

PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

PART A: FINANCIAL MANAGEMENT

QUESTIONS

Ratio Analysis

1. Following information has been gathered from the books of Cram Ltd. for the year ended 31st March 2021, the equity shares of which is trading in the stock market at ₹ 28:

Particulars	Amount (₹)
Equity Share Capital (Face value @ ₹ 20)	20,00,000
10% Preference Share capital	4,00,000
Reserves & Surplus	16,00,000
12.5% Debentures	12,00,000
Profit before Interest and Tax for the year	8,00,000

CALCULATE the following when company falls within 25% tax bracket:

- (i) Return on Capital Employed
- (ii) Earnings Per share
- (iii) P/E Ratio

Cost of Capital

2. Kalyanam Ltd. has an operating profit of ₹ 34,50,000 and has employed Debt which gives total Interest Charge of ₹ 7,50,000. The firm has an existing Cost of Equity and Cost of Debt as 16% and 8% respectively. The firm has a new proposal before it, which requires funds of ₹ 75 Lakhs and is expected to bring an additional profit of ₹ 14,25,000. To finance the proposal, the firm is expecting to issue an additional debt at 8% and will not be issuing any new equity shares in the market. Assume no tax culture.

You are required to CALCULATE the Weighted Average Cost of Capital (WACC) of Kalyanam Ltd.:

- (i) Before the new Proposal
- (ii) After the new Proposal

Capital Structure

3. Blue Ltd., an all equity financed company is considering the repurchase of ₹ 275 lakhs equity shares and to replace it with 15% debentures of the same amount. Current market value of the company is ₹ 1,750 lakhs with its cost of capital of 20%. The company's Earnings before Interest and Taxes (EBIT) are expected to remain constant in future years. The company also has a policy of distributing its entire earnings as dividend.

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INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2021

Assuming the corporate tax rate as 30%, you are required to CALCULATE the impact on the following on account of the change in the capital structure as per Modigliani and Miller (MM) Approach:

- (i) Market value of the company
- (ii) Overall Cost of capital
- (iii) Cost of equity

Leverage

4. The following particulars relating to Navya Ltd. for the year ended 31st March 2021 is given:

Output	1,00,000 units at normal capacity
Selling price per unit	₹ 40
Variable cost per unit	₹ 20
Fixed cost	₹ 10,00,000

The capital structure of the company as on 31st March, 2021 is as follows:

Particulars	₹
Equity share capital (1,00,000 shares of ₹ 10 each)	10,00,000
Reserves and surplus	5,00,000
7% debentures	10,00,000
Current liabilities	5,00,000
Total	30,00,000

Navya Ltd. has decided to undertake an expansion project to use the market potential, that will involve ₹ 10 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 10%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion programme are planned:

- (i) Entirely by equity shares of ₹ 10 each at par.
- (ii) ₹ 5 lakh by issue of equity shares of ₹ 10 each and the balance by issue of 6% debentures of ₹ 100 each at par.
- (iii) Entirely by 6% debentures of ₹ 100 each at par.

FIND out which of the above-mentioned alternatives would you recommend for Navya Ltd. with reference to the risk and return involved, assuming a corporate tax of 40%.

Investment Decisions

5. HMR Ltd. is considering replacing a manually operated old machine with a fully automatic new machine. The old machine had been fully depreciated for tax purpose but has a book value of ₹ 2,40,000 on 31st March 2021. The machine has begun causing problems with breakdowns and it cannot fetch more than ₹ 30,000 if sold in the market at present. It will have no realizable value after 10 years. The company has been offered ₹ 1,00,000 for the old machine as a trade in on the new machine which has a price (before allowance for trade in) of ₹ 4,50,000. The expected life of new machine is 10 years with salvage value of ₹ 35,000.

Further, the company follows straight line depreciation method but for tax purpose, written down value method depreciation @ 7.5% is allowed taking that this is the only machine in the block of assets.

Given below are the expected sales and costs from both old and new machine:

	Old machine (₹)	New machine (₹)
Sales	8,10,000	8,10,000
Material cost	1,80,000	1,26,250
Labour cost	1,35,000	1,10,000
Variable overhead	56,250	47,500
Fixed overhead	90,000	97,500
Depreciation	24,000	41,500
PBT	3,24,750	3,87,250
Tax @ 30%	97,425	1,16,175
PAT	2,27,325	2,71,075

From the above information, ANALYSE whether the old machine should be replaced or not if required rate of return is 10%? Ignore capital gain tax.

PV factors @ 10%:

Year	1	2	3	4	5	6	7	8	9	10
PVF	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386

Risk Analysis in Capital Budgeting

6. TIP Ltd. is considering two mutually exclusive projects M and N. You have been given below the Net Cash flow probability distribution of each project:

Project-M		Project-N	
Net Cash Flow (₹)	Probability	Net Cash Flow (₹)	Probability
62,500	0.30	1,62,500	0.20
75,000	0.30	1,37,500	0.30
87,500	0.40	1,12,500	0.50

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INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2021

- (i) REQUIRED:
 - (a) Expected Net Cash Flow of each project.
 - (b) Variance of each project.
 - (c) Standard Deviation of each project.
 - (d) Coefficient of Variation of each project.
- (ii) IDENTIFY which project would you recommend? Give reasons.

Dividend Decision

7. Aakash Ltd. has 10 lakh equity shares outstanding at the start of the accounting year 2021. The existing market price per share is ₹ 150. Expected dividend is ₹ 8 per share. The rate of capitalization appropriate to the risk class to which the company belongs is 10%.
- (i) CALCULATE the market price per share when expected dividends are: (a) declared, and (b) not declared, based on the Miller – Modigliani approach.
 - (ii) CALCULATE number of shares to be issued by the company at the end of the accounting year on the assumption that the net income for the year is ₹ 3 crore, investment budget is ₹ 6 crores, when (a) Dividends are declared, and (b) Dividends are not declared.
 - (iii) PROOF that the market value of the shares at the end of the accounting year will remain unchanged irrespective of whether (a) Dividends are declared, or (ii) Dividends are not declared.

Management of Receivables (Debtors)

8. The Alliance Ltd., a Petrochemical sector company had just invested huge amount in its new expansion project. Due to huge capital investment, the company is in need of an additional ₹ 1,50,000 in working capital immediately. The Finance Manger has determined the following three feasible sources of working capital funds:
- (i) Bank loan: The Company's bank will lend ₹ 2,00,000 at 15%. A 10% compensating balance will be required, which otherwise would not be maintained by the company.
 - (ii) Trade credit: The company has been offered credit terms from its major supplier of 3/30, net 90 for purchasing raw materials worth ₹ 1,00,000 per month.
 - (iii) Factoring: A factoring firm will buy the company's receivables of ₹ 2,00,000 per month, which have a collection period of 60 days. The factor will advance up to 75% of the face value of the receivables at 12% on an annual basis. The factor will also charge commission of 2% on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expense and bad debt expense of ₹ 1,250 and ₹ 1,750 per month respectively.

On the basis of annual percentage cost, ADVISE which alternative should the company select? Assume 360 days year.

Management of Working Capital

9. The management of Trux Company Ltd. is planning to expand its business and consults you to prepare an estimated working capital statement. The records of the company reveals the following annual information:

	(₹)
Sales – Domestic at one month's credit	18,00,000
Export at three month's credit (sales price 10% below domestic price)	8,10,000
Materials used (suppliers extend two months credit)	6,75,000
Lag in payment of wages – ½ month	5,40,000
Lag in payment of manufacturing expenses (cash) – 1 month	7,65,000
Lag in payment of Administration Expenses – 1 month	1,80,000
Selling expenses payable quarterly in advance	1,12,500
Income tax payable in four installments, of which one falls in the next financial year	1,68,000

Rate of gross profit is 20%. Ignore work-in-progress and depreciation.

The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping ₹ 2,50,000 available to it including the overdraft limit of ₹ 75,000 not yet utilized by the company.

The management is also of the opinion to make 10% margin for contingencies on computed figure.

You are required to PREPARE the estimated working capital statement for the next year.

Miscellaneous

10. (a) DISCUSS the points that demonstrates the Importance of good financial management.
 (b) EXPLAIN some common methods of Venture capital financing.

SUGGESTED ANSWERS/HINTS

1. (i) **Return on Capital Employed (ROCE)**

$$\begin{aligned} \text{ROCE (Pre-tax)} &= \frac{\text{Profit before interest and taxes (PBIT)}}{\text{Capital Employed}} \times 100 \\ &= \frac{\text{₹ 8,00,000}}{\text{₹ 52,00,000}} \times 100 \end{aligned}$$

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INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2021

$$\begin{aligned}
 &= 15.38\% \text{ (approx.)} \\
 \text{ROCE (Post-tax)} &= \frac{\text{PBIT}(1 - t)}{\text{Capital Employed}} \times 100 \\
 &= \frac{\text{₹ } 8,00,000 (1 - 0.25)}{\text{₹ } 52,00,000} \times 100 \\
 &= 11.54\% \text{ (approx.)}
 \end{aligned}$$

(ii) Earnings Per share (EPS)

$$\begin{aligned}
 &= \frac{\text{Profit available to equity share holders}}{\text{Number of equity shares outstanding}} \\
 &= \frac{\text{₹ } 4,47,500}{1,00,000} \\
 &= \text{₹ } 4.475
 \end{aligned}$$

(iii) P/E Ratio

$$\begin{aligned}
 &= \frac{\text{Market Price per Share (MPS)}}{\text{Earning per Share (EPS)}} \\
 &= \frac{\text{₹ } 28}{\text{₹ } 4.475} \\
 &= 6.26 \text{ times (approx.)}
 \end{aligned}$$

Workings:

(a) Income Statement

Particulars	Amount (₹)
Profit before Interest and Tax (PBIT)	8,00,000
Interest on Debentures (12.5% of ₹ 12,00,000)	(1,50,000)
Profit before Tax (PBT)	6,50,000
Tax @ 25%	(1,62,500)
Profit after Tax (PAT)	4,87,500
Preference Dividend (10% of ₹ 4,00,000)	(40,000)
Profit available to Equity shareholders	4,47,500

(b) Calculation of Capital Employed

$$\begin{aligned}
 &= \text{Equity Shareholder's Fund} + \text{Preference share Capital} + \text{Debentures} \\
 &= (\text{₹ } 20,00,000 + \text{₹ } 16,00,000) + \text{₹ } 4,00,000 + \text{₹ } 12,00,000 = \text{₹ } 52,00,000
 \end{aligned}$$

2. Workings:

$$\begin{aligned} \text{(a) Value of Debt} &= \frac{\text{Interest}}{\text{Cost of debt (K}_d\text{)}} \\ &= \frac{\text{₹ 7,50,000}}{0.08} = \text{₹ 93,75,000} \end{aligned}$$

$$\begin{aligned} \text{(b) Value of equity capital} &= \frac{\text{Operating profit - Interest}}{\text{Cost of equity (K}_e\text{)}} \\ &= \frac{\text{₹ 34,50,000} - \text{₹ 7,50,000}}{0.16} = \text{₹ 1,68,75,000} \end{aligned}$$

(c) New Cost of equity (K_e) after proposal

$$\begin{aligned} &= \frac{\text{Increased Operating profit - Interest on Increased debt}}{\text{Equity capital}} \\ &= \frac{(\text{₹ 34,50,000} + \text{₹ 14,25,000}) - (\text{₹ 7,50,000} + \text{₹ 6,00,000})}{\text{₹ 1,68,75,000}} \\ &= \frac{\text{₹ 48,75,000} - \text{₹ 13,50,000}}{\text{₹ 1,68,75,000}} = \frac{\text{₹ 35,25,000}}{\text{₹ 1,68,75,000}} = 0.209 \text{ or } 20.9\% \end{aligned}$$

(i) Calculation of Weighted Average Cost of Capital (WACC) before the new proposal

Sources	Amount (₹)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.6429	0.160	0.1029
Debt	93,75,000	0.3571	0.080	0.0286
Total	2,62,50,000	1		0.1315 or 13.15 %

(ii) Calculation of Weighted Average Cost of Capital (WACC) after the new proposal

Sources	Amount (₹)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.5000	0.209	0.1045
Debt	1,68,75,000	0.5000	0.080	0.0400
Total	3,37,50,000	1		0.1445 or 14.45 %

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3. Workings:

$$\text{Market Value of Equity} = \frac{\text{Net income (NI) for equity holders}}{K_e}$$

$$₹ 1,750 \text{ lakhs} = \frac{\text{Net income (NI) for equity holders}}{0.20}$$

$$\text{Net Income to equity holders/EAT} = ₹ 350 \text{ lakhs}$$

$$\text{Therefore, EBIT} = \frac{\text{EAT}}{(1-t)} = \frac{₹ 350 \text{ lakhs}}{(1-0.3)} = ₹ 500 \text{ lakhs}$$

Income Statement

	All Equity (₹ In lakhs)	Equity & Debt (₹ In lakhs)
EBIT (as calculated above)	500	500
Interest on ₹ 275 lakhs @ 15%	-	<u>41.25</u>
EBT	-	458.75
Tax @ 30%	500	<u>137.63</u>
Income available to equity holders	<u>150</u>	321.12
	350	

(i) Market value of the company

$$\begin{aligned} \text{Market value of levered firm} &= \text{Value of unlevered firm} + \text{Tax Advantage} \\ &= ₹ 1,750 \text{ lakhs} + (₹ 275 \text{ lakhs} \times 0.3) \\ &= ₹ 1,832.5 \text{ lakhs} \end{aligned}$$

$$\begin{aligned} \text{Change in market value of the company} &= ₹ 1,832.5 \text{ lakhs} - ₹ 1,750 \text{ lakhs} \\ &= ₹ 82.50 \text{ lakhs} \end{aligned}$$

The impact is that the market value of the company has increased by ₹ 82.50 lakhs due to replacement of equity with debt.

(ii) Overall Cost of Capital

$$\begin{aligned} \text{Market Value of Equity} &= \text{Market value of levered firm} - \text{Equity repurchased} \\ &= ₹ 1,832.50 \text{ lakhs} - ₹ 275 \text{ lakhs} = ₹ 1,557.50 \text{ lakhs} \end{aligned}$$

$$\begin{aligned} \text{Cost of Equity (K}_e\text{)} &= (\text{Net Income to equity holders} / \text{Market value of equity}) \times 100 \\ &= (₹ 321.12 \text{ lakhs} / ₹ 1,557.50 \text{ lakhs}) \times 100 = 20.62\% \end{aligned}$$

$$\text{Cost of debt (K}_d\text{)} = 15 (1 - t) = 15 (1 - 0.3) = 10.50\%$$

Components	Amount (₹ In lakhs)	Cost of Capital %	Weight	WACC (K _o) %
Equity	1,557.50	20.62	0.85	17.53
Debt	275.00	10.50	0.15	1.58
	1,832.50		1	19.11

The impact is that the Overall Cost of Capital or K_o has fallen by 0.89% (20% - 19.11%) due to the benefit of tax relief on debt interest payment.

(iii) Cost of Equity

The impact is that cost of equity has risen by 0.62% (20.62% - 20%) due to the presence of financial risk i.e. introduction of debt in capital structure.

Note: Cost of Capital and Cost of equity can also be calculated with the help of following formulas, though there will be no change in the final answers.

$$\text{Cost of Capital (K}_o\text{)} = K_{eu} [1 - (t \times L)]$$

Where,

K_{eu} = Cost of equity in an unlevered company

t = Tax rate

$$L = \frac{\text{Debt}}{\text{Debt} + \text{Equity}}$$

$$\text{So, } K_o = 0.20 \left[1 - \left(0.3 \times \frac{\text{₹ } 275 \text{ lakhs}}{\text{₹ } 1,832.5 \text{ lakhs}} \right) \right] = 0.191 \text{ or } 19.10\% \text{ (approx.)}$$

$$\text{Cost of Equity (K}_e\text{)} = K_{eu} + (K_{eu} - K_d) \frac{\text{Debt}(1-t)}{\text{Equity}}$$

Where,

K_{eu} = Cost of equity in an unlevered company

K_d = Cost of debt

t = Tax rate

$$\text{So, } K_e = 0.20 + \left((0.20 - 0.15) \times \frac{\text{₹ } 275 \text{ lakhs } (1 - 0.3)}{\text{₹ } 1,557.5 \text{ lakhs}} \right) = 0.2062 \text{ or } 20.62\%$$

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4. Statement showing Profitability of Alternative Schemes for Financing

(₹ in '00,000)

Particulars	Existing	Alternative Schemes		
		(i)	(ii)	(iii)
Equity Share capital (existing)	10	10	10	10
New issues	-	10	5	-
	10	20	15	10
7% debentures	10	10	10	10
6% debentures	-	-	5	10
	20	30	30	30
Debenture interest (7%)	0.7	0.7	0.7	0.7
Debenture interest (6%)	-	-	0.3	0.6
	0.7	0.7	1.0	1.3
Output (units in lakh)	1	1.5	1.5	1.5
Contribution per. unit (₹) (Selling price - Variable Cost)	20	22	22	22
Contribution (₹ lakh)	20	33	33	33
Less: Fixed cost	10	15	15	15
EBIT	10	18	18	18
Less: Interest (as calculated above)	0.7	0.7	1.0	1.3
EBT	9.3	17.3	17	16.7
Less: Tax (40%)	3.72	6.92	6.8	6.68
EAT	5.58	10.38	10.20	10.02
Operating Leverage (Contribution / EBIT)	2.00	1.83	1.83	1.83
Financial Leverage (EBIT/EBT)	1.08	1.04	1.06	1.08
Combined Leverage (Contribution/EBT)	2.15	1.91	1.94	1.98
EPS (EAT/No. of shares) (₹)	5.58	5.19	6.80	10.02
Risk	-	Lowest	Lower than option (3)	Highest
Return	-	Lowest	Lower than option (3)	Highest

From the above figures, we can see that the Operating Leverage is same in all alternatives though Financial Leverage differs. Alternative (iii) uses the maximum amount of debt and

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result into the highest degree of financial leverage, followed by alternative (ii). Accordingly, risk of the company will be maximum in these options. Corresponding to this scheme, however, maximum EPS (i.e., ₹ 10.02 per share) will be also in option (iii).

So, if Navya Ltd. is ready to take a high degree of risk, then alternative (iii) is strongly recommended. In case of opting for less risk, alternative (ii) is the next best option with a reduced EPS of ₹ 6.80 per share. In case of alternative (i), EPS is even lower than the existing option, hence not recommended.

5. Workings:

1. Calculation of Base for depreciation or Cost of New Machine

Particulars	(₹)
Purchase price of new machine	4,50,000
Less: Sale price of old machine	1,00,000
	3,50,000

2. Calculation of Profit before tax as per books

Particulars	Old machine (₹)	New machine (₹)	Difference (₹)
PBT as per books	3,24,750	3,87,250	62,500
Add: Depreciation as per books	24,000	41,500	17,500
Profit before tax and depreciation (PBSD)	3,48,750	4,28,750	80,000

Calculation of Incremental NPV

Year	PVF @ 10%	PBSD (₹)	Dep. @ 7.5% (₹)	PBT (₹)	Tax @ 30% (₹)	Cash Inflows (₹)	PV of Cash Inflows (₹)
	(1)	(2)	(3)	(4)	(5) = (4) x 0.30	(6) = (4) - (5) + (3)	(7) = (6) x (1)
1	0.909	80,000.00	26,250.00	53,750.00	16,125.00	63,875.00	58,062.38
2	0.826	80,000.00	24,281.25	55,718.75	16,715.63	63,284.38	52,272.89
3	0.751	80,000.00	22,460.16	57,539.84	17,261.95	62,738.05	47,116.27
4	0.683	80,000.00	20,775.64	59,224.36	17,767.31	62,232.69	42,504.93
5	0.621	80,000.00	19,217.47	60,782.53	18,234.76	61,765.24	38,356.21
6	0.564	80,000.00	17,776.16	62,223.84	18,667.15	61,332.85	34,591.73
7	0.513	80,000.00	16,442.95	63,557.05	19,067.12	60,932.88	31,258.57

8	0.467	80,000.00	15,209.73	64,790.27	19,437.08	60,562.92	28,282.88
9	0.424	80,000.00	14,069.00	65,931.00	19,779.30	60,220.70	25,533.58
10	0.386	80,000.00	13,013.82	66,986.18	20,095.85	59,904.15	23,123.00
							3,81,102.44
Add: PV of Salvage value of new machine (₹ 35,000 × 0.386)							13,510.00
Total PV of incremental cash inflows							3,94,612.44
Less: Cost of new machine							3,50,000.00
Incremental Net Present Value							44,612.44

Analysis: Since the Incremental NPV is positive, the old machine should be replaced.

6. (i) (a) Expected Net Cash Flow (ENCF) of Projects

Project M			Project N		
Net Cash Flow (₹)	Probability	Expected Net Cash Flow (₹)	Net Cash Flow (₹)	Probability	Expected Net Cash Flow (₹)
62,500	0.3	18,750	1,62,500	0.2	32,500
75,000	0.3	22,500	1,37,500	0.3	41,250
87,500	0.4	35,000	1,12,500	0.5	56,250
ENCF		76,250			1,30,000

(b) Variance of Projects

Project M

$$= (62,500 - 76,250)^2 (0.3) + (75,000 - 76,250)^2 (0.3) + (87,500 - 76,250)^2 (0.4)$$

$$= 5,67,18,750 + 4,68,750 + 5,06,25,000 = \mathbf{10,78,12,500}$$

Project N

$$= (1,62,500 - 1,30,000)^2 (0.2) + (1,37,500 - 1,30,000)^2 (0.3) + (1,12,500 - 1,30,000)^2 (0.5)$$

$$= 21,12,50,000 + 1,68,75,000 + 15,31,25,000 = \mathbf{38,12,50,000}$$

(c) Standard Deviation of Projects

Project M

$$= \sqrt{\text{Variance}} = \sqrt{10,78,12,500} = \mathbf{10,383.2798}$$

Project N

$$= \sqrt{\text{Variance}} = \sqrt{38,12,50,000} = \mathbf{19,525.6242}$$

(d) Coefficient of Variation of Projects

Project	Coefficient of variation ($\frac{\text{Standard Deviation}}{\text{Expected Net Cash Flow}}$)
M	$\frac{10,383.2798}{76,250} = 0.1362$ or 13.62%
N	$\frac{19,525.6242}{1,30,000} = 0.1502$ or 15.02%

- (ii) Coefficient of Variation of Project M is 0.1362 and Project N is 0.1502. So, the risk per rupee of net cash flow is less of Project M, therefore, Project M is better than Project N.

7. (i) Calculation of market price per share

According to Miller – Modigliani (MM) Approach:

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

Where,

Existing market price (P_0) = ₹ 150

Expected dividend per share (D_1) = ₹ 8

Capitalization rate (k_e) = 0.10

Market price at year end (P_1) = to be determined

- (a) If expected dividends are declared, then

$$₹ 150 = \frac{P_1 + ₹ 8}{1 + 0.10}$$

$$\therefore P_1 = ₹ 157$$

- (b) If expected dividends are not declared, then

$$₹ 150 = \frac{P_1 + 0}{1 + 0.10}$$

$$\therefore P_1 = ₹ 165$$

(ii) Calculation of number of shares to be issued

	(a)	(b)
	Dividends are declared (₹ lakh)	Dividends are not Declared (₹ lakh)
Net income	300	300
Total dividends	(80)	-
Retained earnings	220	300
Investment budget	600	600
Amount to be raised by new issues	380	300
Relevant market price (₹ per share)	157	165
No. of new shares to be issued (in lakh) (₹ 380 ÷ 157; ₹ 300 ÷ 165)	2.42	1.82

(iii) Calculation of market value of the shares

	(a)	(b)
	Dividends are declared	Dividends are not Declared
Existing shares (in lakhs)	10.00	10.00
New shares (in lakhs)	2.42	1.82
Total shares (in lakhs)	12.42	11.82
Market price per share (₹)	157	165
Total market value of shares at the end of the year (₹ in lakh)	12.42 × 157 = 1,950 (approx.)	11.82 × 165 = 1,950 (approx.)

Hence, it is proved that the total market value of shares remains unchanged irrespective of whether dividends are declared, or not declared.

8. (i) **Bank loan:** Since the compensating balance would not otherwise be maintained, the real annual cost of taking bank loan would be:

$$= \frac{15}{90} \times 100 = 16.67\% \text{ p.a.}$$

- (ii) **Trade credit:** Amount upto ₹ 1,50,000 can be raised within 2 months or 60 days. The real annual cost of trade credit would be:

$$= \frac{3}{97} \times \frac{360}{60} \times 100 = 18.56\% \text{ p.a.}$$

(iii) **Factoring:**

$$\text{Commission charges per year} = 2\% \times (\text{₹ } 2,00,000 \times 12) = \text{₹ } 48,000$$

$$\text{Total Savings per year} = (\text{₹ } 1,250 + \text{₹ } 1,750) \times 12 = \text{₹ } 36,000$$

$$\text{Net factoring cost per year} = \text{₹ } 48,000 - \text{₹ } 36,000 = \text{₹ } 12,000$$

Annual Cost of Borrowing ₹ 1,50,000 receivables through factoring would be:

$$= \frac{12\% \times 1,50,000 + \text{₹ } 12,000}{\text{₹ } 1,50,000} \times 100$$

$$= \frac{\text{₹ } 18,000 + \text{₹ } 12,000}{\text{₹ } 1,50,000} \times 100$$

$$= 20\% \text{ p.a.}$$

Advise: The company should select alternative of Bank Loan as it has the lowest annual cost i.e. 16.67% p.a.

9. **Preparation of Statement of Working Capital Requirement for Trux Company Ltd.**

	(₹)	(₹)
A. Current Assets		
(i) Inventories:		
Material (1 month) $\left(\frac{\text{₹ } 6,75,000}{12 \text{ months}} \times 1 \text{ month} \right)$	56,250	
Finished goods (1 month) $\left(\frac{\text{₹ } 21,60,000}{12 \text{ months}} \times 1 \text{ month} \right)$	1,80,000	2,36,250
(ii) Receivables (Debtors)		
For Domestic Sales $\left(\frac{\text{₹ } 15,17,586}{12 \text{ months}} \times 1 \text{ month} \right)$	1,26,466	
For Export Sales $\left(\frac{\text{₹ } 7,54,914}{12 \text{ months}} \times 3 \text{ months} \right)$	1,88,729	3,15,195

(iii) Prepayment of Selling expenses $\left(\frac{\text{₹ } 1,12,500}{12 \text{ months}} \times 3 \text{ months} \right)$		28,125
(iii) Cash in hand & at bank		1,75,000
Total Current Assets		7,54,570
B. Current Liabilities:		
(i) Payables (Creditors) for materials (2 months) $\left(\frac{\text{₹ } 6,75,000}{12 \text{ months}} \times 2 \text{ months} \right)$		1,12,500
(ii) Outstanding wages (0.5 months) $\left(\frac{\text{₹ } 5,40,000}{12 \text{ months}} \times 0.5 \text{ month} \right)$		22,500
(iii) Outstanding manufacturing expenses $\left(\frac{\text{₹ } 7,65,000}{12 \text{ months}} \times 1 \text{ month} \right)$		63,750
(iv) Outstanding administrative expenses $\left(\frac{\text{₹ } 1,80,000}{12 \text{ months}} \times 1 \text{ month} \right)$		15,000
(v) Income tax payable		42,000
Total Current Liabilities		2,55,750
Net Working Capital (A – B)		4,98,820
Add: 10% contingency margin		49,882
Total Working Capital required		5,48,702

Working Notes:**1. Calculation of Cost of Goods Sold and Cost of Sales**

	Domestic (₹)	Export (₹)	Total (₹)
Domestic Sales	18,00,000	8,10,000	26,10,000
Less: Gross profit @ 20% on domestic sales and 11.11% on export sales (Working note-2)	3,60,000	90,000	4,50,000
Cost of Goods Sold	14,40,000	7,20,000	21,60,000

Add: Selling expenses (Working note-3)	77,586	34,914	1,12,500
Cash Cost of Sales	15,17,586	7,54,914	22,72,500

2. Calculation of gross profit on Export Sales

Let domestic selling price is ₹ 100. Gross profit is ₹ 20, and then cost per unit is ₹ 80

Export price is 10% less than the domestic price i.e. ₹ 100 – (1- 0.1) = ₹ 90

Now, gross profit will be = ₹ 90 - ₹ 80 = ₹ 10

So, Gross profit ratio at export price will be = $\frac{₹ 10}{₹ 90} \times 100 = 11.11\%$

3. Apportionment of Selling expenses between Domestic and Exports sales:

Apportionment on the basis of sales value:

$$\text{Domestic Sales} = \frac{₹ 1,12,500}{₹ 26,10,000} \times ₹ 18,00,000 = ₹ 77,586$$

$$\text{Exports Sales} = \frac{₹ 1,12,500}{₹ 26,10,000} \times ₹ 8,10,000 = ₹ 34,914$$

4. Assumptions

- (i) It is assumed that administrative expenses is related to production activities.
- (ii) Value of opening and closing stocks are equal.

10. (a) Points that demonstrate the "Importance of good financial management":

- **Taking care** not to over-invest in fixed assets
- **Balancing** cash-outflow with cash-inflows
- **Ensuring** that there is a sufficient level of short-term working capital
- **Setting** sales revenue targets that will deliver growth
- **Increasing** gross profit by setting the correct pricing for products or services
- **Controlling** the level of general and administrative expenses by finding more cost-efficient ways of running the day-to-day business operations, and
- **Tax planning** that will minimize the taxes a business has to pay.

(b) Some common methods of venture capital financing are as follows:

- (i) **Equity financing:** The venture capital undertakings generally require funds for a longer period but may not be able to provide returns to the investors during the initial stages. Therefore, the venture capital finance is generally provided by way of equity share capital. The equity contribution of venture capital firm does

not exceed 49% of the total equity capital of venture capital undertakings so that the effective control and ownership remains with the entrepreneur.

- (ii) **Conditional loan:** A conditional loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. In India venture capital financiers charge royalty ranging between 2 and 15 per cent; actual rate depends on other factors of the venture such as gestation period, cash flow patterns, risk and other factors of the enterprise. Some Venture capital financiers give a choice to the enterprise of paying a high rate of interest (which could be well above 20 per cent) instead of royalty on sales once it becomes commercially sound.
- (iii) **Income note:** It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales but at substantially low rates. IDBI's VCF provides funding equal to 80 – 87.50% of the projects cost for commercial application of indigenous technology.
- (iv) **Participating debenture:** Such security carries charges in three phases — in the start-up phase no interest is charged, next stage a low rate of interest is charged up to a particular level of operation, after that, a high rate of interest is required to be paid.

SECTION : B: ECONOMICS FOR FINANCE

QUESTIONS

1. (i) How the concept of National Income helps in analyzing an economy's aggregate behavior?
 (ii) From the following data calculate National Income
 Personal disposable income

₹ in Crores

1	Personal Income	8000
2	Mixed Income of self employed	2000
3	Compensation of employees	1600
4	Net-factor Income from abroad	-200
5	Rent	1500
6	Personal Income Taxes	800
7	Profit	1400
8	Consumption of fixed capital	600
9	Direct taxes paid by households	900
10	Non-Tax Payments	1000
11	Net Indirect taxes	700
12	Net Exports Taxes	-180
13	Interest	1100

- (iii) What is the importance of Keynesian theory in determination of national income?
 2. (i) Calculate from the following data:
 (a) Private Income
 (b) Personal Income

1	Savings of non-department private enterprises	5000
2	Income from domestic product accruing to private sector	400
3	Saving of private corporate sector	250
4	Current Transfer from government administrative departments	600
5	Current Transfer from of the world	200
6.	Corporative Tax	80

20

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7	Direct personal tax	160
8	Net factor Income from abroad	-70

- (ii) What is the importance of demand side driven fiscal policy?
- (iii) How does money supply impacted inflation in the economy?
- 3. (i) What are the problems associated with foreign Direct Investment?
- (ii) Suppose in an economy

Consumption Function	$C = 170 + 0.80 Y$
Investment spending	$I = 200$
Government Spending	$G = 150$
Tax	$T_x = 30 + 0.30 Y$
Transfer payments	$T_r = 60$
Exports	$X = 45$
Imports	$M = 20 + 0.2 Y$

Calculate:

1. The equilibrium level of national income
 2. Consumption of equilibrium level
 3. Net Exports of equilibrium level
- (iii) Explain in brief the signification of global public goods?
 - (iv) What are the market outcome of price ceiling explain with a help of a diagram?
 - 4. (i) How does Friedman's Restatement of the Quality theory is different from Keynes speculative demand for money?
 - (ii) What is money multiplier approach to supply of money?
 - (iii) What are the operating procedures and instrument of monetary policy?
 - (iv) How does non-tariff measures interfere with free trade?
 - 5. (i) How does arbitrage prevents the risk arising out of the fluctuations in the exchange rate?
 - (ii) Information failure is also a reason for market failure. With the Intervention of government this failure is corrected how?
 - (iii) How deflationary gap arises in an economy?
 - (iv) What are the major component of Reserve Money?

SUGGESTED ANSWERS

1. (i) The estimates of national income show the composition and structure of national income in terms of different sectors of the economy, the periodical variations in them and the broad sectoral shifts in an economy over time. It is also possible to make temporal and spatial comparisons of the trend and speed of economic progress and development. Using this information, the government can fix various sector-specific development targets for different sectors of the economy and formulate suitable development plans and policies to increase growth.

National income estimates also throw light on income distribution and the possible inequality in the distribution among different categories of income earners. It is also possible to make comparisons of structural statistics, such as ratios of investment, taxes, or government expenditures to GDP.

- (ii) **National Income or NNP_{FC}** = Compensation of employees + Mixed Income of Self-employed + Operating Surplus (Rent + Interest + Profit) + Net factor Income from abroad

$$= 1600 + 2000 + (1500 + 1400 + 1100) + (-200)$$

$$= ₹ 7,400 \text{ crores}$$

Personal disposable Income = Personal Income – Personal Income Taxes- Non-Tax Payments

$$= 8000 - 800 - 1000$$

$$= ₹ 6200 \text{ crores}$$

- (iii) Before the 'General Theory' by Keynes, economists could not explain how economic depressions happen, or what to do about them. Keynes' theory of determination of equilibrium real GDP, employment and prices focuses on the relationship between aggregate income and aggregate expenditure. There is a difference between equilibrium income (the level toward which the economy gravitates in the short run) and potential income (the level of income that the economy is technically capable of producing, without generating accelerating inflation).

Keynes argued that markets would not automatically lead to full-employment equilibrium and the resulting natural level of real GDP. The economy could settle in equilibrium at any level of unemployment. The stickiness of prices and wages in the downward direction prevents the economy's resources from being fully employed and thereby prevents the economy from returning to the natural level of real GDP. Therefore, output will remain at less than the full employment level as long as there is insufficient spending in the economy.

2. (i) **Private Income** = Factor Income from domestic product accruing to the private sector + Net factor Income from abroad + Current Transfers from government + Other net transfer from the rest of the world.

$$= 400 + (-70) + 600 + 200$$

$$= ₹ 1130 \text{ cr}$$

Personal Income = National Income – Undistributed Profits- Net interest payment made by households- Corporate Tax + Transfer payments to the households from firms and government

$$= 5000 - 80$$

$$= ₹ 4920 \text{ cr}$$

- (ii) Fiscal policy is in the nature of a demand-side policy. An economy which is producing at full-employment level does not require government action in the form of fiscal policy. When an economy expands, employment increases, with progressive system of taxes people have to pay higher taxes as their income rises. This leaves them with lower disposable income and thus causes a decline in their consumption and therefore aggregate demand.

Similarly, corporate profits tend to be higher during an expansionary phase attracting higher corporate tax payments. With higher income taxes, firms are left with lower surplus causing a decline in their investments and thus in the aggregate demand. Governments may directly as well as indirectly influence the way resources are used in an economy. Governments influence the economy by changing the level and types of taxes, the extent and composition of spending, and the quantity and form of borrowing.

- (iii) Measurement of money supply is essential from a monetary policy perspective because it enables a framework to evaluate whether the stock of money in the economy is consistent with the standards for price stability, to understand the nature of deviations from this standard and to study the causes of money growth. Central banks all over the world adopt monetary policy to stabilise price level and GDP growth by directly controlling the supply of money. This is achieved mainly by managing the quantity of monetary base. The success of monetary policy depends to a large extent on the controllability of the monetary base and the money supply.

If the money supply grows at a faster rate than the economy's ability to produce goods and services, then inflation will result, therefore the thrust of monetary policy to stabilize price level and GDP growth by controlling the supply of money.

3. (i) Potential problems of foreign direct investment include use of inappropriate capital-intensive methods in a labour-abundant country, increase in regional disparity, crowding-out of domestic investments, diversion of capital resulting in distorted pattern of production and investment, instability in the balance of payments and exchange rate and indiscriminate repatriation of the profits.

FDIs are also likely to indulge in anti-ethical market distortions, off shoring or shifting of jobs, overexploitation of natural resources causing environmental damage,

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exercising monopoly power, decrease in competitiveness of domestic companies, potentially jeopardizing national security and sovereignty, worsening commodity terms of trade, and causing emergence of a dual economy.

(ii) $C = 170 + 0.80Y_d$

$$Y_d = Y - \text{Tax} + \text{Transfer Payment}$$

$$= Y - (30 + 0.30Y) + 60 = Y + 30 - 0.30Y = Y(1 - 0.30) + 30$$

$$Y_d = 0.7Y + 30$$

$$C = 170 + 0.80(0.7Y + 30) = 170 + 0.56Y + 24 = 194 + 0.56Y$$

The Equation for Equilibrium

$$Y = C + I + G + X - M$$

$$= 194 + 0.56Y + 200 + 150 + 45 - (20 + 0.2Y)$$

$$= 194 + 0.56Y + 375 - 0.2Y = 569 + 0.36Y$$

$$Y - 0.36Y = 569 \text{ therefore } Y = 569 / 0.64 = 889.06$$

$$C = 194 + 0.56 \times 889.06 = 691.87$$

Net Export = Value of total export - Value of import

$$X = 45 - (20 + 0.2Y) = 45 - 20 - 0.2Y = 25 - 0.2(691.87)$$

$$= - (113.37)$$

(iii) Global public goods are those public goods with benefits /costs that potentially extend to everyone in the world. These goods have widespread impact on different countries and regions, population groups and generations throughout the entire globe. Global Public goods may be:

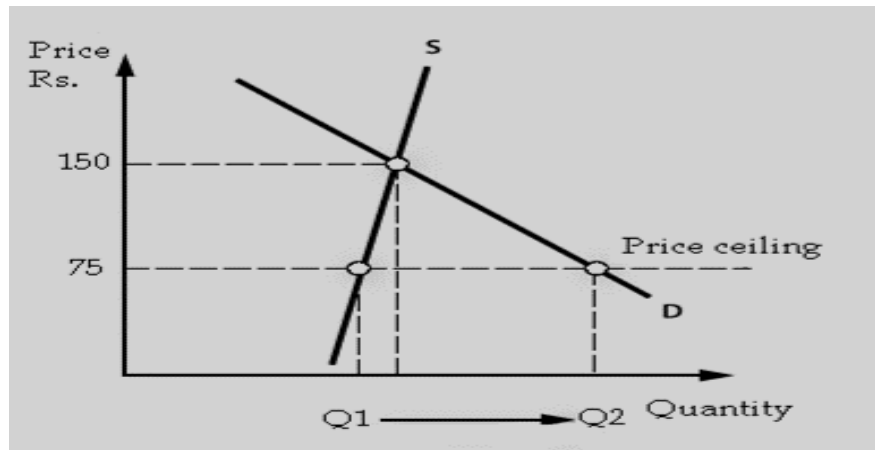
- final public goods which are 'outcomes' such as ozone layer preservation or climate change prevention, or
- intermediate public goods, which contribute to the provision of final public goods. e.g., international health regulations

The World Bank identifies five areas of global public goods which it seeks to address: namely, the environmental commons (including the prevention of climate change and biodiversity), communicable diseases (including HIV/AIDS, tuberculosis, malaria, and avian influenza), international trade, international financial architecture, and global knowledge for development.

(iv) When prices of certain essential commodities rise excessively, government may resort to controls in the form of price ceilings (also called maximum price) for making a resource or commodity available to all at reasonable prices. For example: maximum prices of food grains and essential items are set by government during times of

scarcity. A price ceiling which is set below the prevailing market clearing price will generate excess demand over supply. As can be seen in the following figure, the price ceiling of ₹ 75/ which is below the market-determined price of ₹150/leads to generation of excess demand over supply equal to $Q_1 - Q_2$.

Market Outcome of Price Ceiling



With the objective of ensuring stability in prices and distribution, governments often intervene in grain markets through building and maintenance of buffer stocks. It involves purchases from the market during good harvest and releasing stocks during periods when production is below average.

4. (i) Milton Friedman extended Keynes' speculative money demand within the framework of asset price theory. Friedman treats the demand for money as nothing more than the application of a more general theory of demand for capital assets.

Demand for money is affected by the same factors as demand for any other asset, namely Permanent income & Relative returns on assets. Friedman maintains that it is *permanent income* and not current income as in the Keynesian theory that determines the demand for money. Permanent income which is Friedman's measure of wealth is the present expected value of all future income.

- (ii) The money multiplier approach to money supply propounded by Milton Friedman and Anna Schwartz, considers three factors as immediate determinants of money supply, namely:
- the stock of high-powered money (H)
 - the ratio of reserves to deposits
 - currency-deposit ratio

The above determinant represents the behaviour of the central bank, behaviour of the commercial banks and the behaviour of the general public respectively. The

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behaviour of the central bank which controls the issue of currency is reflected in the supply of the nominal high-powered money.

If the required reserve ratio on demand deposits increases while all the other variables remain the same, more reserves would be needed. This implies that banks must contract their loans, causing a decline in deposits and hence in the money supply. If the required reserve ratio falls, there will be greater expansions of deposits because the same level of reserves can now support more deposits and the money supply will increase. The currency-deposit ratio (c) represents the degree of adoption of banking habits by the people.

- (iii) The day-to-day implementation of monetary policy by central banks through various instruments is referred to as 'operating procedures. For example, liquidity management is the operating procedure of the Reserve Bank of India

The operating framework relates to all aspects of implementation of monetary policy. It primarily involves three major aspects, namely,

- choosing the operating targets,
- choosing the intermediate targets, and
- choosing the policy instruments.

The operating targets refer to the financial variables that can be controlled by the central bank to a large extent through the monetary policy instruments the intermediate targets are variables which the central bank can hope to influence to a reasonable degree through the operating targets. The monetary policy instruments are the various tools that a central bank can use to influence money market and credit conditions and pursue its monetary policy objectives.

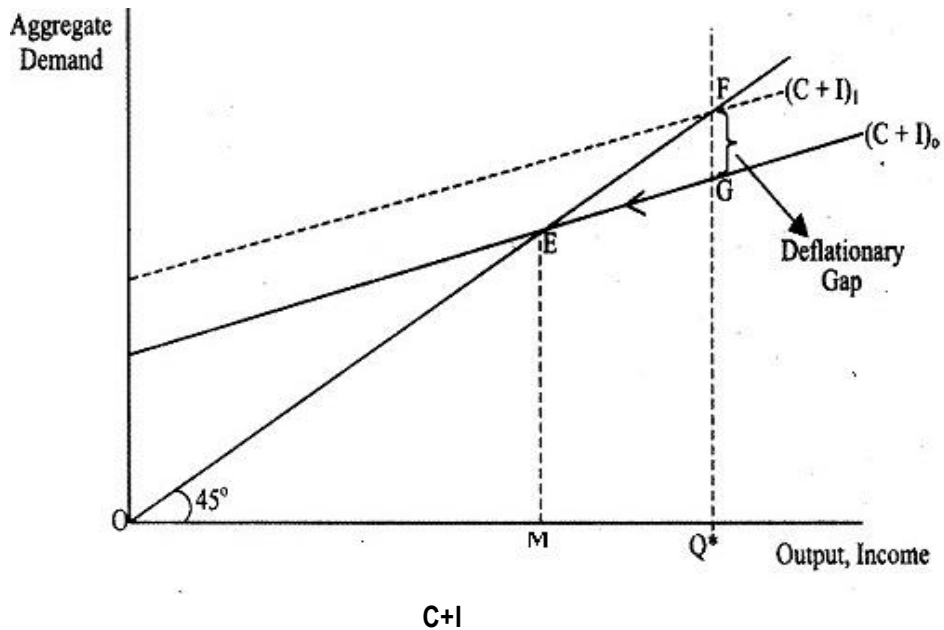
In general, the direct instruments comprise of:

- (a) the required cash reserve ratios and liquidity reserve ratios prescribed from time to time.
- (b) directed credit which takes the form of prescribed targets for allocation of credit to preferred sectors
- (c) administered interest rates wherein the deposit and lending rates are prescribed by the central bank.

The indirect instruments mainly consist of:

- (a) Repos
- (b) Open market operations
- (c) Standing facilities, and
- (d) Market-based discount window.

- (iv) The non- tariff measures (NTM) which have come into greater prominence than the conventional tariff barriers, constitute the hidden or 'invisible' measures that interfere with free trade. Non-tariff measures comprise all types of measures which alter the conditions of international trade, including policies and regulations that restrict trade and those that facilitate it. NTMs consist of mandatory requirements, rules, or regulations that are legally set by the government of the exporting, importing, or transit country. NTMs are sometimes used as means to circumvent free-trade rules and favour domestic industries at the expense of foreign competition.
5. (i) Arbitrage refers to the practice of making risk-less profits by intelligently exploiting price differences of an asset at different dealing places. On account of arbitrage, regardless of physical location, at any given moment, all markets tend to have the same exchange rate for a given currency. When price differences occur in different markets, participants purchase foreign exchange in a low-priced market for resale in a high-priced market and makes profit in this process. Due to the operation of price mechanism, the price is driven up in the low-priced market and pushed down in the high-priced market. This activity will continue until the prices in the two markets are equalized, or until they differ only by the amount of transaction costs involved in the operation. Since forex markets are efficient, any profit spread on a given currency is quickly arbitrated away.
- (ii) Information failure is widespread in numerous market exchanges. When this happens misallocation of scarce resources takes place and equilibrium price and quantity is not established through price mechanism. This results in market failure.
- Complete information is an important element of competitive market. Perfect information implies that both buyers and sellers have complete information about anything that may influence their decision making. However, this assumption is not fully satisfied in real markets due to the following reasons.
- Often, the nature of products and services tends to be highly complex
 - In many cases consumers are unable to quickly / cheaply find sufficient information on the best prices as well as quality for different products
 - People are ignorant or not aware of many matters in the market
- (iii) Deflationary gap is thus a measure of the extent of deficiency of aggregate demand, and it causes the economy's income, output, and employment to decline, thus pushing the economy to under- employment equilibrium. The macro- equilibrium occurs at a level of GDP less than potential GDP; thus, there is cyclical unemployment i.e., rate of unemployment is higher than the natural rate.



In the figure given above OQ^* is the full employment level of output. For the economy to be at full employment equilibrium, aggregate demand should be Q^*F . If the aggregate demand is Q^*G , it represents a situation of deficient demand. The resulting deflationary gap is FG .

- (iv) Reserve money, also known as central bank money, base money, or high-powered money, needs a special mention as it plays a critical role in the determination of the total supply of money. Reserve money determines the level of liquidity and price level in the economy and, therefore, its management is of crucial importance to stabilize liquidity, economic growth, and price level in an economy. Reserve money is comprised of the currency held by the public, cash reserves of banks and other deposits of the RBI.