

FINANCIAL MANAGEMENT MODULE ONE:

CHAPTER ONE

INTRODUCTION

Business concern needs finance to meet their requirements in the economic world. Any kind of business activity depends on the finance. Hence, it is called as lifeblood of business organization.

Finance is the application of economic principles to decision-making that involves the allocation of money under conditions of uncertainty. In other words, in finance we worry about money and we worry about the future. Investors allocate their funds among financial assets in order to accomplish their objectives, and businesses and governments raise funds by issuing claims against themselves and then use those funds for operations.

Finance provides the framework for making decisions as to how to get funds and what we should do with them once we have them. It is the financial system that provides the platform by which funds are transferred from those entities that have funds to those entities that need funds.

In the modern world, all the activities are concerned with the economic activities and very particular to earning profit through any venture or activities. The entire business activities are directly related with making profit. (According to the economics concept of factors of production, rent given to landlord, wage given to labor, interest given to capital and profit given to shareholders or proprietors), a business concern needs finance to meet all the requirements. Hence finance may be called as capital, investment, fund etc., but each term is having different meanings and unique characters. Increasing the profit is the main aim of any kind of economic activity.

MEANING OF FINANCE

Finance may be defined as the art and science of managing money. It includes financial service and financial instruments. Finance also is referred as the provision of

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money at the time when it is needed. Finance function is the procurement of funds and their effective utilization in business concerns.

The concept of finance includes capital, funds, money, and amount. But each word is having unique meaning. Studying and understanding the concept of finance become an important part of the business concern.

MEANING OF FINANCIAL MANAGEMENT

Financial management is an integral part of overall management. It is concerned with the duties of the financial managers in the business firm.

The term financial management has been defined by **Solomon**, “It is concerned with the efficient use of an important economic resource namely, capital funds”.

S.C.Kuchal asserts that “Financial Management deals with procurement of funds and their effective utilization in the business”.

According to Howard and Upton Financial management “as an application of general managerial principles to the area of financial decision-making.

Weston and Brigham says that financial management “is an area of financial decision-making, harmonizing individual motives and enterprise goals”.

According to Joshep and Massie Financial management “is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations.

Thus, Financial Management is mainly concerned with the effective funds management in the business. In simple words, Financial Management as practiced by

The task of financial management is to assist advice and support management in four important areas of decision making i.e. investment, financing, and working capital and dividend decisions.

There are two major roles in financial management i.e.

- Raising of funds

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Allocation of funds/utilization.

Raising of funds

Funds can be raised from owners of the business (equity) and from outsiders (debt). When funds are raised from equity or debt, you create what is known as the financing mix e.g. 80% equity: 20% debt. This financing mix will determine the financing risk. Financing risk is the possible variability in return as a result of the method of financing used by the firm. It involves repayment of fixed financing obligations that come in form of interest and debt redemption i.e. payment of principal.

Example:

	Firm A	Firm B
EBIT	400	400
Interest	<u>10</u>	<u>50</u>
EBT	390	350
Tax	<u>195</u>	<u>175</u>
EAT	<u>195</u>	<u>175</u>

Assume, Debt is 100m and 500m for A & B respectively at an interest rate of 10% p.a and the companies are in a 50% corporation tax bracket. The example above shows a typical situation of financing risk as reflected in the net earnings of the firms. When debt is introduced in the organization, you create what is known as leverage.

Allocation of funds

The allocation of funds determines the asset mix of the firm. The asset mix defines the nature of the firm which in turn shapes the business risk. Business risk will vary with the nature of the business e.g. a service firm and manufacturing firm will not

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have the same business risk. Business risk is defined as the variability in return as a result of the nature of the business that the firm is undertaking.

Business risk and financing risk show the importance of the finance function and therefore decisions made in finance are strategic.

THE SCOPE OF FINANCIAL MANAGEMENT

From the above roles of financial management, the scope of financial management spreads around 4 main decision areas i.e.

- i) The investment decision (the capital budgeting decision) i.e. the decision to invest in long term assets.
- ii) Working capital management decisions i.e. the decision to invest in short term assets.
- iii) The financing decision i.e. the acquisition of long term and short term funds to finance capital expenditure and working capital respectively.
- iv) The dividends decision (earnings management decision) i.e. the decision to determine whether earnings of the firm should be paid out as dividends or retained in the firm.

THE OBJECTIVE OF A FIRM

1. Maximization of profits: This objective requires a firm to maximize its revenue as it minimizes its costs.

This objective is generally criticized in financial management because

- i) The definition of profit is vague - Economists define profit differently from accountants therefore, as a financial manager, the objective becomes elusive.
- ii) Profit maximization ignores the concept of time value of money.
- iii) The objective is in conflict with interests of other stakeholders e.g. employees, suppliers, consumers, etc.

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There has been a re-focus of what the objective of the firm should be and therefore overcoming the weaknesses of profit maximization. Financial managers now focus on the objective of wealth maximization.

2. Wealth maximization

Shareholders are the owners of a corporation, and they purchase stocks because they want to earn a good return on their investment without undue risk exposure. In most cases, shareholders elect directors, who then hire managers to run the corporation on a day-to-day basis. Therefore, when we say management's objective should be to maximize stockholder wealth, we really mean it is to maximize the fundamental price of the firm's common stock, not just the current market price.

Wealth is the net cash flow expected from all the assets in which resources of the firm have been invested; these cash flows have to be discounted to their present worth using a discount rate that takes into account all stakeholders interests in the business.

$$\text{Wealth max.} = \sum_{i=1}^n \frac{A_i}{(1 + K)^i} - I_0$$

Wealth maximization = Discounted Cash inflows - Outflows.

A_i - cash flow invested in period i

K - discount rate/factor

I_0 - initial cash flow

i - period over which a firm is expected to acquire resources and invest.

- Note:** i) Cash flows are different from profits.
- ii) Wealth maximization focuses on cash flows and not accounting profits

Other Objectives of the firm:

3. Maximization of market share.
4. Maximization of earnings per share
5. Maximization of employee welfare
6. Social responsibility. **(Read)**

The objective of wealth maximization is generally preferred because it is all inclusive, is not vague and incorporates time value of money.

In determining wealth, there are two basic concepts that have to be considered;

- i) The nature of the cash flows i.e.
 - (a) Initial outlay (Year zero)
 - (b) Intermediate cash flows (Year 1 - Year n)
 - (c) Terminal cash flow (Year n).
- ii) The concept of time value of money

CHAPTER TWO

TIME VALUE OF MONEY

This is a concept that as a rational economic unit (individual or firm) you prefer earlier cash flows to later cash flows (i.e. prefer a sum of money today than later). The fact that earlier cash flows are preferred to later ones means that you attach a higher value to them.

Reasons for time preference for money

- i) Generally, the future is associated with risk and uncertainty because of changes in the business environment.
- ii) Any rational consumer prefers current consumption to future consumption.
- iii) The amount of money received earlier can be invested to earn more return in the future. By waiting for later cash flows, the investor foregoes this return.

If investors prefer money today, than the same amount at a future date, then for the investor to part with his/her money today, they need to be compensated for the opportunity cost associated with future receipts. This compensation is known as interest or rate of return on investment (RR).

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Importance of the knowledge of time value of money

- i) In the investment decision, there is need to determine whether future benefits are sufficiently large to justify current outlays. The interest rate is the basis for evaluating and adjusting the value of future cash flows to reflect what these values are worth at present.
- ii) In the financing decision, the idea of interest as a return to the lender and cost of capital to the borrower is vital in making decisions of where to source funds.

Time lines

Where 0 is the beginning of the period and its today

Time 1 is one period from today

Time 2 is two periods from today or the end of period 2 and so on.

i is the interest rate

N is the n th period

Cash flows are placed directly below the tick marks and the interest rates are shown above the time line.

Unknown cash flows are indicated by a question mark.

PRESENT VALUE AND FUTURE VALUE

Time value of money may refer to the future and present value.

A dollar in hand today is worth more than a dollar to be received in the future because if you had it now, you would invest it, earn interest and end up with more than one dollar in the future. The process of going from today's values or present values (PV), to future values (FV) is called compounding

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i) Future value

Future value is the value at some future time of a present amount of money evaluated at a given interest rate. It expresses today's cash flows into their worth in future.

$$FV_n = PV_0 (1 + i)^n$$

FV_n - Future value at end of n years.

PV_0 - Present value today

i - Interest rate

n - Periods in years.

Alternatively we can use

$FV_n = PV_0 (FVIFin)$ where FVIFin is the future value interest factor read from the financial table.

Example

- If you deposited 60,000/= in a bank, which is paying a 15 per cent rate of interest on a ten-year time deposit, how much would the deposit grow at the end of ten years?

At times, interest is compounded more than once during the year. Thus,

$$FV_{nm} = PV_0 (1 + \frac{i}{m})^{nm}$$

FV_{nm} - Future value compounded m times a year.

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m - Number of times interest is compounded in a year.

ii) Future value of annuities.

An annuity refers to a uniform cash flow stream expected per year for a specific number of years e.g. if 250 million shillings is expected to be earned per year as interest on a bond. In this case, the future value of annuity is given by;

$$FV_A = PMT \left[\frac{(1 + i)^n - 1}{i} \right]$$

Alternatively:

$$FV_A = PMT \times \text{Future Value Interest Factor of an Annuity (FVIFA}_n)$$

Example

Suppose that a firm deposits 5,000/= at the end of each year for four years at 6 per cent rate of interest. How much would this annuity accumulate at the end of the fourth year?

iii) Present Value:

Present value refers to the value of future cash flows of an investment when discounted using an appropriate discount rate to bring them back to their present worth.

Finding present values is called discounting

$$PV = \frac{FV_n}{(1 + i)^n}$$

$$(1 + i)^n$$

Examples

Suppose that an investor wants to find out the present value of 50,000/= to be received after 15 years. Her interest rate is 9 per cent.

Mr. Ondoga recently won ten million shillings from a lottery and he intends to save some of it towards the university education of his son 8 years later. He will deposit a certain amount in a bank, which gives interest at 14% per year. How much should he deposit now to withdraw 7,000,000= (seven million) after 8 years?

iv) Present value of an annuity

$$PVA = PMT \times \frac{1}{i} \left[1 - \frac{1}{(1+i)^n} \right]$$

$$PVA = PMT \times \text{Present Value Interest Factor of an Annuity (PVIFA}_n)$$

v) Perpetual Annuities:

This is where we expect a stream of uniform cash flows to be received indefinitely (forever) e.g. an investor earning Shs.5m every year as dividend on irredeemable shares.

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From the formula of present value of an annuity above as n approaches infinity, the expression $\frac{1}{(1+i)^n}$ tends zero

$$\text{Thus; } PV = \frac{PMT}{i}$$

vi) Present value of uneven cash flows.

$$PV = \frac{A_1}{(1+i)^1} + \frac{A_2}{(1+i)^2} + \frac{A_3}{(1+i)^3} + \dots + \frac{A_n}{(1+i)^n}$$

PRACTICAL APPLICATION OF PRESENT VALUE: LOAN AMORTIZATION.

The present value concept has practical applications in determining the payments required under an installment type of loan.

Example: Suppose a firm borrows Shs.10m at 10% interest to be repaid in the next 5 years. Equal installments are required at the end of each year and these payments must be sufficient to repay the principal sum together with the interest. Draw up a loan amortization schedule to show how the loan would be repaid.

Step 1:

$$PV_A = PMT \text{ (Present value annuity factor)}$$

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$$10,000,000 = \text{PMT} \times 3.7908$$

$$2,637,966 = \text{PMT}$$

Step 2: Solution

	A	B	C	D	E
YEAR	PRINCIPAL/ BEGINNING BALANCE	ANNUAL INSTALMENT	ANNUAL INTEREST 10%	PRINCIPAL REPAYMENT	ENDING /OUTSTANDING BALANCE
			$=(10\% \times A)$	$(B - C)$	$(A - C)$
1	10,000,000	2,637,966	1,000,000	1,637,966	8,362,034
2	8,362,034	2,637,966	836,263	1,801,763	6,560,271
3	6,560,271	2,637,966	656,027	1,981,939	4,578,332
4	4,578,332	2,637,966	457,833	2,180,133	2,398,199
5	2,398,199	2,637,966	239,819	2,398,145	0
			3,189,882	9,999,946	

Revision Questions

1. Consider a single sum of money of 800,000/= deposited into a fixed deposit account earning 4% interest compounded annually. How much would have your deposit have grown by the end of 5 years?
2. Assuming that you have been given a 500,000/= tax free gift and have decided to invest in a 2 year certificate of deposits which compounds interest semi-annually, how much will you have when the deposit matures if the interest rate is 14%?
3. You have been depositing 100,000/= on your savings account every year. The interest rate earned is 2% compounded annually. How much will you have on your account at the end of the 10 years?
4. You are planning for a holiday at the end of your course. You require 20 million for spending. You are planning to invest an amount of money today in a savings account earning 5% interest compounded annually. How much should you deposit?

CHAPTER THREE

THE INVESTMENT DECISION / CAPITAL BUDGETING DECISION

A firm's profitability, growth, competitiveness and long term survival depends to a great extent on the availability and selection of investment projects.

Capital budgeting decisions involve the long-term commitment of a company's scarce resources in long-term investments. It refers to the decision to invest in long-term assets. The assets are expected to be used over a long period of time.

According to **Lyrich**, "capital budgeting consists in planning development of available capital for the purpose of maximizing the long-term profitability of the concern".

Capital budgeting decisions include acquisition of plant and equipment, replacement of old equipment, expansion of the existing production capacity, introduction of a new production line and investment in research and development.

Need and Importance of Capital Budgeting:

The capital budgeting decision is a central decision to any business because;

- i) It determines the asset mix and hence shapes the business risk.
- ii) It involves heavy initial outlays of the business resources.
- iii) Benefits accrue in future which future is associated with risk and uncertainty.
- iv) Investment decisions are difficult to reverse and in the event that they are reversed, the decision can be very costly.

Procedures /Steps of Capital Budgeting:

- Identifying possible investment opportunities.
- Screening to reduce the number of alternatives to the most feasible alternatives.
- Estimate cash flows for the feasible alternative and acquiring relevant information.
- Appraisal/evaluation of cash flows using the techniques of investment appraisal i.e. NPV, IRR, PI etc
- Select and implement the most feasible alternative based on the project with the highest NPV, IRR, PI etc.

Approaches to capital budgeting

Broadly, there are two approaches to capital budgeting i.e.

- Decisions without any formal analysis - Investment decisions are made based on past experiences, intuition, peer advice, use of Delphi techniques etc.
- Decisions with formal analysis - These are categorized into two. The first category involves making investment decisions based on techniques of analysis that do not incorporate time value of money such as Accounting Rate of Return (ARR) and Payback period. The second category involves making investment decisions based on techniques that incorporate time value of money such as Net Present Value (NPV), Internal Rate of Return (IRR) and Profitability Index (PI)

DETERMINATION OF CASHFLOWS

Determining the cash flow potential of the business is central to making successful finance decisions. It involves the estimation of the costs and benefits anticipated to accrue to the investment and it requires the help of different departments i.e. marketing, accounting, etc. who come together to forecast potential sales and costs of the investment.

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Cash flows can either be inflows or outflows. They can also be categorized on the basis of when they are realized. In this case, they can be initial cash outlays (i.e. when you acquire assets in the initial period). Cash flows can be intermediate and these are realized between the first year and final year and terminal cash inflows that accrue in the final year of the useful life of the asset.

CAPITAL INVESTMENT APPRAISAL

Capital investment decisions will usually have a direct effect on future profitability either because they will result in an increase in revenue or because they will result in efficiency and reduction in costs. Proposed investments should be properly evaluated and be found to be worthwhile.

PROJECT APPRAISAL TECHNIQUES

Project appraisal involves examining cash flows on a proposed investment to find out whether the proposal is viable or not.

Once the cash flow information has been derived and the RRR (discount rate) has been determined, this information should be subjected to further analysis using the relevant techniques of investment appraisal. These techniques fall into three categories:

- Where there is no formal analysis
- Techniques that ignore time value of money
- Techniques that take into account time value of money

Techniques with no informal analysis include;

These techniques are advantageous in that decisions made are quickly and are not costly but they are very unreliable. Since investment decisions are very

important, these techniques are not recommended. However, they can provide an indication of potential investment projects.

Techniques that ignore time value of money.

i) Payback Period Technique:

This determines the period it takes for an investment to generate sufficient incremental cash to recover its initial capital outlay. The investment will be more desirable if the payback period is very short. Determination of the payback period varies depending on the nature of the cash flows which may either be uniform or uneven. For a uniform cash flow pattern, the payback period is calculated as:-

$$\text{Payback period} = \frac{\text{Initial Outlay}}{\text{Annual cash inflow.}}$$

For example if an investment has an initial outlay of Shs.700m and it is projected that it will have a useful life of 30 years with a uniform annual cash inflow of Shs.35m then its payback period will be;

$$\text{P.B.P} = \frac{\text{Initial Outlay}}{\text{Annual cash inflow}} = \frac{700}{35} = 20 \text{ years}$$

This means that it will take 20 years for the cash inflows to cover the initial outlay on the investment.

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Where the cash flow pattern is not uniform (uneven), payback period will be determined by accumulating cash inflows until such a time when they cover the initial outlay (capital expenditure). Suppose initial outlay was 600m and cash inflows were as follows:-

Year	Cash inflow	Accumulated Cash inflow
1	30	30
2	50	80
3	100	180
4	200	380
5	200	580
6	80	660
7	120	780
8	150	930
9	280	1,210
10	130	1,340

The payback period lies between the fifth and sixth year. To obtain the exact period, the following formula is used;

$$\text{Year 5} + \frac{\text{Amount of outlay yet to be recovered}}{\text{Cash inflow for year 6}}$$

$$5 + \left[\frac{20}{80} \right] = 5\frac{1}{4} \text{ years}$$

Decision rule/acceptance criteria:

Under this technique, the payback period determined for the investment should be shorter than or equal to the payback period desired by the firm for that category of investments.

If the desired payback period in the above example is two years, then the investment should be rejected because its payback period is longer than the maximum payback period desired by management.

Merits of the Technique:

- i) It is a simple technique use and understands.
- ii) It uses cash flow information, which is the relevant information in the objective of the firm.

Demerits of the Technique:

- i) It ignores time value of money. Cash inflows are simply added together as if the investor is indifferent to the timing of the cash inflows.
- ii) It ignores cash flows after the payback period.

Take an example of the following investment projects.

Cash flow	Project A	Project B
Year 0	(150m)	(150m)
Year 1	80	60m
Year 2	70	70m
Year 3	2	20m
Year 4	-	60m
Year 5	-	90m

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Payback period for project A is 2 years and for project B is 3 years. Using payback period technique project A is preferred to project B. However, in terms of contribution to the wealth of the firm, investment B would be more beneficial than A. Since more cash inflows accrue after the payback period.

* Read more on merits and demerits and attempt some questions cash flow determination.

The accounting rate of return / average rate of return

The ARR is the ratio of average annual profits after taxes to average investment.

$$\text{ARR} = \frac{\text{Average Annual profits after taxes}}{\text{Average investment on the project}}$$

Average annual profits after taxes obtained thus;

$$\text{Average Annual profits} = \frac{A_1 + A_2 + A_3 + \dots + A_n}{n}$$

Where A_i is profit after tax in year 1

n is the number of years over which the profits are projected.

Illustration:

Z.K. Company Limited intends to set up a fruit processing plant in Mukono. It is estimated that the investment will cost Shs.500m. Depreciation will be 10% on a straight line basis over 5 years of useful life of the plant. The projected earnings after depreciation and tax are:-

Year	Profits after tax
1	10m
2	20m
3	40m
4	60m
5	80m

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To determine ARR, average annual profits after tax are;

$$\frac{10 + 20 + 40 + 60 + 80}{5} = \frac{200\text{m}}{5} = 42\text{m}$$

To determine average investment on the project

$$\text{Average investment} = \frac{\text{Sum of Book Value of life of asset}}{\text{No. of years of useful life of asset}}$$

Year 1 book value = 500m less 10% depreciation.

$$= 500\text{m} - 50\text{m}$$

$$= 450\text{m}$$

Year 2 book value = 450m - 50m = 400m

Year 3 book value = 400m - 50m = 350m

Year 4 book value = 350m - 50m = 300m

Year 5 book value = 300m - 50m = 250m.

$$\text{Therefore average investment} = \frac{450 + 400 + 350 + 300 + 250}{5}$$

$$= \frac{1750}{5}$$

$$= 350\text{m}$$

$$\text{Therefore ARR} = \frac{42\text{m}}{350\text{m}} \times 100\%$$

$$\text{ARR} = 12\%$$

Decision rule/acceptance criteria:

An investment is accepted if the ARR is greater than the RRR (Required Rate of Return) by the investors. If the ARR is less than the investors RRR, the project should be rejected.

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Merits of the Technique:

- i) It is simple to use and understand
- ii) It uses profit information and therefore there is no need to make adjustments in financial statements.
- iii) It takes into account all the profits of the project life.

Demerits:

- i) It ignores time value of money by simply adding together all expected profits without discounting them to their present worth.
- ii) It uses accounting profits which are vague and inconsistent with the basic objective of maximizing wealth.

Techniques that take into account time value of money.

Net Present Value (NPV)

The NPV of an investment project is the difference between the present value of initial outlays and the present value of the streams of expected cash inflows.

$$NPV = \sum_{i=1}^n \frac{A_i}{(1+K)^i} - I_0$$

Where A_i is the cash flow in period i , K is the required rate of return by the investor (discounting factor), I_0 is the cash outlay today and n is the number of years of the useful life of the investment.

Illustration:

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A.K. Ltd is proposing to expand its business by adding another production line. The investment will cost Shs.200m and will realize the following cash inflows over a period of 5 years.

Year	Cash inflow (in millions)
1	40m
2	60m
3	80m
4	50m
5	70m

The companies required rate of return is 10%. The NPV of this investment would be;

Year	Cash flow	PV factor (10%)	PV (in millions)
0	(200)	1.000	(200)
1	40	0.909	36.36
2	60	0.826	49.56
3	80	0.751	60.08
4	50	0.683	34.15
5	70	0.621	<u>43.47</u>
NPV=			<u>23.62</u>

For the case of uniform cash flow stream e.g. Shs.20m is expected per year over the 5 year period then PV of inflows = Shs.20m [Present Value annuity factor at 10% for 5 years]

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$$\begin{aligned} &= 20 \times [3.791] \\ &= 75.82\text{m} \\ \text{NPV} &= 75.82\text{m} - 200\text{m} \\ &= (124.18)\text{m} \end{aligned}$$

Decision rule/acceptance criteria:

All projects with positive NPV should be accepted because they add value to the firm while those with negative NPV should be rejected because they reduce the value of the firm. The firm should be indifferent if NPV is zero since this would imply a break-even position.

Merits of NPV Technique:

- i) NPV takes into account time value of money by discounting the cash flows to their present worth.
- ii) It uses cash flow information which is relevant to the objective of wealth maximisation.
- iii) It is superior to all other techniques of capital budgeting because an investment cannot have more than one value of NPV.
- iv) It shows the absolute contribution of an investment to the wealth of the firm

Demerits of NPV:

- i) Difficulty in estimating cash flows and then computing it especially when long periods are involved for example 100 years
- ii) Determining the discount rate is complex

ii) Internal Rate of Return (IRR)

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IRR is defined as the interest rate / discount rate that equates the present value of the expected future value of cash inflows to initial capital outlays.

Therefore IRR =

$$\text{IRR} = \sum_{i=1}^n \frac{A_i}{(1+K)^i} = I_0$$

Thus:

$$\text{IRR} = \sum_{i=1}^n \frac{A_i}{(1+K)^i} - I_0 = 0$$

Determination of IRR is by trial and error. If at first attempt using a certain rate K, the NPV is positive then you should try a higher one. If on the other hand on first attempt the NPV is negative, then you should try a lower rate.

Using the example of AK Ltd, since NPV is positive, then we use a higher rate i.e. 15%.

Year	Cash flow	PV factor (15%)	PV (in millions)
0	(200)	1.000	(200)
1	40	0.870	34.80

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2	60	0.756	45.36	
3	80	0.658	52.64	
4	50	0.572		28.60
5	70	0.497	<u>34.79</u>	
NPV			<u>3.81</u>	

Since NPV is positive at 10% and negative at 15%, the IRR must therefore lie between these 2 rates. We therefore have to use the interpolation formula below.

$$\text{IRR} = \text{Lower rate} + \frac{\text{Difference between PV of inflows at lower rate \& IRR}}{\text{Difference between PV inflows at lower rate and higher rate}} \times \text{Diff. between the 2 rates}$$

$$\text{IRR} = 10\% + \frac{(223.62 - 200)}{(223.62 - 196.19)} \times 5\%$$

$$\text{IRR} = 10\% + \frac{23.62}{27.43} \times 5\% = 14.305$$

$$\text{IRR} = 14.31\%$$

Decision rule/acceptance criteria:

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Accept investments whose IRR is greater than RRR and reject those investments whose IRR is less than RRR. This is because investments with $IRR > RRR$ would imply a positive NPV, while those with $IRR < RRR$ imply a negative NPV hence changes wealth of the firm;

Advantages/Merits of IRR:

- i) Recognizes time value of money
- ii) Uses cash flows which are consistent with objective of firm

Demerits:

- i) You may fail to get a rate that equates the present value of benefits to that of outlays.
- ii) Calculation of IRR is complicated.
- iii) There is a problem of multiple internal rates of return.

3. Profitability Index (PI):

Profitability index is the ratio of present value of cash inflows to present value of initial outlay.

$$PI = \frac{\text{Present Value of Cash inflows}}{\text{Present Value of Initial Outlay.}}$$

In the example of A. K. Ltd.,

$$PI = \frac{223.62}{200}$$

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$$= 1.1181$$

$$PI = 1.1$$

Decision rule/acceptance criteria:

Investments with PI greater than one are accepted because this would imply positive NPV hence increasing the wealth of the firm. Investments with PI less than one should be rejected.

Merits:

- i) Recognizes time value of money.
- ii) Easy to compute and use.
- iii) Uses cash flows which are consistent to the objective of wealth maximization.

Demerits:

Need to adjust financial statement figures to determine cash flows which is time consuming.

Summary:

Projects will be accepted when

$$NPV > 0, IRR > RRR, PI > 1$$

and will be rejected when

$$NPV < 0, IRR < RRR, PI < 1$$

Investor should be indifferent where

$$NPV = 0, IRR = RRR, PI = 1$$

CASH FLOW DETERMINATION FOR A REPLACEMENT DECISION

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A replacement decision arises when a firm is attempting to replace old equipment with new equipment.

Format for initial outlay

Cost of new machine	xx
Add: Incidental costs	xx
Less: Sale proceeds from old machine	<u>xx</u>
Less: *Tax Shield (Loss on sale)	<u>xx</u>

*Tax shield = (Book value - sale value) X tax rate

Format for intermediate cash flows

Revenue	<u>xx</u>
Add: Cost savings	xx
Less: Cash flows from old machine	<u>xx</u>
Net incremental contribution	xx
Less: Incremental Depreciation	xx
Less: Tax	xx
E.A.T	xx

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Add: Back depreciation	<u>xx</u>
Net cash inflows	<u>xx</u>

Format for terminal cash flows

*Net cash inflow	xx
Add: Net salvage value.	xx
Terminal Cash flows	<u>xx</u>

Example:

A computer disc manufacturing company purchased a machine 5 years ago at 60m/=. The machine has an expected life of 15 years at the end of which it would have a zero salvage value. Due to fast technological advancements, the machine cannot keep pace and there is a proposal from management to replace it with a new one.. The new machine will cost the company 120m/= including freight and installation charges. The new machine has an estimated useful life of 10years at the end of which it will have a salvage value of 10m/= It is estimated that the new machine will increase sales from the current 120m/= to 170m/= per annum. It is also expected to reduce annual operating costs by 20m/=. The installation of the new machine will necessitate increase in inventories by 3m/=: increase in debtors by 2m/= and cash balances by 1m/= and this working capital is recovered by the end of the investment life. The old machine has a current market value of 5m/=. It is the company's policy to depreciate machines using the straight-line method. Corporation tax rate is 30% and the company's cost of capital is 24%. Advise management on whether to replace the old machine.

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Solution:

Initial cash flows

Cost of new machine	120,000,000
Add increase in working capital	6,000,000
Less market value of old machine	5,000,000
Less tax shield on sale of old machine	<u>10,500,000</u>
Initial cash flow	<u>110,500,000</u>

Intermediate cash flows

Incremental revenue	50,000,000
Add cost savings	20,000,000
Incremental income	70,000,000
Less incremental depreciation	7,000,000
Incremental income before tax	63,000,000
Less corporation tax	18,900,000
Incremental income after tax	44,100,000
Add back incremental depreciation	<u>7,000,000</u>
Incremental cash flows	<u>51,100,000</u>

Terminal cash flows

Incremental cash flows	51,100,000
Add net salvage value of new machine	7,000,000
Add working capital recovered	<u>6,000,000</u>

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Terminal cash inflows 64,100,000

Computing Net Present Value

Year	Cash flow	PV factor (24%)	PV (in millions)
0	(110,500,000)	1.00	(110,500,000)
1-9	51,100,000	3.566	182,222,600
10	64,100,000	0.116	<u>7,435,600</u>
			<u>79,158,200</u>

Since NPV is positive, management is advised to undertake the decision to replace the old machine.

Workings

$$\begin{aligned}\text{Depreciation of old machine} &= \frac{\text{Cost - salvage value}}{\text{Number of years}} \\ &= \frac{60,000,000 - 0}{15} \\ &= 4,000,000\end{aligned}$$

The machine was used for 5 years

Therefore accumulated depreciation = $4,000,000 \times 5 \text{ years} = 20,000,000$

Book value = Cost - accumulated depreciation

Book value = $60,000,000 - 20,000,000$

Book value = 40,000,000

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$$\text{Loss on sale} = \text{Book value} - \text{sale value}$$

$$\text{Loss on sale} = 40,000,000 - 5,000,000$$

$$\text{Loss on sale} = 35,000,000$$

$$\text{Tax shield} = (\text{Book value} - \text{sale value}) \times \text{tax rate}$$

$$\text{Tax shield} = 35,000,000 \times 0.3$$

$$= 10,500,000$$

Incremental depreciation = Depreciation of new machine - Depreciation of old machine

$$\text{Incremental depreciation of new machine} = \frac{120,000,000 - 10,000,000}{10 \text{ years}}$$

10years

$$= 11,000,000$$

$$\text{Incremental depreciation} = 11,000,000 - 4,000,000$$

$$\text{Incremental depreciation} = 7,000,000$$

INCORPORATING RISK IN CAPITAL BUDGETING DECISIONS

In capital budgeting, risk refers to the possible variability between the estimated cash flows and actual cash flows realized in implementation of a project. This variability may be due to economic changes, changes in government policy, changes in social and cultural values, natural factors, etc.

When this variation occurs, then there is risk. This risk is especially associated with cash inflows because they go further into the future. Risk can be incorporated in capital budgeting by;

- i) Measuring the extent of the risk associated with the investment.
- ii) Adjusting the techniques of analysis for this risk.

Measurement of risk is generally an estimate and is therefore subjectivity. Risk is then determined by measures of dispersion from the average cash flow or expected cash flow from the investment. You therefore have to establish a probability distribution of the cash flows so as to get the mean of the expected cash flows. Assume that the cash flows are estimated by a normal distribution

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The mean is computed as follows

$$\bar{X} = \sum_{i=1}^n X_i P_i$$

Where i ranges from 1 to n
 P_i = Probability of occurrence
 X_i = Cash flow.

Example: An investment has three (3) states of nature i.e. very optimistic, optimistic and pessimistic. Its cash flows are as follows with their corresponding probabilities of occurrence

Possible cash flow	Probability of occurrence
300	0.70
400	0.20
500	0.10

The mean of the cash flows will be:-

(i)	(ii)	[(i) & (ii)]
Possible cash flow (X_i)	Prob.of Occurrence (P_i)	Expected Cash flow
300	0.70	210
400	0.20	80
500	0.10	<u>50</u>

$$\bar{X} = \underline{\underline{340}}$$

X

To determine the extent of dispersion of the cash flows from the average, the measures of disposition i.e. standard deviation and coefficient of variation are used.

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$$SD(\sigma) = \sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 P_i}$$

Cash flow (X_i)	P_i	$(X_i - \bar{X})^2$	$(X_i - \bar{X})^2 P_i$
300	0.70	1600	1120
400	0.20	3600	720
500	0.40	25600	<u>10240</u>
			<u>12080</u>

$$\sqrt{12080}$$

$$\sigma = 109.9 \text{ m}$$

The higher the SD, the higher the risk. However, you cannot know whether 109.9m from 340m is too high or too low. This can be improved upon by using coefficient of variation.

$$CV = \frac{\sigma}{\bar{X}}$$

$$CV = \frac{109.9}{340}$$

$$CV = 0.32$$

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The higher the CV, the higher the risk

After determining the extent of the risk, the challenge to managers is to incorporate this risk in capital budgeting decisions.

The procedures for adjusting for risk include:-

(a) Certainty Equivalent Technique.

This technique incorporates risk in cash flows by adjusting them to the minimum level, which is regarded as risk free. These certainty equivalent factors are determined for each cash flow and range from 0 to 1. They reflect the perception of the manager towards risk. When CEF is 0, the manager is completely uncertain. When it is 1, he is completely sure (100%). Therefore, you attach a certainty equivalent factor (C_i) to each cash flow.

$$NPV = \sum_{i=1}^n \frac{C_i A_i}{(1+K)^i} - I_0$$

This makes the cash flows risk free and should then be evaluated using a risk free rate of return i.e.

$$NPV = \sum_{i=1}^n \frac{C_i A_i}{(1+r)^i} - I_0$$

Example:

A new firm has estimated its cash flows as follows:-

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Year	0	1	2	3	4
Cash flow	(100)m	50m	70m	40m	60m

The certainty equivalent factors associated with these cash flows are 1.00, 0.95, 0.8, 0.72 and 0.6 respectively. The risk free rate of return as determined by government treasury bills is 8% while the required rate of return is 12%;

- (a) Determine NPV using risky cash flows.
- (b) Determine NPV using risk adjusted cash flows.

Year	Cash flow	PV factor (12%)	PV.
0	(100)	1.00	(100)
1	50	0.893	44.65
2	70	0.797	55.79
3	40	0.712	28.48
4	60	0.636	<u>38.16</u>
NPV =			<u>67.08</u>

Using risk adjusted cash flows.

Year	Cash flow	PV factor 8%	CEF	Risk free Cash flows	PV of risk less Cash flow
(i)	(ii)	(iii)	(iv)	(v)=(ii)x(iv)	(vi)=(iii)x(v)

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0	(100)	1.00	1.00	(100)	(100)
1	50	0.926	0.95	47.5	43.99
2	70	0.857	0.80	56.0	47.99
3	40	0.794	0.72	28.8	22.87
4	60	0.735	0.60	36.0	<u>26.46</u>

$$\text{NPV} = \underline{41.31}$$

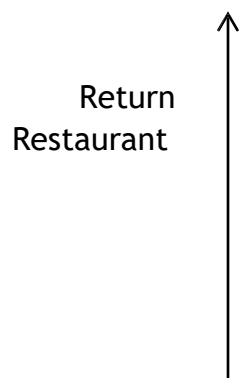
NB: Before risk was incorporated, the investment looked very attractive i.e. NPV = 67.08m but later on when risk was incorporated, the investment was not as attractive as before i.e. NPV = 41.31m

Disadvantage of CEF:

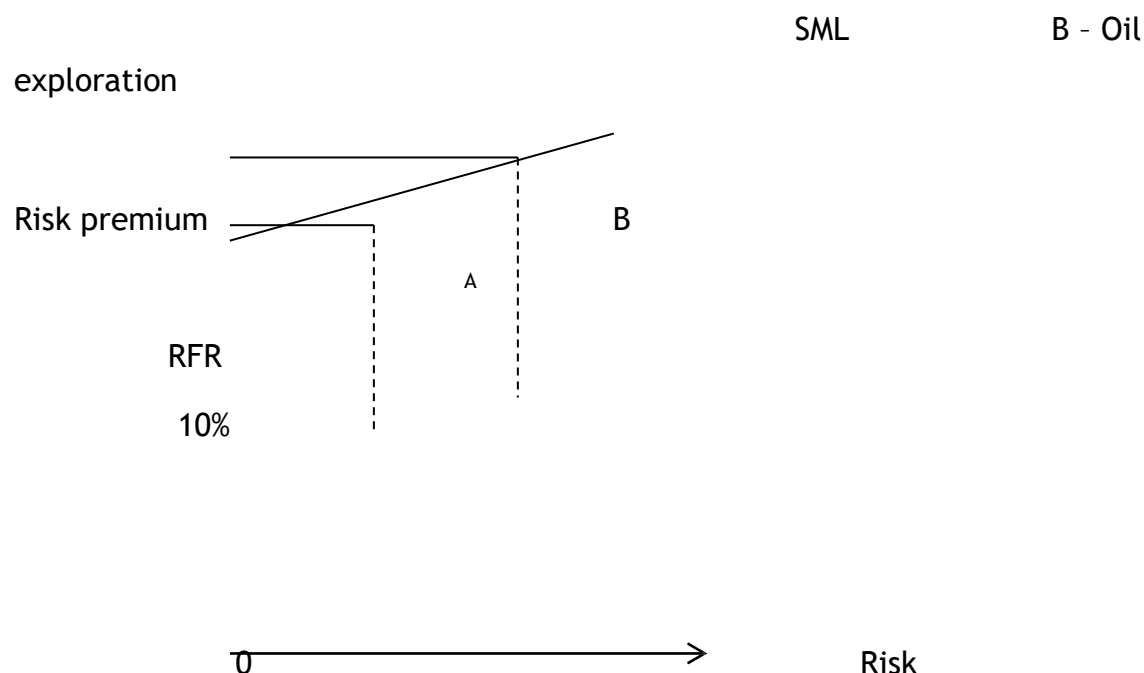
Determination of certainty equivalent factors is subjective

(b) Risk adjusted discount rate approach.

In this technique, it is the discount rate (K) that is adjusted. The K normally reflects two (2) major components of risk i.e. the risk free rate (minimum rate of return) and the risk premium. The risk premium is the additional rate of return that the investor requires for undertaking extra risk on an investment. Therefore discount rate (K) is made up of $R_f + R_p$.



A -



Assume the rate on T.Bs is 8% and risk premium on a restaurant is 5% and 18% for oil exploration. Therefore you use a discount rate of 13% and 26% respectively. The challenge of using this technique is deciding what the risk premium should be. This can however be overcome by looking at proxy investments i.e. study on existing investment to find out risk premium for the new investment.

(c) Sensitivity Analysis Approach:

This technique recognizes the fact that there are several variables, which determine the actual cash flows, obtained from an investment. It therefore attempts to show how revenues and costs would behave if there were changes in variables such as (Price changes, changes in costs of production, etc). The approach incorporates risk by asking questions of what if nature e.g. what if prices of products fell by 20%. This would affect revenues and consequently NPV. The next step is to find out “By how much the variable will change before NPV becomes negative”

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Example: A printing machine which costs Shs.200m is expected to generate cash flows of Shs.70m per year for the next five (5) years. The rate of return required by management is 10%.

Required:

- i) Should the machine be acquired?
- ii) By how much must annual cash flows change in order for the decision in (i) above to be reversed.

Year	Cash flow	PV factor 10%	PV
0	(300)	1.00	(300)
1-5	85m	3.791	<u>322.235</u>
NPV			<u>22.235</u>

NPV is positive hence acquire machine.

- iii) For the investment to be unacceptable, NPV must = 0.

Year	Cash flow	PV factor 10%	PV
0	(300)	1.00	(300)
1-5	X	3.791	<u>300</u>
NPV			<u>0</u>

To find X

$$3.971X = 300$$

$$X = 79.1$$

Therefore if cash flows fall below 79.1m, you have to change your decision to invest.

NB: It is important in sensitivity analysis to determine margin of safety.

$$\text{Margin of safety} = \frac{85 - 79.1}{85} \times 100$$

$$\text{MOS} = 7\%$$

The higher the MOS, the lower the risk

Other techniques include;

- (d) Use of probability decision trees to show the impact on cash flows (**Read**)
- (e) Use simulation to develop profiles of possible NPV outcomes.

CHAPTER FOUR

THE CONCEPT OF COST OF CAPITAL

Cost of capital refers to the minimum required rate of return that must be generated from an investment in order to justify commitment of funds in such an investment/project.

Cost of capital is also known as the hurdle rate of return or cut off rate. It can also be seen as the compensation to the investor for the time and risk in the use of capital by the project.

Importance of the Concept of Cost of Capital

The concept of cost of capital is crucial in financial management and can be pegged to the four important finance decisions of working capital management, investment decision, earnings management decision and the financing decision.

Cost of capital can be used as a financial standard for evaluating investment decision. An investment is accepted if it has positive NPV. In calculating this NPV, cash flows are discounted to their present worth using an appropriate discount factor (K), which is the cost of capital in that case. This factor is common to all the other discounted appraisal techniques i.e. IRR and profitability index.

In designing the firm's capital structure i.e. financing decision, the cost of capital concept plays a central role. Capital structure of the firm is influenced by the financing mix, which is the proportion of debt to equity. In designing the financing policy of the firm, attention should be placed on minimizing the overall cost of capital. A decision to finance the firm by either debt or equity will depend on the cost of each individual source to determine an appropriate capital structure that will maximize wealth to shareholders.

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A decision to pay or not to pay dividends to shareholders can have implications on the wealth of the firm through cost of capital. Firms that pay constant and stable dividends are usually perceived as less risky. Shareholders will attach a lower required rate of return on such a firm which constitutes the cost of capital.

The concept of cost of capital also plays an important role in the decision to invest in short term assets (working capital management). For example, when making decisions in respect to increasing investment in debtors/receivables, the marginal rate of return is compared with the required rate of return, which is the cost of capital.

CONCEPTS IN COST OF CAPITAL

Specific cost of capital Vs, overall cost of capital (weighed average cost of capital)

Specific cost of capital is the cost of capital of each individual source of capital also known as component cost of capital. You can have specific cost of debt, specific cost of ordinary shares and specific cost of retained earnings etc

In practice however, firms usually employ various sources of funds to comprise the capital structure and not individual sources. Therefore, a combined source of all sources of capital is called overall source of capital, the cost of which is known as the overall cost of capital.

Historical Cost of Capital Vs Future Cost of Capital

Historical cost of capital refers to the cost of capital that has already been raised and is being used by the firm. On the other hand, future cost of capital is the cost of capital, which we intend to raise in the future.

Weighted Average Cost of Capital Vs Weighted Marginal Cost of Capital

Weighted average cost of capital refers to the original cost of capital (historical) as compared to the additional cost of capital (weighted marginal cost of capital which is a future cost of capital).

DETERMINING COMPONENT/SPECIFIC COST OF CAPITAL

Specific Cost of Debt:

Specific cost of debt is the minimum rate of return that the business should earn from its investment if it is to justify using borrowed funds to cover these investments. Cost of debt is reflected in two aspects i.e. in the fixed financing obligations which the business must incur i.e. interest and in some cases lease rentals and the second aspect being the principal amount to be paid.

Debt can be redeemable i.e. have a definite maturity period or irredeemable/perpetual i.e. have no definite maturity.

In case of redeemable debt, cost of debt is calculated as;

$$P_0 = \frac{I_1}{(1+kd)^1} + \frac{I_2}{(1+kd)^2} + \frac{I_3}{(1+kd)^3} + \dots + \frac{I_n}{(1+kd)^n} + \frac{MV_n}{(1+kd)^n}$$

$I - I_n$ is the periodic interest of borrowing.

kd Cost of debt which we are looking for

P_0 Market value of the debt instrument

Example:

JC Ltd wishes to raise additional funds by issue of its long-term corporate bonds. If it issues a Shs.100,000 bond, with a coupon (interest) rate of 18% and has a maturity period of 10 years and on issue, it trades for Shs.150, 000 on the market. Determine the cost of this bond or the minimum rate of return that J.C Ltd should expect from its investments.

$$\begin{aligned} I &= 18\% \times 100,000 = 18,000 \\ 150,000 &= \frac{18,000}{(1+kd)^1} + \frac{18,000}{(1+kd)^2} + \frac{18,000}{(1+kd)^3} + \dots + \frac{18,000}{(1+kd)^n} + \frac{100,000}{(1+kd)^n} \end{aligned}$$

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$$(1+kd)^1 \quad (1+kd)^2 \quad (1+kd)^3 \quad (1+kd)^{10} \quad (1+kd)^{10}$$

Assume a rate e.g. 10%.

$$150,000 = 18,000 (PVA_{10, kd}) + 100,000 (PV_{10, kd})$$

$$150,000 = (18,000 \times 6.1446) + (100,000 \times 0.38554)$$

$$150,000 = 110602.8 + 38554.$$

$$150,000 \neq 149,156.8$$

Since 10% the figure is lower than 150,000, get a lower rate i.e. 5%.

$$150,000 = 18,000 \times (PVA_{5, kd}) + 100,000 (PV_{5, kd})$$

$$150,000 = (18,000 \times 7.7217) + (100,000 \times 0.61391)$$

$$150,000 \neq 200,381.6$$

Lower rate + $\frac{\text{Difference between PV cash flow at L.R. \& RRR} \times \text{Diff. btn L.R \& H.R}}{\text{Difference between PV cash flows LR \& HR}}$

$$0.05 + \frac{50381.6}{51224.8} \times 0.05$$

$$= 0.099 \times 100$$

$$= 9.9\%$$

If the debt is irredeemable/perpetual, then

$$kd = \frac{I}{P_0}$$

The above cost of debt is nominal. Interest expense on borrowing is a tax deductible expense and therefore it reduces taxable Y for the business. Interest provides a tax shield for the business and when tax is incorporated we obtain the real cost of debt as;

$$K_d = \frac{I}{P_0} (1-t)$$

$$kd = \frac{18,000}{150,000} \times (1 - 0.3) = 8.4\%$$

Note: Cost of debt can be determined by contractual terms

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Cost of Preference Share Capital:

It is the minimum rate of return that the business should earn from its investments financed by funds from preference share capital. The cost of preference share capital is reflected in the preference share dividends that the business pays out. Preference shares can also be redeemable & irredeemable.

For redeemable preference shares, their cost is determined as;

$$P_0 = \frac{D_1}{(1+k_p)^1} + \frac{D_2}{(1+k_p)^2} + \frac{D_3}{(1+k_p)^3} + \dots + \frac{D_n}{(1+k_p)^n} + \frac{MV_n}{(1+k_p)^n}$$

$D_1 - D_n$ - Dividend on the preference share.

MV - Maturity of preference share.

P_0 - Market value of preference share.

In case the preference share is irredeemable

$$K_p = \frac{D_p}{P_0}$$

Note: In some cases, preference share capital is predetermined.

Cost of Ordinary Share Capital:

It is the minimum rate of return that the business should generate if it is to justify utilization of funds from ordinary shares in a given investment. Cost of ordinary shares is reflected in the ordinary share dividends. Ordinary shares are not redeemable. Their cost is determined as;

$$K_e = \frac{D_1}{P_0} + g$$

D_1 - Dividend in the immediate year (easily predictable)

g - growth rate in dividends.

Cost of debt can be determined by contractual terms and cost of preference shares can be predetermined. But with ordinary share capital, cost is determined based on

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the level of earnings (EAT) and continues to be complicated to predict earnings the further away you go into the future. Even when earnings are made, dividends will also depend on the priority of the board of directors and management.

Ordinary shares are normally floated on the market which implies costs e.g. brokerage commission, legal fees, underwriters fees, etc. These comprise the floatation costs and have an effect of reducing proceeds from the sale of shares and therefore have an impact on the cost of ordinary shares. The formula therefore has to adjust to reflect these costs.

$$K_e = \frac{D_1}{P_0 (1-f)} + g$$

NB: Floatation costs changes cost of ordinary share capital.

Cost of Retained Earnings:

Retained earnings are funds internally generated from operations. They have a cost associated with them in form of opportunity cost and are therefore not cost free. This cost is reflected in the returns which the shareholders would normally expect like in the case of ordinary share capital. In essence, retained earnings belong to ordinary shareholders only that they have not been distributed. Their cost is therefore determined in the same way as ordinary share capital but without floatation costs.

$$K_{re} = \frac{D_1}{P_0} + g$$

OVERALL/WEIGHTED AVERAGE COST OF CAPITAL

This is the required rate of return on the entire pool of funds deployed by the business.

To determine this weighted average cost of capital, you have to go through the following steps:-

- i) Determine the specific costs of capital.
- ii) Determine the proportions of each source of funds.
- iii) Determine the weighted cost of capital for each source of funds, and;

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- iv) Aggregate (sum) the individual weighted cost of capital to determine the overall cost of capital.

E.g.

HANS Ltd. is currently using the following source of funds;

Bonds	-	400,000,000
Preference shares	-	300,000,000
Ordinary shares	-	500,000,000
Reserves	-	<u>300,000,000</u>
		<u>1,500,000,000</u>

The bonds/debentures were issued as irredeemable bearing an interest rate of 25% and have a nominal value/face value of Shs.200,000 each. The going market rate for these debentures is Shs.280,000. The preference shares are in denominations of Shs.20,000 per share and with a dividend rate of 12½%. Ordinary shares were issued at a face value of Shs.80,000 per share and initial dividends were estimated at 16%. The shares are trading for Shs.110,000 in the market and are anticipated to grow at a rate of 12% p.a. Floatation cost on these shares are Shs.2,000 per share and the business is in the 30% tax bracket.

Required:

Determine the overall cost of capital for HANS Ltd.

[Step 1] specific costs.

- (a) Specific cost of debt.

$$k_d = \frac{50,000}{280,000} (1 - 0.3)$$
$$k_d = 125\%$$

- (b) $k_p = 12\frac{1}{2}\%$ i.e. is predetermined.

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$$(c) \quad K_e = \frac{12,800}{110,000(1-0.018)} + 0.12 \quad f = 2,000 = 0.018$$
$$= 24\%$$

$$(d) \quad K_{re} = \frac{12,800}{110,000} + 0.12$$
$$= 23.6\%$$

[Step 2] - Proportions.

Bonds	-	400m/1.5b	=	0.27
Preference shares	-	300m/1.5b	=	0.2
Ordinary shares	-	500m/1.5b	=	0.33
Reserves	-	300m/1.5b	=	0.2

[Step 3] Determine overall cost of capital:

				(3x4)
Source (1)	Amount (2)	Prop. (3)	Sp.Cost (4)	Weighted cost
Bonds	400m	0.27	0.125	0.033
Preference shares	300m	0.20	0.125	0.025
Ordinary shares	500m	0.33	0.24	0.079
Reserves	<u>300m</u>	<u>0.20</u>	0.236	<u>0.047</u>
	<u>1.5bn</u>	<u>1.00</u>	WACC	<u>0.185</u>

Overall Cost of K = 18.5%:

The weighted average cost of capital/overall cost of capital is actually historical and may not be appropriate in the evaluation of future investments, which are likely to be futuristic. This is because the past conditions under which these funds were raised may not be a reflection of the future conditions under which additional funds should be raised. Thus, if additional funds are to be raised, the financial manager has to determine the marginal cost of such funds.

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E.g.: Suppose in the e.g. of HANS Ltd., the business needs an additional Shs.400m to finance a recently identified viable investment project. In raising these additional funds, it is the desire of the business not to alter its existing capital structure of the additional Shs.400m. Shs.50 million will come from retained earnings. New debentures/bonds will be issued. They will have a coupon rate of interest of 10% and a face value of Shs.150,000. It is expected that they will sell for Shs.170,000 on issue. Because additional ordinary shares will be issued, the price of ordinary shares will fall to Shs.90,000. The new ordinary shares will have a face value of Shs.100,000. Particulars about floatation and dividends remain the same. A new irredeemable preference share will be issued at a face value of Shs.70,000. Dividend rate on these shares will be 15% and the business will remain in the 30% tax bracket.

Required:

Determine the overall cost of capital (marginal cost of capital) after the new funds have been raised.

$$k_d = \frac{15,000}{170,000} (1 - 0.3) = 0.062 \text{ or } 6.2\%$$

$$k_p = 15\% \text{ or } 0.15$$

$$k_e = \frac{16,000 + 0.12}{90,000(1 - 0.02)} \quad f = 2,000$$

$$k_e = \frac{16,000}{88,200} + 0.12 = 0.30 \text{ or } 30\%$$

$$\begin{aligned} k_{re} &= \frac{16,000}{90,000} + 0.12 \\ &= 29.7\% \text{ or } 0.297 \end{aligned}$$

New Proportions:

Source	Amount	Proportion	Specific Cost	Weighted Cost
Bond	108	0.27	0.062	0.01674

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Pref. Shares	80	0.20	0.150	0.03
Ord. share capital	162	0.405	0.300	0.1215
Reserves	<u>50m</u>	<u>0.125</u>	<u>0.297</u>	<u>0.037125</u>
	<u>400m</u>	<u>1.00</u>	WMCC	<u>0.205365</u>
		WMCC =	20.5%	

The weighted average cost of capital whether historical or future is applied to all investments that are being evaluated once it has been determined from the capital structure and therefore is dependent on the financing sources. It is not dependent on the nature of the investments that the business is supposed to undertake e.g. poultry, piggery, apiary, dairy shouldn't be evaluated using the same WACC. Because they have different risk profiles to be used on all projects as constant.

The discount rate should reflect the risk associated with the investment other than reflecting the financing method. The WACC is therefore a bit inappropriate. As a financial manager, you have to obtain a required rate of return (Cost of capital), which is investment specific. This can be done by using the capital asset pricing model.

CAPM:

This model seeks to determine price/RRR/cost of capital of an investment depending on the risks associated with the investment. The model assumes that the market from which funds are raised are generally efficient.

Model formula

$$Er_j = RFR + \beta_j(R_m - RFR)$$

$$Er_j = \text{Expected return on asset } j \text{ (Cost of capital)}$$

$$RFR = \text{Risk free rate of return (e.g. on government securities)}$$

$$\beta_j = \text{Beta coefficient (Measure of the market risk/systematic risk of asset } j.)$$

$$R_m = \text{Return on the market portfolio.}$$

CHAPTER FIVE

WORKING CAPITAL MANAGEMENT DECISION/LIQUIDITY MANAGEMENT

The important decisions in working capital management include;

- i) Determining the level of working capital to be kept in the organization, and;
- ii) Determining how this working capital should be financed

In the broadest sense, working capital refers to the firm's investment in current assets. It is the short-term capacity that enables the business to operate the long term assets of the firm on a daily basis.

There are two concepts of working capital i.e.;

- a) Gross working capital which is the total current assets e.g. cash, inventories, debtors, etc. and ;
- b) Net working capital, which is the difference between current assets and current liabilities.

Net working capital is more relevant than gross working capital and can be positive or negative. A positive net working capital will arise when current assets exceed current liabilities and a negative networking capital arises when current liabilities are in excess of current assets.

THE IMPORTANCE OF WORKING CAPITAL

Working capital provides the firm with short-term capacity to operate. It is important because it ensures that the firm can meet its day to day obligations as and when they fall due. This is sometimes referred to as the liquidity of the firm.

The long-term capacity of the firm to produce will be of no value unless it is used efficiently on a daily basis so as to earn a steady amount of profit through successful sales activity. Therefore, the firm has to invest in current assets in order to support a successful sales activity.

In brief, the need for current assets arises because of the concept of the operating cycle. The operating cycle is the time duration required to convert sales into cash. It starts with purchasing of raw materials, convert them into finished goods, then sell the finished goods (in cash or on credit) and if it is on credit, collect money from debtors to get cash, which is used to purchase raw materials hence a cycle.

In summary, we need working capital in order to;

- i) Maintain liquidity of the firm.
- ii) Support a steady sales activity through a steady operating cycle.

Challenges/Problems Faced by a Financial Manager in Managing Working Capital.

The major challenge or questions are;

- i) How much working capital should the firm keep?
- ii) How are those resources going to be financed?

i) Working capital of a firm is divided into fluctuating or temporary working capital and permanent working capital.

The minimum level of current assets which are continuously required by the firm to carry on its business operations is known as permanent working capital. The extra working capital needed to support changing production and sales activities is called temporary working capital.

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A firm should maintain a sound working capital position to run its operations. Excessive working capital means idle resources, which earn no profit. Inadequate working capital impairs the firms' liquidity resulting into production interruption and inefficiencies.

A manager who is risk averse keeps high levels of working capital to enable him meet any eventuality and is able to meet all obligations as they fall due (liquidity). However, a high investment in current assets would mean a low return on investment (profitability) since excess working capital is idle.

A manager who is a risk-taker makes a small investment in current assets. His focus is profitability through investing all idle resources in profitable ventures. However, this may lead to the firm's inability to meet day to day operations/obligations leading to failure to meet customer needs, loss of market share, etc. ***Overtrading** (a situation where a financial manager invests highly in profitable ventures to boost profitability while keeping low levels of current assets which may comprise liquidity).

NB: The above scenario looks at profitability vs. liquidity of the firm also known as risk-return tangle or trade off.

As you may realize from the above two extreme positions (of liquidity and profitability) are undesirable. It is therefore desirable for the financial manager to determine optimal levels of current assets by balancing profitability and liquidity i.e. have a profitability liquidity trade off.

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An aggressive manager will finance all the current assets through short-term financing (cost of short-term financing lower than long-term financing). Due to low costs of financing, the firm may earn higher profits. However, this approach will lead to exposure of the risk of illiquidity i.e failure to meet its financial obligations when they fall due.

NOTE: Manager focuses on pursuing profitability.

(b) **Conservative Working Capital policy:**

A conservative manager is most likely to finance a greater part of a company's current assets with equity and long-term debt (long-term sources of finance). This approach tends to reduce the profitability of the company because on average, costs of long-term sources of funds tend to be higher than costs of short-term sources of funds. However, this alternative is less risky because there are less chances of the company failing to meet its maturity obligations.

TRADE OFF BETWEEN RISK AND RETURN.

A financial manager should adopt a financial plan that involves matching of the expected life of the assets with the expected life of the source of funds to finance the assets (matching principle) i.e. the benefit derived from the asset should be able to liquidate the source of funding used e.g. if you want to acquire an asset of a life of 5 months, you should source for a source of funds of 5 months duration. Hence, when a financial manager uses the matching principle towards financing of working capital, it means the more permanent components of working capital are financed using more permanent sources of funds while the temporary requirements of working capital are financed using short-term sources of funds.

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Factors that influence the level of working capital needs of a firm;

- i) Nature and size of the business.
- ii) The operating cycle - the longer it is the more working capital you need.
- iii) Sales growth and sales stability - if sales are stable; there is no need of keeping large amounts of working capital.
- iv) Demand conditions - business fluctuations affect working capital requirements especially temporary working capital requirements of the firm.
- v) Credit policy
- vi) Production policy, etc.

MANAGEMENT OF CASH RESOURCES

Cash refers to current money in hand or readily available. Cash therefore includes actual money held in the hands of the public and cash deposits in bank accounts.

Cash resources are very vital for any firm because most if not all basic inputs are acquired through the medium of cash. It is also important because it is the basic output of firm i.e. investors want/expect cash.

Why Cash Resources?

The need for cash resources can be explained by the classical motives of holding cash in the organization i.e.;

- i) The transactions motive - Cash is needed to carry on day to day transactions of the firm e.g. payment for labour payment for suppliers and utilities, acquisition of r/mats, etc.
- ii) Precautionary motive - To cater for any unforeseen situations e.g. breakdown of machinery, interruptions in the sources of supply,
- iii) Speculative motive - cash is also needed to take advantage of any profitable opportunities as and when they may arise e.g. a fall in prices of inputs, taking advantage of share prices, etc.

Optimal Cash Balances:

As seen from the motives for holding cash in the organization, it can be concluded that it is mandatory to hold these resources. Therefore, the issue at hand in an organization is not whether to maintain cash rather the level of cash to keep in the organization. Excessive cash balances are not ideal because they make the business forego potential return. Inadequate balances are not ideal either because they imply that the business may be illiquid with the attendant implications.

There is therefore need to trade off between liquidity and profitability (return) so as to have optimal cash balances i.e. balances that are not too high to jeopardize returns nor balances which are too low to threaten the liquidity position of the firm.

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A risk averse manager maintains high cash balances which boost liquidity of the firm but he foregoes return (profitability) because cash balances are idle and usually attract no or low return.

A risk-taker manager will maintain low cash balances which implies high returns through investment in profitable ventures but the business may be threatened with insufficient cash to meet short-term obligations as and when they fall due.

CASH MANAGEMENT POLICY AND TECHNIQUES

To be able to determine optimal cash balances where both liquidity and profitability are achieved simultaneously, the manager should have a cash management policy spelling out;

- i) Management of cash inflows (efficient collection).
- ii) Management of cash outflows (management of disbursements).
- iii) Management of surplus cash balances (temporary investment of cash).

When cash inflows and outflows are properly synchronized, then there will be no problem in managing cash. This would imply a zero balance between inflows and outflows i.e. a situation of no surplus or deficit meaning that what is needed is what is available and what you get is what you spend. This is referred to as the concept of “zero cash balance.”

This is an ideal situation and in the reality cash inflows and outflows rarely match. However, there are two broad strategies that can be followed to try to achieve a “zero cash balance” situation. These include;

- i) Management of cash receipts and cash disbursements
- ii) Management of surplus and deficit cash balances.

Management of Cash Receipts and Cash Disbursements

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A business will either have a surplus when cash receipts exceed disbursements and a deficit when disbursements exceed receipts. In order to synchronize the two so as to have zero net balances, the financial manager should design measures aimed at;

- (a) Acceleration of cash receipts.
- (b) Delaying payments / disbursements.

Acceleration of cash receipts into the firm may include the following;

- i) Offering incentives to ensure that clients / customers pay earlier.
- ii) Ensuring efficiency of the internal process of preparing and dispatching customers' invoices.
- iii) Offering cash discounts.
- iv) Normally, there are credit transactions where payment is made by cheque. When payment is by cheque, there will be a concept of float. The float refers to that period between when the customer writes the cheque and when it is transformed into cash and credited on the account of the firm. This float may be unnecessarily long and this may be as a result of;
 - 1. Time the cheque spends in transit (mailing float)
 - 2. Time it takes the business to process the cheque internally (processing float) for record keeping and accounting.
 - 3. Time it takes in the clearing process of the banking system (availability float).

This float needs to be reduced. Management of this float can be achieved by;

A. Decentralized Collections - Large firms operating over wider geographical areas

(e.g. U.E.B) can speed up collections by following a decentralized collection procedure. Under this system, a firm will have a large number of bank accounts operated in areas where the firm has its branches. Collection centers are established which collect cheques from customers and deposit in their local bank accounts. Funds can then be transferred to a central or concentration

bank by wire transfer, telex, fax, or electronic mail. This procedure will ultimately reduce float (i.e. mailing, processing). It however requires a well-developed banking system.

- B. Lock Box System** - Under this system, the firm establishes a number of Collection centers and at each center hires a post office box and instructs its customers to mail their cheques/remittances to the box. The bank in that area will then be authorized to pick the cheques directly from the box and deposit them in the firms account. The bank then prepares records of cheques picked which are availed to the firm for internal accounting purposes. This reduces collection float but has attendant costs since the bank charges fees or requires a minimum balance to be maintained. This system is not common in Uganda but is used by firms in U.S.A and European countries.

Delaying Payments / Delaying Cash Disbursements:

In adopting this strategy, the financial manager must ensure that it operates without hurting the corporate image of the firm or defaulting on the obligations of the business. Delaying payments can be done by;

- i) Exploring credit stretching possibilities;
- ii) Making payments through the bank because you take advantage of the processing time i.e. 3-4 days.
- iii) Centralizing payments. In this way, the firm buys time e.g. payment made at headquarters in Kampala yet transaction was in Gulu.

Managing Surplus and Deficit Cash Balances:

Despite the efforts to match cash inflows and outflows, the firm will always find itself with a cash balance. This balance can either be a surplus or deficit and needs to be planned for. Surplus cash balances represent idle resources and should be invested to earn a return. However, when investing, the manager should be mindful of;

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- i) Safety of the investments such that the need for profitability does not increase the risk of liquidity. These investment instruments should have a low default risk so that return in form of interest and principal is realized e.g. investment in fixed deposit accounts and treasury bills.
- ii) Marketability - Can be sold quickly and easily i.e. to convert them into cash with minimum possible loss.
- iii) Profitability i.e. should give a reasonable rate of return.
- iv) Instruments should have short maturity periods in order to minimize risk of economic fluctuations.

For the case of deficit cash balances, the firm needs to make arrangements to finance these deficits in advance to avoid panic measures which may result into high costs of financing. Therefore, there is a need for a cash planning system, which generates regular and reliable reports (cash budgets). In such cash plans, the following activities are undertaken.

- a) Anticipate the firms' future cash needs over a definite period of time.
- b) Anticipate the firms' cash sources over the same period of time.
- c) Determine the periodic cash balances (whether deficit or surplus) and plan how to manage these balances.

After cash planning, i.e cash budget or statement of forecasted cash receipts and payments is made.

* Look at format of cash budget - To be covered in detail under financial analysis and planning.

MANAGEMENT OF INVENTORIES

Broadly, inventories include raw materials (inputs) work in progress (inputs that have entered the production process but have not yet been fully processed), finished products which have not yet gone to the market) and supplies (which are essential in operations but do not go directly into the production process e.g. stationery, oil, fuel, etc.

Importance of inventories

The importance of inventories is derived from the nature of the production process i.e. inputs - transformation - output which also corresponds to the functions of procurement / purchasing, production/operations and marketing.

Procurement can be disrupted by external factors (unreliable supplier) or internal factors (inefficiencies in procurement function through e.g. bureaucracies). These factors imply that the production function will be disrupted due to lack of inputs to transform. Inventories (raw materials) therefore mean that if you have a problem with procurement, you will not run out of production. These raw materials are said to decouple the purchasing function from the operations function resulting into a smooth flow of activities.

Secondly, the production function is in stages with one stage feeding the other. If there is a breakdown at one stage, the transformation process will stall. Keeping inventories of work in progress facilitates continuous production flow. It is then said that inventories of W.I.P. decouple the operations of the different stages of production and therefore ensure a smooth flow of operations.

Thirdly, market demand is not predictable. There may be an increase in demand for the firm's products, which would require the firm to have inventories of finished products to meet this demand. Finished products therefore decouple the marketing function from production.

Question: Discuss the decoupling function of inventories

Generally holding inventories has the same motives as those of holding cash i.e.

- i) Transaction motive - to facilitate smooth production and selling operations.
- ii) Precautionary motive - to cater for unforeseen circumstances
- iii) Speculative motive - to take advantage of price changes

Importance of inventories management

From the above discussion, it is evident that keeping inventory is necessary and therefore unavoidable. The issue for managers is to determine

- i) The level of inventory to keep and
- ii) When does the firm get order for it.

These 2 aspects are important because of the cost factor.

Inventory costs include:

- i) Acquisition costs (ordering costs).
- ii) Carrying costs (holding costs)
- iii) Opportunity costs (unnecessary tied up funds leading to loss of profits).

Ordering costs

These are costs you have to incur in order to get inventories into the organization i.e. incurred from the time of placing the order to the time of receiving the inventory. They include administration costs preparing and dispatching orders, phone charges, transportation, inspecting, offloading, etc. If a firm maintains high levels of inventory, there will be fewer orders placed and therefore ordering costs will be relatively low.

$$\text{Ordering costs} = \frac{(A)O}{Q}$$

A - Total annual requirement of inventory (annual demand)

Q - Order size

O - Cost per order.

Carrying costs

These are costs incurred by the firm as a result of keeping inventory by the firm on its premises. They include storage costs, pilferage, insurance, lighting, security, deterioration, obsolescence, evaporation, etc. The more the inventories kept, the higher these costs become.

$$\text{Carrying costs} = \frac{(Q)C}{2} = \text{Average stock} \times \text{carrying costs per unit.}$$

Managers therefore should realize that there are benefits of keeping inventories but there are also costs associated with inventories. The challenge therefore to

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determine an optimal level of inventory that will enable the firm to have a trade off between the benefits and costs of maintaining inventories.

Minimizing costs / approaches to Inventory Management

There are 3 approaches i.e.

- i) Economic order quantity model (EOQ)
- ii) Just - In - Time Approach.
- iii) ABC analysis

Economic order quantity model

Economic order quantity model - This model seeks to minimize costs of inventory while are the same time maximizing benefits associated with inventory.

Assumptions of the model include:-

- i) Total annual demand is known over the planning period with certainty and is constant.
- ii) When inventory is depleted, replacement is instantaneous i.e. there is no lead time (i.e. time between placing on order and when you receive the goods). Hence lead-time = zero.
- iii) The ordering cost per order is known with certainty and is constant.
- iv) Carrying costs per unit is known with certainty and is constant.

The economic order quantity is that order size where annual total ordering costs and holding costs are at the minimum.





At EOQ, total costs are at a minimum

TC = total carrying costs + total Ordering costs.

$$TC = \frac{(A)}{Q} O + \frac{(Q)}{2} C = AOQ^{-1} + \frac{1}{2} QC$$

$$\frac{\delta TC}{\delta Q} = -1AOQ^{-2} + \frac{1}{2} C$$

$$\delta Q$$

$$\frac{\delta TC}{\delta Q} = 0 = -AOQ^{-2} + \frac{C}{2}$$

$$\delta Q \quad \quad \quad 2$$

$$AOQ^{-2} = \frac{C}{2}$$

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$$\frac{AO}{Q^2} = \frac{C}{2}$$

$$2AO = Q^2C$$

$$Q^2 = \frac{2AO}{C}$$

$$Q = \frac{\sqrt{2AO}}{C} = \text{EOQ}$$

From the assumptions of EOQ

From the Sea Saw graph, when inventory is depleted, it is instantaneously replenished.

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EOQ is important in determining the optimal level of inventory, you should keep. It however has weaknesses which are found in its assumptions (i.e. unrealistic). How do we address the weaknesses in the EOQ model? The model has to be adjusted to reflect uncertainty. This can be done by maintaining safety stocks, which help in case of unsuspected demand, changes in carrying costs and ordering costs and where there is lead time. To incorporate safety stocks, we can illustrate this using a diagram.

- A -Delivery time stock - Inventory needed between when the order is made and when stock is received.

- B -Safety stock - stock needed to cover unforeseen / unusual usage of such stocks.

N.B. Recognize that safety stocks increase carrying costs.

How much safety stocks increase carrying costs. How much safety stock should be kept?

Issues to be considered include:

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a) Demand Pattern of products

If it is easily predictable then keep low levels of safety stock and vice versa if it is unpredictable.

b) Efficiency / reliability of purchasing function.

How reliable are suppliers. If they are reliable, keep low safety stocks. You should also look at your internal efficiency of the procurement function. If you are inefficient, keep high safety stocks.

Re-Order point

This is that inventory level at which an order should be placed to replenish the inventory. To determine re-order point.

Re-order point = lead time x average usage

Average usage = $\frac{\text{Annual demand}}{\text{No of days in a year}}$

J.I.T INVENTORY MANAGEMENT

This approach challenges the basic tenets (principles) of EOQ. It argues that there is no need to acquire and hold inventory in the organization until the time of utilization. The basic requirements that facilitate use of J.I.T. include.

- i) The firm must know its production schedules such that you can tell the timing of inventory requirements.

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- ii) Firm must be organizationally efficient such that there are no internal rigidities that delay inventory acquisition and handling.
- iii) Supplier relationships must exist such that reliability of supplier is established.
- iv) Geographic concentration ie relatively short transit times(distances) from the vendor to the customers' plant
- v) Controlled transport system. The firm must own the delivery trucks or the trucks should be under contract to them

Selective Inventory Control (ABC analysis)

Usually firms maintain several types of inventory. Some items are more important than others e.g. compare raw materials and pins. ABC analysis stipulates that all inventory items in the business are not of equal importance and therefore calls for different levels of control on all items. The firm should pay maximum attention so those items whose value is highest. Inventory is classified under A(have high value and are very crucial), B (moderate value, are crucial but not very crucial) and C (low value, are crucial but not very crucial).

Apart from using the value / importance and critical yardsticks, you can also use expenditure to classify the inventory control will therefore be toughest on A then B then C.

Questions

- Examine the applicability of J.I.T. in organizations in Uganda.
- Explain the concept of optimality in relation to inventory management

MANAGEMENT OF RECEIVABLES / DEBTORS

Accounts receivables are created when credit is offered to a firm's customers who cannot make immediate payment. At any one time if you look at the balance sheet of a firm, you will find that a substantial amount of resources is tied up as debtors' balances.

It is therefore important to manage these debtors so that cash collections from them can be used to improve the liquidity position of the firm.

Importance of selling on credit / why invest in debtors?

In an ideal situation, a firm would wish to have its sales on a cash basis because cash sales are totally risk less - (i.e. no inflation effects, no exchange rate exposure, economic value in the goods / services passes immediately at the time of sale, etc) and provide instant liquidity to the firm. However, firms will insist on making sales on credit because of the following reasons:

- i) Credit is used as a marketing tool to expand sales or to push weak products on the market. It is important to note that, the primary objective of any credit policy is to increase sales.
- ii) Credit can be used as a weapon to manage competition. In this case, investment in debtors helps to attract new customers, retain old customers and to increase market share.
- iii) Most of the firm's customers may not be able to operate without credit being extended to them.
- iv) Firms sometimes extend credit to their clients to help build long term relationship with them or as a reward for their loyalty.
- v) Some firms offer credit because buyers demand for it especially where they purchase in bulk (high bargaining power)

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- vi) If the practice for firms in again industry is to give credit, new entrains in the industry will find it inevitable to extend credit to their customers too.;

However, the above benefits are achieved at a cost; these costs are associated with investing in debtors and include:

- i) Opportunity costs-Funds are tied up in debtors hence business opportunities such as expansion are foregone.
- ii) Administration costs e.g. having a department in the organization to supervise and investigate debtor's accounts.
- iii) Collection costs i.e. costs of sending reminding letters, phone
- iv) Production and selling costs charges, costs of litigation, (going to court), etc.
- v) Bad debt losses - some accounts receivables may be un-collectable and would require debts being written off.

At low levels of credit (stringent credit policy), the firm is emphasizing liquidity at the expense of profitability. At high levels of credit (lenient credit policy), the firm is emphasizing profitability at the expense of liquidity. Since these 2 positions are in conflict, then it is necessary to obtain a level of credit that optimizes the 2 objectives of profitability and liquidity.

To be able to determine this optimal level of investment in debtors. These include:

- i) The level of investment in debtors. The higher the level of sales, the higher the investment in credit and vice versa.
- ii) The credit policy of the firm. This includes credit terms, credit standards and collection procedures. If the policy is lenient, the more investment in debtors, credit is granted for longer periods and to customers whose credit worthiness is not fully known. The reverse is true under a stringent credit policy.

Credit Management Policy

This is a set of guidelines designed to minimize costs associated with credit, while maximizing benefits from it. A credit policy is based on 3 main controllable variables. These include:-

Credit standards

This is the criteria that the client should meet if he/she is to qualify for credit. The purpose of these standards is to enable the firm select clients who have the ability and willingness to pay back.

These standards can be set basing on the 5C's of credit.

- a) **Character**-The firm attempts to evaluate the traits of the applicant which give an indication as to the willingness to meet his / her credit obligations. This can be through bank references, marital status, level of education, previous dealings with the firm, etc.
- b) **Capacity**- the ability of a customer to pay the credit advanced to him the firm here analyses the applicant's financial status, bank references, trade references, credit rating reports, etc.
- c) **Capital**- This is the general financial condition of the firm as indicated by an analysis of its financial statements with special emphasis on risk ratios e.g. debt: equity, current ratio, etc.
- d) **Collateral**-In some situations the applicant may be required to offer security before credit is advanced. This security should be safe (no encumbrances) and easily marketable.
- e) **Condition**- This refers to the prevailing economic and other conditions which may affect the customers ability to pay e.g. inflation, transport costs, insecurity, etc)

Sources of Credit Information

Credit information can be obtained externally through credit associations. These associations meet frequently and correspond with one another to exchange

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information on credit customers. Another source is the credit reporting agencies which collect information and sell it for a fee. Examples of credit rating agencies include Dun and Bradstreet (D & B), Equifax etc,

A typical credit report would include the following pieces of information.

- i) Summary of balance sheet and Profit and Loss Account
- ii) Key ratios including trends
- iii) Information from firms banks, suppliers, etc on whether it pays promptly or slowly or whether it has recently failed to make payments.
- iv) Description of the physical condition of the firm's operations.
- v) Description of the background of the firm's owners including previous bankruptcies, lawsuits, fraud, etc.
- vi) A summary rating from A for the best credit risks down to F for those judged likely to default.

Credit Terms

These are the stipulations under which the firm sells on credit to its customers. They include (a) cash discount and (b) Credit period. Credit period is the length of time for which credit is extended to customers. It is generally stated in terms of a net date e.g. credit terms are "net 45" i.e. customers are expected to repay their credit obligations in 45 days. On the other hand, cash discount is a reduction in the amount to be paid to induce customers to repay credit obligations within specified period of time which is less than the normal credit period.

In practice, credit terms include

- i) the rate of cash discount
- ii) The cash discount period and
- iii) The net credit period

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For example, if a customer is given credit under the term “2/10, net 30” it means that if he meets his credit obligations within 10 days, he will pay the whole amount which should be made within 30 days.

Collection procedures / collection effort

These are procedures used to collect cash from debtors once credit has been extended. This should be done in an organized manner that will accelerate cash receipts from debtors without damaging the relationships with them.

Procedures to collect dues from slow paying of non-paying customers include:-

- a) Reminders -This should be a step by step process that involves
 - i) Sending credit notes to inform the debtor of the accounts due
 - ii) Send a polite letter to remind him of the amount due
 - iii) Send a stronger letter to remind the customer.
 - iv) Make personal contacts wither on phone or make actual visits.
 - v) If all the above steps fail, resort to legal action (litigation).
However, this should be as a last resort as it may include higher costs and loss of customer goodwill.
- b) Insuring debtors, i.e. take out an insurance policy on your debtors since these are assets of the firm.
- c) Factoring of debtors.
- d) Final write off. This involves writing off the debt as bad and therefore a loss to the business.

CHAPTER SIX

THE FINANCING DECISION

The financing decision is concerned with two major decisions i.e.

- i) Where funds should be raised from?
- ii) What proportion of the total pool of funds should each source take

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There are two broad sources of funds i.e debt and equity. Debt can be from short-term borrowing or long-term borrowing. Short-term borrowing plus long-term borrowing plus equity make up the financial structure of the firm whereas long-term funds i.e long-term borrowing plus equity make up the capital structure of the firm; i.e capital structure is a sub-component of the financial structure of the firm.

CAPITAL STRUCTURE OF A FIRM

Capital is the major part of all kinds of business activities, which are decided by the size, and nature of the business concern. Capital may be raised with the help of various sources. If the company maintains proper and adequate level of capital, it will earn high profit and they can provide more dividends to its shareholders.

Capital structure refers to the kinds of securities and the proportionate amounts that make up capitalization. It is the mix of different sources of long-term sources such as equity shares, preference shares, debentures, long-term loans and retained earnings. The term capital structure refers to the relationship between the various long-term sources of financing such as equity capital, preference share capital and debt capital. Deciding the suitable capital structure is the important decision of the financial management because it is closely related to the value of the firm.

The capital structure of a firm is important because it determines the level of leverage of the firm. Leverage refers to that situation when debt is employed in a firm. When debt exceeds equity, the firm is highly levered and if equity exceeds debt, the firm is lowly levered. Leverage has an influence on the financing risk. High levels of leverage pose a higher risk that the fixed financing charges may not be met and vice versa.

THE CAPITAL STRUCTURE DEBATE(READ)

PRACTICAL CONSIDERATIONS IN DECIDING THE CAPITAL STRUCTURE.

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1. **The existing level of leverage** - The existing level of leverage is shown by the debt to equity ratio. Firms with high levels of leverage should employ less of debt and more of equity and vice versa.
2. **Stability of sales** - Firms whose sales are stable can easily meet fixed financing obligations associated with debt hence can use more of debt than equity.
3. **Stage of growth** - Young and growing firms need funds for expansion for which internally generated funds may not be adequate. Such firms can use more of debt while mature firms can use more of equity.
4. **The need for control of ownership** - Use more debt
5. **Floatation and transaction costs** - These increase the cost of raising funds through equity.
6. **Bankruptcy costs.**
7. **Cost and availability of funds.**

SOURCES OF FINANCING:

The selection of the source of funds to be used by the firm largely depends on the purpose for which such funds are required. If funds are required for short-term purposes, then short-term financing should be considered and if funds are for long-term, long-term sources should be used. (This will require the financial manager to match the useful life of the source of funds with the useful life of the asset.)

SHORT TERM FINANCING

Funds available for a period of one year or less are called short-term finance. Such funds are normally available for financing of working capital and may take a number of forms shown below;

1. FUNDS FROM OPERATIONS:

These include;

- i) **Retained earnings.** These are internally generated from accumulated reserves and are used especially for financing permanent working capital.

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- ii) Spontaneous sources which accrue to the firm as long as the business is operational. Such sources include;

Trade credit

This refers to the credit that a customer gets from suppliers of goods and services in the normal course of business. The buying firm does not have to pay cash immediately for the purchases made. This source of finance is popular with small firms since they find it difficult to raise funds from banks or other sources in the capital markets.

Advantages of Trade Credit:

- It has no explicit costs e.g. interest.
 - It is flexible in that it grows with the growth in a firm's sales and vice versa.
- In addition, it only needs an understanding between the firm and the supplier.
- There are no complicated formalities in securing the credit since the firms (buying and selling) do not sign any legal document.
 - Trade credit is relatively easy to obtain especially to small firms, which generally face difficulty in raising credit from the capital markets and other financial institutions.

Disadvantages of Trade Credit:

Disadvantages of trade credit can be looked at in as far as implicit costs are concerned and these include;

- **Cash discounts foregone** - The buying firm will usually not benefit from cash discounts which would imply high cost (implicit) of such funds.
- **Firms buying on credit** may be offered less favourable terms of transacting like higher prices, no quantity discounts, transportation, etc.
- **Stretching of the credit period** by the buying firm may result into poor credit rating and loss of credit worthiness, which may result into cancellation of credit facilities.

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Accrued Expenses - These represent a liability that a firm has to pay for the services which it has already received. Examples include wages and salaries, taxes, interest and inefficiencies in the billing by suppliers, which leads to delayed settlement.

For accrued wages and salaries, the employees render services to the firm yet they are paid afterwards, usually at some fixed interval like one month. This source of finance is advantageous in that it has no explicit costs, is easy to obtain and involves no formalities. However, it is a very short-term source of funds in that legal and practical aspects constrain the flexibility of a firm in lengthening the payment interval. With accrued taxes, corporate taxes are paid after the firm has earned profits. These may be paid quarterly during the year in which the profits are earned. Like taxes, interest is paid periodically during a year while the borrowed funds are continuously used by the firm.

Deferred Income - Deferred income represents funds received by the firm for goods and services which it has agreed to supply in future. These receipts increase the firm's liquidity in form of cash and are therefore an important source of financing. Advance payments made by customers constitute the main item of deferred income. Payment for goods and services is made before delivery of the same. It is slightly cheap and flexible e.g. rental income.

Bank Credit

Banks can offer funds to firms in the following forms;

- Overdraft facilities
- Transaction loans and general purpose loans.

Under overdraft facilities, the borrowing firm is allowed to withdraw funds in excess of the balance in its current account up to a certain specified limit during a stipulated period.

Advantages:

- It is flexible i.e is dependent on banker/client relationship.
- There is no security (collateral) required.
- Available for longer periods - than for example accrued expenses.

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Disadvantages:

- It is an expensive source of funds in that the borrower must pay interest.
- There is also payment of commitment fees.
- Transaction loans are obtained for a specific transaction while general-purpose loans are obtained for general transactions. The advantage of such loans is that they can be extended for longer periods but have costs (attached) to them and these include;
 - i) interest expenses
 - ii) commitment fees
 - iii) compensating balances
 - iv) collateral security is required before obtaining such credit.

Money - market based credit

These markets offer short-term funding through buying and selling of short-term securities. Funds in these markets can be obtained by designing financial instruments such as bills of exchange, commercial paper, certificate of deposits and short-term government bonds and treasury bills.

Commercial paper is a short-term, unsecured note issued by large financially sound and high rated companies (blue chip) to raise short-term finance (usually issued in denominations of \$100,000 or more). The issuer promises to pay the buyer some fixed amount and interest at some future date. The issuer pledges no assets other than the liquidity and well established earning power to guarantee a good promise. They are normally issued as bearer certificates. The disadvantage is that whoever bears it becomes the owner.

Certificate of deposits are normally issued by banks and other financial institutions. It involves a time deposit made in the bank at a fixed rate of interest for a fixed period.

Factoring of debtors

This involves selling a firm's debtors to specialized institutions called factor firms. These firms undertake to collect the amounts from debtors and bear the bad debt

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losses when they occur e.g. if you have a debtors figure in your balance sheet as 100m and debtors have 90 days to pay yet you need the money urgently, then you can sell them to factor firms which pay you less e.g. 95m depending on the arrangement. They will then undertake collection from the debtors.

Other sources (miscellaneous) of short-term finance include loans from individuals/friends and disposal/sale of fixed assets.

LONG-TERM FINANCING:

These sources are normally sought finance assets for a long-term nature such as expansion of a product line, R&D, replacement of fixed assets etc.

These sources include;

1. Retained Profits:

These are accumulated reserves of a business which the business can plough back for investment.

Advantages:

- i) They are a cheaper and more reliable source of long-term finance.
- ii) They have no explicit cost other than the indirect cost of dividend due to the shareholders.

Disadvantages:

- i) They may not be adequate in young and growing firms.
- ii) May have a negative information signal to the market the firm is unable or is denying shareholders dividends.

2. Ordinary Shares / Common Stock.

This is a permanent source of financing with no maturity date. Ordinary shareholders are the legal owners of the business. Their major features include;-

- i) Have a residual claim on assets i.e in case of liquidation, the ordinary shareholders are paid last.
- ii) Have a residual claim on income i.e after bond and preferred holders have been paid. Their claims are also dependant on the board decision because funds can alternatively be retained for reinvestment.
- iii) As owners of the firm, they have voting rights i.e entitled to elect the board at the firm's annual general meeting. Can vote by proxy.
- iv) Limited liability to the amount of share investment in the firm.
- v) Re-emptive rights i.e have priority to buy newly issued shares.

Advantages to the firm:

- i) Dividend is not a fixed financial charge as compared to long-term debt. It is therefore not mandatory.
- ii) It is a permanent source of capital i.e has no maturity
- iii) By issuing its common stock, a firm increases its financial base and future borrowing capacity.

Disadvantages to the firm:

- i) Floatation implies costs making common stock an expensive source of capital compared to debt.
- ii) Issuance of new common stock may result into dilution of ownership and therefore will have implications on its control.
- iii) Dividends are not tax deductible, expenses making common stock an expensive source of finance through a high cost of capital.
- iv) Because ordinary shareholders perceive a high risk because of their nature (residual claims), they attach a high RRR hence using the cost of ordinary share capital.

Read: Advantages and disadvantages of ordinary shares to the investor / holder (Refer back)

3. Preferred Stock:

These are hybrid securities in that they have features of both bonds and common stock. Like bonds, the charges (dividends) of preference stockholders are fixed. Their major features include;

- i) Convertibility feature - Certain preferred stock issues are convertible into common stock at the option of the holder.
- ii) Cumulative feature - All unpaid dividends in any single year must be carried forward and paid before any common stock dividend is paid.
- iii) Claim on assets and income - Preferred stock has priority over common stock in claims on assets and income hence is safer than common stock.

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- iv) Participating feature - Preferred stockholders can in some special situations share in extra dividend with common stockholders.
- v) Adjustable rate feature - This is done to cater for inflation and interest rates e.g. $10\% +$ (at a premium) or $10\% -$ (at a discount).

Others include the call feature, voting rights in some special situations, etc.

Advantages to the firm:

- i) Dividends are mandatory but non-payment may not lead to liquidation like bonds.
- ii) Do not participate in extra dividends in good years.
- iii) Have no voting rights.
- iv) Inclusion of call options and sinking fund (funds set aside for calling back shares) allow firms with the ability to replace the issue if interest rate declines.

Disadvantages:

- i) Cost is higher than that of bonds since they are more risky and dividends are not tax deductible.
- ii) Although omitted, their cumulative nature makes their payment mandatory.
- iii) Usually preference shares are redeemable, making them a less permanent source of funds.

Read: Advantages and disadvantages to the investor / holder.

4. Bonds:

A bond is a long-term debt instrument issued by a corporation, government or government departments. Bonds usually have a maturity of 10 years or more. If the security has a final maturity shorter than 10 years, it is usually called a **Note**. Bonds are usually issued with a face value which is the amount returned to the bond holder at maturity. Bonds normally have a maturity date and are therefore rarely perpetual. Bonds can be issued as secured or unsecured.

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- i) Debentures - These are unsecured bonds of a corporation. The holder depends on the earning ability of the issuing firm.
- ii) Income bonds - Such bonds pay interest only if income has been earned by the issuing firm. Such bonds normally arise from corporate restructuring.
- iii) Convertible bonds - Have characteristics of other bonds but have an added feature that they can be converted into common stock.
- iv) Zero coupon bonds - Unlike the typical bonds (Non-zero coupon bonds), the zero coupon bonds promise interest payment during the life of the bond but only payment of the principal at maturity.
- v) Mortgage bonds - These are bond issues that are secured by a lien (creditor claim) on specific assets of the corporation(usually fixed assets)

Advantages to the firm:

- i) Bondholders have no voting rights.
- ii) Bondholders do not participate in extra profits of the firm.
- iii) Since bondholders perceive less risk, they attach a lower RRR.
- iv) Less expensive than any other source because interest is a tax-deductible expense and in addition, bonds do not have floatation costs.

Disadvantages:

- i) Bond obligations are usually paid irrespective of whether profits are made or not (apart from income bonds) and if they are not made, bondholders can call for bankruptcy charges.
- ii) Bondholders can institute restrictive covenants e.g restrict further borrowing, determine use of assets, determine when to pay or not to pay dividends, etc.

5. Leasing Financing

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Leasing financing is a method of financing normally in expensive assets such as aircrafts, ships, industrial machinery, etc. It involves a contractual relationship between the lessor and lessee (user). The lessor gives the right to use the asset to the lessee over an agreed period of time for a charge called a lease rental. At the end of the lease kt, the asset reverts to the lessor. However, depending on the lease kt, the lessee may be given an option to buy the asset or to renew the lease at the end of the kt period.

Read: Forms of lease financing i.e. Sale and lease back, Direct leasing, leveraged leasing etc.

Advantages:

- i) Can be a great advantage where initial outlays are high hence reduces outflow of cash.
- ii) The risk of obsolescence usually lies with the lessor since the lessor retains ownership of the asset.
- iii) Maintenance and service is usually the responsibility of the lessor.

Disadvantages:

- i) The firm foregoes investment allowances hence does not enjoy an element of tax incentives.
- ii) When assets revert to the lessor, it may cause a standstill in operations and cash flows.

Other sources include venture capital, long term loan, international syndicated loans.

CHAPTER SEVEN

DIVIDEND POLICY/EARNINGS MANAGEMENT DECISION

Dividends are a return to the shareholders/owners of the business. As a financial manager, you have to determine the amount of earnings to be distributed to shareholders and the amount to be retained in the firm. Retained earnings are a vital source of finance for the growth of the firm and dividends on the other hand are considered desirable to shareholders because they increase their current wealth.

When earnings are realized, the firms can either;

- i) Declare all earnings as dividends and distribute them to shareholders.
- ii) Retain all the earnings to help finance further growth.
- iii) To declare a portion as dividend and another portion to be retained in the firm.

Does the decision to pay or not to pay dividends matter?

There are two theories that have been advanced to explain the relationship between dividends and the value to the firm.

1. Irrelevance theory / Neo classical theory (School)
2. Relevance theory / classical / traditional theory (School)

Irrelevance Theory:

This school of thought was advanced by Modigliani and Miller (MM). According to MM dividend policy of a firm is irrelevant as it does not affect the wealth of the shareholders. The theory of MM is based on the assumptions of a perfect capital market, which include;

1. There are many buyers and sellers of securities such that no single dealer can single handedly influence the price of securities.
2. Information is freely available to all
3. There are no transaction and floatation costs when new issues are made.
4. There are no taxes both on corporate and personal income.

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5. Risk and uncertainty do not exist i.e. investors are able to forecast future prices and dividends with certainty and one discount rate is appropriate for all securities at all time periods.

MM argues that when the above conditions exist, the shareholders will be indifferent between current dividends and retention of earnings (future capital gains). Current dividends increase shareholders wealth holdings but additional shares / bonds have to be issued to finance viable investment projects. This will raise the risk perceived by investors resulting from dilution of ownership and therefore will attach a high RRR hence raising the cost of capital.

On the other hand, retention of earnings for further growth will result into a rise in wealth of the firm in future which will be translated into a capital gain which will completely offset the advantage of current dividends and dilution of ownership. Investors can also manufacture their own dividends (home made dividends) should they require current income.

It is the contention of MM that earnings be reinvested and that dividends should only be paid out if the firm has no profitable investment opportunities. This in finance is called the residual dividend (passive dividend policy) decision. The reason for this is that a firm derives value from its assets stock which generates cash flows.

The Relevance Theory:

This theory was advanced by Krishnan & Gordon who argue that the irrelevance theory is based on unrealistic assumptions. In the real world, markets are imperfect and uncertainty exists. Investors will therefore perceive current dividends as less risky than distant capital gains or future dividends, which will have an impact on the value of the firm. This is derived from the fact that they will perceive less risk and therefore attach a lower RRR, which will mean a lower cost of capital for the firm, which also means increased value or wealth. The relevance theorists base their arguments on the following;

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1. “The one-bird-in-hand and two in the bush” arguments.
The theorists argue that uncertainty exists. Investors will therefore perceive current dividends as less risky since return on investment is assured. Gordon asserts that risk increases with time and therefore risk averters will prefer dividends today than later. This implies that the discount rate increases with uncertainty. A firm that pays dividends earlier will command a higher value than a firm, which follows a retention policy.
2. Information content - According to this theory, payment of dividends signals good news to the capital market that the firm is doing well while a firm that doesn't pay constant and stable dividends sends a reverse message. Investors will perceive the former as less risky and therefore attach a lower RRR.
3. The need for diversification - Different investments have different risk profiles. Investors will prefer firms that pay dividends so that they can diversify their portfolios and therefore minimize their risk on investment.
4. Investors invest precisely to earn a return/dividend. Some of these investors depend on these earnings for their livelihood and would therefore prefer firms that pay dividends.
5. Presence of transaction costs - Costs in form of brokerage, underwriting, etc., may be too high and therefore discourage investors from making home-made dividends.
6. Presence of income tax for dividends and capital gains. For individuals, the tax on capital gains is usually lower than tax on cash dividends. Therefore, such an individual will prefer retention of earnings as opposed to cash dividend. However, for certain investment companies like pension funds whose funds are exempted from tax for their dividend incomes, such investors will prefer dividend incomes to capital gains.

Dividend Policy in practice:

Management in adopting a dividend policy must strike a balance between the irrelevance and relevance debate. This is because the use of retained earnings to finance further investments will raise future earnings per share while on the other

hand when dividends are paid, there may be a favourable reaction in the stock market but the firm has to forego some profitable investment opportunities.

A practical approach must therefore be adopted to determine whether to pay dividends or retain earnings. The following factors should be put into consideration.

1. **Legal consideration** - This focuses on the laws in relation to distribution of profits. The net profit rule states that dividends must be paid out of earnings and not from capital invested (capital impairment rule). The insolvency rule also states that a company cannot pay dividends when declared insolvent. Therefore dividends can only be paid out when the company has earned profits.
2. **Availability of profitable investment opportunities.** If a firm has identified profitable investment opportunities, it should retain earnings but if there are none, dividends should be paid.
3. **Access to capital markets** - Small companies may find it difficult to access funds from the capital market and banking sector. In this case, retained earnings would be preferred to paying out dividends. The level of development of the capital markets should also be put into consideration.
4. **Leverage position of the firm.** If the debt: equity ratio is high (high leverage), the firm will encounter difficulties in raising additional funds by borrowing. They will force the firm to rely on retained earnings to finance further investment.
5. **Desire for control** - Where shareholder of the firm fear loss of control if new issues are made, retained earnings will be used to finance the firm's investment opportunities and therefore little can be available for dividends.
6. **Preferences of the majority of the shareholders.** In situations where most of the shareholders prefer dividends today than financing future investments, then the firm has to pay dividends. In widely held companies, small shareholders will require constant dividends, retired and old persons will also require constant dividends. Institutional investors e.g. pension funds, insurance funds, etc., will prefer current dividends because the funds invested do not belong to them, whereas wealthy shareholders prefer retention of earnings for further investment and making capital gains to reduce on the tax burden.

7. **Restrictions in loan agreements** - Lenders may generally put restrictions on dividend payment to protect their interests in situations when the firm is experiencing liquidity or profitability difficulties.
8. **Management attitude towards risk** - Risk averse managers fear to contract debt and will therefore prefer retention of earnings.
9. **Income bracket of shareholders** - In a progressive tax system, if majority shareholders belong to the high-income bracket, they'll discourage payment of dividends because a higher portion will be slashed by taxes and therefore prefer capital gain while shareholders of low-income bracket would prefer cash dividends.

DIVIDEND PAYMENT PATTERN

1. **Constant sum per share** - In this pattern, a company pays a constant sum of money for every share held. For example a firm may declare to pay Shs.15,000 for each share per year as dividend. This is a relatively stable policy. Whether profits have fluctuated or not, it is paid. This policy is normally preferred by shareholders who depend on dividend income to meet their expenses e.g. pensioners. However, this policy can be a disadvantage to the financial manager in cases where there are sharp declines in earnings e.g. in a recession. Under this policy, the EPS and DPS relationship can be depicted as follows:-
2. **Constant payout ratio** - Here, the percentage of earnings paid out in dividends is held constant e.g. a company may declare that 10% of earnings should be paid out as dividend every year. It is vital to note that much as the dividend ratio is stable, the actual amount of dividend fluctuates from year to year as the profits fluctuate. This policy is likely to create some uncertainty in the minds of the investors. Here, EPS and DPS can be depicted as follows:

3. **A small regular dividend per year plus extra in good years** - A company may decide to pay a small regular dividend per year say Shs.3,000 per share plus extra dividend in periods of boom e.g. an extra 1% of earnings if they exceed a given amount. This policy is normally preferred by companies with fluctuating earnings. The small fixed dividend reduces the uncertainty of them missing dividend in a given year.

STABILITY OF DIVIDEND PAYMENT

Does the dividend payment pattern matter? One of the arguments advanced for the relevance of dividends is that it resolves uncertainty in the minds of investors. Thus, dividend payment has an implication on the value of the firm. Financial managers should have a stable dividend pattern. The justification being that:

- i) A stable dividend policy may convey valuable information to the market about the firm's future.
- ii) There are some investors who depend on dividend to meet their personal needs e.g pensioners.
- iii) Institutional investors such as pension funds, insurance companies, mutual funds etc., can only invest in companies, which pay stable dividends. This is because such companies use pensioner's fund, premiums of customers etc.

FORMS OF DIVIDENDS

Cash dividends: Companies normally pay dividends in form of cash. Firms that pay dividends in cash should have sufficient cash on their bank accounts or should prepare to liquidate the near cash assets (T.B's).

Stock dividend / bonus issue - This is where additional shares are issued to shareholders instead of a cash dividend e.g. if a 10% stock dividend is declared, that means that an investor with 10 shares will receive an additional share. This is obtained by $10/100 \times 10 = 1$.

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Therefore, the investor has 11 shares. This reduces the reserves account while raising the share capital account. Thus, the total net worth remains unchanged. Suppose a company ABC Ltd has the following capital structure;

Share capital 1000 shares at Shs.20, 000 each =	20,000,000
Share premium	5,000,000
Reserves and surpluses	<u>20,000,000</u>
Total capitalization	<u>45,000,000</u>

Assuming a 10% stock dividend is declared, the number of shares will rise by 100 to 1,100. If the market price per share is say 25,000, the total value of additional shares will be 2,500,000 which is transferred from the reserves account to the equity share capital and share premium accounts. The new capitalization becomes;

Share capital 1,100 shares each 20,000	22,000,000
Share premium	5,500,000
Reserves and surpluses	<u>17,000,000</u>
	<u>45,000,000</u>

Other schemes include stock splits and reverse splits.

i) **Stock splits** - Here; the number of shares is raised through a proportional reduction in the face value of the shares. The effect of this is that the face value and the number of outstanding shares change but the total shareholder funds remain unchanged. DMC Ltd has the following capital structure;

Share capital 2000 shares at Shs.10, 000 each	20,000,000
Share premium	4,000,000
Reserves and surpluses	<u>10,000,000</u>
	<u>34,000,000</u>

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If a 2 for 1 stock split is declared, this means that each share held is exchanged for 2 shares as the price per share is halved i.e face value reduces while the number of shares rises. For DMC Ltd., new capitalization would be

Share capital 4000 shares at Shs.5, 000 each	20,000,000
Share premium	4,000,000
Reserves and surpluses	<u>10,000,000</u>
	<u>34,000,000</u>

- ii) **Reverse splits** - Reverse splits are the opposite of stock splits. Reverse splits is where the number of shares is reduced so as to raise the value of the shares. E.g. in the above example, if a 1 for 2 reverse split is declared, then the new capitalization would be;

Share capital 1000 shares at Shs.20, 000 each	20,000,000
Share premium	4,000,000
Reserves and surpluses	<u>10,000,000</u>
	<u>34,000,000</u>

Rationale for Stock Dividends and Splits:

- i) The main objective of a stock split is to reduce the market price of the share in order to make it attractive especially to small investors.
- ii) If a company is encountering cash problems, it can substitute cash dividend with stock dividend.
- iii) Share splits are used by companies to communicate to investors that the company is expected to earn higher profits. The share split like bonus issue has an informational value that the firm is expected to perform efficiently and profitably and that the shares have been split to avoid future high price per share that may place the company outside the popular trading range.
- iv) Tax benefits. Cash dividends are taxed at personal income tax rates unlike stock dividends, which are not taxable.

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- v) Psychological value - when a stock dividend is declared, it is usually associated with prosperity of the company. Shareholders can sell part of their bonus shares to meet their current income needs.
- vi) Where there are restrictive loan agreements on cash dividends by long-term creditors, a stock dividend can be used to satisfy the shareholder's desires.

CHAPTER EIGHT

FINANCIAL STATEMENT INTERPRETATION AND ANALYSIS

Financial analysis is the assessment of two main features/characteristics of the organization. These are;

- (i) Operating performance of the firm over a given time of period.
- (ii) Financial position of the firm as at given points in time

This is done to determine the strengths and weaknesses in the financial position and operating results of the firm that arise as a result of financial decisions taken by the firm i.e. investment, financing, working capital management and earnings management decision.

Financial planning on the other hand charts the future course of action given the financial status of a firm. Financial planning is therefore basically concerned with preparation of forecasted statements and budgets, which indicate the future position of the business.

PURPOSE OF FINANCIAL ANALYSIS

Financial analysis is vital for those parties that want to make a decision about a business i.e. stakeholders (owners, creditors, employees, management, government and society in general). These stakeholders normally want to make more informed, rational and objective decisions about the firm. The financial analyst is concerned with:-

- (i) The liquidity position of the firm i.e. the ability of the firm to easily meet its short-term obligations as and when they fall due. This information is essentially needed by short-term creditors (including banks), short-term

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- suppliers and investors interested in buying short-term securities of the firm (e.g. commercial paper).
- (ii) The profitability position of the firm i.e. is the business generating adequate return to justify commitment of funds in the business? This information is of interest to present and potential investors and long term lenders.
 - (iii) The solvency is the firm i.e. the ability of the firm to provide for its long-term obligations and long term survival given the present capital structure. Such information would be important to investors, employees and long term lenders.
 - (iv) The efficiency of management in using resources at their disposal i.e. are the resources used efficiently to generate revenue or turnover? This would be of interest to owners of the business and management since it is entrusted with the assets of the firm.
 - (v) Market valuation of the business i.e. how does the market value the business. This information would be required by potential investors.

NATURE OF FINANCIAL ANALYSIS

The basis of financial analysis is the information obtained from financial statements or accounting reports. This information is needed to predict, compare, evaluate and analyze the earnings capacity of the firm. It is vital to note that the preparation of financial statements is in itself not enough because they indicate results in absolute terms e.g. current assets = 200m, Current Liability = 150m not indicating whether these figures are low or high. Information obtained from financial statements must be analyzed to provide a basis for planning. This can be done using the various tools of financial analysis so as to obtain meaningful information for purposes of decision-making.

There are 4 tools/techniques of financial analysis. These are: -

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- (i) Financial ratios
- (ii) Common size statements and index analysis
- (iii) Funds flow statements
- (iv) Budgeted or forecasted financial statements.

FINANCIAL RATIO ANALYSIS

A financial ratio shows the relationship that exists between two items on the financial statements. These items are normally expected to have a relationship e.g. Current Assets and Current Liabilities, debt and equity etc. Financial ratios indicate relative positions about the status of the business as opposed to financial statement information, which shows absolute information.

A Ratio on its own has little or no meaning at all and thus its significance can only truly be appreciated when:

1. It is compared with other ratios in the same set of financial statements.
2. It is compared with the same ratio in previous financial statements (**trend analysis**).
3. It is compared with a standard of performance (**industry average**). Such a standard may be either the ratio, which represents the typical performance of the trade, or industry, or the ratio which represents the target set by management as desirable for the business.

TYPES OF RATIOS

There are five main types of ratios to be considered;

- (1) Liquidity ratios
- (2) Profitability ratios
- (3) Activity/efficiency ratios
- (4) Gearing/leverage ratios
- (5) Investment ratios.

1. LIQUIDITY RATIOS

Liquidity refers to the ability of a firm to meet its short-term financial obligations when and as they fall due. The main concern of liquidity ratio is to measure the ability of the firms to meet their short-term maturing obligations. Failure to do this will result in total failure of the business, as it would be forced into liquidation.

(a) Current ratio

$$\text{Current Ratio} = \frac{\text{Current assets}}{\text{Current Liabilities}} \quad \text{e.g.} \quad \frac{400\text{m}}{100\text{m}} = 4:1$$

This means that current assets would have to decline by four times before the firm can fail to meet its short-term obligations. Generally, the higher the ratio, the healthier the liquidity positions. A ratio of 2:1 is conventionally recommended but the best ratio is the one, which matches the situation in the business and its nature.

A high current ratio is undesirable because it indicates an accumulation of current assets which assets are idle hence earn no return. On the other hand, a low ratio is also undesirable because it indicates that the firm's liabilities are over weighing the current assets. A suitable ratio that avoids both extremes should be sought. This requires firms to find out the average ratio of the industry so that they compare with the firms' ratios..

<i>Example:</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>
	0.85:1	0.92:1	0.98:1

In 2014, the company only had 85 cents worth of current assets for every shilling of liabilities. This grew to 92 cents in 2015 and 98 cents in 2016, indicating increasing trend on liquidity. However the company is still unable to support its short-term debt from its current assets.

(b) Quick asset ratio/Acid test ratio

Measures assets that are quickly converted into cash and they are compared with current liabilities. This ratio realizes that some of current assets are not easily convertible to cash e.g. inventory.

Clearly this ratio will be lower than the current ratio, but the difference between the two (the gap) will indicate the extent to which current assets consist of inventory. The ideal for many industries is 1:1

$$\text{Quick asset ratio/acid test ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

Generally a quick ratio of 1:1 is considered appropriate. However it is important to note that an appropriate ratio depends on the nature of the firm and condition under which it operates. It is advisable to keep a ratio as much as possible near the industry levels.

2. EFFICIENCY/ACTIVITY/TURNOVER RATIOS

These show how efficiently the resources of a firm are being utilized in as far as generation of sales revenue is concerned.

The ratios include

a) Inventory turnover and Inventory turnover period

Inventory turnover looks at the number of times inventory is turned over into cash, whereas inventory turnover period looks at how many times inventory is turned over into cash. The formulas are below:

$$\text{Inventory turnover} = \frac{\text{Cost of sales}}{\text{Average inventory}}$$

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Average Inventory

Average Inventory = $\frac{\text{Opening stock} + \text{closing stock}}{2}$

Hence during the year we can turn inventory into sales two times.

If RIT = 1 - Poor because convert once if RIT = 365 good. The higher the inventory turnover, the more efficient is the use of inventory.

Inventory turnover period = $\frac{\text{Average Inventory}}{\text{Cost of sales}} \times \text{No. of days in the year}$

The lower the inventory turnover period the more efficient is the firm.

b) Debtors turnover and debtors turnover period

Also known as receivables turnover refers to the number of times cash is collected from debtors whereas debtor's turnover period looks at how long it takes before cash is collected from debtors

Debtors turnover - $\frac{\text{Credit Sales}}{\text{Average Debtors}}$ - Use credit sales not cash

Average Debtors.

Debtors turnover period - $\frac{\text{Credit purchases}}{\text{Average creditors}}$

Average creditors

- The shorter the average collection period, the better the quality of debtors, as a short collection period implies prompt payment by debtors.

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- The average collection period should be compared against the firm's credit terms and policy to judge its credit and collection efficiency.
- An excessively long collection period implies a very liberal and inefficient credit and collection performance.
- The delay in collection of cash impairs the firm's liquidity.

c) Fixed assets turnover

Fixed assets turnover i.e. $\frac{\text{Sales}}{\text{Fixed assets}}$

The higher the ratio, the more efficient is the firm in utilization of its assets.

(ii) Total assets turnover i.e. $\frac{\text{Sales}}{\text{Total assets}}$

(d) Credit turnover and credit turnover period

Credit turnover shows how many times creditors are paid in a period whereas credit turnover period shows how long it takes to pay creditors

Credit turnover ratios= $\frac{\text{credit turnover}}{\text{Average creditors}}$

3. PROFITABILITY RATIOS

Profitability ratio helps to measure the profitability position of the business.

Profitability in relations to investment

$$\text{Return on Investment (ROI)} = \frac{\text{Earning after taxAT}}{\text{Investment}}$$

Investment can be defined in terms of Total assets employed; net assets employed ordinary S/K (Equity), Preference S/K. Hence depending on the definition these ratios can be e.g.

(i) Return on total assets (ROTA) = $\frac{\text{Earnings after tax}}{\text{Total assets.}}$

(ii) The higher the ratio, the more profitable in the business.

Profitability in relations to sales

$$\text{Net profit margin} = \frac{\text{Profits after tax}}{\text{Total Sales}} \times 100\%$$

$$\text{Gross profit margin} = \frac{\text{Profits after tax}}{\text{Total sales}} \times 100\%$$

4. GEARING/SOLVENCY/LEVERAGE RATIOS

These help to assess whether the firm can meet its long-term obligations and hence be able to survive in the long run.

(a) Debt Equity ratio

Shows the extent to which the firm finances itself using debt and equity

$$\text{Debt to Equity} = \frac{\text{Long term debt}}{\text{Total equity}}$$

The higher the proportion of debt to equity, the higher the leverage of the firm. Hence the firm has to meet interest obligation and principal amounts.

(b) Debt: Total Assets

Shows the extent to which a firm's assets have been financed using borrowed funds

$$\text{Debt: total assets} = \frac{\text{Debt}}{\text{Total assets}}$$

(c) Times interest earned ratio/interest cover

It shows the number of times that the earnings would cover interest before they decline to zero. A higher ratio means that the solvency position of the firm is good.

$$\text{Times interest earned} = \frac{\text{Earnings before interest and tax}}{\text{Annual interest charge.}}$$

It shows the number of times that the earnings would cover interest before they decline to zero. A higher ratio means that the solvency position of the firm is good.

5. INVESTMENT RATIOS

These show the evaluation of the firm in the capital market. They include;

- (a) EPS i.e. the amount of Net profit after tax attributable to shareholders.

$$\text{EPS} = \frac{\text{EAT}}{\text{Number of outstanding shares}}$$

- (b) $\text{DPS} = \frac{\text{Total dividend for the year}}{\text{Number of shares}}$

The ratio indicates the dividend payment or retention of a firm.

- (c) $\text{Price earning ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$

TREND ANALYSIS AND INDUSTRY COMPARISON

From ratio analysis, we obtain indicators about the different positions of the business. These indicators form a basis of decision making. However, these ratios alone do not provide a clear assessment of the firms position and performance and therefore trend analysis and industry comparison have to be done.

Year	2000	2001	2002	2003	2004
Current ratio	6.5:1	4:5:1	4:2:1	3.6:1	2.1:1

Trend analysis helps to determine if the firms' position/performance is declining, improving or stagnant overtime.

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In addition to trend analysis, you have to compare the firms ratios with those of other firms in the same industry to determine if the firm is above average, below average or same as average.

Weaknesses of ratio analysis

- (i) Computation of ratio analysis requires information obtained from financial statements. If this information is not accurate, indicators given by ratio analysis will not reflect what actually happened.
- (ii) Differences in accounting conventions e.g. use of straight line depreciation and declining balance depreciation to prepare statements among different firms in the same industry can give misleading information.
- (iii) Ratio analysis is mainly quantitative and ignores qualitative factors like quality of labour, loyalty of employees etc which may be significant and yet not reflected in financial statement where ratios are determined. (In relation to decision making).
- (iv) Ratios are generally calculated from past financial statements hence do not provide indicators of the future.
- (v) Performance of a firm in a given period is largely influenced by the economic conditions prevailing at the time. Ratio analysis does not capture changes in these conditions (boom and slump) to provide a basis for decision making.