cannot be diversified away.

ex: war in a country, covid19

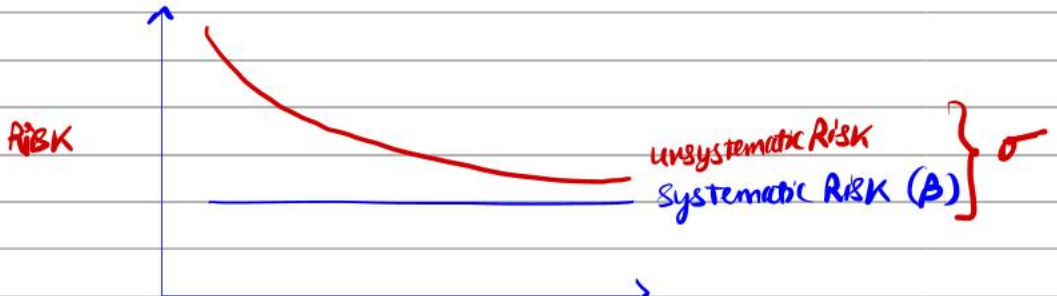
Measured by Beta $[\beta]$

Unsystematic Risk

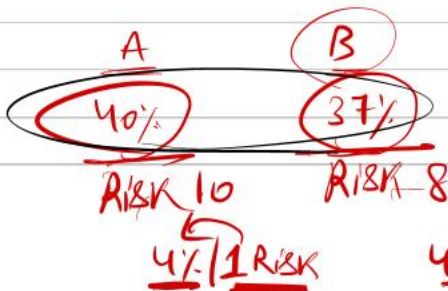
→ These risks can be diversified away.

→ If we invest in multiple sectors and in multiple companies then we can avoid this type of risk.

ex: company specific risk.



→ Diversified Portfolio
(number of companies in Portfolio)



40-8%

37-8%

Concept ⑥ Measuring Performance of Mutual Funds

① Sharpe Ratio $\Rightarrow$ Reward to Volatility Ratio

$$= \frac{(R_p - R_F)}{\sigma_p}$$

$\Rightarrow$ Excess Return over R_F
Total Risk

R_p = Return of Portfolio
 R_F = Return of Risk free asset

σ_p = Standard deviation of Portfolio.

$\rightarrow$ How much extra you have earned by 1 unit of total risk.

② Treynor's Ratio $\Rightarrow$ Reward to Volatility Ratio

$$= \frac{(R_p - R_F)}{\beta}$$

$\Rightarrow$ Excess Return over R_F
Systematic Risk

$\rightarrow$ How much extra you have earned by 1 unit of Systematic Risk.

③ Jensen's Alpha

α_p

$$\Rightarrow R_p - (R_F + \beta(E_{RM} - R_F))$$

$\downarrow$
Actual Return - Expected Return
of Portfolio

If α_p is $[+]$, you have outperformed market.

α_p is $[-]$, you have underperformed than market.

Concept 7 Calculating Beta.

→ (Covered in detail in chapter Portfolio Management)

①

$$\text{Return of Market} \times \beta_p = \text{Return of Portfolio}$$

ex:

$\beta_p = 3$ it means

→ If Market 1% ↑, Portfolio 3% ↑

→ If Market 1% ↓, Portfolio 3% ↓

②

$$\text{Beta of Portfolio} = \frac{\sigma_p}{\sigma_m} \times r$$

= $\frac{\text{Standard deviation of Portfolio}}{\text{Standard deviation of Market}} \times (\text{Correlation between Portfolio \& Market})$

Concept 8 Types of Mutual funds on basis of Earning distribution

① Dividend Payout Plan.

→ It will declare and distribute dividend.

② Dividend Reinvestment Plan.

→ Dividend is declared but not distributed.

→ Dividend amount is used to issue new units to unit holders.

→ Number of units increases. (NAV per unit fall)

③ Growth Plan.

→ No Dividend & Bonus is paid or distributed nor declared.

→ Earnings are reinvested for growth.

→ NAV usually grows.

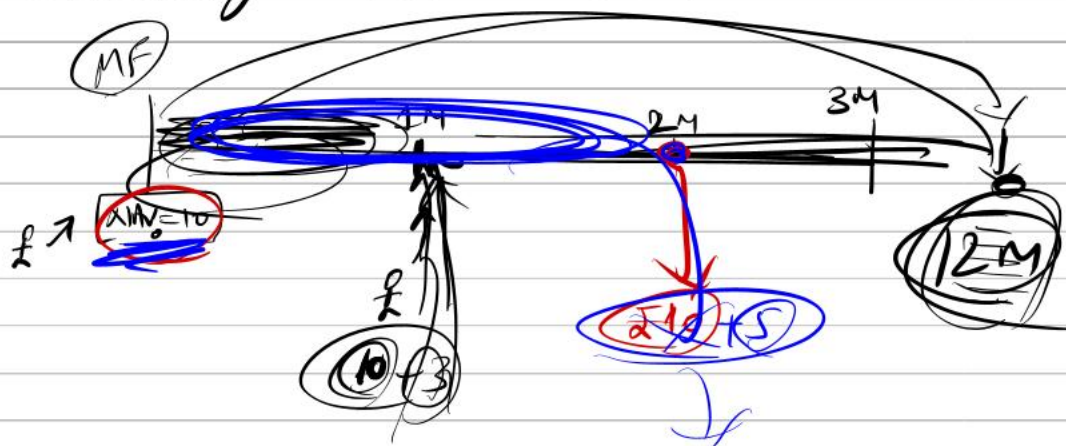
④ Bonus Issue Plan.

→ No cash dividend

→ Extra units are issued in lieu of dividend.

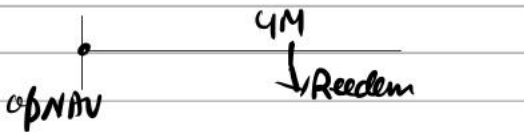
→ NAV will fall.

→ wealth of unit holders remain same.

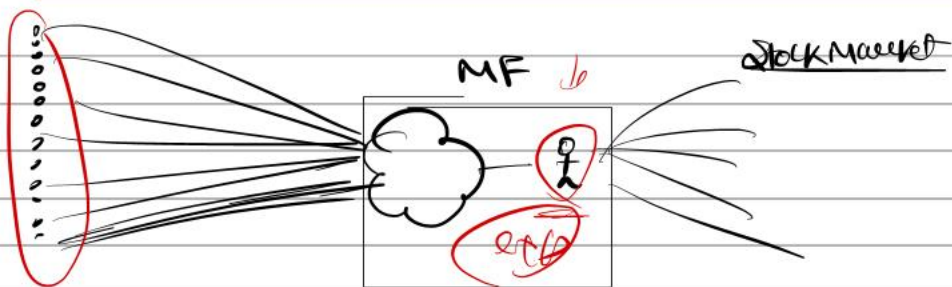


Concept (9) Dividend Equalization / Income Equalization

→ If Mutual fund units are not calculated daily for NAV, then they are purchased/sold at Initial (opening) value. Thus Dividend (Income) of proportionate period is added when buying/selling units during the year.

For outgoing unit holder	For incoming unit holder.
	
Amount Payable by MF house	Amt Payable by New unit holder
NAV xxx - Exit load - xx%	NAV xxx + Entry load + y%
+ Dividend Equalization + (for 4 months)	+ Dividend Equalization + (for 7 months)
Amt Paid on Redemption	Amt Paid on issue of MF Ⓢ

Concept (10) Fee Structure in Hedge funds.



common fee Type

- ① Management fee → Fee managing funds.
 - It's admin fee.
 - usually charged on opening Assets under management (opening NAV × units)
 - usually 1% - 2% etc.

- ② Incentive fee → Based on performance of MF
 - It's paid when MF earns (not in years when it loses money)

Example:

High watermark Incentive Plan.