Sustainable growth rate (SGR) = ROE × (1 − Dividend payout ratio)

LAST MINUTE REVISION [LMR]

Compilation of CA Final SFM Formulae by SFM Praveen

Portfolio Management

Return of Stock $\frac{[P_1-P_0]+D_1}{P_0} \times 100$

	If Probabilities are Given	If probabilities are not Given
Expected Return ($\bar{x}$)	$\sum p \times x$	$\frac{\sum x}{n}$
Standard Dev. (σ)	$\sqrt{\sum p(x-\bar{x})^2}$	$\sqrt{\frac{\sum(x-\bar{x})^2}{n}}$
Co Variance (x,y)	$\sum P(x-\bar{x})(y-\bar{y})$	$\frac{\sum(x-\bar{x})(y-\bar{y})}{n}$

Correlation$_{(x,y)}$ $= \frac{COVA_{x,y}}{\sigma_x \sigma_y}$

PI = Discounted cashinflow / outflow

coefficient of variation = $\frac{\sigma x}{\bar{X}}$

Portfolio Risk

2 Securities: $\sqrt{w_x^2\sigma_x^2 + w_y^2\sigma_y^2 + 2w_x\sigma_x w_y\sigma_y Corr_{x,y}}$

3 Securities: $\sqrt{w_x^2\sigma_x^2 + w_y^2\sigma_y^2 + w_z^2\sigma_z^2 + 2w_x\sigma_x w_y\sigma_y Corr_{x,y} + 2w_x\sigma_x w_z\sigma_z Corr_{x,z} + 2w_y\sigma_y w_z\sigma_z Corr_{y,z}}$

$Cov(A,B) = \beta_A \times \beta_B \times Var(M)$ or $\beta_A \times \beta_B \times \sigma_m^2$ → pm 7.36.

Beta of the Stock $\beta = \frac{\sigma_x}{\sigma_m} Corr_{(x,m)}$ (or) $\frac{Cova_{(x,m)}}{Var_{(m)}}$ (or) $\frac{\Sigma xy - n\bar{x}\bar{y}}{\Sigma Y^2 - n\bar{y}^2}$

Beta means sensitivity of stock.

Expected Return of the stock $R_s = \beta \times R_m$ // $\lambda = \frac{R_m - R_f}{\sigma_m}$

CAPM Return $R_s = R_f + \beta(R_m - R_f)$ α = Actual Return − CAPM Return

use this to elucate any decision making among the stocks

Free One day last minute Revision Class of SFM for May 2014 Exam will be held at HBA, Himayat Nagar, Hyderabad on 11th may 2014 from 7:00 Am to 7:00PM.

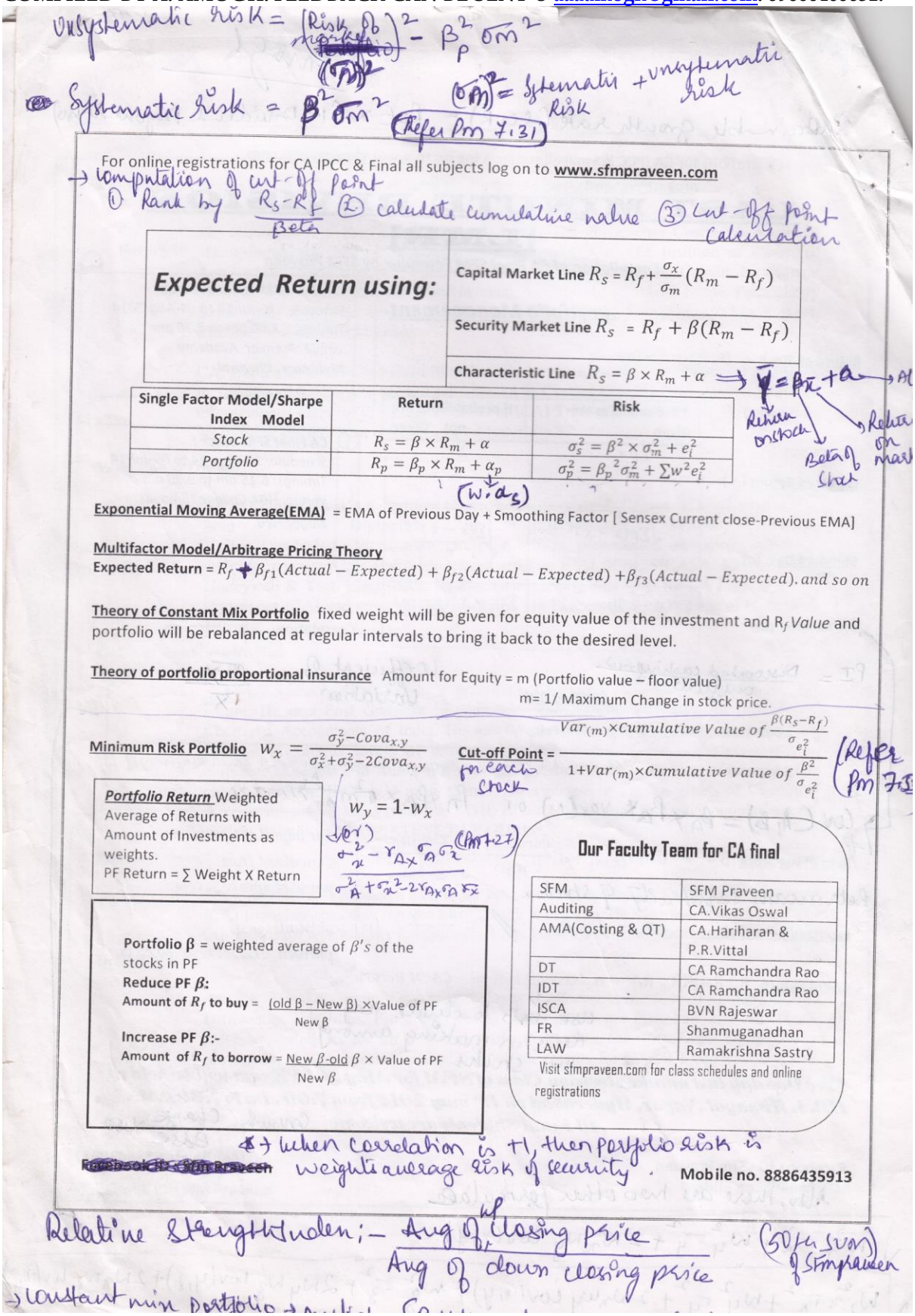
All Final Students are welcome

Sensitivity = $\frac{\text{Change}}{\text{Base}} \times 100$

Also, there are two other formulaes

$\sqrt{w_x^2\sigma_x^2 + w_y^2\sigma_y^2 + 2w_x w_y Cov(x,y)}$

$\sqrt{w_x^2\sigma_x^2 + w_y^2\sigma_y^2 + 2w_x w_y Cov(x,y) + w_z^2\sigma_z^2 + 2w_y w_z Cov(y,z) + 2w_x w_z Cov(x,z)}$



Unsystematic risk = (Risk of market)^2 − $\beta_p^2 \sigma_m^2$

Systematic risk = $\beta^2 \sigma_m^2$ (Refer Pm 7.31)

σ_m^2 = Systematic + Unsystematic Risk

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→ computation of cut-off point
① Rank by $\frac{R_s - R_f}{\beta}$ ② calculate cumulative value ③ Cut-off point calculation

Expected Return using:	
	Capital Market Line $R_s = R_f + \frac{\sigma_x}{\sigma_m}(R_m - R_f)$
	Security Market Line $R_s = R_f + \beta(R_m - R_f)$
	Characteristic Line $R_s = \beta \times R_m + \alpha$

Single Factor Model/Sharpe Index Model	Return	Risk
Stock	$R_s = \beta \times R_m + \alpha$	$\sigma_s^2 = \beta^2 \times \sigma_m^2 + e_i^2$
Portfolio	$R_p = \beta_p \times R_m + \alpha_p$	$\sigma_p^2 = \beta_p{}^2 \sigma_m^2 + \sum w^2 e_i^2$

(w.r.t R_s)

Exponential Moving Average(EMA) = EMA of Previous Day + Smoothing Factor [Sensex Current close-Previous EMA]

Multifactor Model/Arbitrage Pricing Theory
Expected Return = $R_f + \beta_{f1}(Actual - Expected) + \beta_{f2}(Actual - Expected) + \beta_{f3}(Actual - Expected)$. *and so on*

Theory of Constant Mix Portfolio fixed weight will be given for equity value of the investment and R_f *Value* and portfolio will be rebalanced at regular intervals to bring it back to the desired level.

Theory of portfolio proportional insurance Amount for Equity = m (Portfolio value – floor value)
m= 1/ Maximum Change in stock price.

Minimum Risk Portfolio $W_x = \frac{\sigma_y^2 - Cova_{x,y}}{\sigma_x^2 + \sigma_y^2 - 2Cova_{x,y}}$

Cut-off Point = $\frac{Var_{(m)} \times Cumulative\ Value\ of\ \frac{\beta(R_s - R_f)}{\sigma_{e_i}^2}}{1 + Var_{(m)} \times Cumulative\ Value\ of\ \frac{\beta^2}{\sigma_{e_i}^2}}$ (Refer Pm 7.5)

Portfolio Return Weighted Average of Returns with Amount of Investments as weights.
PF Return = ∑ Weight X Return

$W_y = 1 - W_x$

(or) $\frac{\sigma_x^2 - r_{AX}\sigma_A\sigma_x}{\sigma_A^2 + \sigma_x^2 - 2r_{AX}\sigma_A\sigma_x}$ (Pm 7.27)

Portfolio β = weighted average of $\beta's$ of the stocks in PF
Reduce PF β:
Amount of R_f to buy = $\frac{(\text{old } \beta - \text{New } \beta) \times \text{Value of PF}}{\text{New } \beta}$
Increase PF β:-
Amount of R_f to borrow = $\frac{\text{New } \beta - \text{old } \beta \times \text{Value of PF}}{\text{New } \beta}$

Our Faculty Team for CA final

SFM	SFM Praveen
Auditing	CA.Vikas Oswal
AMA(Costing & QT)	CA.Hariharan & P.R.Vittal
DT	CA Ramchandra Rao
IDT	CA Ramchandra Rao
ISCA	BVN Rajeswar
FR	Shanmuganadhan
LAW	Ramakrishna Sastry

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If correlation is +1, then portfolio risk is weighted average risk of security.

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Relative Strength Index; — Avg of up closing price / Avg of down closing price (50 days avg) (SFMpraveen)

→ Constant mix Portfolio → Market

→ Return = $\frac{\text{Required Return of Investor} + \text{Recurring expenses}}{1 - \text{Initial expenses}}$

Expenses Ratio = $\frac{\text{expense}}{\text{Avg value of portfolio}}$ or $\frac{\text{expens per unit}}{(NAV_0 + NAV_1)/2}$

Mutual funds

Return of mutual Fund = $\frac{[NAV_1 - NAV_0] + D_1 + CG_1}{NAV_0} \times 100$

NAV of a Scheme =

$$\frac{\text{Value of Investment} + \text{Receivables} + \text{Accrued Income} - \text{Liabilities} - \text{Accrued Expenses}}{\text{Number of units outstanding}}$$

Required return from Mutual Funds = $\frac{\text{Required return of Investor \%}}{1 - \text{Initial Expense \%}} + \text{Recurring Expenses \%}$

Fund Valuation Ratios

Sharpe Ratio $\frac{R_p - R_f}{\sigma_p}$

Treynor Ratio $\frac{R_p - R_f}{\beta_p}$

Portfolio turnover Ratio = $\frac{\text{Lower of annual purchase or sale}}{\text{Avg value of Portfolio}}$

Jenson: $\alpha = \text{Actual Return} - \text{CAPM Return}$

Fama: $\alpha = \text{Actual Return} - [R_f + \frac{\sigma_p}{\sigma_m}(R_m - R_f)]$

Morning Star Model: Average Return – Average Risk of loss in MF compared to R_f

Equity Derivatives

Call option	Put Options
S_0>E.P - In the Money	S_0>E.P - Out of the Money
S_0=E.P - At the Money	S_0=E.P - At the Money
S_0<E.P - Out of the Money	S_0<E.P - In the Money

Put-Call Parity Theorem: Theoretical value of
For Put = P.V of E.P + Call Premium – S_0
For Call = S_0 + Put Prem. – P.V of E.P
S_0 = P.V of R_F + Call Premium – Put Prem.

Call Holder/Call Writer

E.P

S_1>E.P Exercise | S_1<E.P Lapse

Put Holder/Put Writer

E.P

S_1<E.P Exercise | S_1>E.P Lapse

Position	View	Profit	Loss	Option	Underlying	Position
Call Holder	Bullish	Unlimited	Limited	Buy	Buy	Option to Buy
Call Writer	Bearish	Limited	Unlimited	Sell	Sell	Obligation to Sell
Put Holder	Bearish	Unlimited	Limited	Buy	Sell	Option to sell
Put Writer	Bullish	Limited	Unlimited	Sell	Buy	Obligation to Buy

Put Call parity ⇒ S+P = C+PVEP

Change in compounding rate

$i_2 = m[e^{r/m} - 1]$

* Continuous compounding rate

Long Condor, Call :- Buy call at E_1 & E_4 and Sell Call at E_2 & E_3.
Long Condor, Put :- Buy Put at E_1 & E_4. write put at E_2 & E_3.
Short condor, Call :- Sell call at E_1 & E_4. Buy call at E_2 & E_3.
Short condor, put :- Sell put at E_1 & E_4. Buy puts at E_2 & E_4.

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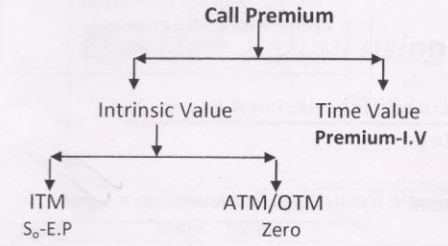

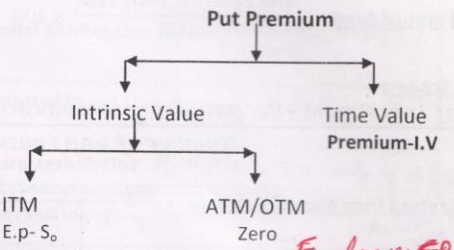

Derivative Strategies

E_1 = lower EP E_2 higher EP
E_3 → E.p more than E_2

Spread	View on Stock/ Nifty	Position in Options
Bull Spread with Calls	Bullish	Buy E1 call Sell E2 call
Bull Spread with Puts	Bullish	Buy E1 Put Sell E2 Put
Bear Spread with Calls	Bearish	Sell E1 call Buy E2 call
Bear Spread with Puts	Bearish	Sell E1 Put Buy E2 Put
Butterfly with calls	High volatility	Buy E1 call Sell 2X E2 calls Buy E3 call
Butterfly with calls	Low Volatility	Sell E1 call Buy 2X E2 calls Sell E3 call
Butterfly with Puts	High volatility	Buy E1 put Sell 2X E2 Puts Buy E3 Put
Butterfly with Puts	Low Volatility	Sell E1 put Buy 2X E2 Puts Sell E3 Put
Long straddle (Long Stand for buy)	High volatility	Buy call, Buy Put
Short straddle (Short Stand for Sell)	Low Volatility	Sell call, Sell Put
Long strangle	High volatility	Buy E1 call Buy E2 put
Short strangle	Low Volatility	Sell E1 call Sell E2 put
Strip	More downside likely	Buy 2 puts and 1 call
Strap	More upside likely	Buy 2 calls and 1 put
BOX	Any movement	Bull spread + bear spread

High → Price will fall or increase, with great difference
Low → Price will fall or increase, with narrow margin
E pair same

Condor strategy (above)

Derivative Strategies

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Future Stock → Bullish → Bull spread → Call option, Put option
Bearish → Bear spread → Call option, Put option
High volatile → Butterfly
low volatile → Butterfly strategy
High Movement

Hedge Ratio = $P \times \frac{\sigma_S}{\sigma_F}$ ΔS = Spot price ΔF = future price.

$\sigma_S = SD_0 \Delta S$, $\sigma_F = SD_0 \Delta F$ P = coefficient of correlation b/w ΔS & ΔF

$C = S_0 \times N(d_1) - E \times e^{-rt} \cdot N(d_2)$.

Options Valuation Models

Stock Equivalent Approach

Option Equivalent Approach:

Call Premium = No. of shares to buy × S_0 − P.V of Bank Loan (Ans)

No. of shares = $\frac{\text{Spread in possible GPO}}{\text{Spread in possible Maturity Spots.}}$

Black-Scholes Model:

$$D_1 = \frac{\log\frac{S_0}{E} + \left[r + \frac{1}{2}\sigma^2\right]t}{\sigma\sqrt{t}}$$

$$D_2 = d_1 - \sigma\sqrt{t}$$

Ans 5.54 (pg 5.39 PBP)

Options closing in ITM:

S_0 = P.V of R_f + Call Premium

Options Closing OTM:

S_0 = no. of calls × Call Prem + P.V of Lower stock price

No. of calls to buy = $\frac{\text{Spread in possible maturity spots}}{\text{Spread in possible calls GPO}}$

i.e profit of call options

Risk Neutral Model:

Call prem. = $\frac{\text{Call GPO @ higher end} \times \text{Prob.(up)} + \text{Call GPO @ lower end} \times \text{Prob.(down)}}{1+R_f}$

R_f = Prob × Price % ↑ + (1 − Prob) × Price % ↓

If dividend Amount is given,

Revised S_o = S_o - P.V of Dividend receivable

If dividend Yield % is given,

Revised R_f = R_f - % Div. Yield

Option Delta = $\frac{\text{Spread in Stock prices}}{\text{Spread in call (or) put prices}}$

Futures Valuations

1. $e^{rt} = FVIF > 1$
2. $e^{-rt} = \frac{1}{e^{rt}} = \frac{1}{FVIF} = PVIF < 1$
3. Non dividend paying stock: Theoretical future price = $S_0 \times e^{rt}$
4. Dividend paying stock $[S_0 - D]e^{rt}$, D = P.V of dividend
5. Dividend Yielding stock TFP = $S_0 \times e^{(r-y)t}$, y= Dividend yield

Calculation of fwd price

$A = P\left(1 + \frac{r}{n}\right)^{nt}$

A = Fwd price

r = rate of int

n = no. of compoundings

t = time

Initial margin for future = $\mu + 3\sigma$ (Pg 3.40)

Daily absolute change

Standard deviation

probability of price = $P = \frac{e^{rt} - d}{u - d}$ (Pg 4.2)

6. Long on Portfolio

No of Lots of Nifty to Short = $\frac{\beta \times Value\ of\ P_f}{Nifty\ Fut\ price \times lot\ size}$

For full hedge

Long Portfolio

Decrease β	Increase β
No. of Nifty Future Lots to sell = $\frac{(Old\ \beta - New\ \beta) X\ Value\ of\ PF}{Lot\ Size\ X\ Nifty\ Fut\ Price}$	No. of Nifty Future lots to buy = $\frac{(New\ \beta - Old\ \beta) X Value\ of\ PF}{Lot\ Size\ X\ Nifty\ Fut\ Price}$

Mark to Market Initial Margin = $\bar{x} + 3\sigma$

Maintenance Margin = 75% of Initial Margin

Commodity Derivatives

Theoretical Forward price = $(S_0 + I)e^{rt}$, I = P.V of Inventory cost.

Convenience yield refers to Benefit holder of commodity receives if he held the stock in physical form rather Than Future position

Present Value of Convenience yield = S_0+ P.V. of Inventory cost – P.V of Future price

Bond Market

Value of Bond = P.V of future cash flows of bond (i.e. Coupon Rate & Redemption Value)

Current Yield = Current yield refers to the return investor gets in the current year

= Interest P.A / Current Market Price

Yield to Call Yield to call refers to return investor receives if he surrenders the bond when called back by the company.

$$YTC = \frac{Interest\ p.a + [\frac{Redemption\ value - purchase\ price}{Remaining\ Life\ of\ call}]}{\frac{Redemption\ value + Purchase\ price}{2}} \times 100$$

Yield to Maturity Yield to Maturity refers to return investor receives if he holds the bond till Maturity.

$$\text{Yield to Maturity} = \frac{Interest\ p.a + [\frac{Redemption\ value - purchase\ price}{No.of\ years\ to\ maturity}]}{\frac{Redemption\ value + Purchase\ price}{2}} \times 100$$

$C \neq \frac{F-P}{n} \Big/ \left(\frac{F+P}{2}\right)$

Duration of the Bond It refers to weighted average maturity of the cash flows of the bond.

expected value of bond = Intrinsic value (i.e CMP) × Beta of Bond.

Bond equivalent yield = $\frac{Face\ value - CMP}{CMP} \times \frac{360/12\ m}{Remaining\ Period}$

EVA = [NOPAT − (WACC × Capital employed)]

Financial leverage = PBIT / PBT

Conversion premium ⇒ Market Price − Conversion Value / Conversion Value X100

Conversion value = No of shares convertible X MPS

market price = market price of bond / debenture.

Realised yield ⇒ Coupon Amt X yrs + Redemption Amt / (1+Realized yield)^n = CMP (Refer Pm 6.63)

Volatility of the Bond It refers to Sensitivity of the bond to Interest rates. In other words, Volatility shows %Increase or % decrease in Bond price due to decrease or increase in interest rates in the economy.

$$\text{Volatility\%} = \frac{Duration}{1+YTM}$$

Portfolio Duration It refers to weighted average of duration's of the bonds in the portfolio.

Straight Value of Bond Straight value of Bond means the Present value of Plain Vanilla Bond (Non-Convertible Bond)

Conversion Parity Price It means the value of Equity share at which it makes no difference for investor whether converted or not.

Floor value of Bond It is the value of the convertible Bond, if the stock price falls drastically to even to zero.

$$\text{Downside Risk} = \frac{Bond\ Price - Straight\ Value}{Bond\ Price} \times 100$$ (CMP of bond)

$$\text{Conversion Parity Price} = \frac{Bond\ Price}{No.of\ Shares}$$

Fixed Income Derivatives

Interest Rate swap-

If Fixed Diff > Float Diff

Conversion from Fixed to Float is Possible from the angle of stronger company.

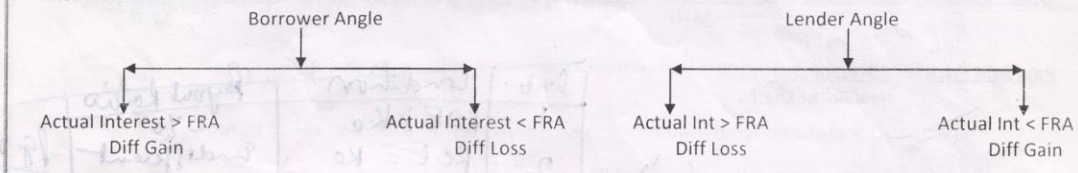
Strong Company	Weak Company
1. Pay Fixed to Bank	1.Pay Float to Bank
2. Receive above + share of Swap	2.Pay Step 2 to Strong Company
3. Pay Float (Which is otherwise payable to Bank)	3.Receive Step 3 from strong company
4. Net Cost = 1+2+3 (Float)	4.Net cost = 1+2+3 (Fixed)

If Fixed Diff< Float Diff

Conversion from Fixed to Float is possible from the angle of weaker company

Strong Company	Weak Company
1. Pay Float to Bank	1.Pay Fixed to Bank
2. Receive above + share of Swap	2.Pay Step 2 to Strong Company
3. Pay Fixed (Which is otherwise payable to Bank)	3.Receive Step 3 from strong company
4. Net Cost = 1+2+3 (Fixed)	4.Net cost = 1+2+3 (Float)

Forward Rate agreement is an agreement to borrow and lend money for specified period in future but rate of Interest is fixed now



Final Settlement Amt formula :- $N \frac{(RR-FR)(dtm/DY)}{[1+RR(dtm/DY)]}$ (Refer Pm 5.57)

N = Notional principal Amount

RR = Reference Rate on date of Settlement

FR = Rate specified in FRA

DTM = period of loan taken for

DY = 12/360/365 as may be the case

Theoretical Forward Rate Theoretical forward rate refers to the FRA at which there is no Arbitrage Opportunity available by borrowing and lending for different maturities. For example,

(1+1st Year Rate) = (1+6 Months Rate)(1+2nd 6m Rate)

(1+6m Rate) = (1+3m Rate) (1+2nd 3m Rate)

$(1+2 \text{ Year Rate})^2$ = (1+1st Year Rate)(1+2nd Year Rate)

If the above equations are not satisfied, Arbitrage Opportunity available

Relationship between Interest Rates, Reinvestment income & Bond Prices

Interest Rates	Re Investment Income	Bond Prices
↑	↑	↓
↓	↓	↑

Immunization refers to buying a bond in such a way when interest rates rises fall in the bond prices will be exactly compensated with rise in Reinvestment income and when interest rates falls fall in the reinvestment will be exactly compensated with raise in the bond value. Immunization can be achieved by buying the bond now and holding it till duration.

Corporate Dividend Policy

Dividend Discounting/Growth Model $P_0 = \frac{D_1}{K_e}$ or $\frac{D_0}{K_e}$ (No growth)

$P_0 = \frac{D_1}{K_e - G}$ or $K_e = \frac{D_1}{P_0} + G$

Earnings Growth Model $P_0 = \frac{E_1}{K_e - G}$

Walter's Model: $P_0 = \frac{D}{K_e} + \frac{\frac{IRR}{K_e}(E-D)}{K_e}$

Gordan Model: $P_0 = \frac{D_1}{K_e - G}$

G= Retention Ratio X IRR (IRR = Return on Investment)

Retention Ratio = 1 – Payout ratio.

Modiglani Miller Theory Dividend decision is irrelevant in determining the value of shares. In other words, whether the company pays the dividend or not the stock price will not change.

$P_0 = \frac{D_1 + P_1}{1 + K_e}$

$P_1 = P_0(1 + K_e) - D_1$ I_1= Investment in Year 1, E_1= Earnings in year 1

$M \times P_0 = \frac{(m+n)P_1 + E_1 - I_1}{1+K_e}$ m= Old No. of Shares, n= New No. of shares

Theoretical post Rights Price = $\frac{(S_0 \times M) + \text{Rights Proceeds}}{M+N}$

Post Bonus Theoretical Price = $\frac{S_0 \times M}{M+N}$

Post Split Price = $\frac{S_0 \times \text{No. of Shares}}{\text{New no. of Shares}}$

S.no.	Condition	Payout Ratio
1	ROE > Ke	0%
2	ROE = Ke	Indifferent
3	ROE < Ke	100%

Pg 209 Patti Dam

Mergers and Acquisitions

Earnings Based Valuations method

No. of shares issuable = $\frac{Total\ earnings\ of\ target\ co.}{EPS\ of\ Acquisition\ co.}$

Market Based Valuations method

No. of Shares issuable = $\frac{M.Cap\ of\ Target\ Co.}{CMP\ of\ Acquisition\ Co.}$

Book value based valuation method

No. of shares issuable = $\frac{Book\ value\ of\ Target\ Co.}{Book\ value\ per\ share\ of\ Acquiring\ co.}$

Discounted Cash flows method The future cash flows of the target co. business will be estimated and discounted with acquiring co.'s cost of capital.

Weighted Average Method Weighted Average of 2 or more of the above Methods.

FOREX Markets

$DQ = \frac{1}{IDQ}$ $IDQ = \frac{1}{DQ}$

When bank buys denominator currency Bid Rate.
When bank sells denominator currency Ask Rate

Bid and Ask Value

$Bid\ \frac{x}{y} = \frac{1}{Ask\ \frac{y}{x}}$ and $Ask\ \frac{x}{y} = \frac{1}{Bid\ \frac{y}{x}}$ => $\frac{x}{z} = \frac{x}{y} \times \frac{y}{z}$

Fx Rates of Few Currencies

Rs/$	- 60
Rs/€	- 85
Rs/£	- 100
¥/$	- 103
Rs/AED	- 16

Cross Currency Bid/Ask

$Bid\ \frac{x}{z} = Bid\ \frac{x}{y} \times Bid\ \frac{y}{z}$ and $Ask\ \frac{x}{z} = Ask\ \frac{x}{y} \times Ask\ \frac{y}{z}$

Conversions from

Denominator to Numerator = Multiplication.
Numerator to Denominator = Division.

Price & Product Price is Numerator & Product is Denominator

$Price = \frac{S-F}{F} \times 100 \times \frac{12}{M}$ (if +ve Price is Premium, If –ve Price is Discount)

$Product = \frac{F-S}{S} \times 100 \times \frac{12}{M}$ (if +ve Product is Premium, If –ve Product is Discount)

SWAP Points

Ascending Order – Add SWAP
Descending Order – Deduct SWAP
} From Spot Rate to find Forward rates.

Interest Rate Parity Theorem

According to Interest rate Parity Theorem, Theoretical Forward Rate = $\frac{S_0(1+R_h)}{(1+R_f)}$

R_h= Home Currency Interest rate, R_f = *Foreign Currency Interest Rate*

If Actual R_h > Theoretical R_h = Borrow in Foreign Currency & Invest in Home Currency (i.eMoney is cheaper in Foreign Currency).

As on 1/1/2014	As on 31/12/2014.
1. Borrow in F.C	5 Redeem Deposit + Interest.
2. Convert in H.C @ spot.	6 Reconvert to F.C @ Fwd Rate.
3. Deposit @ actual R_h	7 Repay F.C loan
4. Take Fwd Cover to buy F.C	8 6-7 Arbitrage gain

If Actual R_h < Theoretical R_h = Money is cheaper in Home Currency. Hence borrow in Home currency & Invest in foreign currency.

As on 1/1/2014	As on 31/12/2014.
1. Borrow in H.C	5. Redeem Deposit + Interest.
2. Convert in F.C @ spot.	6. Reconvert to H.C @ Fwd Rate.
3. Deposit in F.C	7. Repay H.C loan + Interest.
4. Take Fwd Cover to sell F.C	8. 6-7 = Arbitrage gain.

According to Purchasing Power Parity Theorem/ Theoretical Forward Rate = $\frac{S_0(1+I_h)}{(1+I_f)}$

here I refers to Inflation.

Money Market Hedging

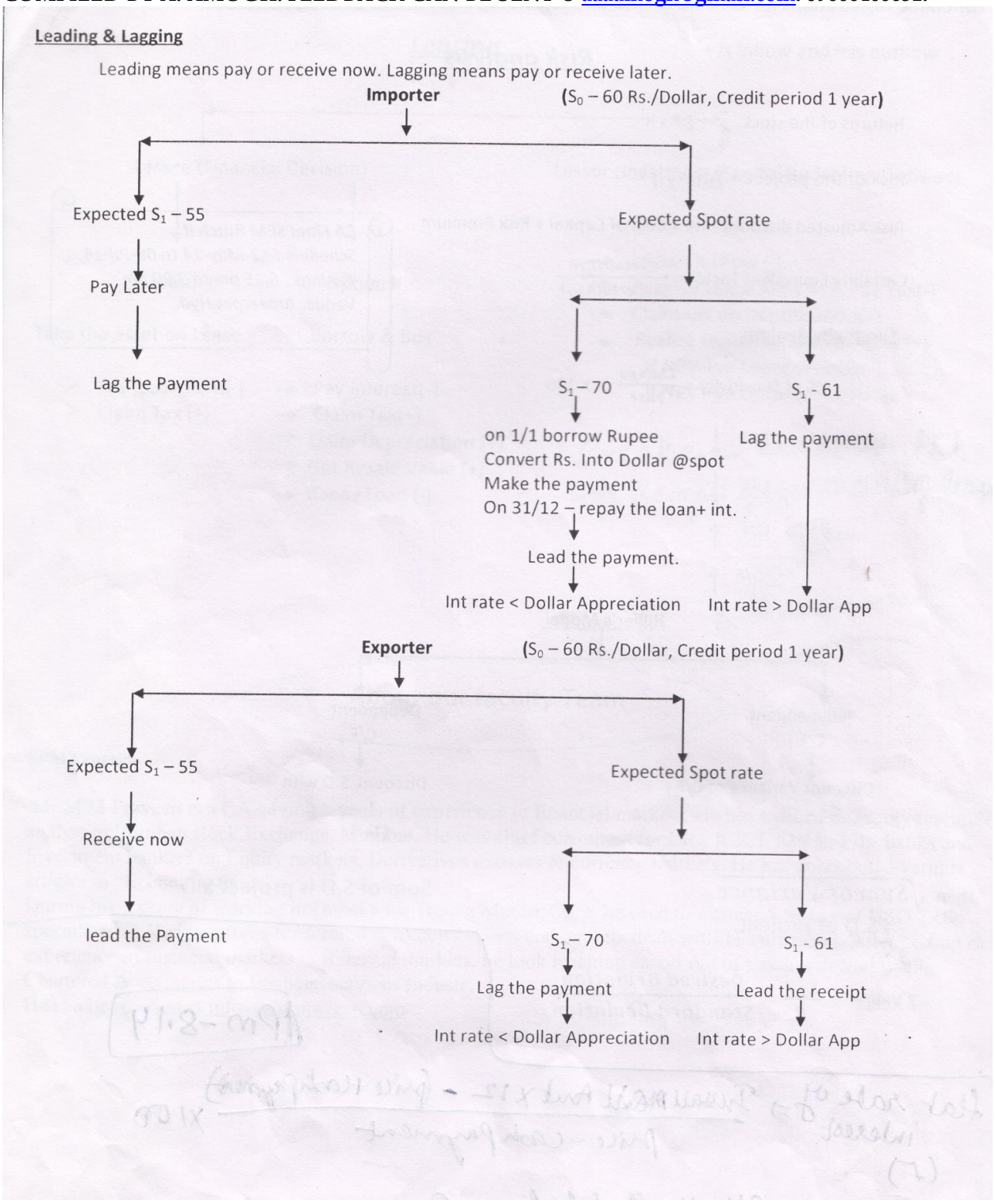
Money Market Hedging refers to simultaneous creation of FX asset for existing FX liability in case of importer and creation of FX liability for existing FX asset in case of exporter.

Importer – Payment due.

1. Identify Fx Liability
2. Create Fx Asset (Deposit in foreign currency bank @ Deposit rate) by borrow in Rs. & Conversion to Dollar at spot rate.
3. Redeem the deposit and repay the Liability
4. Repay home Currency Liability + Interest.

Exporter – Receivable

1. Identify Fx Asset
2. Create Fx Liability by borrow in Dollar on 1/1.
3. Convert to Rupees at 31/1.
4. Realize Fx Asset & repay Fx liability.


Leading & Lagging
Leading means pay or receive now. Lagging means pay or receive later.
Importer
(S_0 – 60 Rs./Dollar, Credit period 1 year)
Expected S_1 – 55
Pay Later
Lag the Payment
Expected Spot rate
S_1 – 70
on 1/1 borrow Rupee
Convert Rs. Into Dollar @spot
Make the payment
On 31/12 – repay the loan+ int.
Lead the payment.
Int rate < Dollar Appreciation
S_1 - 61
Lag the payment
Int rate > Dollar App
Exporter
(S_0 – 60 Rs./Dollar, Credit period 1 year)
Expected S_1 – 55
Receive now
lead the Payment
Expected Spot rate
S_1 – 70
Lag the payment
Int rate < Dollar Appreciation
S_1 - 61
Lead the receipt
Int rate > Dollar App

Risk analysis

Returns of the stock $\bar{x} = \sum P \times X$

Risk of the project = $\sum p(x-\bar{x})^2$

Risk Adjusted discount rate = Cost of Capital + Risk Premium

Certainty Equivalent Factor = $\frac{Certain\ C/F}{Un\ Certain\ C/F}$

Sensitivity Analysis

% of Sensitivity = $\frac{Change}{base}$ X 100

Sensitive's
- CFAT ↓
- LIFE ↓
- O/F ↑
- D/F ↑

Hillier's Model

Independent C/F s	Dependent C/F s
Discount Variance of C/F s @ $\frac{1}{(1+r)^{2n}}$	Discount S.D with $\frac{1}{(1+r)}$
Then $\sqrt{Sum\ of\ Variance}$ = S.D of Project	Sum of S.D is project S.D

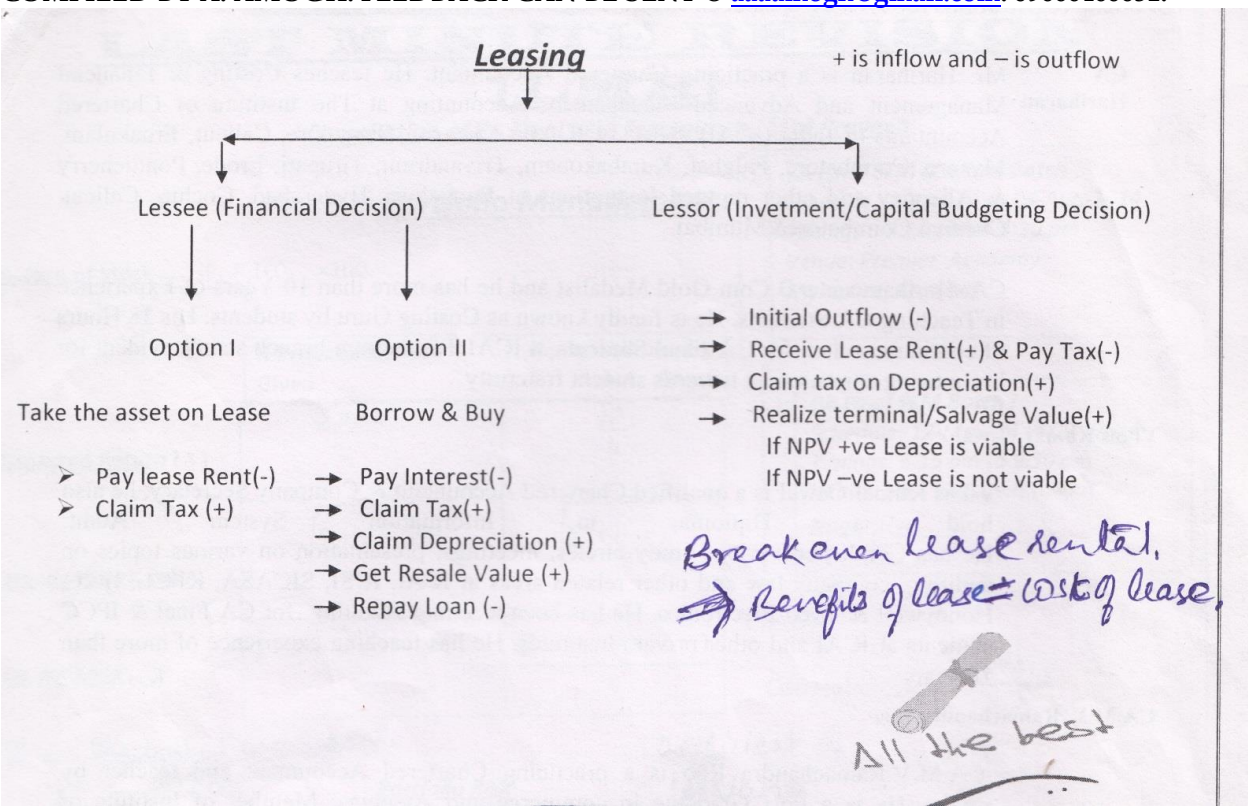
Z Value = $\frac{x-\bar{x}}{\sigma} = \frac{Desired\ Deviation}{Standard\ Deviation}$

PM - 8.14

flat rate of interest (F) ⇒ $\frac{\text{Install Amt} \times 12 - (\text{price} + \text{cash payment})}{\text{price} - \text{cash payment}} \times 100$

effective Int rate = $\frac{n}{n+1} \times 2F$

PM = practise manual.


Leasing
+ is inflow and – is outflow
Lessee (Financial Decision)
Lessor (Invetment/Capital Budgeting Decision)
Option I
Option II
Take the asset on Lease
Borrow & Buy
Pay lease Rent(-)
Claim Tax (+)
Pay Interest(-)
Claim Tax(+)
Claim Depreciation (+)
Get Resale Value (+)
Repay Loan (-)
Initial Outflow (-)
Receive Lease Rent(+) & Pay Tax(-)
Claim tax on Depreciation(+)
Realize terminal/Salvage Value(+)
If NPV +ve Lease is viable
If NPV –ve Lease is not viable
Break even lease rental.
⇒ Benefits of lease = Cost of lease.
All the best