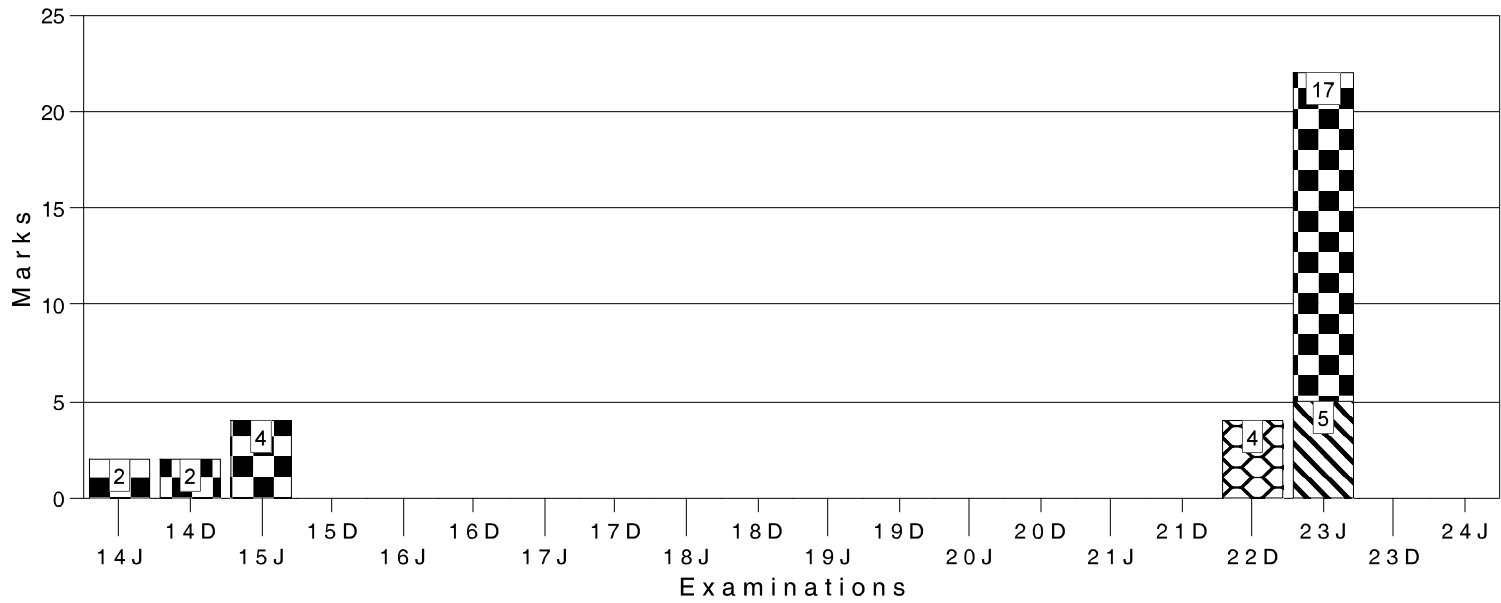
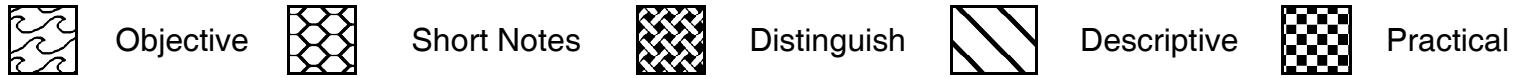


### Marks of objective, Short Notes, Distinguish Between, Descriptive & Practical Questions

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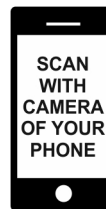


# 1

## **FUNDAMENTALS OF FINANCIAL MANAGEMENT**

### **THIS CHAPTER INCLUDES**

1. Introduction to Financial Management Fundamentals <ul style="list-style-type: none"><li>- Objective of Financial Management</li><li>- Scope and Functions of Financial Management</li><li>- Profit Optimisation and Value Maximisation Principle</li><li>- Dynamic Role of a CFO in Emerging Business Environment</li></ul>	<ul style="list-style-type: none"><li>- Future Value and Present Value of a Single Cash Flow</li><li>- Annuity and Perpetuity</li><li>- Compound Annual Growth Rate (CAGR)</li><li>- Practical Applications</li></ul>
2. Time Value of Money <ul style="list-style-type: none"><li>- Rationale</li><li>- Techniques</li></ul>	3. Risk and Return <ul style="list-style-type: none"><li>- Various Connotations of Return</li><li>- Ex-ante and Ex-post Return</li><li>- Types of Risks</li><li>- Calculation of Return and Risk</li><li>- Capital Asset Pricing Model</li></ul>



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### **CHAPTER AT A GLANCE**

#### **Objectives of Financial Management**

- (i) **Profit Maximization:** In the economic theory, the behaviour of a firm is analysed in terms of profit maximization. It implies that a firm either produces maximum output for a given amount of input or uses minimum input for producing a given output. So, profit is considered to be the main driving force in business.

A firm should manage all aspects of the business in such a way that revenues are maximised and costs are minimised to obtain maximum profit. Arguments in favour and against of profit maximisation are discussed in subsequent section of this chapter.

- (ii) **Value/ Wealth Maximization:** The earlier objective of profit maximization is now replaced by value/wealth maximization. Since profit maximization is a limited one it cannot be the sole objective of a firm. Value creation is the driving force behind financial management. Creating wealth for shareholders by increasing the value for their investment is the key goal of financial management today. Maximising the market value of the firm can be calculated by using the formula

$$MV = MV_E + MV_D$$

Where,

MV = Market value of the firm

$MV_E$  = Market value of equity shares

$MV_D$  = Market value of debt; if any

When the book values and market values of debts are the same, value or wealth maximization essentially reflects maximisation of market value per equity share.

### Scope of Financial Management

- (i) **Investment Decision:** Investment decision of a firm includes two main aspects- where to invest and how much to invest or the amount of investment. This maximizes the wealth of a firm. There are two basic issues involved in investment decisions:
- (a) Evaluation of alternative investment avenues so as to select the best option.
  - (b) Monitoring and implementation of the selected investment option.
- (ii) **Financing Decision:** The objective of a financing decision of a firm should be to find out the optimum combination of debt – equity, where cost of capital will be minimum and return will be maximum. Financing

decision involves decision regarding the financing pattern of the firm. There are mainly two sources of raising funds- internal source and external source.

- (iii) **Dividend Decision:** Dividend decision of a firm includes determining how much to distribute as dividend and how much to retain for future expansion programme. The objective of dividend policy is to maximise the market value of the equity shares.

- (i) Determining Financial Needs
- (ii) Determining Sources of Fund
- (iii) Financial Analysis
- (iv) Optimal Capital Structure

Compounding is the process of finding future values of cash flows by applying the concept of compound interest.

We can calculate the future values (FV) of all the cash flows at the end of the time period at a given rate of interest.

Future value = Present value + Interest

Discounting is the process of determining present values of a series of future cash flows. The compound interest rate used for discounting cash flows is also called the discount rate.

Return is the motivating force and the principal reward in the investment process and it is the key method available to investors in comparing alternative investments. Returns may have different meanings depending upon the investors' perceptions.

**Realised return** is after the fact return -return that was earned or could have been earned. Realised return is called historical return.

**Expected return** is the return from an asset that investors anticipate they will earn over future period. It may or may not occur.

<p><b>Ex-ante Return:</b> Ex-ante refers to future events. Ex-ante return is the prediction of returns that investor can get from a security or a portfolio.</p>
<p><b>Ex-post Return:</b> Ex-post means after the event. Ex-post returns are the returns that investor has already got from investment, i.e., historical return.</p>
<p><b>Types of Risk</b></p> <ul style="list-style-type: none"> <li>• <b>Systematic Risk:</b> It represents that portion of Total Risk which is attributable to factors that affect the market as a whole. Economic, political and sociological changes are sources of systematic risk. Beta is a measure of Systematic Risk.</li> <li>• <b>Unsystematic Risk:</b> It is the portion of total risk that is unique to a firm or industry.</li> </ul>
<p><b>Capital Asset Pricing Model</b></p>
<p>William F. Sharpe and John Linter developed the Capital Asset Pricing Model (CAPM). The model is based on the portfolio theory developed by Harry Markowitz. The model emphasises the risk factor in portfolio theory which is a combination of two risks, systematic risk and unsystematic risk. The model suggests that a security's return is directly related to its systematic risk which cannot be neutralized through diversification.</p>
<p>Using Beta as the measure of non-diversifiable risk, the CAPM is used to define the required rate of return on a security</p> $E(R_S) = R_F + \{ \beta_S \times (R_M - R_F) \}$ <p>Where,</p> <p><math>E(R_S)</math> = Expected Return on the Security or Investment  <math>R_F</math> = Risk Free Rate of Interest/ Return  <math>\beta_S</math> = Security Beta or Risk Premium  <math>R_M</math> = Expected Return on all securities or Market Return</p>

## SHORT NOTES

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**2022 - Dec [10]** Write short notes on the following:

(b) Systematic and Unsystematic Risk

**(4 marks)**

**Answer:**

**Systematic & Unsystematic Risk:**

**Unsystematic Risk:** This is also called company specific risk as the risk is related with the company's performance. This type of risk can be reduced or eliminated by diversification of the securities portfolio. This is also known as diversifiable risk.

**Systematic Risk:** It is the macro-economic or market specific risk under which a company operates. This type of risk cannot be eliminated by the diversification hence, it is non-diversifiable. The examples are inflation, Government policy, interest rate etc.

## DESCRIPTIVE QUESTIONS

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**2023 - June [2]** (a) What is Wealth Maximisation as the Objective of Financial Management? Why is profit maximization, not an operationally feasible criterion? State briefly Interrelationship between Investment, Financing and Dividend Decisions. **(1 + 2 + 2 = 5 marks)**

**Answer:**

Wealth Maximisation means maximisation of the market price of the equity shares of the company in the long run. The long run implies a period which is long enough to reflect the normal market price of the shares irrespective of short-term fluctuations.

**The long run price of an equity share is a function of two basic factors:**

- (i) The likely rate of earnings or earnings per share (EPS) of the company; and
- (ii) The capitalisation rate reflecting the liking of the investors of a company.

Profit maximization is not an operationally feasible criterion because it suffers from the following limitations:

1. It is vague because it is not clear whether the term relates to economic profit, accounting profit, profit after tax or before tax.
2. It ignores the Timing of Returns.
3. It ignores Risk Factor.
4. It assumes Perfect Competition.
5. In new business environment profit maximization is regarded as:
  - (i) Unrealistic
  - (ii) Difficult
  - (iii) Inappropriate
  - (iv) Immoral

Investment, financing, and dividend decisions are integral components of a company's financial management, and they are closely interconnected, collectively shaping the company's overall financial strategy.

1. Investment decisions directly impact both financing and dividend decisions. When a company decides to undertake an investment project, it requires funds to finance it. This leads to financing decisions, where the company must choose the appropriate mix of debt and equity to raise the necessary capital. If the company opts for more debt, it might have higher interest obligations, affecting the available funds for dividends. Conversely, if it raises more equity, it could lead to dilution of ownership and potentially affect shareholders' dividend expectations.
2. Financing decisions, in turn, influence investment and dividend decisions. The cost and availability of financing can affect the feasibility of certain investment opportunities. If financing is costly or restricted, the company might forego potentially profitable investments. Moreover, the level of debt in the capital structure impacts the company's financial risk, affecting its dividend policy.  
High debt levels may result in the company retaining more earnings to repay debt, limiting dividend payouts.

3. Dividend decisions also play a role in the interrelationship. The company's dividend policy depends on its financial performance and the available cash flow. If the company pays out a substantial portion of earnings as dividends, it might have fewer funds available for investments.

This could impact the company's growth prospects and, consequently, its ability to undertake profitable projects in the future.

Ultimately, the goal of these interrelated decisions is to maximize shareholder wealth while balancing risk and return. Financial managers must carefully assess the company's financial position, growth opportunities, and capital market conditions to strike an optimal balance between investment, financing, and dividend decisions. An efficient and well-structured interrelationship between these decisions can lead to a financially healthy and successful company in the long run.

## PRACTICAL QUESTIONS

**2014 - June [6] {C}** Answer the following. (No credit will be given for answer without the reasoning)

- (a) X deposits ₹ 1,00,000 at the beginning of each of years 1 and 3, and ₹ 1,00,000 at the end of each of the years 2, 4 and 5. Find the discounted value of the investments at the end of year 3 with a discount rate of 10%. (P.V. factor of 10% at the year end 0, 1, 2, 3, 4, 5 and 6 are respectively: 1, 0.909, 0.826, 0.751, 0.683, 0.621, 0.564) **(2 marks)**

**Answer:**

**Discounted value at the end of 3 years**

Year	Investment	PV factor at 10% at end of year 3	Discounted value
Beginning of year 1	100000	$(1.1)^3 = 1.331$	1,33,100
End of year 2	200000	$(1.1)^1 = 1.1$	2,20,000



End of year 4	100000	$1/(1.1) = 0.909$	90,900
End of year 5	100000	$1/(1.1)^2 = 0.826$	82,600
Discounted value of the investments at the end of year 3			526600

**2014 - Dec [1]** Answer the question:

- (h) Ascertain the discounted value at 10% p.a. at the end of year 1 of an investment of ₹ 2,00,000 to be made at the end of year 2 and ₹ 30,000 made immediately. **(2 marks)**

**Answer:**

Discounted value at the end of year 1, Invested ₹ 30,000 now and 2,00,000 at the end of year 2.

$$30,000 (1 + 0.10) = 30,000$$

$$2,00,000 / (1 + 0.10) = 1,81,818$$

$$\text{Total} \quad \underline{\underline{2,14,818}}$$

**2015 - June [I]** (c) Ascertain the future value of annuity of ₹ 25,000 at the end of 6 years at 9% p.a. compounded annually. Assume that the amount is deposited at the beginning of every year. **(2 marks)**

- (h) Mr. X expects to receive ₹ 2,00,000 at the end of three years. What would be the present value if the rate of discount is 10%? **(2 marks)**

**Answer:**

**(c) Calculation of Future Value of Annuity:**

Year	Annuity Amount (₹)	Future Value of (₹) 1	Future Value (₹)
1	25,000	1,677	41,925
2	25,000	1,539	38,475
3	25,000	1,412	35,300
4	25,000	1,295	32,375
5	25,000	1,188	29,700
6	25,000	1,090	27,250
<b>Future value of Annuity at the end of 6<sup>th</sup> year</b>			<b>2,05,025</b>

**Answer:**

$$\begin{aligned}
 \text{(h) Present value} &= \frac{\text{Future value}}{(1+i)^n} \\
 &= \frac{2,00,000}{(1+0.10)^3} \\
 &= \frac{2,00,000}{1.331} \\
 &= ₹ 1,50,263
 \end{aligned}$$

**2023 - June [4]** (a) (ii) Correlation Coefficient of Portfolio with market 0.8, Variance of Market Portfolio is  $4/9^{\text{th}}$  of Variance of Security, Cost of Equity 20%, Average Return on Market Portfolio 17.5%. Calculate the Risk-Free Rate of Interest on Govt. Treasury Bonds. **(2 marks)**

**Answer:**

$$k_e = R_f + \beta (R_m - R_f)$$

Where,  $k_e$  = Expected rate of return to the investors, or cost of equity capital

$R_f$  = Risk free rate of return

$R_m$  = Market rate of return

$\beta$  = Beta coefficient by which the market risk is determined

Variance of Market portfolio =  $4/9$  variance of security

$$\frac{\text{Variance of Market Portfolio}}{\text{Variance of Security}} = \frac{4}{9}$$

$$\frac{\text{Standard Deviation of Market Portfolio}}{\text{Standard Deviation of Security}} = \frac{2}{3}$$

$$\beta = \text{Correlation coefficient of portfolio} \times \frac{\text{Standard Deviation of Security}}{\text{Standard Deviation of Market Portfolio}}$$

$$\text{Risk Free rate of Return} = .20 = R_f + 1.2(.175 - R_f)$$

$$R_f = \frac{.01}{.20} = .05 \text{ i.e. } 5\%$$

**2023 - June [6]** (a) Nona Ltd. provides you with the following information:

Particulars	Machine X	Machine Y
1. Purchase Price of Machine	₹ 6,00,000	₹ 10,00,000
2. Working Capital	₹ 3,00,000	₹ 5,00,000

3. Useful Life of the machine	5 years	8 years
4. Estimated Salvage Value at the end of useful life	₹ 1,00,000	₹ 2,00,000
5. Actual Salvage Value realised at the end of useful life	₹ 1,20,000	₹ 80,000
6. Method of Depreciation	Straight line	Straight line
7. Tax Rate	30%	30%
8. Annual Earning before Tax	₹ 4,00,000	₹ 4,00,000
9. Annuity Factor for 5/8 yrs @ 10%	3.791	5.335
10. PV Factor for 5 <sup>th</sup> /8 <sup>th</sup> year @ 10%	0.621	0.467

**Required:** Which of the above machines should be purchased?

**(10 marks)**

**Answer:**

**Computation of Annual Cost**

	<b>Machine X (₹)</b>	<b>Machine Y (₹)</b>
Profit Before Tax	4,00,000	4,00,000
<i>Less:</i> Income Tax	1,20,000	1,20,000
Profit after Tax (PAT)	2,80,000	2,80,000
Depreciation	1,00,000	1,00,000
Cash Flow after tax	3,80,000	3,80,000
<i>Add:</i> Release of Working capital	3,00,000	5,00,000
<i>Add:</i> Cash Salvage value of an asset	1,20,000	80,000

Less: Tax on profit on sale [30% of ₹20,000 i.e. (₹ 1,00,000 -1,20,000)]	(6,000)	-
Add: Tax saving on loss of sale [30% 1,20,000 i.e. (₹2,00,000- ₹ 80,000)]	-	36,000
CFAT (for last year)	7,94,000	9,96,000

### Calculation of revised Net Present value

Particulars	Year	PV factor at 10%	Machine X		Machine Y	
			Amount	PV	Amount	PV
Purchase Price	0	1	(6,00,000)	(6,00,000)	(10,00,000)	(10,00,000)
Working Capital	0	1	(3,00,000)	(3,00,000)	(5,00,000)	(5,00,000)
CFAT for 1-4 year	1 to 4	3.17	3,80,000	12,04,600		
CFAT for 5 <sup>th</sup> year	5	.621	7,94,000	4,93,074		
CFAT for 1-7 year	1-7	4.868			3,80,000	18,49,840
CFAT for 8 <sup>th</sup> year	8	0.467			9,96,000	4,65,132
NPV				7,97,674		8,14,972
Annuity factor for	5 <sup>th</sup> /8 <sup>th</sup>			3.791		5.335
Annualized NPV (NPV/Annuity factor)				2,10,413		1,52,760

Machine X should be purchased since Machine X has higher annualized NPV than that of Machine Y.

**2023 - June [6]** (b) HONEY Ltd. having limited funds of ₹ 10,10,000 and cost of capital 10% is evaluating the desirability of following projects having useful life of 10 years:

Project	A	B	C	D	E	F
Initial Cash Outflows (₹)	50,000	1,00,000	1,50,000	2,00,000	2,50,000	6,00,000
Net Present Value (₹)	4,50,000	8,00,000	10,50,000	12,00,000	13,75,000	32,40,000
Ranking as per NPV	6	5	4	3	2	1
Ranking as per Profitability Index	1	2	3	4	5	6

**Required:**

- (i) Which projects should be selected assuming that the projects are divisible and there is no alternative use of money allocated for capital budgeting.
- (ii) Which projects should be selected assuming that the projects are indivisible and unutilised funds can be invested for a period of 10 years at a risk-free interest rate of 5%.

**Note:** The Compound Value of ₹ 1 @5% at the end of the 10<sup>th</sup> year is ₹ 1.629 and the Present Value of ₹ 1 @ 10% at the end of the 10<sup>th</sup> year is ₹ 0.386.  
(2 + 3 = 5 marks)

**Answer:****Selection of Projects on the basis of PI Ranking when Projects are Divisible:**

Project	Investment	PI Ranking	NPV
A	50,000	1	4,50,000
B	1,00,000	2	8,00,000
C	1,50,000	3	10,50,000
D	2,00,000	4	12,00,000
E	2,50,000	5	13,75,000
F	2,60,000	6	14,04,000
	10,10,000		62,79,000

**Selection of Projects when Projects are Indivisible:****Combination 1:**

Projects	Investment	NPV Ranking	NPV
F	6,00,000	1	32,40,000
E	2,50,000	2	13,75,000
C	1,50,000	4	10,50,000
	10,00,000		56,65,000

**Combination 2:**

Projects	Investment	NPV
A	50,000	4,50,000
C	1,50,000	10,50,000
D	2,00,000	12,00,000
F	6,00,000	32,40,000
	10,00,000	59,40,000

**Recommendation:** The company is advised to undertake projects A, C, D and F since the NPV of A, C, D and F is more than the NPV of any other combination and ₹ 10,000 will remain unspent.