1

Study Material Chapter 13 – Mergers, Acquisitions & Restructuring Page 13.42

Our Notes - SFM Volume 1 – Page 48 Q 34 [Version 4&5] or Page 46 Q 32 [Version 3]

Question: Longitude Limited –> PAT updated to 140 120 & 60 80.

Edition 2018 – Pg No. 13.26

Below is PM Edition 2018 Snapshot

Question 26

Longitude Limited is in the process of acquiring Latitude Limited on a share exchange basis. Following relevant data are available:

		Longitude Limited	*Latitude Limited*
Profit after Tax (PAT)	*₹ in Lakhs*	*140*	*60*
Number of Shares	*Lakhs*	*15*	*16*
Earning per Share (EPS)	*₹*	*8*	*5*
Price Earnings Ratio (P/E Ratio)		*15*	*10*
(Ignore Synergy)			

You are required to determine:

(i) Pre-merger Market Value per Share, and

(ii) The maximum exchange ratio Longitude Limited can offer without the dilution of

(1) EPS and

(2) Market Value per Share

Calculate Ratio/s up to four decimal points and amounts and number of shares up to two decimal points.

Edition 2021 – Pg No. 12.20

Below is Edition 2021 Snapshot

13. Longitude Limited is in the process of acquiring Latitude Limited on a share exchange basis. Following relevant data are available:

		Longitude Limited	**Latitude Limited**
Profit after Tax (PAT)	₹ in Lakhs	120	80
Number of Shares	Lakhs	15	16
Earning per Share (EPS)	₹	8	5
Price Earnings Ratio (P/E Ratio)		15	10
(Ignore Synergy)			

You are required to determine:

(i) Pre-merger Market Value per Share, and

(ii) The maximum exchange ratio Longitude Limited can offer without the dilution of

(1) EPS and

(2) Market Value per Share

Calculate Ratio/s up to four decimal points and amounts and number of shares up to two decimal points.

Comment: Hence Alternative Solution 2 becomes the correct solution.

2

Study Material Chapter 12 – Corporate Valuation

Correction in SM Example

Edition 2019 – Pg No. 12.18

Below is Edition 2019 Snapshot

Example

X is a small software company that is providing a niche data control and testing service having 60 employees and some steady contracts, which generates an EBIDTA of INR 100 Lacs per year. A venture capitalist (VC) convinces the managing director of the company to sell off the majority stake to him – valued at a premium of 100% per share over the book value plus one time goodwill payoff of INR 50 Lacs, using an income based valuation approach. The total consideration is thus at INR 250 Lacs.

Next, the VC will rope in a banker to pump in INR 200 Lacs for the acquisition-cum-expansion as well as to do brand marketing, thereby making the company a visible player in the market. The gap of INR 50 Lacs is his contribution as promoter equity towards securities premium. Since the core operations team is not dismantled, the company easily achieves a 20% average growth in each of the next 3 years.

At the end of the third year, the VC puts the company on the 'sale block' and is able to garner interest of a leading MNC in the same. The exit multiple that the VC looks is at 7 times the EBDAT. The entity value is hypothetically worked as under –

	INR (in Lacs)			
	Y0	**Y1**	**Y2**	**Y3**
EBIDTA	100	120	144	173
Less: Interest	36	33	32	30
EBDTA	64	87	112	143
Less: Taxes @ 30%	19.2	26.1	33.6	42.8
EBDAT	**44.8**	**60.9**	**78.4**	**100.0**
Multiple				7
Capitalised Value at end of Y3				700
Less: Debt #				(200)
Equity Value				**500**

Debt principal repayment assumed 20% over the 3 years starting Y4

Edition 2021 – Pg No. 12.20

Below is Edition 2021 Snapshot

Example

X is a small software company that is providing a niche data control and testing service having 60 employees and some steady contracts, which generates an EBIDTA of ₹ 100 Lacs per year. A Venture Capitalist (VC) convinces the managing director of the company to sell off the majority stake to him – valued at a premium of 100% per share over the Book Value plus one time goodwill payoff of ₹ 50 Lacs, using an Income Based Valuation approach. Thus the total consideration comes out ₹ 250 Lacs.

Next, the VC ropes a banker to pump in ₹ 200 Lacs for the acquisition-cum-expansion as well as to do brand marketing, thereby making the company a visible player in the market. The gap of ₹ 50 Lacs is his contribution as promoter equity towards securities premium. Since the core operations team is not dismantled, the company easily achieves a 20% average growth in each of the next 3 years.

At the end of the third year, the VC puts the company on the 'Sale Block' and is able to garner interest of a leading MNC in the same. Assume if the exit multiple that the VC looks is at 7 times the EBDAT. The entity value is hypothetically can be worked out as under –

	(in ₹ Lacs)			
	Y_0	Y_1	Y_2	Y_3
EBIDTA	100.00	120.00	144.00	178.00
Less: Interest#	36.00	30.00	24.00	18.00
EBDTA	64.00	90.00	120.00	160.00
Less: Taxes @ 30%	19.20	27.00	36.00	48.00
EBDAT	**44.80**	**63.00**	**84.00**	**112.00**
Multiple				7
Capitalized Value at end of Y_3				784
Less: Debt				(100)
Equity Value				**684**

Debt principal assumed to be repayable linearly in 6 years.

Faculty Comment : Year 3- EBIDTA of 173 in earlier SM was correct. Mistakenly changed to 178 in the latest version of SM.

3

Study Material Chapter 2 – Corporate Valuation Page 12.22

Our Notes - SFM Volume 1 – Page 222 Q 107 [Version 4&5] or Page 211 Q 108 [Version 3]

Earlier it was INCORRECTLY solved by ICAI, But Now has been Corrected by ICAI

Edition 2019 – Pg No. 12.20

Below is Edition 2019 Snapshot

Illustration 2

Compute EVA of A Ltd. with the following information:

Profit and Loss Statement		Balance Sheet	
Revenue	1000	PPE	1000
Direct Costs	-490	Current Assets	300
SGA	-200		**1300**
EBIT	**310**	Equity	700
Interest	-10	Reserves	100
EBT	**300**	Non Current Borrowings	100
Tax Expense	-100	Current Liabilities & Provisions	400
EAT	**200**		**1300**

Assume bad debts provision of 20 is included in the SGA, and 20 reduced from the trade receivables in current assets.

Also assume that the pre-tax Cost of Debt is 12%, Tax Rate is 33.33% and Cost of Equity (i.e. the expected shareholder's return) is 8.45%.

Solution

Step I: Computation of NOPAT

NOPAT	
EBIT	400
Less: Taxes	-100
Add: Non Cash Expenses	20
NOPAT	**320**

Step II: Finding out the Invested Capital:

Invested Capital	
Total Assets	1300
Less: Non Interest bearing liabilities	-400
	900
Add: Non Cash adjustment	20
	920

Edition 2021 – Pg No. 12.22

Below is Edition 2021 Snapshot

Illustration 5

Compute EVA of A Ltd. with the following information:

All Figure are in ₹ Lac

Profit and Loss Statement		Balance Sheet	
Revenue	1000	PPE	1000
Direct Costs	-390	Current Assets	300
Selling, General & Admin. Exp. (SGA)	-200		**1300**
EBIT	**410**	Equity	700
Interest	-10	Reserves	100
EBT	**400**	Non-Current Borrowings	100
Tax Expense	-120	Current Liabilities & Provisions	400
EAT	**280**		**1300**

Assume Bad Debts provision of ₹ 20 Lac is included in the SGA, and same amount is reduced from the trade receivables in current assets.

Also assume that the pre-tax Cost of Debt is 12%, Tax Rate is 30% and Cost of Equity (i.e. shareholder's expected return) is 8.45%.

Solution

Step I: Computation of NOPAT

NOPAT	
EBIT	410
Less: Taxes	-123
Add: Non-Cash Expenses	20
NOPAT	**307**

Step II: Finding out the Invested Capital:

Invested Capital	
Total Assets	1300
Less: Non Interest bearing liabilities	-400
	900
Add: Non Cash adjustment	20
	920

Note: It is assumed that the current liabilities also include the 100 of tax liability.

Step III: Compute the WACC

WACC = Cost of equity + Cost of debt

In this case, WACC = (800/900*8.45%) + [100/900*12% (1 - 0.30)] = 8.44%

Step IV: Find out the Capital Charge

Capital Charge = Invested Capital * WACC = 920 * 8.44% = 77.65

Step V: EVA = Adjusted NOPAT – Capital Charge = 307 – 77.65 = 229.35

4

Correction in the Example in SM

Edition 2019 – Pg No. 12.22

Below is Edition 2019 Snapshot

Step a.1: Using the appropriate value drivers, arrive at the operating cash flows:

				(in Millions)
	Y1	**Y2**	**Y3**	**Y4 onwards**
EBIT (growing at 5% yearly)	100	105	110	116
Interest Cost	5	6	7	8
EBT	95	99	103	108
Taxes @ 33%	31	33	34	36
EAT	**64**	**66**	**69**	**72**
Add back : Depreciation	5	5	6	7
Add back : One time writeoffs	1	-	-	-
Operating Cash Flow	**70**	**71**	**75**	**79**

Step a(2):

Operating Cash Flow	**70**	**71**	**75**	**79**
Less: Forecasted Capital Investments		12	6	9
Less: Forecasted Net Working Capital	5	5	6	7
Free Cash Flow (FCFs)	**65**	**54**	**63**	**63**

Step b: Applying the WACC to find out the discounted values:

Free Cash Flow (FCFs)	**65**	**54**	**63**	**63**
WACC (discount rate) @ 12%	0.89	0.80	0.71	0.64
Present Value of FCFs	**58**	**43**	**45**	**40**

Step c: Finding out the proper TV:

Present Value of FCFs	**58**	**43**	**45**	**40**
Multiplier for TV (assumed at 3)				3
Present Value of FCFs	**58**	**43**	**45**	**120**

Step d & e:

Total PVs	**266**
Add: Investment Property (at FV)	35
Less: Carrying cost of Debt	(19)
Value of Equity	**282**

Thus, we observe that SVA brings out a futuristic sense of value for shareholders. Infact, this can be a good benchmark for shareholders from a cash return on investment perspective too.

Edition 2021 – Pg No. 12.26

Below is Edition 2021 Snapshot

Step a.1: Using the appropriate value drivers, arrive at the operating cash flows:

				(in $ Millions)
	Y1	**Y2**	**Y3**	**Y4 onwards**
EBIT (growing at 5% yearly)	100.00	105.00	110.25	115.76
Interest Cost	5.00	6.00	7.00	8.00
EBT	95.00	99.00	103.25	107.76
Taxes @ 33%	31.35	32.67	34.07	35.56
EAT	**63.65**	**66.33**	**69.18**	**72.20**
Add back : Depreciation	5.00	5.00	6.00	7.00
Add back : One time write offs	1.00	-	-	-
Operating Cash Flow	**69.65**	**71.33**	**75.18**	**79.20**

Step a(2):

Operating Cash Flow	**69.65**	**71.33**	**75.18**	**79.20**
Less: Forecasted Incremental Capital Invest.	--	12.00	6.00	9.00
Less: Forecasted Net Working Capital	5.00	5.00	6.00	7.00
Free Cash Flow (FCFs)	**64.65**	**54.33**	**63.18**	**63.20**

Step b: Applying the WACC to find out the discounted values:

Free Cash Flow (FCFs)	**64.65**	**54.33**	**63.18**	**63.20**
WACC (discount rate) @ 12%	0.89	0.80	0.71	0.64
Present Value of FCFs	**57.54**	**43.46**	**44.86**	**40.45**

Step c: Finding out the proper TV:

Present Value of FCFs	**57.54**	**43.46**	**44.86**	**40.45**
Multiplier for TV (1 ÷ 0.12)				8.33
Present Value of FCFs	**57.54**	**43.46**	**44.86**	**336.95**

Step d & e:

Total PVs	**482.81**
Add: Investment Property (at FV)	35.00
Less: Carrying cost of Debt	(19.00)
Value of Equity	**498.81**

Thus, we observe that SVA brings out a futuristic sense of value for shareholders. In fact, this can be a good benchmark for shareholders from a cash return on investment perspective too.

Money Market Instrument has been Added to SM Edition 2021

8.16 Money Market Instruments

Similar to Bonds, the money market instruments are important source of finance to industry, trade, commerce and the government sector for meeting their short-term requirement for both national and international trade. These financial instruments provide also an investment opportunity to the banks and others to deploy their surplus funds so as to reduce their cost of liquidity and earn some income.

The instruments of money market are characterised by

(a) Short duration,

(b) Large volume

(c) De–regulated interest rates.

(d) The instruments are highly liquid.

(e) They are safe investments owing to issuers inherent financial strength.

The traditional short-term money market instruments consist of mainly call money and notice money with limited players, treasury bills and commercial bills. The new money market instruments were introduced giving a wider choice to short term holders of money to reap yield on funds even for a day to earn a little more by parking funds through instruments for a few days more or until such time till they need it for lending at a higher rate. The various types of instruments of money market are discussed in the following paragraphs:

8.16.1 Call/Notice money: Call money market, or inter-bank call money market, is a segment of the money market where scheduled commercial banks lend or borrow on call (i.e., overnight) or at short notice (i.e., for periods upto 14 days) to manage the day-to-day surpluses and deficits in their cash-flows.

However, under notice money market, funds are transacted for a period between two days and fourteen days. These day to day surpluses and deficits arises due to the vary nature of their operations and the peculiar nature of the portfolios of their assets and liabilities.

8.16.2 Treasury Bills (TBs): Among money market instruments TBs provide a temporary outlet for short-term surplus as also provide financial instruments of varying short-term maturities to facilitate a dynamic asset-liabilities management. The interest received on them is the discount which is the difference between the price at which they are issued and their redemption value. They have assured yield and negligible risk of default. The TBs are short-term promissory notes issued by Government of India at a discount.

More relevant to the money market is the introduction of 14 days, 28 days, 91 days and 364 days TBs on auction basis.

However, at present, the RBI issues Treasury Bills of three maturities i.e. 91 days, 182 days and 364 days.

TBs are issued at discount and their yields can be calculated with the help of the following formula:

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

where Y = Yield,

F = Face Value,

P = Issue Price/Purchase Price,

M = Actual days to Maturity.

8.16.3 Commercial Bills: A commercial bill is one which arises out of a genuine trade transaction, i.e. credit transaction. As soon as goods are sold on credit, the seller draws a bill on the buyer for the amount due. The buyer accepts it immediately agreeing to pay amount mentioned therein after a certain specified date. Thus, a bill of exchange contains a written order from the creditor to the debtor, to pay a certain sum, to a certain person, after a creation period. A bill of exchange is a 'self-liquidating' paper and negotiable; it is drawn always for a short period ranging between 3 months and 6 months.

Bill financing is the core component of meeting working capital needs of corporates in developed countries. Such a mode of financing facilitates an efficient payment system. The commercial bill is instrument drawn by a seller of goods on a buyer of goods. RBI has pioneered its efforts in developing bill culture in India, keeping in mind the distinct advantages of commercial bills, like, self-liquidating in nature, recourse to two parties, knowing exact date transactions, transparency of transactions etc.

Example

If a bank re-discounted a commercial bill with a face value of ₹ 100/- @ 15% for 2 months will fetch ₹ 97.50, on the basis of the following calculation.

$$\text{Discount} = 100 \times \frac{15}{100} \times \frac{2}{12} = ₹\ 2.50$$

However, as the discount amount is paid at front-end.

Example

The yield to the investor or cost to the borrower will be higher than the discount rate in view of the fact that the discounter can deploy the amount of discount received for earning further income. This can be calculated with the following formula:

$$D = \frac{FV - SV}{SV} \times \frac{\text{Days or months in a year}}{M} \times 100$$

where

D = Effective Discounting Rate

FV = Face Value

SV = Sale Value

M = Period of Discount

Accordingly, the Yield as per the data given in the example will be:

$$\frac{100-97.50}{97.50}\times\frac{12}{2}\times100 = 15.385\%$$

8.16.4 Call/Notice money: The CDs are negotiable term-deposits accepted by commercial bank from bulk depositors at market related rates. CDs are usually issued in demat form or as a Usance Promissory Note.

Just like Commercial Bills, Certificate of Deposit (CD) is a front–ended negotiable instrument, issued at a discount and the face value is payable at maturity by the issuing bank.

Example

Amount of Issue – ₹ 100

Period - 6 months

Rate of discount – 20%

$$\text{Discount} = 100\times\frac{20}{100}\times\frac{6}{12} = ₹\ 10.00$$

Hence CD will be issued for ₹ 100 – 10 = ₹ 90.00. The effective rate to the bank will, however, be calculated on the basis of the following formula:

$$E = \frac{FV-SV}{SV}\times\frac{\text{Days or months in a year}}{M}\times100$$

where

E = Effective Yield

FV = Face Value

SV = Sale Value

M = Period of Discount

Accordingly, the Yield as per the data given in the example will be:

$$\frac{100-90}{90}\times\frac{12}{6}\times100 = 22.22\%$$

8.16.5 Commercial Paper: Commercial Paper (CP) has its origin in the financial markets of America and Europe. The concept of CPs was originated in USA in early 19th century when commercial banks monopolised and charged high rate of interest on loans and advances. In India, the CP was introduced in January 1990 on the recommendation of Vaghul Committee subject to various conditions. When the process of financial dis-intermediation started in India in 1990, RBI allowed issue of two instruments, viz., the Commercial Paper (CP) and the Certificate of Deposit (CD) as a part of reform in the financial sector. A notable feature of RBI Credit Policy announced on 16.10.1993 was the liberalisation of terms of issue of CP. At present it provides cheap source of funds for corporate sector and has caught the fancy of corporate sector and banks. Its market has picked up considerably in India due to interest rate differentials in the inter-bank and commercial lending rates.

CPs are unsecured and negotiable promissory notes issued by high rated corporate entities to raise short-term funds for meeting working capital requirements directly from the market instead of borrowing from banks. Its period ranges from 7 days to 1 year. CP is issued at discount to face value The issue of CP seeks to by-pass the intermediary role of the banking system through the process of securitisation.

It partly replaces the working capital limits enjoyed by companies with the commercial banks and there will be no net increase in their borrowing by issue of CP. Generally, CP has to be issued at a discount to face value. Yield on CP is freely determined by the market.

The yield on CP can be calculated as follows:

$$Y = \frac{FV - SV}{SV} \times \frac{\text{Days or months in a year}}{M} \times 100$$

where

Y = Yield

FV = Face Value

SV = Sale Value

M = Period of Discount

8.16.6 Repurchase Options (Repo.) and Reverse Repurchase Agreement (Reverse Repo): The term Repurchase Agreement (Repo) and Reverse Repurchase Agreement (Reverse Repo) refer to a type of transaction in which money market participant raises funds by selling securities and simultaneously agreeing to repurchase the same after a specified time generally at a specified price, which typically includes interest at an agreed upon rate. Sometimes it is also called *Ready Forward Contract* as it involves funding by selling securities (held on Spot i.e. Ready Basis) and repurchasing them on a forward basis.

Following are major differences between Repo and Reverse Repo:

(a) Repo rate is the rate at which Reserve Bank of India (RBI) lends to Commercial Banks for a short period of time against Government Securities. On the other hand, Reverse Repo is the rate at which Commercial Banks lend to RBI.

(b) A transaction is called a Repo when viewed from the perspective of the seller of securities (the party acquiring funds) and Reverse Repo when described from the point of view of the supplier of funds. Thus, whether a given agreement is termed a Repo or a Reverse Repo depends largely on which party initiated the transaction.

(c) The purpose of Repo is to fulfill the deficiency of funds. While the purpose of Reverse repo is to reduce excess liquidity in the economy.

(d) The Repo rate is comparatively high in comparison to Reverse Repo rate.

(e) The Repo rate strives to contain inflation in the economy. The Reverse repo aims to control money supply in the economy.

SM Edition 2021 Page 4.35 – MMO related questions

28. RBI sold a 91-day T-bill of face value of ₹ 100 at an yield of 6%. What was the issue price?

29. Wonderland Limited has excess cash of ₹ 20 lakhs, which it wants to invest in short term marketable securities. Expenses relating to investment will be ₹ 50,000.

The securities invested will have an annual yield of 9%.

The company seeks your advice

(i) as to the period of investment so as to earn a pre-tax income of 5%. (discuss)

(ii) the minimum period for the company to breakeven its investment expenditure overtime value of money.

30. Z Co. Ltd. issued commercial paper worth ₹10 crores as per following details:

Date of issue :	16th January, 2019
Date of maturity:	17th April, 2019
No. of days :	91
Interest rate	12.04% p.a

What was the net amount received by the company on issue of CP? (Charges of intermediary may be ignored)

Solution to above questions

28. Let the issue price be X

By the terms of the issue of the T-bills:

$$6\% = \frac{100 - x}{x} \times \frac{365}{91} \times 100$$

$$\frac{6 \times 91 \times x}{36{,}500} = (100 - x)$$

$0.01496\ x = 100 - x$

$$x = \frac{100}{1.01496} = ₹\ 98.53$$

29. **(i)** Pre-tax Income required on investment of ₹ 20,00,000

Let the period of Investment be 'P' and return required on investment ₹ 1,00,000 (₹ 20,00,000 x 5%)

Accordingly,

$$(₹\ 20{,}00{,}000 \times \frac{9}{100} \times \frac{P}{12}) - ₹\ 50{,}000 = ₹\ 1{,}00{,}000$$

P = 10 months

(ii) Break-Even its investment expenditure

$$(₹\ 20{,}00{,}000 \times \frac{9}{100} \times \frac{P}{12}) - ₹\ 50{,}000 = 0$$

P = 3.33 months

30. The company had issued commercial paper worth ₹10 crores

No. of days Involves = 91 days

Interest rate applicable = 12.04 % p.a.

Interest for 91 days $= 12.04\% \times \frac{91\ Days}{365 Days} = 3.002\%$

$= \text{or } ₹\ 10 \text{ crores} \times \frac{3.002}{100 + 3.002} = ₹\ 29{,}14{,}507$

= or ₹ 29.14507 Lakhs

∴ Net amount received at the time of issue:- ₹ 10.00 Crores – ₹ 0.29151 Crores = ₹ 9.70849 Crores

Alternatively, it can also be computed as follows:

$$\text{Price} = \frac{\text{Rs.10 Crores}}{\left(1 + 12.04\% \times \frac{91\ Days}{365\ Days}\right)} = ₹\ 9.70855 \text{ Crores}$$

SM Chapter – 8 – Derivatives Analysis & Valuation

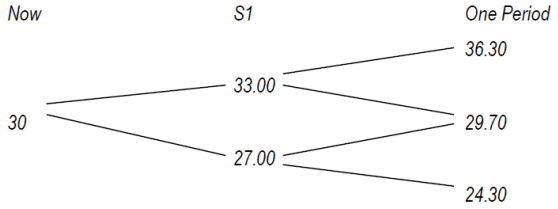
Our Notes SFM Volume 3 Pg 85 Q 94 [Version 4&5] – Change in solution at the end

Edition 2019 – Pg No. 8.22

Below is Edition 2019 Snapshot

Illustration 1

Following is a two-period tree for a share of stock in CAB Ltd.:



Using the binomial model, calculate the current fair value of a regular call option on CAB Stock with the following characteristics: X = ₹ 28, Risk Free Rate = 5 percent. You should also indicate the composition of the implied riskless hedge portfolio at the valuation date.

Solution

u = 33.00/30.00 = 36.30/33.00 = 1.10 d = 27.00/30.00 = 24.30/27.00 = 0.90

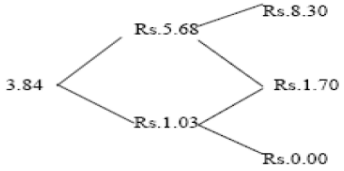
$r = (1 + .05)^{1/2} = 1.0247$

$p = \frac{r-d}{u-d} = \frac{1.0247-0.90}{1.10-0.90} = 0.1247/0.20 = 0.6235$

C_{uu} = Max [0, 36.30 – 28] = 8.30

C_{ud} = Max [0, 29.70 – 28] = 1.70

C_{dd} = Max [0, 24.30 – 28] = 0



$C_U = \frac{(0.6235)(8.30)+(0.3765)(1.70)}{1.025} = \frac{5.175+.064}{1.025} = 5.815/1.025 = ₹ 5.675$

$C_d = \frac{(0.6235)(1.70)+(0.3765)(0.00)}{1.025} = \frac{1.05995}{1.025} = ₹ 1.0340$

$C_o = \frac{(0.6235)(5.675)+(0.3765)(1.0340)}{1.025} = \frac{3.538+3895}{1.025} = ₹ 3.83$

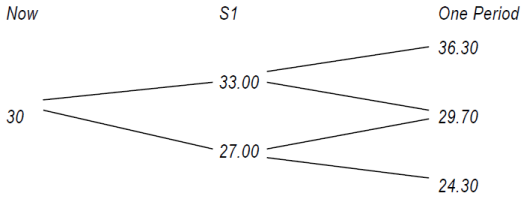
h = (33.00 – 27.00)/(1.03 – 5.68) = 6.00/4.65 = 1.29

Edition 2021 – Pg No. 8.22

Below is Edition 2021 Snapshot

Illustration 1

Following is a two sub-periods tree of 6-months each for the share of CAB Ltd.:



Using the binomial model, calculate the current fair value of a regular call option on CAB Stock with the following characteristics: X = ₹ 28, Risk Free Rate = 5 percent p.a. You should also indicate the composition of the implied riskless hedge portfolio at the valuation date.

Solution

u = 33.00/30.00 = 36.30/33.00 = 1.10 d = 27.00/30.00 = 24.30/27.00 = 0.90

$r = (1 + .05)^{1/2} = 1.0247$

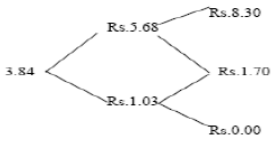
$p = \frac{r-d}{u-d} = \frac{1.0247-0.90}{1.10-0.90} = 0.1247/0.20 = 0.6235$ (Prob. of increase in Price of Share)

Prob. of decrease in Price of Share = 1 – 0.6235 = 0.3765

C_{uu} = Max [0, 36.30 – 28] = 8.30

C_{ud} = Max [0, 29.70 – 28] = 1.70

C_{dd} = Max [0, 24.30 – 28] = 0



$C_U = \frac{(0.6235)(8.30)+(0.3765)(1.70)}{1.025} = \frac{5.175+0.640}{1.025} = 5.815/1.025 = ₹ 5.673$

$C_d = \frac{(0.6235)(1.70)+(0.3765)(0.00)}{1.025} = \frac{1.05995}{1.025} = ₹ 1.0341$

$C_o = \frac{(0.6235)(5.673)+(0.3765)(1.0341)}{1.025} = \frac{3.537+0.3893}{1.025} = ₹ 3.83$

The composition of the implied risk-less hedge portfolio at valuation date is called Delta (Δ) and it is calculated as follows:

$\frac{C_u - C_d}{S_U - S_d}$

Where,

C_u = Pay-off from Call Option if price of Stock goes up

C_d = Pay-off from Call Option if price of Stock goes down

S_u = Upward price of the Stock

S_d = Downward price of the Stock

Accordingly, the Risk-less Portfolio shall require Δ Share shall be required for writing off one Call Option. The Δ shall be computed as follows:

$\Delta = \frac{5-0}{33-27} = \frac{5}{6}$

Thus, $\frac{5}{6}$ shares shall be held or purchased for writing one Call Option.

7

SM Chapter – 8 – Derivatives Analysis & Valuation

Our Notes SFM Volume 3 – Chapter – Derivatives - Pg 40 Q 56

Question language has been corrected by ICAI in New Study Material

Edition 2018 – Pg No 5.30

Below is PM Edition 2018 Snapshot

Question 38

A Mutual Fund is holding the following assets in ₹ Crores :

Investments in diversified equity shares	*90.00*
Cash and Bank Balances	*10.00*
	100.00

The Beta of the portfolio is 1.1. The index future is selling at 4300 level. The Fund Manager apprehends that the index will fall at the most by 10%. How many index futures he should short for perfect hedging? One index future consists of 50 units.

Substantiate your answer assuming the Fund Manager's apprehension will materialize.

Answer

Number of index future to be sold by the Fund Manager is:

$$\frac{1.1\times 90,00,00,000}{4,300\times 50} = 4,605$$

Justification of the answer:

Loss in the value of the portfolio if the index falls by 10% is ₹ $\frac{11}{100}$ x90 Crore = ₹ 9.90 Crore.

Gain by short covering of index future is: $\frac{0.1\times 4,300\times 50\times 4,605}{1,00,00,000}$ = 9.90 Crore

This justifies the answer. Further, cash is not a part of the portfolio.

Edition 2021 – Pg No. 12.20

Below is Edition 2021 Snapshot

7. A Mutual Fund is holding the following assets in ₹ Crores :

Investments in diversified equity shares	90.00
Cash and Bank Balances	10.00
	100.00

The Beta of the equity shares portfolio is 1.1. The index future is selling at 4300 level. The Fund Manager apprehends that the index will fall at the most by 10%. How many index futures he should short for perfect hedging? One index future consists of 50 units.

Substantiate your answer assuming the Fund Manager's apprehension will materialize.

7. Number of index future to be sold by the Fund Manager is:

$$\frac{1.1\times 90,00,00,000}{4,300\times 50} = 4,605$$

Justification of the answer:

Loss in the value of the portfolio if the index falls by 10% is ₹ $\frac{11}{100}$ x90 Crore = ₹ 9.90 Crore.

Gain by short covering of index future is: $\frac{0.1\times 4,300\times 50\times 4,605}{1,00,00,000}$ = 9.90 Crore

This justifies the answer. Further, cash is not a part of the portfolio.

8

Chapter 9- Foreign Exchange Exposure and Risk Management - Pg 9.33

Grace period in case of Automatic Cancellation has been reduced from 15 days earlier to 3 working days now

Edition 2019 – Pg No. 9.32

Below is Edition 2019 Snapshot

Automatic Cancellation

As per FEDAI Rule 8 a forward contract which remains overdue without any instructions from the customers on or before due date shall stand automatically cancelled on 15th day from the date of maturity. Though customer is liable to pay the exchange difference arising there from but not entitled for the profit resulting from this cancellation.

For late delivery and extension after due date as mentioned above the contract shall be treated as fresh contract and appropriate rates prevailing on such date shall be applicable as mentioned below:

1. Late Delivery: In this case the relevant spot rate prevailing on the such date shall be applicable.
2. Extension after Due Date: In this case relevant forward rate for the period desired shall be applicable.

As mentioned earlier in both of above case cancellation charges shall be payable consisting of following:

(i) *Exchange Difference:* The difference between Spot Rate of offsetting position (cancellation rate) on the date of cancellation of contract after due date or 15 days (whichever is earlier) and original rate contracted for.

(ii) *Swap Loss:* The loss arises on account of offsetting its position created by early delivery as bank normally covers itself against the position taken in the original forward contract. This position is taken at the spot rate on the date of cancellation earliest forward rate of offsetting position.

(iii) *Interest on Outlay of Funds:* Interest on the difference between the rate entered by the bank in the interbank market and actual spot rate on the due date of contract of the opposite position multiplied by the amount of foreign currency amount involved. This interest shall be calculated for the period from the due date of maturity of the contract and the actual date of cancellation of the contract or 15 days whichever is later.

Edition 2021 – Pg No. 9.32

Below is Edition 2021 Snapshot

Automatic Cancellation

As per FEDAI Rule 6 a forward contract which remains overdue without any instructions from the customers on or before due date shall stand automatically cancelled within 3 working days after

FOREIGN EXCHANGE EXPOSURE AND RISK MANAGEMENT 9.33

the maturity date. Though customer is liable to pay the exchange difference arising there from but not entitled for the profit resulting from this cancellation.

For late delivery and extension after due date as mentioned above the contract shall be treated as fresh contract and appropriate rates prevailing on such date shall be applicable as mentioned below:

1. Late Delivery: In this case the relevant spot rate prevailing on the such date shall be applicable.
2. Extension after Due Date: In this case relevant forward rate for the period desired shall be applicable.

As mentioned earlier in both of above case cancellation charges shall be payable consisting of following:

(i) *Exchange Difference:* The difference between Spot Rate of offsetting position (cancellation rate) on the date of cancellation of contract after due date or 3 working days (whichever is earlier) and original rate contracted for.

(ii) *Swap Loss:* The loss arises on account of offsetting its position created by early delivery as bank normally covers itself against the position taken in the original forward contract. This position is taken at the spot rate on the date of cancellation earliest forward rate of offsetting position.

(iii) *Interest on Outlay of Funds:* Interest on the difference between the rate entered by the bank in the interbank market and actual spot rate on the due date of contract of the opposite position multiplied by the amount of foreign currency amount involved. This interest shall be calculated for the period from the due date of maturity of the contract and the actual date of cancellation of the contract or 3 working days whichever is later.

The effect of the same has also been given by updating the Question –

Date changed from 20th June to 13th June & Interest Calculation No. of days have changed

Edition 2019 – Pg No. 9.33

Below is Edition 2019 Snapshot

Illustration 9

An importer booked a forward contract with his bank on 10th April for USD 2,00,000 due on 10th June @ ₹ 64.4000. The bank covered its position in the market at ₹ 64.2800.

The exchange rates for dollar in the interbank market on 10th June and 20th June were:

	10th June	20th June
Spot USD 1=	₹ 63.8000/8200	₹ 63.6800/7200
Spot/June	₹ 63.9200/9500	₹ 63.8000/8500
July	₹ 64.0500/0900	₹ 63.9300/9900
August	₹ 64.3000/3500	₹ 64.1800/2500
September	₹ 64.6000/6600	₹ 64.4800/5600

Exchange Margin 0.10% and interest on outlay of funds @ 12%. The importer requested on 20th June for extension of contract with due date on 10th August.

Rates rounded to 4 decimal in multiples of 0.0025.

On 10th June, Bank Swaps by selling spot and buying one month forward.

Calculate:

(i) Cancellation rate

(ii) Amount payable on $ 2,00,000

(iii) Swap loss

(iv) Interest on outlay of funds, if any

(v) New contract rate

(vi) Total Cost

Solution

(i) Cancellation Rate:

The forward sale contract shall be cancelled at Spot TT Purchase for $ prevailing on the date of cancellation as follows:

$/ ₹ Market Buying Rate	₹ 63.6800
Less: Exchange Margin @ 0.10%	₹ 0.0636
	₹ 63.6163

Rounded off to ₹ 63.6175

(ii) Amount payable on $ 2,00,000

Bank sells $2,00,000 @ ₹ 64.4000	₹ 1,28,80,000
Bank buys $2,00,000 @ ₹ 63.6163	₹ 1,27,23,260
Amount payable by customer	₹ 1,56,740

(iii) Swap Loss

On 10th June the bank does a swap sale of $ at market buying rate of ₹ 63.8000 and forward purchase for June at market selling rate of ₹ 63.9500.

Bank buys at	₹ 63.9500
Bank sells at	₹ 63.8000
Amount payable by customer	₹ 0.1500

Swap Loss for $ 2,00,000 in ₹ = ₹ 30,000

(iv) Interest on Outlay of Funds

On 10thApril, the bank receives delivery under cover contract at ₹ 64.2800 and sell spot at ₹ 63.8000.

Bank buys at	₹ 64.2800
Bank sells at	₹ 63.8000
Amount payable by customer	₹ 0.4800

Outlay for $ 2,00,000 in ₹ 96,000

Interest on ₹ 96,000 @ 12% for 10 days ₹ 320

(v) New Contract Rate

The contract will be extended at current rate

$/ ₹ Market forward selling Rate for August	₹ 64.2500
Add: Exchange Margin @ 0.10%	₹ 0.0643
	₹ 64.3143

Rounded off to ₹ 64.3150

(vi) Total Cost

Cancellation Charges	₹ 1,56,740.00
Swap Loss	₹ 30,000.00
Interest	₹ 320.00
	₹ 1,87,060.00

Edition 2021 – Pg No. 9.33

Below is Edition 2021 Snapshot

Illustration 9

An importer booked a forward contract with his bank on 10th April for USD 2,00,000 due on 10th June @ ₹ 64.4000. The bank covered its position in the market at ₹ 64.2800.

The exchange rates for dollar in the interbank market on 10th June and 13th June were:

	10th June	13th June
Spot USD 1=	₹ 63.8000/8200	₹ 63.6800/7200
Spot/June	₹ 63.9200/9500	₹ 63.8000/8500
July	₹ 64.0500/0900	₹ 63.9300/9900
August	₹ 64.3000/3500	₹ 64.1800/2500
September	₹ 64.6000/6600	₹ 64.4800/5600

Exchange Margin 0.10% and interest on outlay of funds @ 12%. The importer requested on 14th June for extension of contract with due date on 10th August.

Rates rounded to 4 decimal in multiples of 0.0025.

On 10th June, Bank Swaps by selling spot and buying one month forward.

Calculate:

(i) Cancellation rate

(ii) Amount payable on $ 2,00,000

(iii) Swap loss

(iv) Interest on outlay of funds, if any

(v) New contract rate

(vi) Total Cost

Solution

(i) Cancellation Rate:

The forward sale contract shall be cancelled at Spot TT Purchase for $ prevailing on the date of cancellation as follows:

$/ ₹ Market Buying Rate	₹ 63.6800
Less: Exchange Margin @ 0.10%	₹ 0.0636
	₹ 63.6163

Rounded off to ₹ 63.6175

(ii) Amount payable on $ 2,00,000

Bank sells $2,00,000 @ ₹ 64.4000	₹ 1,28,80,000
Bank buys $2,00,000 @ ₹ 63.6163	₹ 1,27,23,260
Amount payable by customer	₹ 1,56,740

(iii) Swap Loss

On 10th June the bank does a swap sale of $ at market buying rate of ₹ 63.8000 and forward purchase for June at market selling rate of ₹ 63.9500.

Bank buys at	₹ 63.9500
Bank sells at	₹ 63.8000
Amount payable by customer	₹ 0.1500

Swap Loss for $ 2,00,000 is ₹ = ₹ 30,000

(iv) Interest on Outlay of Funds

On 10th June, the bank receives delivery under cover contract at ₹ 64.2800 and sell spot at ₹ 63.8000.

Bank buys at	₹ 64.2800
Bank sells at	₹ 63.8000
Amount payable by customer	₹ 0.4800

Outlay for $ 2,00,000 is ₹ 96,000

Interest on ₹ 96,000 @ 12% for 3 days ₹ 96

(v) New Contract Rate

The contract will be extended at current rate

$/ ₹ Market forward selling Rate for August	₹ 64.2500
Add: Exchange Margin @ 0.10%	₹ 0.0643
	₹ 64.3143

Rounded off to ₹ 64.3150

(vi) Total Cost

Cancellation Charges	₹ 1,56,740.00
Swap Loss	₹ 30,000.00
Interest	₹ 96.00
	₹ 1,86,836.00

9

Chapter 10 – IFM – Change in solution of Perfect Inc. Question

Our Notes – SFM Volume 4 – Pg No. 70.

Edition 2019 – Pg No. 12.18

Below is Edition 2019 Snapshot

NPV of Project under Appraisal

Year	0	1	2	3	4	5	6
Total Remittance (₹ Crore)	-250.00	35.88	70.17	71.37	76.84	122.20	61.62
Exchange Rate	57.00	57.54	57.82	57.82	57.54	56.99	56.18
Remittance ($ mn)	-43.86	6.24	12.14	12.34	13.35	21.44	10.97
US Tax @35% ($ mn)	0.00	0.00	2.18	4.25	4.32	4.67	7.50
Indian Tax ($ mn)	0.00	0.00	1.96	2.38	2.82	3.25	3.71
Net Tax ($ mn)	0.00	0.00	0.22	1.87	1.51	1.42	3.79
Net Cash Flow ($ mn)	-43.86	6.24	11.92	10.47	11.84	20.02	7.18
PVF @ 15%	1.000	0.870	0.756	0.658	0.572	0.497	0.432
Present Value ($ mn)	-43.86	5.43	9.01	6.89	6.77	9.95	3.10
Net Present Value ($ mn)							= -2.71

Edition 2021 – Pg No. 12.20

Below is Edition 2021 Snapshot

NPV of Project under Appraisal

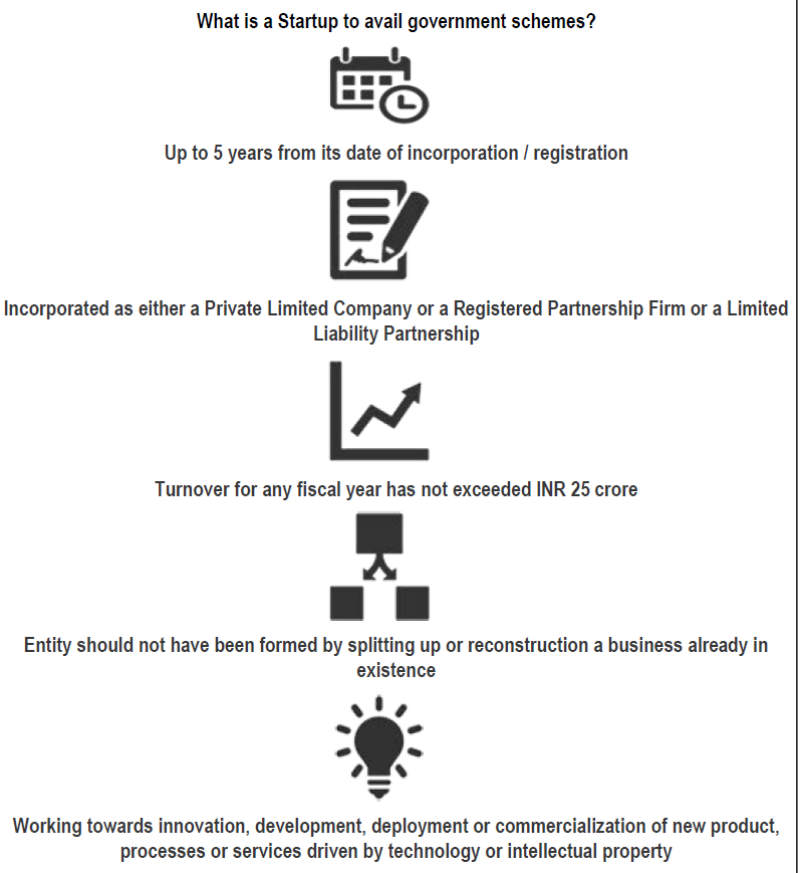
Year	0	1	2	3	4	5	6	7
Total Remittance (₹ Crore)	-250.00	35.88	70.17	71.37	76.84	122.20	61.62	-
Exchange Rate	57.00	57.54	57.82	57.82	57.54	56.99	56.18	-
Remittance ($ mn)	-43.86	6.24	12.14	12.34	13.35	21.44	10.97	-
US Tax @35% ($ mn)	0.00	0.00	2.18	4.25	4.32	4.67	7.50	3.84
Indian Tax ($ mn)	0.00	0.00	1.96	2.38	2.82	3.25	3.71	-
Net Tax ($ mn)	0.00	0.00	0.22	1.87	1.51	1.42	3.79	3.84
Net Cash Flow ($ mn)	-43.86	6.24	11.92	10.47	11.84	20.02	7.18	-3.84
PVF @ 15%	1.000	0.870	0.756	0.658	0.572	0.497	0.432	0.376
Present Value ($ mn)	-43.86	5.43	9.01	6.89	6.77	9.95	3.10	-1.44
Net Present Value ($ mn)								= -4.15

10

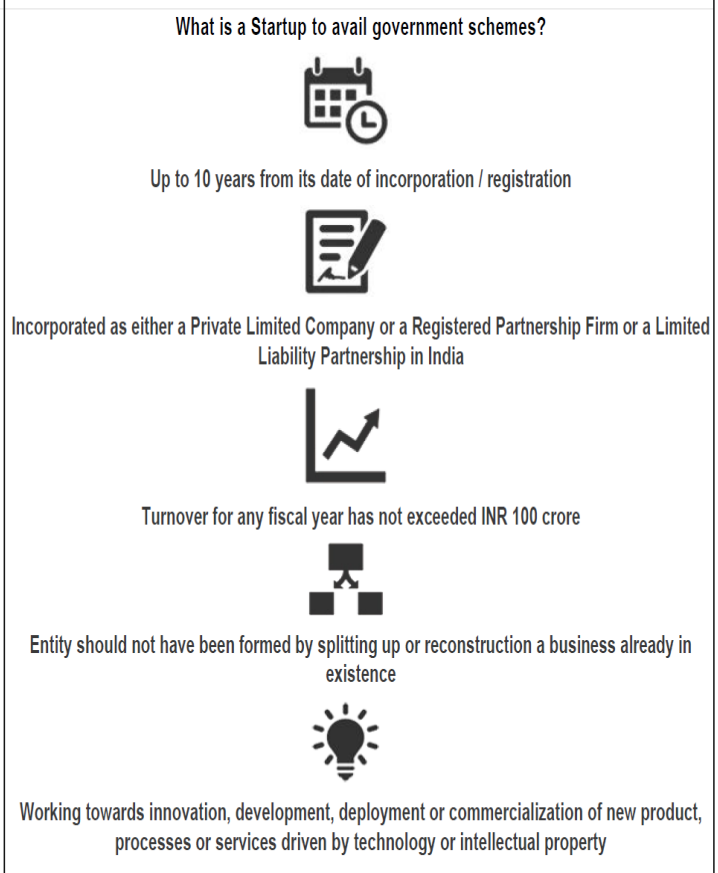
Chapter 14 – Startup

Startups definition has been updated. But the same was already updated long way back in our Notes (SFM Version 4 & 5 Notes were already updated).

Edition 2019 – Pg No. 14.14
Below is Edition 2019 Snapshot



Edition 2021 – Pg No. 14.15
Below is Edition 2021 Snapshot



Chapter 3 – Security Analysis
Technical Analysis portion

Japanese Candlestick charts also included in New SM Pg 3.19.
We were already covering them in our Lectures long way back.

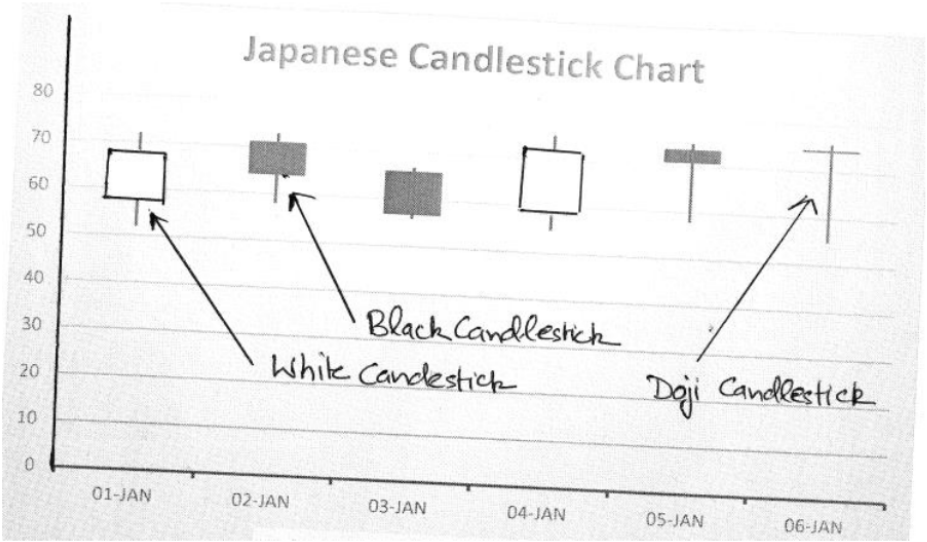
(iii) Japanese Candlestick Chat: Like Bar chart this chart also shows the same information i.e. Opening, Closing, Highest and Lowest prices of any stock on any day but this chart more visualizes the trend as change in the opening and closing prices is indicated by the color of the candlestick.

While Black candlestick indicates closing price is lower than the opening price the white candlestick indicates its opposite i.e. closing price is higher than the opening price. Another possibility of no change in opening and closing prices or very near is shown by 'Doji Candlestick'.

Thus, a white Candlestick indicates a Bullish trend and a black Candlestick indicates a bearish trend.

The lowest and highest prices are indicated by vertical bar and opening and closing prices are shown in the form of rectangular (as per above-mentioned color scheme) placed in between this bar. In case of Doji Candlestick it is indicated by a simple bar.

Continuing the above example of A Ltd. the prices of share of A Ltd. as per Candlestick chart is shown below:



SFM Nov 2020 – Sustainable Growth Rate Question to be discussed

2. (a) AB Industries has Equity Capital of ₹ 12 Lakhs, total Debt of ₹ 8 Lakhs, and annual sales of ₹ 30 Lakhs. Two mutually exclusive proposals are under consideration for the next year. The details of the proposals are as under : 8

Particulars	Proposal no. 1	Proposal no. 2
Target Assets to Sales Ratio	0.65	0.62
Target Net Profit Margin (%)	4	5
Target Debt Equity Ratio (DER)	2:3	4:1
Target Retention Ratio (of Earnings) (%)	75	-
Annual Dividend (₹ In Lakhs)	-	0.30
New Equity Raised (₹ in Lakhs)	-	1

You are required to calculate sustainable growth rate for both the proposals.