Solutions to the November 2017 Strategic Financial Management Exam

Question 1(a): 5 Marks

SBI mutual fund has a NAV of Rs 8.50 at the beginning of the year. At the end of the year NAV increase to Rs 9.10. Meanwhile fund distributes Rs 0.90 as dividend and Rs 0.75 as capital gains.

i) What is the fund's return during the year?

ii) Had these distributions been re-invested at an average NAV of Rs 8.75 assuming 200 units were purchased originally. What is the return?

Solution:

(i) Return $= \frac{(NAV_1-NAV_0+D_1+CG_1)}{NAV_0} \times 100 = \frac{9.10-8.50+0.90+0.75}{8.5} \times 100 = 26.47\%$

(ii) If reinvested at 8.75

	Units	Rate	Rs.
Opening balance	200.00	8.50	1700
Dividend	20.57	8.75	180
Capital Gains	17.14	8.75	150
Total	**237.71**		**2030**

Working:

1. Dividend 200 x 0.90 180
2. Capital gains 200 x 0.75 150
3. These are reconverted to units at Rs 8.75 per unit

(a) $\frac{180}{8.75} = 20.57$ units (b) $\frac{150}{8.75} = 17.14$ units

Result: Rs.1,700 growing to Rs.2,030 in one year is the equivalent of a return of 19.41%.

Question 1(b): 5 Marks

A call option on gold with exercise price Rs 26,000 per ten gram and three months to expire is being traded at a premium of Rs 1,010 per ten gram. It is expected that in three month's time the spot price might change to Rs 27,300 or 24,700 per ten gram. At present this option is at-the-money and the rate of interest with simple compounding is 12% per annum. Is the current premium for the option justified? Evaluate the option and comments.

Solution:

We can use the portfolio replicating model

Step1: Status of the two options

	Situation 1	Situation 2	Spread
Judgment Price	24,700	27,300	2,600
Exercise Price	26,000	26,000	
Status	Lapse	Exercise	
Intrinsic Value	0	1,300	1,300

Step 2: Number of calls to be bought

$$\text{Calls} = \frac{\text{Spread in Stock price}}{\text{Spread in Intrinsic value}} = \frac{2,600}{1,300} = 2$$

Step 3: Compute investments in Rf asset

This is the present value of lower judgment price discounted at 12% pa for 3 months
= 24,700 x 0.971 = 23,984

Step 4: Formula:

$S_0 = C_0 \times \text{Calls} + R_f$ Note: S_0 = 26,000 as it is traded ATM

$26,000 = (C_0 \times 2) + 23,984$

$C_0 = 1,008$

Decision: Since actual market price (1010) is almost equal to the fair price (1008), the option is fairly priced.

Note: The solution can also be arrived at using the Risk Neutral Model.

Question 1(c): 5 Marks

if the present interest rate for 6 months borrowings in India is 9% per annum and the corresponding rate in USA is 2% per annum, and the US$ is selling in India at Rs 64.50/$.

Then: (i) Will US$ be at a premium or at a discount in the Indian forward market?
(ii) Find out the expected 6 month forward rate of for US$ in India.
(iii) Find out the rate of forward premium/discount.

Solution:

Basic Data:

(i) Status of USD: Since interest rate in India is higher, the USD in India will appreciate in value.

(ii) Expected forward rate.

The interest rates should be expressed for the six month period. $\frac{1+Rh}{1+Rf} = \frac{F1}{E0}$

$= \frac{1.045}{1.01} = \frac{F1}{64.50}$. Solving the equation, F1 = 66.74 Rs./$

(iii) Percent x Appreciation x Depreciation

$$(F\text{-}S)/S \times 12/M \times 100 = \frac{66.74 - 64.50}{64.50} \times \frac{12}{6} \times 100 = 6.95\%.$$

Question 1(d): 5 Marks

The rate of inflation in USA is likely to be 3% per annum and in India it is like to be 6.5%. The current spot rate of US$ in India is Rs 43.40. Find the expected rate of US$ in India after one year and 3 years from now using purchasing power parity theory.

Solution:

Using the purchasing power parity theory, and the chain rule, we can arrive at the forward rates.

$$= \frac{1+I_H}{1+I_f} = \frac{F_1}{E_0}$$

Year	India I_H	USA I_f	Spot E_0 (Rs.)	Forward F_1 (Rs.)
1	6.50%	3%	43.40	44.87
2	6.50%	3%	44.87	46.39
3	6.50%	3%	46.39	47.97

Question 2(a): 8 Marks

ABC Computers Ltd. is desiring to install a "Software Developing Unit" Costing Rs 60 lacs. In order to leverage its tax position, it has requested the vendor to quote for a three year lease with rentals payable at the end of each year but in a diminishing manner such that they are in ratio of 3:2:1, Depreciation can be assumed to be on WDV basis @ 25% and the vendor's marginal tax rate is 35%. The target rate of return for the vendor's marginal tax rate is 35%. The target rate of return for the vendor is 10%. You are required to find out the year wise rental the vendors is required to quote to ABC Computer Limited.

Solution:

Computation of depreciation

Year	Opening WDV	Rate	Depreciation
1	60.00	25%	15.00
2	45.00	25%	11.25
3	33.75	25%	8.44

Computation of lease

Let the lease rental for Y_3 be Rs L

Year	Rental	Deprn.	PBT	Tax	CFAT	PVF	PV
1	3L	15.00	3L-15.00	0.35 x (3L-15.00)	1.95L +5.25	0.909	1.77L + 4.77
2	2L	11.25	2L-11.25	0.35 x (2L-11.25)	1.3L +3.94	0.826	1.07L + 3.25
3	L	8.44	L - 8.44	0.35 x (L-8.44)	0.65L +2.95	0.751	0.49L +2.22
							(3.33L + 10.24)

3.33L + 10.24 = 60.00. Hence L = 14.94.

First year rental is Rs. 44.82 lac, second year rental is Rs. 29.88 lac and final year rental is Rs.14.94 lac.

Question 2(b): 8 Marks

Indian Newsprint Ltd. (INL) a leading manufacturer of newsprint in the country, is planning to start manufacturing card board unit. Planning & Strategy division of the company has placed before the board of directors the "Detail Project Report" of the card board unit. The Report inter alia, includes the following cash flow:

(Fig.in Rs Lacs)

Year	Cost of the plant	Recurring Cost	Savings
0	1000		
1		400	1200
2		500	1400

The cost of the capital is 9%.

You are required to measure the sensitivity of the project to changes in the levels of plant value, recurring cost and savings (Considering each factor at a time) such that the NPV becomes zero. Advise the board of directors which factor is the most sensitive to affect the acceptability of the project?

Solution:

Step 1: Computation of present value of cash savings

Year	CashFlow	PVF at 9%	Present Value
1	1200	0.917	1,100.4
2	1400	0.841	1,177.4
		PV	**2,277.8**

Step 2: Computation of present value of running cost

Year	CashFlow	PVF at 9%	Present Value
1	400	0.917	366.8
2	500	0.841	420.5
		PV	**787.3**

Step 3: Computation of NPV

Year	CashFlow	PVF at 9%	Present Value	Savings less cost
0	(1000)	1.000	(1000.0)	
1	800	0.917	733.6	1200-400
2	900	0.841	756.9	1400-500
		NPV	**490.5**	

Confirmation of NPV = (–1000)+(2277.8) – (787.3) = **490.5.**

Sensitivity:

Sensitivity is the percentage change in input parameter leading to a reversal of the investment decision.

	NPV	PV	Percent	Change
To Investment	490.5	1000.0	49.1%	Increase
To Cash Savings	490.5	2277.8	21.5%	Decrease
To Running Cost	490.5	787.3	62.3%	Increase

Since cash saving has the lowest percentage, it is the one which MOST sensitive.

Question 3(a): 8 Marks

Bharat Bank Ltd. has entered into a plain vanilla swap through on Overnight Index Swap (OIS) on a principal of Rs 1 Crore and agreed to receive MIBOR overnight floating rate for a fixed payment on the principal. The swap was entered into on Monday, 10th July 2017 and was to commerce on and from 11th July 2017 and run for a period of 7 days.

Respective MIBOR rates for Tuesday to Monday were:
8.75%, 9.15%, 9.12%, 8.95%, 8.98% and 9.15%

If Bharat Bank Ltd. received Rs 417 net on settlement, calculate fixed rate and interest under both legs.

Notes: (i) Sunday is holiday
(ii) Work in rounded rupee and avoid decimal working
(iii) Consider 365 days in a year

Solution:

	Opening Balance	Rate	Interest	Closing Balance
Tuesday	10,000,000	8.75%	2,397	10,002,397
Wednesday	10,002,397	9.15%	2,507	10,004,904
Thursday	10,004,904	9.12%	2,500	10,007,404
Friday	10,007,404	8.95%	2,454	10,009,858
Saturday	10,009,858	8.98%	2,463	10,012,321
Sunday	10,012,321	8.98%	2,463	10,014,784
Monday	10,014,784	9.15%	2,511	10,017,295
		Total	**17,295**	

Interest is earned on Sunday also.

Amount paid by Bank = Rs.17,295 – Rs. 417 = Rs.16,878

This Rs.16,878 translates into an annual rate at simple interest of

$$\frac{100 \times I}{P \times T} = \frac{16{,}878 \times 100}{1{,}00{,}00{,}000 \times 7/365} = 8.80\%$$

The annual rate is 8.8% per annum.

Question 3(b): 8 Marks

A reputed financial intuition of the country floated a Mutual fund having a corpus of Rs 10 crores consisting of 1 crore units of Rs 10 each. Mr. Vijay invested Rs 10,000 for 1000 units of Rs 10 each on 1st July 2014. For the Financial year ended 31st March 2015, the fund declared a dividend of 10% and Mr. Vijay found that his annualised yield from the fund was 153.33%. The mutual fund during the financial year ended 31st March 2016, declared a dividend of 20%. Mr. Vijay has reinvested the entire dividend in acquiring units of this mutual fund at its appropriate NAV. On 31st March 2017 Mr. Vijay redeemed all his balances of 1129.61 units when his annualized yield was 73.52%. You are required to find out NAV as on 31st March 2015, 31st March 2016 and 31st March 2017.

Solution:

	Units	Rate	Cum	Value	Dividend	Yield	
7/01/2014	1,000.00	10	1,000.00	10,000			
3/31/2015	48.79		1048.79		10%	153.33%	
3/31/2016	80.82		1129.61		20%		Reinvested
3/31/2017	**1129.61**					73.52%	
	Total Unit						

NAV on 31-03-2015

$$\text{Return} = \frac{(NAV_1 - NAV_0 + D_1)}{NAV_0} \times \frac{12}{M}$$

$$1.533 = \frac{(NAV_1 - 10 + 1)}{10} \times \frac{12}{9}$$

Therefore, **NAV_1 = Rs.20.4975**

Units reinvested:

a.	Dividend	1 x 1000	1,000
b.	N1		20.4975
c.	Units	(a/b)	48.786
d.	Total Units		1048.786

NAV on 31-03-2016

Dividend units = Units on 31-03-2016 – Units on 31-03-2015
= 1,129.61 – 1,048.79 = 80.82

Face value of holding before dividend	1,048.79 x Rs.10	= 10,487.90
Dividend amount = Face value x Dividend rate	10,487.9 x 20%	= 2,097.58

$$\textbf{NAV} = \frac{\text{Div (Rs)}}{\text{Div (U)}} = \textbf{25.95}$$

NAV on 31-3-2016

$$\text{Return} = \frac{(NAV_1 - NAV_0 + D_1)}{NAV_0} \times \frac{12}{M}$$

$$0.7352 = \frac{(NAV_1 - 25.95 + 0)}{25.95} \times \frac{12}{12}$$

Therefore, **N1 = 45.031.**

Question 4(a): 8 Marks

A textile manufacture has taken floating interest rate loan of Rs 40,00,000 on 1st April, 2012. The rate of interest at the inception of loan is 8.5% p.a. interest is to be paid every year on 31st March, and the duration of loan is four years. In the month of October 2012, the Central bank of the country releases following projections about the interest rates likely to prevail in future.

(i) On 31st March, 2013, at 8.75%; on 31st March, 2014 at 10%; on 31st March, 2015 at 10.5% and on 31st March, 2016 at 7.75%. Show how this borrowing can hedge the risk arising out of expected rise in the rate of interest when he wants to peg his interest cost at 8.50% p.a.

(ii) Assume that the premium negotiated by both the parties is 0.75% to be paid on 1st October, 2012 and the actual rate of interest on the respective due dates happens to be as: on 31st March, 2013 at 10.2% on 31st March 2014 at 11.5% ; on 31st March, 2015 at 9.25%; on 31st March, 2016 at 9.0% and 8.25%. Show how the settlement will be executed on the perspective interest due dates.

Solution:

The solution depends on a few assumptions. If those assumptions change, the solution can change.

Assumptions:

1. The rate stated as 31 March 13, applies for the year 13-14 etc., since rates are known prior to the commencement of the year. Consequently the applicability is as under:
2. This would mean the two rates given in the end are irrelevant.
3. The rate for 12-13 is already fixed in the beginning of the year.
4. The rates given in the question are assumed to be floating rate that is 8.5%, 10.2% etc are L+X leading to those numbers.
5 The payment is at the end of the period. If beginning of the period the amount will have to be discounted

The textile manufacturer can either take an FRA at 8.5% or an Interest rate cap that caps the rate at 8.5%

Caplet	Date	Applicable Year	Present Float	New Float	AT Original	For FRA	Total	PMT Date
	9/30/2012		Premium				0.3	9/30/2012
1	3/31/2013	13-14	8.50%	10.20%	4.08	0.68	3.4	3/31/2014
2	3/31/2014	14-15	8.50%	11.50%	4.6	1.2	3.4	3/31/2015
3	3/31/2015	16-17	8.50%	9.25%	3.7	0.3	3.4	3/31/2016
4	3/31/2016	17-18	Not applicable as the loan matures on 31.03.2016.					

Since all the rates are above the 8.5% rate the IRO will also lead to the same outcome.

Question 4(b): 8 Marks

East Co.Ltd.is studying the possible acquisition of Fost Co. Ltd. by way of merger. The following data are available in respect of the companies.

	East Co. Ltd	Fost Co.Ltd
Earnings after tax (Rs)	2,00,000	60,000
No. of equity shares	40,000	10,000
Market value per share (Rs)	15	12

(i) If the merger goes through by exchange of equity share and the exchange ratio is based on the current market price, what are the new earnings per shares for East & Co. Ltd?

(ii) Fort Co. Ltd. wants to be sure that the merger will not diminish the earnings available to its shareholders. What should be the exchange ratio in that case?

Solution:

Computation of EPS:

East: Profit after tax / Equity Shares = $\frac{2,00,000}{40,000} = 5$

Fast: Profit after tax / Equity Shares = $\frac{60,000}{10,000} = 6$

(i) EPS assuming no increase in earnings
The exchange ratio is 12:15 or 4:5

$$EPS = \frac{E1 + E2 + AE}{S1 + (S2 \times ER)} = \frac{2,00,000 + 60,000 + 0}{40,000 + (10,000 \times 4/5)} = \frac{2,60,000}{48,000} = \mathbf{5.417}$$

(ii) If there is to be no dilution in earnings the exchange ratio should be in the ratio of EPS namely 6:5
In this case the new EPS is:

$$\frac{2,00,000 + 60,000 + 0}{40,000 + (10,000 \times 6/5)} = \frac{2,60,000}{48,000} = \mathbf{5}$$

Conclusion: EPS of the acquiring company remains unchanged at Rs.5. EPS of the target company has apparently fallen from 6 to 5, but the effective rate is 5 x (6/5) = 6.

Question 5(a): 8 Marks

JKL Ltd. is an export business house. The company prepares invoice in customer's currency.

Its debtors of US$. 20,000,000 is due on April 1, 2017.

Market information as at January 1, 2017 is:

Exchange rates US$/INR		Currency Futures US$/INR	
Spot	0.016667	Contract Size: 31,021,218	
1-month forward	0.016529	1- month	0.016519
3-months forward	0.016129	3-months	0.016118

	Initial Margin	Interest rates in India
1-Month	Rs 32,500	7%
3-Months	Rs 50,000	8%

On April 1, 2017 the spot rate US$/INR is 0.016136 and currency future rate is 0.016134.

Which of the following methods would be most advantageous to JKL Ltd?

(i) Using forward contract
(ii) Using currency futures
(iii) Not hedging the currency risk

Solution:

Evaluation of futures contract

Step 1:

	Contracted	Closure	Spot
Rate ($/Rs.)	0.016118	0.016134	0.016136
Exposure ($ lac)	200	200	200
INR (lac)	12,408	12,396	12,395

Step 2: Contracts, Margin, and Interest

Interest on margin = (INR contracted/Contract size) x Margin per contract x Interest Rate
= 1,24,08,00,000/310,21,218) x 50,000 x 8% = 1,60,000

Step 3: Net Impact

Contracted	12,408
Closed	(12,396)
Spot	12,395
Interest	(1.6)
	12,405.4

Evaluation of Forward Contract

Forward Rate	0.016129	$/Rs
Exposure	200	lac
INR value	12,400	lac

Evaluation of being exposed

Maturity spot rate	0.016136	$/Rs
Exposure	200	lac
INR value	12,395	lac

Conclusion: Futures contract is most beneficial as it results in highest Rupee inflow of 12,405 lac.

Question 5(b): 8 Marks

Rahim Enterprises is a manufacturer and exporter of woolen garments to European Countries. Their business is expanding day by day and in the previous financial year the company has registered a 25% growth in export business. The company is in the process of considering a new investment project. It is an all equity financed company with 10, 00,000 equity shares of face value of Rs 50 per share. The current issue price of this share is Rs 125 ex-dividend. Annual earning are Rs 25 per share and in the absence of new investment will remain constant in perpetuity. All earnings are distributed at present. A new investment is available which will cost Rs 1,75,00,000 in one year's time and will produce annual cash inflows thereafter of Rs 50,00,000. Analyse the effect of the new project on dividend payments and the share price.

Solution:

Assumptions:

a. 'Current issue price ex-dividend' is assumed to mean 'Current Market Price'.
b. The Rs.50 lac referred is in addition to the Rs.25 lac now being made.
c. Project is funded by internal earnings

Computations:

Cost of capital	(25/125) x 100	20%
Computation of NPV		In Lac
(i) PV of perpetual flow	Rs.50/20%	250
(ii) Initial outflow		175
(iii) NPV (i) – (ii)		75

Increase in share price = NPV/Share
= 75,00,000/10,00,000 **7.5 Rs**

The share price will increase by Rs 7.5.

Question 6(a): **10 Marks**

The return of security 'L' and security 'K' for the past five years are given below:

Year	Security-L Return %	Security-K Return %
2012	10	11
2013	04	-06
2014	05	13
2015	11	08
2016	15	14

Calculate the risk and return of portfolio consisting above information.

Solution:

Computation of Return

Assuming uniform probability, the return will be the simple average return.

Return from L = $\frac{10+4+5+11+15}{5}$ = 9%. Return from K = $\frac{11-6+13+8+14}{5}$ = 8%.

Computation of Risk

Observation	L Ltd	D	$(D)^2$
1	10	1	1
2	4	-5	25
3	5	-4	16
4	11	2	4
5	15	6	36
E_R	**9**	**Total**	**82**
		N	5
		SD	$\sqrt{(D^2/N)}$
			4.05

In the absence of probability, an alternative is to use N-1 instead of N. In that case the solution would be 4.53.

RISK

Observation	K Ltd	D	$(D)^2$
1	11	2	4
2	-6	-15	225
3	13	4	16
4	8	-1	1
5	14	5	25
E_R	**8**	**Total**	**271**
		N	5
		SD	$\sqrt{(D^2/N)}$
			7.36

In the absence of probability, an alternative is to use N-1 instead of N. In that case the solution would be 8.23.

Question 6(b): 6 Marks

Sea Rock Ltd. has an excess cash of Rs 30, 00,000 which it wants to invest in short – term marketable securities.

(i) Expenses resulting to investment will be Rs 45,000. The securities invested will have an annual yield of 10%. The Company seeks your advice as to the period of investment so as to earn a pre-tax income of 6%.

(ii) Also find the minimum period for the company to break-even its investment expenditure. Ignore time value of money.

Solution: (i)

(i)

(a)	Amount available initially	3,000,000	
(b)	Less: Expenses	45,000	
(c)	Net available	2,955,000	a-b
(d)	Return desired (Flat)	6%	
(d)	Interest desired	180,000	a x d
(e)	Interest earning rate	10%	Given
(f)	Years	0.61	(I/(PxR)
	DAYS (0.61 x 365)	223	

(ii)

(a)	Amount available initially	3,000,000	
(b)	Less: Expenses	45,000	
(c)	Net available	2,955,000	a-b
(d)	Interest desired	45,000	Given
(e)	Interest earning rate	10%	Given
(f)	Years	0.15	(I/(PxR)
	DAYS (0.15 x 365)	55	

Question 7: 4 x 4 = 16 Marks

Write short notes on any FOUR of the following:

(a) Various process of strategic decision making

(b) Financial restructuring

(c) Chop Shop method of valuation

(d) What are P-notes? Why it is preferable route for foreigners to invest in India?

(e) Differentiates between 'Off-shore funds' and 'Asset Management Mutual Funds'.

Solution:

(a) The following are the brief steps in the strategic decision making process

Identification of the problem
Analyzing the cause of the problem
Developing alternative solutions
Evaluating the alternatives and selecting the best
Implementation of the decision and seeking feedback.

(b) Corporate financial restructuring is a big-ticket change in the company's capital structure, or its ownership, or business portfolio. The idea of the restructuring is normally to arrest downfall in business operations, and to increase the value of the firm. This is a detailed experiment and will require support from the employees.

(c) The Chop-Shop method is used to value multi-industry companies. Under this method each SBU is compared with a peer and a relative valuation is undertaken with the peer as the proxy. It is also possible to value the SBU independently without making a reference to a pure-play peer.

Example: A company, which is into Software, Soft-skills, and Soft-drinks production, can value each of these businesses independently instead of valuing them as a whole. Such individual valuation is called Chop-shop valuation. The sum of the parts may not be equal to the whole.

(d) P-notes are offshore derivative instruments with Indian shares as underlying assets. The notes allow foreign investors with high net worth to invest in Indian markets without registering with SEBI. The notes are easily traded overseas through endorsement and delivery. This helps anonymous investors to take position in Indian markets. For this reason, India's government is concerned that P-notes are being used for money laundering.

(e) A mutual fund is a trust that pools together the resources of like-minded investors for investment in the capital market. The asset management company is responsible for managing the money that the fund collects, namely buying and selling shares on behalf of the fund. An offshore fund can also be a mutual fund except that it is domiciled outside India.

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