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FOR CA FINAL EXAM PREPARATION

CA Final 2023 Suggested Answers · Paper 2 Strategic Financial Management (Old Scheme)

EXAM
CA Final

YEAR
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TYPE
Suggested Answers

SUBJECT
Paper 2 Strategic Financial Management (Old Scheme)

DATE
May 2023

PAPER – 2 : STRATEGIC FINANCIAL MANAGEMENT

*Question No.**1** is compulsory.*

*Candidates are also required to answer any **four** from the remaining **five** questions.*

Working notes should form part of the respective answer.

Question 1

(a) *High Growth Ltd. (HGL) was having an excellent growth over a number of years. The Board of Directors is considering a proposal to reward its shareholders by buying back 20% shares at a premium. The premium is to be paid by raising a loan from the Bank. The interest on loan is to be serviced by internal accruals as supported by the financials of HGL. The company has a market capitalization of ₹15,000 crore and the current Earnings Per Share (EPS) is ₹600 with a Price Earnings Ratio (PER) of 25. The Board expects a post buy back Market Price per Share (MPS) of ₹10,000. The PER, post buy back, will remain the same. The loan can be availed at an interest rate of 16 % p.a.*

Applicable corporate tax rate is 30%.

You are required to calculate:

(i) The interest amount which can be paid for availing the bank loan.

(ii) The loan amount to be raised.

(iii) Buy back premium per share. ***(10 Marks)***

(b) *Export Ltd., an export oriented unit invoices in the currency of the importer. It is expecting a receipt of USD 2,40,000 on 1st August, 2022 for the goods exported on 1st May, 2022.*

The following information is available as on 1st May, 2022:

Exchange Rates		*Currency Futures*		*Contract Size*
USD/INR		*USD/INR*		
Spot	*0.0125*	*May*	*0.0126*	*₹6,40,000/-*
1 Month Forward	*0.0124*	*July*	*0.0125*	
3 Months Forward	*0.0123*			

Initial Margin		*Interest Rates in India*
May	*₹15,000*	*9%*
August	*₹26,000*	*8.5%*

On 1st August, 2022 the spot rate USD/INR is 0.0126 and currency future rate is 0.0125.

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Suggest a suitable approach to Export Ltd. that would be most advantageous out of the following methods.

(i) Forward Contract

(ii) Currency Futures

(iii) No hedge

Assume that the variation in margin would be settled on the maturity of the futures contract.

(6 Marks)

(c) Swaptions can be applied for speculation purposes or to hedge a portion of their swap books. What are the other areas of its application? ***(4 Marks)***

Answer

(a) (i) The interest amount which can be paid for availing the bank loan

Current Market Price per Share = ₹ 600 × 25 = ₹ 15,000

$$\text{No. of Shares before Buyback} = \frac{\text{Market capitalisation}}{\text{Market price of share}}$$

$$= \frac{15{,}000 \text{ crore}}{15{,}000} = 1 \text{ crore}$$

No. of Shares proposed to Buyback = 20% of 1 crore = 20 lakh

Total No. of Share after Buyback = 1 crore – 20 lakh = 80 lakh

Post Buy back Market Price per Share = ₹ 10,000

PE Ratio = 25

$$\text{Post Buyback EPS} = \frac{10000}{25} = ₹\ 400$$

EAT before Buyback = ₹ 600 × 1 crore = ₹ 600 crore

$$\text{EBT before Buyback} = \frac{600}{(1-0.30)} = ₹\ 857.1429 \text{ crore}$$

EAT after Buyback = ₹ 400.00 × 80 lakh = ₹ 320 crore

$$\text{EBT after Buyback} = \frac{320}{(1-0.30)} = ₹\ 457.1429 \text{ crore}$$

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Interest which can be paid for availing bank loan:

EBT before Buyback	₹ 857.1429 crore
(-) EBT after Buyback	₹ 457.1429 crore
	₹ 400.0000 crore

Alternatively, it can also be computed as follows:

Pre Buy back Market Capitalization (A)	₹ 15000 crore
Pre Buy back EPS (B)	₹ 600
Pre Buy back PER (C)	25
Pre Buy back Market Price Per Share (₹ 600x 5) D = B X C	₹ 15000
Pre Buy back No. of Shares (A)/ (D)	1 Crore
Post Buy back EPS (A) (₹ 10000/ 25)	₹ 400
Post Buy back No. of shares (B)	80 Lakh
Post Buy back Earning (C) = (A) X (B)	₹ 320 crore
Pre Buy back Earning 1 Crore X ₹ 600 (D)	₹ 600 crore
Post Tax Earning available for interest payment (D) – (C)	₹ 280 Crore
Pre- Tax amount of Interest $\frac{280\,\text{crore}}{1-0.30}$	₹ 400 Crore

(ii) Loan Amount raised = $\frac{400\,\text{crore}}{0.16}$ = ₹ 2500 crore

(iii) Buyback Premium per Share

Amount of Loan for Buyback of 20 % Shares = ₹ 2500 crore

No. of Shares Buyback = 20 Lakh

Buyback price per Share = ₹ 2500 Crore/ 20 Lakh = ₹ 12500

Market Price after Buyback = ₹ 10000

Buyback Premium Per Share = ₹ 12500 – ₹ 10000 = ₹ 2500

Alternatively, it can also be computed as follows:

Amount of Loan (A)	₹ 2500 crore
No. of Shares to be bought back (B)	20 Lakh
Price Per Share to be paid (C) = (A)/ (B)	₹ 12,500
Post Buy back Share Price (D)	₹ 10,000
Buy Back Premium per share (C) – (D)	₹ 2,500

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(b)

Receipts using a forward contract	
USD 2,40,000/0.0123	= ₹ 1,95,12,195
Receipts using currency futures	
The number of contracts needed is (USD 2,40,000/0.0125)/6,40,000	= 30
Initial margin payable is 30 contracts x ₹ 26,000	= ₹ 7,80,000
On August 1, 2022 Close at 0.0125	
Receipts = USD 2,40,000/0.0126	= ₹ 1,90,47,619
Less: Interest Cost – (7,80,000 x 0.085 x 3/12)	= ₹ 16,575
Net Receipts	₹ 1,90,31,044

(c) The other areas of application of Swaption other than for speculation are as follows:

(a) It can be applied in a variety of ways for both active traders as well as for corporate treasurers.

(b) It have become useful tools for hedging embedded optionality which is common to the natural course of many businesses.

(c) It is useful to borrowers targeting an acceptable borrowing rate.

(d) It is also useful to those businesses tendering for contracts.

(e) It also provides protection on callable/puttable bond issues.

Question 2

(a) Mr. Bull is a rational risk taker. He takes his position in a single stock for 4 days in a week. He does not take a position on Friday to avoid weekend effect and takes position only for four days in a week i.e. Monday to Thursday. He transfers the amount on Monday morning and withdraws the balance on Friday morning. He desires to make a maximum investment where Value At Risk (VAR) should not exceed the balance lying in his bank account. The position by his manager, as per standing instructions, is taken on the free balance lying in the bank account in the morning on each Monday.

On Monday morning (before opening of the capital market) he has transferred an amount of ₹ 11 Crore to his bank account. A fixed deposit also matured on this Monday. The maturity amount of ₹ 63,42,560 was also credited to his account by the bank in the morning of the Monday. However, Mr. Bull received the intimation of the same in the evening. The bank needs a minimum balance of ₹ 1,000 all the time. The value of Z score, at the required confidence level of 99 percent is 2.33.

The other information with respect to stocks X and Y, which are under consideration for this week, is as under:

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X		Y	
Return	Probability	Return	Probability
6	0.10	4	0.10
7	0.25	6	0.20
8	0.30	8	0.40
9	0.25	10	0.20
10	0.10	12	0.10

You are required to recommend a single stock, where maximum investment can be made.

(8 Marks)

(b) *An investor is considering purchasing equity shares of Alpha Ltd., whose current Market price is ₹ 172.45. The company is proposing a dividend of ₹ 6 for the year ending 31st March, 2024. Alpha Ltd. is expected to grow @ 20 percent per annum for the next four years. Thereafter, the growth, over the next three years, will decline linearly by 100 basis points per annum. Thereafter, it will stabilize at a certain growth rate per annum infinitely. The required rate of return for the investor is 20%.*

Dividend value is to be taken in 2 decimal points only.

You are required:

(i) To calculate the stable growth rate of Alpha Ltd. after the end of 7 years.

(ii) To advise whether it is worth to purchase the share at this price if the investor has a stable target growth rate of 15% per annum.

Period	1	2	3	4	5	6	7
PVIF (20%,n)	0.8333	0.6944	0.5787	0.4823	0.4019	0.3349	0.2791

(8 Marks)

(c) *'Pay through securities' are in the nature of participation certificates that enable the investors to take a direct exposure on the performance of the securitized assets. 'Pass Through Certificates', on the other hand, gives investors only a charge against the securitized assets. Do you agree with the statement? Justify your stand.* ***(4 Marks)***

Answer

(a) Working Notes:

(1) Security X

Return (1)	Prob. (2)	(1) x (2)	Dev.	Dev.^{2}	Dev.^{2} x Prob.
6	0.10	0.60	-2	4	0.40
7	0.25	1.75	1	1	0.25
8	0.30	2.40	0	0	0

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9	0.25	2.25	1	1	0.25
10	0.10	1.00	2	4	0.40
		8.00			1.30

Expected Return (R_x) = 8.00%

Variance (σ_X^2) = 1.30

Standard Deviation (σ_X) = $\sqrt{1.30}$ = **1.14**

(2) Security Y

Return (1)	Prob. (2)	(1) x (2)	Dev.	Dev.^{2}	Dev.^{2} x Prob.
4	0.10	0.40	-4	16	1.60
6	0.20	1.20	-2	4	0.80
8	0.40	3.20	0	0	0
10	0.20	2.00	2	4	0.80
12	0.10	1.20	4	16	1.60
		8.00			4.80

Expected Return (R_Y) = 8.00%

Variance (σ_Y^2) = 4.80

Standard Deviation (σ_Y) = $\sqrt{4.80}$ = 2.19

	No. of days	X	Y
Amount Transferred		₹ 110000000	₹ 110000000
Maturity Proceeds of Fixed Deposit		₹ 6342560	₹ 6342560
Amount available in bank account		₹ 116342560	₹ 116342560
Minimum balance to be kept		₹ 1000	₹ 1000
Available amount which can be used for potential investment for 4 days		₹ 116341560	₹ 116341560
Maximum loss for 4 days at 99% level	4	₹ 116341560	₹ 116341560
Maximum loss for 1 day at 99% level =			
Maximum loss for 4 days/ $\sqrt{\text{No. of days}}$	1	₹ 58170780	₹ 58170780

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= 116341560/ $\sqrt{4}$			
Z Score at 99% level		2.33	2.33
Volatility in terms of ₹ (Maximum Loss/Z Score at 99% Level)		₹ 24966000	₹ 24966000
Standard Deviation		0.0114	0.0219
Maximum Investment (Volatility in terms of ₹ / SD)		₹ 2190000000	₹1140000000

Recommendation: Position should be taken in X.

(b) (i) Working Notes:

D_1 = ₹ 6

D_2 = 6 (1.20) = ₹ 7.20

D_3 = 6 $(1.20)^2$ = ₹ 8.64

D_4 = 6 $(1.20)^3$ = ₹ 10.37

D_5 = 10.37(1.19) = ₹ 12.34

D_6 = 10.37 (1.19) (1.18) = ₹ 14.56

D_7 = 10.37 (1.19) (1.18) (1.17) = ₹ 17.04

Price at the end of 7th year

Year	Dividend (₹)	PVF@20%	PV (₹)
1	6.00	0.8333	5.00
2	7.20	0.6944	5.00
3	8.64	0.5787	5.00
4	10.37	0.4823	5.00
5	12.34	0.4019	4.96
6	14.56	0.3349	4.88
7	17.04	0.2791	4.76
Total			34.60

Current Market Price	₹ 172.45
Less: PV of Dividends upto the year ending 7th year	₹ 34.60
PV of Expected Market Price at the end of 7th year	₹ 137.85

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Let g be growth rate then: $137.85 = \frac{17.04\,(1+g)}{0.20-g} \times 0.2791$

$g = 0.16$ i.e. 16%

Thus, the stable growth rate after the end of the 7 years shall be 16%.

(ii) Since growth rate is more than target growth rate it is worth to purchase the share.

(c) Not agreed with the statement.

In Pass Through Certificate originator (seller of the assets) transfers the entire receipt of cash in the form of interest or principal repayment from the assets sold. Thus, these securities represent direct claim of the investors on all the assets that has been securitized through SPV.

Since all cash flows are transferred the investors carry proportional beneficial interest in the asset held in the trust by SPV.

It should be noted that since it is a direct route any prepayment of principal is also proportionately distributed among the securities holders.

In contrast to Pass Through Certificate in Pay Through Security, SPV debt securities are backed by the assets and hence it can restructure different tranches from varying maturities of receivables. In other words, this structure permits de-synchronization of servicing of securities issued from cash flow generating from the asset. Further, this structure also permits the SPV to reinvest surplus funds for short term as per their requirement.

Question 3

(a) IF an Indian firm has its subsidiary in Singapore and SF a Singapore firm has its subsidiary in India and face the following interest rates:

Company	*IF*	*SF*
INR Floating Rate	*BPLR+0.5%*	*BPLR+ 1.5%*
SGD (fixed rate)	*3%*	*3.50%*

SF wishes to borrow Rupee loan at a floating rate and IF wishes to borrow SGD at a fixed rate. The amount of loan required by both the companies is same at the current exchange rate. A Bank arranges a swap and requires 50 basis points as its commission, which is to be shared equally. IF requires a minimum gain of 20 basis points and SF requires a minimum gain of 10 basis points for structuring the deal. The Bank is very keen to structure the deal, even if, it has to forego a part of its commission.

You are required to find out:

(i) Whether there are any advantages available to IF and SF?

(ii) Whether a swap can be arranged which may be beneficial to both the firms?

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(iii) What rate of interest will they end up paying? Show detailed working. ***(8 Marks)***

(b) Mr. V is a commodity trader and specialized himself in trading of rice.

He has 24,000 Kg. of rice. The following details are available as on date:

Spot price	*₹/Kg.*	*70*
3 month's future is trading at	*₹/Kg.*	*68*
Expected Lower price after 3 months	*₹/Kg.*	*64*
Contract size	*500 Kg./ contract*	

You are required to advise to Mr. V:

(i) How to mitigate the risk of fall in price.

(ii) How to use the futures market.

(iii) What will be the effective realized price for his sales if, after 3 months, spot price is ₹ 69/ Kg. and the 3 months future contract price is

a. ₹ 72/ Kg.

b. ₹ 67/Kg. ***(8 Marks)***

(c) What makes an organization financially sustainable? Discuss. ***(4 Marks)***

Answer

(a) (i) Though firm IF has an advantage in both the markets but it has comparative more advantage in the INR floating-rate market. Firm SF has a comparative advantage in the SGD fixed interest rate market.

However, firm IF wants to borrow in the SGD fixed interest rate market and firm SF wants to borrow in the INR floating-rate market. This gives rise to the swap opportunity.

IF raises INR floating rate at BPLR + 0.50% and SF raises SGD at 3.50%

Total Potential Gain = (INR interest differential) - (SGD rate differential)

= (BPLR + 1.50% - BPLR - 0.50%) + (3% - 3.50%) = 0.50%

Less: Banker's commission (To be shared equally) = *0.20%

Net gain (To be shared as: 0.20% for IF and 0.10% for SF) = 0.30%

*Since, bank's commission is 0.50% which constitutes the entire gain, and it is mentioned that bank will forego a part of its commission to structure the deal. Thus, it will forego the minimum gain required by IF and SF i.e. 0.20% and 0.10% respectively.

(ii) Yes, a beneficial swap can be arranged

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(iii) Effective cost of borrowing = pays to lenders + pays to other party - receives from other party + banker's commission

IF = BPLR + 0.50% + 2.70%** - (BPLR + 0.50%) + 0.10% = 2.80%

(** has been arrived as 3% - 0.20% - 0.10%)

SF = 3.50% + BPLR + 0.50% - 2.70% + 0.10% = BPLR + 1.40%

(b) (i) In order to hedge its position Mr. V (trader) should use Future Contracts.

Particulars	
(a) Quantity of Rice to be hedged	24000 kg.
(b) Contract Size	500 kg.
(c) No. of Contracts (a/b)	48
(d) Future Price	₹ 68/kg.
(e) Exposure in the future market (a x d)	₹16,32,000

(ii) Mr. V should short 48 Future contracts at the price ₹ 68/kg and cancel its position after 3 months by buying Future contract at prevailing Future price.

(iii) After 3 months, trader would cancel its position in the future by buying a future contract of same quantity and will sell Rice in the spot market and position shall be as follows:

Particulars	₹	₹
(a) Price of Future Contract	72/kg.	67/kg.
(b) Amount bought	17,28,000	16,08,000
(c) Exposure	16,32,000	16,32,000
(d) Gain/(Loss) on future position (b – c)	(96,000)	24,000
(e) Spot Price	69/kg	69/kg
(f) Amount realized by selling in the spot market	16,56,000	16,56,000
(g) Effective Selling Amount (f + d)	₹ 15,60,000	₹ 16,80,000
(g) Effective Selling Price	₹ 65/kg.	₹ 70/kg.

(c) To be financially sustainable, an organisation must-

i. Have more than one source of income;

ii. Have more than one way of generating income;

iii. Do strategic, action and financial planning regularly;

iv. Have adequate financial systems;

v. Have a good public image;

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vi. Be clear about its values (value clarity); and

vii. Have financial autonomy.

Question 4

(a) *An investor, in the beginning of 2022, has purchased substantial number of 8 year 7.50%, ₹1000 bond with 5% premium on maturity at a required Yield to Maturity (YTM) of 8.50 %. However, due to the continuing war in Europe, the inflation is running very high in the economies of the countries. The yield on the bonds is decreasing. The risk averse investor wants to protect himself from further loss and decides to sell the bonds in 2023. He has got a proposal from another investor who is willing to purchase these bonds by shelling out a maximum amount of ₹797.50 per bond.*

Investor follows intrinsic value method for valuation of the Bonds.

You are required to determine

(i) The Market price, Duration and Volatility of the bond.

(ii) Will it be a right decision of the new investor if he is looking for Required Yield to Maturity (YTM) as 12% p.a. ?

Period	1	2	3	4	5	6	7
PVIF (8.50%,n)	0.9217	0.8495	0.7829	0.7216	0.6650	0.6129	0.5649

(9 Marks)

(b) *Hopeful Ltd., an Indian MNC is executing a plant in Nepal. It has raised ₹400 Billion. Half of the amount will be required after six months' time. Hopeful Ltd. is looking for an opportunity to invest this amount for a period of six months. It is considering following two options:*

Market	UK	Europe
Nature of Investment	Index Fund (GBP)	Treasury Bills (Euro)
Dividend (GBP in Billions)	0.1369	-
Income from stock lending (GBP in Billions)	0.0007	-
Discount on the investment value at the end	2%	-
Interest	-	7.8 percent per annum
Exchange Rate (Spot)	GBP/ INR 0.0099	EUR/INR 0.011
Exchange Rate (6 month Forward)	GBPI INR 0.0100	EUR/INR 0.011

As an investment manager advise the best option to invest. ***(7 Marks)***

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(c) Personal Financing is one of the innovative ways to finance a startup. Discuss any four other methods. ***(4 Marks)***

Answer

(a) (i) (A) Market Price of Bond

= 1,000 X 7.50% X (PVIAF 8.50%,7) + 1,050 X (PVIF 8.5%,7)

= 75 X 5.1185 + 1050 X 0.5649

= 383.89 + 593.15 = ₹ 977.04

(B) Duration of Bond

Year	Cash flow	P.V. @ 8.5%		Proportion of bond value	Proportion of bond value x time (years)
1	75	0.9217	69.128	0.071	0.071
2	75	0.8495	63.713	0.065	0.130
3	75	0.7829	58.718	0.060	0.180
4	75	0.7216	54.120	0.055	0.220
5	75	0.6650	49.875	0.051	0.255
6	75	0.6129	45.968	0.047	0.282
7	1125	0.5649	635.513	0.651	4.557
			977.035		5.695

Duration of the Bond is 5.695 years.

Alternatively, it can also be calculated as follows:

Year (1)	Cash flow (2)	PVF (3)	PV (4)	(1) x (4)
1	75	0.9217	69.13	69.13
2	75	0.8495	63.71	127.42
3	75	0.7829	58.72	176.16
4	75	0.7216	54.12	216.48
5	75	0.6650	49.88	249.40
6	75	0.6129	45.97	275.82
7	1125	0.5649	635.51	4448.57
			977.04	5562.98

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Duration of the Bond = $\frac{5562.98}{977.04}$ = 5.69 years

(C) Volatility of Bond-

Volatility = Duration/(1+YTM)

= 5.695/ (1+0.085) = 5.249

Or = 5.69/ (1+0.085) = 5.24

(ii) PV of Bond @ 12% YTM

= ₹ 75 PVIAF (12%, 7) + ₹1050 X PVIF (12%, 7)

= ₹ 75 X 4.5637 + ₹ 1050 X 0.4523

= ₹ 342.28 + ₹ 474.92 = ₹ 817.20

Since, Intrinsic Value of Bond is ₹ 817.20 the decision of new investor is right at purchase price of ₹ 797.50.

Alternatively, it can also be solved as follows:

Price Difference between Current Selling Price & Intrinsic Value	₹ 179.54
Increase in Yield justified $\left(\frac{\text{Price Difference} \times 100}{\text{Volatility} \times P_0}\right)$	3.50%
Justified YTM (8.50% + 3.50%)	12%

Thus, the decision of investor is right.

(b) (i) Investment in UK Market (in billions)

Particulars	Currency INR	ER	Currency GBP
Available amount	200	0.0099	1.98
Dividend Income			0.1369
Stock Lending Income			0.0007
Investment value at the end after discount @ 2%			1.9404
			2.0780
Amount available at the end of 6-months			
Conversion after 6 months		0.0100	₹ 207.80
Gain			₹ 7.80

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Investment in Europe **(in billions)**

Particulars	Currency INR	ER	EUR
Available amount	200	0.011	2.2000
Interest for 6 months @ 7.80% p.a.			0.0858
Amount available at the end			2.2858
Amount available at the end of 6-months			
Conversion after 6 months		0.011	₹ 207.80
Gain			₹ 7.80

The gain amount is same in both the options so Hopeful Ltd. is indifferent. However, Treasury Bills are risk free, so investment in Treasury Bills (Euro) is suggested.

Alternative Solution

(i) If investment is made in Index Fund (GBP)

Initial Investment (₹ 200 Billion x 0.0099)	GBP 1.9800 billions
Dividend Income	GBP 0.1369 billions
Income from Stock Lending	GBP 0.0007 billions
Discount	(GBP 0.0396 billions)
Value of Investment after 6 months	GBP 2.0780 billions
Value of Investment after 6 months in ₹ @ GBP/ INR	₹ 207.8000 billions

(ii) If investment is made in Treasury Bills (Europe)

Initial Investment (₹ 200 Billion x 0.011)	EUR 2.2000 billions
Interest for 6 months @ 7.8% p.a.	EUR 0.0858 billions
Value of Investment after 6 months	EUR 2.2858 billions
Value of Investment after 6 months in ₹ @ EUR/ INR 0.011	₹ 207.8000 billions

The equivalent amount is same in both the options so Hopeful Ltd. is indifferent. However, Treasury Bills are risk free, so investment in Treasury Bills (EUR) is suggested.

(c) Other innovative ways to finance startup are as follows:

(i) **Personal credit lines:** One qualifies for personal credit line based on one's personal credit efforts. Credit cards are a good example of this. However, banks are very cautious while granting personal credit lines. They provide this facility only when the business has enough cash flow to repay the line of credit.

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(ii) **Family and friends:** These are the people who generally believe in you, without even thinking that your idea works or not. However, the loan obligations to friends and relatives should always be in writing as a promissory note or otherwise.

(iii) **Peer-to-peer lending:** In this process group of people come together and lend money to each other. Peer to peer lending has been there for many years. Many small and ethnic business groups having similar faith or interest generally support each other in their start up endeavors.

(iv) **Crowdfunding:** Crowdfunding is the use of small amounts of capital from a large number of individuals to finance a new business initiative. Crowdfunding makes use of the easy accessibility of vast networks of people through social media and crowdfunding websites to bring investors and entrepreneurs together.

(v) **Microloans:** Microloans are small loans that are given by individuals at a lower interest to a new business ventures. These loans can be issued by a single individual or aggregated across a number of individuals who each contribute a portion of the total amount.

(vi) **Vendor financing:** Vendor financing is the form of financing in which a company lends money to one of its customers so that he can buy products from the company itself. Vendor financing also takes place when many manufacturers and distributors are convinced to defer payment until the goods are sold. This means extending the payment terms to a longer period for e.g. 30 days payment period can be extended to 45 days or 60 days. However, this depends on one's credit worthiness and payment of more money.

(vii) **Purchase order financing:** The most common scaling problem faced by startups is the inability to find a large new order. The reason is that they don't have the necessary cash to produce and deliver the product. Purchase order financing companies often advance the required funds directly to the supplier. This allows the completion of transaction and profit flows up to the new business.

(viii) **Factoring accounts receivables:** In this method, a facility is given to the seller who has sold the good on credit to fund his receivables till the amount is fully received. So, when the goods are sold on credit, and the credit period (i.e. the date upto which payment shall be made) is for example 6 months, factor will pay most of the sold amount up front and rest of the amount later. Therefore, in this way, a startup can meet his day to day expenses.

Question 5

(a) *M/S. Promising, an AMC, on 01.04.2018 has floated two schemes viz. Dividend Reinvestment Plan and Bonus Plan. Mr. X, an investor has invested in both the schemes. Mr. X, while submitting the tax papers, returned a capital loss on both the plans. Tax officials, suspicious on the claim of Mr. X, decided to launch an investigation and were able to collect the following details (except the issue price):*

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Date	Dividend (%)	Bonus Ratio	NAV (₹)	
			Dividend Reinvestment Plan	Bonus Plan
01.04.2018			?	?
31.12.2019		1:5	58	70
31.03.2020	12		60	72
31.03.2021	10		68	75
31.03.2022	15		75	66
31.12.2022*		1:3	70	60
31.03.2023			80	71

* In question paper this row got typed before the row of values of 31.03.2022.

Additional details	Dividend Reinvestment Plan	Bonus Plan
Investment (₹)	₹ 10,80,000	₹ 10,00,000
Average Profit (₹)	₹ 1,21,824	
Average Yield (%)		8.40%

Assume face value of unit as ₹ 10.

You are required to assist the tax officials to calculate the issue price of both the schemes as on 01.04.2018. **(8 Marks)**

(b) Mr. Potential has made investments in two mutual funds. The following information is available:

Mutual Fund	Smart	Growth
Jensen Alpha	1.10%	1.50%
Treynor's Ratio	0.0714	0.0775
Actual Return	8.50%	9.10%
Risk Premium		4%

You are required to calculate:

(i) Beta (β) for both the funds

(ii) Risk free Rate

(iii) Security Market Line **(8 Marks)**

(c) "A Limited Partnership Entity, in India, is not recognized for the purpose of Venture Capital Fund." Do you agree? Briefly explain the structure of Venture Capital Fund in India.

(4 Marks)

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Answer

(a) (i) Dividend Plan

(a)	Average Annual gain over a period of 5 Years	₹ 1,21,824
(b)	Total gain over a period of 5 years (a*5)	₹ 6,09,120
(c)	Initial Investment	₹10,80,000
(d)	Total value of investment (b+c)	₹ 16,89,120
(e)	NAV as on 31.3.2023	₹ 80
(f)	Number of units at the end of the period as on 31.03.2022 (d/e)	21114

	1	2	3	4 = (2*3)	5	6 = [1/(4+5)]*4	7
Period	Units held	Rate	Unit value	Dividend	NAV	New Units*	Balance Units Pre Dividend
31.03.2022	21114	0.15	10	1.50	75	414	20700
31.03.2021	20700	0.10	10	1.00	68	300	20400
31.03.2020	20400	0.12	10	1.20	60	400	20000

Issue Price as on 01.04.2018

Investment 1080000/ Units purchased 20000 (c/i) = ₹ 54

* Let the units issued be X

X = (Closing Units/NAV + Dividend) x Dividend

Alternatively, it can also be computed as follows:

(i) Dividend Plan

Average Profit = ₹ 121,824

Total Gain = ₹ 121,824 x 5 = ₹ 6,09,120

Cost of Acquisition = ₹ 10,80,000

Maturity Value = ₹ 16,89,120 (₹ 6,09,120 + ₹ 10,80,000)

On 31.03.23 since the NAV of the Fund is ₹ 80 the units redeemed are:

$$\frac{16,89,120}{80} = 21114$$

Let X be the NAV on 01.04.18.

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Thus, units acquired on 01.04.18 = $\frac{1080000}{X}$

Units added on 31.03.2020 = $\frac{\left\lfloor \frac{1080000}{X} \times 1.2 \right\rfloor}{60} = \left\lfloor \frac{21600}{X} \right\rfloor$

Units added on 31.03.2021 = $\frac{\left\lfloor \frac{1080000}{X} + \frac{21600}{X} \right\rfloor}{68} = \frac{16200}{X}$

Units added on 31.03.2022= $\left\lfloor \frac{1080000}{X} + \frac{21600}{X} + \frac{16200}{X} \right\rfloor \times \frac{1.5}{75} = \frac{22356}{X}$

Thus, total units can be shown as follows:

$\left\lfloor \frac{1080000}{X} + \frac{21600}{X} + \frac{16200}{X} + \frac{22356}{X} \right\rfloor = 21114$

$X = 54$

Thus, the issue Price of units under Dividend Plan shall be ₹ 54

(ii) Bonus Plan

(a)	Average Yield	0.084
(b)	Investment	₹ 10,00,000
(c)	Gain over a period of 5 years (a*b*5)	₹ 4,20,000
(d)	Market Value as on 31.03.2023 (b + c)	₹ 14,20,000
(e)	NAV as on 31.03.2023	71
(f)	Total units as on 31.03.2023 (d/e)	20000
(g)	No of units as on 31.03.2022 Pre bonus = 20000*3/ (3 + 1)	15000
(h)	No of units as on 31.12.2019 Pre bonus = 15000*5/ (5 + 1)	12500
(i)	Issue Price as on 01.04.2019	
	Investment ₹ 10,00,000/ Units purchased 12500 (b/h)	₹ 80

Alternatively, it can also be computed as follows:

Units on 01.04.2018	X
Units after bonus on 31.12.2019 (1:5)	1.20X
Units after bonus on 31.12.2022 (1:3)	1.60X

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Average yield	0.084
Investment	₹ 10,00,000
Gain for 5 years (10,00,000 x 0.084 x 5)	₹ 4,20,000
Total Value (₹ 10,00,000 + ₹ 4,20,000)	₹ 14,20,000

Where, 1.6X x ₹ 71 = ₹ 14,20,000

Therefore, X = 12,500 units

Issue Price on 01.04.2018 = ₹ 10,00,000 / 12,500 units = ₹ 80

Alternatively, it can also be computed as follows:

Average Yield = 8.40%

Investment = ₹ 10,00,000

Gain over a period of 5 years = ₹ 10,00,000*0.084*5 = ₹ 4,20,000

Thus, Maturity Value on 31.03.23 shall be ₹ 14,20,000

$$\text{No. of units} = \frac{14,20,000}{71} = 20,000$$

Now let B be the NAV on 01.04.18 then

$$\text{Units acquired on 01.04.18} = \frac{10,00,000}{B}$$

$$\text{Units added on 31.12.19} = \frac{10,00,000}{B} \times \frac{1}{5} = \frac{2,00,000}{B}$$

$$\text{Units added on 31.12.21} = \frac{12,00,000}{B} \times \frac{1}{3} = \frac{4,00,000}{B}$$

Thus, total units can be shown as follows:

$$\left[\frac{1000000}{B} + \frac{200000}{B} + \frac{400000}{B}\right] = 20000$$

B = ₹ 80

Thus, the issue Price of units under Bonus Plan shall be ₹ 80.

(b)

	Smart	Growth
Jensen Alpha	0.011	0.015
Treynor's Ratio	0.0714	0.0775

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Actual Return	0.085	0.091
Risk Premium	0.04	0.04

Jensen Alpha = Actual Return - E(r)

Treynor's Ratio = $\frac{E(r) - Rf}{\beta}$

E(r) = Actual Return – Jensen Alpha

For Smart:

$0.04\beta_S = 0.074 - R_f$ (1)

$0.0714\beta_S = 0.085 - R_f$. (2)

On solving (1) and (2), we get $\beta_S = 0.35$ and $R_f = 0.06$

For Growth:

$0.04\beta_G = 0.076 - R_f$ (3)

$0.0775\beta_G = 0.091 - R_f$ (4)

On solving (3) and (4), we get $\beta_G = 0.40$ and $R_f = 0.06$

(i) Beta of Smart Mutual Fund is 0.35 and Growth Mutual Fund is 0.40.

(ii) Risk free Rate = 6%

(iii) Security Market Line for Smart = 0.06 + 0.04β

Security Market Line for Growth = 0.06 + 0.04β

Alternative Solution: In case students have assumed Risk Premium as Equity Risk Premium of respective securities.

Working Notes:

(i) Smart

Jensen Alpha = 0.011

Actual Return = 0.085

Thus, expected return (as per CAPM) = 0.074

Accordingly, Risk Free Rate of Return:

$0.074 = R_f + 0.04$

Rf = 0.034

Treynor's Ratio = 0.0714

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$$0.0714 = \frac{0.085 - 0.034}{\beta_S}$$

$\beta_S = 0.714$

$$\text{Market Risk Premium} = \frac{0.04}{0.714} = 0.056$$

(ii) Growth

Jensen Alpha = 0.015

Actual Return = 0.091

Thus, expected return (as per CAPM) = 0.076

Accordingly, Risk Free Rate of Return:

$0.076 = R_f + 0.04$

$R_f = 0.036$

Treynor's Ratio = 0.0775

$$0.0775 = \frac{0.091 - 0.036}{\beta_G}$$

$\beta_G = 0.710$

$$\text{Market Risk Premium} = \frac{0.04}{0.710} = 0.056$$

Security Market Line for Smart $= 0.034 + 0.056\beta_S$

Security Market Line for Growth $= 0.036 + 0.056\beta_G$

(c) Yes, agree with the statement.

Three main types of fund structure exist: one for domestic funds and two for offshore ones:

(a) Domestic Funds: Domestic Funds (i.e. one which raises funds domestically) are usually structured as:

(i) A domestic vehicle for the pooling of funds from the investor, and

(ii) A separate investment adviser that carries those duties of asset manager.

The choice of entity for the pooling vehicle falls between a trust and a company, (India, unlike most developed countries does not recognize a limited partnership), with the trust form prevailing due to its operational flexibility.

(b) Offshore Funds: Two common alternatives available to offshore investors are: the "offshore structure" and the "unified structure".

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Offshore structure

Under this structure, an investment vehicle (an LLC or an LP organized in a jurisdiction outside India) makes investments directly into Indian portfolio companies. Typically, the assets are managed by an offshore manager, while the investment advisor in India carries out the due diligence and identifies deals.

Unified Structure

When domestic investors are expected to participate in the fund, a unified structure is used. Overseas investors pool their assets in an offshore vehicle that invests in a locally managed trust, whereas domestic investors directly contribute to the trust. This is later device used to make the local portfolio investments.

Question 6

(a) *Big Ltd. (BL), a listed company, is enjoying a price earnings ratio (PER) of 15 on an Earnings Per Share (EPS) of ₹ 5. The Total number of outstanding shares are 2,00,000.*

BL is proposing to acquire Small Pvt. Ltd. (SPL) an unlisted company by issuing shares in the ratio 4:5 i.e. for 5 shares of SPL 4 shares of BL will be issued. The outstanding shares of SPL are 50,000. SPL will be listed before the actual merger to discover its value. The EPS of the merged entity will be 5.5.

No other information is available for SPL.

You are required to calculate:

(i) Pre-merger EPS of SPL.

(ii) Expected Market Price per Share of SPL at the time of listing, if it expects a PER of 10 and,

(iii) Number of shares of BL to be issued to SPL if pre-merger EPS of BL is to be maintained. ***(8 Marks)***

(b) *An Investor is proposing to invest ₹ 10,000/- in two Portfolios A and B in the ratio of 3 : 2. The Portfolios have three securities each with following weights :*

	Wx	*Wy*	*Wz*
Portfolio A	*0.30*	*0.25*	*0.45*
Portfolio B	*0.20*	*0.45*	*0.35*

You are required to

(i) Calculate the weight of each stock.

(ii) Calculate the amount allocated to Y and Z if half of the funds are allocated to security X. ***(8 Marks)***

Note: *In question paper in sub part (ii) Y and Z mistakenly got typed as B and C.*

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(c) "The commodity characteristic approach defines feasible commodities for derivatives trading based on an extensive list of required commodity attributes." What are the required attributes? ***(4 Marks)***

OR

Index Funds is one of the Special Funds. What are other funds in Special Funds category?

(4 Marks)

Answer

(a) (i) Pre Merger EPS

No. of shares to be issued by BL to SPL (50,000 x 4/5)	40,000
Existing number of shares of BL	2,00,000
Total no. of shares Post Merger	2,40,000
EPS (Post Merger)	₹ 5.50
Post-Merger (Total Earning)	₹ 13,20,000
Less: Pre-Merger Earning of BL (2,00,000 x 5)	₹ 10,00,000
Pre-Merger Earning of SPL	₹ 3,20,000
Number of shares of SPL (Existing)	50,000
EPS (₹ 3,20,000/50,000)	₹ 6.40

(ii) Expected Market Price of SPL share at the day of listing

EPS x PE Ratio (6.40 x 10) = ₹ 64.00

(iii) Number of shares to be issued to SPL to maintain Pre-Merger EPS

5.00 = 13,20,000/(2,00,000+X)

10,00,000 + 5X = 13,20,000

X = 64,000

Thus, 64,000 shares to be issued by BL to SPL to maintain pre-merger EPS.

Alternatively, it can also be computed as follows:

Swap Ratio if EPS before merger is maintained by BL

Then, Swap Ratio =6.4 / 5 = 1.28

Number of shares of BL is to be issued to SPL is 50000 shares x 1.28 = 64000 shares

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(b) (i) Investment committed to each security would be:

	X (₹)	Y (₹)	Z (₹)	Total (₹)
Portfolio A	1,800	1,500	2,700	6,000
Portfolio B	800	1,800	1,400	4,000
Combined Portfolio	2,600	3,300	4,100	10,000
Stock weights	0.26	0.33	0.41	

Alternatively, it can also be computed as follows:

Weight of Security X = 0.30 x 3/5 + 0.20 x 2/5 = 0.26

Weight of Security Y = 0.25 x 3/5 + 0.45 x 2/5 = 0.33

Weight of Security Z = 0.45 x 3/5 + 0.35 x 2/5 = 0.41

(ii) The equation of critical line takes the following form:

WY = a + bWX

Substituting the values of WX & WY from portfolio A and B in above equation, we get

0.25 = a + 0.30b, and

0.45 = a + 0.20b

Solving above equation we obtain the slope and intercept, a = 0.85 and b= -2 and thus, the critical line is

WY = 0.85 – 2WX

If half of the funds is invested in security X then,

WY = 0.85 – 1.00 = - 0.15

Since WX + WY + WZ = 1

WZ = 1 - 0.50 + 0.15 = 0.65

∴ Allocation of funds to Security Y = - 0.15 x 10,000 = - ₹ 1,500 and

Security Z = 0.65 x 10,000 = ₹ 6,500

Alternatively, it can also be solved as follows:

Amount to be allocated to Y & Z if half of the funds are allocated to X.

The balance fund of ₹ 5,000 shall be allocated in the ratio of 33:41.

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Allocation of funds to - Security Y = 5,000 x 33/74 = ₹ 2,230

Security Z = 5,000 x 41/74 = ₹ 2,770

(c) The following attributes are considered crucial for qualifying for the derivatives trade:

(1) A commodity should be durable and it should be possible to store it;

(2) Units must be homogeneous;

(3) The commodity must be subject to frequent price fluctuations with wide amplitude; supply and demand must be large;

(4) Supply must flow naturally to market and there must be breakdowns in an existing pattern of forward contracting.

OR

The other funds in Special Fund category are as follows:

(a) **International Funds:** A mutual fund located in India to raise money in India for investing globally.

(b) **Offshore Funds:** A mutual fund located in India to raise money globally for investing in India.

(c) **Sector Funds:** They invest their entire fund in a particular industry e.g. utility fund for utility industry like power, gas, public works.

(d) **Money Market Funds:** These are predominantly debt-oriented schemes, whose main objective is preservation of capital, easy liquidity and moderate income. To achieve this objective, liquid funds invest predominantly in safer short-term instruments like Commercial Papers, Certificate of Deposits, Treasury Bills, G-Secs etc.

(e) **Fund of Funds: Fund of Funds (FoF)** as the name suggests are schemes which invest in other mutual fund schemes. The concept is popular in markets where there are number of mutual fund offerings and choosing a suitable scheme according to one's objective is tough. Just as a mutual fund scheme invests in a portfolio of securities such as equity, debt etc., the underlying investments for a FoF is the units of other mutual fund schemes, either from the same fund family or from other fund houses.

(f) **Capital Protection Oriented Fund:** The term 'capital protection oriented scheme' means a mutual fund scheme which is designated as such and which endeavours to protect the capital invested therein through suitable orientation of its portfolio structure. The orientation towards protection of capital originates from the portfolio structure of the scheme and not from any bank guarantee, insurance cover etc.

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(g) Gold Funds: The objective of these funds is to track the performance of Gold. The units represent the value of gold or gold related instruments held in the scheme. Gold Funds which are generally in the form of an Exchange Traded Fund (ETF) are listed on the stock exchange and offers investors an opportunity to participate in the bullion market without having to take physical delivery of gold.

(h) Quant Funds: Quant Fund works on a data-driven approach for stock selection and investment decisions based on a pre-determined rules or parameters using statistics or mathematics-based models.

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