Strategic Finance Management

by

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Foreign Exchange Markets

Direct Quote = $\frac{\text{No of units of Home Currency}}{\text{One unit of Foreign currency}}$

In India = ₹/$ = 60.05 per USD.

Direct Quote is called as American Quote

Numerator is the price, Denominator is the products.

InDirect Quote = $\frac{\text{No of units of F-Currency}}{\text{One unit of Home Currency}}$

In India = $/₹ =

It is called European Terms

Direct Quote = $\frac{1}{\text{Indirect Quote}}$

Bid & Ask.

This is always from Banker point of view.

The rate at which Bank buys a Foreign Currency = Bid

The rate at which Bank sells a Foreign Currency = Ask.

Difference between Bid & Ask = Spread.

Example = Exchange rate = 60.05 (Bid) - 60.75 (Ask) 0.70 (spread)

Converting two way Quote

$$\text{Bid}\left(\frac{₹}{\$}\right) = \frac{1}{\text{Ask}\left(\frac{\$}{₹}\right)}, \quad \text{Ask}\left(\frac{₹}{\$}\right) = \frac{1}{\text{Bid}\left(\frac{\$}{₹}\right)}$$

Cross rates:

Cross rate is a rate which does not involves Home Currency

To get Straight Rate from Cross rates

* Cross multiplication is to be done

$$\frac{A}{B} = \frac{A}{C} \times \frac{C}{B}$$

Rule 1 $\text{Bid}\left(\frac{A}{B}\right) = \text{Bid}\left(\frac{A}{C}\right) \times \text{Bid}\left(\frac{C}{B}\right)$

Rule 2 $\text{Ask}\left(\frac{A}{B}\right) = \text{Ask}\left(\frac{A}{C}\right) \times \text{Ask}\left(\frac{C}{B}\right)$

Rule 3 $\text{Bid}\left(\frac{A}{B}\right) = \frac{1}{\text{Ask}\left(\frac{B}{A}\right)}$

$\text{Ask}\left(\frac{A}{B}\right) = \frac{1}{\text{Bid}\left(\frac{B}{A}\right)}$

These are to be used when A/B is needed but B/A is available

Appreciation and Depreciation.

if INR = 50/USD Now & INR = 60/USD after 1 year

INR is Depreciating against USD
USD is appreciating against INR.

Formula $\frac{F-S}{S} \times \frac{12}{m} \times 100$

Swap Points:

Swap bid = Forward bid − Spot bid
Swap Ask = Forward Ask − Spot Ask
Spot spread = Spot Ask − Spot bid.
forward spread = forward Ask − forward Bid.

Interet Rate Parity theorem:-

According to this theory, the higher interest rate in One Country is set off by a depreciation of the Currency of that Country.

Ex: If Intrest rate is higher in India than US, then Rupee ₹ will depreciate against USD

Exchange rate a year later } = $\frac{1+rH}{1+rF} = \frac{F_1}{F_0}$
i.e future Spot rate

rh = rate of Interst in home Country.
rF = rate of Intrst in Foreign Country
F_1 = Forward rate of F. Country Currency.
F_0 = Spot rate of Foreign Currency.

What if, if IRPT not hold Good? Enter Arbitrage:

Arbitrage: Encashing the market fluctuations
There are two type of Arbitrages

1. Space Arbitrage
(a). Prices of Currency is being different in Different Markets

2. Time Arbitrage
Prices in two markets are different is different periods.

Arbitrage Methodology:

Theoritical Forward Rate Method:

step: 1 Compute forward rate using IRPT.
step 2 If actual F rate is not equal to Th. F.R. then arbitrage is possible.

If AFR > Th. F.R Money flow to Home
If AFR < Th FR Money flow to Foreign.

Procedure of Arbitrage

1. Borrow - money from country where money flow out.
2. Convert the money at Spot rate
3. Invest the proceed in other currency
4. Take Forward Cover to elimate Risk
5. Realise proceeds of Investment
6. Reconvert at the forward rate of bowring currency
7. Repay Principle & Interest
8. Step 6 − step 7 = Arbitrage gain

Purchasing Power Parity Theorem:

Same like IRPT, but Inflation rate is to be replaced with Interest rate

∴ Theoritical future Spot is calculated as follows

$$\frac{1+Ih}{1+IF} = \frac{F_1}{F_0}$$

Thumbrules of Arbitrage :-

1. When theoretical forward rate is more than Given forward rate ⇒ Money will flow from Home Currency to Foreign Currency.
   i.e. Borrow Home Currency & Invest in Foreign.
2. When Therotical Forward rate is LESS than Given forward rate ⇒ Money will flow from Foreign currency to Home currency.
   i.e Borrow in Foreing & Invest in Home Currency

Risk in International Finance:

Transaction Risk: Risk of change in Exchange rates between Date of Transaction and Date of settlement.

Steps to Compute Transaction Risk based loss/profit

1. Compute accounting profit
2. Adjust the fluctuvations due to change in Ex rate
3. Find out the transaction loss due to Exchange fluctuation

Translation Risk: Risk arised due to change in rate affects on accounts on BS Date, There is no impact of Cash flows. This is govern by AS11.

NAV = $\frac{\text{Net Assets of the scheme}}{\text{No of units.}}$

Net Assets of Scheme = MV of Investmts + Recciables + Other accrued income + Other Assets − Accrued Expenses − Other payables − other liabilities

Cost of MF :- two Components

1. Initial Expenses
2. Ongoing Expenses.

Computation of Return on Investment in MF.

Investors gets 3 types of Incomes

(a) Cash dividends (D)
(b) Capital Gains distibuted (CG_1)
(c) change (increase) in NAV (unrealised Cap Gain) ($NAV_1 - NA$

* Annual return = $\frac{D + CG_1 + (NAV_1 - NAV_0)}{NAV_0} \times 100$.

Criteria for Evaluation of Performance

1. Sharpie Ratio:-

$S = \frac{\text{Actual Return} - \text{Risk free Return}}{\text{Std deviation of Portpolio}} \Rightarrow \frac{\text{Excess Return}}{\text{Portpolio risk}}$

2. Treynor Ratio

$T = \frac{\text{Return on Port Polio} - \text{Risk free return}}{\text{Beta of Portpolio}} \Rightarrow \frac{\text{Excess Return}}{\text{Portpolio risk}}$

3. Jensen Alpha

Alpha = Return on Portfolio − Expected return (Benchmark retur

* Required return concept.

What Return (MFR) should MF earn to given expected return

$MFR = \frac{1}{1 - \text{initial Exp\%}} \times \text{Exp Return} + \text{Recuring Exp\%}$

INDIAN CAPITAL MARKETS

Yeild to Maturity YTM = $\frac{\text{Couponrate} + \text{Pro rated Discount}}{(\text{Face value} + \text{Purchase price})/2}$

Derivates:

1. Forward Contracts.
2. Future Contracts
3. Options
4. Swaps.

Hedging:- It is a pradice of taking a position in a market to offset and balance against the risk adopted by assuming a position in an opposite market. Inorder to hedge, Investo takes a Stock-future position Exactly opposite to stock position.

Example:

Mr A holdes 100 shares in M Ltd, purchased at ₹100.
Current MP of share = 150.
Mr A fears it may fall in next 3 months.

Hedging process

1. Sell stock future of M ltd @ 150 for 3 mts.

Hedging result

if closing price after 3 months is

	₹ 100	₹ 150	₹ 200
1. Outflow (Initial)	100×100 = (10000)	100×100 = (10000)	100×100 = (10000)
2) Inflow at End	= 10000	= 100×150 = 15000	= 100×200 = 20000
	(+) Gain (100×(150−100) = 5000	No Gain (150−150)×100	Loss 100×(150−200)
Total	15000	15000	(5000)
Net Payoff	5000	5000	5000.

Therfore profit of 5000 can be locked, irrespective of Market conditions.

Arbitrage Process:- Transactions made to take advantage of Temporary distortions in the market are known as Arbitrag transactions

* Future price = Spot pitke + Carring cost − Return(Div)

Grenerally Carring Cost is Barowing Intrest rate.

Arbitrage is possible if Future pice is less than Quoted futur

Borrowing rate = 15%- P.a, Div = 25%, FV - 10.

Arbitrate procedure.

1. Buy stock of M ltd now @ 100/- & sell future @ 140
2. Borrow this amt from a bank @ 15%. P.a Now.
3. After 3 month Pay back the bank debt by selling the stock in Mrk.

Arbitrate Result:

Inflow: Sale procedds = ~~140~~ 142.5 (2.5 Div)

Repayment to Bank = Principle = 100
Intrest = 3.75 (@15% P.a for 3)

Net inflow = (142.5 − 103.75) = 38.75

Caluclation of Forward price of stock

$$F = S_0 e^{rn}$$

F = forward price
S_0 = Sport price
e = epsilon.
r = Borrowing rate
n = time period of holding

In case income earning shares

$F = (S_0 - I)e^{nr}$ where I is income (Div, Intrest)

Incase income is given as % (yeild)

$F = S_0 e^{n(r-y)}$ where y = Yeild percentage)

Risk Neutral Approach:- Valuation of Devirative.

Example: Current share price = 50
Expectation - Max = 60 } for year.
Min = 40 }

then P = Probality of Max price ie 60
⇒ (1-P) = Probability of Min price i.e 40.

$50e^{rn} = P(60-50) \times (40-50)(1-P)$

P = 0.65

Derivative or Option

Hedge Ratio :

$$H = \rho \frac{\sigma_S}{\sigma_F}$$

H = Hedge ratio to minimise the Variance.
ρ = Coefficient correlation between σ_S & σ_F
σ_S = Standard deviation of Spot price.
σ_f = Standard deviation of Future price.

Black Scholes Formula – For caluclating Value of Option.

Value of Calloption' =

$$C = SN(d_1) - \frac{K}{e^{rt}} N(d_2)$$

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left[r + \frac{\sigma^2}{2}\right] t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

C = theorical value of option.
S = Current Stock price
K = option strike price
r = Risk free Return
σ = SD of Continous Compunded annual return
N = Cummilative dishibution-function.
IN = Natural Algorithm.

Portfolio Theory:

Before investing investor is to be seek the return & risk
Return is depends on the risk beared.
Optimum investment objective is investing in securities with Comparitively High Return with Low Risk.

Portfolio concept: Risk can be reduced by the way of investing in more securities than in single.

Risk: Risk is the uncertainity of Expected Return.

It is of two types

Unsystematic Risk	Systematic Risk
(Can be Reduce/Elimate)	(Cannot be altered).
Measued in SD & Variance	Measured as β

$$SD^2 = (\sigma)^2 = \boxed{\Sigma(x-\bar{x})(p)}$$ (x = given return, $\bar{x}$ = Mean Return, P = probability or weight)

Covariance: Interactive risk of Security to another

$$COV_{AB} = \frac{\Sigma(r_A - \bar{r}_A)(r_B - \bar{r}_B)}{N} = \frac{\Sigma(\text{Dev of A})(\text{Dev of B})}{\text{No of observations}}$$

r_A = Return on Security A
$\bar{r}_A$ = Mean Return of Security A

Coefficient of Correlation:

$$r_{AB} = \frac{COV_{AB}}{SD_A \cdot SD_B} \Rightarrow COV_{AB} = r_{AB} \cdot SD_A \cdot SD_B$$

Risk or Variance of Portpolio with two Securities.

$$\text{P. Risk}(\sigma_p^2) = W_1^2\sigma_1^2 + W_2^2\sigma_2^2 + 2W_1W_2\sigma_1\sigma_2 r_{12}$$

W = Weight or proportion of funds invested
σ_1^2 = SD^2 or var of Security.
r_{12} = Correlation Coefficient of 1 & 2 Securities.

* When Securities are positively perfectly Correlated (i.e $r_{12} = 1$)

then $\sigma_p^2 = (W_1\sigma_1 + W_2\sigma_2)^2$

when Securities are Negatively perfect Correlated (i.e -1)

$$\sigma_p^2 = (W_1\sigma_1 - W_2\sigma_2)^2$$

when Securities are indipendent (i.e $r_{12} = 0$)

$$\sigma_p^2 = W_1^2\sigma_1^2 + W_2^2\sigma_2^2$$

Beta(β) Systematic Risk is calculated in β. Two Methods

1. Correlation Method.
2. Reggression Method

$$\beta = \frac{r_{AM}\sigma_A\sigma_M}{\sigma_m^2}$$

Where r_{AM} = Co-coefficient of Sec A & Market Return

σ_A = SD of Security A

σ_m = SD of Market Return

σ_m^2 = SD^2 or var of Market Returns.

Minimising Portpolio Risk. (Determining the proportion of funds to be invested when cov, stddev are avail)

$$\%A = \frac{\sigma_B^2 - COV_{AB}}{\sigma_A^2 + \sigma_B^2 - 2COV_{AB}}$$

$\%B = (1 - \%A)$

Ch-4 Security Analysis:-

I. Dividend based Based Evaluation

Fundamental Analysis of Securities (shares)

It is based on the assumption that price of shares depends upon the future dividends expected by the S.H.

{Perpetual growth} $P_0 = \frac{D_0(1+g)}{(K-g)}$ or $\frac{D_1}{(k-g)}$

D = Dividend
K = Desired Rate
g = Growth rate.

The above formula is used when Growth rate g is less than Required rate of Return K & Perpetual.

Present Value of Share (or) Current Price of Share

$$P = \frac{D_1}{1+K} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} \cdots$$

$D_1 = D_0(1+g)$

$D_2 = D_0(1+g)^2$ OR $D_1(1+g)$

Bond Valuation

Value of Bond $V = \frac{I}{(1+k_d)^t} + \frac{P}{(1+k_d)^n}$

$$\Rightarrow \boxed{V = I\ PVAF_{(k_d,n)} + P\ PVF_{(kd,n)}}$$

YTM = Yeild to Maturity

Value of discount rate (K_d) at which intisic value of Bond equals its Market price. (similar to IRR. NPV=0)

i.e at YTM. TPVO = TPVI

Steps to caluclate YTM

1. Caluclate k_d
2. Compute NPV at identifid discount rate
3. Adjust the Discount rate for just pasitive & Just negative NPV
4. Caluclate IRR between the both.

Dividend discount model Approach:

According to this approch, Required Return on Equity or Cost of Equity capital, can be find out. by given P_0 & D

$$\boxed{K_e = \frac{D_0}{P_0} + g} \qquad P_0 = \frac{D_0}{}$$

Dividend Growth Model & PE Multiple:

* Calculation of Price of a Share when under PE multiple when ROE, & EPS is given.

PE multiple = $\frac{1}{ROE\%}$

Value of Stock = EPS x PE multiple

= $\frac{EPS}{ROE\%}$

* Calculation of price of Stock under Earning Growth model when ROE, EPS, g is given.

Price of stock = $EPS \times \frac{1+g}{Ke-g}$

* YTM Calculation when C = Coupoun rate, F = Fave Value (or) Redemption Price P = Market price of Bond, n = years to maturity

$$YTM = \frac{C + \frac{(F-P)}{n}}{\frac{F+P}{2}}$$

* Current yeild = Coupon rate/Market price = $\frac{C}{P} \times 100$.

Right issue:

Ex-Right price = $\frac{MN + SR}{N+R}$

MN = Market price of share X No of Right shares issued per One share

SR = Subscription price X No of Right shares offered.

Theoretical value of Right

= Ex-Right Price − Cost of Right share.

Value of Deep Discount Bond or Zero Coupon bond

Value = $\frac{\text{Face Value of Maturity}}{(1+YTM)^n}$

Money Market Operations

Treasury Bills (TBs) : One of the important short term market instrument.

The Return (intrest) on these instruments is the discount which is received which is the difference between Price at which they are issued (P) and their Face Value(F)

Their yeild can be caluclated as follows

$$Y = \left[\frac{F-P}{P}\right] \times \frac{365}{M} \times 100$$

M = Maturity period

Amount of bids: TBs are issued in lots of 25000 (14 & 91 Days) 100000 (364 Days)

Commercial Paper : These are issued at a discount to FV. Discount rate is freely determined by Mark

$$\text{Effective Interest} = \frac{F-P}{P} \times \frac{12}{M} \times 100$$

Bond equalant yeild:- $\frac{F-P}{P} \times \frac{365}{M} \times 100$

Financial Services in India

1. Credit Rating → Symbolic indication of Current opinion on capability of an entity to service its debt obligation
2. Credit Rating Agencies → CRISIL, ICRA, CARE, Fitch.
3. CAMEL → Cap, Assets, Mgmt, Earnings, Liquidity.

Factoring :- Quastions model

i. Caluclate effective cost of factoring: steps

1. Cal amt received (Avg Rec − Fac com − Int)
2. Cal annual cost of factoring (Cost − savings)
3. Cost of factoring = $\frac{\text{step-2}}{\text{step-1}} \times 100$.

(ii). Decision on to accept factoring option.

1.	Existing Avg debtors	
2	Average new debtors.	
3.	Int savings on Diffencial (1-2) @ COC of Company.	XX
		XX
Add 4.	Bad debts Saved	XX
Add 5.	Administration cost Saved	(XX)
Less 6.	Commission	
	Net annual benefit	XX

Dirty price = clean price + accrued Intrest

First Proceed(FL) = $\frac{\text{Dirty price}}{100} \times \frac{100 - \text{I Margin}}{100} \times$ Nominal value

Second = $\frac{\text{MVP}}{(1 + \text{Reporate} \times \frac{\text{Day}}{360})} \times FL$