Test Series: October, 2017

MOCK TEST PAPER - 2

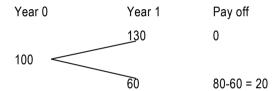
FINAL COURSE: GROUP - I

PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT SUGGESTED ANSWERS/HINTS

1. (a)

Qtrs.	Sensex	Sensex Return (%)	Amt Payable (Rs. Crore)	Fixed Return (Receivable) (Rs. Crore)	Net (Rs. Crore)
(1)	(2)	(3)	(4)	(5)	(5) – (4)
0	21,600	-	-	-	-
1	21,860	1.2037	4.8148	4.6000	- 0.2148
2	21,780	-0.3660	-1.4640	4.6000	6.0640
3	22,080	1.3774	5.5096	4.6000	- 0.9096
4	21,960	-0.5435	-2.1740	4.6000	6.7740

(b) Decision Tree showing pay off



First of all we shall calculate probability of high demand (p) using risk neutral method as follows:

$$8\% = p \times 30\% + (1-p) \times (-40\%)$$

$$0.08 = 0.30 p - 0.40 + 0.40 p$$

$$p = \frac{0.48}{0.70} = 0.686$$

The value of abandonment option will be as follows:

Expected Payoff at Year 1

$$= p \times 0 + [(1-p) \times 20]$$

$$= 0.686 \times 0 + [0.314 \times 20]$$

= Rs. 6.28 crore

Since expected pay off at year 1 is 6.28 crore. Present value of expected pay off will be:

$$\frac{6.28}{1.08}$$
 = 5.81 crore.

This, the value of abandonment option (Put Option).

(c) Formula as per Lintner's Model

$$D_1 = D_0 + [(EPS_1 X Target Payout) - D_0] X A_F$$

Where

 D_1 = Dividend in year 1

 D_0 = Dividend in year 0

EPS₁ = Earning Per Share of year 1

A_F = Adjustment Factor

Accordingly, Dividend for 2017-18 shall be:

$$= Rs. 2.40 + [(Rs. 6 \times 0.50) - Rs. 2.40] \times 0.80$$

= Rs. 2.88

(d) (i) Dirty Price

= Clean Price + Interest Accrued

$$= 99.42 + 100 \times \frac{12}{100} \times \frac{292}{360}$$

= 109.1533

(ii) First Leg (Start Proceed)

= Nominal Value x
$$\frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100}$$

= Rs.5,00,00,000 x
$$\frac{109.1533}{100} \times \frac{100-2}{100}$$

= Rs.5,34,85,117 say Rs. 5,34,85,000

(iii) Second Leg (Repayment at Maturity)

= Start Proceed x
$$(1 + \text{Repo rate} \times \frac{\text{No. of days}}{360})$$

= Rs. 5,34,85,000 x
$$(1+0.0525 \times \frac{14}{360})$$

= Rs.5,35,94,199

2. (a)

Particulars	Rs.
Average level of Receivables = 3,20,00,000 × 90/360	80,00,000
Factoring commission = $80,00,000 \times 2/100$	1,60,000
Factoring reserve = 80,00,000 × 10/100	8,00,000
Amount available for advance = Rs. 80,00,000 - (1,60,000 + 8,00,000) Factor will deduct his interest @ 18%:-	70,40,000
$= \frac{70,40,000 \times 18 \times 90}{100 \times 360}$ Advance to be paid = (Rs. 70,40,000 – Rs. 3,16,800)	Rs. <u>3,16,800</u> 67,23,200

Annual Cost of Factoring to the Firm: Rs. Factoring commission (Rs. 1,60,000 × 360/90) 6,40,000 Interest charges (Rs. 3,16,800 × 360/90) 12,67,200 Total 19,07,200

Firm's Savings on taking Factoring Service:	
Cost of credit administration saved	<u>5,00,000</u>
Net cost to the Firm (Rs. 19,07,200 - Rs. 5,00,000)	<u>14,07,200</u>
Effective rate of interest to the firm = $\frac{\text{₹ 14,07,200} \times 100}{67,23,200}$	20.93%

(b) (i) Existing share price of Hanky Ltd.

$$g = r x b$$

r = 15%

b = 20%

 $g = 0.15 \times 0.2$

= 0.03 or 3%

Ex dividend market value =
$$\frac{\text{Next year's dividend}}{k_e - g}$$
 =
$$\frac{6,50,00,000 \times 0.8 \times 1.03}{0.21 - 0.03} = \text{Rs. } 29,75,55,556$$

Value of one share =
$$\frac{\text{Rs.} 29,75,55,556}{5000000}$$
 = Rs. 59.51 per share

Existing share price Shanky (P) Ltd.

$$g = r x b$$

= 0.15 x 0.8 = 0.12

Ex dividend market value =
$$\frac{\text{Next year's dividend}}{k_e - g}$$
$$= \frac{2,40,00,000 \times 0.2 \times 1.12}{0.24 - 0.12} = \text{Rs. } 4,48,00,000$$

Value of one share =
$$\frac{\text{Rs.} 4,48,00,000}{1500000}$$
 = Rs. 29.87 per share

(ii) Value of Hanky Ltd. after the takeover

Care must be taken in calculating next year's dividend and the subsequent growth rate. Next year's earnings are already determined, because both companies have already reinvested their retained earnings at the current rate of return. In addition, they will get cost savings of Rs. 85,00,000.

The dividend actually paid out at the end of next year will be determined by the new 35% retention and the future growth rate will take into account the increased return on new investment.

Growth rate for combined firm, $g = 0.17 \times 0.35 = 0.06$

New cost of equity = 20%

Next year's earnings =
$$(Rs. 6,50,00,000 + Rs. 2,40,00,000 + Rs. 85,00,000) \times 1.06$$

= $Rs. 10,33,50,000$

Next year's dividend = Rs.
$$10,33,50,000 \times 0.65$$

= Rs. 6,71,77,500

Market value =
$$\frac{₹ 6,71,77,50 \text{ 0}}{0.20 - 0.06}$$
 = Rs. 47,98,39,286

(iii) Maximum Hanky Ltd. should pay for Shanky Ltd.

Combined value = Rs. 47,98,39,286

Present Value of Hanky Ltd. = Rs. 29,75,55,556

= Rs. 18,22,83,730

3. (i) Calculation of NPV of XY Co.:

Project X		Cash flow	PVF	PV
Year				
1	$(30 \times 0.3) + (50 \times 0.4) + (65 \times 0.3)$	48.5	0.909	44.09
2	$(30 \times 0.3) + (40 \times 0.4) + (55 \times 0.3)$	41.5	0.826	34.28
3	$(30 \times 0.3) + (40 \times 0.4) + (45 \times 0.3)$	38.5	0.751	28.91
				107.28
	NPV: (107.28 – 70.00) =			(+) <u>37.28</u>

Project Y (For 1-3 Years)

1-3	$(40 \times 0.2) + (45 \times 0.5) + (50 \times 0.3)$	45.5	2.487	113.16	
	NPV (113.16 – 80.00)			(+) <u>33.16</u>	

(ii) Calculation of Standard deviation σ

As per Hiller's model

$$M = \sum_{i=0}^{n} (1+r)^{-1} Mi$$

$$\sigma^2 = \sum_{i=0}^{n} (1+r)^{-2i} \sigma_i^2$$

Hence

Project X

Year

$$1 \qquad \sqrt{(30-48.5)^2 \cdot 0.30 + (50-48.5)^2 \cdot 0.40 + (65-48.5)^2 \cdot 0.30} = \sqrt{185.25} = 13.61$$

2
$$\sqrt{(30-41.5)^20.30+(40-41.5)^20.40+(55-41.5)^20.30} = \sqrt{95.25} = 9.76$$

$$3 \qquad \sqrt{(30-38.5)^2 \cdot 0.30 + (40-38.5)^2 \cdot 0.40 + (45-38.5)^2 \cdot 0.30} = \sqrt{35.25} = 5.94$$

Standard Deviation about the expected value

$$= \sqrt{\frac{185.25}{(1+0.10)^2} + \frac{95.25}{(1+0.10)^4} + \frac{35.25}{(1+0.10)^6}}$$

$$= \sqrt{\frac{185.25}{1.21} + \frac{95.25}{1.4641} + \frac{35.25}{1.7716}} = \sqrt{153.10 + 65.06 + 19.90}$$

$$= \sqrt{238.06} = 15.43$$

Project Y (For 1-3 Years)

$$\sqrt{(40-45.5)^2 \cdot 0.20 + (45-45.5)^2 \cdot 0.50 + (50-45.5)^2 \cdot 0.30} = \sqrt{12.25} = 3.50$$

Standard Deviation about the expected value

$$= \sqrt{\frac{12.25}{(1+0.10)^2} + \frac{12.25}{(1+0.10)^4} + \frac{12.25}{(1+0.10)^6}}$$

$$= \sqrt{\frac{12.25}{1.21} + \frac{12.25}{1.4641} + \frac{12.25}{1.7716}} = \sqrt{10.12 + 8.37 + 6.91}$$

$$= \sqrt{25.4} = 5.03$$

Analysis: Project Y is less risky as its Standard Deviation is less than Project X.

(b) The spread between Bid and Ask Rate = \$1.5905 - \$1.5865 = \$0.004

The forward rate bid rate for US\$ at which the exporter will be indifferent between money market hedge and a forward contract will be the rate as per Money Market Hedge involving following steps.

Identify: Foreign currency is an asset. Amount \$ 3,50,000.

Create: \$ Liability.

Borrow: In \$. The borrowing rate is 9% per annum or 2.25% per guarter.

Amount to be borrowed: 3,50,000 / 1.0225 = \$ 3,42,298.29

Convert: Sell \$ and buy £. The relevant rate is the Ask rate, namely, 1.5905 per £,

(**Note:** This is an indirect quote). Amount of £s received on conversion is 2,15,214.27 (3,42,298.29/1.5905).

Invest: £ 2,15,214.27 will be invested at 5% for 3 months and get £ 2,17,904.45

Settle: The liability of \$3,42,298.29 at interest of 2.25 per cent quarter matures to \$3,50,000 receivable from customer.

Amount received through money market hedge is £ 2,17,904.45 in lieu of \$ 3,50,000 i.e. the effective ask rate for £ is 1.6062 and since spread is 0.004 the bid rate shall be 1.6062 - 0.004 = 1.602 i.e. = 1.602 - 1.602 per £

4. (a) (i) Portfolio Beta

$$0.20 \times 0.40 + 0.50 \times 0.50 + 0.30 \times 1.10 = 0.66$$

(ii) Residual Variance

To determine Residual Variance first of all we shall compute the Systematic Risk as follows:

$$\beta_A^2 \times \sigma_M^2 = (0.40)^2(0.01) = 0.0016$$

$$\beta_B^2 \times \sigma_M^2 = (0.50)^2(0.01) = 0.0025$$

$$\beta_C^2 \times \sigma_M^2 = (1.10)^2 (0.01) = 0.0121$$

Residual Variance

(iii) Portfolio variance using Sharpe Index Model

Systematic Variance of Portfolio = $(0.10)^2 \times (0.66)^2 = 0.004356$

Unsystematic Variance of Portfolio = $0.0134 \times (0.20)^2 + 0.0225 \times (0.50)^2 + 0.0879 \times (0.30)^2 = 0.014072$

Total Variance = 0.004356 + 0.014072 = 0.018428

(iv) Portfolio variance on the basis of Markowitz Theory

=
$$(w_A \times w_A \times \sigma_A^2)$$
 + $(w_A \times w_B \times Cov_{AB})$ + $(w_A \times w_C \times Cov_{AC})$ + $(w_B \times w_A \times Cov_{AB})$ + $(w_B \times w_B \times \sigma_B^2)$ + $(w_B \times w_C \times Cov_{BC})$ + $(w_C \times w_B \times Cov_{CB})$ + $(w_C \times w_C \times \sigma_C^2)$

=
$$(0.20 \times 0.20 \times 0.015) + (0.20 \times 0.50 \times 0.030) + (0.20 \times 0.30 \times 0.020) + (0.20 \times 0.50 \times 0.030) + (0.50 \times 0.50 \times 0.025) + (0.50 \times 0.30 \times 0.040) + (0.30 \times 0.20 \times 0.020) + (0.30 \times 0.50 \times 0.040) + (0.30 \times 0.30 \times 0.30) + (0.30 \times 0.30 \times 0.040) + (0.30 \times 0.30 \times 0.30) + (0.30 \times$$

= 0.0006 + 0.0030 + 0.0012 + 0.0030 + 0.00625 + 0.0060 + 0.0012 + 0.0060 + 0.0090= 0.0363

(b)

Date	1	2	3	4	5
	Sensex	EMA for			EMA
		Previous day	1-2	3×0.062	2 <u>+</u> 4
6	14522	15000	(478)	(29.636)	14970.364
7	14925	14970.364	(45.364)	(2.812)	14967.55
10	15222	14967.55	254.45	15.776	14983.32
11	16000	14983.32	1016.68	63.034	15046.354
12	16400	15046.354	1353.646	83.926	15130.28
13	17000	15130.28	1869.72	115.922	15246.202
17	18000	15246.202	2753.798	170.735	15416.937

Conclusion – The market is bullish. The market is likely to remain bullish for short term to medium term if other factors remain the same. On the basis of this indicator (EMA) the investors/brokers can take long position.

5. (a)

Business Segment	Capital-to-Sales	Segment Sales	Theoretical Values
Wholesale	(1/1.18) 0.85	€225000	€191250
Retail	(1/0.83) 1.2	€720000	€864000
General	(1/1.25) 0.8	€2500000	<u>€2000000</u>
Total value			<u>€3055250</u>

Business Segment	Capital-to-Assets	Segment Assets	Theoretical Values
Wholesale	(1.43) 0.7	€600000	€420000
Retail	(1.43) 0.7	€500000	€350000
General	(1.43) 0.7	€4000000	<u>€2800000</u>
Total value			<u>€3570000</u>

Business Segment	Capital-to- Operating Income	Operating Income	Theoretical Values
Wholesale	(1/0.11) 9	€75000	€675000
Retail	(1/0.125) 8	€150000	€1200000
General	(1/0.25) 4	€700000	<u>€2800000</u>
Total value			<u>€4675000</u>

Average theoretical value =
$$\frac{3055250 + 3570000 + 4675000}{3} = 3766750$$

Average theoretical value of Cranberry Ltd. = €3766750

- (b) Let x be the crores of Rupees of new 10% debt which would be sold under each of the three given conditions. Now, the value of x under each of the three conditions is as follows:
 - 1. Pre tax interest coverage $\left(\frac{\text{Income before tax} + \text{Bond Interest}}{\text{Bond Interest}}\right)$ remains greater than 4.

$$\frac{₹ 2 \text{ crores } / (1-0.4) + 8 \text{ crores} \times 0.1 + x \times 0.1}{(8 \text{ crores} \times 0.1) + (x \times 0.1)} = 4$$

Or
$$\frac{₹ 3.33 \text{ crores} + 0.80 \text{ crores} + 0.10x}{(0.80 \text{ crores} + ₹ 0.10x)} = 4$$

Or
$$\frac{₹ 4.13 \text{ crores} + 0.10x}{₹ 0.80 \text{ crores} + ₹ 0.10x} = 4$$

Or Rs.
$$4.13$$
 crores + $0.10x = 4$ (Rs. 0.80 crores + Rs. $0.10x$)

Or Rs.
$$4.13$$
 crores + $0.10x$ = Rs. 3.2 crores + Rs. $0.40x$

Or Rs.
$$0.30 x = 0.93$$

Or
$$x = Rs. 0.93/0.30$$

Or
$$x = Rs. 3.10 \text{ crores}$$

Additional mortgage required shall be a maximum of Rs. 3.10 crores.

Net depreciated value of mortgage assets remains twice the amount of mortgage debt
 (Assuming that 50% of the proceeds of new issue would be added to the base of mortgaged assets)

i.e.
$$\frac{\text{₹ 30 crores} + 0.5 \text{ x}}{\text{₹ 8 crores} + \text{x}} = 2$$

or Rs. 30 crores +
$$0.5x = 2$$
 (Rs. 8 crores + x)

or Rs.
$$1.5x = Rs. 14$$
 crores

or =
$$\frac{\text{₹ 14 crores}}{1.5}$$

or
$$x = 9.33$$
 crores

Additional mortgage required to satisfy condition No. 2 is Rs. 9.33 crores

3. Debt to equity ratio remains below 5

i.e.
$$\frac{\text{₹ 8 crores + x}}{\text{₹ 40 crores}} = 0.50$$

or Rs. 8 crores + x = Rs. 20 crores

or x = Rs. 12 crores

Since all the conditions are to be met, the least i.e. Rs. 3.10 crores (as per condition -1) can be borrowed by issuing additional bonds.

Thus, binding conditions are met and it limits the amount of new debt to 3.10 crore.

6. (a) Working Notes:

(i) Calculation of Interest Accrued

Name of Security	Maturity Date	Amount (Rs.)
10.71% GOI 2028	100 x 100000 x 10.71% x $\frac{3}{12}$	2,67,750
10 % GOI 2023	100 x 50000 x 10.00% x $\frac{3}{12}$	1,25,000
Total		3,92,750

(ii)

Name of Security	Purchase Amount Rs.	Duration of Bonds	Volatility (%)	(+)/(-)	Total Amount Rs.
10.71% GOI 2028	1,04,78,000	7.3494	$\frac{7.3494}{1.10} \times 0.75 =$ 5.0110	- 5,25,053	99,52,947
10 % GOI 2023	50,00,000	5.086	$\frac{5.086}{1.05} \times 0.75 =$ 3.6329	- 1,81,645	48,18,355
9.5 % GOI 2021	39,17,200	4.3949	$\frac{4.3949}{1.05} \times 0.75 =$ 3.1392	- 1,22,969	37,94,231
8.5% SGL 2025	18,27,200	6.5205	$\frac{6.5205}{1.10} \times 0.75 =$ 4.4458	- 81,233	17,45,967
					2,03,11,500

Calculation of NAV

Particulars	Rs. crores
Value of Securities as computed above	2,03,11,500
Cash in hand	6,72,800
Interest accrued	3,92,750
Sub total assets (A)	2,13,77,050

Less: Liabilities	
Expenditure accrued	2,37,400
Sub total liabilities (B)	2,37,400
Net Assets Value (A) – (B)	2,11,39,650
No. of units	1,00,000
Net Assets Value per unit (Rs. 2,11,39,650/ 1,00,000)	Rs. 211.40

(b) Net Issue Size = \$15 million

Gross Issue =
$$\frac{\$15 \text{ million}}{0.98}$$
 = \$15.306 million

Issue Price per GDR in Rs. (300 x 3 x 90%) Rs. 810

Issue Price per GDR in \$ (Rs. 810/ Rs. 60) \$13.50

Dividend Per GDR (D_1) = Rs. 2* x 3 = Rs. 6

Net Proceeds Per GDR = Rs. 810 x 0.98 = Rs. 793.80

(a) Number of GDR to be issued

$$\frac{$15.306 \text{ million}}{$13.50}$$
 = 1.1338 million

(b) Cost of GDR to Odessa Ltd.

$$k_e = \frac{6.00}{793.80} + 0.20 = 20.76\%$$

7. (a) Cross-border leasing is a leasing agreement where lessor and lessee are situated in different countries. This raises significant additional issues relating to tax avoidance and tax shelters. It has been widely used in some European countries, to arbitrage the difference in the tax laws of different countries.

Cross-border leasing have been in practice as a means of financing infrastructure development in emerging nations. Cross-border leasing may have significant applications in financing infrastructure development in emerging nations - such as rail and air transport equipment, telephone and telecommunications, equipment, and assets incorporated into power generation and distribution systems and other projects that have predictable revenue streams.

A major objective of cross-border leases is to reduce the overall cost of financing through utilization by the lessor of tax depreciation allowances to reduce its taxable income, The tax savings are passed through to the lessee as a lower cost of finance. The basic prerequisites are relatively high tax rates in the lessor's country, liberal depreciation rules and either very flexible or very formalistic rules governing tax ownership.

(b) Corporate level strategy should be able to answer three basic questions:

Suitability - Whether the strategy would work for the accomplishment of common objective of the company.

Feasibility - Determines the kind and number of resources required to formulate and implement the strategy.

^{*} Assumed to be on based on Face Value of Rs. 10 each share.

Acceptability - It is concerned with the stakeholders' satisfaction and can be financial and non-financial.

(c) Inter Bank Participation Certificate (IBPC): The Inter Bank Participation Certificates are short term instruments to even out the short-term liquidity within the Banking system particularly when there are imbalances affecting the maturity mix of assets in Banking Book.

The primary objective is to provide some degree of flexibility in the credit portfolio of banks. It can be issued by schedule commercial bank and can be subscribed by any commercial bank.

The IBPC is issued against an underlying advance, classified standard and the aggregate amount of participation in any account time issue. During the currency of the participation, the aggregate amount of participation should be covered by the outstanding balance in account

There are two types of participation certificates, with risk to the lender and without risk to the lender. Under 'with risk participation', the issuing bank will reduce the amount of participation from the advances outstanding and participating bank will show the participation as part of its advances. Banks are permitted to issue IBPC under 'with risk' nomenclature classified under Health Code-I status and the aggregate amount of such participation in any account should not exceed 40% of outstanding amount at the time of issue. The interest rate on IBPC is freely determined in the market. The certificates are neither transferable nor prematurely redeemable by the issuing bank.

Under without risk participation, the issuing bank will show the participation as borrowing from banks and participating bank will show it as advances to bank.

The scheme is beneficial both to the issuing and participating banks. The issuing bank can secure funds against advances without actually diluting its asset-mix. A bank having the highest loans to total asset ratio and liquidity bind can square the situation by issuing IBPCs. To the lender, it provides an opportunity to deploy the short-term surplus funds in a secured and profitable manner. The IBPC with risk can also be used for capital adequacy management.

This is simple system as compared to consortium tie up.

- (d) In interbank transactions, foreign exchange is transferred from one account to another account and from one centre to another centre. Therefore, the banks maintain three types of current accounts in order to facilitate quick transfer of funds in different currencies. These accounts are Nostro, Vostro and Loro accounts meaning "our", "your" and "their". A bank's foreign currency account maintained by the bank in a foreign country and in the home currency of that country is known as Nostro Account or "our account with you". For example, An Indian bank's Swiss franc account with a bank in Switzerland. Vostro account is the local currency account maintained by a foreign bank/branch. It is also called "your account with us". For example, Indian rupee account maintained by a bank in Switzerland with a bank in India. The Loro account is an account wherein a bank remits funds in foreign currency to another bank for credit to an account of a third bank.
- (e) Exposure Netting refers to offsetting exposures in one currency with Exposures in the same or another currency, where exchange rates are expected to move in such a way that losses or gains on the first exposed position should be offset by gains or losses on the second currency exposure.

The objective of the exercise is to offset the likely loss in one exposure by likely gain in another. This is a manner of hedging foreign exchange exposures though different from forward and option contracts. This method is similar to portfolio approach in handling systematic risk.

For example, let us assume that a company has an export receivables of US\$ 10,000 due 3 months hence, if not covered by forward contract, here is a currency exposure to US\$.

Further, the same company imports US\$ 10,000 worth of goods/commodities and therefore also builds up a reverse exposure. The company may strategically decide to leave both exposures open and not covered by forward, it would be doing an exercise in exposure netting.

Despite the difficulties in managing currency risk, corporates can now take some concrete steps towards implementing risk mitigating measures, which will reduce both actual and future exposures. For years now, banking transactions have been based on the principle of netting, where only the difference of the summed transactions between the parties is actually transferred. This is called settlement netting. Strictly speaking in banking terms this is known as settlement risk. Exposure netting occurs where outstanding positions are netted against one another in the event of counter party default.