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MMPF-2

Capital Investment and Financing Decisions

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Sample Preview of the Solved Sample Question Papers

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QUESTION PAPER

June – 2024

(Solved)

CAPITAL INVESTMENT AND FINANCING DECISIONS

MMPF-2

Time: 3 Hours] ***[Maximum Marks : 100***
(Weightage : 70%)

Note: *Answer any* ***five*** *questions. All questions carry equal marks.*

Q. 1. Describe the Cardinal principles of financing decisions. Discuss wealth maximisation and maximization of profit pool objectives.

Ans. Ref.: See Chapter-1, Page No. 2, 'Cardinal Principles of Financial Decisions' and 'Wealth Maximisation and Maximisation of Profit Pool Objectives'.

Q. 2. XYZ Ltd. has the following capital structure:

Particulars	Market Values	Book Values	Cost (%) (₹ in crores)
Equity share capital	80	120	18
Preference share capital	30	20	15
Fully secured debentures	40	40	14

Calculate the company's weighted average cost of capital based on both market values and book values. Cost of individual sources of capital is net of tax.

Ans. To calculate the Weighted Average Cost of Capital (WACC) using both market values and book values, we apply the following formula:

Step 1: Market Value-Based WACC

$$\text{WACC} = \sum\left(\frac{\text{Value of each source}}{\text{Total value}} \times \text{Cost of each source}\right)$$

Values (₹ in crores):

- Equity Share Capital: ₹80
- Preference Share Capital: ₹30
- Debentures: ₹40

Total Market Value = 80 + 30 + 40 = ₹150

WACC (Market) Calculation:

$$\text{WACC}_{\text{market}} = \left(\frac{80}{150}\times 18\%\right)+\left(\frac{30}{150}\times 15\%\right)+\left(\frac{40}{150}\times 14\%\right)$$

$$= (0.5333 \times 18\%) + (0.2 \times 15\%) + (0.2667 \times 14\%)$$

$$= 9.6\% + 3.0\% + 3.73\% \boxed{= 16.33\%}$$

Step 2: Book Value-Based WACC

Values (₹ in crores):

- Equity Share Capital: ₹120
- Preference Share Capital: ₹20
- Debentures: ₹40

Total Book Value = 120 + 20 + 40 = ₹180

WACC (Book) Calculation:

$$\text{WACC}_{\text{book}} = \left(\frac{120}{180}\times 18\%\right)+\left(\frac{20}{180}\times 15\%\right)+\left(\frac{40}{180}\times 14\%\right)$$

$$= (0.6667 \times 18\%) + (0.1111 \times 15\%) + (0.2222 \times 14\%)$$

$$= 12.0\% + 1.67\% + 3.11\% \boxed{= 16.78\%}$$

Q. 3. What is Work Breakdown Structure (WBS)? Explain the application of WBS to monitor and control a project.

Ans. Ref.: See Chapter-4, Page No. 50, 'The Work Breakdown Structure and Linear Responsibility Charts' and Page No. 58, Q. No. 9.

Q. 4. What do you understand by project control? Discuss in detail the types of control processes.

Ans. Ref.: See Chapter-6, Page No. 70, 'Project Control' and Page No. 71, 'Types of Control Processes'.

Q. 5. Explain the concept of risk and uncertainty and discuss any two techniques used for measurement of project risk.

Ans. Ref.: See Chapter-9, Page No. 94, 'Measurement of Project Risk'.

Also Add: Concept of Risk and Uncertainty: Risk and uncertainty are key concepts in project management and decision-making, particularly in the context of planning and executing projects:

1. Risk refers to the possibility that an event or outcome will differ from what is expected, and it usually involves known probabilities.

In project management, risk typically includes both threats (negative impacts) and opportunities (positive impacts) that might affect project objectives such as scope, time, cost, and quality.

2. Uncertainty refers to situations where the likelihood of outcomes is unknown or cannot be accurately predicted. Unlike risk, uncertainty does not have measurable probabilities. It arises due to incomplete information, changing environments, or lack of historical data.

Q. 6. Explain the various instruments through which companies raise equity capital.

Ans. Ref.: See Chapter-11, Page No. 111, 'Global Sources of Financing'.

Q. 7. How would you assess mergers as a source of value addition? What criteria is used for determining exchange ratio in a merger process?

Ans. Ref.: See Chapter-13, Page No. 127, 'Assessing Merger as a Source of Value Addition'.

Q. 8. What is Financial Engineering? Discuss the factors leading to financial engineering.

Ans. Ref.: See Chapter-14, Page No. 141, 'Introduction' and 'Factors Contributing to Financial Engineering'.

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Sample Preview of The Chapter

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CAPITAL INVESTMENT AND FINANCING DECISIONS

Nature of Long-Term Financial Decisions

1

INTRODUCTION

Over the past four decades, the role and responsibilities of a finance manager have undergone a significant transformation. Today, unlike in the past, a finance manager plays a central role in planning the quantum and pattern of fund requirements, securing the necessary funds on favourable terms, allocating these funds efficiently among profitable opportunities, and monitoring their effective use. Since every business activity involves the planning and utilization of financial resources, it is essential for the finance manager to have a clear understanding of the firm's financial objectives and the fundamental principles guiding financial decisions.

CHAPTER AT A GLANCE

NATURE OF FINANCIAL DECISIONS

Financial decisions involve managing a business's financial matters, such as determining the amount of investment, acquiring assets, structuring capitalization, and distributing income. Key points include:

(a) Financial decisions are made by the finance manager, either independently or with other managers.

(b) The finance manager handles all issues related to finance.

(c) Financial decisions fall into three broad categories: Investment Decisions, Financing Decisions, and Dividend Policy Decisions.

Investment Decisions

Investment decisions are crucial as they determine the firm's total assets, their composition, and perceived business risk. Key points include:

(i) Investment decisions are of two types: long-term and short-term.

(ii) Long-term decisions involve allocating capital to projects with lasting benefits, deciding on expenditure, fund commitment, and opportunity selection.

(iii) Short-term decisions manage fund allocation among cash, receivables, and inventories.

(iv) Due to limited funds, the finance manager must carefully select the most profitable investments.

(v) The focus is on creating an optimal asset mix.

Financing Decision

Financing decisions involve determining the optimal mix of debt and equity to raise funds and maximize the firm's value. Key points include:

(i) Financing decisions arise after or sometimes before investment decisions.

(ii) The finance manager must choose a debt-equity mix that maximizes shareholder wealth.

(iii) Key considerations include sources of funds, availability of funds, and the cost of funds.

(iv) The finance manager must stay in constant touch with financial markets.

(v) Financing decisions primarily focus on determining the capital structure and debt-equity composition.

Dividend Policy Decision

Dividend policy involves allocating business earnings between shareholder payouts and retained earnings for company growth. Key points include:

(i) It is closely linked to financing, as retained earnings are a major funding source.

(ii) Higher dividends reduce retained earnings, potentially slowing growth in earnings and stock prices.

(iii) A finance manager must balance growth and dividends to maximize shareholder wealth.

(iv) Dividend decisions consider investor preferences, firm liquidity, earnings stability, debt obligations, and market access.

(v) Thus, dividend policy is an integral part of overall financing decisions.

Inter-relationship Amongst these Decisions

The interrelationship between three types of financial decisions centers on the following issues:

***(a)* Which decision comes first: investment or financing?:** Investment and financing decisions are simultaneous and interdependent; one cannot exist meaningfully without the other.

***(b)* Investment Decision vs Financing Decision – Fundamental Difference:** Financing decisions involve raising funds (inflows today, repayments later), while investment decisions use funds (outflows today, inflows later). Financing supports investment.

***(c)* Relationship through NPV:** Financing costs are captured through the discount rate ('r'). A positive NPV means increased shareholder wealth, highlighting the strong connection between financing and investment.

NPV = $C_0 + C_1/(1 + r)$, where C_0 and C_1 are cash flows at time 0 and 1. The formula shows that '*r*' (discount rate or cost of capital) and NPV are inversely related — a higher '*r*' lowers NPV. This highlights the link between financing and investment decisions and justifies NPV as the core rule of financial decision-making.

WEALTH MAXIMISATION AND MAXIMISATION OF PROFIT POOL OBJECTIVES

In a competitive environment, a firm's financial objective should align with sustaining a competitive edge. Wealth Maximization Objective (WMO) is widely recognized for evaluating business performance. Wealth refers to the net present worth – the difference between gross present worth (present value of expected cash flows discounted for risk) and the capital investment. WMO suggests accepting any financial action with a positive NPV. The formula is:

NPV (W) = $A_1/(1+K) + A_2/(1+K)^2 + ... + A_n/(1+K)^n - C$

where W = net present worth, A_1 to A_n = cash flows, K = discount rate, C = initial investment, and *n* = time period.

Wealth maximization overcomes the limitations of profit maximization by addressing:

(i) The vagueness of "profit".

(ii) The neglect of the time value of money.

(iii) The disregard of risk factors.

Value Maximisation is Wealth Maximisation

In a business, managers are expected to act in the best interests of shareholders, the owners. Shareholders, as rational economic beings, aim to maximize their wealth – the market value of their shares. They balance risk and return, seeking either higher returns for a given risk or lower risk for a given return.

Objective of Maximization of Profit Pool

To build a sustainable competitive edge, a finance manager must focus on maximizing both shareholder and stakeholder value. This involves growing the profit pool – the total industry profits across the value chain. Key points:

(i) Profit pool looks beyond core business.

(ii) Its shape reflects competitive dynamics.

(iii) Profits arise from company-customer interactions.

(iv) Profit pools are dynamic, not static.

(v) Mapping profit pools reveals where and how money is made.

(vi) Profit pools show how different profit sources influence competition.

Other Objectives and Value Maximisation Objective

Many managers pursue objectives other than Value Maximization Objective (VMO), like maximizing ROI, profits, sales, or market share. However, deeper reflection shows these goals are often short-term strategies aimed at long-term wealth maximization. For instance, managers seeking market share or sales growth usually aim to boost long-term profits, aligning ultimately with VMO.

Net Present Value Rule

Wealth maximization leads to the Net Present Value (NPV) rule as a key financial decision-making tool. NPV compares an investment's returns with market returns by calculating its present value. The formula is:

$$NPV = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + ... + \frac{C_n}{(1+r)^n} - C_0$$

where:

C_0 = initial investment

C_1, C_2, C_n = cash in flow

r = discount rate (includes risk premium)

An investment is accepted if NPV > 0 and rejected if NPV < 0. Higher risk investments have higher discount rates.

VMO and NPV Rule

A manager should make decisions that maximize shareholders' wealth by investing in projects with a positive NPV – where the present value of future cash inflows exceeds the initial investment. If an investment has a negative NPV, funds should be invested elsewhere.

For example, if a firm's share price is Rs.100 and shareholders expect a 20% return, the firm must earn Rs. 20 per share. If earnings fall to Rs. 15, the share price would drop to Rs. 75 to maintain the expected return, reducing shareholders' wealth. Thus, managers must invest in opportunities that meet or exceed shareholders' return expectations, making wealth maximization the key business objective.

CARDINAL PRINCIPLES OF FINANCIAL DECISIONS

To maximize the corporate value of the firm, a finance manager must consider the following key factors when making financial decisions:

***(i)* Strategic Principle:** Financial decisions must align with overall corporate objectives and strategies.

***(ii)* Optimization Principle:** Focus on efficient use of funds, maintaining a proper balance between fixed and working capital.

***(iii)* Risk – Return Principle:** Financial decisions should balance risk and return, considering firm size, asset types, funding sources, and liquidity.

***(iv)* Marginal Principle:** Operate until marginal revenue equals marginal cost to maximize efficiency.

***(v)* Suitability Principle:** Finance assets with instruments matching their maturity period.

***(vi)* Flexibility Principle:** Financial plans must be adaptable to changing business environments.

***(vii)* Timing Principle:** Investment and financing decisions should be timed to seize market opportunities and reduce funding costs.

TIME VALUE OF MONEY

If given a choice between Rs.100 today or Rs.100 a year later, you would choose Rs.100 today. Even after removing risks like default or inflation, receiving money today is better because you can invest it. For example, depositing Rs.100 in a bank at 10% interest would give you Rs.110 in a year, making you Rs.10 better off than waiting.

Because cash is scarce, and the bank pays Rs.10 for using your Rs.100 for a year, expecting to earn more elsewhere. The Rs.10 represents the time value of money – 10% per annum. The real time value depends on money supply and investment opportunities in the economy.

Reasons for Time Value of Money:

1. Individuals prefer current consumption.
2. Money received today can be invested to earn more.
3. The future is uncertain.
4. Inflation reduces future purchasing power.

Implications:

1. More must be paid in the future for a rupee received today (compounded value).
2. A person may accept less today for a rupee to be received later (discounted value).

Compounded Value

Compounding is the process of finding the future value of a payment or series of payments using compound interest. It is also called terminal value.

Present Cash to Future Cash: Let us understand terminal value. If the interest rate is 10% per annum, the value of Rs.100 one year from today will be Rs.110.

You multiply Rs.100 by 0.10 (10%) and add it to Rs.100 to get Rs.110.

Mathematically:

Terminal value = 100 + 0.10 × 100 = 100 × 1.1 = Rs.110

Similarly, for two years:

First year: Rs.110

Second year: Rs.110 × 1.1 = Rs.121

Or simply: 100 × 1.1 × 1.1 = 100 × 1.1^2 = Rs.121.

In general, terminal value of amount '*p*', at rate '*r*' per period for '*n*' periods:

Terminal Value = $p\ (1 + r)^n$

Note: $(1 + r)^n$ is called the Terminal Value Factor.

For multiple period compounding:

$$A = P\left(1+\frac{r}{m}\right)^{mn}$$

Where:

A = Amount after n periods

P = Initial amount

r = Annual interest rate

m = Number of times compounding per year

n = Number of years

Discounted Value

"Depositing Rs.100 to get Rs.110 after one year means Rs.100 is the present value of Rs.110, accounting for the time value of money. Discounted value calculates today's worth of future payments."

Future Cash to Present Cash

At 10% per annum, the present value of Rs.110 to be received after one year is Rs.100, found by dividing Rs.110 by 1.1 (since Rs.110 is Rs.100 grown at 10% for one year).

Similarly, the present value of Rs.100 to be received after one year @10% is Rs. 90.90909, calculated as Rs.100 ÷ 1.1.

In mathematical terms:

Present value of Rs.100 after one year @10% = 100/1.1 = 90.90909.

Present value of Rs.100 after two years @10% = (100/1.1)/1.1 = 100/$(1.1)^2$ = 82.64463.

In general, the present value of an amount 'P' to be received after '*n*' periods at rate '*r*' = $P/(1 + r)^n$.

Note: $1/(1 + r)^n$ is the present value factor for an amount received after '*n*' periods at discount rate '*r*'.

DETERMINATION OF IMPLIED INTEREST RATES, IMPLIED PRINCIPAL AMOUNT AND ANNUITIES

This subsection explains the process for determining implied interest rates, implied principal amounts, and annuities.

Determination of Implied Interest Rates

Suppose you borrow Rs.100 for one year and must repay Rs.120 after a year. The implied interest rate is clearly 20%, as you repay the principal (Rs. 100) plus interest (Rs. 20). Now, imagine the lender offers you one of the following seven repayment schedules for borrowing Rs.100 today:

Repayment Schedule	1	2	3	4	5	6	7
Repay at the end of 1st year = Rs.	20	20	45	70	95	95	20
Repay at the end of 2nd year = Rs.	20	20	90	60	30	5	26
Repay at the end of 3rd year = Rs.	120	20	-	-	-	5	20
Repay at the end of 4th year = Rs.	-	120	-	-	-	5	20
Repay at the end of 5th year = Rs.	-	-	-	-	-	30	20
Repay at the end of 6th year = Rs.	-	-	-	-	-	-	20

(Repay in perpetuity) 20

What is the implied interest rate in each repayment schedule? Is it 20% for all? For schedules 1, 2, and 7, the answer is straightforward: the principal remains outstanding while Rs. 20 interest payments are made each year (with principal repaid at the end, or never in schedule 7), confirming a 20% rate.

For schedules 3 to 6, it's slightly more complex. For example, in schedule 4, half the principal is repaid at the end of year one, but interest of Rs. 20 (on Rs.100) is still due for the first year. In the second year, interest accrues only on the remaining Rs. 50 (Rs.10), which along with the principal is fully repaid, again implying a 20% interest rate.

Determination of the Implied Principal Amount

Suppose a borrower offers to repay you Rs.193 annually for four years, starting a year from now. If your desired interest rate is 20% per annum, the amount you should lend today is the present value of these payments. Mathematically:

$P = 193/(1.2) + 193/(1.2)^2 + 193/(1.2)^3 + 193/(1.2)^4$ = Rs. 500

Similarly, to find the fair price of a share, discount expected cash flows. If you expect dividends of Rs. 20, Rs. 30, and Rs. 40 at the end of years 1, 2, and 3, and a sale price of Rs.120 at the end of year 3, and you require a 25% return, the present value of these inflows is Rs.117. Thus, you should be willing to pay Rs.117 for the share today.

Determination of Annuities

Suppose you borrow Rs.100 at 20% interest per annum for two years and want to repay in two equal annual installments (annuities). What should each installment be? (Hint: It's not Rs. 50.)

Let each installment be X. The cash flows are +100 today, and – X at the end of each year. Using the IRR rule:

$100 = X/(1.2) + X/(1.2)^2$
$= 0.833X + 0.694X$
$= 1.527X$

Thus, X = 100/1.527 ≈ Rs.65.49.

BASIC FACTORS INFLUENCING LONG-TERM FINANCIAL DECISIONS

A finance manager must exercise great skill and caution in making long-term financial decisions, as they impact the enterprise's financial health over time. Decisions should be made considering both external and internal factors.

External Factors: External factors are environmental influences beyond management's control, including:

(i) State of the economy (trade cycle phase).
(ii) Capital market development.
(iii) Government regulations (e.g., debt-equity norms, dividend restrictions).
(iv) Taxation policy.
(v) Investor expectations (safety, liquidity, profitability).
(vi) Lending policies of financial institutions.

Internal Factors: Internal factors relate to the firm's conditions, including:

(i) Nature of business.
(ii) Size of business.
(iii) Age of the firm.
(iv) Ownership structure.
(v) Asset structure.
(vi) Liquidity position.
(vii) Expected return, cost, and risk.
(viii) Stability of earnings.
(ix) Management attitude.

Since these factors often conflict, a skilled manager must balance them carefully, considering income, risk, control, and flexibility.

ACTIVITIES

Q. 1. Identify forces than brought about fundamental change in role and responsibilities of a finance manager in India.

Ans. Forces That Brought About Fundamental Change in the Role and Responsibilities of a Finance Manager in India: Over the years, the role of a finance manager in India has undergone a significant transformation due to a variety of economic, regulatory, and technological forces. One of the most influential factors has been economic liberalization since 1991, which opened up the Indian economy to global markets. This shift required finance managers to not only focus on internal financial control but also develop skills in global finance, foreign exchange management, and international capital markets. Technological advancements, particularly in digital finance and automation, have redefined financial operations, making data analytics, ERP systems, and financial modeling critical parts of a finance manager's skill set. Additionally, the globalization of businesses has introduced complexities such as cross-border transactions, international taxation, and compliance with global financial standards. Changes in regulatory frameworks, including the implementation of GST, stricter SEBI guidelines, and adoption of IFRS, have further expanded the compliance responsibilities of finance professionals.

Several forces have contributed to the fundamental change in the role and responsibilities of a finance manager in India:

Liberalization and Globalization: The opening up of the Indian economy in 1991 led to increased competition, foreign investment, and access to global markets. This shift required finance managers to adopt more strategic and globally-oriented approaches.

Deregulation and Financial Sector Reforms: The deregulation of the financial sector led to the emergence of new financial instruments, institutions, and markets. Finance managers had to adapt to these changes and develop expertise in new areas.