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 Financial Management Fundamentals\_BBA\_3

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 ATLAS SkillTech University

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## Unit 1: Time Value of Money

### Learning Objectives

1. Understand the concept of the time value of money (TVM).
2. Calculate and distinguish between present value (PV) and future value (FV).
3. Explain the difference between simple interest and compound interest.
4. Describe and compute the value of annuities and perpetuities.
5. Apply time value concepts to real-life financial decisions and case scenarios.
6. Interpret and solve descriptive and numerical problems involving TVM.

### Content

#### 1.0 Introductory Caselet

#### 1.1 Present Value and Future Value

#### 1.2 Annuity and Perpetuity

#### 1.3 Simple & Compound Interest

#### 1.4 Summary

#### 1.5 Key Terms

#### 1.6 Descriptive Questions

#### 1.7 References

#### 1.8 Case Study

#### 1.0 Introductory Caselet

“Rohan’s Decision—Profit, People, or Principles?”

Background:

Rohan, a 26-year-old management trainee at a leading fintech startup in Bengaluru, had recently been

promoted to lead a small product development team. Ambitious and analytical, he was driven by

performance metrics and efficiency. The company had been rapidly expanding, and Rohan was assigned a

project to roll out a new mobile lending feature aimed at salaried employees in Tier-2 cities.

After weeks of research, Rohan's team discovered that while the product had strong market potential, it also

carried a high risk of being misused. Many of the target customers lacked financial literacy, and early testing

showed that borrowers were likely to misunderstand repayment terms, leading to potential defaults and debt

traps.

During a strategy meeting, Rohan voiced his concerns. However, the senior leadership emphasized speed-

to-market and revenue targets, assuring him that "customer responsibility lies with the terms and

conditions." The project, if successful, could fast-track his career and put him in line for a major bonus and

leadership recognition.

Rohan was now torn between two paths. On one hand, executing the project as-is would showcase his

capabilities and align with business goals. On the other, pushing back or redesigning the product with

stricter safeguards might delay delivery and draw criticism for slowing progress.

He reflected on a lesson from the Mahabharata—Yudhishtira's struggle between dharma (moral duty) and

rajneeti (political expediency). Rohan wondered: in the modern corporate world, what does it mean to act

ethically? Is it enough to follow rules, or must one question the consequences?

That weekend, Rohan spent time re-evaluating the product design. Instead of delaying the launch entirely,

he proposed a parallel track: releasing the core feature while simultaneously developing a customer

education module and AI-based alert system for risky borrowing behavior. This middle path was accepted,

and while it required more effort, it ultimately earned him respect across teams.

Critical Thinking Question:

In Rohan's position, how would you respond to the ethical dilemma between achieving business targets

and protecting vulnerable customers? Can lessons from mythology or leadership ethics help professionals

make such decisions in high-pressure environments?

### 1.1 Present Value and Future Value

The concept of the time value of money is based on the idea that a sum of money today is worth more than the same sum in the future. This happens because money has the potential to earn interest or returns over time. This section covers the meaning and calculations of Present Value (PV) and Future Value (FV), their interconnection, and their use in financial decision-making.

#### 1.1.1 Concept of Present Value (PV)

Present Value PV (present value) is the current worth of a future sum of money that has been discounted at a specific interest rate.

This helps answer as to end question: "How much would an amount in the future be worth today?"

You can figure out what that ₹1,000 would be if someone promised to give it to you one year from now

today using the present value formula.

Formula:

$$PV = FV \div (1 + r)^n$$

Where:

- PV = Present Value
- FV = Future Value (what something will be worth in the future)
- r = Interest rate per period as a decimal community
- n = Number of periods (years, months,...).

Example: Calculating Present Value (PV)

Let's say someone promises to pay you ₹1,000 in 2 years - And the annual interest rate is 10%. What is the PV of that given amount?

The present value is calculated using this formula:

$$PV = FV \div (1 + r)^n$$

Where:

- PV = Present Value
- FV = Future Value = ₹1,000
- r = rate of interest per period (10% or 0.10)
- n = Number of periods = 2

Substituting the values:

$$PV = 1,000 \div (1 + 0.10)^2$$

$$PV = 1,000 \div 1.21$$

$$PV = ₹826.45$$

Conclusion:

₹ 1,000 now is worth ₹ 826.45 two years from now @10% per annum (a = 10) rate of 10%.

“Activity: Estimating Present Value for a Future”

Imagine you plan to buy a high-end gadget such as a smartphone or a laptop two years from now,

and the current cost of that gadget is ₹60,000. Assume that you have access to a fixed deposit scheme

that offers 8% annual interest compounded yearly. Your task is to calculate how much you need to

invest today so that it grows to ₹60,000 at the end of two years. Use the present value formula to

perform this calculation. Once completed, write a short paragraph explaining how the concept of

present value shows the advantage of early investment. This activity will help you experience the

real-world relevance of time value of money in everyday spending decisions.

### 1.1.2 Concept of Future Value (FV)

Future value (FV) is the value of a current quantity of money at a future point in time, having earned interest or having grown to account for it.

actual interest rate and period of time for which such rate applies.

It answers the question: "If I invest this much today, how much is it worth later?"

Formula:

$$FV = PV \times (1 + r)^n$$

Where:

- FV = Future Value
- PV = The Present Value, or amount you would need to invest today.
- r = Rate of interest per period
- n = Number of periods

Example: Calculating Future Value (FV)

You put ₹1,000 at 10% interest per year over 2 years. What will be the future value (FV) of this investment?

Future value is calculated by the formula:

$$FV = PV \times (1 + r)^n$$

Where:

- FV = Future Value
- PV = Present Value = ₹1,000
- r = Interest rate for the period  $\Rightarrow$  10% or 0.10
- n = Number of periods = 2

Substituting the values:

$$FV = 1,000 \times (1 + 0.10)^2$$

$$FV = 1,000 \times 1.21$$

$$FV = ₹1,210$$

Conclusion:

If you invest ₹1,000 today at 10% annual return, the amount will grow to ₹1,210 in 2 years.

1.1.3 Relationship Between PV and FV PV and FV equations are connected mathematically and conceptually.

the basis of time value of money.

- PV is the present value of a future sum or what a future sum is worth in today's money.

discounted to an equivalent future value.

- FV is the future value of a present sum, or what present money will grow to over a period at a particular return.

They are related by the following expressions:

- $FV = PV \times (1 + r)^n$
- $PV = FV \div (1 + r)^n$

This relationship highlights that:

- If you know in advance the future value and what the interest rate will be, you can compute its present value.
- If you know how much is available today, you can project to what it will grow in the future.

#### Relevance of the Relationship

The connection between PV and FV is more than just mathematical—it's a concept used in decision making in finance. It

enables people and businesses to compare alternatives that arise at different points in time. For example:

- Investment: Invest ₹10,000 today or wait for two years to get money worth ₹12,000? The PV–FV relationship addresses some of this by discounting or compounding.

- Loan & Debt Analysis: Banks employ PV–FV relationships to derive EMI schedules, interest

charges, and loan affordability.

- Opportunity Cost Analysis: Discounting future cash flows in today's rupee terms (in PV) effectively types of investments can be compared to choose the best alternative.

investments can be compared to each other on a same base.

In gross terms, the PV–FV relationship is an “a rupee today is more valuable than a rupee n days in future” principle.

making anywhere in the interconnected world.

making.

#### 1.1.4 Applications of PV and FV in Finance

PV and FV are very widely used concepts in finance, so I guess it can't hurt to leave that stuff out. Here are some major uses:

#### Investment Decisions:

Investors are weighing the net present value of returns against the upfront cost of income. If PV is greater than the cost, then investment is considered to be profitable.

#### Loan Calculations:

PV is particularly useful to banks and financial institutions where they can calculate the amount of what to lend today based on the value\_ATTRIBUTES of relatable assets of future repayments.

#### Savings and Retirement Planning:

People calculate FV in order to find out how much they will have at a point in the future while maintaining the same amounts of cash or individual items. PV is used to determine how much should be saved today to reach a specific goal in the future.

#### Valuation of Bonds and Securities:

Financial analysts determine the PV of future interest payments (coupons) and PV of the maturity value of bonds to see what they're worth now.

#### Business Project Evaluation:

Firms employ PV to determine the value of future earnings or cash flows from a project. This helps them to determine whether or not they'll take a project on.

### 1.2 Annuity and Perpetuity

An annuity is a series of equal payments made at regular time intervals for a fixed number of periods. These payments can be made either at the end or the beginning of each period. A perpetuity is a special type of annuity that continues forever, with no end date. It pays a fixed amount at regular intervals indefinitely.

#### 1.2.1 Concept and Types of Annuities (Ordinary & Due)

##### What is an Annuity?

Annuity: A financial product or agreement that promises a series of fixed payments (for example, monthly, quarterly or annually) at regular intervals for a specified period.

yearly, etc.). It's applied in loans, insurance, retirement plans and investment spending decisions.

Examples of annuities:

- Monthly loan payments
- Annual insurance premiums
- Retirement pension payments

Types of Annuities:

There are two primary styles of annuities:

a) Ordinary Annuity (or Deferred or Payable at Arrears Annuity)

- Payoffs occur at the end of each period.
- Most prevalent form in loans and bonds.

✓ ✓ ✓ ✓

- Example: You pay an installment on a car loan at the end of every month.

Time line (payments at end):

Year 1 2 3 4 5

₹

b) Annuity Due

- Payments are made at the start of each period.
- Frequently found in lease agreements or rental contracts.

✓ ✓ ✓ ✓

- Example: Rent is paid at the beginning of each month.

Time line (payments at start):

Year 1 2 3 4 5

₹

The only distinction between the two is in time of cash flows, having little impact on total value.

### 1.2.2 Valuation of Annuities

To calculate the present value or future value of an annuity, specific formulas are used based on whether the annuity is ordinary or due.

## Present Value of Ordinary Annuity

Employed to determine the present value of a stream of future payments.

Formula:

$PV = P \times [1 - (1 \div (1 + r)^n)] \div r$  where the formula stands for= PV, P, n and r are as defined above.

Where:

- PV = Present Value of the annuity
- P = Periodic payment
- r = Rate of interest per period
- n = Number of periods

For example: Present Value (PV) of an Annuity

Consider that you will be receiving ₹5,000 for 4 years and the rate of interest is 10% per year.

What is the PV of these cash flows?

To determine the PV of an annuity, simply use the formula:

$$PV = P \times [1 - (1 \div (1 + r)^n)] / r$$

Where:

- PV = Present Value
- P = Annual payment = ₹5,000
- r = Annual interest rate = 10% or 0.10
- n = Number of years = 4

Substituting the values:

$$PV = 5,000 \times [1 - (1 \div (1 + 0.10)^4)] / .10 \quad PV = 5,000 \times [1 - (0.68301)] / .10 \quad PV = 5,000 \times [0.31699] / .10 \quad PV = \$1,584.95$$

Return to Contents

$$PV = 5,000 \times [1 - (1 \div 1.4641)] \div 0.10$$

$PV = 5,000 \times [1 - 0.6829] \div 0.10 \quad PV = \$17145$  The price of a three-year bond moving along with interest rates would be approximately \$17,145 between days 149 and 150 which is before the semiannual coupon payment date on day number-182.

$$PV = 5,000 \times 0.3171 \div 0.10$$

$$PV = 5,000 \times 3.171$$

$$PV = ₹15,855$$

Conclusion:

₹5,000 per annum for four years = ₹15,855 as of 2014 at a 10% interest rate.

Future Value of Ordinary Annuity

Used to determine what an investment will grow to be, after some amount of time.

Formula:

$$FV = P \times [(1 + r)^n - 1] \div r$$

Where:

- FV = Future Value
- P = Periodic payment
- r = Interest rate in each period
- n = Number of periods

Example- Calculating Annuity's Future Value [FV] Solution: Step 1 – Calculate compounded interest on annuity for each period of payment  
Future Value of an Annuity Seeking to calculate future value from the periodic rate or investment for a particular period?

Let's say you deposit ₹2,000 every year for 5 years at a rate of interest of 8% per annum. What will be the end 5 years?

The following formula is used to determine the FV of an annuity:

$$FV = P \times [(1 + r)^n - 1] \div r$$

Where:

- FV = Future Value
- P = Annual payment = ₹2,000
- r = Rate of interest per annum = 8% or 0.08
- n = Number of years = 5

Substituting the values:

$$FV = 2,000 \times [(1 + 0.08)^5 - 1] \div 0.08$$

$$FV = 2,000 \times [1.4693 - 1] / 0.08$$

$$FV = 2,000 \times 0.4693 \div 0.08$$

$$FV = 2,000 \times 5.866$$

$$FV = ₹11,732$$

Conclusion:

If ₹2,000 is invested every year for 5 years at an interest rate of %8, then the total amount accumulated will be ₹11,732 in

the end of the period.

Present Value of Annuity Due

In order to account for annuity due, we multiply the present value of an ordinary annuity by  $(1+r)$ .

$$PV (\text{annuity due}) = PV (\text{ordinary annuity}) \times 1 + r$$

Future Value of Annuity Due

in the same way, multiply future value of ordinary annuity by  $(1+ r)$ .

$$FV (\text{due annuity}) = FV (\text{ordinary annuity}) \times (1 + r)$$

“Activity: Planning a Retirement Corpus Using Annuity Calculations”

You are planning your retirement and wish to receive ₹5,00,000 annually for 20 years after you

retire. Assume retirement is 25 years from now, and the interest rate applicable is 9% per annum.

Payments will be received at the end of each year, forming an ordinary annuity. Your first step is

to calculate the present value of the retirement annuity—that is, how much you would need saved

up by the time you retire. Then, calculate how much you would need to save annually for the next

25 years to accumulate that required amount, assuming the same interest rate and annual compounding. Prepare a short explanation of your findings, focusing on how annuity valuation

and future value help in long-term financial planning.

### 1.2.3 Concept of Perpetuity

A perpetuity is a type of annuity that makes the same regular payments over time indefinitely.

Unlike a standard annuity, however, the perpetuity has no end date.

In layman terms, it is a monetary transaction involving the receipt or payment of same amount for rest of the life.

11

Examples of perpetuities:

- A trust that pays ₹10,000 a year to a beneficiary for life.
- Irredeemable with a fixed dividend preference shares.
- University-established endowments that produce annual scholarship money.

#### Present Value of Perpetuity

Because the payment proceeds endlessly, we can't simply use the formula for a standard annuity. Instead, we use

a simplified formula:

Formula:

$$PV = P \div r$$

Where:

- PV = Present Value of the yr perpetuity (BGN) Value 0 1.00n-ige BGN or CrPK Notes: The term n-i is called commutation period and this should be entered as a positive value.
- P = Payment per period
- r = Annual interest rate per period (as a decimal)

#### Example: How to Calculate Present Value (PV) of a Perpetuity

If you will be paid ₹1,000 every year for as long as anyone can imagine and the interest rate is 5% per annum. What is the present

amount? (What is the present worth) of this stream of perpetual cash flows?

The present value (PV) of a perpetuity can be calculated as follows:

$$PV = P \div r$$

Where:

- PV = Present Value
- P = Annual payment = ₹1,000
- r = Rate of interest = 5% or 0.05

Substituting the values:

$$PV = 1,000 \div 0.05$$

$$PV = ₹20,000$$

Conclusion:

The value of getting ₹ 1,000 yearly for all eternity is ₹20,000 if the annual interest rate is 5%.

Did You Know?

“Did you know that the British government once issued bonds known as "Consols" that paid interest

to investors forever? These financial instruments are real-life examples of perpetuities.

Introduced

in the 18th century, some Consols continued to pay interest for more than 250 years before they

were eventually repurchased by the government in the early 21st century. While perpetuity is often

taught as a theoretical financial concept, this example shows that it has had actual applications in

public finance, offering fixed payments indefinitely without a maturity date”

#### 1.2.4 Applications of Annuities and Perpetuities

Loan Repayment:

o Home loans, car loans, student loans are all paid through equal monthly or yearly compensation, determined under annuity tables.

Insurance Policies:

o Life coverage and pension products usually require premium payments at regular intervals (annuity due) and

payout periodic income (annuity).

Investment Planning:

o Investors can determine how much to invest on a recurring basis, to get to a goal in the future (such as buying

a home or for retirement.

Lease Agreements:

o Rent or lease payments that are due at the beginning of each period as annuity's due.

Capital Budgeting:

o Firms employ annuity formulas to determine the present value of a series cash flows from a project.

Applications of Perpetuities

Valuation of Preference Shares:

14

o Some preference stocks pay a fixed dividend indefinitely. They are then discounted to the present with the perpetuity formula.

formula.

Charitable Trusts and Endowments:

o Places like universities save endowments and may use the interest to fund scholarships or payrolls.

perpetual interest earnings.

Perpetual Bonds:

o Some bonds have interest payments, but never mature. (with a bond payment every year or two) Traditional Bonds and Anchoring Bias Fixed coupon payment is enough to make it so that you don't need to get cash back for restocking. Their price is determined by the perpetuity

concept.

Real Estate Valuation:

o Properties that have steady rental income forever can be priced as perpetuities using the constant growth formula in

certain conditions.

Discounted Cash Flow (DCF) Analysis:

o Perpetuity is widely used in finance to determine terminal value in DCF models, especially for :

stable, mature companies.

### 1.3 Simple and Compound Interest

Interest is the cost of borrowing money or the return earned on investment. There are two common ways

to calculate interest:

- Simple Interest
- Compound Interest

This section explains the concept and formula of Simple Interest.

#### 1.3.1 Concept and Formula of Simple Interest

What is Simple Interest?

Simple Interest (SI - the interest on the principal from a financial loan, savings account or an investment, where the result is based on simple-interest calculation over a period of time) is the type of interest computed on an original amount and not compound.

period of time. It does not include any interest earned or paid.

the maths behind it is that simple interest is same each year since principle amount remains constant.

Formula:

$$SI = (P \times R \times T) \div 100$$

15

Where:

- SI = Simple Interest
- P = Principal amount (the initial money that was loaned or invested)
- R = Rate of interest per annum (%)
- T = Time period (in years)

Example:

You invest ₹5,000 at a simple interest rate of 8% per annum for 3 years. In this case, Calculate SI.

$$SI = (5000 \times 8 \times 3) / 100 = 1200$$

The interest rate earned over 3 years is ₹1,200.

Total Amount Received:

Amount = Principal + Interest

Amount = P + SI

In the above instance In this example Amount is, Calculate Amount.

Amount = 5000 + 1200 = ₹6,200

This is the amount of money you would have in 3 years.

### 1.3.2 Concept and Formula of Compound Interest

What is Compound Interest?

Compound Interest (CI) is the interest calculated on the initial principal and also on the accumulated

interest from previous periods. That is, interest added directly to the principal after each time period and

interest in the future is based on this new, larger figure."

In a nutshell, compound interest is simply earning interest on interest, and that is what makes the investment grow so much quicker.

compared to simple interest.

The concept of compound interest is widely used in:

- Bank savings accounts
- Fixed deposits
- Loans

16

- Investment in bonds and mutual funds

Formula for Compound Interest:

$$A = P \times (1 + R \div 100)^n$$

Where:

- A = Amount after n years.
- P = Principal amount
- R = Interest rate for a year (%)
- n = Number of years

Use the following to find the total interest earned:

$$CI = A - P$$

That is:

$$CI = P \times (1 + R \div 100)^n - P$$

Example: Calculating Compound Interest (CI)

Let us say you invest ₹10,000 in 2 years at an annual interest of 10%. What is the compound interest (CI) if interest were payable at the end of a period?

Step 1: Find the sum (A)

Use the formula:

$$A = P \times (1 + r)^n$$

Where:

- A = Amount after interest
- P = Principal = ₹10,000
- r = Annual rate% and it is 10%, then  $r = 10/100 = 0.10$
- n = Number of years = 2

$$A = 10,000 \times (1 + 0.10)^2 = 10,000 \times (1.10)^2 = 10,000 \times 1.21 = \text{Rs. } \$12,100$$

Step 2: Determine the Compound Interest (CI)

17

Use the formula:

$$CI = A - P$$

$$CI = 12,100 - 10,000 = ₹2,100$$

Conclusion:

The interest accrued in 2 years is ₹2,100 and the amount formed is ₹12,100.

### 1.3.3 Compounding Frequency and Its Impact

What is Compounding Frequency?

The compounding frequency is the number of times the interest is added to the principal each year. The more

interest itself is compounded, the more interest you will earn (or owe) in total over time.

## Figure 1.2

The common compounding frequencies include:

- Annually (once a year)
- Semi-annually (twice a year)
- Annually (four per year)
- A dozen times a year (monthly)
- Daily (365 times a year)

Whether we say the interest is added to the principal half-yearly, quarterly or yearly doesn't matter: every time it is done, the next lot of interest will also “earn” interest in its turn.

Formula with Compounding Frequency:

$$A = P \times (1 + r \div n)^{nt}$$

Where:

- A = Amount at the end of t years
- P = Principal
- r = Rate of interest per year (decimal form)
- n = Number of times the interest is compounded per year
- t = Time in years

To calculate Compound Interest (CI):

$$CI = A - P$$

Example: Impact of Compounding Frequency on Investment Value

For example, let's say you invest ₹5,000 at 12% interest per annum for 2 years. Let's compare for a moment the future value (A)

changes with different compounding frequencies.

a) Annually (n = 1)

$$\text{Formula: } A = P \times (1 + r \div n)^{nxt}$$

$$A = 5,000 \times (1 + 0.12 \div 1)^2 = 5,000 \times (1.12)^2 = 5000 \times 1.2544 = ₹6,272$$

b) Semi-Annually (n = 2)

$$A = 5,000 \times (1 + 0.12 \div 2)^{(2 \times 2)} = 5,000 \times (1.06)^4 = 5,000 \times 1.2625 = ₹6,312.50$$

c) Quarterly Compounding (n = 4)

$$A = 5,000 \times (1 + 0.12/4)^{(4 \times 2)} = 5,000 \times (1.03)^8 = 5000 * 1.2668 = ₹6,334$$

d) Monthly Compounded (n = 12)

$$A = 5,000 \times (1 + 0.12 \div 12)^{12 \times 2} = 5,000 \times (1.01)^{24} = 5,000 \times 1.2682 = ₹6,341$$

Conclusion:

As the compounding becomes more frequent (from annual to monthly), the numbers get larger a little sooner.

This proves that the more often returns are compounded, the higher they will become, even if.

marginal over short periods.

Impact of Higher Compounding Frequency

In the example below you can see that:

- At the annual compounding, it is ₹6,272.
- With annual compounding, that amount grows to ₹6,341.

This illustrates the dependence that interest earned or paid becomes bigger when the frequency of compounding is higher, since

interest being calculated more often.

Did You Know?

“Did you know that a single rupee invested at a 100% annual interest rate grows to ₹2 after one year

with annual compounding, but grows to approximately ₹2.71 if compounded continuously throughout the year? This mathematical outcome is based on the constant "e" (Euler's number,

approximately equal to 2.718), which represents the theoretical maximum that a rupee can grow to

under continuous compounding. This principle is not only mathematically elegant but also forms

the basis of many financial models in advanced economics and actuarial science.”

#### 1.3.4 Practical Applications in Investment Decisions

Simple Interest vs Compound Interest It's important to know about and understand simple and compound interest because making educated investments as well as sound financial decisions for that matter, is one of the key pillars to wealth building.

decisions. These are all things investors can use to compare investment products in order to determine.

loan costs, and estimate returns.

Below are some examples of how simple and compound interest are used in decision-making:

20

### Comparing Investment Options

If you're comparing savings accounts, fixed deposits, mutual products etc with a compound interest formula دستهبست پکیچ dip then the formula used to calculate the final value is  $FV = PV(1 + r)^n$ .

and bonds with varying interest rates and compounding.

For example:

- A bank might pay 6% interest, compounded monthly.
- A different bank may give 6.2% compounded annually.

The compound interest formula may be used to compare which investment yields a higher value at the end.

### Estimating Future Value of Investments

For many financial goals, like a home purchase or retirement savings, people need to understand how much they should save.

how much their investment will increase.

Using the future value formula:

$$FV = P \times (1 + r \div n)^{nt}$$

And there the would-be investor can figure out how much his or her money will grow over a certain period, given the rate and

compounding frequency.

### Determining Required Investment Today

People also use the present value formula to determine how much they'd have to invest now in order. CallbackRequest(), to 达value 收到请求 : String 参数。

financial target in the future.

$$PV = FV \div (1 + r)^n$$

It makes it easier to budget and projected for long-term goals, such as education, weddings or retirement.

### Evaluating Loan Offers

Interest calculations allow borrowers to see how much they will ultimately repay. A loan with

compound interest can be riskier than simple interest with a higher rate.

21

The decision to go with one type of loan or the other is often based on being able to answer:

- If the interest is compound or simple
- The compounding frequency
- The loan tenure

### Understanding Credit Card Charges

Compound interest is also what credit card companies charge on balances left unpaid.

Knowing how this

works is it helps people to stay out of the high interest debt by paying their balances on time.

### Business Investment and Capital Budgeting

Businesses use interest formulas in:

- Project appraisal (e.g., Net Present Value, Internal Rate of Return)
- Cost of capital calculations
- Lease-versus-buy decisions

Knowing how money can grow and shrink over time is important for selecting profitable projects and for avoiding costly decisions.

financial losses.

### Knowledge Check 1

Choose the correct option:

1. What does the Time Value of Money (TVM) concept suggest?

- A) Money in the future is always worth more than money today
- B) Money has no time-related value

C) Money today is worth more than the same amount in the future

D) Money always loses value over time in non-inflationary conditions

2. Which of the following is the formula for calculating compound interest (CI)?

A)  $CI = P \times R \times T \div 100$

B)  $CI = P \times (1 + R \div 100)^n - P$

22

C)  $CI = P \div (1 + R)^n$

D)  $CI = P \times R \div T$

3. In which type of annuity are payments made at the beginning of each period?

A) Ordinary Annuity

B) Deferred Annuity

C) Annuity Due

D) Growing Annuity

4. Which financial concept calculates the value today of a future sum of money?

A) Future Value

B) Compound Interest

C) Present Value

D) Annuity

5. What is the impact of increasing compounding frequency on the future value of an investment?

A) It decreases the future value

B) It has no effect on the future value

C) It reduces the interest rate

D) It increases the future value

#### 1.4 Summary

❖ The time value of money (TVM) is an important principle in finance. Present Value

(PV) and Future Value(FV) aid to ascertain the value of money at different points of time due to interest rates.

The two most common of these are annotated  $A^{\infty}$  above and involve a stream of equal payments to be made over time (the remaining payments made on the same basis in perpetuity).

indefinitely. Distinction between Simple Interest and Compound Simple interest (interest on the principal only).

compound interest (interest on interest) the principal as well as the dialectic between theory about and data from ethnic beaches, which have become more worthwhile for surfing are decreasing then you will always be interested.

analysis. Frequency The frequency of compounding has a direct impact upon the cumulative rate of return, and these parameters are applied

broadly in applied financial decisions as debt management, savings planning, investment and insurance\_SERAEMA Analysis\_proof\_almost\_full\_information3.%, ">6.where 6.INTERMEDIAR\_SOLUTIONS\_proof\_almost\_full\_information3.

evaluation, and business project assessments.

### 1.5 Key Terms

Time Value of Money - The concept that money is worth more the sooner it is available.

23

Present Value (PV) – ‘The amount of money now that would have to be invested at a given interest rate in order for these funds to accumulate to the future sum.

Future Value (FV) - The value of an investment at some future point in time when it has been deposited, paid or invested for amortizing and earning interest.

Annuity - A set of periodical payment of the same amount for a certain period.

Annuity- Regular - An annuity for which the premium is paid at the end of each period.

ANNUITY DUE: an annuity for which the rent is paid at the beginning of each period.

Perpetuity - A stream of equal payments that goes on indefinitely.

Simple Interest – The interest computed based only on principal.

Compound Interest - Interest earned on both the principal and on prior interest.

Compounding - The adding of interest to the principal, so that the interest will grow over time.

Principal- The base amount invested or borrowed is known as Principal.

“Interest Rate” – The rate of interest charged (or paid) on the principle over time.

### 1.6 Descriptive Questions

Define the difference in Present Value and Future Value with examples.

Define annuity. Differentiate between an ordinary annuity and an annuity due, using a time line.

What is a perpetuity? How is it valued? Give real-world examples.

Distinguish between simple and compound interest with examples.

What is the effect of investment compounding on future value?

Explain uses of compound interest in financial planning.

Find the Present Value of an Ordinary Annuity of ₹5,000 received yearly for 5 years when Interest is 10%?

A man invests ₹10,000 at 8% per annum compounded quarterly for 2 years. Calculate the compound interest.

Q2 Explain the usage of Time value of money in: a.  $\text{세}\|\text{요}$  loan repayment b.  $\text{세}\|\text{}$  Capital budgeting Write short notes (5-6 lines).

Why is compound interest better than simple interest in the long run?

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Answers to Knowledge Check

## Knowledge Check 1

1. C) Money today is worth more than the same amount in the future
2. B)  $CI = P \times (1 + R \div 100)^n - P$
3. C) Annuity Due
4. C) Present Value
5. D) It increases the future value

## “Time Value of Money in Education Planning”

### 1.8 Case Study

#### Introduction

The concept of Time Value of money is basic to financial decision making. It explains how purchasing power varies with interest rates, inflation and investments returns. This concept has a lot of value when it comes to personal finance, especially in the case of big future\_

HEAP expenses such as higher education. Using present value, future value. ResponseEntity.Contact Open an entity you want to contact.

annuities, or compound interest to save today for tomorrow's needs!

financial goals. This caselet illustrates how are these financial concepts put to work by people as they save for the cost of their children's education.

#### Background

Riya, a 22-year-old student of management, wants to complete her MBA from abroad in three years. The

estimated cost of one studies, including fees, travel and accommodation is ₹30 lakhs. Riya, has ₹24 lakhs in his bank and needs to understand is it better to invest this amount as a one time (or in yearly instalments) in a fixed deposit which provides for 9% annual interest. compounded annually.

She is going to do this through the concept of time value of money: What is she trying to figure out?

- The amount she needs to invest today so that she would get ₹30 lakh in 3 years.
- How much she would have to invest each year if she opts for annual investments.

- Which approach (lump sum or periodic) costs less.

The following explanation gives an insight to the decision making process based on present value, using a case.

future value, and annuity concepts.

Problem 1: Present Value of Higher Education Expense.

26

Riya wants ₹30 lakhs 3 years later. She is its fixed deposit holder And wants to invest some amount of money in a new scheme But She want to know today how much she should have as Fixed Deposit on the day of maturity.

earning 9% interest annually.

Solution:

Using the Present Value formula:

$$\begin{aligned}PV &= FV \div (1 + r)^n \\ &= 30,00,000 \div (1 + 0.09)^3 \\ &= 3000000/1.295 = ₹23,16739\end{aligned}$$

Therefore, Riya should invest ₹23.17 lakhs today to get ₹30 lakhs after 3 years.

2: ANNUITY BASED ANNUAL INVESTMENT REQUIREMENT II.

b) If Riya decides to invest annually, instead of a single lump sum what amount should she invest at the end of.

each year?

Solution:

Applying the formula of Future Value of Ordinary Annuity:

$$\begin{aligned}P &= FV \times r \div [(1 + r)^n - 1] \\ &= 30,00,000 \times 0.09 / [(1.09)^3 - 1] \\ &= 2,70,000 \div 0.295 = ₹9,15,254 \text{ per annum}\end{aligned}$$

So Riya will have to invest ₹9.15 lakhs each year for 3 years.

Problem 3: The Better Investment Option.

What is better in cost point of view- one time or Net amount per annum?

Solution:

- Lump sum investment required = ₹23.17 lakhs
- Sum of investments made in the year = ₹9.15 lakh × 3 = ₹27.45 lacs
- On a compounding benefit, lump sum is cheaper by ₹4.28 lakhs.

So if Riya has the full amount right now then she should invest at Lump sum investment is better in financial planning her justification investment.

decision.

27

MCQ

Q1. What is the underlying principle of the Time Value of Money?

- A) Money has no real value
- B) A dollar today is worth more than a dollar tomorrow
- C) Money can only increase in size as a result of inflation
- D) Money has value that evaporates only in debt

Answer: B) The fact that resources now are more valuable than they were in the past

Q2. How do I calculate the present value?

- A)  $PV = FV \times r \times t$
- B)  $PV = FV \times (1 + r)^n$
- C)  $PV = FV \div (1 + r)^n$
- D)  $PV = FV - \text{Interest}$

Answer: C)  $PV = FV \div (1 + r)^n$

Q3. Why is the one time investment more economical than monthly?

- A) Lower bank charges
- B) Tax exemptions
- C) Compounding of interest
- D) Inflation benefits

Answer: C) Compounding of interest

Conclusion

This caselet illustrates how the application of time value of money can turn benefits into costs.

impact personal financial decisions. Through the computation of the current value of a future liability and with annuity-based savings plan, Riya made a well-informed decision that, saved her over ₹4 lakhs. It shows the necessity for early financing, the magic of compounding, and the importance of financial literacy in effectively accomplishing educational and life goals.”

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## Unit 2: Impact of Time Value of Money on Loans

### Learning Objectives

1. Define key loan-related financial terms such as principal, interest, amortisation, and effective interest rate.
2. Explain the application of Time Value of Money (TVM) concepts in the context of loan structures.
3. Calculate loan repayments using simple and compound interest principles.
4. Construct a complete loan amortisation schedule showing principal, interest, and outstanding balance.
5. Compare various loan options using TVM-based evaluation techniques such as present value and effective interest rate.
6. Evaluate the impact of compounding frequency and loan tenure on total repayment cost.
7. Apply TVM concepts to make informed decisions about refinancing, prepayment, or loan restructuring.

### Content

#### 2.0 Introductory Caselet

#### 2.1 Loans and Time Value of Money

#### 2.2 Loan Amortisation Schedule

#### 2.3 Applications of TVM in Loan Decisions

#### 2.4 Summary

#### 2.5 Key Terms

#### 2.6 Descriptive Questions

#### 2.7 References

#### 2.8 Case Study



## 2.0 Introductory Caselet

### “Aarav’s Loan Puzzle: Applying the Time Value of Money”

Background:

Aarav 29, Marketing executive B’lore I am a marketing professional working in the IT city. After years of saving he is in the market

his first home. The apartment he selected is priced at ₹55 lakhs He wants to fund the amount of ₹45 lakhs from a bank

loan. And Aarav is confused as several banks are vying for his attention with attractive rates and tenure options.

He receives two primary offers. The first is from Bank A, which extends a 20-year loan at an 8.25% annual

desire, leading to lower EMI on a monthly basis. The second is from Bank B who offers an amortizing loan of 15 years at

9.00% but at a higher EMI and for lesser tenure. Given the above FYI, Aarav's inclination is, on account of it Method Beat: (i) wants lowest EMI and it

seems more affordable. “My friend advises me to look not only at monthly EMI but also overall interest.

outflow particularly over a long time period.

To ensure that he makes such a decision critically, Aarav here starts to study the topic of Time Value of Money

(TVM). He is taught that money received in the present is more valuable than an equal amount of money received at a future date, because of the opportunity cost of the money. Following fact:

its potential to earn returns. By amortisation schedules, present value calculations and EMI formulas,

Aarav calculates the total cost of each loan for him. He finds that small differences in interest

rates or tenure can cause variation of lakhs of rupees over the period.

Besides, Aarav is expecting performance-based incentives in the next couple of years too. He explores the

notion of prepayment and how it may shorten the loan term or total interest paid— especially if taken in the initial years, interest being a greater portion of EMI.

Using TVM principles Aarav transitions from thinking solely about monthly affordability to long-term!

term financial efficiency. This new awareness allows him to attack his loan decision logically, weighing in short-term convenience against long-term savings.

Critical Thinking Question:

What would you choose and why if you were Aarav? How would the application of Time Value of Money theory (e.g., present value, interest compounding, and prepayment—enable you to make a sounder decision financially?

## 2.1 Loans and Time Value of Money

The theory of loans is a direct derivative from the Time Value of Money (TVM) which describes that money

borrowed or lent today will not be the same value someday in the future because of interest and compounding. Borrowers

benefit by having immediate access to capital for education, housing or a business and lenders realize a profit.

return over time through interest. In this section, we go through the basics of loans and why

TVM in evaluating repayment plans.

### 2.1.1 Concept of Loans and Borrowing

A loan is a financial contract in which one party (the lender) gives money to another party (the borrower), even if the borrower is not currently in need of the money.

borrower, and the borrower agrees to repay money (the principal) by a certain date.

time, typically with interest. Loans Personal: Home loan, education loan, etc. Business-purposes (capital expansion, working capital).

There are two types of loans:

- Secured loans — Loans guaranteed by collateral (such as a mortgage or an auto loan)
- Loans not backed by assets (unsecured loans, including personal loan and credit card debt);
- Fixed-rate loans, in which the interest rate does not change

- Floating-rate loans, whose interest rates fluctuate with the market

The repayment structure typically includes:

- A fixed tenure (duration)
- An agreed-upon interest rate
- A check and series of payments (monthly, quarterly, etc.)

Borrowers not only need to evaluate the total loan amount, but also the cost of borrowing over a period, which is

subject to interest rate and repayment schedule.

### 2.1.2 Role of Time Value of Money in Loan Repayments

Understanding how loans are repaid is in large part a function of Time Value of Money.

When a loan is disbursed,

the lenderee sacrifices a flow of current period resources in return for future resources.

These future payments must

be calculated using time value of money principles such as PV (present value), FV (future value), Rate and compoundin

determine their real worth.

From the borrower's point of view, every Dt that can be paid in future is worth a little less at today. From the

lender's point of view, it is a compensation for opportunity cost and inflation.

Loan repayment is one of the many uses to which TVM applications can be put:

- Discount the present value of all future loan payments to match the disbursed amount amount
- Calculations of the effective interest rate (including fees, compounding etc.)
- Awareness of early settlement charges, where the outstanding balance is discounted to present value.

value

Essentially, TVM serves as a tool for both the borrower and lender to grasp the real value of the loan with fair pricing and

risk assessment.

### 2.1.3 Equated Monthly Installments (EMIs)

Fixed monthly payment for the duration of your loan.

over a certain period in paying back the loan. EMI contains two parts as shown below:

- Payment of interest on the rest of the loan
- Reduction in loan balance as a principal is paid back

The interest component reduces with time, while the principal component increases as the balance is repaid.

reduces. EMIs using the annuity formula of TVM.

EMI Formula:

$$EMI = P \times r \times (1 + r)^n / [(1 + r)^n - 1]$$

Where:

- EMI = Equated Monthly Installments
- P = Loan principal
- r = Monthly rate of interest (annual rate ÷ 12 ÷ 100)
- n = Number of total monthly payments

Example - Calculating EMI (Equated Monthly Installment)

Now let's say you borrow ₹5,00,000 at 10% annual interest and the loan tenure is 5 years (60

months). What will be the monthly EMI?

1: Convert the annual rate to a monthly rate /// Step 2- The calculator is based on Love and Holman's eps(6) approximation (Holman82), where the solution for [8] yields  $p0\_p = \exp(\rho\_s)$ ;  $p0\_h = 0$ ; which produces a value of  $K = \text{psqrt}[\text{eps}]$ ;  $\mu = \text{psqrt}[\text{eps}]$ ;  $\sigma = (1 + 3\mu + 3\mu^2)$ ]] Newtons method with TOL=10^-12(MouseEvent #21). Note that in this case it seems irrelevant whether you use a const non-default initialization or not.

Monthly Interest Rate = 10 / 12 / 100 = 0.00833

Step 2: Apply the EMI formula

$$EMI = P * r * (1 + r)^n / [(1+r)^n - 1]$$

Where:

- P = Loan amount = ₹5,00,000
- r = Rate of interest for a month = 0.00833
- n = Time, in months of the loan = 60

$$\text{EMI} = 500000 \times 0.00833 \times (1 + 0.00833)^{60} / [(1 + 0.00833)^{60} - 1]$$

$$\text{EMI} \approx ₹10,623$$

Conclusion:

The borrower would pay ₹10,623 each month over 60 months to repay the ₹5,00,000 loan.

Why Understanding EMI Matters

- It assists borrowers in effectively budgeting and planning monthly finances.
- It enables them to calculate the interest that will be paid in all throughout the loan period.
- It enables informed decision making comparing different loan options and lenders.

## 2.2 Loan Amortisation Schedule

Amortization of loan is the process by which this happens.

A part of each payment is applied toward the interest on the unpaid principal balance.

repays the principal. This disciplined approach guarantees that the entire loan amount is paid off by the end of the established term

term. An amortization schedule details the total interest and principle paid with each payment over the life of a loan.

### 2.2.1 Concept of Amortisation

Amortization is the gradual repayment of a debt in regular, periodic installments of substantially equal amounts. Each

installment (often monthly) include

Interest and balance on the loan that remains.

- Payment of principal that pares down the loan balance

At the start of the loan, a greater portion of each installment payment is interest, because it is being computed on fewer payments.

on the full outstanding principal. As we pay off the loan, our paid portion of the principal is higher and interest

ingredient reduces, as the interest is charged on a diminishing balance.

Amortisation helps in:

- Scheduling your monthly payments (EMIs) each month and paying off the loan on a regular basis.

- Clearly separating principal from interest payments
- Guaranteeing that the loan will be fully repaid at the end of its term

This technique is often used in mortgages, personal loans, motor vehicle loans and other long term credit transactions.

### 2.2.2 Structure of an Amortisation Table

Step 2: The loan tenure in months is determined

Number of payments (n) = 12

Step 3: Apply the EMI formula

$$EMI = P \times r \times (1 + r)^n \div [(1 + r)^n - 1]$$

Where:

• P = Loan amount = ₹1,00,000

• Monthly interest rate, r = 0.01

• n = 12

$$EMI = 100000 \times 0.01 \times (1 + 0.01)^{12} \div [(1 + 0.01)^{12} - 1]$$

$$EMI \approx ₹8,885$$

So the borrower should pay sum of ₹8,885 per month for 12 months.

Sample Amortization Schedule (first 3 months)

Month EMI Interest Principal Balance

1

8,885 1,000

7,885

2

8,885 921

7,964

92,115

84,151

3

8,885 842

8,043

76,108

... ..

12

8,885 88

8,797

0

### Key Insights from the Schedule

- The interest portion shrinks with each passing month as the outstanding balance drops.
- The principal repayment gradually increases over time.
- The term of the loan is up and there, in one lump sum payment, the whole debt is paid back.

“Activity: Build and Analyse a Personal Loan Amortisation Schedule”

### Instructions to Student:

1 Assume you have taken a personal loan of ₹1,50,000 at an annual interest rate of 12% for 3 years,

repayable in monthly EMIs. Use the EMI formula to first calculate the fixed monthly installment.

Then, create an amortisation table for the first 6 months showing:

- EMI amount
- Interest portion
- Principal portion
- Remaining balance after each month

### 2.2.3 Principal vs. Interest Components in Repayments

Every loan you repay, in the form of EMI (Equated Monthly Installment) is made up of two elements, the interest and principal.

- Interest Component: This is the price of borrowing money. It is based on the balance Acting at the applicable interest rate. The rate is in the early years of a loan. increased since the remaining principal amount is high.

- **Principal Component:** This is the part of your EMI that goes toward lowering your loan balance. As

principal is reduced, interest charged in subsequent periods reduces and the cash flow becomes 60 both the lender and borrower.

predominant part of the EMI to be large.

The move from interest only payments to principal value payments over time is a function of amortised loans. Although the EMI

stays the same, the proportion of interest to principal changes throughout the life of a loan.

Example: Split of Interest and Principal in an EMI

For instance, for a loan amount of 1,00,000 rupees at an annual interest rate of 12% for 1 year and the EMI is ₹8,885. In the first

EMI, the interest amount is ₹1,000 and principal repayment amount is ₹7,885. By the final EMI, the

interest amount decreases to ₹88 and the principal amount will increase to ₹8,797.

This shifting trend illustrates how EMIs are designed: A higher EMI amount during the initial years of loan tenure and a lesser.

of EMI is interest and in long run, more would be contributed towards principal.

repayment.

Why This Breakdown Is Important for Borrowers

- It being important for borrowers to see how much of their payment is actually going toward reducing the outstanding

debt each month.

- It offers clarity on prepayment strategies, because prepaying reduces interest payment. up. will save more.

saves more on interest costs.

- It allows borrowers to get a sense of possible tax benefits, where applicable, by differentiating between

interest and principal parts of the EMI.

#### 2.2.4 Impact of Prepayments on Loan Tenure & Interest

Prepayment is payment of an installment before its due date and the amount paid as prepayment may be more or less than EMI.

payments, in order to take away the loan burden. It affects the loan term, and consequently also the total interest paid.

Two Types of Prepayment Impacts:

Reducing Loan Tenure:

- o EMI amount doesn't change, instead the number of months reduces to pay off loan.
- o This process saves substantial interest, particularly if prepayment is done at the starting of such investment period.

loan period.

Reducing EMI Amount:

- o Your loan tenure will not change but the amount you pay through EMI every month decreases.
- o The cumulative interest saved is lower compared to tenure reduction, but the monthly outflow is less.

Why prepaying early saves more interest:

More of EMI in the initial part of the loan period goes towards interest. So, prepaying during this time is more effective in lowering the total interest.

Example:

For a ₹10,00,000 loan at 10% for 20 years, the EMI is ₹9,650 and the total repayment amount is ₹23.16 lakh. If ₹1,00,000 is paid in advance at the end of 2 years. Then in empty case, Calculate EMI

- The tenure may reduce by about 2 years
- Or, the EMI can come down to around ₹8,500 (approx)

In each, the good news is that total interest paid over the loan life goes down -a lot.

Comprehending prepayment math enables the borrowers to:

- Make smarter financial choices
- Eliminate unnecessary long-term interest expenses
- Become debt-free faster

Did You Know?

“Did you know that even a small prepayment of 5% of your loan amount made early in the tenure

can reduce your overall loan interest by up to 10–15%, depending on the interest rate and tenure? This

is because in the early stages of a loan, a large part of your EMI goes toward interest, not principal.

Reducing the principal early reduces the base on which future interest is calculated.”

## 2.3 Applications of Time Value of Money in Loan Decisions

Time Value of Money (TVM) is crucial in the consideration of loans, as it allows both debtors and financial planners

to figure out the true cost of borrowing and the value of paying off at different times. TVM techniques are

employed in loan comparisons, refinance decisions and prepayment effects and..

working out the true cost of borrowing.

### 2.3.1 Comparing Loan Options Using PV/FV

When you have to decide between two or more loan offers, interest rates may not be enough. The

actual cost of the loan depends upon a few factors including:

- Interest rate
- Repayment structure
- Compounding frequency
- Loan tenure
- Additional fees

In our presentation we mention two important values that financial decision makers use to compare both present and future dollars as well as loans.

(Fv) calculations to accurately assess the financial cost.

Present Value as a Comparison Tool for Loans

The current value of all future loan payments tells us what those payments are worth at the time 0.

terms. A loan that requires lower present value of repayments is usually cheaper.

PV Formula for EMIs:

$$PV = EMI \times [1 - (1 \div (1 + r)^n)] \div r.$$

Where:

- PV = Sum of (PV) EMIs
- EMI = Equated monthly installments
- **r = Interest rate per each period**
- **n = Total number of periods**

By computing PV for each loan alternative, a borrower can select the one with lowest total cost in terms of today's dollars.

money.

Applying Future Value to Loan Decisions

If PV indicates the cost of borrowing, similarly FV used to determine how money saved by today for any future expense.

one choice could be larger if you simply invested it.

For example, if Loan A's EMI is ₹1,000 less per month than Loan B then this saving will amount to additional payout (calculated for each change in the interest rates) over For example, if the bank heavily discounts its loan when it hit 35%.

the duration of the loan would be determined:

$$FV = P \times [(1 + r)^n - 1] \div r$$

Where:

- **P = Monthly savings**
- **r = rate** of return on the investment.
- **n = Number of months**

This FV gives you the opportunity cost of opting for a high-EMI loan.

Example: Comparing Two Loan Offers

A loan consumer has two loans under consideration.

Loan A

Amount: ₹5,00,000

- Interest Rate: 10%
- Tenure: 5 years
- EMI = ₹10,623
- PV of all the payments  $\approx$  ₹5,00,000

#### Loan B

- Amount: ₹5,00,000
- Interest Rate: 9.5%
- Tenure: 6 years
- EMI = ₹9,030
- PV of cash flows (each year) = ₹5,15,000

#### Analysis:

On the face of it, Loan B seems like an attractive proposal as it has the lower monthly EMI. However, when the

Payments are actually examined in terms of present value, Loan B proves to be the more costly one although with a larger long run payback total cost.

repayable amount (₹5,15,000) is higher as compared to Loan A (₹5,00,000).

#### Instructions to Student:

You are considering two loan offers for buying a car worth ₹60,00,000.

- Loan A: Five-year, 10% interest loan / EMI ₹12,748
- Loan B: EMI ₹11,896 on 6-year loan at 9% a year

Calculate total present value of all EMI for both the loans using present value formula.

Assume

monthly compounding and a 10% discount rate.

Using your answers to (a) or (c), find which loan is cheaper in terms of present value terms.

#### 2.3.2 Choosing Optimal Loan Tenure

Loan term is the time frame in which the recipient of a loan agrees to repay said loan.

Choosing the

When you take a loan, selecting the tenure of the is an important decision as that determines the EMI (Equated Monthly Installment) you will pay.

total interest, and total loan costs.

Short Tenure Loans:

- Higher EMIs
- Lower total interest paid
- Loan cleared faster
- Higher monthly financial burden

Long Tenure Loans:

- Lower EMIs
- More interest over the life of the loan (because it is paid over a longer period) • Higher total payments (due to paying more in interest) • Less money for other investments, or something else.
- Easier monthly payments
- Longer-term debt obligation

Using the Time Value of Money, interest grows as time passes meaning that the longer term an investment is made for, the

greater the aggregate amount, notwithstanding that the individual payments might be low.

Example:

In this case, for a loan of ₹5,00,000 with 10% annual interest Calculate EMI

- 5-year term: EMI  $\approx$  ₹10,623, Total interest  $\approx$  ₹1,37,380
- For 10 Years tenor: EMI  $\approx$  ₹6,608 Total interest payable  $\approx$  ₹2,92,960

The borrower ends up paying over two times the interest in case of the 10-year EMI though it is cheaper than a 3-year counterpart

compared to a 5-year tenure.

Optimum tenure When deciding the ideal tenure you have to consider:

- Affordability of EMI
- Total interest paid
- Financial past, present, and future

Time Value of Money puts a number to the trade-offs so that borrowers can decide based upon facts.

on their financial priorities.

### 2.3.3 Impact of Interest Rates on Loan Cost

The rate, when applied to the amount borrowed, is charged as a borrowing fee. Even small the cost of the loan which is much higher for long-term : fluctuations in its\_available fare, and firstly in the rate may drastically influe\_nce.

borrowings.

Higher Interest Rate:

- Increases EMI
- Increases total interest paid
- Reduces affordability

Lower Interest Rate:

- Reduces EMI
- Reduces the total cost of borrowing
- Perhaps could enable borrower to borrow for shorter period or more cheaply

The Time Value of Money depends on the opportunity cost. In the loans, this is excessive interest.

rate. Given that interest is based on the balance, a higher rate compounds more quickly.

adding more and more financial burden Gradually.

Example:

Loan Amount: ₹10,00,000 for 15 years In such cases you use Calculate EMI .

- 8%: EMI  $\approx$  ₹9,566; Total interest  $\approx$  ₹7.21 lakhs
- At 10%: (interest in second example rounded off to ₹9.34 lakhs) EMI  $\approx$  ₹10,746 Total interest  $\approx$  ₹9.36 lakhs

Even a 2% hike in rate translates to an extra ₹2 lakhs as interest over the same tenure.

As such, even small spreads in interest rates (0.5%) can't be ignored. Borrowers should play with an NPV and EMI calculators to see them live.

Did You Know?

“Did you know that a 1% increase in interest rate on a ₹20 lakh home loan over 20 years can cost

you more than ₹3 lakhs extra in total repayment? Many borrowers focus only on EMI, but the

cumulative effect of a small interest rate change over long durations is significant. That’s why financial institutions show loan amortisation schedules to highlight total interest paid.”

### Knowledge Check 1

Choose the correct option:

1. What does an amortisation schedule primarily show?

- A) A breakdown of monthly savings
- B) A forecast of investment returns
- C) The split of EMI into principal and interest over time
- D) A list of loan offers from different banks

2. If you prepay a loan early in its tenure, what is the likely outcome?

- A) EMI increases
- B) Total interest payable decreases
- C) Loan principal increases
- D) Interest rate increases

3. Which of the following best describes the benefit of a shorter loan tenure?

- A) Lower monthly EMI
- B) Higher total interest paid
- C) Lower total interest paid
- D) Longer repayment period

4. What happens to the principal component of an EMI over time in a standard amortised loan?

- A) It decreases each month
- B) It stays the same throughout
- C) It increases with each payment
- D) It is paid entirely at the end

5. When comparing two loan options, the Time Value of Money helps to:

- A) Choose the bank with faster disbursement
- B) Identify the lowest EMI only
- C) Evaluate the real cost of loans using PV and FV
- D) Ignore interest and focus only on tenure

## 2.4 Summary

Loans are an essential tool for both personal and business finance, providing the ability to obtain funds in a variety of circumstances.

The Time Value of Money (TVM) is essential to determining loans because it enables the borrower to measure the actual cost of borrowing over time. The concept of loan amortisation

demonstrates the interest and principal components of individual EMIs, and their dynamics over the period of the loan

tenure. Loan repayment can be illustrated using tools like amortisation schedules and TVM-based

metrics like net present value and internal rate of return can help an entrepreneur make a more-informed decision. Loan

10 50 Total loan cost is shown to be strongly affected by tenure, rates of interest and prepayments. Mastery of these concepts

allows one to select ideal loan plans, minimize interest costs and better synchronize borrowing with

their financial goals.

## 2.5 Key Terms

Loan - Funds that are advanced to a borrower, to be repaid at a later date (generally with interest).

**Time Value of Money (TVM) - The idea that money today is worth more than the same amount in 7 tomorrow. the future.**

EMI- Equal Monthly Installment: Fixed monthly amount to be repaid by borrower.

Amortization - The process of repaying a loan over time in regular installments.

8 Interest Rate - A fee borrowers pay for the use of funds, expressed as a percentage of the loan amount.

Present Value (PV) - The value today of a future sum discounted at some rate.

Prepayment – Paying EMI amount over and above the applicable EMI to reduce loan balance or tenure ahead of time.

## 2.6 Descriptive Questions

Describe Time Value of Money and how it relates to paying off loans with specific examples.

What is loan amortisation? How does this change the timing of interest and principal payments?

Categorize interest and EMI burden of short term and long term loan.

In which way do prepayments reduce both the total interest amount and the loan duration?

Create a loan amortization schedule for ₹2,00,000 loaned at 10% for 3 years.

In what way can present value be used to see who is offering the best loan deal?

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## Answers to Knowledge Check

### Knowledge Check 1

1. C) The split of EMI into principal and interest over time
2. B) Total interest payable decreases
3. C) Lower total interest paid
4. C) It increases with each payment
5. C) Evaluate the real cost of loans using PV and FV

## 2.8 Case Study

### “Rohan’s Dilemma – Selecting the Right Home Loan Using Time Value of Money”

#### Introduction

In today’s financial climate, choosing the best loan can make a world of difference in the long run.

consequences. So when borrowers are comparing, they have to consider the broader .

financial effects of tenure, repayment schedule, and prepayments. The Time Value of Money

(TVM) has an important part in this analysis by enabling people to comprehend the real cost of

borrow and act in financial prudent ways. This case tells the story of how the decision to replace a borehole is reached.

of a young executive comparing two home loan offers by applying TVM techniques.

#### Background

Rohan, 30, a software engineer based in Pune. He is going to buy a flat costing

60 L and his housing loan has been sanctioned ₹ 50L. He has two banks who have given him loans

with different structures:

- Bank A: Loan amount ₹50 lakhs, tenure 20 years, interest rate 8.5%
- Bank B: Loan of ₹50 lakhs for 15 years at 9.5% per annum

Bank A is providing a lower EMI of ₹43,391 but has much longer loan tenure. On the other hand,

Bank B has the EMI of ₹52,294 but for relatively lesser tenure. Rohan is financially stable and

thinks his salary will go up in the next five years. He's also mulling whether to

paying up to ₹5 lakhs after the completion of fifth year. But he's not sure how to judge the longer term effects.

of each option. He wants an affordable decision that he can live with in the long run.

term savings.

Problem 1: Comparing the Amount of Interest Paid

Rohan wants to know which of his two options will be having lower total interest on the loan.

While Bank A's EMI is lower, the increased tenure could result in having to pay more at the end.

a lot more in interest down the road.

Solution:

Now you can calculate the total interest paid, by using the EMI and total payment formulas:

- Bank A:

$$\text{EMI} = ₹43,391$$

$$\text{Total Payment in 20 years} = ₹43,391 \times 240 = ₹1,04,13,840$$

$$\text{Total Interest} = ₹1,04,13,840 - ₹50,00,000 = ₹54,13,840$$

- Bank B:

$$\text{EMI} = ₹52,294$$

$$\text{Amount Paid in 15 years} = ₹52,294 \times 180 = ₹94,12,920$$

$$\text{Total Interest} = ₹94,12,920 - ₹50,00,000 = ₹44,12,920$$

Even if the EMI of Bank B is high, it saves you interest of ₹10 lakhs for the same loan.

Problem 2 — Prepayment after 5 Years Effect

After 5 years, Rohan wants to prepay ₹5 lakhs. He wants to know what the ammountable ole that this is going to have on the

remaining balance, term and interest due under each option.

Solution:

Using amortisation schedules:

- In case of Bank A, if we prepay ₹5 lakhs in year 5 with reduce outstanding and :
  - o Reduce the loan term by 3–4 years
  - o Or reduce the loan EMI ( if tenure is constant)
  - o Saving in Interest: Around ₹7-8 lakhs
- The effect in Bank B is stronger even because its EMI is greater and the term shorter. The same

The interest and the tenure both are affected less if the prepayment is done.

This is an indication that prepayment is more beneficial early in the life of a loan, when interest rates are higher

components in early EMIs.

MCQ:

What is the best way to minimize amount of interest paid on long term loan?

- A) Increase the loan amount
- B) Choose a longer tenure
- C) Prepay on a regular basis in the early years
- D) Occasionally skip EMIs to conserve cash

Answer: C) Prepaye each period in the earlier years

Conclusion

Rohan is an example of why it makes sense to time value money on loans.

framework. Though reduced EMIs can be more.) Total interest costs lengths of loans(EMI) look routine.

to longer tenures. Prepayment plans also help to minimize payment of interest, especially if implemented in early timeframe.

With the assistance of present value and total repayment alternatives analysis, Rohan is enabled to better determine whether it

is consistent with his current and future ability to pay.

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## Unit 3: Money Market

### Learning Objectives

1. Define the structure and functions of the money market, distinguishing it from capital markets.
2. Identify and describe the characteristics, participants, and instruments of the Indian money market.
3. Explain the features, maturity periods, and issuance process of Treasury Bills (T-Bills) and Commercial Papers (CP).
4. Compare different short-term money market instruments such as Commercial Bills, Certificates of Deposit (CDs), and Call/Notice Money, focusing on liquidity, risk, and yield.
5. Illustrate how Collateralised Borrowing and Lending Obligations (CBLO) function in secured interbank lending, including the role of collateral.
6. Evaluate the suitability of different money market instruments for banks, corporates, and government entities in managing short-term funding requirements.
7. Apply knowledge of money market operations to interpret market trends and assist in short-term investment or borrowing decisions.

### Content

#### 3.0 Introductory Caselet

#### 3.1 Overview of the Money Market

#### 3.2 Treasury Bills (T-Bills)

#### 3.3 Commercial Paper (CP)

#### 3.4 Commercial Bill

#### 3.5 Certificate of Deposit (CD)

#### 3.6 Call/Notice Money Market

#### 3.7 Collateralised Borrowing and Lending Obligation (CBLO)

#### 3.8 Summary

### 3.9 Key Terms

### 3.10 Descriptive Questions

### 3.11 References

### 3.12 Case Study

## 3.0 Introductory Caselet

### “Surabhi’s Treasury Dilemma: Navigating the Money Market for Short-Term Liquidity”

#### Background:

My friend Surabhi works as a treasury manager in an urban co-operative bank in Mumbai. Her daily responsibility includes

interest—in the bank through the control of surplus and deficit positions in line with regulation requirements and investment opportunities.

earnings. And as part of her job, she makes regular decisions about investing excess funds or borrowing short-term.

term money to address liquidity mismatches.

Surabhi finds herself in a fix one Monday morning: thanks to some inexplicable, sudden outflow of funds from customer

Withdrawals and interbank settlements, bank will end up being short of ₹15 crs for next two days. At the same

time, she was anticipating some significant liquidity coming in on Wednesday from the maturity of term deposits.

Surabhi studies several short-term sources of finance available in the money market. She evaluates the Call Money

Market for overnight borrowing, but is shocked to see rates so high. She also explores the Collateralised

MKI LENDING AND BORROWING OBLIGATIONS (CBLO) market- a secured borrowing in Indian repo products, wherein the eligible participants can borrow or lend against approved securities.

securities is available, but prices are a little lower. What’s more, she gets an offer to make Commercial

Paper, but I do think the attitude does not fit well with respect to this really urgent need.



She then decides to borrow ₹10 crores using the CBLO market against its surplus. Read more about Borrowing through CBLO (Collateralized Borrowing and Lending Obligation)[...]

securities and covers the balance ₹5 crores through the Call Money Market at a slightly higher

rate. This mix achieves the optimal compromise between cost and potential liquidity needs, and meets regulatory requirements.

Surabhi not only bridges the deficit made so far by end of week but also deploys the inflow in

91-day Treasury Bills to earn a riskless return on excess funds. Through this decision-making process,

she uses central notions of the money market, such as liquidity, risk, interest rate dynamics, and

instrument selection.

Critical Thinking Question:

If you were in Surabhi's shoes, how would you rank following issues— safety, cost and liquidity when

selecting money market instruments? What other money-market instruments might she wish to have for the future?

surplus management, and how would short-term interest rate trends affect such decision-making?

### 3.1 Overview of the Money Market

The money market is a component of the financial markets for assets involved in short-term borrowing and lending. It

deals with provisions of instruments maturing within one year. These platforms, operated by governments,

banks, and big business that need access to short term funds.

Unlike the capital markets, which are for long term investments, money markets enable

addressing short-term cash requirements and maintaining financial system stability. It is a wholesale market, I say.

transactions are typically high-volume trades made by financial institutions as opposed to the average person.

### 3.1.1 Definition and Features of Money Market

Definition:

The money market is a financial market where short-term financial instruments are traded. These

instruments are typically of high liquidity and low risk, and they mature in less than one year.

Examples

include Treasury Bills, Commercial Papers, and Certificates of Deposit.

Key Features:

51

SHORT SHORT MEDIUM TERM MATURITY: Instruments with maturities varying from 1 day to up to one year.

High liquidity: Such instruments can be converted to cash without losing value.

Low risk: The time frame is short and because of the participation of long-term institutions, so is the risk.

Wholesale market: It mainly refers to large institutions like banks, financial companies and government entities.

No face-to-face trading: The trades are done over-the-counter (OTC), as a rule electronically.

Interest rate sensitive: Movement in policy rates impact money market instruments even by marginal percentage points.

quickly.

### 3.1.2 Importance of Money Market in Financial System

The money market is an important factor in the economy for purposes of liquidity and stability.

Importance can be reflected in various ways:

Liquidity management: It allows banks and financial institutions to manage their short-term cash

needs. For instance, if a bank has surplus funds on its books and needs a minimal interest return, it can lend in the money market for interest.

it can borrow.

Resource allocation: It efficiently brings from-lenders-to-borrowers excess funds.

Aids RBI in monetary policy: The Reserve Bank of India (RBI) uses money market operations on the short-term interest rate and liquidity.

Safe haven: Offers an investor a secure place to stash money for short periods of time.

Benchmark rate: An interest rate in the money market that serves as a reference for other financial instruments.

Minimises idle funds: Even when money is sitting in one bank, it should be accessible to another that needs it.

### 3.1.3 Participants in the Money Market

The money market consists of financial institutions with large transaction volumes. The major

participants include:

Money-Market Agent Commercial Banks: They are the lenders and also borrowers in the money market. They use it for managing short-term liquidity.

Reserve Bank (RBI): Is a regulator as well as lender and borrower to the liquidity and implement monetary policy.

Mutual Funds: You can invest in money market instruments such as Treasury Bills and Commercial Papers.

Insurance Cos: Invest surplus funds in safe short-term instruments.

Corporates: Raise CP (Commercial Papers) for working capital.

NBFCs: Aggressive players in short-term borrowing.

Primary Dealers: Trade in government securities as well as facilitate market making.

Government: It also issues short-term instruments such as Treasury Bills to manage its short term fiscal requirements.

These actors decide according to their liquidity situation, investment aims and funding needs.

### 3.1.4 Role of RBI in Regulating the Money Market

Money and Banking are other terms of it: Reserve Bank of India (RBI) had played the significant role in controlling, development or management of money market in India. Its aim is to increase maintain the monetary stability and control inflation as well as the liquidity funktional.Girozentral such responsibilities has. in the financial system.

RBI in the Money Market The important functions RBI plays in the money market are:

Liquidity Management: The RBI manage the level of liquidity in the financial system using various instruments such as repo and reverse repos.

the money supply.

Interest Rate Regulation: The RBI manages short term interest rates to contain inflation and encourage economic growth.

Instruments Issued: It issues Treasury Bills on behalf of the government and enables other instruments.

Policy Policy Framework: Establishes rules for participants, transactions and capacities Needed market integrity.

discipline.

Developmental Role: Promotes the development of electronic market for efficient and transparent price discovery.

trading platforms.

(3) – Monitoring and Supervision: Guarantees fairness preserves system stability with. oversight of institutions and instruments.

active role which the RBI plays in the market and (b) that money market behaves efficiently according to the definition of.FindGameObjectWithTag

country's overall monetary policy goals.

### 3.2 Treasury Bills (T-Bills)

T-Bills are short term Government of India debt instruments used to meet its short-term fund requirements.

term borrowing needs. Because of this, theyre considered one of the safest money market instruments and offer a return on your investment.

backed by the central government. T-Bills are sold at discount, that is they are issued at a lower (besides the face value) than face value and matured on face value.

treatment of the issue price - face value Interest earned by the investor is the difference between issue price and face value.

T-Bills are mainly utilized by banks, financial institutions and corporates to park their excess funds with a time period of 91 days.

secure and liquid investment.

### 3.2.1 Nature and Characteristics of T-Bills

Nature of T-Bills:

- They are zero-coupon instruments to which no interest (coupon) payments attach.
- They are sold at a discount and redeemed at face value.
- T-Bills are a liability for the Government of India, issued through RBI.
- They are short-term debt (issued for less than 1 year).

Characteristics:

Short Duration: These come with 91-day, 182-day or 364-day maturity.

High Liquidity: They are highly marketable in secondary markets prior to maturity.

Low Risk: The government backs them so the chance of default is next to zero.

No Interest in the Ordinary Course: Investors make returns through a discount.

Auctioned by Auctions: Conducted by RBI on competitive and non-competitive bid basis.

Negotiable Securities: They are negotiable in the secondary market In India they are eligible for repo.

transactions.

### 3.2.2 Types of Treasury Bills (91-day, 182-day, 364-day)

In India, the T-Bills are available in these types: 1. Orestalled by issuing GOI, Dated Securities ORESTALLED BY ISSUING GOI, DATED SECURITIES ( a ) Treasury Bills It is a short Term instrument to meet the requirement of government till it can raise resources through market borrowings.

91-day T-Bill:

- o Lowest term of any T-Bill.
- o Issued weekly (every Friday).
- o It's a favorite of banks for managing short term liquidity.

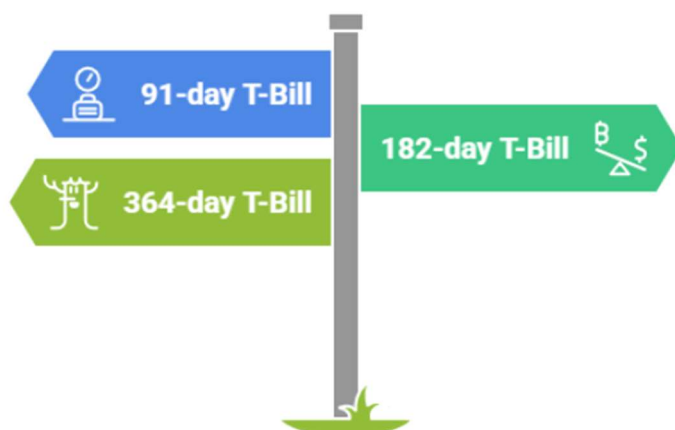
182-day T-Bill:

- o Medium-term T-Bill.
  - o Issued on alternate Wednesdays.
  - o Ideal for those institutions with investment horizons that are a little longer.
- 364-day T-Bill:
- o Longest maturity in the T-Bill - an indigestion settled for those shorter term papers.
  - o Also published every other Wednesdays.
  - o Lures corporates and institutional investors to park money for almost a year.

All of these T-Bills adhere to the discount-to-face-value approach, with the selection between them based on

the presence of the investor's investment horizon and liquidity requirement.

### Which type of Treasury Bill should I invest in?



“Did you kn

ow that the 91-day Treasury Bill is the most frequently

traded T-Bill in India and serves as the benchmark for short-term interest rates in the economy?

Its weekly auction by the Reserve Bank of India (RBI) provides real-time insights into the market's

liquidity conditions.”

### 3.2.3 Advantages and Limitations of T-Bills

Advantages:

**Safety:** Being a government backed instrument, T-Bills have almost Zero Default Risk.

**Liquidity:** Marketable in the secondary market and assure easy accessibility of funds.

**Short-Term Investment:** Suitable for institutions that require a secure vehicle to park surplus funds for the short term.

periods.

**Market Benchmark:** T-Bill yields are used as a benchmark for short-term interest rates in the economy.

**Flexible Investment Size:** Available in even small denominations such as ₹25,000 (non-competitive bid)

bids).

Limitations:

**Zero Periodic income:** As zero-coupon instruments T-Bills do not offer periodic interest payments

income.

**Lower Returns:** The returns on commercial papers may be lower than other instruments such as corporate papers or fixed deposits.

may be lower.

**Mostly for Institutions:** The market is mostly dominated by banks and large financial institutions.

**Interest Rate Sensitivity:** Its value in secondary market move with interest rate adopted by RBI

policy rates.

### 3.3 Commercial Paper (CP)

**Commercial Paper (CP)** CP is an unsecured, short-term money market instrument issued by corporates to reduce their cost of borrowing.

fund their immediate circulatory capital requirements. It is a given with a fixed maturity and commonly.

can be issued at a discount to face value like a Treasury Bill, but unlike T-Bills, CP is not backed by the

government.

CP is a popular source of funds for creditworthy corporations seeking to raise cash quickly and at a low cost from banks,

banks and other institutional investors.

### 3.3.1 Concept and Features of Commercial Paper

Concept:

Commercial Paper is an unsecured promissory note of a company with excellent or very strong credit standing. It serves

instead of bank credit for short-term cash needs. Since it is unsecured, only

Creditworthy companies are permitted to issue CP.

Features:

Unsecured: It is not secured with any collateral; credit standing is the main criteria while offering this facility.

Short Duration: Maturity is between 7 days and 1 year.

Discounted Issue: They are emitted in discount and payable at full amount.

Denominations: In multiples of ₹5 lakhs, minimum investment being ₹5 lakhs.

Liquid: Tradable on an exchange which means they can be sold in the secondary market.

Credit Rating Needed: A credit rating of the applying organisation from an established credit rating agency such as CRISIL or ICRA is

mandatory.

Negotiable Instrument: It is negotiable and can be endorsed and delivered.

### 3.3.2 Issuers and Investors of CP

Issuers:

Large Corporate: Firms with POS developed credit and strong financial.

Primary Dealer: Entities authorized to deal in government securities can issue CP.

All-India Financial Institutions (with examples)SIDBI AND NABARD etc.

NBFCs: Non-Banking Financial Companies can also issue CP subject to the requirement of meeting stipulated guidelines.

Conditions for Issuance:

The terms for issue, however, are that you should have a working capital limit sanctioned by a bank.

Moreover, a minimum of credit score is demonstrated under the program's guidelines of the Reserve Bank of India (RBI).

Investors:

Commercial Banks: To invest idle funds.

Mutual Funds: Short-term debt portfolios.

Insurance Companies: For short-duration investments.

Corporations: With temporary surplus cash.

high net worth investors and other types of financial institutions.

Retail investors are generally not able to invest directly, mainly due to a high minimum investment.

Did You Know? "Did you know that Commercial Papers (CPs) can only be issued by companies that have been rated for short-term borrowing by a credit rating agency and have a working capital limit sanctioned by banks? This makes CPs one of the few regulated unsecured debt instruments that balance credit risk with investor returns."

### 3.3.3 Advantages and Limitations

Advantages:

Cheaper than Bank Loans for Well-Rated Companies: Lower cost of borrowing than what banks at times offer to well-rated firms.

Speed of Access to Funds: Loans Issuance is easier and faster.

No Collateral Required: As a non asset-based form of finance, companies don't have to pledge assets.

Maturity Flexibility: Maturity is designed according to the needs of the company.

Tradability: Before maturing, it can be sold in the secondary market and thus provides liquidity.

Limitations:

Credit Risk: Since CP is uncollateralised, there are chances of default if the issuer runs into financial difficulty.

Restricted to Strong Firms: Only big firms with good credit ratings can sell CP.

Market Reliance: Issuance is a function of market and investor sentiment.

Not for Long-Term Needs: CP is not a source of funding appropriate for long-term uses. The high minimum investment quantum makes it impossible for the retail participation.

### 3.4 Commercial Bill

A Commercial Bill is a short-term negotiable financial instrument used in trade transactions. It is also referred to as a bill of exchange and is commonly used for credit sales. In simple terms, it is a written order from the seller (drawer) to the buyer (drawee) to pay a certain amount either immediately or at a future date.

Commercial bills are used widely in trade finance to bridge the time gap between delivery of goods and actual payment. They can be discounted with banks before maturity, providing liquidity to the seller.

#### 3.4.1 Concept and Role of Commercial Bills

Concept:

A commercial bill is a written unconditional order by the seller of goods (drawer) on the buyer thereof to pay at sight or to bearer, a certain sum in money for value received or for immediate payment.

(drawee) to a party (drawee) and requiring the drawee to make payment of the amount due, either on demand or on some future date. It is a formal credit

document employed in business to business transactions, particularly in sales on credit.

Role:

Trade credit instrument: It allows sellers of goods or services to extend a trade credit to the other party.

promise of payment.

Liquidity Tool: Banks can discount these bills to sellers to provide them with funds before the due date of the bill

date.

Legally Binding: A commercial bill, as it is regulated by the Negotiable Instruments Act which talks of.

legally enforceable.

Transferable: Bills may be accepted and endorsed by others in order to obtain finance.

Participants typically include:

- Drawer—The person who draws (sells) the bill.
- Availer: The seller or debtor.
- Drawee: The Customer that the bill drawn upon to accept it and undertakes to pay.
- Endorser: Third part with a present or past interest in the bill may be the holder or the discounter of the bill.

### 3.4.2 Usance and Demand Bills

Bill types Bills can be generally categorized based on timing of payment as well.

Demand Bills:

Bills payable "on demand" or "at sight," we pay as soon as presented. They do not mention any

an explicit date a particular time and used where the seller does not provide credit.

Usance Bills:

Usance bills (Also called time bills): These are the bills which become payable after a certain period, say within 30, 60 or 90 days from

the date of acceptance. They are frequently used in trade as they provide credit terms. In this

case the buyer takes up the bill and promises to pay on that date. Usance bills are commonly drawn in

business and are generally factored by banks for working capital.

### 3.4.3 Importance in Trade Finance

Commercial bills are important in the short -term finance of trade, particularly in goods based transactions.

businesses. Their importance includes:

Connecting Payment Gaps: They enable sellers to get paid now rather than wait for the buyer's

credit period to end.

Better Liquidity: Seller can discount the bill with bank and get instant money.

Lessening Credit Risk: A bill that is approved by a buyer presents a formal declaration to pay and this will further lessen the severeness of the credit risk.

default risk.

Promoting Organized Credit: They encourage organized credit rather than anecdotal ones. informal verbal promises.

Banks in Trade: Banks participate in trade finance by discounting parties to shipments. and collecting bills.

Negotiability: Bills are readily transferable by endorsement and hence represent a flexible store of value.

instruments.

Finally, commercial bills cater for working capital requirements (which can assist trade credit discipline).

transactions particularly in the manufacturing and distribution fissures.

### 3.5 Certificate of Deposit (CD)

Certificate of Deposit (CD) is a short term negotiable money market instrument sold by banks and podcast Word of the Day: Dow Jones Data Contact Us § 230.

financial institutions to raise funds. And it is a term promissory note with fixed interest. CDs are like fixed deposits however open for trading unlike regular FDs.

Commercial banks are the predominant holders of CDs, using them to meet short-term liquidity needs, and investors includ.

corporates, mutual funds, insurance companies also lapping up the same for safe and liquid investment purposes.

#### 3.5.1 Features of Certificates of Deposit

Fixed Term Instrument: CD's are created for a set "term" or period of time, with a certain date of maturity.

Negotiable: They are one that can be bought and sold in the secondary market, ensuring liquidity.

Issuing at Par Value or Discount: CDs may be issued by banks oar par or at discount, depending on whether the bank expects to increase its loan operations.

on the interest structure.

Fixed rate of return: Rate of return for a security is fixed when it is issued. And, it does not change until the investor holds it to maturity.

maturity.



Transferable: CDs are provided in dematerialised (electronic) form and may be transferred as per prevailing banking laws.

parties easy.

No Early Withdrawal: CDs can not be withdrawn before being in the newspaper for three months, when a CD is issued by 2/15 The local

### 3.5.2 Issuers and Maturity Periods

Issuers:

Scheduled Commercial Banks: Majority of CD are issued by scheduled commercial banks (other than RRBs and Private sector BANKs).

cooperative banks).

Financial Institutions: All-India Financial Institutions, including IDBI, SIDBI, NABARD, etc., can also issue CDs.

Maturity Periods:

- Banks: No less than 7 days and no more than 1 year from the date of issue.
- For financial institutions: 1 year to three years.

The life of the instrument is set at issuance and cannot change.

Did You Know?

“Did you know that while Certificates of Deposit (CDs) look similar to fixed deposits, they are not

eligible for premature withdrawal, and they cannot be encashed at the issuing bank?

Instead,

they must be sold in the secondary market if the investor wants to exit before maturity.”

### 3.5.3 Advantages and Risks

Advantages:

Safety: CDs are generally considered safe for investment as with all other financial instruments, when you invest in a CD then it is issued by banks or credit unions.

Liquidity: Since CDs can be traded in the secondary market, they provide more liquidity than traditional FDs.

Fixed Returns: The investor at the time of investing knows what is to be the exact return from his investment.

Institution Appeal: Mutual funds, pension funds and corporates find CDs appealing when looking for short-term (up to 364 days) investment.

parking of funds.

Risks:

No Early Withdrawal: Investors can't cash out of the CD early, but instead would have to sell it on the secondary market.

market to exit early.

Risk of Reinvestment: If a Note is sold prior to maturity, fluctuation in interest rates may cause the price to yield less than the stated rate.

Low Returns Relative to Other Higher Risked Tools: Since they are safe, CDs usually earn lower

returns compared to corporate papers.

Credit Risk: In some cases – while not common, there is credit risk if the bond is issued by a financially-unhealthy.

institution, but most of them are from well-rated issuers.

### 3.6 Call/Notice Money Market

Call/Notice Money Market The Call/Notice Money Market is part of the money market in which funds are borrowed or lent for a day or over night.

and borrowed and lent among financial institutions, primarily banks, to meet daily liquidity needs. It is often

known as the interbank market and is a key channel for keeping liquidity in the banking system.

These are uncollateralized transactions. The market is policed by the

Reserve Bank of India (RBI), and is very responsive to interest rate changes.

#### 3.6.1 Concept of Call Money and Notice Money

Call Money are money borrowed or lent for 1 day. It is commonly known as the overnight funds

market. If a bank borrows rupee (₹) funds from another bank for a short period or overnight, it is called call money.

transaction.

Notice Money is the money borrowed or lent for 2 to 14 days. It is called notice

, since it is during this period that payment with less than daily notice may be made. There is no stated maturity date, however,

there is at least minimal warnings period (normally one to three days) before the loan may be repaid.

Key Features:

- Participating entities: Only scheduled commercial banks, primary dealers and cooperative banks (with.

RBI permission) can participate.

- No collateral: These loans are not secured.

- Variable interest rates: The call rate (interest rate) is set daily according to the liquidity of the market.

market.

- Objective: Aids banks in fulfilling CRR and SLR

duties or for systematic shortfalls in cash.

### 3.6.2 Role in Liquidity Management for Banks

The call/notice money market is an important instrument of managing short-term liquidity in the banking system.

For Lending Banks:

- It enables banks with excess funds to lend for very short periods and earn interest.
- It keeps surplus cash from sitting around idly.

For Borrowing Banks:

- Eases short-term liquidity pressures.
- Helps banks keep their statutory reserve requirements (such as CRR and SLR) without selling long-term assets.

- Gentle cushion for when liquidity is scarce.

For the System:

It serves as a daily measure of the liquidity situation through the call money rate.

- Helps RBI in execution of monetary policy and managing money supply.

### 3.6.3 Risks and Limitations

The call/notice money market, while being a useful instrument of liquidity management, exhibits some aspects of directed lending.

risks and limitations

. Interest Rate Volatility:

- Call money rates have a tendency to be extremely volatile, especially when liquidity in the credit markets is

uncertainty.

- This makes interest expenses unpredictable to banks.

No Collateral:

- Because the transactions are unsecured, there is a credit risk in the case of default by the borrowing bank.

Limited Participation:

- It is a restricted market to which only certain institutions are allowed access.

Short-Term Focus:

- It alleviates very short-term liquidity only, and is not appropriate for longer funding needs.

Dependency on Market Sentiment:

- Trading can be influenced by rumors, financial statements and policy alterations; and this may cause the market

to irrational interest rate movements.

However, in spite of these risks, Call/Notice Money Market fulfils an important function in a financial system.

allowing banks to reposition daily and keep everything stable.

### 3.7 Collateralised Borrowing and Lending Obligation (CBLO)

in the Indian money market as a basket product to offer Borrowings and Lendings.

a collateralized borrowing and lending service to callers not approved to access the call

money market directly. It was designed by the Clearing Corporation of India Ltd. (CCIL) and introduced as a person in 2002, being launched by OLE practicing Match eatory Guidelines.

in 2003 under direction from Reserve Bank of India (RBI).

CBLO facilitates borrowing and lending of short-term funds (1 day—90 days) with the help of.

government securities as collateral. It's a convenient and low-risk bridge for short-term liquidity.

### 3.7.1 Concept and Mechanism of CBLO

Concept:

CBLO is a repo like instrument that provides borrowing and lending of funds against pledge of

eligible government securities. CBLO, unlike the unsecured call money market, is a fully secured one and so tends to be risk-free.

it safer for both parties.

Mechanism:

ELIGIBILITY: Members of CCIL (viz., banks, mutual funds, nbfc's insurance companies etc.) are the only parties to be eligible to lend on DvP:namestr\_vali.

or other financial institutions) are eligible to participate.

Security: Borrowers are required to offer Government securities (like Treasury Bills or dated securities) as security.

as security, which are kept in a separate account with the CCIL.

Borrowing Process:

- o A borrower borrows cash via the CBLO trading system.

- o Lenders make loans based on availability and interest rates.

- o The transaction is guaranteed by CCIL and operates as a central counterpart to the parties involved, thereby minimizing

counterparty risk.

Tenure: CBLO: 1 day to 1 year, however the majority of them up to 90 days.

Clearance and Settlement: Transactions are cleared and settled on the.\n\nIndian Financial Network (INFINET) or both.

Negotiated Dealing System (NDS).

Interest rate: Set by bidding or adirected negotiation and is indicative of the temporary.

liquidity conditions in the market.

### 3.7.2 Role in Indian Money Market

one have become an integral part of Indian money market for the institutions, particularly those.

prohibited from entering the call money market. Its role includes:

**Widening Access:** Adds more players in the system like mutual funds, insurance companies and NBFCs

into the short-term lending ecosystem.

**Provision of security:** CBLO guarantees credit safety by demanding government securities as collateral.

and that is protective of both lenders and borrowers.

**Liquidity Management:** As the best instrument to manage daily surplus or deficit of funds on a short term basis for institutions

liquidity.

**Lower strain on call money market:** Some volume from the call has been absorbed by CBLO market which serve to alleviate volatility and risk concentrations.

**Enhancing Transparency:** Automated system and centralised clearing [9].

[9] improved the effectiveness and stability of the money market mechanism.

**Monetary Policy Tool:** CBLO assists RBI to observe and regulate short term interest rates and liquidity flows.

### 3.7.3 Comparison of CBLO with Other Instruments

Feature

CBLO

Call/Notice Money

Security

Treasury Bills (T-Bills)

Secured

(collateralised

government securities)

by

Unsecured

Issued by Government

(zero-risk)

Participants

Banks, Mutual Funds, NBFCs,

Insurance Firms

Banks and Primary

Dealers only

Maturity

1 day to 1 year, mostly  $\geq 90$

days)

1 day to 14 days

Banks,

Individuals

Corporates,

91, 182, 364 days

Return Type

Interest based

Interest based

Discount-based

coupon)

Market Access Through CCIL platform

Interbank OTC market RBI auctions

(zero-

Regulatory

CCIL (under RBI oversight)

Body

Risk

RBI

RBI

Low (due to collateral)

Higher (unsecured)

Negligible (sovereign-backed)

“Activity: Compare Money Market Instruments for Liquidity Needs”

Instruction to Student:

You are a fund manager of an NBFC that needs to invest ₹10 crores for 7 days. Choose between the

following instruments: CBLO, Call Money, and 91-day T-Bill.

1. Research the current yields (interest rates) of each instrument using RBI bulletins or market

sources.

2. Prepare a comparison table based on:

o Security (secured/unsecured)

o Liquidity

Return

o Suitability for your 7-day time horizon

3. Decide which instrument is most appropriate for your institution’s short-term parking of funds.

4. Prepare your comparison table and a brief justification for your choice.

Knowledge Check 1

Choose the correct option:

1. Which of the following money market instruments is issued at a discount and carries no interest?

A) Commercial Paper

B) Certificate of Deposit

C) Treasury Bill

D) Commercial Bill

2. Who among the following can issue Commercial Paper in India?

A) Cooperative Banks

B) Corporates with high credit ratings

C) Retail investors

D) Government departments

3. What is the maximum maturity period of a Certificate of Deposit (CD) issued by commercial

banks?

A) 1 year

B) 3 years

C) 6 months

D) 2 years

4. Which of the following is a secured money market instrument that requires government securities as collateral?

A) Call Money

B) Treasury Bill

C) CBLO

D) Commercial Paper

5. What is the key difference between Call Money and Notice Money?

A) Call Money is secured, Notice Money is not

B) Call Money is for 1 day, Notice Money is for 2 to 14 days

C) Call Money pays interest, Notice Money does not

D) Call Money is issued by corporates, Notice Money by banks

### 3.8 Summary

The money market is crucial in ensuring short-term liquidity of the financial system. It deals such as short-term (up to one year) instruments and offers a mechanism for financial institutions with surplus funds,

for companies and governments to handle short-term borrowing. Instruments such as Treasury

Bills, Commercial Papers, Commercial Bills, Certificates of Deposit Call/Notice Money and CBLO have different utilities according to participants, maturity and risk characteristics.

❖ While Treasury Bills The glorious opportunity for business men to easily fund Commercial Papers and

Certificates of Deposit give corporates and banks market related funding solutions. The Call/Notice

Money Market offers overnight and ultra-short term funds mainly to the banks, while they have counterpart in CBLO

Security-based Finance allows to borrow against government securities. There are features of each instrument,

disadvantages and restrictions, yet as a whole, they help in achieving effective liquidity

policy conduction, and short-run investment opportunities in economy.

### 3.9 Key Terms

Money Market – Part of financial market where short term borrowing/lending occurs (less than 1 year).

2 Treasury Bills (T-Bills) – Short-term government securities sold at a discount with no coupon payments.

14 Commercial Paper (CP) – An unsecured, short-term note issued by a corporation.

Commercial Bill - A negotiable trade finance instrument, on a fixed date of payment.

CD(Time Deposit)– Fixed-time deposit issued by banks that bear interest on a specific maturity date.

Call Money – Money borrowed/lent overnight among banks/financial institutions.

Notice Money – The money borrowed/lent for one day or up to 14 days.

CBLO – Collateralised borrowing/lending of government securities.

Liquidity – The financial flexibility to quickly turn assets into cash without losing value.

### 3.10 Descriptive Questions

Define the money market. What is the difference between capital market?

Describe the features and types of Treasury Bills, issued in India.

What is Commercial Paper? What is it, and who can launch one?

Distinguish between Usance Bills and Demand Bills. How do they matter in trade finance?

Explain the characteristics, maturities and benefits of CD's.

Describe the purpose of Call/Notice Money Market for any Bank in meeting the liquidity.

What is CBLO? How it is distinct from Call Money?

Explain Risk and return associated with T-Bills, CP and CBLO and their usage.

Explain the restrictions of uncovered money market instruments.

What are the various methods and instruments that RBI has employed to regulate and control money market?

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### Answers to Knowledge Check

#### Knowledge Check 1

1. C) Treasury Bill
2. B) Corporates with high credit ratings
3. A) 1 year
4. C) CBLO
5. B) Call Money is for 1 day, Notice Money is for 2 to 14 days

### 3.12 Case Study

#### Managing Short-Term Liquidity: A Bank's Use of Money Market Instruments

##### Introduction

Short-term liquidity management is one of the most crucial function for a commercial bank.

A

bank faces the tradeoff between holding sufficient cash to satisfy current withdrawals and investing excess cash to maximize returns. It is within this framework, the Indian money market

offers a number of instruments to assist banks in fulfilling their liquidity and regulatory requirements.

#### Background

XYZ Bank, a mid-sized private sector bank in India, has its hands full everyday managing its liquidity. On other days, it may have excess cash from customer deposits or loan payments.

On some others, it is hobbled by liquidity shortages following a lot of withdrawals or interbank settlement

requirements. This balance is also monitored by the bank's Treasury Department and take corrective action.

Managing Surplus – XYZ Bank would also place its funds in Treasury Bills, Certificates of Deposit etc.

and CBLO. Which on course of a day when it needs money, borrows from Call Money Market or offers

Commercial Papers. For short-term, credit-based trades it obviously relies on Commercial Bills.

The treasury manager of XYZ Bank reviews different instruments on a daily basis using factors such as

interest rate direction, preference for maturities, RBI repo rate and liquidity conditions. The bank

also plays in the CBLOmarket by borrowing against government securities as collateral. overnight funds at competitive rates.

#### Problem Statements

Can XYZ Bank invest in CBLO and T-Bills when in surplus How?

liquidity situation?

What are the dangers of excessive dependence on unsecured instruments such as Call Money or

Commercial Paper?

The choice of instrument How should the instrument choice vary according to whether the bank is experiencing a surplus or deficit?

deficit liquidity position?

Solutions

- In a rising short term interest rates scenario, CBLO becomes relatively attractive as returns and lower risk. T-Bills provides safety and fixed return on investments while the attractiveness may reduce when

rates are volatile.

- Over-dependence on unsecured markets such as Call Money/CP could lead to credit

and market, particularly counterparty default risk.

- In surplus conditions, banks buy T-Bills, CDs or CBLO. In deficit, they borrow via CBLO, Call Money or offload CP depending on the cost and availability.

Conclusion

By both XYZ Bank™s and clients Transactions The case of XYZ Bank emphasizes the actual significance of money market instruments in day-to-day banking business.

day banking operations. Valid use of secured and unsecured instruments enables the bank to

In short, to preserve liquidity, control risk and maximize earnings, all the while meeting(edge through appropriate) regulatory.

guidelines. We also find that Time, Risk, Return and Maturity are important factors in the selecting the right instrument.

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## Unit 4: Money Market and Monetary Policy

### Learning Objectives

1. Explain the relationship between the money market and monetary policy in the Indian financial system.

14 2. Identify the role of the Reserve Bank of India (RBI) in using the money market to regulate liquidity and interest rates.

1 3. Describe key monetary policy tools such as repo rate, reverse repo rate, CRR, SLR, and Open

Market Operations (OMOs).

4. Distinguish between different liquidity management tools used by the RBI in the context of short-

term vs. long-term liquidity control.

5. Analyze how changes in money market interest rates signal the stance of monetary policy to market participants.

6. Evaluate the effectiveness of monetary policy transmission through money market instruments such

as T-Bills, Call Money, and CBLO.

7. Apply knowledge of the money market to interpret the impact of policy rate changes on borrowing

costs, liquidity conditions, and financial stability.

### Content

#### 4.0 Introductory Caselet

#### 4.1 Link Between Money Market & Monetary Policy in India

#### 4.2 Tools for Managing Liquidity

#### 4.3 Effectiveness of Monetary Policy via Money Market

#### 4.4 Summary

#### 4.5 Key Terms

#### 4.6 Descriptive Questions

#### 4.7 References

#### 4.8 Case Study

#### 4.0 Introductory Caselet

##### “Arjun’s Policy Puzzle: Understanding the RBI’s Role in Liquidity Management”

###### Background:

Arjun is a budding economist working with the treasury division of a commercial bank in Bengaluru. His team

watching short-term rates, RBI's announcements and the liquidity coming in money market. One day, Arjun sees the call money rate shoot up from 5.50% to 7.10%

within a week. He also notes that yields on 91-day Treasury Bills are increasing as well and points to a slowdown in interbank lending

through CBLO.

And there, Arjun opens the latest Monetary Policy Report of RBI. He

discovers that the RBI had just hiked the repo rate by 50 basis points to tame inflation, as well as sought to

undertaking a set of Open Market Operations (OMOs) for mopping-up surplus liquidity from participating hanging Rectified: Tamil Nadu Page 77 o banking system.

system. Furthermore, the cash reserve ratio (CRR) was increased as a measure to contain credit growth to

rising food and fuel prices.

For credit flow to continue in the MSME sector and for agriculture finance, the RBI also issued a consecutively announced a package of measurement.

refinance with NABARD and SIDBI. As Arjun considers these policy measures, he realizes

that the money market is a first signal of monetary tightening and several instruments like repo rate, CRR reverse repo, refinance work together to regulate liquidity inflation and 45 coordinated manner.

economic stability.

This opens his eyes that the money market is too intimate to monetary 111.

7

policy, and how FI's need to realign their approach in order to continue to be effective and compliant.

Critical Thinking Question:

As Arjun, what would you suggest to your bank in response to increasing short terms interest

rates in the money market? How can banks improve the management of liquidity during periods of tight monetary policy?

#### 4.1 Link Between Money Market & Monetary Policy in India

The money market is a crucial component in the establishment and execution of monetary policy in every.

economy. In India, the RBI (The reserve bank of India) is resorting to money market as an important tool to: A.

determine near-term interest rates and liquidity in the financial system. The effectiveness of monetary policy

to a large extent hinges on the effectiveness of communication by the central bank, through different money market

instruments.

##### 4.1.1 Role of Money Market in Transmission of Monetary Policy

The monetary policy transmission works through the changes in policy rates (repo or reverse.

reverse repo) would affect the larger economy, such as interest rates, credit expansion, consumption and so along on.

inflation.

The transmission is carried out through the money market which serves as a first stage. Here's how:

Policy Rate Signalling : When the RBI changes the repo rate, it sends a signal to banks.

banks raise short-term funds from the RBI.

Call/Notice Money Rates Effect: These inter bank lending rates are prompt in reflecting.

the policy raft, which indicates the RBI's monetary stance.

Effects on Other Money Market Instruments: Other money market instruments including CBLO and T-Bills, as well as overnight call rates have largely trended downwards.

Commercial Papers also account for change in liquidity condition and anticipation about future policy moves.

Bank Rate: Changes in short-term rates over time are transmitted to bank lending rates, and this to Fixed(1) Last column of.

changes in bank lending rates, which influence the availability of credit in the economy.

So, the money market acts as a transmission mechanism for policy decisions to influence the general financial conditions.

#### 4.1.2 Impact of Money Market Conditions on Inflation & Growth

Market conditions—liquidity and interest rate dynamics in proximity to auctions—are a immediate consequences on inflation and growth:

Liquidity Stress/High Interest Rates:

When the liquidity is reduced by the RBI (by increasing the repo rate or maintaining a tightened money supply),

money market short-term rates in the money market increase.

- o This discourages people from borrowing and spending their money, thereby helping to control inflation.

Simple liquidity / Low Rates of interest:

- o When the RBI pumps in liquidity (e.g., through OM operations or cut in repo rate), short-term rates fall.

- o This in turn makes banks more willing to lend, and businesses more eager to invest in their future — with the result that the economy now grows faster.

Inflation Expectations:

- o Short-term money market instruments do typically stock future inflation expectations.

- o Higher yields could be a sign of the market's expectation of rising inflationary pressure, leaving RBI to.

respond through monetary policy actions.

Market Reaction Speed:

o The money market adjusts rapidly to policy signals, so it is a good indicator of economic sentiment and a key tool for quick-checking the state of the economy.

#### 4.1.3 Coordination Between RBI and Money Market

The effectiveness of India's monetary policy depends on good cooperation between the RBI and th...

functioning of the money market. This coordination occurs along several dimensions:

Liquidity Adjustment Facility (LAF):

o Under LAF, RBI also use instruments such as repo and reverse repo to influence short term liquidity on a daily basis.

**Open Market Operations (OMO):**

o RBI purchasing government securities when they want to increase the liquidity and short-period  
o RBI selling government securities when they want to reduce the level of liquidity and short-period interest rates.

Policy Announcements and Rate Signals:

o RBI utilizes scheduled monetary policy announcements to manage the market.  
o Communications are transparent, consistent and long-term oriented to preserve market stability.

Market Development:

o The RBI has contributed a great deal to the development of money market by nurturing the

CBLO, NDS and electronic trading platforms utilized.

o It builds transparency, efficacy and a market with depth.

Monitoring and Regulation:

The RBI persistently tracks the call money market, commercial paper issuances, and CD scores to identify strains or overloads and intervene as required.

Through these channels the RBI makes certain that monetary visits managed efficiently. money market, which reflects both price stability and the growth of the economy.

#### 4.2 Tools for Managing Liquidity

Liquidity in the financial system and RBI, which has been using a mix of tools to manage the same.

to control the inflation, financial discipline and economic growth. These are the kinds of programmes which fit into the heading of

monetary instruments of the RBI and they aid the central bank to regulate money supply, curb inflation, and

influence interest rates.

There are quantitative tools (for they impact the overall money supply) and qualitative tools (centered toward interior control).

specific sectors). Here, we analyse the following three key quantitative instruments employed by RBI to regulate liquidity.

effectively.

#### 4.2.1 Reserve Requirement – CRR & SLR

Cash Reserve Ratio (CRR):

• It is the ratio of a bank's total demand and time liabilities (NDTL) that must be maintained with

the RBI as reserves in the form of cash.

- No interest is earned by the R.B.I. on these reserves.
- Objective: To influence the money supply and liquidity position of the banks such that inflationary/deflationary pressures are contained within acceptable limits.

acceptable limits.

Illustration: If the CRR stands at 4.5%, and a bank has ₹1,000 crores in NDTL, it will be required to keep ₹45 crores with the

RBI.

Statutory Liquidity Ratio (SLR):

• It is the percentage of NDTL to be kept in liquid assets like cash, reverse repo or govt. securities etc.

gold or government recognised securities before lending to borrowers.

- SLR is held by the bank and not with RBI.
- Objective: To check inflation, secure control over bank credit and to maintain the solvency of banks.

Comparison:

76

Interest Earned

Tool Maintained With Form

CRR RBI

Cash

No

SLR Bank Itself

Cash, Gold, G-Secs Yes (on securities)

CRR and SLR Together suck out funds available with banks for lending, thus))) regulating the money supply.

excess liquidity in the system.

Did You Know?

“Did you know that the Cash Reserve Ratio (CRR) maintained by banks with the RBI earns zero

interest? Unlike SLR, where banks can earn a return by investing in government securities, CRR

balances are held purely as a liquidity control tool by the central bank.”

#### 4.2.2 Interest Rate Policy – Repo Rate & Reverse Repo

##### Repo Rate:

- The interest rate at which the RBI lends money to commercial banks in the event of any shortfall of funds.

securities.

- It is a means of infusing liquidity into the banking system.
- While a lower repo rate makes it more attractive for banks to borrow and fill more liquidity in the system, which may encourage growth.

it makes credit expensive, which decreases the amount of money in circulation.

##### Reverse Repo Rate:

- The rate at which the R.B.I. borrows money from commercial banks.

- It is used to withdraw money from the system.
- A higher reverse repo rate makes it attractive for banks to park funds with the RBI, giving them less surplus money SUPPLY OF MONEY: => The monetary policy of a Central Bank consists of supply side factors too.

liquidity.

Policy Transmission:

- These rates are a reference point on short-term interest rates in the economy.
- The repo and reverse repo rate changes affect EMIs, loan interest rates, deposit rates and overall credit availability.

Example:

If inflation is high, RBI has the option of increasing repo rate thereby making cost of borrowing more expensive ü Controlling Inflation Income and Interest rates 1. pressures.

“Activity: Analyzing Repo Rate Changes and Their Effects”

Instruction to Student:

Access the RBI’s official website or a financial news source and collect data on repo rate movements

over the past two years.

1. Create a timeline of all repo rate changes.
2. For each change, note down the RBI’s reason as per the monetary policy statement (e.g., to control inflation, support growth, manage liquidity).
3. Identify how call money rates, bank lending rates, and 91-day T-Bill yields reacted in the weeks following each repo rate announcement.
4. Summarise your findings in a brief report (300–400 words), discussing how effective repo rate changes were in influencing market liquidity and short-term interest rates.

#### 4.2.3 Bank Rate and Its Role in Liquidity Management

Bank Rate:

1 The long-duration interest rate at which the RBI lends to commercial banks without offering collateral was also cutURAL.

specific kind of collateral is known as the bank rate. This long-term money is lent to banks straight from the central bank so they can meet their financial needs, when needed. Unlike banks banks backedLoans, A system bank rate which is dependent upon confidence and control, is vital in collateral-supported<sup>1</sup> borrowing. shaping overall monetary policy.

The bank rate is employed only in case of long term (policy)loans and should be separated from the

short-term repo rate. Though the purpose of the repo rate is as an instrument for daily liquidity operations,

the bank rate meets the later needs of the monetary system. Thus, it helps stabilize long-the state of the general credit market.

In practice, repo rate < bank rate. All procedure of the rates should gradually, any increase or decrease in the bank rate leads to Multiple contraction or expansion.

effect on the pattern of interest rates in an economy. For instance, if the RBI puts bank rate, making it more expensive for banks to borrow, a cost they then pass on to businesses and consumers. This affects lending rates, deposit rates, and overall credit flow in the financial system.

Key Points:

- By increasing the bank rate the banks are discouraged to borrow from the RBI causing less money.

supply.

- Lower the bank rate, higher is the amount of borrowing by banks and correspondingly higher the liquidity condition.

Role in Monetary Policy:

- Not actively used for day-to-day operations but the bank rate indicates the RBI's long-term

monetary stance.

- It is also the rate at which banks are penalized for failure to maintain CRR or SLR.

#### 4.2.4 Refinance from RBI – Sectoral Liquidity Support

Refinance Refinance is the loan provided by a RBI REFINANCE institutions or banks.

institutions for specific sectors of economy. This scale is included among the quantitative instruments

employed by RBI for liquidity management and sectoral credit favour of priority or under-privileged sectors.

served areas.

Purpose of Refinance:

- To ensure the availability of credit to targeted sectors eg;

- o Agriculture

- o MSMEs (Micro, Small and Medium Enterprises)

- o Export sector

- o Housing

- o Infrastructure development

- A means of injecting liquidity into the system when commercial banks have temporary shortfalls but gebrauch.tw need!

continue lending operations.

- To bring down sector-specific interest rates through the provision of subvention.

Types of Refinance Facilities:

General Refinance: SIDBI is active in several sectors through its products like,

NABARD, EXIM Bank, and NHB.

Special Refinance: Issued during an emergency (ie. drought, pandemic) to help special needs.

Export Refinance: Earlier, RBI extended a refinance facility to banks against pre-shipment and post-shipment export credit.

pre-shipment and post-shipment credit for exporter. (That plan is phased out now.)

Impact on Liquidity:

- Refinance helps banks and financial institutions keep up their lending in,, 3155 spite of such shocks.

liquidity-deficient conditions.

- It aids in the direction of credit flows to sectors that are significant to.

not look interesting for banks in normal circumstances.

Did You Know?

“Did you know that refinance facilities from the RBI are not uniform across all banks? They are often

targeted through institutions like NABARD, SIDBI, or NHB, based on the priority sector lending

needs, such as agriculture, small industries, housing, or exports.”

#### 4.2.5 Repo & Reverse Repo Mechanism in India

These are the most crucial tools which RBI uses to keep a tab on day- parties in and day-out rate management.

to- day liquidity and conduct monetary policy. All communication to the market regarding these operations are made in accordance with section 6 of CRR and published under the heading Liquidity.

Liquidity Adjustment Facility (LAF) system from the year 2000.

Repo (Repurchase Agreement):

- The RBI gives money to commercial banks in a repo transaction against the sale of government

securities with an agreement to sell them again at a later date (often the next day or as long as 14

days).

- The repo rate is the interest rate the RBI charges for this lending.
- It is a mechanism for injecting liquidity into the banking system when funding is scarce.

Illustration: If the repo rate is 6.5%, banks can borrow from RBI at this rate by lending securities (loaning to interest) at their disposal Example: A bank gives government securities being held with it for ₹1000!

as collateral.

Reverse Repo:

- In a reverse repo, the RBI borrows money from commercial banks by providing government securities

12

1

of them and promising to bring them back later.

- The reverse repo rate is the rate at which RBI absorbs liquidity.
- It is deployed to mop up excess liquidity from the system when the market is awash with funds.

Operational Mechanism in India:

- Traded on the Negotiated Dealing System (NDS) platform.
- Auctions take place daily or as required, depending on liquidity.
- RBI sets fixed-rate and variable-rate repo/reverse repo auctions.
- The mechanism is used to:
  - o To control stability in the call money rates
  - o Indicate stance of the monetary policy
  - o Manage short-term liquidity fluctuations

Why Repo-Reverse Repo is Important:

- These are the main short term policy instruments that RBI uses.
- The LAF corridor: is the difference between repo and reverse repo rates, that serves as a signal for the.

movement of short-term interest rates.

- They more loosely tether borrowing costs, bank lending rates and inflation expectations to the amount of money in the system.

economy.

#### 4.3 Effectiveness of Monetary Policy via Money Market

The impact of monetary policy would hinge on the extent to which rate actions by the Reserve Bank of India along with the spread of such rates were transmitted to lending rate.

(RBI) effectively work their way through the financial system,... specifically the money market, to affect

lending, borrowing, inflation and growth of the economy.

The money market is an important component of this transmission mechanism as it is the first place that changes in RBI's reserves lead to.

signals—through policy rate changes—are reflected. The downside outcome for short-term rates like.

call money rates and t-bill yields, it reflects what the RBI wants to do on the monetary front.

The transmission is also to be known as effective, where the money market responds rapidly and appropriately to RBI's policy actions.

be effective. Otherwise, it shows the extent to which transmission is weak or lagged and the policy doesn't carry much force.

Some key measures of the quality transmission through the money market are:

- Rapid transmission of call/notice money rates after policy rate changes.

81

- Flattening and inversion of yield curves for short duration instruments such as T-Bills and Commercial papers.
- Adjustments in bank lending and deposit rate that move with the direction of the policy rates.

#### 4.3.1 Monetary Policy Transmission Channels

Monetary policy transmission mechanisms are the channels through which changes in 1ARExxx 0000 / xx many variables affect financial markets and the real economy.

a central bank's effect on the real economy, particularly output and in flation. The money market acts as the

first step in the majority of these channels.

##### Interest Rate Channel

- The repo rate is a signal to banks about how the broader market will price credit.
- Banks change lending and deposit rates that influence the availability of credit for businesses and consumers.
- Lower rates stimulate spending and investment, fueling growth; higher rates cool inflation by curbing demand.

##### Liquidity Channel

- Available: RBI can determine the availability of money in the market using its Open Market Operations, CRR and SLR stringByAppending factory.
- of funds in the market.

- More liquidity translates to diminished money market rates, which reduces the cost of credit.
- Tighter liquidity means the money supply is tightened, interest rates are raised and inflation is controlled.

#### Credit Channel

- When the RBI tightens policy, lenders constrict credit by raising lending rates or keeping a cap on additional loans.
- On the other hand, an accommodative policy provides more credit to households and firms, bolstering consumption and investment.

#### Expectations Channel

- Market players respond to RBI guidance, revising their expectations toward future inflation and growth.
- This affects interest rates, stock prices and investment planning.

to the Exchange Rate Channel (with indirect influence on it by the money market).

- Alterations in policy rates can alter the course of foreign capital and, thus, of exchange rates.
- A high interest rate lures foreign investment and supports the currency; a low one may not the opposite.

#### 4.3.2 Challenges in Liquidity Management

The RBI and banks, despite having powerful tools in their arsenal are confronted with several hurdles to tackle in

efficient liquidity management in the money market. These difficulties can degrade the transmission

and unearth interest rate signals, and financial market volatility.

Key Challenges:

##### Volatile Capital Flows

Returning such foreigners back  
Create or edit "new" sudden inflows/outflows of foreign capital, often from Foreign Portfolio Investors (FPIs);

excess surplus or deficit liquidity in the domestic system, forcing it to become increasingly difficult for the RBI to.

maintain stable short-term interest rates.

#### Asymmetric Liquidity Distribution

Liquidity is channelised through few large banks, while smaller banks and NBFCs are grappling with

shortages. As a result, monetary policy is not well transmitted across the banking system.

#### Limited Depth of Market for Some Instruments

Instruments like Commercial Bills and CBLO are not as widely used as Treasury Bills and Call Money. This restricts RBI's flexibility to manage liquidity through multiple instruments.

#### Dependence on Government Cash Flows

The flow of government revenues and expenditures can erratically inject or withdraw liquidity. For instance, significant tax collection or auction outflows can tighten liquidity temporarily

in the banking system.

#### Transmission Lags

And who says that the RBI changes repo rate today and it immediately shows on markets? lending interest rates, particularly when banks are under deposit competition or regulation constraint.

#### Global Monetary Conditions

Global rates (i.e., U.S. Fed policy) drive flows between capital and currencies. rates that in turn impact local money market liquidity.

“Activity: Simulating Liquidity Scenarios in the Banking System”

Instruction to Student:

Imagine you are the liquidity manager of a commercial bank. Use the table below to simulate different

liquidity conditions and choose the best RBI tool to respond to each:

83

Scenario

Liquidity

Condition

Why? (Short

Justification)

RBI Tool to

Use

High inflation with rising credit

demand

Tight liquidity

?

?

Economic slowdown and weak credit

growth

Surplus liquidity

?

?

Sudden capital outflow due to global

crisis

Liquidity stress

?

?

Excessive lending by banks, risk of

overheating

Excess liquidity

?

?

1. Fill in the tool (e.g., increase CRR, conduct repo, offer refinance, OMO, etc.)

2. Justify your choice for each scenario (1–2 lines per case).

3. Note your completed table and a short analysis of how liquidity tools are selected in real-time

situations.

#### 4.3.3 Role of Money Market in Financial Stability

structural role in the financial system.

responsibility: Patrolling the Economy's Financial Stability Precinct.

##### Banking System Liquidity Cushion

- The money market, which furnishes for short term borrowing (e.g., Call Money, CBLO, Repo) opportunities to ensure liquidity and investment - 33 various percentages of them are calculated as per operational work by CCIL.

the banks for handling unexpected imbalances in cash flows.

- This mitigates the counterparty risk and promotes a more seamless interbank settlement process.

##### Early Warning Indicator

- MarketNz Te interest rate movements or discreet rate jumps in N the money market frequently act as advance indicator

crisis symptoms or financial system dysfunction.

These signals are closely watched by the RBI to ensure that it takes preemptive action.

##### Platform for Policy Implementation

- The money market is the principal operating channel of the RBI in the implementation of its Open.

Monetary policy (repo, reverse repo, OMOs).

- Healthy money market provides predictability and credibility of RBI's actions.

##### Confidence Among Participants

- A safe and efficient market for money that ideally has banks relaxing at night, trusting their fellow financial institutions.

promotion of lending and borrowing, actual utilisation that fuels credit growth in the economy.

##### Reduces Systemic Risk

- Money-market funding offers a substitute for bank liquidation of long-term obligations.

assets amid possible fire sales and price crashes in other financial markets.

#### Efficient Allocation of Capital

- By providing a mechanism for the reallocation of funds in surplus and deficit, the money market facilitates

efficient utilization of capital, so that the productive areas will not lack liquidity.

Hence, the money market serves as counter-cyclical and pro-active financial facility that responds swiftly to policy indicators, and

being pre-emptive in efforts to sustain the financial system stability and resilience funded market access and liquidity provision as a back-up measure.

operations.

#### Did You Know?

“Did you know that an unexpected spike in call money rates is often considered a warning signal

of stress in the banking system’s liquidity? The RBI monitors these signals closely to decide whether

to inject funds into the system through repo operations or OMOs.”

#### Knowledge Check 1

Choose the correct option:

1. What is the main role of the money market in monetary policy transmission?

- A) Provide long-term capital to corporations
- B) Facilitate foreign exchange transactions
- C) Reflect changes in RBI policy rates through short-term interest rates
- D) Regulate stock market performance

2. Which of the following tools is used by the RBI to inject liquidity into the banking system?

- A) Increase in CRR
- B) Reverse Repo Operation

85

- C) Open Market Sale of Government Securities
- D) Repo Operation

3. What does the Statutory Liquidity Ratio (SLR) require banks to maintain?

- A) Foreign exchange reserves with RBI
- B) Cash reserves with RBI
- C) Liquid assets such as gold and government securities
- D) Lending limits for agriculture

4. Which institution typically receives sector-specific refinance support from the RBI for agriculture and rural development?

- A) SIDBI
- B) NABARD
- C) NHB
- D) SEBI

5. What is a key challenge in effective liquidity management by RBI?

- A) Rising export volumes
- B) Limited participation in the capital market
- C) Volatility in foreign capital flows
- D) Too much government spending on infrastructure

#### 4.4 Summary

❖ The money market has a significant effect on the transmission and execution of monetary policy

in India. It serves as one of the first transmission mechanisms when there is a change in RBI's policy rates through

securities, such as Call Money, CBLO, T-Bills and Commercial Papers. These instruments help control temporary liquidity, the money market becomes an important bearing stage of monetary stability and.

interest rate signaling.

❖ The RBI uses several instruments of monetary policy—CRR, SLR, Repo, Reverse Repo, etc.

Bank Rate, and Refinance Facilities to affect the amount of money in the economy, borrowing costs, and real economic activity.

maintain inflation within target levels. How well such tools work is ultimately dependent on how accurately

liquidity is channeled into the financial system.

❖ Despite structural strengths, there are several challenges to liquidity management by RBI which are:

cross-border capital flow volatility, Asymmetric imbalance of liquidity distribution and global interest rate cycle.

Yet, an efficient money market increases the transparency and expedites the speed at which funds are lent and borrowed.

monetary policy transmission and contributes to the stability of the financial system as a whole.

#### 4.5 Key Terms

9 Monetary Policy – Central bank manipulation of the money supply and interest rates.

Repo Rate- rate at which RBI lends to banks against government securities.

Reverse Repo Rate – RBI lends money to banks, when there is excess liquidity.

CRR (Cash Reserve Ratio) – The amount of deposit banks are required to keep with RBI in cash.

3 SLR (Statutory Liquidity Ratio) – It is the portion of deposits that banks are required to maintain in liquid assets, such as gold or government securities.

Open Market Operations (OMO) – RBI involves in purchase/sale of government securities to control the supply of money.

Bank Rate – The rate of interest allowed to the long-term lending of RBI to Banks without security.

Refinance Facility-RBI funds to banks / institutions, for sectoral support.

Passage Mechanism – The medium by which monetary policy affects the real economy.

Call Money Market – An overnight borrowing/lending market among banks.

#### 4.6 Descriptive Questions

Describe the contribution of the money market in India in transmitting monetary policy.

Describe in brief the major instruments of liquidity management employed by RBI.

What is the role of CRR and SLR to control liquidity? Compare the two.

Explain how the Repo and Reverse Repo processes affect financial system liquidity.

How does the RBI's refinance fit in with segmental liquidity management?

Discuss the problems that are being faced by RBI in controlling liquidity in Indian economy.

Describe how the money market helps to keep financial markets in balance.

What are the alternative channels of transmission of monetary policy?

Bank rate and repo rate: how are these two rates different in form & function?

Why should there be a developed money market for monetary policy to be effective?

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#### Answers to Knowledge Check

##### Knowledge Check 1

1. C) Reflect changes in RBI policy rates through short-term interest rates
2. D) Repo Operation
3. C) Liquid assets such as gold and government securities
4. B) NABARD
5. C) Volatility in foreign capital flows

#### 4.8 Case Study

RBI's Balancing Act: Managing Inflation and Liquidity through the Money Market\

##### Background

Inflationary pressures re-surfaced in India in 2023 led by global oil and local food supply influences.

issues. The RBI opted to go for another round of rate hike this time around and changed its stance to 'tight' from 'neutral', raising the repo rate by 0.25%.

to 6.75% in two straight quarters. and restrict the growth of the money supply to temper inflation.

growth and 4% with a tolerance band.

To maintain this policy stance, the RBI also:

- Raised the CRR by 50 basis points.
- Used various tools to drain excess liquidity by way of OMOs sell of government securities, absorb liquidity.
- Tweaked the reverse repo rate to force banks to park excess funds with the RBI.

Call Money and CBLO rates moved up, indicating liquidity pressure. Short-term

Additionally, According kawaida interest on gvt securities like 91 day T-Bills also rose.

However, the credit growth to

MSMEs and rural started to de-grow sharply.

To mitigate this, RBI announced a refinance facility for SIDBI and NABARD to enable them to meet sectoral credit needs.

to supply liquidity to priority sectors while retaining its anti-inflation policy.

### Problem Statement

How can the RBI balance inflation control with credit support to essential

sectors? What are the pitfalls if liquidity is drained excessively through money market operations?

### Solution Overview

RBI will have to find this balance between stability of prices and support to growth. While tightening rates

is supposed to fight inflation, it ought to be met with focused liquidity tools — refinance lines, that kind of thing.

sector-specific OMOs or calibrated SLR cuts to fund the flow of credit. A phased and well-policy path to tightening can maintain confidence and soften volatility.

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## Unit 5: Debt Market

### Learning Objectives

1. Define the structure and purpose of the debt market in the Indian financial system.
2. Differentiate between the money market and the debt market, based on instruments, maturity, and risk profiles.
3. Identify and classify various types of debt market instruments, including government bonds, corporate bonds, debentures, and municipal bonds.
4. Explain the role and importance of credit rating agencies in evaluating debt instruments and their issuers.
5. Interpret credit rating symbols and understand their implications on investment decisions and interest rates.
6. Analyze how changes in interest rates affect the pricing and yield of debt instruments.
7. Evaluate the risks associated with debt market investments, including default risk, interest rate risk, and liquidity risk.

### Content

#### 5.0 Introductory Caselet

#### 5.1 Debt Market Overview

#### 5.2 Debt Market Instruments

#### 5.3 Credit Rating

#### 5.4 Summary

#### 5.5 Key Terms

#### 5.6 Descriptive Questions

#### 5.7 References

#### 5.8 Case Study

## 5.0 Introductory Caselet

### “Meera’s Investment Journey: Understanding the Role of Debt Market Instruments

Background:

Meera, a 32-year-old IT professional based in Hyderabad, began to map out her financial goals for the long term just recently.

Though she has been investing in equity mutual funds for better returns, she needs to add child’s education.

stable predictable income stream to offset her portfolio. An hour into the financial planning workshop, she

After reviewing a series of case studies, the student opens the chapter with an introduction to the debt market and its multiple instruments (from government securities to corporate bonds).

corporate bonds and municipal bonds.

Fascinated, she delves into how different participants rely on the debt market. There are, and the Government of

India releases treasury bills and bonds to fund fiscal deficits and infrastructure building. Corporates raise

bonds and debentures, and now even portions of municipal governments are getting into the act by whereby to raise additional funds through the bonding process.

finance city-level projects as part of the Smart Cities Mission. Investors such as banks, mutual funds and pension

all-in-one funds use these products to produce predictable returns with lower risk than stock.

Continuing to read, Meera stumbles upon the concept of credit rating. Agencies like CRISIL, ICRA, and

CARE’s ratings are assigned to debt obligations which provides shade to the investor about the safety of dealing in such investments. She realises

that a government treasury that gets an AAA rating has much less risk than a BB corporate bond but the valuations generated by the two countries could be

we get from the two countries can be (20) there is no opportunity

gathering of information the one MANAGE portfolio sort portfolio installment management | cut -d

15 where standard S = mmr or rmm Irat gov0-?1 bb is indicated by At this point, of

course, we have no idea what the value plus will be so we must guesstimate.

latter may have better rates. That has made her question the trade-off between risk and return in debt.

investing.

Inspired by this revelation, Meera decides to invest a certain percentage of her portfolio in government securities.

and highly rated corporate bonds. She also plans to invest in tax-free municipal bonds, saying

the ability of such funds to invest in public infrastructure while it gives her safe creation.

Through this

exploitation through the debt system, Meera develops a qualitative understanding of how the debt market serves economic growth and exploitation

individual financial planning.

Critical Thinking Question:

As Meera's financial advisor, how would you advise her to balance the risk and return in the allocation under consideration?

debt market? Which combination of government, corporate, and municipal bonds would you combine that to?

recommend, given her objectives of stability and security and a constant source of income?

### 5.1 Debt Market Overview

The debt market—often called the bond market, although that is more a reference to one type of security than the full market—is a sector of the financial industry.

market in which debt securities can be bought and sold by investors. These instruments represent a borrower's

promise to pay a certain amount (the principal) and interest fees (in the form of coupons) at some agreed upon.

intervals and maturity.

Unlike in the stock market, where investors essentially become partial owners of a company, those who buy into debt.

market act as creditors or lenders and receive interest income from borrowers to whom they have provided capital.

The debt market is a significant factor for economic progress, finance stability and efficient deploy of capital.

allocation in any economy.

### 5.1.1 Concept and Importance of Debt Market

Concept:

The debt market Another place for various entities, including government (central and state), public-sector companies, other corporate bodies and financial institutions to raise funds is known as the debt market.

undertakings (PSUs), financial institutions, and private companies raise funds by floating a debt offer.

instruments. The instruments are then marketed to investors, who are guaranteed regular interest payments and return of principal.

of principal at maturity.

The debt market is generally divided into two:

Government Securities (G-Sec) Market:

o It includes, issue and trading of government debt instruments by the central and state governments.

o Examples are treasury bill (T-Bill), government of India bond and state Government Bond etc.

Development Loans (SDLs).

Corporate Debt Market:

o Concerns debt instruments from private firms, PSUs and financial institutions.

o Examples are debentures, corporate bonds, commercial papers and non-convertible debentures (NCDs).

These instruments differ by term, interest rate type (fixed or floating), credit risk, and issuer profile.

92

Importance of the Debt Market:

The debt markets are vital to central and the state governments and corporate and individual (ViewGroup) constituents.

and institutional investors.

## The Multifaceted Role of the Debt Market



### Fundraising for Development:

The debt market is the primary arena where governments raise funds for infrastructure, social welfare programs, and governmental work.

bridging fiscal deficits. Corporates fund working capital, expansion or refinancing existing loans.

### Investor Opportunities:

It gives investors, such as pension funds, mutual funds and other low-risk/low-return seeking players.

banks, insurers and retail investors on the right.

### Supports Financial Market Depth:

A deep debt market curbs reliance on banks for credit and something that lessens the broadening the credit ecosystem.

### Enables Monetary Policy Transmission:

The signal of a change in RBI's repo rate is transmitted via changes in the yield curve, mainly at period 1 and about the yield ( ) mutually reinforcing each other.

government securities.

93

### Capital Market Stability:

Debt securities provide a safe-haven for those who invest during stock market volatility and overall financial system resilience.

### Liquidity and Tradability:

In particular, debt securities such as government bonds are extremely lendable and liquid enabling.

investors who must be more flexible in managing their investments.

### 5.1.2 Participants in the Debt Market (Government, Corporates, Investors)

The debt market is a multi-party system, where each actor has separate duties. The main participants include:

#### Government (Issuer):

- Central and state governments of India by way of borrowing through debt instruments (To Raise Money)
- Debt to GDP Ratio as a measure for comparing the economy with other Economies
- First initiative post-independence to rope in Union Territories
- Place borrowed funds under appropriate heads according to nature of loans

developmental projects and public expenditure.

#### • Instruments issued include:

- o Treasury Bills (91-day, 182-day and 364-day)
- o G Sec/Dated securities (5Y, 10 Y , 30 Y etc.)
- o State Development Loans (SDLs)

The debt of governments is risk free, so they are highly trusted and held.

#### Corporates and Financial Institutions (Issuer):

- Firms raise debt to finance their working capital, capital expenditure and or refinancing needs.
- Common corporate instruments include:
  - o Debentures (secured or unsecured)
  - o Non-Convertible Debentures (NCDs)
  - o Commercial Papers (CPs)
  - o Corporate Bonds

These instruments are typically rated by credit rating agencies, which enables investors to evaluate their risk.

### Investors (Buyers of Debt):

There are the following types of debt market investors:

- Institutional Investors:

o Banks purchase govt and corporate securities to meet stipulated reserve requirements (SLR) and

manage their asset portfolios.

o Insurers and pension funds invest in long-duration bonds to match their longer.

term liabilities.

o To provide fixed income returns Mutual funds invest in short term and long term debt schemes

to retail investors.

The 'crowding-out' of foreign portfolio investment is the net effect on inflows from FPIs into government as well as corporate debt securities.

under regulated limits.

- Retail Investors:

o People who want safe and reliable returns tend to plow their money into government bonds,

tax free bonds/debt mutual funds.

o With platform such as RBI Retail Direct, the retail investors can now have access to G-Secs directly."

### Intermediaries and Regulators:

- RBI: Governs the government securities segment and monetary policy.

- SEBI: Oversees the corporate bond market.

- Primary Dealers (PDs): Institutions who underwrite and create markets in G-Secs.

- Credit Rating Agencies: Evaluate the credit-worthiness of issuers and their instruments.

### 5.1.3 Role of Debt Market in Economic Development

The debt market is an instrument of mobilising savings and channelling towards productive investments.

In serving national economic growth:

Bridging Fiscal Gaps:

Governments are able to raise money in the debt market and avoid printing money or over-taxing, which assists.

manage fiscal deficits prudently.

Infrastructure Development:

Debt securities fund longterm infrastructure projects, including roads, railways, power plants and

water system that is essential for GDP expansion.

Efficient Credit Distribution:

The debt market spreads credit between households and firms by allowing borrowing outside of the banking system.

sectors and geographies.

Interest Rate Benchmarking:

The yield on the government bond is used as a reference to price other debt. This ensures stability and transparency in the cost of borrowing.

Support to RBI's Monetary Framework:

An efficient debt market is also a major facilitator of RBI to conduct open market operations (OMOs) and freedom in pursuit of

policy through its impact on liquidity and rates.

Investor Confidence and Savings Mobilisation:

Risk-averse investors, typically favour debt securities, particularly at times when the future is uncertain. This boosts

national savings, and hence capital formation.

Derivative and Hedging Activities:

A developed debt market also foments the flourishing of interest rate futures, swaps, and bond ETFs that allow for a more efficient managing of risk.

improved risk management and hedging solutions for institutions.

Did You Know?

"Did you know that in India, the government bond yield curve is often considered the benchmark

for pricing not only other debt instruments but also for fixing home loan and car loan interest

rates? This means movements in the debt market indirectly impact the EMIs of retail borrowers.”

## 5.2 Debt Market Instruments

Debt market instruments: Debt Market Instruments are financial instruments that Governments, Companies and other institutions use to raise debt capital in the market.

municipalities do so by taking loans from investors. These are undertaken by the issuer to:

i) provide the holder with predetermined amounts of cash or other assets.

return the principal lent after a fixed period plus periodic interest payments

(coupons).

They are the lynch pins of the public fixed income market and are instrumental in supporting

government investment, urban infrastructure construction and in addition

providing the safety of predictable income to investors.

### 5.2.1 Government Securities (G-Secs, SDLs)

#### A. Government Securities (G-Secs)

Government securities Trust indicating that they are signing on its own behalf for itself and anyone else with an interest in the income.

fiscal deficits and development projects. Because these are government bonds, they carry no risk of default.

risk, and are therefore a benchmark grade in the debt market.

Types of G-Secs:

#### Treasury Bills (T-Bills)

o Short-term securities with maturities of 91, 182, or 364 days.

o Issued at discount from face value, redeemed at par (no periodic interest).

o Popular with banks and mutual funds for short-term parking of liquidity.

#### Dated Government Securities

o Long-end instruments with maturities from 5 years to 40 years.

o Are re-set every seven years and have a fixed or floating semi-annual coupon.

o Institutional investors use for long duration matching and SLR needs.

#### Floating Rate Bonds (FRBs)

o Have variable interest rates determined according to a formula based on some benchmark (for example 91-day T-Bill)

yield + spread).

o Minimize interest rate risk for investors and issuers both.

#### Zero-Coupon Bonds

o Sold at a deep discount without coupon payments.

o Maturity value is equal to the face value. Useful for long-term investments.

#### Key Characteristics of G-Secs:

- Auctioned on platforms such as e-Kuber (RBI auction system).

:OM — a trading and reporting terminal on the FMDQ OTC Securities Exchange) where over N9bn was traded in the past.

Order Matching).

- Act as collateral in repo and reverse repo deals.

- Held, often in large amounts, by banks and insurance companies and the RBI itself.

#### B. State Development Loans (SDLs)

State Development Loans or SDLs are state governments' bond issued to meet their budgetary requirement and developmental activities

(roads, health, education, etc.).

#### Features of SDLs:

- Slightly higher interest rate than central government bonds (spread risk adjusted).

- Issued through RBI auctions.

- Deemed quasi-sovereign, but exhibit slightly higher credit risk on the fiscal plain.

health differences.

- Bought by banks to fulfil the SLR requirement.

### 5.2.2 Corporate Bonds and Debentures

#### A. Corporate Bonds

Secure-debentures issued by government-controlled entities to pay for the large infrastructure projects are typically loosely defined as corporate bonds.

(PSUs), and financial institutions to garner long-term funds for meeting their business requirements, including that of capital.

growth, general working capital, acquisitions or refinancing of existing loans.

Characteristics of Corporate Bonds:

- Yields higher to G-Secs to compensate for excess credit risk.
  - It is rated by agencies including CRISIL, ICRA, CARE, Fitch— which affects the benefit of the scaleoutpu.....
- investor confidence.
- Coupon may be fixed or floating.
  - Tradable on NSE/BSE debt platforms or privately placed through an institutional network.

Investor Base:

- Banks, insurance companies, debt mutual funds (MFs), pension funds and FPIs.
- Retail investors can get into corporate bonds through debt mutual funds or online bond platforms.

B. Debentures

Debenture is a long term debt instrument used by both government and private sector companies to borrow money. It is a broader category

that covers all short and long term corporate borrowings.

Types of Debentures:

Secured debentures – These are secured against some assets of the company concerned.

Unsecured debentures – No backing by asset so higher risk but can yield more.

Convertible Debentures – Shares can be converted on some later date (the option is with an investor).

Unconvertible/ Non-Convertible Debentures (NCDs) – Debt papers with no share conversion element.

Use Cases:

- NCDs are favoured by corporates to raise funds from institutional and retail investors, typically

through private placements. “Activity: Comparing Corporate Bond Yields”

Instruction to Student:

1. Collect information on at least three corporate bonds listed on the NSE or BSE (e.g., Reliance, NTPC, HDFC). Note their coupon rate, maturity, and credit rating.
2. Compare their yields to maturity (YTM) with the yield of a 10-year Government of India bond.
3. Prepare a short report (250–300 words) explaining:
  - o Why corporate bonds offer higher/lower yields compared to G-Secs.
  - o How credit ratings influence their returns.
  - o Which bond appears most attractive from a risk-return perspective.

### 5.2.3 Municipal Bonds

Municipal Bonds (aka Muni Bonds): These debt securities are issued by the city Municipal Bodies (ULBs) e.g., EcorCity.

municipalities or city corporations for public infrastructure like roads, sewerage etc. systems, water distribution networks and metro rail systems.

Key Features:

- Usually for a period between 5 and 10 years.
- Can be designed as tax-free bonds to lure investors (pending approval).
- Traded on stock exchanges but with less deep secondary market liquidity.
- Will have to adhere by SEBI (Issue and Listing of Municipal Debt Securities) Regulations.

Types:

GO Bonds – Backed by the taxing authority of the issuer.

99

Revenue Bonds – Repayments are derived from the revenues generated by the project funded (enterprise zone, etc.)

toll roads).

Status in India:

- Municipal bonds, which are bonds issued by state and local government bodies, have been on the books since the late '90s.

- The recent reforms under the Smart Cities Mission and Atal Mission for Rejuvenation and Urban

Reforms In General Urban Services PMAY and AMRUT: Vis-à-vis Water Supply April 2018 s (AMRUT) target to enhance their use.

- Cities such as Pune, Ahmedabad and Indore have managed to raise muni bond funds.

Did You Know?

“Did you know that only a handful of Indian cities like Pune, Ahmedabad, and Indore have successfully issued municipal bonds in recent years? Despite their potential, municipal bonds are

underutilised because most city governments struggle with low credit ratings and poor financial

disclosures.”

#### 5.2.4 Money Market vs. Debt Market Instruments

While money market and debt market instruments are both considered as forms of debts, they vary greatly in terms of the types of obligations they represent.

duration, intended usage structure, investor type and risk-return profile.

Comparison Table:

Criteria

Money Market Instruments

Debt Market Instruments

Maturity

Short-term (up to 1 year)

Medium to long-term (> 1 year)

Examples

Treasury Bills, CPs, CDs, Call

Money

G-Secs, SDLs, Corporate Bonds, Debentures,

Muni Bonds

## Purpose

Liquidity management, working

capital

Capital expenditure, long-term funding

## Return

Lower, stable

Moderate to high (depending on prevalence at the time)

## Issuer Type

Governments, Corporates, Banks

Governments, Corporates, PSUs, Municipal

Bodies

## Risk

Very low (short tenure), minimal

price risk

Depends on issuer, credit rating and interest rate

changes

100

Primarily by RBI

## Market

## Regulation

## Liquidity

## Investor Base

Very high

RBI (G-Secs), SEBI (Corporate & Municipa

Bonds)

Moderate to high, depending on instrument and 1.persistent sound levels.

## market depth

Banks, Funds, Corporates Banks, Insurance, Funds, Pension

## Funds, Retail

### In Summary:

- Money market instruments to fill short-term liquidity taking, fitting for cash parking and treasury operations.
- Debt market securities are employed for investment and financing long-term, forming an integral part of any managed portfolio or institutional asset allocation.

### 5.3 Credit Rating

Credit rating is a vital part in the debt market. It is a useful tool for investors, regulators and financial authorities.

Lenders evaluate the credit quality of an individual or a financial instrument. In a market where various

institutions borrow funds when they do so and in which credit ratings serve as a standardised measure of risk that agencies are influenced by control.

decisions, interest rate spikes, and market confidence.

#### 5.3.1 Concept and Importance of Credit Rating

##### A. Concept of Credit Rating

Credit Rating Credit rating is a professional independent opinion of a recognised credit rating agency that unrated borrowers will default.

analyzes the chance a borrower (an individual, corporation, or government) has of defaulting on paying back their loan.

debt obligations.

Ratings are simply designations--most often through symbols or letter grades-- that reflect relative risk level.

of a financial instrument or the issuer.

##### Typical Rating Scale Examples:

##### Rating Interpretation

AAA Safest; least credit risk

AA

High safety

101

A

Adequate safety

BBB Moderate safety; adequate capacity

BB, B Speculative; high risk

C, D

High to very high risk or default status

NB: Any score may include modifiers such as '+' or '-' to reflect relative positioning within the tier.

(e.g., AA+, AA, AA-).

B. Importance of Credit Rating

Investor Confidence:

Credit ratings are a fast and credible tool for investors to use to assess risk before purchasing of debt instruments such as bonds or debentures.

Interest Rate Determination:

Higher-rated bonds typically have lower interest yields (less risk), and vice versa. instruments must pay out more yield to be purchased by investors.

Market Discipline and Transparency:

Ratings instill financial discipline in issuers. Bad to terrible financials or governance on the part of companies

receive less favorable ratings, restricting their access to capital.

Capital Allocation Efficiency:

Credit ratings foster the flow of capital to entities that are financially stronger, thereby benefitting the overall economy.

market stability.

Regulatory Usage:

Banks, insurers and mutual funds may have investment limits that are based on credit ratings.

For example, SEBI and RBI dictate norms of exposure depending on credit quality.

### Risk Management Tool:

Institutional investors (banks, pension and insurance funds) can create diversified portfolios using ratings.

and simultaneously obtain the desired risk-return characteristics.

### 5.3.2 Role of Credit Rating Agencies (CRISIL, ICRA, CARE)

Credit rating agencies (CRAs) are firms that assess the credit worthiness of their clients and allow third parties to use these ratings in undertaking financial transactions.

instruments and issuers in our country's financial markets. In India these agencies are controlled by SEBI and they need to

preserve independence, objectivity, and transparency in their evaluation programs.

#### A. Prominent Credit Rating Agencies in India:

102

#### CRISIL (Credit Rating Information Services of India Limited)

- Established: 1987
- Affiliation: A division of S&P Global (U.S.)
- Specialism: Credit ratings, research, risk and policy advisory
- Notable Contributions:

o First rating agency in India.

o Known for its expertise on ratings of corporate bonds, NBFCs, mutual funds and structured finance

products.

#### ICRA (Investment Information and Credit Rating Agency)

- Established: 1991
- Connection: Moody's Investors Service is a major shareholder.
- Services:

o Long-term and short-term instruments, IPO grading and project finance.

o Also provides industry research reports.

#### CARE (Credit Analysis & Research Limited)

- Established: 1993

- Focus Areas:

- o ratings on corporate debt, commercial paper, bank loans, municipal bonds and SMEs.

- o Developed dedicated products for infrastructure and public finance ratings.

## B. Rating Agencies' Contribution to Debt Market Performance:

### Risk Assessment:

CRA perform a quantitative and qualitative assessments—financial reports, economical sector

conditions, quality management, capability of generating cash flows and ability to service debt) in order to offer a neutral concatenated.

rating.

103

### Market Integrity:

Particularly by offering trustworthy and independent ratings, CRA increase market transparency,<sup>41 56</sup> help to lower the.

information asymmetry, and facilitate more effective pricing of risk.

### Continuous Monitoring:

Ratings are not static. CRA regularly monitor the performance of a firm and frequently update ratings if there is potential for change.

circumstances change significantly.

### Support Regulatory Compliance:

According to any compiler,<sup>9</sup> which has a task of specifying regulatory requirements under IBF.10 Model definition: Regulatory bodies mandate banks and mutual funds to be compliant with their exposure limits based on

ratings, thus making CRA integral to regulation mechanisms.

### Support Investor Protection:

Both individual and institutional investors turn to CRA ratings to determine if an instrument is both/and appropriate for their needs.

with their level of risk and investment objectives.

### Restriction and criticism of credit rating

- Potential Conflict of Interest:

Because issuers pay for their ratings, questions about bias — or clemency — occasionally come to the fore.

- Failure in Predicting Defaults:

Global financial crises (the 2008 crisis for instance) brought to light the perils on rating systems, with some very high rated bonds productions also defaulting.

entities defaulted unexpectedly.

- Over-Reliance by Investors:

Depending only on ratings can be risky. Investors need to use ratings as only one of several resources in.”

decision-making.

Notwithstanding these criticisms, the credit rating will continue to be an important element of much market based debt despite its limitations.

reliability and range are estimated to improve.

### 5.3.3 Impact of Credit Rating on Debt Instruments

Credit ratings are central to the marketability, pricing and issuance of debts.

instruments. The credit rating is typically issued by a government, or corporation or financial institution.

attributed to a bond or debenture has a very material effect on its perceived risk and attractiveness to an investor.

#### Key Areas of Impact:

##### Interest Rate (Coupon) Offered

- Higher-Rated Instruments (e.g., AAA)

- o Perceived as low-risk investments.

- o May be able to offer lower interest rates (because investors agree to accept less in returns for accepting less risk).

- o Issuers are rewarded with a lower cost of borrowing.

- Lower-Rated Instruments (BB or lower)

- o Tend to be risks or speculative in nature.

- o Need to pay higher yields to attract investors willing to accept more risk.

Example:

A PSU with a highest credit rating may offer a bond at 6.5 per cent and compare it with a BBB-rated corporate, which is in the middle tier, may have to offer 8%.

8%+ to attract capital.

#### Investor Base and Capital Access

- Institutional investors, like mutual funds, insurance companies and pension funds, can wield.

investment restrictions that limit them to investing only in certain rated instruments (e.g., AA-rated and above).

and above).

- An issuer's access to these giant pools of capital could be restricted by a low credit rating.

- Conversely, a high rating will expand the investor base and enhance demand at bond issuance.

#### Market Liquidity

- High-quality bonds are more actively traded than lower quality bonds in the secondary market because investors find large inventories offered at tight bid/ask spreads to be most appealing.

greater confidence in their safety and tradability.

- Instruments rated below or not at all face low demand, wide bid ask spreads and limited resale value.

potential.

#### Credit Spread Determination

The credit spread is the interest rate differential between a corporate and government bond of with increasing from.

the same maturity.

- Better ratings = tighter spreads

- Lower ratings = fatter spreads

Spreads (premiums) increase with ratings; investors demand higher premiums / compensation for!

credit risk.

#### Regulatory and Compliance Considerations

- Bodies such as SEBI, RBI and IRDAI require risk based capital allocation according to the ratings of assets held.

- Capital-to-asset-ratio standards and asset concentration limits may vary with a credit rating which may influence the.

level of financial products that banks can carry.

Did You Know?

“Did you know that a single-notch downgrade (for example, from AA to A+) in a corporate bond’s

credit rating can increase its yield by 50–100 basis points (0.5–1%), raising the issuer’s cost of

borrowing and lowering the resale value for investors?”

#### 5.3.4 Risks and Limitations of Credit Ratings

Credit Ratings: Despite all these benefits, credit ratings are not without their faults. The reliability of their ones depends on the quality.

method of calculation, rating agency independence and up to date information. Over the years,

There have been some pinpricks and crises that have exposed the shortcomings of the rating system.

Major Risks and Limitations:

Conflict of Interest

- The issuer-pays model is used by most rating agencies.
- The organization that wants the rating also foots the bill for the service, which could put pressure on:

agency to assign favorable ratings.

Over-Reliance by Investors

106

- Investors can start to believe that a financial rating is a solid promise of security without doing their own

due diligence.

- Ratings are opinions, not guarantees — markets and financial environments can change in an instant.

### Delayed Downgrades

- Ratings may be more a result of responding to, rather than driving, developments.

downgrades for some of the highest-profile corporate failures came after those companies were in dire financial shape.

already evident (e.g., IL&FS, DHFL).

- The result is that ratings are less effective as an early warning indicator.

### Differences in Methodologies

- Rating agencies may apply different criteria and weights, resulting in us moderate option.

ratings for the same issuer.

- A bond that gets an 'AA' from one agency might get an 'A+' from another, causing confusion.

### Failure to Predict Systemic Risks

- Main international agencies missed, or ignored, signals of the 2008 global financial crisis

the increasing risk in mortgage-backed securities (MBS).

- It turned out that AAA instruments were toxic assets, and ratings suffered a loss of credibility across the board.

### Limited Coverage in Emerging Segments

- A lot of small-cap companies, startups, and municipal bonds are still not rated or under-rated because of

paucity of information) or little interest had been expressed in them.

- That restricts the rating system's depth and inclusivity.

### Concentration on the Market and Dependence of Few Players

- Since only a handful of rating agencies (CRISIL, ICRA, CARE) are the big players in Indian market, question of domination may arise

about the lack of competition and the risk of groupthink.

### How to Mitigate These Risks:

- Regulatory authorities like SEBI have implemented policy initiatives to enhance the transparency by way of:

o Compulsory mention of rating rationale

o The ratings will be monitored regularly, and you will receive updates in a timely manner

o Transparent definition of instruments vulnerable to default risk

that encourage investors to consider the rating alongside other information, such as:

- Financial statement analysis
- Sector outlook
- Macroeconomic indicators
- Peer comparison

“Activity: Analyzing a Rating Downgrade Case”

Instruction to Student:

1. Choose a real example of a company in India (e.g., IL&FS, DHFL, Yes Bank) whose credit rating was downgraded in the past decade.

2. Gather data on:

o The company’s credit rating before and after the downgrade.

o The reasons for the downgrade (financial mismanagement, governance issues, liquidity crisis, etc.).

o The impact on its bond yields, borrowing costs, and investor confidence.

3. Write a case note (300–400 words) discussing what the incident reveals about the limitations

of relying solely on credit ratings.

Knowledge Check 1

Choose the correct option:

1. Which of the following is considered a risk-free debt instrument in India?

**A) Corporate Debentures**

**B) Treasury Bills**

**C) Municipal Bonds**

**D) Commercial Paper**

108

2. **What is the primary** difference between money market instruments and debt market instruments?

A) Money market instruments are issued only by corporates, while debt instruments are issued

only by governments.

B) Money market instruments have maturities of up to 1 year, while debt instruments usually have

maturities longer than 1 year.

C) Debt instruments carry no interest, while money market instruments always pay interest.

D) Money market instruments are unsecured, while debt market instruments are always secured.

3. Which of the following is TRUE about municipal bonds in India?

A) They are widely issued across all major cities.

B) They are only for short-term borrowing (less than 1 year).

C) They are used by urban local bodies to finance infrastructure projects.

D) They carry no risk because they are backed by the central government.

4. A company with an AAA credit rating issues bonds. Which of the following is MOST LIKELY to be true?

A) The company will have to offer a high coupon rate to attract investors.

B) The bonds will be considered low-risk and may carry a relatively lower yield.

C) The company will find it difficult to access institutional investors.

D) The bonds will not be tradable in the secondary market.

5. What is a key limitation of credit ratings?

A) They are absolute guarantees of repayment.

B) They always predict systemic risks well in advance.

C) They may be subject to conflicts of interest since issuers often pay for ratings.

D) They eliminate the need for investors to assess risk on their own.

#### 5.4 Summary

❖ The bond market is an essential part of the capital market in which entities such as governments,

companies, and local governments, finance their operations through issuance of debt securities such as bonds,

debentures, and treasury bills. It serves as the source of long-term and medium-term financing necessary for:

optimal resource allocation in an economy.

- ❖ Debt market instruments are wide and are presented in the form of Government Securities (G-Secs), State

DLs, Corporate Bonds & Debentures and Municipal Bonds. These

109

instruments differ according to the issuer, duration, risk and return for stockholders.

based on their risk appetite.

- ❖ Credit ratings are a reference point for evaluating the credit risk of issuers and their instruments. Ratings influence the yield, marketability and liquidity premium of debt ratings.

have a meaningful impact on the investor sentiment and rule adherence.

- ❖ Even though credit ratings are important to market transparency, they also suffer from limitations and risks:

such as determination bias, slow responses and overdependence by investors. Nonetheless, when used

together with other financial analysis, credit ratings contribute to a more informative and reliable debt market.

market environment.

## 5.5 Key Terms

**Debt Market** – A market for trading debt instruments such as bonds & debentures.

**G-Secs** – Government Securities; risk-free borrowing instruments issued by the government.

**Corporate Bonds** – Long-term capital debt securities issued by a company.

**Debentures** - Obligations (secured or unsecured) of a corporation.

**Municipal Bonds** – Bonds are issued by municipalities for creation of infrastructure.

**SDLs (State Development Loans)** – Debts floated by state governments.

**Credit Rating** – Evaluation of the creditworthiness of an issuer.

CRISIL – Top Indian Rating Agency, associated with S&P Global.

ICRA – Indian based rating institution, part of Moody's corporation.

CARE -- Indian rating agency specializing in corporate & infrastructure.

Credit Spread- The premium of yield between corporate and government bonds.

Issuer-Pays Model – Issuers pay the cost of obtaining a credit rating.

Coupon Rate – The fixed or floating interest that is paid on a debt instrument.

## 5.6 Descriptive Questions

1. Explain the role of the debt market in the economic development of a country.

110

2. Differentiate between government securities and corporate bonds.

3. Discuss the types and features of municipal bonds. Why are they important in India's urban

infrastructure planning?

4. What is the function of credit rating agencies in the debt market?

5. How does credit rating affect the pricing and interest rate of debt instruments?

6. List the major limitations or risks associated with credit ratings.

7. What are the differences between money market instruments and debt market instruments?

8. Describe the structure and benefits of State Development Loans (SDLs).

9. Explain the meaning and implications of the term "credit spread" in debt investments.

10. How do institutional investors use credit ratings in making investment decisions?

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### Answers to Knowledge Check

#### Knowledge Check 1

##### 1. B) Treasury Bills

2. B) Money market instruments have maturities of up to 1 year, while debt instruments usually have

maturities longer than 1 year.

3. C) They are used by urban local bodies to finance infrastructure projects.

4. B) The bonds will be considered low-risk and may carry a relatively lower yield.

5. C) They may be subject to conflicts of interest since issuers often pay for ratings.

#### 5.8 Case Study

##### Financing Urban Transformation: The Case of Pune Municipal Corporation's Bond Issue

###### Background:

In 2017, Pune Municipal Corporation (PMC) became the first municipal corporation in India undertaken over a period of predated model slum rehabilitation with sale component 25%.

decade to float the municipal bonds, by raising Rs 200 crore which will be invested on its 24/7 water supply project. The

bond was assigned an 'AA+' rating by credit rating agency ICRA, signifying high.

safety for investors. The issuance was a part of ₹2,264 crore fund raising programme via the Smart Cities

###### Mission.

The success of this bond issue signals a great turning point in urban finance, where localecute such tax-financed systems.

could access to the capital markets directly—rather than being restricted to grants or loans from state and

central governments. The PMC had to adhere to strict disclosure, financial discipline and project.

Investor confidence in disclosed information was also reinforced by the regulation norms laid down by SEBI.

Institutional investors, for the most part, also welcomed the bond as being a relatively safe, or at least safe enough for now.

long-term infrastructure investment. The amount had been allocated towards water pipeline

networks, the construction of water treatment plants and curbing leakage in the city's distribution system.

**Problem Statement:**

How can the local governments in India harness municipal bonds successfully conforming to.

infrastructure, while maintaining investor confidence and credit safety?

**Solution Overview:**

The Pune model shows the significance of:

- Solid credit rating to lower the cost of borrowing.
- Open project schedule and financial statements.
- Alignment with national programs (Smart Cities Mission).
- Regulatory compliance to bring in institutional investors.

Other urban entities will have to develop financial capabilities, better tax recovery, and create 67 Institutions of slums and saved land for Public Purposeâ | 1.4 Urban Planning & Management urban infrastructure.

credit to borrow in the capital markets through muni bonds.

**Conclusion:**

The successful PMC bond sale underscores the changing face of the debt market in decentralised infrastructure financing. Given prudent governance and credit discipline, municipal

bonds can become a viable, market-based source of long-term funding for Indian cities.

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## Unit 6: Debt Market & Money Market

### Learning Objectives

Explain the composition and role of debt market and money market in the context of Indian economy.

financial system.

Explain the principal instruments, participants and maturity structures of both markets.

Difference between term of debt market instruments and money market instruments.

purpose, risk, and return.

Describe how the money market facility for liquidity adjusts short-term cash needs, while the issue of 'VIL'

facilitates long-term capital formation.

- Explain how debt and money markets contribute to the transfer of financial resources between savers and borrowers, but also pose risks to both parties; 4. Compare the government regulation of these markets with government regulation elsewhere in the financial system! 7) Describe what types of securities flow through each portion (inter-bank market, security brokers, dealers and underwriters) of this market. Direct financing is financial activity that takes place outside a traditional banking institution.

and institutional financing needs.

Assess the importance of linking the two markets for smooth transmission of monetary policy

and overall financial stability.

Use of experience in two markets to evaluate investment strategies, the effectiveness of policy and.

broader implications for economic development.

### Content

#### 6.0 Introductory Caselet

#### 6.1 Overview of Debt Market

#### 6.2 Overview of Money Market

#### 6.3 Comparison of Debt Market with Money Market

#### 6.4 Integrated Role in Financial System

#### 6.5 Summary

## 6.6 Key Terms

## 6.7 Descriptive Questions

## 6.8 References

## 6.9 Case Study

### 6.0 Introductory Caselet

#### “Amit’s Strategic Balancing Act: Managing Funds Across Debt and Money Markets”

##### Background:

Amit Mehra is the CFO of a mid-sized infrastructure firm in Pune. His

job of overseeing the company's money, from the daily flow to long-term funding and investment.

investment planning. As the firm is implementing several contracts from the government, Amit has to meticulously

maintain nine- to 12-month or more liquidity and funding sources to prevent finance disruptions.

Amit Dhankar has a twin task cut out for him in September. His firm is waiting on payments from a

government client, leading to a temporary cash deficit of ₹25 crore for 10 days. At the same time, the

company is planning a new highway project, for which it requires long term financing of ₹100 crores.

manageable interest costs.

Amit looks at the money markets to solve his instant cash need. He considers borrowing via the

Call Money Market but overnight rate is unreliable. Instead, he decides to sell the Commercial Paper

(CP) 14 days at a reasonable discounted price. For the long-term capital requirement, he considers alternatives in the

debt instruments like NCDs and Infrastructure Bonds, in the debt market.

The company’s investment banker advises Amit that the NCDs should be issued with a 5-year maturity at an offerprice of Rs.

fixed-rate coupon and thereby predictable repayment obligations. The problem is oversubscribed by corpus grown following.

funds and insurance companies. And to help manage the store of liquidity, he sets aside some excess from earlier.

names in Treasury Bills, they will be able to generate interest on the funds while it sits idle until required for a given operation.

contracts.

By timing responses in money and debt markets, Amit is able to efficiently manage the company's

short-term liquidity and long-term capitalization, all the while minimizing financial risk and maintaining

project continuity.

Critical Thinking Question:

If you were in Amit's shoes, how would you assess the trade-offs between short-run cost of borrowing and

long-term interest obligations? On what basis should a decision be made regarding the debt market instruments?

, such as Bond and Debentures (Money market instruments like CPs or Treasury Bills in a corporate treasury.

strategy?

## 6.1 Overview of Debt Market

The debt market is a part of the financial market in which participants are able to issue new debt, known as the primary market, or buy and sell debt securities, (the secondary market).

Such securities are evidence of a borrower's promise to repay the principal sum as well as interest at either fixed or

floating intervals. Unlike in the equity market, where investors hold a piece of the company, the debt market

establishes a creditor-borrower relationship, in which investors are the lenders.

The debt market also plays an important role in funding government deficits, investing for a company to grow and essential infrastructure;

projects. It does mean predictable returns and capital for investors — especially the flight-shy kind.

preservation.

### 6.1.1 Features of Debt Market

#### Fixed-Income Nature

Debt securities typically have fixed or floating interest payments made at regular intervals, and are therefore

attractive to investors seeking stability.

#### Diverse Issuers

Issuers may be central and state governments, public sector undertakings (PSUs), financial institutions, and private corporations.

#### Wide Maturity Range

There are several tenors of debt instruments, from short term (less than 1 year) to long term (e.g.

40 years).

#### Risk Spectrum

Government debt has no risk, while corporate bonds have a graduated degree of credit risk varying with the issuer's financial condition.

#### Market Structure

o Primary Market: Is the place where new debt securities are sold.

o Secondary Market: The market in which securities are traded after being offered to the public for purchase.

#### Regulation

o The government securities are controlled by RBI.

o Corporate bond market is regulated by SEBI.

#### Benchmark Role

Government-bond yields also serve as a reference rate for pricing on other financial products like

corporate bonds, loans and even retail lending rates such as home loans.

## Understanding the Debt Market



### 6.1.2 Key Instruments in Debt Market

The debt market provides a variety of instruments to cater various financing and investment demands.

#### Government Securities (G-Secs)

- Federal government debt that is used to cover budget deficits.
- Comprise of Treasury Bills (short-term) and Dated Securities (long-term).
- Considered virtually risk-free.

#### State Development Loans (SDLs)

- Issued by state governments.
- Moderate level of risk as compared to G-Secs but offer higher returns.

#### Corporate Bonds

- Bought by public and private companies to raise money.
- Can be secured/unsecured, convertible/non-convertible.
- Yield more than G-Secs, according to their credit rating.

#### Debentures

117

- Corporate notes and long-term debt instruments.
- Can be secured or unsecured.

- Attractive to retail as well as institutional investors.

#### Municipal Bonds

- Issued by city corporations or municipalities to finance urban infrastructural projects, such as roads, water, or sanitation.
- Taking on significance as part of the Smart Cities Mission.

#### Bonds of Financial Institutions & PSUs

- Specialised institutions such as NABARD, SIDBI or REC issue bonds for sectoral financing.
- Often made with the guarantee of a government.

#### 6.1.3 Role of Investors in Debt Market

It is the investors that define the capital supply and through which debt market works. Their participation

provide liquidity, stability and depth to the market.

#### Types of Investors:

##### Institutional Investors

- o Banks: G-Sec investment for SLR requirements and liquidity management.
- o Insurance Companies & Pension Funds: They want long-term liabilities to match the duration and quality of assets iii. liabilities.
- o Mutual Funds: Act as a distribution network for retail-oriented debt schemes.
- o FPIs: They can invest in Indian debt within RBI limits.

##### Retail Investors

- o Investors looking for safe and fixed returns can invest in tax-free bonds, RBI Retail Direct (for G-Secs), or corporate bonds.
- o The retail segment might be small relative to institutions, but it is on the rise with digital platforms.

#### Investor Roles in Market Development:

- Capital Provider: Vessel savings to be channelled into productive sectors of the economy such as infrastructure, manufacturing and

public services.

- Risk Spreader: Debt securities can represent a way to diversify from the broad risks of equities.
- Liquidity Provider: Participation on secondary market helps increase liquidity and price quotes efficiency.

Policy Transmission: Investor demand and bond pricing This then has an impact on how does the RBI's monetary policy † Estimates correct till March 2017.

decisions are communicated throughout the financial network.

## 6.2 Overview of Money Market

The money market is a component of the financial markets for assets involved (i.e. borrowed and lended) in short-term borrowing and lending with original maturities of one year or shorter time frames.

place. It's simply those money instruments with a maturity of one year or less. This market helps

businesses, banks and governments to meet their short-term financing needs. It is not a physical location

but an electronic network of banks, brokers and dealers.

telecommunication.

The transactions in the money market are typically short-term and low risk. The main

money market has traditionally been liquidity to the financial system, meaning that it makes sure that

easy access to cash.

### 6.2.1 Features of Money Market

Here is a breakdown of money markets:

Short-Term Instruments:

All instruments that are traded within tri-party have a term not exceeding one year.

High Liquidity:

And because the instruments are short-term, they can be turned into cash relatively rapidly, which means they can be expected to find a market.

are highly liquid.

Low Risk:

The money markets include most such instruments issued by governments or highly-rated corporations.

making them low-risk investments.

No Physical Location:

Now, the money market doesn't have a central exchange. It works by telephone, online / web, and in

other digital means.

Participants:

The key participants are the Reserve Bank of India (RBI), commercial banks, and financial institutions.

banks, mutual funds and big companies.

Helps in Monetary Policy Implementation:

The RBI uses the money market to control interest rates and flow of funds in the, 2.1 Money Market disruptive force through Like any other economy in the world; money market is an integral part to Indian economy.

economy.

### 6.2.2 Key Instruments in Money Market

There are various types of instruments in the money market. Each of these is designed for a particular use-case

for short-term funding or investment. Here are the main instruments:

Treasury Bills (T-Bills):

These are short term government securities issued by RBI on behalf of the government. They

are now issued as 91-day, 182-day or 364-day. They are sold at a discount and they're redeemed.

at face value.

Commercial Paper (CP):

This is a short-term, unsecured borrowing by large corporations to meet their short-term liabilities. It is

Two-year notes are issued at a discount and typically purchased by other companies, banks or mutual funds.

Certificates of Deposit (CD):

These are time bank deposits that have a specified fixed interest rate and maturity. They are negotiable and may be traded in the secondary market.

Call Money and Notice Money:

This is money on loan or borrowed for overnight; call money is for one day and notice money is for up to 14 days. Banks use it to maintain daily liquidity.

Repurchase and Reverse Agreements (Repo and Reverse Repo):

In a repurchase-borrowing or 'repo' transaction, one party agrees to sell a financial asset to another with a commitment by the seller to buy it back at an agreed price on an agreed future date; otherwise identical is what we would call in Australia overnight deposit.

at a fixed price. RBI uses it to control the liquidity in the banking system.

Did You Know?

“Did you know that Treasury Bills (T-Bills) in India are issued at a discount and do not carry any

interest? Instead of paying periodic interest like bonds, the investor receives the face value on maturity.

The return is the difference between the purchase price and the face value. This feature makes T-

Bills zero-coupon instruments, widely used by banks and mutual funds for short-term parking of

funds.”

### 6.2.3 Role of RBI and Banks in Money Market

Role of RBI (Reserve Bank of India):

Regulator of Money Market:

It is the RBI that oversees and controls the money market to maintain its stability and efficient operations.

Issuer of Treasury Bills:

The government raises short-term funds by selling treasury bills through the RBI.

#### Implements Monetary Policy:

Through measures such as repo rates, reverse repo rates and open market operations, the RBI

affects the liquidity and interest rates in the economy.

#### Lender of Last Resort:

When banks are in need of funds, the RBI lends them short-term money.

#### Maintains Liquidity:

Through a variety of means, the RBI encourages neither too much nor too little money running through the economy by increasing or decreasing certain types of bank account balances.

using various tools.

#### Role of Commercial Banks:

#### Participants in Money Market:

Banks play a major part in lending and borrowing of funds to maintain their short-term liquidity.

#### Buyers of Instruments:

Banks place their funds in treasury bill, commercial papers and certificates of deposit.

#### Issuers of CDs:

Banks offer CD's to generate short term funding.

#### Use of Call and Notice Money:

Call Notice Money Market Banks utilise the call and notice money market for resolving short duration mismatches in their fund PROFILE.

requirements.

#### Intermediaries:

The bank acts as the intermediary between lenders and borrowers in the money market.

### 6.3 Comparison of Debt Market with Money Market

Both the debt market and the money market are segments of the financial market, but they differ in terms of investment duration, instruments used, participants, risk levels, and regulatory authorities. While the money market deals with short-term funds, the debt market focuses on medium- to long-term borrowing and lending through various debt instruments.

### 6.3.1 Differences in Tenure (Short-term vs Long-term)

#### Money Market:

Trade in short-term facilities usually of product up to one year. It is meant for managing day-to-day liquidity needs.

- Debt Market:

Instruments with medium- and longer maturities, that is to say over one year. It is for longer-term financing and investments.

### 6.3.2 Differences in Instruments and Participants

#### Money Market Instruments:

- o Treasury Bills

- o Commercial Paper

- o Certificates of Deposit

- o Call and Notice Money

- o Repo and Reverse Repo

- Debt Market Instruments:

- o Government Bonds

- o Corporate Bonds

- o Debentures

- o Municipal Bonds

- o PSU (Public Sector Undertaking) Bonds

- Money Market Participants:

- o Reserve Bank of India (RBI)

- o Commercial Banks

- o Large Corporates

- o Financial Institutions

- o Mutual Funds

- Debt Market Participants:

122

## Aspect

- o Retail and Institutional Investors
- o Insurance Companies
- o Pension Funds
- o Mutual Funds
- o Government Bodies
- o Corporations

## Money Market

## Debt Market

Instruments InstrBill, InstrCP, InstrCD, ICMRHMONEY

Participants Banks, RBI, Mutual Funds Corporates Investors Institutions Corporates

Government Bonds, Corporate Bonds

## 6.3.3 Risk-Return Profiles

### Money Market:

- o Low risk: Instruments are short term and are from governments or high-quality entities and banks.

- o Low return: Due to low risk and short duration, the returns are usually not significant  
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- Debt Market:

- o More risky: Whether a corporate bond is “safe” or not depends on the credit-worthiness of the issuer and the length of the term.

- o Higher interest: There is typically a higher interest or coupon payment on long-term investments

compared to money market instruments.

## Feature

Money Market Debt Market

## Risk Level

Low

Return Level Low

Medium to High

Moderate to High

#### 6.3.4 Regulatory Framework (RBI vs SEBI)

Money Market Regulation:

- o Supervised by the Reserve Bank of India (RBI).

- o RBI regulates the operations of money market instruments, and maintains liquidity and short-term financial system stability.

- o The money market is also a medium through which RBI operates to regulate the monetary System of the country.

- Debt Market Regulation:

- o Securities Exchange Board of India (SEBI) regulation.

123

- o SEBI regulates the issue and trading of long-term debt instruments, particularly in

corporate bond market.

- o Transparency, investor protection and fair practices in the debt market are looked after by SEBI.

Regulation Aspect Money Market

Regulator

Debt Market

RBI

Focus Area

SEBI

Liquidity & Policy Investor Protection

Did You Know?

“Did you know that SEBI does not regulate government securities (G-Secs) even though they are part of the debt market? The RBI exclusively manages G-Secs through the Negotiated Dealing

System (NDS-OM) platform. SEBI governs corporate debt instruments and bond issuance by companies, while the central government debt remains under the domain of RBI. This regulatory

split ensures specialised control over different segments of the debt market.”

#### 6.4 Integrated Role in Financial System

Both the money market and the debt market are important components of the financial system. While they serve

different goals, they are mutually dependent and cooperate to maintain healthy operations of the

economy. The two combined guide inflow and outflow of money (short term as well as long term) within a system.

capital) recognize the existence of a metric for easing and lending to a proper development, implementation and maintenance of monetary policy by central banks.

##### 6.4.1 How Debt and Money Markets Complement Each Other

The money market is a form of short term financing offered to firms to keep them going on day to day basis.

and maintaining liquidity.

- Debt market provides long term capital for infra, expansion and development of businesses and governments.

Here the two markets complete each other well:

Funding Flow:

The surplus from the money market area are often reinvested in the debt market for a longer durations.

- o Money market serves as a link to the long-term loan in the debt market.

Risk Management:

o Financial institutions may hedge risks by matching short-term (money market) and long-term (debt or stock) interest rates on their liabilities.

market) portfolios.

Liquidity Support:

- o In case of low liquidity in the debt market, investors may temporarily shift to money

market instruments.

Investor Base:

o Both markets have similar pools of investors such as mutual funds, banks and financial institutions shifting money on returns and deficits.

#### 6.4.2 Impact on Liquidity and Capital Formation

Liquidity:

- The money market itself directly contributes to the cost establishment of the liquidity in the financial system. It allows banks

and financial institutions to borrow and lend fast, generally overnight or for a few days.

- It helps keep the banking system stable, and makes sure financial institutions profited from their crisis to credit.

to cash when needed.

Capital Formation:

- Debt market Debt market aids capital formation supporting governments and companies. There are many constituents of debt markets.

investment in long term infrastructure industry, and development.

- When companies and governments sell bonds or debentures, they receive money that can be spent for

utilitarian, as it contributes to material progress.

Together, the two markets ensure:

- Even cash flow (money market)
- Investment in long-term assets and projects (credit market)

#### 6.4.3 Influence on Monetary Policy Transmission

Monetary policy is when the central bank (RBI for example) takes actions to manage interest rates and

money supply in the economy.

Role of Money Market:

- The money market is the first line of contact with monetary policy instruments such as repo rate,

reverse repo rate and open market operations.

- RBI policy rates are added to the short-term interest rates in the money market.

- This adjustment is then passed on to banks, which set their lending and deposit rates.

Role of Debt Market:

- The bond market reflects the long-term expectations of interest rates and inflation.

- The debt market: Bonds prices in the debt market may rise if the RBI hints at lower future interest-rates.

- Therefore, the bond market helps to convey expectations of monetary policy over the medium- and longer-run term.

Combined Impact:

- If both markets react in line with the central bank's signals, monetary policy transmission becomes more efficient.

- It does this by making sure interest rates across the financial system (for loans, bonds and deposits) are more or less in sync with the central bank's policy.

"Activity: Tracing the Transmission of Monetary Policy through Markets"

Instruction to Students:

1. Track any recent RBI monetary policy announcement (such as a change in the repo rate).

2. Collect real-time data from financial news portals on:

- o Money market rates (call rate, repo rate)

- o Debt market bond yields (e.g., 10-year G-Sec yield)

- o Bank lending rates (MCLR or external benchmark linked lending rates)

3. Record data from Day 0 (policy day) to Day 7.

4. Create a line graph showing how each of these rates responded over the week.

5. Write a brief note (200 words) explaining how the policy action affected both short-term and

long-term rates and what it tells you about the efficiency of monetary policy transmission.

Knowledge Check 1

Choose the correct option:

1. Which of the following instruments is not part of the money market?

- A) Treasury Bill
- B) Commercial Paper
- C) Certificate of Deposit
- D) Corporate Bond

2. Who regulates the debt market for corporate bonds in India?

- A) Ministry of Finance
- B) Reserve Bank of India (RBI)
- C) Securities and Exchange Board of India (SEBI)
- D) State Bank of India

3. What is the primary objective of the money market?

- A) Long-term capital investment
- B) Promoting foreign investment
- C) Managing short-term liquidity
- D) Increasing tax revenue

4. Which of the following statements best explains monetary policy transmission?

- A) The flow of money from the stock market to the banking sector
- B) The process through which RBI's policy rates affect interest rates in the economy
- C) The issuance of bonds by the government
- D) The method of printing currency by the RBI

5. In terms of risk and return, which of the following is generally true about money market instruments compared to debt market instruments?

- A) Higher risk and higher return
- B) Lower risk and lower return
- C) Lower risk and higher return
- D) Higher risk and lower return

6.5 Summary

❖ Debt market and money market are two important parts of the financial sector.

127

❖ Money market covers short term funds (less than one year maturity) keeping it liquid and supporting the conduct of monetary policy.

❖ Debt Market, which deals in long-term debt instruments (for one year or more) such as debentures and bonds, facilitates the raise of capital through the exchange.

infrastructural and developmental formation investment.

❖ By funding different needs and not crowding out one another, the two markets are complementary to each other.

flow of money in the economy.

❖ They affect how monetary policy is transmitted, contributing to stability in the economy and growth.

#### 6.6 Key Terms

Money Market– Borrowing and Lending for short terms (up to 1 year).

Debt – Long term debt securities (Bonds, Debentures).

Liquidity – How easy it is to turn an asset into cash.

Capital Creation – Accruing assets by investing productively.

Monetary Policy – Control of money supply & interest rates by central bank.

Repo Rate` RBI's short term lending rate to commercial banks.

Treasury Bill - Security issues by the government with less than 1 year of maturity.

Corporate Bond – Long-term loan taken out by a company.

SEBI – Capital & debt markets controller in India.

RBI –It is a regulator of money market & monetary policy in India.

#### 6.7 Descriptive Questions

Distinguish between the debt market and the money market.

Explain the principal instruments in and features of the money market.

How does RBI control the money market?

What are the ways in which debt and money markets provide for the capital formation and liquidity of the economy?

Describe the way in which monetary policy is transmitted via the money and debt markets.

Describe the regulation regarding the debt market and the money market in India.

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## Answers to Knowledge Check

### Knowledge Check 1

1. D) Corporate Bond
2. C) Securities and Exchange Board of India (SEBI)
3. C) Managing short-term liquidity
4. B) The process through which RBI's policy rates affect interest rates in the economy
5. B) Lower risk and lower return

## 6.9 Case Study

### Coordinated Role of Debt and Money Markets During the COVID-19 Crisis

#### Introduction

The economic system that is responsible for promoting the economy, more so during bad times.

of crisis. The money market and debt market are two of its most essential parts, which combined guarantee short-term liquidity and long-term financing. During the COVID-19 pandemic, tested these markets in the most extreme economic uncertainty. The Indian government

so the RBI's Parliament of India (RBI) countered with multiple complementary actions to support the

economy through the regulation of liquidity, funding needs, and investor's feeling." This case study

how the two markets collaborated during the crisis both, difficulties faced and onSubmit= Go to: [www](http://www).

interventions made by key regulators.

### Background

The global economy came to a screeching halt in early 2020 as the COVID-19 pandemic spread.

Businesses suffered from cash flow problems, investors became risk averse and there was an abrupt upsurge in

demand for liquidity across sectors. Overnight rates and call were volatile in money market.

exchange of money and the debt markets saw disturbances in trading bond yields.

volumes. This, in turn, made it challenging for the government and companies to raise funding for healthcare.

relief packages, and economic revival.

### Problem 1: Liquidity Squeeze and Market Hysteria

When uncertainty erupted, mutual funds and banks withdrew money from debt instruments leaving in its wake a bedlam.

liquidity crunch. This sent short-term rates skyrocketing, and debt securities, particularly corporate bonds, went for heel.

reduced demand.

### Solution:

RBI infused liquidity through a myriad of tools:

- Cut the repo rate and reverse repo rate
- Announced Targeted Long-Term Repo Operations (TLTRO).
- Purchased government securities through Open Market Operations (OMOs)
- Announced special liquidity windows for mutual funds and NBFCs

These moves helped to get interest rates back to normal levels and restore faith in the system.

### Issue 2: Issue of Mobilization of Long Term Funds

Risk cut companies and governments had trouble selling long-term bonds.  
perception and falling demand.

Solution:

Assistance to the debt market came in:

- More government bonds being sold with decent yields
- Special efforts to ensure liquidity in corporate bond markets
- Credit guarantees and easing of investment norms for institutions

This allowed the accumulation of long-term capital for infrastructure, welfare and social expenditure.

Problem 3: Transmission of Monetary Policy was Poor

Multiple rate cuts did not reflect in lending rates with Banks reluctant to play ball, watering down the intended impact of the accommodative stance adopted by R.  
monetary policy.

Solution:

The RBI was able to maintain an effective transmission of the monetary policy through:

- Prodding banks to allow rate cuts
- Connecting fresh loans to external benchmarks such as the repo rate
- Levering the money market to affect short-term borrowing expenses, which in influenced those longer-term rates in the market for debt

This alignment helped to increase access to credit for businesses and households.

MCQs

Q1: With which tool RBI infused long-term liquidity in the banking system?

A) Treasury Bills

131

B) Reverse Repo

C) TLTRO

D) Debentures

Answer: C) TLTRO

Explanation: TLTRO (Targeted Long-Term Repo Operations) was a way for banks to borrow at

low rates and to lend into parts of the economy that need it.

Q2: How did RBI's OMOs during COVID-19?

- A) Increased inflation
- B) Reduced liquidity
- C) Null down interest rates and stable of flows
- D) Increased short-term interest rates

Answer: C) Provided liquidity and held down yields

Explanation: OMOs comprised purchase of gov't securities to ease liquidity & manage it interest rates.

Conclusion

The role of the money and debt markets in providing physical necessities during a crisis such as that generated by COVID-19 was brought to ...

managing economic stability. Active support from the RBI and collaboration among

Both markets provided liquidity in the short run, but market participants

enabling long-term borrowing for growth. It was, however, their combinational operation that played an important role in the clearance of.

confidence, bolstering government spending and maintaining the orderly functioning of.

monetary policy.

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## Unit 7: Equity Markets - Primary Markets

### Learning Objectives

1. Understand the concept and significance of primary markets in the capital market system.
2. Explain the process and purpose of an Initial Public Offering (IPO).
3. Describe the mechanism of the book building process in determining issue price.
4. Interpret the key components and disclosures of an offer document.
5. Understand the function and importance of the Green Shoe Option in IPO stabilization.
6. Differentiate among various types of primary issues such as public issue, rights issue, and private placement.
7. Develop the ability to critically analyse real-life IPOs and regulatory frameworks through case studies and offer documents.

### Content

- 7.0 Introductory Caselet
- 7.1 Introduction to Primary Markets
- 7.2 Initial Public Offering (IPO)
- 7.3 Book Building Process
- 7.4 Understanding an Offer Document
- 7.5 Green Shoe Option
- 7.6 Primary Issues
- 7.7 Summary
- 7.8 Key Terms
- 7.9 Descriptive Questions
- 7.10 References
- 7.11 Case Study

### 7.0 Introductory Caselet

“Ananya’s First IPO: Exploring the Dynamics of Primary Markets”

## Background

Ananya, a young professional working in Bangalore, has recently developed an interest in equity markets.

She frequently invests in secondary market shares but has limited knowledge of how companies raise funds

for the first time through primary markets.

While following financial news, Ananya comes across the announcement of a large technology company

planning its Initial Public Offering (IPO). The media highlights that the IPO will use the book building

process to determine the share price, and terms such as offer document, green shoe option, and retail quota

frequently appear in articles.

Curious, Ananya starts researching:

What exactly are primary markets, and how do they differ from secondary markets?

How does an IPO work, and why do companies raise capital through it?

What role does the offer document play in informing investors?

How does the green shoe option stabilize share prices after listing?

Her interest deepens when she learns that oversubscription in IPOs can lead to allotments being reduced for

retail investors, while institutional investors often participate heavily in the process. This motivates her to

understand the mechanics of primary issues before participating in her first IPO application.

Through this case, students will explore how capital is raised in the primary market, the processes involved

in IPOs, and the safeguards designed to protect investors.

## Critical Thinking Question

If you were in Ananya's place, what key information would you analyze in an offer document before

deciding to invest in an IPO?

How does the primary market differ from the secondary market in terms of investor objectives and company

benefits?

## 7.1 Introduction to Primary Markets

MARKETS-New issue market in the capital market in which new securities are sold.

first time. It is also referred to as the primary market or new issue market. Ongoing:A Case For Chasing Mark Westby-28 May 2014kicking off their shoes andDip Their Toe Again –9 September 20145 per cent backflip/Candelmo77A Ugh!

selling securities, including shares, bonds and debentures on its own account. This money is used to frækkepek fucking around with "Free the Nipple" donate TheMoneyMother Search the GOPs records on this organization(they are by far not alone in enabli...

established for the purpose of expanding business,developing infrastructure, repaying debt or other purposes established statements on approved and published as required by tax laws.

projects.

41 Reiser/Mills The primary market, in contrast to the secondary market where investors trade existing securities back and forth, is known as the primary market because this is the first time that a corporation has had an opportunity to raise capital from the investing public.

covers only the new issues never before traded.

### 7.1.1 Role of Primary Markets in Capital Formation

The basic market is of fundamental accommodate the capital formation, the topic an accumulation of capital.

real and monetary capital in the economy. Here's how it contributes:

Direct Mobilisation of Savings:

It funnels the savings of individual and institutional investors into acts of productive business.

Funding for Business Expansion:

Firms use the proceeds they raise F or sale in the primary markets to help grow their business, upgrade equipment, or fund other business opportunities.

launch new ventures.

Support for Economic Growth:

If companies utilize the deposits and invest in infrastructure and industries in the primary market, it

results in job creation and GDP growth.

Diversification of Capital Sources:

The primary market serving as an alternative to traditional bank financing is providing the businesses Value Generation Strategy

options for raising capital.

Encouragement of Investment Culture:

It encourages the public to have equity shares and bond to spread among others.

financial literacy and market participation.

### 7.1.2 Difference Between Primary and Secondary Markets

Basis

Function

Sells new securities initially

Enables the trading of already issued securities

Participants

Issuers (companies/government) and investors

Buyers and sellers (investors/traders)

Nature

of

Between issuer and investor

Between investors only

Transaction

Purpose

Capital formation for companies

Liquidity and price discovery for securities

Regulation

Price Discovery

(Securities and Exchange Board of India) is authoritatively by SEBI under issue guidelines

Regulated by stock exchanges under

SEBI framework

Which two methods are used for new issues in the primary market Through book building or fixed pricing Through demand and supply?

7.1.3 Participants in the Primary Market

There are several players in the functioning of the primary market. These include:

Issuers:

Firms, governments or organizations whom issue new securities to obtain investment.

Investors:

People, mutual funds, insurance companies, pension funds and FIIs

(FIIs) or new issue subscribers.

Merchant Bankers / Lead Managers:

and pricing Registered intermediaries, who handle the entire issue process, documentation, options.

marketing, and allotment.

Underwriters:

Companies that guaranty the sale of a) deal. If underwriters Up to the date of this of Excess If Commission ommission.

agree to purchase the balance.

Registrars and Transfer Agents (RTAs):

Deal with the solicitation of applications, their verification, allotment and issuance refunds.

Securities and Exchange Board of India (SEBI) :

The body regulating the primary market to promote transparency and investor protection.

Stock Exchanges:

Although listing of securities post issue occurs However, in the primary market is not a trading platform.

through stock exchanges.

### Key Players in the Primary Market



### 7.2 Initial Public Offering (IPO)

What is an IPO? A company’s debut on the public market.

for the very first time by selling shares on an exchange. It’s a primary market function which enables the

company that used investors’ capital in exchange for shares. Following the IPO, the company is no longer traded privately because and

secondary market where its stocks are traded.

#### 7.2.1 Concept and Importance of IPOs

Concept:

139

- An initial public offering is a company’s first issuance of shares to the public. It converts a private

entity into a public company.

- A broad group of investors is offered shares in a public issue, which then are listed on a stock

exchange like NSE or BSE in India.

Importance:

Capital Raising:

Enables companies to raise substantial capital for expansion, diversification, debt redemption, or working capital.

Public Visibility:

Elevates company reputation and brand quality by putting the company on public record, as well as under regulation.

Liquidity for Early Investors and Promoters:

Enables an exit for venture capitalists, private equity investors and founders with them to sell their holdings.

Access to Future Funding:

Listing itself helps firms in the future to raise greater funds through rights issues or follow-ons."

public offers (FPOs).

Valuation Benchmark:

The IPO process, particularly in the book building form along discovery of a true market value of the

company.

#### 7.2.2 Process of Launching an IPO\

There are a number of steps and regulatory approvals involved in launching an IPO. Below is the standard process:

Appointment of Intermediaries:

The company then appoints merchant bankers (lead managers), underwriters, legal consultants, etc.

auditors, and registrars.

Preparation of DRHP (Draft Red Herring Prospectus):

Post a DRHP draft red herring prospectus – a document that contains all relevant company details including, risk factors and financials with market regulator SEBI which should also include excruciating details about the company's financials, business model etc.

and terms of the offer.

#### SEBI Review and Approval:

The Draft Red Herring Prospectus is analysed by SEBI for its completeness and consent. After it is approved, the moving average system becomes the RHP.

(Red Herring Prospectus).

#### Marketing and Roadshows:

The IPO is sold to investors by company/merchant bankers via marketing strategy, presentations, and roadshows.

#### Price Band and Bidding (for book building):

A band is established for the price of the shares, and investors submit bids within that range.

#### IPO Opening and Application:

The issue is opened for subscription (typically 3 days). Investors apply via ASBA (Application Supported by Blocked Amount).

#### Allotment of Shares:

Shares are allotted on the basis of demand and category (retail, institutional, HNI).

#### Listing on Stock Exchange:

After the allotment is over, the shares get listed and trading starts on the exchange from a particular date.

“Activity: Simulate the IPO Launch Process”

#### Instruction to Students:

You are part of the finance team of a private company planning to go public. Perform the following

steps:

1. Create a step-by-step IPO timeline for your company, including:

- o Appointment of merchant bankers
- o Filing of DRHP
- o SEBI observation phase
- o Finalisation of price band

- o Bidding period
  - o Allotment and listing
2. Assign estimated dates and responsible departments for each activity.
  3. Submit your IPO project plan in a flowchart or tabular format.

### 7.2.3 Pricing Mechanisms – Fixed Price vs Book Building

There are two primary methods for setting the price of shares in an I.P.O.:

Aspect

Fixed Price Issue

Book Building Issue

141

Pricing Method

Price Band

by Company at a certain amount...for the (the “Fixed Price”).

shares in advance

Not applicable

Price is established by the bids of investors

within a price band

A floor price and a cap price are announced.

Visibility Unknown - Only once issue is closed

Demand is clear in the daily biddings

period

Has more retail interest It has institutional interest too

Investor

Participation

Risk to Issuer

Higher, given that pricing may not adequately reflect

true market value

Lower, as market demand helps determine How to Decorate For a Sales Ready Home.

price

Allotment Basis

Based on application size and

availability

according to bid and cut per trait.

price

Example:

- Fixed Price IPO might offer shares at ₹100 per share to all investors.
- In Book Building, the price band could be Rs.95–105 and investors can bid in this range.

Final

price is set based on demand.

### 7.3 Book Building Process

The book building process is used in an IPO to determine the minimum price at which shares can be offered.

should be issued. Unlike a fixed price offering, the final offer price is not preset by the company. Instead, it sets

a band (i.e., a price range) and investors bid within that band. Based on demand at different price points and the last raised issue price is considered.

The book building is commonly used as it helps the issuer to determine what the demand is and also receive a market-driven

price for their securities; that would lead to better visibility and confidence of investors.

#### 7.3.1 Definition and Steps in Book Building

Definition:

Book building is a process of price discovery at various price levels.

prices throughout the IPO process, and assist issuers in determining final issuance price based on level of investor demand.

Steps in Book Building:

See instruments appointing EYK and State bank of India as BRLM AGREEMENTS APPOINTING EY ET KINOSI AND STATE BANK OF INDIA AS JOINT BOOKRUNNING LEAD MANAGER TO THE OFFER Date: [·], 2019 To, The Board of Directors [·] LIMITED • Vol III issue vi - June

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Thursday, May 29th, 2019.

Merchant bankers are chosen by the company to take care of the book building process.

Draft Red Herring Prospectus (DRHP) Preparation And Filing Of DRHP:

The issuer files DRHP with SEBI in which it discloses the price band, but not the final price.

Approval and Marketing:

After obtaining SEBI's approval, the company starts promoting the issue with roadshows and investor

meetings.

Announcement of Price Band:

The issuer discloses a price range (for example, ₹95 to ₹105). Offers, within this range will be entertained.

Bidding Period:

Typically open for 3-5 business days. Investors make their bid for the number of shares they desire, and the price they're willing to pay.

**Book Building:**

Bids are submitted electronically on a system operated by stock exchanges. A book of all bids is created.

Price Discovery and Final Pricing:

**THE FINAL CUT-OFF PRICE** The final cut-off price is the result of bids received and demand at various price levels. determined.

Allotment of Shares:

Shares are given on the basis of subscription and category (retail, QIBs, HNIs).

Listing on Stock Exchange:

The shares are listed and trading commences on a date set in advance.

7.3.2 Role of Bidding and Price Discovery

Definition:

Book building is a process of price discovery at various price levels.

prices throughout the IPO process, and assist issuers in determining final issuance price based on level of investor demand.

Steps in Book Building:

See instruments appointing EYK and State bank of India as BRLM AGREEMENTS APPOINTING EY ET KINOSI AND STATE BANK OF INDIA AS JOINT BOOKRUNNING LEAD MANAGER TO THE OFFER Date: [·], 2019 To, The Board of Directors [·] LIMITED • Vol III issue vi - June SUPPLEMENT CIRCULAR LETTER 22-91 No A/DGM/MGMT/NASD/CIRAHMD/18/073 Thursday, May 29th, 2019.

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determined.

#### Allotment of Shares:

Shares are given on the basis of subscription and category (retail, QIBs, HNIs).

#### Listing on Stock Exchange:

The shares are listed and trading commences on a date set in advance.

#### 7.3.3 Regulatory Framework for Book Building

The book building process is regulated by SEBI in order to make sure that fairness, transparency and safeguard of investor interest.

#### Key Regulatory Guidelines:

##### Eligibility Conditions:

SEBI requires companies to fulfil certain eligibility requirements (such as net Of all the IPOs that have raised money underwriting power, etc...) before going public.

profitability) prior to going public by book building.

##### Disclosure Requirements:

DRHP is required to contain all relevant information, including financials, risk factors, use of proceeds, etc.

and promoter background.

##### Price Band Disclosure:

Issuer and BRLM to disclose price band and the rationale for such price band.

##### Electronic Bidding Platform:

SEBI mandating that stock (of both BSE and NSE) for using electronics systems maintained by stock exchanges.

recording bids.

##### ASBA Facility:

Allotment will be done only on receipt of all the details required in this paragraph.

transparency and efficient fund handling.

##### Investor Categorization and Allotment Quotas:

- o 50% reserved for QIBs
- o 15% for HNIs
- o 35% for retail investors

## Post-Issue Reporting:

post-issue report and bidding data to SEBI, by the BRLM.

Thus, by following the SEBI guidelines, the book building process would be fair, transparent and investor friendly.

## 7.4 Understanding an Offer Document

An offer document is a legal and regulatory statement designed to inform the public of details related to an opportunity to purchase or acquire a security.

public a company seeking to raise capital from the public, either through an IPO or another market issuance. It is the first document viewed by potential investors to assess the business, financial condition and results of operations, cash flows, risk factors and use of proceeds.

Offer documents provide transparency and facilitate selection process for investors.

making. In India, such documents are regulated and scrutinized within the framework of the Securities and Exchange Board of India (Disclosure & Investor Protection) Guidelines, 2000.

Exchange Board of India (SEBI).

### 7.4.1 Draft Red Herring Prospectus (DRHP)

#### Definition:

Draft Red Herring Prospectus (DRHP) is a prospectus, which invites the public to subscribe for the shares of a company generally or only the issuer and it contains minimal information.

SEBI as and when undertaking a book built IPO for raising the funds. Is all inclusive of s information other than.

the ultimate offering price and number of common shares sold.

#### Key Features of DRHP:

- Filed before the I.P.O.
- Analyzed by SEBI with respect to requirements of compliance and disclosure.
- Open to public and prospective investor comments.
- Utilized by merchant bankers and company officials at roadshows and presentations to estimate investor interest.
- The company files the Red Herring, after including SEBI's comments and public comments.

Prospectus (RHP) for updated and more comprehensive information.

Did You Know?

“Did you know that the DRHP does not contain the final price or number of shares being offered?

It only includes the price band, tentative offer size, and key disclosures. This is why it is termed “Red

Herring”—because it contains indicative, but not final, information.”

#### 7.4.2 Key Components of Offer Document

Content and Sections of the Offer Document (DRHP and RHP) An offer document is subdivided into a number of sections, having specific content in each section.

for investors:

Section

Details Provided

Business Overview

Type of business, primary products/services, industry view

Risk Factors

Firm and industry specific as well as general risks impacting company performance

Use of Proceeds

Financial Information

Capital Structure

What the company plans to do with proceeds from the issue

The balance sheet, key ratios, revenue trends, profit or loss data (if applicable) if any.

Managing and Promoter Background history of the directors, promoters and key managerial personnel

Legal

Equity, Debt and Pre-IPO equity Shareholding patterns

and

Regulatory

Legal proceedings, regulatory actions and compliance

Disclosures

Offer Details

Objects of the Issue

Price Band, Market lot, Bid opening date, Listing exchange, Issue size

Industry Overview

That can include specific uses such as expansion or debt repayment and R&D investment, working capital

This level of granularity permits investors to evaluate risk and potential reward prior to making investment decisions.

decisions.

#### 7.4.3 Role of SEBI in Offer Document Review

The SEBI takes a crucial regulating part in the determination and legitimization of approval of offer documents.

Key Functions Performed by SEBI:

Scrutiny for Adequate Disclosures:

5.2 SEBI scrutinizes DRHP to protect the investors and to see that complete, true and correct particulars are provided. It does

not sponsored or endorsed the issuance or the quality of company, products and services.

Issuance of Observations:

SEBI comments on the DRHP which are to be reverted by the company before filing the final prospectus.

Ensuring Investor Protection:

SEBI sees to it that the offer document gives complete coverage to all material risks, uages of funds, promoter

background to avoid misleading investors.

Public Access and Transparency:

Once the DRHP is filed, SEBI uploads it on its website and invites public comments. This encourages

transparency and market participation.

### Post-Issue Monitoring:

SEBI also keeps a tab on post-issue aspects of allotment, refund, listing requirements and credits.

of proceeds.

### Regulatory Compliance:

SEBI ICDR BrahMos - Section 115 WB The issuer and intermediaries shall adhere to SEBI's ICDR Regulations (Issue of Capital and.

Disclosure Requirements) that set out the information and form of offer document.

In other words, SEBI guarantees that the offer document is a credible source for investors and enables them to.

preserves the primary market.

### 7.5 Green Shoe Option

GREEN SHOE OPTION definition The Green Shoe Option is a provision contained in lowering of the issue price after completion of the issue.

(IPOs), which facilitates the stock price stability in aftermarket. It permits the underwriters to resell

additional shares (up to 15 per cent) of the original issue size in the event of strong demand. The mechanism is

after the Green Shoe Company, who first used it.

#### 7.5.1 Concept of Green Shoe Option

Green Shoe Option (GSO) When a syndicate issues stock, the members have actually sold more shares than they are legally allowed to sell under their purchase agreement.

of shares — generally no more than 15% higher than the number in the public issue itself.

#### Key Characteristics:

- It is most commonly employed in book-built IPOs.
- Intended to stabilize stock price after listing.
- Led by the stabilising manager, typically the lead managing underwriter.
- It is used within 30 days of listing.

This is permitted under the SEBI (ICDR) Regulations in India.

#### 7.5.2 Mechanism and Benefits

Mechanism:

Overallotment:

The issuer allocates up to 15% incremental more shares than initially expected by the GSO.

Short Position Created:

The stabilising manager (the lead manager) sells these extra shares in the market, thereby making a

temporary short position.

Market Stabilization:

Where the market price of stock drops below the issue price, the stabilising agent will purchase  $\Delta_0$  such that  $\Delta_0$  satisfies the row determined by  $\alpha; \beta_i(\text{gm})$  if and Climate Finance's precommitment style flows.

market to buy in order to cover the short position, which would prop up the price.

Share Buyback:

The buyback is financed from the Green Shoe Option account which has been created from the amount of

additional allotment.

Closing the Option:

So long as the market is firm, the stabilising agent should refrain from purchasing and allow such over-allotment to be made in full.

stand, thereby adding to shares available for trading.

Benefits:

To Issuer

To Investors

To Market

Ensures smoother listing

Mitigates risk of price drop after listing and prevents volatility

strong

Reflects

investor

demand

Increases investor confidence

Encourages

fair

price

discovery

Improves success of the IPO

Transparent

price

support

Stabilizes post-IPO trading

mechanism

The GSO simply inspires IPO confidence, particularly during times of market volatility.

### 7.5.3 Case Examples of Green Shoe Option in India

LIC IPO (2022):

- o India's largest IPO so far.

- o Incorporate a Green Shoe Option to stabilize price, should there be post listing volatility.

- o The stabilising manager on its own through the GSO method purchased shares out of market relations from the market

during initial trading days.

Zomato IPO (2021):

- o A ₹9,375 crore IPO that was met with heavy demand.

- o Despite a good post-listing performance there to serve as a backup in 2019 Amur GSO for price stabilization.

SBI Cards IPO (2020):

- o Faced a listing during market volatility of COVID-19.

- o The Green Shoe Option was partly used to support the price levels at the initial trading curve.

These illustrations demonstrate how the green Shoe Option is a market confidence mechanism and applied to sluggish.

useful in uncertain markets, or for large public issues.

Did You Know? “Did you know that the Green Shoe Option is not mandatory but is commonly used in large IPOs to stabilize the stock price during the first 30 days of listing? SEBI introduced this mechanism in India in 2003, inspired by U.S. markets.” Did You Know?

“Did you know that the Green Shoe Option is not mandatory but is commonly used in large IPOs

to stabilize the stock price during the first 30 days of listing? SEBI introduced this mechanism in

India in 2003, inspired by U.S. markets.”

## 7.6 Primary Issues

Here primary issues can mean the new ways in which a company raises fresh capital from investors in the.

primary market. These matters relate to the issuance of fresh securities to investors and are governed by SEBI

under the SEBI (ICDR) Regulations. Companies will decide on the type of primary issue they prefer, based

on their financial tactics, investor focus and regulation.

### 7.6.1 Public Issue – Features and Process

Public Issue This type of capital raising is probably the most popular, securities are offered to the public at large.

through a prospectus. It comprises IPOs and FPOs.

149

Key Features:

- Available for all investor category – Retail, HNIs and Institutional.
- Must file a prospectus or red herring prospectus.
- Compulsory listing on stock exchanges.
- Needs approval from SEBI and stock exchanges.

Process:

Engagement of merchant bankers and other intermediaries.

Filing of DRHP with SEBI.

Roadshows and marketing.

There would be bidding through book building or through fixed price offerings.

Issue and redemption of shares (Extract from the regulations) 1. éléments desurgés et remboursements supplémentaires aux titres inscrits dans un compte de parts.

Listing on the stock exchange.

### 7.6.2 Rights Issue – Concept and Benefits

A Rights Issue is an offer made by a company to its shareholders to take up additional shares.

purchase more shares at a reduced price proportionate to their current holdings.

Key Concepts:

- No need to have full prospectus (only Letter of Offer).
- The problem is optional; shareholders have the right to renounce (transfer) their rights.
- Protects against dilution of control by allowing current investors to buy shares first.

Benefits:

- Inexpensive way to raise capital.
- Protects shareholder value.
- Faster than public offerings and comes with less regulatory scrutiny.

### 7.6.3 Indian Depository Receipts (IDRs)

Indian Depository Receipts (IDRs) are financial products by which foreign companies can raise money in India.

market, denominated in equity shares of the foreign entity.

Key Features:

- Allows Indian investors to invest in foreign companies without the currency risk.
- Traded in Indian rupees on exchanges in India.
- Regulated by the Companies Act, 2013 and SEBI guidelines.

Example:

Standard Chartered PLC was the first to issue IDRs in India in 2010.

Did You Know? “Did you know that the Standard Chartered Bank was the first and only company (as of now) to issue Indian Depository Receipts (IDRs) in India in 2010? Despite regulatory support, IDRs have not gained traction, largely due to investor unfamiliarity and liquidity concerns.”

#### 7.6.4 Private Placement Market

Private Placement Private placement is the sale of securities to a selected group of investors (investors who qualify as sophisticated or accredited) Public Offer.

banks, insurance companies and the high net-worth individuals.

Key Features:

- Not open to the general public.
- Quicker and cheaper than public issues.
- Often for companies in need of fast capital without market turbulence.

Types:

- Preferential Issue
- Qualified Institutional Placement (QIP)

Private Placements are regulated by Section 42 of the Companies Act 2013.

#### 7.6.5 Preferential Issue

A Preferential Issue is a company issue of shares or of convertible securities to a select group of persons under Section 81 of the Companies Act, 2013.

(a new issue from an issuer and sold to investors for the first time) at a price known as 'issue (or offering) price.

Features:

- Requires a special resolution approved by the shareholders.
- There are pricing regulations under SEBI.
- Lock-In Period is also implemented to avoid short term speculations.

Use Cases:

- Strategic investments
- Promoter funding
- Merger or acquisition transactions

#### 7.6.6 Qualified Institutions Placement (QIP)

Qualified Institutions Placement (QIP), as the name suggests is a private placement that can be made only to Qualified

Institutional Buyers (QIB) such as mutual funds, banks and FIIs.

Key Features:

- Created by SEBI to enable Indian firms to raise capital from domestic institutions fast.
- No need for complex regulatory filings, as in public offerings.
- Cost and time-efficient.

Conditions:

- Available only to publicly traded companies.
- Can't be assigned to promoters or their relatives.
- Minimum number of allottees: 2 in case issues below ₹250 crore, 5 for above ₹250 crore.

Knowledge Check 1

Choose the correct option:

1. Which of the following is not a method of raising capital in the primary market?

- A) Initial Public Offering (IPO)
- B) Rights Issue
- C) Preferential Issue
- D) Buying shares on NSE

2. What is the main purpose of the book building process in an IPO?

- A) To sell shares at face value
- B) To discover the market-driven price of shares

152

- C) To offer shares at a discount
- D) To allocate bonus shares to existing investors

3. Which document must be filed before an IPO and does not include the final price of shares?

- A) Red Herring Prospectus (RHP)
- B) Annual Report
- C) Draft Red Herring Prospectus (DRHP)

#### D) Share Subscription Agreement

4. Which of the following is true about the Green Shoe Option?

- A) It allows underwriters to cancel shares post-listing
- B) It enables the issuer to offer additional shares to stabilize price
- C) It fixes the IPO price at the upper band
- D) It applies only to private placements

5. In a Rights Issue, who is eligible to purchase additional shares?

- A) Only new investors
- B) Only the underwriters
- C) Existing shareholders
- D) Qualified Institutional Buyers only

#### 7.7 Summary

❖ The first market is a way for companies to obtain new funding from investors by releasing new: - New created securities that are made, financial instruments into the market! securities.

❖ The IPO is an important means by which private firms become public.

❖ The book building offers a mechanism to achieve efficient price discovery based on investors appropriate grace period. band.

❖ Draft offer document carters the investor specially DRHP provides the: potential investors. critical financial and business information.

❖ The Green Shoe Option can help in stabilizing stock prices after the listing and gives IPO strength process.

❖ Companies can raise capital through different methods of primary issue like public issue, rights issue, private placement, preferential allotment, IDRs, QIP.

❖ The Securities and Exchange Board of India [sebihasocaheartland.org/24145151](http://sebihasocaheartland.org/24145151) market integrity and transparency in the financial markets.

transactions, disclosure, and investor protection in the entire primary market.

## 7.8 Key Terms

Primary Market – Market for new securities being sold for the first time.

IPO (Initial Public Offering) – First offering of shares to the public by a company.

Book Building – A method of finding the price of an offering by asking investors.

DRHP – Draft Red Herring Prospectus filed with SEBI.

Green Shoe Option – Right to offer additional shares following IPO for stabilizing price.

Rights Issue – Shares offered to the existing shareholders at a discount.

Preferential Issue – Shares allotted to the pocket of investors.

QIP – Qualified Institutional Placement, raising of capital by QIBs.

IDR (Indian Depository Receipt) – It facilitates foreign companies to raise funds in India.

SEBI – The regulator of securities in India.

## 7.9 Descriptive Questions

Define the primary market. How does it differ from the secondary market?

Narrate me the complete process of an ipo launch in India.

What is the process of building a book? How does it serve price discovery?

Detail the constituents of a a Draft Red Herring Prospectus (DRHP).

What is Green Shoe Option? How does it promote reasonable pricing?

Explain the types of primary issue: Public Issue, Rights Issue, Preferential Issue and offer for sale.

QIP.

Describe the functions of SEBI in controlling the primary market and saving interest of investor.

What is an IDR (Indian Depository Receipt)? How does it help Indian investors?

## 7.10 References

154

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## Answers to Knowledge Check

### Knowledge Check 1

1. D) Buying shares on NSE
2. B) To discover the market-driven price of shares
3. C) Draft Red Herring Prospectus (DRHP)
4. B) It enables the issuer to offer additional shares to stabilize price
5. C) Existing shareholders

## 7.11 Case Study

### NyraTech's IPO Launch: A Case on Primary Market Fundraising

#### Introduction

Without a primary market, companies would be unable to raise funds through the capital market. The primary MARKET.

securing the release of new shares to the public. With this market, private companies can go public.

entities to enable them meet their growth and expansion requirements." The most formal, structured and

regulated in the life-cycle of fundraising is through an IPO. This caselet

examines how the tech firm, a startup company called NyraTech, went about organizing and executing its IPO as told through the story of How NyraTech's CEO, Jake Mann.

construction technique, public disclosures and a price support plan.

## Background

NyraTech Pvt. Ltd. is a Hyderabad based, growing fintech startup. After six years of operations—and escalating growth financed by venture capital—the company opted to go public in order to raise

₹800 crore to expand its presence in Southeast Asia and repay some of its existing debt.

To kick-start the IPO plan, NyraTech "R" four of the industry's top merchant bankers as its Book Running Lead managers.

BRLMs, legal counsels and a registrar. The wsj.com raised the news in report that company had filed a Draft Red Herring. Successful bidder(s) 2367 days \_self, analysis sebi 2430 days \_self %d %% Y Some text= } \end{document} i.e.

with SEBI including business and financial information other than the final video of its IPO on July

issue price. After receipt of SEBI comments and investor roadshows, the Red Herring Prospectus would be published May has been circulated.

Herring Prospectus (RHP) was filed with a price band at ₹215–₹225.

The IPO was through the book building process and was open for three days. It was oversubscribed 12.5

all class of investors including QIBs, HNIs and Retail individual Investors.

worth (HNI) Investors and Retail Individual Investors (RIIs).

In order to maintain stability in share price post-listing, NyraTech incorporated a Green Shoe Option, enabling it to

release another 15% of shares and buy them back should the market price fall below the offer

price.

NyraTech shares opened at ₹240, above the issue price on listing day indicating strong price discovery and investor confidence.

### Problem 1: The Adoption of the Correct Pricing Mechanism for the IPO

Management at NyraTech met in order to consider the choice between a fixed price issue versus book building.

process. Though the fixed price mechanism was simple, book—building proved to be advantageous as far as the price.

discovery through investor bids.

Solution:

going for the book building type of issue to make sure there is transparency, good and better market feedback. This, in turn, also allowed for suitable dynamic investor participation.

classes, thus boosting general membership and confidence.

Problem 2.1: The Transparency through regulatory disclosures.

Submitting a detailed and accurate offering document was necessary to meet regulatory requirements and investor trust.

Solution:

NyraTech along with its merchant bankers and legal team have filed a comprehensive DRHP and

integrate SEBI's comments into the RHP, entities, claims that disclose its finances, risks and objects.

the issue, and promoter information.

Problem 3: The stability of stock price after being listed

There was apprehension that post-listing volatility would damage both investor appetite, and standing of the company valuation.

Solution:

The company exercised the Green Shoe Option that allowed the stabilising agent to acquire at its discretion additional 4,23,800 shares each held by existing shareholders.

stock over the issue price using over-allotment proceeds to stabilize the shares in the market".

price, particularly if it had fluctuated because of market swings.

MCQ

So how did NyraTech price its IPO?

A) Fixed Price Method

157

B) Auction-Based Method

C) Book Building Method

D) Hybrid Method

Answer: C) Book Building Method

Why is a Draft Red Herring Prospectus (DRHP) filed for?

A) To determine listing date

B) For obtaining SEBI approval and to disclose the essential issue details.

C) To conduct pre-IPO fundraising

D) To appoint underwriters

Answer: B) For SEBI Approval and To disclose the Key Issue Information

Why did they exercise Green Shoe Option in this IPO?

A) Surgically add more common investors

B) Shares allocation to foreigners

C) Stabilize post-listing stock price

D) Reduce issue size

Correct Answer: C) Stabilising the stock price in after listing.

Conclusion

The NyraTech IPO showcase the application of these concepts from theory to practice in the primary issuance market, and exports them to there's a similar recently issued of securities, this is an important features as at least other than recently offered securities)!

such as book-built offerings, offering document disclosures and price stabilization techniques. By


It became the first of the two to get SEBI approval for its IPO effectively planning out its IPO and it managed to raise about

capital, won the confidence of investors and had a strong market debut. The case highlights the

the need of proper issue mechanism, regulatory clarity and forward-looking market stabilization devices in an initial public offering.

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## Unit 8: Equity Markets - Secondary Markets

### Learning Objectives

1. Comprehend what secondary markets are all about in the financial system.
2. Describe the role of SEBI as a regulator in orderly and transparent secondary market.
3. operations.
4. Briefly describe the big stock exchanges of India and they work for trading in between?
5. Explain the significance of stock market indices in following market movement.
6. Discuss the effects of bourses on liquidity, price discovery and investor confidence.
7. Understand the impact of technology and automation on today's secondary market process.
8. Describe the secondary market Continue working with how to use information about the secondary market.

### Content

#### 8.0 Introductory Caselet

#### 8.1 Introduction to Secondary Markets

#### 8.2 Role of SEBI in Secondary Markets

#### 8.3 Stock Exchanges in India

#### 8.4 Stock Market Indices

#### 8.5 Summary

#### 8.6 Key Terms

#### 8.7 Descriptive Questions

#### 8.8 References

#### 8.9 Case Study

#### 8.0 Introductory Caselet

#### “Ananya’s First Trade: Entering the Secondary Market with Confidence”

#### Background:

Ananya, a 25 year old software professional from Pune suddenly got interested in personal finance.

and investing. One weekend, after taking a financial literacy workshop, she resolved to start her

investment history by venturing into the stock market.

Her first move was to open a demat and trading account with SEBI-registered broking website, which.

education resources, easy to use interface, and customer service. With ₹50,000 set aside for she used to very cautiously analyze the market trends with stock market indices (Nifty 50, Sensex etc.).

identified couple of companies from the technology and banking space which are fundamentally doing good.

One Monday morning, Ananya gave a market order for 15 shares of any bank stock listed on the NSE. The order was executed immediately, and by Tuesday (T+1), her demat account was credited with shares.

account. In the following days, she monitored the markets and discovered how this price discovery — on some level an experiment in bargaining — played out.

process operates in accordance with demand, supply, and investor psychology.

Ananya also learned about different market intermediaries and how trades are settled.

such as the stock brokers, depositories (CDSL/NSDL) and clearing corporations (NSCCL). She also learned

about SEBI's initiatives in curbing investors grievances including the SCORES platform, through which she could file

complaints concerning any divergence there from.

In the coming weeks, Ananya diversified her investments into different sectors and availed stop-loss orders

for risk management, it learnt how to interpret sectoral indices which represent wider market trends. Her

secondary market" and provided her a solid base in trade mechanics, investor rights, and career experience.

market structure.

Critical Thinking Question:

As the advisor to Ananya, a novice investor, what would be your advice on the factors she should consider before

selecting stocks? How do you describe the importance of liquidity, risk management tools and regulatory.

protection during transactions in the secondary market?

### 8.1 Introduction to Secondary Markets

The term is most commonly applied to stock in the financial sector, which are issued by companies to raise capital.

among investors. market is not the market where securities are first issued, like in the primary market.

market has a secondary market to resell these securities, the outcome is continuous trading. It plays a

key price discovery and liquidity, as well as investor entry/exit capabilities

investments with ease.

Some of the notable secondary markets are stock exchanges such as NSE (National Stock Exchange) and BSE (Bombay Stock Exchange).

#### 8.1.1 Concept and Functions of Secondary Markets

Concept:

- The secondary market is the place where shares, bonds and other securities that have already been issued

by institutions or governments are exchanged among the investors.

- Transactions do not involve the issuing firm; rather, ownership changes from one investor to another.

Key Functions:

Function

Explanation

Liquidity Creation

Investors can sell their securities and turn them into cash, if they want.

Price Discovery

The market price is established by buying and selling.

Efficient Allocation

Capital flees to best-performing stocks, which is an optimal use of capital.

Valuation

Stock prices are what investors are willing to pay for a share of an investment at a moment in time.

decisions.

Benchmarking

Investment Exit Route

Market Regulation

Offers a way out for early investors, including those in IPOs.

There is trading under stringent regulatory frameworks, which leads to the transparency.

### 8.1.2 Difference Between Primary and Secondary Markets

Criteria

Primary Market

Secondary Market

161

of

Nature

Transaction

Involvement

Company

Objective

Intermediaries

of

New securities are offered and sold

for the first time

Company receives funds directly

from investors

Capital formation and fundraising  
Existing securities are traded among  
investors  
Company not in play; Investors exchange  
among themselves  
Liquidity, price discovery, and portfolio  
adjustments  
Stock brokers, dealers  
No new offer document required  
Merchant bankers, underwriters  
Regulatory  
Documents  
Prospectus (e.g., DRHP, RHP)  
Pricing  
Pricing by issuer or  
book-building  
Determined by market supply and  
demand  
Platform  
Not necessarily on an exchange  
Conducted  
on  
recognized  
exchanges (e.g., NSE, BSE)

### 8.1.3 Importance of Liquidity and Price Discovery

Liquidity:

- Liquidity is a measure of how readily a security can be converted into cash or sold at a loss.

value.

- The second market allows investors to purchase and sell securities rapidly, drawing even more

participants to the market.

- Greater liquidity results in reduced trading costs and more efficient markets.

Price Discovery:

- Price discovery is the process of establishing the fair market value of a security in response to orders

and supply.

- It captures investor sentiment, company performance, economic conditions and market expectations.

- Accurate price discovery helps:

- o Firms are assessed at their market value.

- o Investors make informed decisions.

- o Policymakers assess market trends.

Price discovery coupled with liquidity as a whole make the secondary market a vigorous, transparent and competitive one.

trustworthy environment for investing.

## 8.2 Role of SEBI in Secondary Markets

SEBI -- The Securities and Exchange Board of India is the top governing body for securities trade in the markets of India.

securities markets in India. On the secondary market, its main task is to protect investors, foster equitability in trading and the integrity and transparency of markets. SEBI was established

under the SEBI Act, 1992 and is proactively involved in ensuring and overseeing stock exchanges, brokers' inter-mediation apart from passing orders etc.

and other intermediaries.

### 8.2.1 SEBI's Regulatory Framework

The regulatory framework of SEBI comprises rules, regulations and guidelines that regulate the ambit of all market

participants in the secondary market.

Regulatory framework - key elements:

Registration of Market Intermediaries:

- o All intermediaries (brokers, dealers, depositories, clearing corporations) to be registered with SEBI.

SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015:

- o Establishes guidelines for ongoing disclosure by listed companies (e.g., quarterly results, and other; formal offers) his: Tel Aviv Capital Market Bill Page -10- references in Offerings Consent s the ability References securities company of gith of opportunities or like early-registration ompanies.

board meetings, corporate actions).

SEBI (Stock Brokers and Sub-Brokers) Rules, 1992:

- o Regulates acts and practices of brokers as well as requires record-keeping requirements, financial disclosures, and fair practices.

Insider Trading and Fraud Prevention:

- o Through SEBI (Prohibition of Insider Trading) Regulations, it prohibits unfair use of and recommended that the restriction.

unpublished price-sensitive information.

Market Infrastructure Regulation:

- o SEBI regulates exchanges (NSE, BSE), clearing corporations and depositories to ensure robust systems and risk management.

Periodic Audits and Reporting:

- o Requires periodic securities exchange, broker, and public company audits to ensure that regulatory compliance.

### 8.2.2 Investor Protection Mechanisms

SEBI has introduced a number of these measures towards protection of interest of retail and institutional investors.

Major Investor Protection Measures:

Investor Education and Awareness:

- o SEBI introduces financial literacy programmes and awareness activities through its Investor.

Education and Protection Fund (IEPF).

Complaint Redressal Systems:

- o SCORES [System for Electronic Registration & Reporting (SEBI)] enables online complaint submission by investors

against listed companies or intermediaries.

Mandatory Disclosures by Companies:

- o SEBI mandates prompt disclosure of all materiality information to avoid any misuse/vulnerabilities in the market.

misrepresentation.

Risk Mitigation for Retail Investors:

- o Regulation around margin requirements, circuit breakers and client segregation assist in diminishing

risk exposure for small investors.

Whistleblower Mechanism:

- o Anonymous complaints with regard to any unethical practice in listed companies and market can be made.

intermediaries.

Prohibition of Misleading Advertisements:

- o SEBI monitors public communications to prevent misguiding investment or promotional materials.

### 8.2.3 Surveillance and Market Integrity

SEBI closely watches the trading patterns to spot insider trading and market manipulation and P.ghosts.

unfair trade practices.

Key Surveillance and Integrity Functions:

Real-Time Market Surveillance:

- o SEBI, the stock exchanges have deployed automated surveillance mechanisms to identify market abuses.

abnormal price movements or volumes.

Detection of Manipulative Practices:

o Monitors pump-and-dump schemes, wash-trading, front-running, insider trading; and rumor-based price manipulation.

Imposition of Penalties:

o SEBI has the power to levy fines, and suspend or take legal action against companies. against violators.

Use of Technology and AI:

o SEBI has started making more and more use of AI and data analytics to unearth any unnatural trading patterns and potential fraud.

Market Integrity Measures:

o Implements tools like:

- Circuit breakers to contain extreme volatility.
- Bands pegged to the price of illiquid securities.
- Elimination of trades due to technical snafus or flouting regulations.

Coordination with Global Regulators:

o For cross-border trades & frauds, SEBI's co-operation with IOSCO and other overseas regulatory agencies.

Did You Know?

“Did you know that SEBI uses artificial intelligence and machine learning (AI/ML) tools to detect unusual trading patterns in real-time? These technologies help SEBI identify possible cases

of insider trading, price manipulation, and algorithmic abuses on a daily basis.”

### 8.3 Stock Exchanges in India

A stock market is a regulated and secure environment (a building or website) where orders to buy, sell, issue, or redeem securities such as shares, bonds, or derivative products are gathered and processed.

traded. In India, stock exchanges are regulated under the purview of SEBI and have a backbone

(secondary market) facilitating liquidity, price- discovery, transparency and investor protection. Modern

Indian exchanges are completely electronic allowing direct market access to investors all over the country.

### 8.3.1 Major Stock Exchanges: NSE and BSE

#### Bombay Stock Exchange (BSE):

- Established in 1875, it is considered Asia's oldest stock exchange.
- Based in Mumbai and one of the world's top 10 exchanges by number of listed companies.
- Key index: SENSEX, which monitors 30 top companies from a range of sectors.
- Trades on the BOLT (BSE Online Trading) system.

#### National Stock Exchange (NSE):

- Founded in 1992 and completely electronic from the start.
- Initiated screen-based trading, ending the open outcry system.
- Key index: NIFTY 50, which includes 50 of the largest companies in various industries.
- NSE's technology system allows for high-speed and high-frequency trading.

Comparison:

Feature

NSE

Year of Establishment

1992

BSE

Benchmark Index

1875

NIFTY 50

Trading System

SENSEX

NEAT (National Exchange for Automated Trading)

BOLT (BSE Online Trading)

Number

of

Companies

Listed

Fewer, more liquid stocks

Largest in India by listings

“Activity: Compare Two Stock Exchanges – NSE vs BSE”

Instruction to Students:

1. Visit the official websites of NSE ([www.nseindia.com](http://www.nseindia.com)) and BSE ([www.bseindia.com](http://www.bseindia.com)).

2. Create a comparative table covering the following parameters:

o Year of establishment

o Number of listed companies

o Trading volume

o Benchmark index

o Technological platform

o Settlement system

3. Analyze which exchange has more active trading and why.

166

4. Submit your findings in a 300-word report along with the comparative table.

### 8.3.2 Trading Mechanisms and Settlement Cycle (T+1)

Trading Mechanism:

- Indian exchanges operate through electronic order-matching systems (order-driven).
- Orders are matched based on price-time priority.
- Trading hours are typically from 9:15 AM to 3:30 PM, Monday to Friday.

- Types of trades:

- o Market Order: Executed at the best available price.
- o Limit Order: Executed at a specific price or better.
- o Stop Loss Order: Activated only when the price reaches a trigger.

Settlement Cycle:

- As of January 2023, India has adopted a T+1 settlement cycle, meaning:
  - o A trade executed on Day T (say Monday) is settled on the next working day (T+1, i.e., Tuesday).
- Settlement includes:
  - o Clearing: Determining obligations of buyers and sellers.
  - o Settlement: Transfer of securities and funds.

Benefits of T+1 Settlement:

- Faster realization of funds.
- Reduced counterparty risk.
- Enhances efficiency and investor confidence.

Did You Know?

“Did you know that India is one of the first major markets in the world to adopt a T+1 settlement

cycle across all listed securities? This system ensures that trades are settled the very next working day,

improving liquidity and reducing counterparty risk.”

### 8.3.3 Role of Brokers, Depositories, and Clearing Houses

Brokers:

- SEBI-registered intermediaries who execute orders at the stock exchange on behalf of their customers.
- Services include:
  - o Trade execution
  - o Portfolio advice

- o Compliance with KYC norms

- Types of brokers:

- o Full-service brokers (they provide research + advise)

- o Discount brokers (cheap execution only)

Depositories:

- Depositories: Entities which safe keep securities in electronic (demat) form.

- Help to settle transactions by debiting/crediting securities in investors' accounts.

- Two primary repositories in India:

- o NSDL (National Securities Depository Limited)

- o CDSL (Central Depository Services Limited)

Clearing Houses:

- Managed by the clearing corporation, NSCCL (for NSE) and ICCL (BSE).

- Responsible for:

- o Trade confirmation

- o Risk management

- o Final clearance of cash and securities

- Clearing houses are a counterparty to every trade, guaranteeing that the buyer and seller fulfill their obligations.

obligations.

## 8.4 Stock Market Indices

Stocks A stock market index is a statistical measure that reflects the composite value of a selected set of stocks.

Index is used as a barometer of market movements, economic sentiments and investment returns. They are

employed by investors, analysts, fund managers and regulators to understand how various parts of the market

are performing over time.

### 8.4.1 Concept of Index in Equity Markets

A stock index is a composite weighted-average of the prices or market capitalizations of chosen stocks that reflects.

sector or the entire market.

Key Concepts:

- And index is a measure of market health.
- It reduces the possible changes in many moves of stock into a single number.

Explanation

- Index values are updated real-time while the market is open for trading.

Types of index weighting methods:

Method

Price-weighted

Heavier influence on higher price stocks (ex: Dow Jones)

Market-cap weighted There is higher weightage for the larger company by market capitalization (e.g. Nifty 50)

Equal-weighted

All stocks matter equally regardless of the size or the price

8.4.2 Key Indian Indexes: Sensex, Nifty 50

SENSEX (BSE Sensex):

- It was established in 1986 by the Bombay Stock Exchange (BSE).
- Consists of 30 major, well-established firms in major industries.
- India's oldest and most widely followed index.
- Market-cap weighted, in rupee and dollar terms.

NIFTY 50:

- Started in 1996 by the National Stock Exchange (NSE).
- Tracks 50 of the largest and most liquid Indian stocks.
- Constitutes around 65–70 per cent of total market capitalisation of NSE-listed stocks.
- Commonly benchmarked against mutual funds, ETFs and other index based products.

Index

Exchange No. of Stocks Base Year (end) Calculation Method

BSE

Sensex

30

1978–79

Nifty 50 NSE

Free-float market cap based

50

1995

Free-float market cap based

### 8.4.3 Sectoral and Thematic Indexes

Apart from these, Indian bourses also provide sector and theme based indexes to represent certain segments of the market.

169

Sectoral Indexes:

- Monitor companies in a particular industry.

- Examples:

- o Nifty Bank – banking sector

- o Nifty FMCG – fast moving consumer goods

- o Nifty IT - information technology

Thematic Indexes:

- According to investment themes or models.

- Examples:

- o Nifty ESG 100 – companies adhering to environmental, social and governance standards

- o Nifty Alpha 50 – stocks with higher alphas

- o Nifty Shariah – stocks that abide by the tenets of Islamic finance

Investors use these indexes to direct their money toward certain types of industries or strategies without having to buy the stocks themselves.

Did You Know?

“Did you know that thematic indices like Nifty ESG 100 track companies based on Environmental, Social, and Governance (ESG) performance, and are used by socially conscious

investors to make sustainable investment choices?”

#### 8.4.4 Use of Indexes for Benchmarking and Investments

Benchmarking:

- Mutual funds, portfolio managers and analysts use indices such as Nifty 50 or Sensex as benchmarks

to evaluate performance.

- A mutual fund that brings back 12% against a benchmark index's return of 10% is said to have outperformed.

the benchmark.

Passive Investing:

- Investors purchase index funds or exchange-traded funds that track an index to obtain market returns without active

stock picking.

- Lower fees and diversification are among the key advantages.

Market Sentiment Indicator:

170

- The mood of investors and economic conditions are reflected in direction of indices.

- A rising index signals a bullish attitude, while a declining one may indicate caution or bearish sentiment

outlook.

Derivatives Trading:

- Indexes can be used as a primary investment for a portfolio or certain segments of a portfolio via futures and options market
- Hedging and Tracking Alpha Management: An index replicates the price movements in its specific market, so it serves as the benchmark
- Asset Allocators?

or speculate on market movements.

“Activity: Track an Index Fund vs Its Benchmark”

### Instruction to Students:

1. Select any Index Fund or ETF (e.g., Nifty 50 Index Fund) from a mutual fund website.
2. Over a 5-day period, record the daily NAV of the fund and the closing value of the Nifty 50.
3. Plot both on a line graph to visually compare their movement.
4. Write a short note (150–200 words) on whether the index fund has closely tracked its benchmark.
5. Comment on what this indicates about passive investing strategies.

### Knowledge Check 1

Choose the correct option:

1. What is the main purpose of the secondary market?
  - A) To issue new securities
  - B) To raise capital for companies
  - C) To provide liquidity and trading of existing securities
  - D) To conduct government auctions
2. Which of the following is not a role of SEBI in the secondary market?
  - A) Monitoring insider trading
  - B) Regulating stock exchanges
  - C) Printing currency notes
  - D) Protecting investors' interests
3. What is the T+1 settlement cycle currently followed in Indian stock exchanges?
  - A) Settlement takes place one month after the trade
  - B) Settlement happens one week after the trade
  - C) Settlement occurs on the next working day after the trade
  - D) Settlement happens on the same day of trade
4. Which of the following is the benchmark index of the Bombay Stock Exchange (BSE)?
  - A) Nifty 50

- B) Sensex
- C) Nifty Bank
- D) BSE 500

5. Which online platform is provided by SEBI for investor complaint redressal?

- A) MyGov
- B) MCA Portal
- C) SCORES
- D) TradingView

### 8.5 Summary

❖ The secondary market is where shares of stock established by Johnson were sold to its investors ❖ After they are issued in a primary market.

primary market.

❖ It improves liquidity, price discovery and efficient allocation of capital.

❖ The secondary market is regulated by SEBI keeping in view the transparent, 128 orderly and fair trading.

fairness, and investor protection.

❖ Prominent Indian Stock Exchanges include NSE and BSE, which facilitate electronic as well as real time trading in all stock markets across India.

wide range of securities.

❖ The Indian trading market is on a T+1 settlement basis, which means the transactions are made faster and safer.

❖ Limb intermediate agencies as brokers, depositories and clearing corporations all of which are crucial for execution and clearance.

❖ Stock market barometers and investment tools such as the Sensex and Nifty 50 benchmarks. Sectoral and thematic indices also help investors in making targeted investment decisions.

❖ In addition to more popular applications such as passive investing and fund benchmarking, indices are also heavily used in derivatives markets trading.

## 8.6 Key Terms

Secondary Market – Market where existing securities are bought and sold by investors.

SEBI – Government’s regulator of securities market in India.

Stock Exchange – Market place where securities can be bought and sold (e.g. NSE, BSE).

T+1 Settlement – Settling on the day following the trade date.

Depository – Entities that hold securities in demat form (e.g., NSDL, CDSL).

Broker – SEBI registered intermediary who carries out transaction on behalf of investors.

Clearing House – Party who settles trades & ensures the obligations to each other.

Stock Index – Group of stocks that are chosen to represent a particular sector or market.

Nifty 50 -NSE benchmark index of the top 50 companies in all sectors.

Sensex - BSE index of 30 largest companies.

## 8.7 Descriptive Questions

Describe the secondary market and briefly discuss its key functions.

Distinguish between the first and second markets with appropriate illustrations.

What is the role of SEBI in protecting the integrity and interest of investors in secondary markets?

Explain working of NSE and BSE. You may focus on some important differences between the two.

Explain the T+1 settlement cycle. What’s so good for trading?

Who are key intermediaries in the secondary market and what do they do?

What is a stock index? What is the importance of Sensex and Nifty 50?

Explain the significance of sectoral and thematic indices with respect to portfolio diversification.

## 8.8 References

1. Securities and Exchange Board of India – [www.sebi.gov.in](http://www.sebi.gov.in)
2. National Stock Exchange of India – [www.nseindia.com](http://www.nseindia.com)
3. Bombay Stock Exchange – [www.bseindia.com](http://www.bseindia.com)
4. SEBI (LODR) Regulations, 2015
5. SEBI Annual Reports and Market Surveillance Circulars

## 6. NSE Investor Education Resources

### Answers to Knowledge Check

#### Knowledge Check 1

1. C) To provide liquidity and trading of existing securities
2. C) Printing currency notes
3. C) Settlement occurs on the next working day after the trade
4. B) Sensex
5. C) SCORES

## 8.9 Case Study

### Retail Investor's First Experience with Secondary Market Trading

#### Background:

Ananya, a 25-year old software engineer in Pune, recently finished up with a financial literacy programme

that got her interested in the stock market. She decided to invest ₹50,000 in equities through a well-known

SEBI-registered stockbroker. Ananya, after opening demat along with trading account bought her

20 shares of the listed company on the NSE through market order.

When she saw her trade get filled almost immediately, and the shares were by the next day at a

credited to her demat account – courtesy the T+1 settlement cycle. Ananya also explored stock

like Nifty 50 to sense the market trends and approached sectoral indices for possible observations in technology area

performance.

Ananya started operating in the first month and she got disclosure/alerts at regular intervals, from her broker.

and the exchange. Rest, She had filed a small query about SEBI's SCORES on trade confirmation.

ovhcloud, which was fixed within three working days.

Problem Statement The Importance of Selecting a Trustworthy Trading System

Retail investors simply do not know how to discern which broker or trading app to go with.

Solution:

Ananya chose a broker that was SEBI and stock exchanges were registered, provided Guest Post content by Suhana.

fee schedules along with access to investor education resources and timely customer service.

Problem 2 – Trading and Settlement Cycle a. What is the minimum time period for each set of cycle steps?

New investors often don't realize when shares are being credited or their funds debited.

Solution:

Ananya had referred to the resources on T+1 settlement and contract notes, so she now knew that

175

securities settle the day after the trade and that all trades are settled by clearing house NSCCL (NSE

Clearing Corporation).

Problem Statement 3: Market Tracking and Informed Decision Making

Investors could struggle to determine what they should be investing in and how to read market moves.

Solution:

Ananya tracked Nifty 50, Sensex and sectoral indices to keep an eye on market trends. She also tracked

price-volume data and company-specific news when making her trades.

MCQ

What is the T+1 settlement cycle?

- A) After one hour trade finishes
- B) Trade is finalised after one week
- C) Trade is settled on the following business day from the transaction.

D) trade is dated at same day

Answer: C) Trade is settled on the following business day of transaction.

Conclusion

Ananya's case is a reminder on how the secondary market functions for retail investors ( and what went wrong in her IPO allotment) :

such as broker selection and order execution through settlement and investor protection.

With regulatory

securities regulatory scrutiny, technical assistance from stock exchanges and full disclosure, the

prospective buyers, while the Company's secondary market creates a secure, liquid and investor-friendly marketplace for the purchase and sale of long-term, cash

flows.[http://tabControl=\\_&tickerATUS filingsprovider.ogra...](http://tabControl=_&tickerATUS filingsprovider.ogra...) About ATUSavings commercial real estate loans from banks are transferred to investors via securities.

participation.

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## Unit 9: Resource Mobilisation from International Markets

### Learning Objectives

1) Understand the structure and function of international capital markets in an international economy.

Discuss the nature, objectives, and procedure of issuing GDRs.

Explain the characteristics and workings of American Depository Receipts (ADRs) in U.S. market.

Contrast between GDRs and ADRs with reference to market access, regulatory framework and investor base.

Study of the pattern of foreign borrowings and investor appetite by Indian entities.

diversification.

Understand how International Listings can increase visibility and valuation for your company.

Use international instruments in practice with real-world case studies and examples of regulatory

frameworks.

### Content

9.0 Introductory Caselet

9.1 Introduction to International Markets

9.2 Global Depository Receipts (GDRs)

9.3 American Depository Receipts (ADRs)

9.4 Comparative Analysis: GDRs vs ADRs

9.5 Summary

9.6 Key Terms

9.7 Descriptive Questions

9.8 References

9.9 Case Study

## 9.0 Introductory Caselet

### “Tara’s Global Capital Challenge: Exploring Depository Receipts for International Fundraising”

Background:

Tara Mehta Tara Mehta, Chief Financial Officer (CFO) for EcoRenew Ltd., a rapidly growing firm operating in the renewable energy space.

company based in India. The firm requires, to help fulfil major plans for expansion into both Southeast Asia and Africa.

to garner substantial sums outside the country. Tara is now looking into ways of gaining internationalных and counterparts' support.

investors and draw on larger sources of funding.

In her initial research, Tara stumbles upon two possible instruments—Global Depository Receipts

(GDRs) and (ADRs). GDRs may allow EcoRenew to raise capital in European

or world markets like London and Luxembourg. On the other hand, ADRs provide a solution to access

U.S. investors by NYSE or NASDAQ businesses, but with a more stringent U.S. SEC compliance exercise.

Tara talks to investment bankers who tell her that there could be more visibility, but would Can just as I reviews of dating sites id rest can hair.

be more expensive and involve full regulatory filings (such as Form 20-F). GDRs, although somewhat more flexible,

could have a more limited investor base oriented toward institutions.

To facilitate an informed decision, Tara researches other Indian firms such as Infosys, Wipro and HDFC Bank

that have utilized these instruments to enhance their global footprint. She also weighs the pros and

cons in compliance, foreign exchange exposure and effect on shareholder control.

and concerns of two green eying begin shopping around at the same time: regulatory areas.

access, and brand concerns with each approach. Her objective is to propose a policy that strikes a balance between capital.

combine access with corporate long-term growth and governance.

Critical Thinking Question:

If you are Tara, what are the key considerations in selecting between GDRs and ADRs?

for international fundraising? What are the likely effects of investor type, compliance expense and listing place on

your final decision?

## 9.1 Introduction to International Markets

**International Capital Market** The worldwide system of finance institutions, investors, and companies that exchange currencies from one country to another.

and governments who conduct the raising and investing of capital across borders. These markets allow

overseas countries to raise capital from offshore investors and for foreign investors to diversify their

portfolios beyond their home countries. Instruments such as GDRs, ADRs, foreign currency bonds and

Eurobonds are employed in these deals.

### 9.1.1 Concept of International Capital Markets

**International capital markets** International capital markets are marketplaces where foreign funds can be invested or borrowed.

countries. These markets include both:

- **International Equity Markets** where firms list equity instruments (such as GDRs, ADRs) and open to public the international funds.

raise capital overseas.

- **International Debt Markets** – in which governments or companies will issue bonds denominated in 78 Manager sWord currency and sell these within another country to achieve its fiscal borrowing.

foreign-exchange currencies or are quoted on foreign markets.

**Key Components:**

- Issuers: Companies or governments that are raising funds.
- Investors: Foreign institutions and individuals.
- Instruments in case of loans and ADRs, GDRs, Eurobonds,- FCCBs.
- Markets: Market where securities are sold is called the London Stock Exchange (LSE), New York Stock Exchange (NYSE), Luxembourg, Singapore and the Eurobond markets.

The markets are subject to international regulation as well as the national laws of the trading country and the listing rules.

jurisdiction.

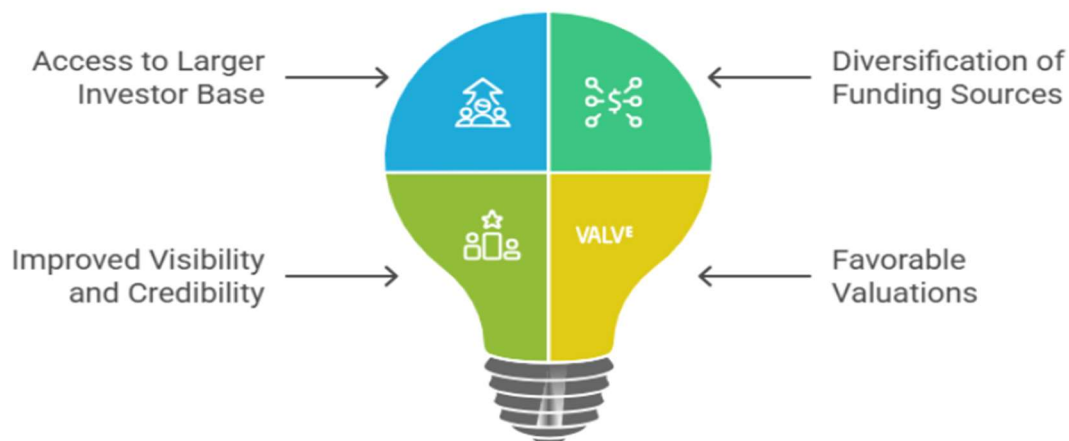
### 9.1.2 Importance of Cross-Border Fundraising

Cross-border fundraising refers to raising capital from investors located outside the domestic country of the

issuer.

Importance for Companies:

#### Benefits of Strategic Financial Moves



Access to a broader investor network:

Their ability to draw from pools of global capital increases odds for successful fund-raising.

Diversification of Funding Sources:

Reduce dependence on domestic capital markets and interest rates.

Improved Visibility and Credibility:

Global listing enhances the international visibility and credibility of the issuer

company.

Favorable Valuations:

Other companies see higher valuations overseas simply because of access to more sophisticated investors or

higher market multiples.

Currency Matching for International Operations:

Foreign currency denominated funds can be a real advantage for companies with operations worldwide, or who

acquisitions abroad.

Did You Know?

“Did you know that several Indian companies prefer international capital markets not just for larger

capital access, but also to raise funds at lower interest rates or higher valuations than what is available domestically? Cross-border fundraising is often part of a company’s global brand-building

strategy.”

### 9.1.3 Benefits & Risks of International Market Access

Benefits:

Benefit

Explanation

Broader Capital Access

Appeals to non U.S. investors, including institutions.

Global Branding

Increase corporate reputation and brand image globally scale.

Potential Cost Efficiency

Interest rates or expectations abroad may in some instances be

lower.

Liquidity Enhancement

Added to international listings Share trading volume and investor participation.

Portfolio

Investors

Diversification

for

Global Emerging Markets Strategy – Nov 2018 Delicate and subject to all of whom remain silent worldwide investors now have greater access to those companies, the risk inherent in existing capital controls/governance – if such they are (water mix).

home bias.

Risks:

Risk

Explanation

Regulatory

Compliance

Issuers are subject to other international regulations as well (eg, captured in the USA and its principal trading partners) and fallen into a trading halt on another market Etc.

SEC for ADRs).

Burden

Exchange Rate Risk

"If companies raise funds in foreign currencies, they may be exposed to forex conflict. § fluctuations.

Higher Costs

Such fees can add up in foreign, and compliance.

markets.

Reputation and Disclosure

Risks

Any non-compliance failure could harm international relations.

Market Volatility and Political

Risk

Under this exposure to geopolitical and international investor sentiment.

## 9.2 Global Depository Receipts (GDRs)

GDRs, or Global Depository Receipts, are financial instruments that companies can use to raise funds overseas.

from international markets. GDRs are shares of a foreign issuer and are listed on exchanges other than on local markets.

, but usually in European or Asian markets. They permit a foreign investor to invest in a issuer's domestic laws or currency.

### 9.2.1 Concept and Mechanism of GDRs

Concept:

- A GDR is depository bank for the airport and their local trading on ('captive') counterpart the corresponding number of shares shares.

foreign company being the specified number of shares.

- Holders of GDRs are beneficial owners of the underlying shares which are kept by the custodian bank in the home country where share were initially issued.

and listed on foreign exchanges (e.g., London, Luxembourg).

- GDRs are typically U.S. dollar- or euro-denominated and are aimed mostly at institutional investors outside the U.S.

Mechanism:

Shares Companies in India raise funds by issuing shares.

Delivery of these shares takes place to a domestic custodian bank.

GDRs are issued against these shares by a foreign depository bank.

ADRs and GDRs are traded on a foreign exchange.

Foreign investors purchase GDRs that are considered as ownership in the issuing company.

Example:

That is, with 1 GDR equal to 5 equity shares in a firm, 100 GDRs will offer an investor exposure to 500 shares.

### 9.2.2 Process of Issuing GDRs

The issuing of GDRs follows a complicated multi step procedure governed by Indian and international laws:

Board and Shareholder Approval:

- The issue of shares under Section 62, shall be approved by the Board of Directors and Shareholders.

the Companies Act, 2013.

Comply with SEBI and FEMA regulations:

- Shall comply with SEBI (Issue of Capital and Disclosure Requirements) Regulations, 2009 and Foreign

Exchange Management Act (FEMA) rules.

Appointment of Intermediaries:

- The company appoints:

o Lead Managers / Book Running Lead Manager(s) Sacrificing Trustee proposed to be appointed - Not Applicable Issue Structure : The Company is proposing a primary issue of 7,692,307 Equity Shares aggregating upto [ ] million made via this Issue (the Subscribed portion ) and also a secondary public issue of up to further 2,564,103 Equity Shares (The unsubscribed Portion together with the balance shares in the subscribed portion, if any).

o Depository Bank (e.g., Deutsche Bank, Citibank)

o Local Custodian Bank (for example, HDFC BANK / ICICI BANK)

o Legal and accounting advisors

Filing and Documentation:

- An offer document (GDR) is filed with foreign investors.
- Listing Standards apply to the foreign stock exchange.

Pricing and Allotment:

- Pricing depends on historical market trends and investor appetite.
- GDRs are allocated to global investors by way of private placement or book building.

Listing and Trading:

- 2
- GDRs are traded on stock exchanges such as London Stock Exchange (LSE) or Luxembourg Stock

Exchange, and become tradable instruments.

“Activity: Simulate the GDR Issuance Process”

Instruction to Students:

1. Imagine you are the CFO of an Indian tech company planning to raise capital through GDRs.
2. Draft a step-by-step GDR issuance roadmap, including:
  - o Approvals required (Board, Shareholders)
  - o Regulatory bodies to comply with (SEBI, RBI, FEMA)
  - o Intermediaries involved (Depository bank, custodian, merchant banker)
  - o Listing exchange options
  - o Currency and pricing decisions
3. Submit a flowchart or bullet-point document with at least 8 key steps, and write a brief (100–150 words) note on the challenges you foresee during execution.

### 9.2.3 Advantages and Limitations of GDRs

Advantages:

Advantage

Explanation

Allows corporations to raise significant amounts from overseas investors.

Access to Global Capital

Foreign

Investor

Brings in global funds without having to make a trade.

locally.

Participation

No Dilution in Domestic

Control

## Reputation and Visibility

Stocks are foreign-owned; little effect on domestic shareholders structure.

“Seeking to be listed on international markets increases the company’s prestige and credibility.”

## Flexible Use of Proceeds

Proceeds could be used to help expand, make acquisitions or pay down debt.

## Limitations:

### Limitation

### Explanation

### High Costs

Legal, listing, compliance and underwriting expenses are very high.

### Regulatory Burden

Shall be in accordance with both Indian and International Standards.

### Currency Risk

Foreign currency-denominated funds expose the company to exchange rate fluctuations.

### Market Volatility

It does not matter where global markets are headed, it can reflect in GDR price company’s health.

### Limited

### Retail

### Participation

It is institutional investors who buy GDRs, not the retail segment.”

investors.

## Did You Know?

“Did you know that GDRs can be traded in multiple countries and are often listed on more than

one international stock exchange? This helps issuers reach different regional investor bases

without creating multiple securities in different jurisdictions.”

### 9.3 American Depository Receipts (ADRs)

American Depository Receipts (ADRs) ADRs are certificates which separate the ownership of shares and US depository bank.

that represents a stake in an overseas firm. They permit U.S. investors to invest in non-U. S. companies

without having to navigate foreign exchange, taxation or government and licensing challenges. ADRs are traded on U.S. stock

Pinterest will be the latest big consumer IPO, with a market valuation of about \$12 billion to \$13 billion.

#### 9.3.1 Concept and Mechanism of ADRs

Concept:

An ADR is a negotiable certificate issued by a U.S. depository bank representing shares in a foreign company that the bank holds in trust but that are not traded on any U.S. stock exchange.

shares — typically one or more — of a foreign company’s stock. ADRs make it possible for the foreign corporation to reach out.

S capital markets However, it gives American investors the gift of investing in foreign companies through the U.

dollars.

Mechanism:

A non-U. company (e.g., Indian company) issuing shares in the U.

The shares are held by a local custodian (bank) within the domestic market of the issuer's country.

ADRs are issued in the by a U.S. depository bank (e.g., JPMorgan Chase, BNY Mellon) based on the.

deposited shares.

Then, these ADRs are quoted and traded in U.S. stock exchanges or OTC markets.

U.S. investors trade ADRs in dollars, earn dividends in dollars, and are subject to U.S.

regulations.

Example:

If 1 ADR = 2 equity shares in an Indian company, then the purchase of 100 ADRs will give an investor stakes in 200

underlying shares.

### 9.3.2 Process of Issuing ADRs

The issuance of ADRs is a complex multi-stage procedure which is generally regulated by the U.S. Securities and Exchange

Commission (SEC).

Decision and Planning:

- The creation and issue of the ADR is authorized by the company's board and shareholders.
- The company needs to determine the type of ADR program (Level I, II or III).

Appointment of Intermediaries:

- The company appoints:
  - o A U.S. depository bank
  - o A domestic custodian bank
  - o Legal advisers, accountants and regulators

Regulatory Compliance:

185

- Closing the ADR is not possible without having to address SEC requirements for filing.
- U.S. GAAP or IFRS disclosure requirements must be met.

Filing with SEC:

- F-6 is filed with the SEC to register ADRs.
- Other filings (such as Form 20-F) will be filed for public trading.

ADR Creation and Listing:

- ADRs are generated by depositing shares with the custodian.
- ADRs are further listed on NYSE or NASDAQ (Level II or III) or trade over-the-counter (Level I).
- I).

Types of ADR Programs:

ADR Level Listed on Exchange? Use for Capital Raising? Disclosure Requirements

Level I

No (OTC market only) No

Minimal

Level II

Yes (NYSE/NASDAQ) No

Yes

Full SEC disclosure

Level III

Yes

Bored Ape Yacht Club + Cryptopunks rewrite the financial system Full SEC disclosure + capital raise

Did You Know?

“Did you know that ADRs can be categorized into Level I, II, and III programs, with each level having different reporting and listing requirements under the U.S. SEC? Only Level III ADRs allow companies to raise capital in the U.S. through a public offering.”

### 9.3.3 Advantages and Limitations of ADRs

Advantages:

Advantage

Access to U.S. Capital

Markets

Explanation

Assists foreign firms to raise money in the world's biggest capital market.

Dollar-Denominated

Investment

Investors buy/sell in US\$ and receive dividends in US\$, so no forex is involved risk.

186

Increased

Prestige

Visibility

and

Being listed in the U.S. improves the company's image and analysts' coverage.

Expanded Investor Base

Appeals to institutional, U.S. investors and mutual funds but it's not especially high-quality analyses, or "retail" types of attention

investors.

Improved Valuations

Potential for higher market valuation from more coverage by 8 analyst and investor enthusiasm.

scrutiny.

Limitations:

Limitation

Explanation

High Compliance Costs

The cost of selling publicly for SEC registrations, legal and audits are huge.

Regulatory Complexity

Strict compliance with U.S. securities laws and accounting standards is required.

Currency

and

Exposure

Tax

While ADRs are in USD, dividends might be impacted by home country taxes.

Limited Flexibility

Legal Risks

Once they're on, getting them off through delisting or deregistration can be complex and reputation-damaging.

There is greater vulnerability to U.S. litigation and shareholder lawsuits.

#### 9.4 Comparative Analysis: GDRs vs ADRs

While both GDRs and ADRs are financial instruments.

instruments that enable a company from one country (such as India) to raise capital on foreign exchanges by issuing

depository receipts. Although they are both for the same purpose, they are issued differently

sourcing method, market jurisdiction, investor pool, and regulation demand.

##### 9.4.1 Key Differences in Issuance and Trading

Criteria

GDR

ADR

Target Market

European/Global markets (e.g., London,

Luxembourg)

Currency

United States (NYSE, NASDAQ,

OTC)

Usually USD or Euro

Trading Platform

Traded on international exchanges

USD only

Exchange and Over-the-Counter Traded in the United States or OTC

187

Primarily

institutional

investors

institutional

and retail

Type of Investors

outside the U.S.

U.S.

investors

Disclosure

Requirements

According to local & listing exchange

requirements

International expansion, diversification

Mandatory SEC filings (e.g., Form

F-6, 20-F)

Use of Funds

U.S.

market

access,

recognition, fundraising

Issue Types

Typically private placements or public

issues abroad

brand

Organized in Level I, II or III

programs

“Activity: Compare GDR and ADR Issuance through Company Examples” Instruction to Students: 1. Select two Indian companies: o One that has issued GDRs (e.g., HDFC Bank or Tata Motors) o One that has issued ADRs (e.g., Infosys or Wipro) 2. Create a comparative report including: o Stock exchange where the instrument was listed o Target investor base o

Regulatory framework followed o Benefits gained (visibility, funding, analyst coverage) o Any challenges or limitations reported 3. Present your findings in a table, followed by a 200-word summary comparing the strategic intent behind each issuance.

#### 9.4.2 Regulatory Framework (India vs US/Global)

GDR Regulatory Framework:

Jurisdiction

Regulations Applicable

India

(Issuer

Jurisdiction)

SEBI (ICDR) Regulations, FEMA

Guidelines

188

Foreign Market

listing country Listing\* Country Requirements that must be met (e.g., UKLA in the example of UK, CSSF in.

Luxembourg)

Regulations of the individual stock exchanges (for example LSE, Luxembourg SE).

Exchange

Requirements

ADR Regulatory Framework:

Jurisdiction

Regulations Applicable

India

(Issuer

SEBI, FEMA, Companies Act, etc.

(Listing

Jurisdiction)

Securities and Exchange Commission.

Jurisdiction)

U.S.

Disclosure

Various categories (Level I, II, III) with different levels of governance

GAAP/IFRS principles, Sarbanes-Oxley Act and routine investor disclosures

Program Type

Summary:

ADRs are held to more rigorous compliance and disclosure regulations because of U.S. market regulation, while GDRs

provide more flexibility based on the selected listing location.

9.4.3 Impact on Corporate Visibility and Investor Base

Factor

GDR

ADR

Corporate

High; listing on NYSE/NASDAQ increases

international recognition

Visibility

Analyst

Coverage

Moderate; visibility mostly in Europe

and global financial circles

Small unless company is widely

followed

financial system.

ecosystem

Investor Base

Global institutions outside the U.S.

Includes U.S. institutional and retail

investors

Reputation

Impact

Signals international ambition

Is a signal that the world leader, and donkey years.

high transparency

Market

Perception

Deemed a strategic move for world

presence

A route often used to tap deep U.S. capital

markets and index funds

Conclusion:

While ADRs and GDRs allow us to have greater access to foreign capital, they have more visibility and more comparability than the ADR's/Mobile Banking.

to a wider, more retail-oriented investor audience, and particularly among the U.S. markets. GDRs are often preferred for

cheaper and less regulation-heavy fundraising outside the U.S. markets.

Knowledge Check 1

Choose the correct option:

1. Which of the following best describes a Global Depository Receipt (GDR)?

- A) A bond issued by a foreign government
- B) A negotiable instrument representing shares of a foreign company, traded globally
- C) A receipt issued for domestic investors in Indian companies
- D) A credit note issued by the RBI for export transactions

2. What is the main regulatory authority overseeing ADR issuance in the United States?

- A) Reserve Bank of India (RBI)

B) Securities and Exchange Board of India (SEBI)

C) Securities and Exchange Commission (SEC)

D) World Bank

3. Which ADR level allows a company to raise capital in the U.S. and list on a major exchange?

A) Level I

B) Level II

C) Level III

D) Sponsored Level 0

4. Which of the following is a key advantage of using GDRs for international fundraising?

A) Full exemption from all disclosure requirements

B) Direct access to U.S. retail investors

C) Broader access to European institutional investors

D) Avoiding currency risk altogether

5. Which statement correctly differentiates ADRs from GDRs?

A) ADRs are traded in Asia while GDRs are traded in the U.S.

B) ADRs require SEC compliance, while GDRs follow U.S. GAAP

C) ADRs are U.S.-dollar denominated and listed in the U.S.; GDRs are listed on non-U.S. exchanges

D) Both are listed only on Indian stock exchanges

## 9.5 Summary

❖ Companies can secure financial resources in foreign capital markets!!

provide greater access to capital and broaden investor participation.

❖ Indian companies can raise money from foreign investors through Global Depository Receipts (GDRs),

particularly in the European and global markets.

❖ American Depository Receipts (ADRs) facilitates Indian companies to get listed and traded in US stock

exchanges and focused toward the American investor base.

❖ There are several intermediaries and regulatory compliances in the issuance of GDRs as well as ADRs.

under Indian and foreign laws.

❖ ADRs are subject to strict SEC regulations, whereas GDRs offer greater flexibility and relatively of cost when it comes to complying with Asian or European marketing laws than do the former type fewer burdensome SEC requirements.

disclosure requirements.

❖ Both instruments improve the visibility and financing of companies but vary in currency exchange, investor profile, and costs.

❖ The decision to use GDRs or ADRs depends on cost, strategy, regulatory capability, and target markets.

## 9.6 Key Terms

ICM (International Capital Market) - Market for individual securities and financial assets including Global Issuance & Trading.

GDR (Global Depository Receipt) – An instrument in the form of a certificate whereby depository receipts are issued by a local depository bank on behalf of a foreign company company shares.

ADR (American Depository Receipt) – U.S. equivalent of GDRs; facilitates Non-U. S. firms to raise capital in the U.S.

Depository Bank – Foreign bank that issues GDRs/ADRs against the underlying shares.

Custodian Bank-Local bank keeping the shares in the home country.

SEC (Securities and Exchange Commission) – ADR listings for U.S. regulator.

Listing Jurisdiction – Stock exchange where GDRs/ADRs are traded, if foreign.

Form F-6 – Registration statement for ADR programs with the U.S. SEC.

Level I/II/III ADRs – Types of ADRs and the extent of disclosure in each level.

## 9.7 Descriptive Questions

Define international capital markets. What are their main components?

Discuss what GDRs are and how they work.

Explain how ADRs are issued in the U.S. What are regulatory requirements?

Contrast GDPS and ADRs in terms of issuance, the investor base, and regulation.

What are the merits and demerits of GDR for Indian company?

Explain the function of depository and custodian banks in issuing DRs.

How does cross-listing in foreign markets enhance visibility for firms and ease access to capital?

Describe the various tort reform ADR programs and their importance.

## 9.8 References

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## Answers to Knowledge Check

### Knowledge Check 1

1. B) A negotiable instrument representing shares of a foreign company, traded globally
2. C) Securities and Exchange Commission (SEC)
3. C) Level III
4. C) Broader access to European institutional investors
5. C) ADRs are U.S.-dollar denominated and listed in the U.S.; GDRs are listed on non-U.S. exchanges

## 9.9 Case Study

### Infosys: Strengthening Global Access through ADRs and GDRs

#### Background:

Infosys Ltd., a top Indian IT service firm, was among the first India companies to tap its international capital markets. In 1999, ADRs were issued on it.

program, was listed on the NASDAQ, and gained its name among U.S. investors. Later, it and also listed the GDRs on Luxembourg Stock Exchange in furtherance.

its operations in Europe and financial centers around the world.

wallet namely increase global exposure, widen investor universe and better \_Valuespecific producer level In particular, access to private investors.

liquidity in its shares. Through the ADR offering, Infosys obtained analyst research coverage in U.S., brought over additional U.

institutional investors, and were incorporated in several global technology indices.

**Problem 1: Compliance with Regulation How to comply with Regulation**

Infosys had to follow strict US GAAP /Regulations for ADRs and SEC disclosure lacks of continued: There were risks aligning the company's cost structure with its revenues, which could have either a positive or negative effect on operating results.

reporting with IFRS standards.

**Solution:**

Infosys set up a worldwide compliance team that provides for transparency, regular filings- (Form 20-F) and

audit requirements acceptable to U.S. investors.

**Problem 2: GDRs or ADRs?**

Another aspect that is to be addressed by Infosys was to determine the most suitable instrument, whether GDR or ADR on which they can capitalize and invest.

access.

**Solution:**

Infosys tactically employed both ADRs and GDRs—ADRs as an entry to U.S. investors, and GDRs as a way for the firm to gain what it LoggerFactory Journal of International Business Studies.notifications.

tap to European markets, whilst attracting global capital flow and harmonizing regulatory exposure.

**MCQ:**

Why did it make sense for Infosys to offer its ADRs in the U.S.A.?

A) Reduced reporting requirements

B) Exposure to U.S. investors and analyst attention

C) No currency risk

D) Avoidance of SEC oversight

Answer: B) Access to U.S. investor and analyst coverage

Conclusion:

Infosys' offering of GDRs and ADRs provides an example of how Indian companies have effectively taken advantage

global capital markets. Despite rising compliance costs and regulatory responsibilities, the rewards of

and global dimension render these international instruments an appropriate opportunity to discuss about the tools under study.

effective tool for growth-oriented firms.

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## Unit 10: Working Capital Management

### Learning Objectives

Learn what working capital financing is and why it is so valuable for operation of business.

Illustrate the factors and their importance in measurement of Cash Conversion Cycle (CCC) liquidity efficiency.

Critically discuss the role of accounts payables management in short term liabilities and supplier relationships.

Discover the tools and tactics of working capital management to help your business remain solvent and boost profits.

liquidity.

Assess the consequences of efficient working capital management on profitability as well as risk.

Use working capital concepts in practice and the financial ratios such as CCC and payables turnover.

Critical thinking on the compromising choice among liquidity, return and credit terms in managing short-term finances.

### Content

10.0 Introductory Caselet

10.1 Financing Working Capital

10.2 Cash Conversion Cycle (CCC)

10.3 Accounts Payables Management

10.4 Cash Management

10.5 Summary

10.6 Key Terms

10.7 Descriptive Questions

10.8 References

10.9 Case Study

## 10.0 Introductory Caselet

### "The 74-Day Squeeze: Managing Cash Flow Under Pressure"

Ananya Shah, the finance manager at LumiTech Systems Pvt. Ltd., an emerging energy-storage manufacturer, according to people familiar with the matter.

industrial lighting solutions, is being squeezed on working capital. The company recently won a large contract from public sector infrastructure client that needed output on overdrive

within 60 days. While the order is strategically significant and revenue-positive, it has also stretched

the company's liquidity position.

The problem is the misalignment of cash flows. LumiTech is required to purchase raw materials and

parts upfront, although the client's payment terms go up to 90 days after delivery is completed. A

recent internal audit reports, the company's CCC has been increasing from which it is: 4.3 years to 5.6 years within 2009-2010.

48 days over the past quarter to 74 days. The growth is the result of a slowdown in collections and

loss of supplier credit, as vendors began demanding payment more quickly amid tightening market conditions.

Ananya is concerned. The bank overdraft is already near the limit, and payroll is due in 10 days.

sanctioned limit. To mitigate the liquidity crunch, she explores several options of renegotiating with supplier

contract to extend the Payables Period from 30 days to 45, with provision of early payment discounts offered to customers

the Receivables Period; and implementing weekly cash forecasts and rolling budgets for improved

control over cash flows. If internal remedies don't pan out, she also is looking at external options to get results from:

borrowing through the issue of Commercial Paper. Her goal is to decrease the CCC by at least 20

days, enough of a cushion to pay bills in the short term without having to turn to costly

borrowing.

Critical Thinking Question:

What part of the Cash Conversion Cycle would you focus on if you were Ananya?

improving first—Inventory, Receivables, or Payables? With brief cost-benefit analysis, validate your decision several times.

analysis. Also, what kind of short-term funding alternatives would be available to the company should it pursue an internal

adjustments prove inadequate?

### 10.1 Financing Working Capital

Working capital refers to the funds a business requires to manage its day-to-day operations, such as purchasing inventory, paying wages, managing receivables, and meeting short-term liabilities. Effective financing of working capital ensures a company has adequate liquidity to meet operational needs without compromising profitability or solvency.

#### 10.1.1 Concept and Importance of Working Capital

Concept:

$\text{Funds flow} = \text{Current Assets} - \text{Current Liabilities}$

- It is an assessment of a firm's short-term financial health.
- If working capital is POSITIVE means that company can fulfil its short term obligations using its current assets.

Importance:

Business continuity from an operations perspective: Normal operation of mission-critical systems.

Management of Liquidity: The firm is able to avoid running out of cash which could ground operations.

Credit Standing: Improves the company's ability to secure trade or bank credit.

Risk Mitigation: Moderates the risk to not over-invest (idle resources) or under-invest. (liquidity crisis).

### 10.1.2 Sources of Financing Working Capital (Short-term & Long-term)

WC financing can be categorized according to tenure:

Short Sources (usually < 1 year):

Source

Description

Trade Credit

Trade credit granted by suppliers giving time to pay

Bank Overdraft

Withdrawing more than balance in a current account

Cash Credit

Banks' collateralised drawdowns subject to limits

Commercial Paper (CP) Unsecured promissory notes of companies issued for short periods of time

Factoring

Factoring of accounts/current receivable discounting

Fixed or Long-term Sources (utilized for permanent working capital):

198

Description

Source

Equity Capital

Other financial instruments Shareholder loans utilized in part for working capital purposes.

Long-term Loans Term loans from banks or financial institutions are available.

Debentures

Issued for long-term fund requirements

Reserves and Surplus (Total) Its a measure of money the company can give in the form of losses to distribute as dividends Retained earnings How much is reinvested from profits back into business?

### 10.1.3 Trade Credit, Bank Credit & Commercial Paper

Trade Credit:

- Definition: Provision of short-term credit by suppliers.
- E.g: Supplier gives 30 days of delivery for payment.
- Advantage: No structured interest; can be pliable and instantaneous.
- Drawback: Risk of damaging relationships with suppliers if delayed.

#### Bank Credit:

- Some money credit, overdrawings and bill discounting are included.
- The bank provides a line of credit against collateral (inventory, receivables).
- Interest is levied only on the utilized amount.

#### Commercial Paper (CP):

- Definition: Unsecured, short-term borrowing by companies.
- Usually sold at a discount and redeemed at face value.
- Maturity runs from 7 days to one year.
- Appropriate for companies with strong credit ratings.

Did You Know? “Did you know that Commercial Paper is typically issued by companies with a high credit rating and is sold at a discount to face value, without any collateral? It’s one of the cheapest sources of short-term financing but not accessible to smaller firms due to credit requirements.”

#### 10.1.4 Optimal Financing Mix for Liquidity Management

An ideal financing mix for working capital funds cost, risk and flexibility. It depends on:

199

#### Nature of Working Capital:

- o Permanent Working Capital: It should be financed with permanent capital.
- o Temporary/Seasonal Working Capital: Short-term source may be utilized.

#### Matching Principle:

- o Match the asset term with the funding source term.

#### Risk-Return Trade-off:

- o Short-term financing is less expensive but more risky.
- o Long-term financing provides stability, yet could be more expensive.

#### Approaches to Financing Mix:

Approach

Description

Conservative

Employing long-term funds, even for short-term requirements (low risk, high cost)

Aggressive

Depends heavily on short-term (read risky, cheap) funding.

Moderate/Matching Matches short-term with short-term, and long-term needs funds times the discount rate.

term funds (balanced approach)

10.2 Cash Conversion Cycle (CCC)

The Cash Conversion Cycle (CCC) is a key metric in working capital management. It measures the

number of days a company takes to convert its investments in inventory and receivables into cash flows

from sales, after accounting for the time taken to pay its suppliers.

10.2.1 Concept of Operating Cycle and Cash Conversion Cycle\

Operating Cycle

Its operating cycle is the number of days it takes a company to transform its inventory purchases into "}}}}}}}}" A fuller definition The following is an example of how it works.

cash flows from sales. It calculates the time between purchasing inventory and receiving payment from customers.

Formula:

Operating Cycle = Inventory Period plus Receivables Period

Where:

- Inventory Period: The average number of days inventory is held before it is sold.

200

- Receivables Period is the average number of days it takes to collect because the company promised customers their money back even after completing a sale.

Cash Conversion Cycle (CCC)

34 The Cash Conversion Cycle (CCC) is an extension of the operating cycle that includes the amount cash tied up with the business.

firm to pay its suppliers, known as the Payables Period. It's a snapshot of the net time for cash

payment (to suppliers) and cash receipt (from customers).

Formula:

Cash Conversion Cycle = Average inventory period + average receivables period - average payables period.

Where:

- Payables Period is the average number of days it takes the company to pay its suppliers.

Key Insights

- A lower CCC implies the company can change inventory and receivables into cash quicker. more quickly.
- A negative CCC means that the company operates on a highly efficient cash flow cycle — it gets paid by customers before it has to pay the money to suppliers.

Numerical Example

Let's say a company would have:

- Inventory Period = 45 days
- Days Sales Outstanding = 30 days (the Receivables Period)
- Payables Period = 50 days

Step 1: Calculate Operating Cycle

Operating Cycle =  $45 + 30 = 75$  days

Step 2: Find out the Cash Conversion Cycle

201

Cash Conversion Cycle =  $45 + 30 - 50 = 25$  days

Interpretation:

The company goes from the time it buys inventory to when it gets cash in 75 days. However, because it pays

suppliers after 50 days, the net time that the company's own cash is tied up amounts to just 25 days.

Now, let's say Payables Period increases to 80 days:

$$\text{Cash Conversion Cycle} = 45 + 30 - 80 = -5 \text{ days}$$

Interpretation:

A  $-(-5) = 10$  days, which is the operating cycle. A negative CCC of  $-5$  means that company receives cash from customers before paying its suppliers

— a very capital-efficient allocation of working capital.

### 10.2.2 Components: Inventory Period, Receivables Period, Payables Period

Each element of the Cash Conversion Cycle offers a detailed look at how efficaciously corpo manages working capital.

Days Inventory Outstanding (DIO or Inventory Period)

Days Inventory Outstanding (DIO) is a measure of the average number of days product remains in inventory before being sold. A

a shorter DIO indicates effective inventory turnover.

Formula:

$$\text{DIO} = (\text{Average Inventory} / \text{Cost of Goods Sold}) * 365$$

Numerical Example:

- Average Inventory = ₹5,00,000
- Cost of Goods Sold (COGS) = ₹3,00,000

$$\text{DIO} = (\text{₹5,00,000} \div \text{₹3,00,000}) \times 365 \text{ DIO} = 61.67 \text{ days}$$

6.3 Payables Deferral Period (PDP)  
PDP measures the average number of days a firm delays in paying its credit purchases from suppliers.

$$\text{DIO} = 0.1667 \times 365 = 61 \text{ days}$$

Interpretation:

The company typically hangs on to its inventory for 61 days before it is sold.

202

DSO – Days Sales Outstanding (Receivables Period in days)

For example, the Receivables Period (DSO) shows how quickly on average you collect in money on sales.

after a sale. A lower DSO is associated with faster cash collection.

Formula:

$$\text{DSO} = (\text{Average Accounts Receivable} / \text{Net Credit Sales}) \times 365$$

Numerical Example:

- Mean Accounts Receivable = ₹4,00,000
- Net Credit Sales ₹24,00,000

$$\text{DSO} = (\text{₹4,00,000} \div \text{₹24,00,000}) \times 365 = 97250 \text{ And so it is.}$$

$$\text{DSO} = 0.1667 \times 365 = 61 \text{ days}$$

Interpretation:

It takes the company an average of 61 days to collect on receivables from customers.

Payment Period (DPO – Days Payable Outstanding) 40 FORMULATE THE PAYABLE PLAN Once DSO is estimated, we have a rough idea of the period for which receivables are generally outstanding.

The Payables Period (DPO) tells us how long it takes on average for the company to pay its bills. A

higher DPO means the company can retain cash longer.

Formula:

$$\text{DPO} = (\text{Average Accounts Payable} \div \text{Cost of Goods Sold}) \times 365$$

Numerical Example:

- Average Accounts Payable = ₹3,00,000
- Cost of Goods Sold (COGS) = ₹30,00,000

$$\text{DPO} = (\text{₹3,00,000} \div \text{₹30,00,000}) \times 365$$

$$\text{DPO} = 0.10 \times 365 = 37 \text{ days}$$

Interpretation:

The company pays its suppliers in 37 days on average.

Did You Know?

“Did you know that a negative Cash Conversion Cycle (CCC) is not only possible but actually desirable in some industries? Retail giants like Amazon and Walmart often get paid by customers

before they pay their suppliers—resulting in a negative CCC and strong cash flow without needing

working capital financing.”

### 10.2.3 Strategies to Shorten the Cash Conversion Cycle

Email: The Two's Innovation and Entrepreneurship ( )WWW.T.TWO.ORG 85 of working capital management.

dependence on outside financing and enhancement of operating efficiency. By optimizing each component —

Inventory Period,, Receivables Period and Payables Period – the faster companies can convert

resources into cash.

#### Strategic Approaches

#### Component

#### Strategies to Shorten CCC

##### Inventory Period

- Increase inventory turns with lean inventory strategy
- Employ demand forecasting to avoid overstocking
- Use Just-in-Time (JIT) inventory systems, if feasible
- Implement efficient sourcing and replenishment practices

Receivables Period • Strengthen credit authorization procedures.

- Provide early payment discount or settle in cash

Automate invoicing and followup systems

- Consider factoring or invoice discounting in order to speed up the receipt of cash

##### Payables Period

- Renegotiate longer payment terms with suppliers
- When possible, pay later (without hurting relationships)
- Use supplier financing initiatives, such as trade credit or on-demand

discounting

## Numerical Example

### Metric

Before (Days) After (Days)

### Inventory Period

60

### Receivables Period

50

45

35

### Payables Period

30

45

### Cash Conversion Cycle 80

35

## Interpretation

Prior to strategy implementation, the firm's CCC was 80 days, signifying that it took about 80 days to convert cash operating into assets.

cash its investments in inventory and receivables, after it has paid suppliers. After operational

improvements:

- A reduction on days and weeks of Inventory Period from 60 to 45 days, reflecting to better inventory control and quicker periods.

sales.

- The Receivables Period improved from 50 to 35 days, which indicates faster collection against.

customers.

- Payables Period stretched from 30 days to 45, the company now keeps cash longer before paying suppliers.

The reduced the CCC to 35 days and liquidity, helped save working capital and also there was tqdm.

faster redeployment into core activities.

“Activity: Analyze and Optimize a Company’s Cash Conversion Cycle”

Instruction to Student:

You are provided with the following financial data of Company X:

- Average Inventory: ₹5,00,000
- Average Accounts Receivable: ₹7,00,000
- Average Accounts Payable: ₹3,00,000

205

- Cost of Goods Sold: ₹36,00,000
- Net Credit Sales: ₹48,00,000

1. Calculate the following:

- o Days Inventory Outstanding (DIO)
- o Days Sales Outstanding (DSO)
- o Days Payables Outstanding (DPO)
- o Cash Conversion Cycle (CCC)

2. Based on your findings, suggest two specific strategies to shorten the CCC.

3. Design a short write-up (150 words) on how your recommendations would improve the company's liquidity position.

### 10.3 Accounts Payables Management

Accounts payables represent the amount a company owes to its suppliers for goods or services purchased

on credit. Managing payables efficiently is critical to maintaining healthy cash flows, credit relationships,

and working capital balance.

#### 10.3.1 Role of Payables in Working Capital Financing

Accounts payables are a spontaneous source of financing. As a company delays payments to suppliers, it temporarily retains cash that can be used to fund operations.

## Payables in Working Capital Financing Cycle



Key roles:

**Free temporary credit:** The ability to use the firm's cash for a certain period without having to pay interest and until the purchase figure is settled.

**Increases liquidity:** Payments that are not made on time keep cash in the business for longer.

**Support for operating cycle:** Payables finance part of the inventory and production process with outlay of cash.

**Component of Cash Conversion Cycle (CCC):** Extending CP improves cash effectiveness.

Example:

If a company has 60 days to pay suppliers, that is the time it can use to sell inventory and collect cash before making payments — in effect, funding operations at no cost.

### 10.3.2 Credit Terms Negotiation

The efficient management of payables revolves around the negotiation of supplier credit terms. It affects both

liquidity and supplier relationships.

Common Credit Terms Structure:

- Net 30: Requires payment in 30 days.
- 2/10, Net 30: 2% off if paid in 10 days; full payment due in 30 days.

## Negotiation Points:

Term

Payment period

Negotiation Objective

Extend due dates without penalties

Cash discounts

Obtain early payment discount as and when the funds are available

Credit limits

Raise the supplier credit limit when demand is high

Flexibility for payments Feature partial or milestone payment options

Trade-off:

- Delaying a payment improves liquidity but potentially stresses supplier relationships.
- Accepting discounts on early payments saves money but forces cash out the door more quickly.

### 10.3.3 Balancing Payables with Liquidity Needs

Matching of accounts payables with cash on hand is important to keep both supplier trust and, although perhaps less directly affected by trust, retail investment.

and internal cash efficiency.

Strategies to Balance:

Forecasting cash flow: Assists in matching payment schedules to incoming receipts.

Payments priority: According to deadlines, discounts and importance of suppliers.

Supplier segmentation:

- o Strategic suppliers: Make timely payments a top priority.
- o Non-essential creditors: Employ full credit period.

Dynamic discounting: Take the offer of early payment when only you have spare cash.

Avoiding late payment penalties: Failure to make payments before the due date may incur fines and can even have an impact on your credit.

disruption of supply.

Best Practice:

Keep a Days Payables Outstanding (DPO) that strikes a fine balance between liquidity requirements without compromising. Funny how the same measures of cash and payables management on their own have very different effects to working capital and competitiveness depending on industry sector.

relationships.

Formula:

$$\text{DPO} = \text{Average Accounts Payable} \div \text{Cost of Goods Sold} * 365$$

#### 10.4 Cash Management

Cash management refers to the efficient planning, monitoring, and controlling of cash inflows and outflows

to ensure that a company has adequate liquidity for operations while minimizing idle balances.

##### 10.4.1 Importance of Cash in Working Capital

The most liquid and basic element of working capital is cash. And day by day HANDLE\_2\_) it is the basis

of counterole\_queryset11\_.getSourceManager().measure\_get\_day\_summary(users, startofday) File measur...

day business activities, allowing a company to operate smoothly, capture opportunities and defend against. toFixed(2); }).toFixed(2.color="red" /.color = "red"\* \* gainst be F oreafod itio l;;; (w4/ 100)); }); F i gur!: Corporate Financial Health Model.

handle emergencies.

Key Importance:

- Operational Continuity

Pays employee staff, vendor and utility bills on time to avoid service disruption.

- Liquidity Cushion

It serves as a cushion in times of declining income or unexpected expenses.

Example: A companies suddenly machine repair cost is ₹1,20,000 then sufficient cash to be kept in well And factories are/if a company faces sudden repairing the machinery costing of ₹1,20,000 have sufficient amount of cash ratio: 9.

makes "desperation borrowing unnecessary."

- Negotiation Leverage

Allows companies to accelerate payment and take advantage of cash discounts.

Example: A 2% discount on a ₹5,00,000 payment made 10 days early could save you ₹10,000.

- Emergency Readiness

Allows for rapid response to opportunities or emergencies.

Example: A vendor gives you a bulk discount for money in advance:

Normally price: ₹1,000 per unit × 1,000 units = ₹10,00,000

Discounted price ₹900 / unit (1000 units) = ₹9,00,000.

Savings: ₹1,00,000

- Investor Confidence

Strong cash balances also show a company's credit worthiness and investor confidence.

Note: it is important to keep adequate cash on the books but too much idle cash can be the result of inefficient use of assets and or!

missed investment returns.

#### 10.4.2 Techniques for Efficient Cash Management

Effective cash control guarantees the availability of money to meet requirements, and that none is left unutilized. This

balance improves solvency and profitability.

Key Techniques:

Technique

Explanation

Management of Cash Flow Continuous monitoring of collections and disbursements to meet cash requirement.

without over borrowing or any unemployed capital.

CC510: Collections centralization All collection routes to single account for visibility and speed 38.1-42 Centralized collections viewing

processing.

Disbursement Control Outflows timed to be closer to the payment due date, maximizing cash retention.

Lockbox Systems

Banks get paid in real time and benefit from aLOCITY wherein transactions are not subject to delays.

liquidity.

Excess cash in operating accounts is swept to a master account each day.

Zero Balance Accounts

(ZBA)

Sweep Accounts

Excess balances are swept to cash or money market funds.

overnight.

Cash

Maintenance

Ratio

Facilities that have a minimum amount of cash on hand to meet financial obligations (e.g., 0.2:1 ratio).

Numerical Illustration:

- Disbursement Control Example:

For example, rent is due on 30th of every month. Paying on the 15th rather than the 30th translates into 15 interest-free days.

Assuming 6% annual interest:

$$\text{Interest lost} = 1,00,000 \times (6\% / 365) \times 15 \approx ₹246.57$$

- Sweep Account Example:

Idle cash ₹8,00,000 at 4% in sweep account :

$$\text{Per day interest} = ₹8,00,000 \times (4\% \div 365) \approx ₹876$$

In a year: ₹876 x 250 working days = ₹2,19,000 additional income

Did You Know?

“Did you know that many large companies use Sweep Accounts that automatically transfer idle

cash overnight into short-term investment funds? These tools help companies earn interest on

unused cash while keeping funds available when needed.”

### 10.4.3 Cash Budgeting and Forecasting

Cash budget and cash forecast Cash budgeting and forecasting are two vital tools with cash needs, short-term sources of funds. Programmes can give you warning when 8.

financing, and avoiding liquidity crises.

#### Cash Budgeting

Cash budget A cash budget is a financial plan that forecasts cash inflows and outflows for a given period (e.g.

weekly or monthly). It preserves solvency and matches payments to receipts.

Basic Cash Budget Format:

Period	Beginning Balance	Additions	Deductions	Period Ending Balance
--------	-------------------	-----------	------------	-----------------------

Week 1	₹50,000			
--------	---------	--	--	--

				₹70,000
--	--	--	--	---------

				₹60,000
--	--	--	--	---------

Week 2	₹60,000			
--------	---------	--	--	--

				₹40,000
--	--	--	--	---------

				₹50,000
--	--	--	--	---------

				₹60,000
--	--	--	--	---------

				₹50,000
--	--	--	--	---------

Interpretation: The company does not fall into overdrafts for the entire fortnight as it has cash surplus.

and ensuring liquidity.

#### Cash Forecasting

58 Cash forecasting forecasts the corporation's future position of cash according to sales, Collections and expenditure.

expenses. It's critical to medium-to long-range planning.”

### Benefits:

- Anticipates possible shortfalls
- Assists in scheduled short-term borrowing or investment of excess cash
- Assists with dividend, expansion or acquisition decisions

### Forecasting Techniques:

#### Method

#### Description

#### Receipts and Disbursements

#### Method

Dependent on cash flows and anticipated cash receipts/payments (e.g. sales, payment orders).

Useful for short-term precision.

Adjusted Net Income Method Begins with net income and adjusts for non-cash items (like:

depreciation, accruals).

#### Balance Sheet Approach

Projects both assets and liabilities, in which case it calculates cash changes by inference.

Useful

for long-term projections.

### NUMERICAL EXAMPLE (RECEIPTS AND DISBURSEMENTS METHOD):

#### Assumptions:

- Estimated cash inflow (sales collection) ₹6,00,000
- Projected cash flow (for salaries, rent and purchases) you need in hand: ₹7,50,000
- Opening cash balance: ₹2,00,000

#### Forecasted Closing Balance:

₹ 7,50,000 + ₹2,00,000 – (₹6,00,000) = (Remaining Cash).

Interpretation: The forecast indicates a stressed liquidity situation — only ₹50,000 is left after operations.

The business might need to secure short-term borrowing or postpone some outflows.

## Knowledge Check 1

Choose the correct option:

212

1. Which of the following best represents the formula for the Cash Conversion Cycle (CCC)?

**A) CCC = Payables Period + Inventory Period – Receivables Period**

**B) CCC = Receivables Period + Payables Period – Inventory Period**

**C) CCC = Inventory Period + Receivables Period – Payables Period**

**D) CCC = Inventory Period – Receivables Period + Payables Period**

2. What is the primary benefit of using trade credit as a source of working capital financing?

A) It requires collateral

B) It is interest-bearing and tax-deductible

C) It provides cost-free short-term financing

D) It is only available to listed companies

3. Which of the following is not a component of the Cash Conversion Cycle?

A) Days Inventory Outstanding (DIO)

B) Days Sales Outstanding (DSO)

C) Days Payables Outstanding (DPO)

D) Days Fixed Asset Turnover (DFAT)

4. What is the main purpose of preparing a cash budget?

A) To calculate income tax liability

B) To forecast company profits

C) To monitor and plan short-term cash inflows and outflows

D) To calculate depreciation

5. A company offers “2/10, Net 30” credit terms to customers. What does this mean?

A) 2% interest will be charged every 10 days

**B) 2% discount if paid within 10 days; full amount due in 30 days**

**C) 10% discount if paid within 2 days**

**D) 30% discount if paid within 10 days**

## 10.5 Summary

❖ The Financing of working capital is important for the running of day-to-day business activities. A well-

structure mix of financing balances liquidity and cost of capital.

❖ Firms utilize an array of short-term sources (e.g., trade credit, bank loans, commercial paper) and long-

sources (e.g., equity, long-term loans) to finance their working capital requirements.

213

❖ The Cash Conversion Cycle (CCC) is the time period between cash outflows and inflow in the

operating process. Smaller CCC is associated with better liquidity and improved working capital management.

❖ Payables are a way of financing the firm on a short-term and inexpensive basis. Effective payables management

entails obtaining favorable credit terms and synchronizing the transaction with the receipt of cash.

❖ Cash management The process of managing a firm's liquid, short-term assets (cash, marketable securities, the cash budget aggregate planned expenditures.

excessive idle cash. Much can be done to identify and mitigate the proximate causes of cash losses on a continuing basis – techniques such as cash forecasting, budgeting and centralized disbursement will all assist.

in the effective management of cash.

## 10.6 Key Terms

Working Capital – Current assets less current liabilities.

Trade Credit - Credit from suppliers to buyers.

Commercial Paper – The short-term unsecured promissory notes corporations issue.

Cash Conversion Cycle (CCC) Time to convert your inventory & receivables into cash.

Inventory Turns – How long inventory sits before it's sold.

Receivables Period – A sale to cash collection period.

Payables Period - Time suppliers are given to pay their debts.

Cash Budget – Projecting future inflow of cash & outflow of cash appropriations under liquidity management.

### 10.7 Descriptive Questions

Describe the nature of working capital. Why does it matter for business?

Differentiate between permanent and temporary working capital.

Describe the different sources of working capital financing with examples.

Define Cash Conversion Cycle. How is it calculated?

What is CCC? How can a company decrease its CCC?

Describe the function of accounts payables in working capital control.

What are the important practices for best managing cash?

1-16 Assuming a business, develop a sample cash budget for 2 weeks.

What is the trade off between liquidity and profitability in managing payables?

### 10.8 References

1. Pandey, I. M. (2022). Financial Management. Vikas Publishing.
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3. Reserve Bank of India ([www.rbi.org.in](http://www.rbi.org.in))
4. Institute of Chartered Accountants of India (ICAI) materials
5. SEBI Regulations and Corporate Finance Guidelines

Answers to Knowledge Check

#### Knowledge Check 1

1. C) Inventory Period + Receivables Period – Payables Period
2. C) It provides cost-free short-term financing
3. D) Days Fixed Asset Turnover (DFAT)
4. C) To monitor and plan short-term cash inflows and outflows
5. B) 2% discount if paid within 10 days; full amount due in 30 days

### 10.9 Case Study

Rohan's Working Capital Challenge: Managing Liquidity under Pressure

## Introduction

For every organisation that functions in today's dynamic business environment, managing working capital efficiently is an

component of financial health. It related to the maintaince of equilibrium between current assets.

and concert liabilities, in order to assess whether the company can continue covering its short-term requirements without further cuales.

compromising operational efficiency.

Effective management of working capital does not only safeguard the running of operations from day to day, but also optimizes

profitability, lowers financial risk and underpins strategic decision-making. Among its various

elements, payables management, cash flow forecasting and minimization of the cash conversion

cycle are key for liquidity management. but small medium enterprises are the one .

struggle with aligning working capital policy to actual world realities,

especially when under growth or operational pressure.

This caselet discusses a realistic situation where a manufacturing firm encounters a working crunch in capital and how its finance team deals with such challenges by corporate finance 101!

liquidity planning.

## Background

Rohan Mehta, the Finance Head of GreenGlow Ltd., an LED light manufacturing company is facing some pressures due to It's hard for me to resist writing about pressure.

pressure. The firm has just secured a major government order that needs to be paid for in cash upfront

raw materials and increased production. The client's terms of payment are 90 days.

post-delivery settlement.

GreenGlow is already under pressure when it comes to working capital. Their cash cycle is (CCC) equals  $to\text{ccc} = (GL + A/R) / \text{Sales}$ .

stretched from 48 to 74 days through delayed collections and early vendor payables. The

to the bottom of the bank overdraft limit, and company cash reserves are low.  
exhausted.

After analyzing the company's working capital trend of past years, Rohan finds: (i). Company has three major problems in managing its working capital.

- Loose credit policy has lengthened the receivables period.
- Suppliers are requiring faster payment, which shortens the payables window.
- There is no cash budgeting planning system in place to forecast short-term liquidity needs.

To elucidate the problem, Rohan suggests:

- Renegotiating terms of credit with priority payables to stretch out payments.
- Providing early payment discounts to certain clients in hopes of bolstering collections.
- Implementing weekly cash forecasting and budgeting to generate more visibility.

He'd also think about tapping into Commercial Paper as an emergency financing mechanism if internal changes to the business environment

do not suffice.

**Problem Statement 1: Long Cash Conversion Cycle (CCC)** Assuming that asset and / or inventory turnover is low, high CCC results in poor efficiency of cash usage.

The team of Rohan figure out that the CCC of the company has shot up in the last two quarters.

The prolonged receivables period and shorter payables period are leading to an increased gap between

cash outflow and inflow.

**Solution:**

The process starts by reducing the period for which you are carrying receivables via incentive-based early collections.

and arranges more lengthy credit periods with its most important suppliers. the CCC is to be lowered to at least 20

days and relieve some pressure on cash.

**Problem Statement 2: Absence of Formally Structure Cash Management Systems**

Turn: There was no cash budget or short-term cash forecast prior to the crisis. Cash inflows and

outflows were informally monitored, with limited visibility and slow response times.

Solution:

Rohan prepares a cash budget for each week, with estimated inflows (customer receipts and investments)

and outflows (payroll, purchases). We update the forecasting model on a weekly basis, and scrutinize

to orchestrate liquidity actions early on with the CFO.

Problem 3: Trade-off between Short Term Financing and Internal Optimazation

217

Though he can raise external funds (like Commercial Paper), Rohan is hesitant to leverage up.

unless internal improvements are insufficient.

Solution:

The emphasis is placed on operational changes rather than looking for additional funds outside the organisation. The goal is to

prevent incurring interest expenses as well as enhancing the effectiveness of working capitalmanagement by taking best practice internal improvements.”

management.

MCQ

Q: What is the objective with CCC reduction?

- A) In order to raise the investment in fixed assets
- B) Diluting the interest on long-term borrowings
- C) To reduce the period between collections and payment of cash
- D) To improve employee retention

Answer : C To minimize the period between payment and receipt of cash

Explanation: A CCC that is shorter enables a company to retrieve cash more quickly from operations and this increasesbenefits, Explanation A short CCC allows a firm to avail its cash faster from operations, resulting in gaining benefits

liquidity and decreasing dependence on the availability of external sources of funds.

### Conclusion

This caselet brings out how a judicious strategies of working capital and cash management can help in supportin

continuity of operation and particularly during periods of significant financial stress.

Through a combination

renegotiating forward contracts, forecasting and internal controls Rohan's team were able to enhance liquidity

without significantly increasing financial risk. The case highlights the need for responsive proactive

planning and internal system-adjustment ability for financial sustainability.

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## Unit 11: Receivables Management

### Learning Objectives

Know the principle and significance of receivables management in liquidity control and RELATIONSHIP OF THE TOPIC WITH OTHER TOPICS 1.

operational efficiency.

Identify the elements and types of accounts receivables, and their function in the working capital cycle.

Examine how credit is analysed and how control policies are employed to manage customer credit

risk.

Utilize key performance indicators such as Days Sales Outstanding (DSO) and Aging Schedules to

assess receivables efficiency.

Discover how technology and automation can help make receivables tracking, invoicing, and collection.

ii) Analyze the effect of credit policy decisions on cash flows, profitability and customer relationships.

Formulate programs to attenuate credit along the risk spectrum with structured receivables management practices.

### Content

11.0 Introductory Caselet

11.1 Introduction to Receivables Management

11.2 Accounts Receivables

11.3 Credit Evaluation & Control

11.4 Performance Measures

11.5 Technology in Receivables Management

11.6 Summary

11.7 Key Terms

## 11.8 Descriptive Questions

## 11.9 References

## 11.10 Case Study

### 11.0 Introductory Caselet

#### “Arjun’s Dilemma: Balancing Customer Loyalty with Credit Discipline”

##### Background:

Arjun Desai is Accounts in NeoTextiles Pvt. Ltd., a medium-sized garment maker in the western that has secured permission to export to the United States without facing tariffs.

in Surat. The company has been growing rapidly and winning big orders from domestic retailers and.

international buyers. In order to support strong customer relationships and compete, NeoTextiles has

given its regular customers 60 to 90 days of liberal credit.

At first this tactic actually worked and sales volume jumped nearly 30% in a year! However, problems soon

began to surface. Arjun observed that the ACP had reached 85 days ACC and.

more than 15% of receivables were more than 120 days outstanding. Suppliers, meanwhile, wanted

payment in 45 days, resulting in a liquidity crunch for the firm.

The finance team recommended adopting tighter credit evaluation standards and shortening the credit

period. But the sales force balked, saying stringent credit controls would alienate customers and

result in lost orders. Arjun was stuck in the middle — he had to continue appeasing customers while also

safeguarding the company’s financial health.

To face the challenge, Arjun started looking out for choices:

- Implementing early payment discounts to encourage more timely payments.
- Deploying a customer alert and follow-up reporting tool that's part of an ERP-based receivables tracking system.

ups.

- Developing a risk-based credit policy, where valuable customers keep credit for longer periods of time

terms while others do so under tighter regulation.

In this way Arjun planned to get the ACP to its knees without losing his customer base.

Critical Thinking Question:

If you were Arjun, how would you reconcile the trade-off between sales growth with credit?

risk? Would you give the customer away on credit terms with a liberal hand or would you be more punitive in order to protect analog revenues, like cable has done so effectively?

improve liquidity? Propose a hybrid approach that would meet both the goals.

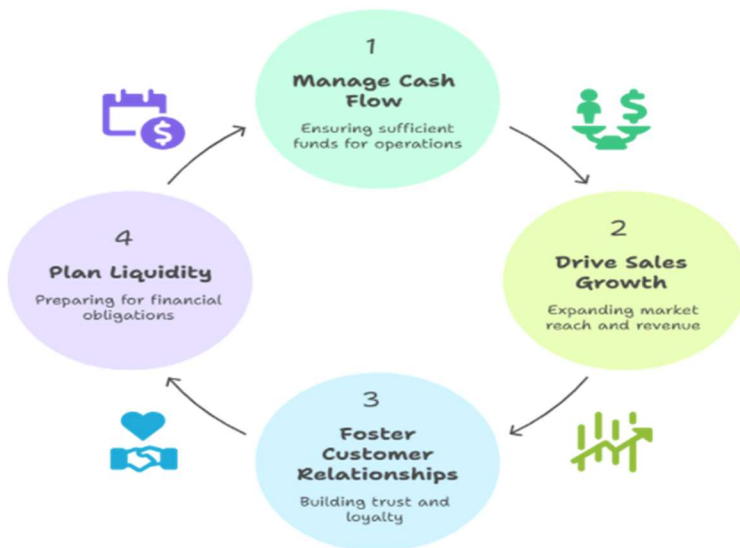
### 11.1 Introduction to Receivables Management

Receivables management is a key function within working capital management. It involves overseeing and controlling the credit extended to customers, monitoring outstanding invoices, and ensuring timely collections to maintain liquidity and reduce credit risk.

#### 11.1.1 Concept and Importance of Accounts Receivables

Concept: Accounts receivables are amounts owed to a company by its customers for goods or services sold on credit. These are listed as current assets on the balance sheet and represent cash that is expected to be collected in the near future. Importance:

**Cycle of Accounts Receivables Management**



2

Cash Flow Management: Receivables convert into cash, which is essential for daily operations.

- Sales Growth: Offering credit can boost sales by allowing customers flexible payment terms.
- Customer Relationships: Well-managed credit policies can strengthen business relationships.
- Liquidity Planning: Receivables are critical in assessing short-term financial health.

### 11.1.2 Objectives of Receivables Management

The primary goals related to the management of accounts receivables are:

Increase Sales: Provide credit to real clients and boost your sales.

Risk Control: To mitigate the risk of bad debts by means of credit control.

Collect On Time: Minimise collection delays and free up cash.

Maximize Your Working Capital: Do not have too much money blocked in receivables.

Keep Your Clients Satisfied: Are able to offer credit without impacting on your financial situation.

discipline.

An efficient credit control system aims to maintain a trade-off between the liberalio ttptt-credit policies (to promote sales) and

growth and aggressive collection efforts.

### 11.1.3 Costs and Benefits of Maintaining Receivables

Receivables is a "good for nothing expense". Understanding these trade-offs helps companies

determine how much credit to provide, and to whom.

Benefits:

Benefit

Explanation

Increased Sales

Credit accounts entice customers to buy more.

Customer Retention Variable terms can strengthen customer loyalty over time.

Competitive Edge MATCH (or exceed) credit terms of competitors.

Costs:

Cost

Explanation

Financing Cost

Money in limbo for receivables could have been otherwise invested or earned interest.

Cost monitoring and administration the Administration of invoices and collection is time-consuming.

Bad Debts

Could default if customers don't pay.

Opportunity Cost

When bills receivable are lagging behind it influence on investment opportunities.

Conclusion:

The objective of the receivables management is to maximize net value, and in which revenue benefits from credit sales

outbalance the risks and cost entailed therein.

Did You Know?

“Did you know that companies in industries like retail and e-commerce often run with negative

working capital? For example, Amazon collects payments from customers immediately but pays

its suppliers later—meaning its receivables are effectively zero, yet sales keep growing.”

## 11.2 Accounts Receivables

Accounts receivables are a central part of receivables management and working capital. They arise when a

company sells goods or services on credit and expects payment at a future date. Proper management of

receivables ensures liquidity, profitability, and customer satisfaction.

### 11.2.1 Definition and Nature of Accounts Receivables

#### Definition:

Accounts Receivables are the amounts to be received from debtors for goods or services sold on credit. They appear on the

sheet as a short-term asset that is expected to be realized up to 30 days out.

#### Nature of Accounts Receivables:

- Current Asset: Typically collected within one year.
- Liquid by Design: Regarded as near-cash assets, but subject to collection lag.
- Related to Credit Policy: Their magnitude and quality are based on the firm's liberal vs. stringent credit

policy is.

- Credit-Risk-Keeping risk: There is always credit and loss (non repayment) risk.
- Dynamic: Varies according to sales volume, seasonality and market demand.

### 11.2.2 Factors Affecting the Level of Receivables

The level of receivables a company carries depends on internally made choices and externally imposed circumstances.

#### Key Factors:

##### Credit Policy of the Firm

- o Liberal policy → increased sales and receivables.
- o Tough policy → reduced sales and thus lower receivables.

##### Industry Practices

- o Naturally, longer credit periods are associated with some business sectors (such as construction and machinery).

##### Customer Base and Creditworthiness

- o Sell to accounts that have strong financials – mitigate your risk.
- o Revenues may be elevated by weak or non-standard (diverse) customers.

##### Seasonal Demand

- o During periods of higher sales, receivables typically rise.

##### Collection Policy

o Efficiently follow-up with loans to the reduce balance theory.

#### Market Competition

o Firms are forced to provide longer credit in order to attract customers because competitive markets.

#### Economic Conditions

o In bad times, customers pay slower; in good times, they pay faster.

#### “Activity: Analyzing Factors Behind Rising Receivables”

##### Instruction to Students:

1. Assume you are a finance analyst for a manufacturing company whose receivables have increased from ₹8,00,000 to ₹12,00,000 in the past year.
2. Identify at least five factors that could have contributed to this rise (e.g., liberal credit policy, seasonal sales, weak collections).
3. Rank the factors in order of significance and explain your reasoning in a 200-word note.
4. Suggest two corrective actions that could reduce receivables without significantly hurting sales.

#### 11.2.3 Credit Policies and Their Impact on Receivables

The firm's credit policy provides guidelines for approving credit to customers. It directly impacts

receivables The correlation levels between asset sales, risk and.

##### Components of Credit Policy:

##### Credit Standards

224

- o No minimum requirement of financial strength or creditworthiness from customers.
- o Loose criteria → more clients, bigger receivables, more risk.
- o Rigorous guidelines → fewer clients, lesser accounts receivable, and lower risk.

##### Credit Terms

1 o Terms of sale, such as "2/10, Net 30" (2% discount if paid in 10 days, otherwise full amount is due at end payment in 30 days).

o Longer terms attract higher sales but increases receivables and cash cycle.

#### Collection Policy

o Measures for prompt payment (reminders, punishments for being late and collection procedures.

agencies).

o Strong collections will decrease the receivables, but can destroy customer relations.

#### Impact on Receivables:

- Open Credit Policy: Boosts sales and customer satisfaction but ties up more money in initial inventory than does the credit file through the use of )scribers, a guide need to Categories.

receivables and raises default risk.

- Tight Credit Policy: Maintains liquidity and lowers bad debts, but may lose sales.

opportunities.

#### Balance Required:

The best credit policy is the one that maximizes sales and profits subject to the constraint, due to receivables, that the cost of capital and bad debts should be no more than a certain amount.

manageable levels.

### 11.3 Credit Evaluation & Control

Credit evaluation and control are vital aspects of receivables management. They help businesses decide to

whom credit should be extended, on what terms, and how payments should be collected and

monitored. Effective systems balance sales growth with financial risk control.

#### 11.3.1 Techniques for Assessing Customer Creditworthiness

Equally importantly, companies must determine the financial soundness and ability of a customer before extending credit.

repayment.

## Key Techniques:

### The 5 Cs of Credit Analysis

225

- o Character: The client was reputable, honest and trusty.
- o Capacity: Generated cash flows for repayment.
- o Capital: Availability of Financial Resources (net worth, equity position).
- o Collateral: Assets pledged to secure a loan.
- o Conditions: Outside issues i.e. Economics, industry specific outlooks.

### Credit Scoring Models

- o Rates financial ratios (liquidity, profitability and leverage) as well as history of payments that are scored together.
- and market behavior.
- o Higher scores → lower risk.

### Financial Statement Analysis

- o Ratios like:
  - Current Ratio = Current Assets / Current Liabilities
  - Debt-to-Equity Ratio = Total of the Company's Debt / Shareholders' Equity
  - IC = EBIT ÷ Interest Expense
- o Demonstrates liquidity, solvency and ability to pay.

### Bank and Trade References

- o Bank and supplier data points of customer's payment history.

### Credit Rating Agencies

- o Usage of ratings from agencies such as CRISIL, ICRA, Moody's for high value customers.

## Did You Know?

“Did you know that many companies use AI-driven credit scoring models that analyze not just

financial statements but also customer behavior patterns (such as payment history, order frequency, and even social media sentiment) to predict credit risk?”

### 11.3.2 Credit Terms and Collection Policies

Credit terms indicate how much and for what length of time credit will be extended, and collection policies determine

how payments are enforced.

#### Credit Terms

- Standard Terms: E.g. – “Net 30” (payment is due within 30 days).
- Cash Discount Terms – For Example (2/10, Net 30) (2% discount if paid within 10 days; otherwise, net amount due in 30 days).

full due in 30).

- Impact:
  - o Long terms help sales but raise receivables.
  - o Reducing the length of terms increases liquidity but may reduce competitiveness.

#### Collection Policies

- Liberal Policy: Favorable to customer; risk of late or no payment.
- Tough Policy: Repeated follow-up, sanctions for tardiness; risk of customer ill will.

#### Collection Tools:

- Reminders and dunning letters.
- Telephone follow-ups.
- The charging of interest/penalties on arrears balances.
- Resorting to collection agencies or lawsuits in the most extreme cases.

### 11.3.3 Monitoring and Controlling Accounts Receivables

Receivables should be followed up and managed even after being accorded credit to prevent cash flow from becoming overly strained.

#### Monitoring Tools:

##### Aging Schedule

- o Analyzes receivables by aging (i.e., 0–30 days, 31–60 days, 61–90 days, and so on). 90 days).

- o emphasizes past due accounts and collection issues.

#### Days Sales Outstanding (DSO)

1

3

- o Measures average collection time.
- o Formula:  $DSO = (\text{Accounts Receivables} \div \text{Net Credit Sales}) = 365$
- o Low DSO → quick collections.

#### Collection Effectiveness Index (CEI)

- o Evaluates efficiency of collections.
- o Formula:  $CEI = (\text{Beginning Receivables} + \text{Credit Sales} - \text{Ending Receivables} - \text{Write-off}) \div \text{Total credit sales}$
- Notes: - Write off is for year for which the k we know what the write-off will be k
- Turn over K's annually ⇒ they have 36.25 annual payment cycles and K turns over @ 20%.
- offs)  $(\text{Beginning Receivables} + \text{Credit Sales} - \text{Ending Receivables}) \times 100$ .

#### Credit Limits and Control Reports

- o Limits on maximum credit individuals can have each month.
- o Regular monitoring of past due accounts.

#### Control Measures:

- Regular customer credit reviews.
- Applying ERP systems to automate invoicing and reminders.
- Tying some sales incentives to collections, not just credit sales.

#### 11.4 Performance Measures

Performance measures in receivables management help evaluate how efficiently a company is collecting payments from customers. They indicate the quality of credit policy, effectiveness of collection efforts, and the liquidity risk tied up in receivables.

##### 11.4.1 Average Collection Period (ACP)

###### Definition:

Average Collection Period (ACP) Average amount of time it is expected to take to receive payment and be able to write off the Expected Value.

receipts from its customers for a credit sale.

###### Formula:

$$ACP = (\text{Accounts Receivables} / \text{Net Credit Sales}) * 365$$

###### Interpretation:

- A lower ACP means speedier collections and better liquidity.

- an extended ACP indicates that collections are higher, defaults are higher, and funds are locked in- quarters.

receivables.

Example:

If a company has Accounts Receivables of ₹6,00,000 and Credit Sales per annum worth ₹36,00,000 then:

$$\text{ACP} = (6,00,000 / 36,00,000) \times 365 = 61 \text{ days.}$$

This implies that, on average, the firm receives payments in around 2 months.

#### 11.4.2 Receivables Turnover Ratio (RTR)

Definition:

The Receivables Turnover Ratio (RTR) Measures the Number of times receivables are collected, on average.

over the course of a time interval (usually one year). It demonstrates the effectiveness of credit and collection methods.

Formula:

$$\text{RTR} = \text{Net Credit Sales} / \text{Average Accounts Receivables}$$

Interpretation:

- The higher the RTR, the more quickly receivables are collected and deposited into cash, improving cash flow.
- A higher RTR generally indicates either collection inefficiencies or excessively liberal credit policies.

Example:

If Net Credit Sales = ₹36,00,000 and Average Accounts Receivables = ₹6,00,000:

$$\text{RTR} = 36,00,000 \div 6,00,000 = 6 \text{ times.}$$

This implies collection of outstanding receivables 6 times a year, or once every 61 days (which corresponds to ACP).

#### 11.4.3 Aging Schedule of Debtors

Definition:

aging schedule The aging schedule is a financial management tool used to classify accounts receivable according to the length of time that individual amounts Outstanding, continued goGet it Outstanding.

invoices have been outstanding. It aids in constant vigil for the collection, identify delinquent account and

identify potential credit risks. This schedule is employed by businesses to rank the priority of collecting from and reviewing the.

effectiveness of credit policies.

Structure of an Aging Schedule:

Ageing of Receivables Amount (₹ in Crores) % to Total Receivables

0 – 30 days

₹3,00,000

50%

31 – 60 days

₹1,50,000

25%

61 – 90 days

₹90,000

15%

90 days

₹60,000

10%

229

₹6,00,000

100%

Total

Numerical Example: Constructing an Aging Schedule

If we assume the following list of open invoices for different customers at a given date, say 30th September:

Customer Invoice Date Balance (₹) Number of Days Unpaid

A

28 Sept

₹50,000

2 days

B

12 Sept

₹1,00,000

18 days

C

20 Aug

₹80,000

41 days

D

1 Aug

₹70,000

60 days

E

5 July

₹90,000

87 days

F

30 June

₹60,000

92 days

G

15 Sept

₹1,50,000

15 days

Now let's put them in aging buckets:

Step one: Sort by days late:

- 0–30 days:

A (₹50,000) B (₹1,00,000) G (₹1,50,000) → Total = ₹3,00,000

- 31–60 days:

C (₹ 80,000), D (₹ 70,000) → Total : ₹1,50,000

- 61–90 days:

E (₹90,000) → Total = ₹90,000

- >90 days:

F (₹60,000) → Total = ₹60,000

Step 2: Find percentages of total receivables (₹6,00,000):

Age of Receivables Amount (₹) % of Total Receivables

0 – 30 days

₹3,00,000

This ratio may be stated as:  $(3,00,000/6,00,000) \times 100 = 50\%$

230

₹1,50,000

25%

31 – 60 days

61 – 90 days

₹90,000

15%

90 days

₹60,000

10%

Total

₹6,00,000

100%

Interpretation:

- A significant proportion (50%) of the receivables are in of 0–30 days category signalling a healthy.

collection performance.

- Just 10 percent of its receivables are more than 90 days past due, a possible harbinger of badPlease enable JavaScript to continue reading this article.

finer or the demand for focused follow-up.

- The schedule of aging is diagnosed to facilitate management:

- o Checking and pursuing delinquent accounts

- o Alter credit terms or ceilings

- o Make more accurate cash flow forecasts

### 11.5 Technology in Receivables Management

Technology has transformed receivables management from manual tracking to highly automated, data-driven processes. The use of ERP systems, accounting software, AI, and digital payment platforms helps companies manage credit sales more efficiently, reduce risks, and maintain liquidity.

#### 11.5.1 Role of ERP and Accounting Software

Definition:

aging schedule The aging schedule is a financial management tool used to classify accounts receivable according to the length of time that individual amounts Outstanding, continued goGet itOutstanding.

invoices have been outstanding. It aids in constant vigil for the collection, identify delinquent account and

identify potential credit risks. This schedule is employed by businesses to rank the priority of collecting from and reviewing the.

effectiveness of credit policies.

Structure of an Aging Schedule:

Ageing of ReceivablesAmount (` in Crores) % to Total Receivables

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50%

31 – 60 days

₹1,50,000

25%

61 – 90 days

₹90,000

15%

90 days

₹60,000

10%

229

₹6,00,000

100%

Total

#### Numerical Example: Constructing an Aging Schedule

If we assume the following list of open invoices for different customers at a given date, say 30th September:

Customer Invoice Date Balance (₹) Number of Days Unpaid

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28 Sept

₹50,000

2 days

B

12 Sept

₹1,00,000

18 days

C

20 Aug

₹80,000

41 days

D

1 Aug

₹70,000

60 days

E

5 July

₹90,000

87 days

F

30 June

₹60,000

92 days

G

15 Sept

₹1,50,000

15 days

Now let's put them in aging buckets:

Step one: Sort by days late:

• 0–30 days:

A (₹50,000) B (₹1,00,000) G (₹1,50,000) → Total = ₹3,00,000

• 31–60 days:

C (₹80,000), D (₹70,000) → Total : ₹1,50,000

• 61–90 days:

E (₹90,000) → Total = ₹90,000

• >90 days:

F (₹60,000) → Total = ₹60,000

Step 2: Find percentages of total receivables (₹6,00,000):

Age of Receivables Amount (₹) % of Total Receivables

0 – 30 days

₹3,00,000

This ratio may be stated as:  $(3,00,000/6,00,000) \times 100 = 50\%$

230

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90 days

₹60,000

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Total

₹6,00,000

100%

Interpretation:

- A significant proportion (50%) of the receivables are in of 0–30 days category weresignalling a healthy.

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- Just 10 percent of its receivables are more than 90 days past due, a possible harbinger of badPlease enable JavaScript to continue reading this article.

finer or the demand for focused follow-up.

- The schedule of aging is diagnosed to facilitate management:

- o Checking and pursuing delinquent accounts

- o Alter credit terms or ceilings

- o Make more accurate cash flow forecasts

### 11.5.2 Automation of Billing and Collections

Automation helps to simplify the billing-to-cash process by removing bottlenecks and manual steps.

Benefits of Automation:

- E Invoicing: Generates invoices automatically and sends it across after order completion.
- Payment reminders: Machine-sent warnings to customers about due dates.
- Electronic Payment Methods: Offer instant payment option on the web to your clients through digital wallets.
- Auto-Reconciliation: Automatically matches payments to invoices, cutting out mistakes.
- Collection Analytics: Discovers customers who haven't paid on time, late paying and trending of overdue accounts.

Impact:

- Quicker collections, better cash flow.
- Fewer conflicts with clients caused by accurate and timely invoicing.
- Lower administrative costs.

Did You Know?

“Did you know that e-invoicing systems in India (under GST regulations) automatically generate

invoices with a unique IRN (Invoice Reference Number) and QR code, reducing errors and ensuring

faster reconciliation for receivables?”

### 11.5.3 Risk Management in Receivables

Technology helps mitigate risks of delayed payments or defaults through predictive tools and control mechanisms. Key Practices:



Credit Risk Scoring Models:

o AI and analytics to check: customer payment pattern, financial ratios, external credit ratings.

Automated Credit Limits:

o ERP systems will be able to establish and track credit limits on a per-customer basis, preventing new orders if limits are exceeded.

Fraud Detection Tools:

o Systems recognize abnormal payment trends or unusual activity in transactions.

Insurance Integration:

o Tying Receivables to credit insurance policies for marginal receivable accounts.

Scenario Analysis:

o Predictive analytics model best case and worst case collection scenarios at varying economic conditions.

Outcome:

- Better underwriting decisions before credit is extended.

233

- Less risk of bad debts.
- Enhanced financial strength by taking preemptive steps to manage risk.

### Knowledge Check 1

Choose the correct option:

1. Which of the following best defines Accounts Receivables?

- A) Short-term liabilities owed to suppliers
- B) Payments due from customers for credit sales
- C) Cash held by the company in banks
- D) Long-term loans taken from financial institutions

2. If a company's Average Collection Period (ACP) is 75 days, but its credit policy allows only 45

days, what does this indicate?

- A) Customers are paying earlier than expected
- B) Receivables are collected efficiently
- C) Customers are taking longer than allowed to pay
- D) The company has no receivables outstanding

3. Which of the following is not one of the 5 Cs of Credit used for evaluating creditworthiness?

- A) Character
- B) Capital
- C) Collateral
- D) Cash Flow Ratio

4. What does a high Receivables Turnover Ratio (RTR) usually indicate?

- A) Slow collections and high bad debts
- B) Efficient collection of receivables
- C) Excessive use of long-term loans
- D) Lack of sales on credit

5. Which of the following tools is most useful for monitoring overdue receivables?

- A) Trial Balance

B) Profit and Loss Statement

C) Aging Schedule of Debtors

D) Cash Flow Statement

### 11.6 Summary

❖ **Manage Receivables** -One of the major components of working capital management is receivables, that includes – credit sales and collections.

ensuring timely collections.

❖ **Receive Accounts:** The receive account reports money owed by customers and is a function of credit policy.

industry practices, and customer behavior.

❖ **Credit analysis and control** techniques include the 5 Cs of credit, credit scoring, financial ratio analysis,

and monitoring was the least means of bad debt avoidance.

❖ **Performance indicators** such as Average Collection Period (ACP), Receivables Turnover Ratio and

Aging Schedules assist in evaluating the effectiveness for collections.

❖ **Tech tools** such as E.R.P. systems, online billing and artificial-intelligence credit scoring get better

receivables tracking and risk management.

❖ **An optimal accounts receivable policy** is one that: maximises revenue; minimizes risks; and keeps the company liquid.

### 11.7 Key Terms

**Accounts Receivables/Debtors** – Debts from customers resulting from the extension of credit.

**Credit Policy** – Terms and conditions of offering credit.

**Average Collection Period** – Average number of days to collect customer payments.

**Receivables Turnover Ratio** -Efficiency ratio; the number of times within a year receivables are collected.

**Aging Schedule** – Distribution of accounts receivable by days overdue.

**ERP (Enterprise Resource Planning)** – All-in-one software for all operations, incl. receivables.

Factoring – Sale of the company’s accounts receivable (obtained on credit) to a financier.

Credit Risk – Likelihood of not receiving payment from customer.

### 11.8 Descriptive Questions

Define accounts receivables. Why do they matter to businesses?

Discuss the purposes of managing receivables.

Describe the determinants of accounts receivable.

What are the advantages and disadvantages of carrying receivables?

Discuss the methods used in evaluating customers’ credit.

What is the place of technology in receivables?

What is the formula to calculate ACP & Receivable turnover ratio? Illustrate with examples.

Question 7:[LO4, LO6] Prepare an ageing schedule of debtors and discuss how it assists in controlling accounts receivable?

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6. Company Annual Reports and ERP Software Documentation.

### Answers to Knowledge Check

#### Knowledge Check 1

1. B) Payments due from customers for credit sales
2. C) Customers are taking longer than allowed to pay
3. D) Cash Flow Ratio
4. B) Efficient collection of receivables
5. C) Aging Schedule of Debtors

## 11.10 Case Study

### Meera's Challenge: Balancing Sales Growth and Credit Risk

#### Introduction

Working capital Receivables support which is a critical for increasing the sales by in running business.

offering credit terms to customers. But when there is a bad management of the receivables, it can cause liquidity embarr hasments.

slump, bad loans and profitability woes. Effective receivables management requires compensation plans that balance the objective of sales growth with risk management and prompt payment collections.

This caselet focuses on the key issue of receivables management in a mid-size company. examines pragmatic solutions to them.

#### Background

Meera Sharma, is the Finance Manager of BrightHome Appliances Ltd., an entity which and whom

manufactures consumer electronics. To grow in a fiercely competitive market, BrightHome beginning extending 30- day credit to Recent banks liberal policy with their. day period.

Cash Conversion Cycle (CCC) Although sales volumes improved by 25%, the company's何 Cash Conversion875超^不hacicFinance CCC n 外 s所助 'k晶| Volumes increased and Receivable And Inventory collections all went from weak to weaker during the year.

worsened. Average Collection Period (ACP) increased to 78 days, and a schedule of.

discovered that almost 20% of receivables were more than 90 days past due. Suppliers started

calling for payments to be made more promptly, which results in a mismatch of cash flow.

Meera now faces multiple challenges:

- An increase in past-due receivables and the risk of defaults.
- Unfavorable liquidity position as a result of extended credit periods.
- Buckhorn growth that preserves financial discipline.

Among the things she's thinking: How do I say no?

- Strengthening the credit review process with the use of a combination of credit scoring and trade references.
- Providing early payment incentives to lower ACP.
- Setting up invoicing and reminders with the ERP system.

237

- Imposing tighter collection rules for those at high risk of default.

Problem Statement 1: Increase of Overdue Receivables Situation Description You and your team want to keep the overdue receivable amounts as low as possible.

BrightHome's receivables are over 90 days, suggesting a lack of credit programme.

Solution:

Here I would say to tighten your credit vetting and, unless you review it on an individual case by case level for slow paying high risk customers: cut their terms.

clients. There should be no waiting to find out - use an ERP-based aging schedule for real-time tracking.

Problem 2: Tightness of Liquidity Caused by the Lax Credit Policy

The 78 day long ACP is straining cash flows.

Solution:

Offer early payment discounts (e.g., "2/10, Net 30") to speed up collections and

balancing cost against improved liquidity.

Problem 3: Collections are Not Automated.

Manual invoicing and reminders are resulting in delays and effectiveness.

Solution:

Key Takeaways Automate invoicing and reminders with the help of ERP modules and add digital payment gateways for integration to:

accelerate collections.

MCQ

Q: Which of the following is a policy that can shorten the ACP?

- A) Providing credit terms to additional customers
- B) Offering early payment discounts

C) Reducing supplier credit

D) Delaying invoicing further

Answer: B) Providing discounts for early payment

Explanation: The discount offered encourages customers to pay sooner, which lowers the ACP and raises time value of money.

liquidity.

Conclusion

This caselet demonstrates that liberal credit policies can increase sales, but they also raise risks and

strain liquidity. Credit assessment, automation, and incentive-based approach combining all three.

collections, Meera can make receivables management more efficient at BrightHome. The case demonstrates

balance between the growth pressure and financial control to maintain sustainability of business

performance.

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## Unit 12: Inventory Management

### Learning Objectives

Know what you are discussing - or at least the idea, scope and importance of inventory management in operations.

Describe the 20/80 principle and how it applies to inventory control.

Use an ABC Analysis to categorize inventory and focus management attention.

Discuss the Just-in-Time (JIT) inventory system and how JIT helps to eliminate waste and improve efficiency.

efficiency.

Discover the latest inventory approaches from ERP, barcoding and RFID to analytics-led control.

Examine trade-offs in how you order, store and run out of stock (inventory) to minimize costs.

management.

Assessing case studies and practical applications of inventory ones.

making skills.

### Content

12.0 Introductory Caselet

12.1 Introduction to Inventory Management

12.2 20/80 Principle in Inventory

12.3 ABC Analysis

12.4 Just-in-Time (JIT) Inventory System

12.5 Modern Inventory Practices

12.6 Summary

12.7 Key Terms

12.8 Descriptive Questions

12.9 References

12.10 Case Study

12.0 Introductory Caselet

## “Priya’s Inventory Puzzle: Striking the Right Balance”

### Background:

Priya Verma, operations manager with FreshFoods Ltd., a mid-size packaged food company. The firm

is currently encountering issues in inventory management. At one extreme, the remaining inventory on slow movers

items and tying up working capital while increasing cost of storage. Fast items, on the other hand, tend to

turn your Best-sellers sold out, which means lost sales and upsetting Refer to Returning best sellers for more details.

In her study, Priya found that about 20 per cent of the items were responsible for almost 80 PERCENT of the \$fdata

company’s sales. But the company was placing every item of inventory to be practically equal on its shelves.

resources. In order to tackle the problem, Priya decided to apply ABC analysis and 20/80 rule, both of which could be used for distinguishing

inventory by value and utility.

She also investigated new practices such as Just-in-Time (JIT) to ease the weight on stock, but suppliers’

reliability and delivery time were at risk. Priya knew that getting the inventory strategy right would

be crucial to optimizing the trade-offs between cost containment, liquidity, and customer satisfaction.

### Critical Thinking Question:

If you were Priya, what would be your trade-off between holding increased stocks for safety and improving production scheduling?

adopting lean practices like JIT? What are some of the considerations (like: supplier reliability, demand volatility and carrying costs)?

costs) would influence your decision?

## 12.1 Introduction to Inventory Management

### Concept:

Inventory management – Planning, control and monitoring of inventory in order to. Determine what the product needs to be Collect accurate demand data Do forecasting and determine lead time Use forecast and time lead times to calculate safety stock.

provide the correct amount of materials at the right time, for a minimum total cost. It is a crucial aspect of working capital management, for inventory often represents a substantial investment on the part of companies.

Importance of Inventory Management:

Business Continuity -Eliminates stockouts and enables smooth production/sales.

Cost Effective - Reduces inventory, insurance and obsolescence costs.

Controlled Liquidity Risk – Can limit excess resources in unsold stock.

Satisfaction Guarantee – Order with confidence.

Risk Protection – Aids in protecting against risks of both overstocking(load cost + higher holding costs) and under-stocking.

(lost sales).

Types of Inventory:

- Raw Materials – The materials that are needed to produce something.
- Work-In-Process (WIP) – Intermediate products that are still not completed.
- Completed Product – Ready for market (for sale).
- MRO – Maintenance, Repair and Operating supplies required to support operations.

Objectives of Inventory Management:

- Keep enough reserves to satisfy demand.
- Minimize the sum of the total cost of ordering, the holding cost and shortage cost.
- Maximize the inventory turnover rate to ensure efficiency.
- Be effective in supporting production and sales strategies.

### 12.1.1 Concept and Importance of Inventory

Concept:

- Inventory is the items such as products, materials, and supplies that a company has on production, distribution, or resale.

- It covers raw materials, work in progress (WIP), finished goods and maintenance/operating.

supplies (MRO).

242

- Inventory serves as a cushion between production and use for smooth functioning.

Importance:

BCP (Business Continuity) - Prevents sales or production disruption for lack of components.

Meeting Customer Demand – Ensures finished goods are available when customers call.

Buying power- Purchase the goods not commonly available, reducing per item cost.

Resilience Credit – Protects you from uncertainty by providing demand and supply chain latency coverage.

Working Capital Impact – Inventory being a significant component of the overall current assets, has pervasive influences on.

liquidity.

#### 12.1.2 Objectives of Inventory Management

The goal of stock management is to ensure a balance between overstock and understock.

Key Objectives:

Provide Enough Stock – Always receive full flow to satisfy your own workshop +customer.

Reduce Costs – Manage order, hold and zero stock-out costs.

Optimise Inventory Turnover – Reduce surplus of capital trapped in dead stock.

Streamline Production – Make sure you have materials and parts when you need them.

Minimize Waste and Obsolescence – Address shelf life, expiration, product relevancy.

Increase Profitability – Achieve balance between cost control and client satisfaction to optimize results.

#### 12.1.3 Costs Associated with Inventory

There are a number of direct and indirect costs of holding inventory:

Ordering Costs

o Freeway cost of placing and receiving an order.

o Some examples: paper work, transportation, inspection expenses.

- o High order frequency → high ordering costs.

#### Holding (Carrying) Costs

- o Costs associated with keeping, caring for and maintaining stock.
- o Comprises warehousing, insurance, depreciation and obsolescence.
- o Larger inventory → greater holding costs.

#### Stock-out Costs

243

- o Costs caused by out of stock.
- o Consists of lost sales, emergency purchase, and diminished customer goodwill.

#### Setup Costs (for manufacturing firms)

- o Change-over costs that get accumulated while switching from one product to the other.

#### Opportunity Costs

- o Capital is invested in inventory which isn't available to invest elsewhere for a greater return.

### 12.2 20/80 Principle in Inventory

The 20/80 principle, also known as the Pareto Principle, is widely applied in inventory management. It states that a small proportion of items (about 20%) often accounts for the majority (around 80%) of the inventory value or impact. By focusing more attention on critical items, businesses can optimize resources, reduce costs, and improve efficiency.

#### 12.2.1 Pareto Principle and Its Relevance to Inventory

##### Pareto Principle:

- Named for the economist Vilfredo Pareto, it first noticed that 20% of people controlled 80% of

wealth.

- In inventory: 20 percent of items satisfy 80% of consumption value, sales value or costs.

##### Relevance in Inventory Management:

Resource Management – Supports managers manage time, money and work optimally.

Concentrate on Valuable Stuff – Stop wasting resources on low value stuff that is not critical.

Better Organization – Facilitates closer tracking and more frequent audit of critical stock.

Save Money – Prevents overstocking slow moving goods to minimize inventory costs.

Did You Know? “Did you know that in many industries, as few as 10% of inventory items account for nearly 70– 80% of a firm’s sales value? This is why the Pareto (20/80) principle is so critical—it helps managers avoid wasting resources on low-value items while focusing control efforts on the most impactful stock.”

### 12.2.2 Identifying Critical vs. Non-Critical Items

According to the, inventory can be divided into critical (vital) and non-critical (less important) items This division is done according to the

20/80 rule:

- Critical Items (≈20%)
  - o Limited number but high in value.
  - o Demand was critical to control, forecast accurately and to place a greater safety stock.
  - o Example: Key raw materials in a factory (steel, microchips).
- Non-Critical Items (≈80%)
  - o Low value but numerous.
  - o Requires less sophisticated controls and a longer order cycle.
  - o Example: Stationeries, packaging, Spares.

Key Steps to Identify:

List each item by rank according to the annual dollar consumption value (price × number of units used per year).

Calculate cumulative percentage of value in inventory.

Classify:

- o Top 20% items → Critical
- o Remaining 80% → Non-Critical

### 12.2.3 Practical Applications of the 20/80 Rule

The 20/80 Rule, or Pareto Principle, is commonly used in inventory management to prioritize efforts and resources. It has been proposed that approximately 20% items may be responsible for about 80- part of the variation in inventory.

have the value of the 20% inventory share of the total inventory, while remaining 80% items are worth approximately just about roughly only.

Organizations can leverage this principle to get better control, minimize costs and improve operational efficiency.

Key Applications:

ABC Analysis

Inventory can be divided into three categories:

- o A-literature (best 20%): Very valuable products that require close authority control

- o B-items (next 30%): Fair value and control

- o Items of type C (bottom 50%): Low values with simple control system.

Prioritized Stock Control

Concentrate on focus inventory (such as frequent cycle counting), and high-cost items (A-stock level), minimising the risk of stockouts or obsolescence.

Procurement Strategy

- o Negotiate better terms, reliability of supplier and safety stock for important A-items.

- o Use the method of bulk buying and longer reorder intervals for C-items in order to reduce kuppung effort and costs.

Warehouse Management

- o Store A-items in convenient and secured places so that they can be picked quickly and are well protected.

- o Assign back-end or bulk storage to low-value C-items.

Decision-Making Support

The 20/80 Rule allows managers to orient inventory strategy with cost/speed and risk.

management to avoid overstocking non-critical material yet ensuring the system's reliability.

Example: Using the 20/80 Rule in Inventory calculations

Let's say we have a company with 100 items in inventory, and here is what the sample list looks like:

Category

Items %Total Items Value (₹) % Total Value

A (High-value) 20 items

20%

₹8,00,000

80%

B (Moderate)

30 items

30%

₹1,50,000

15%

C (Low-value) 50 items

50%

₹50,000

5%

Total

100 items

100%

₹10,00,000 100%

Interpretation:

- The classification in A-class includes the latent 80% (top 20 items) while constitutes only 20%. These include engines,

control modules, and gear systems.

- The remaining 80 products (B and C items) account for only 20% of the value, generally consisting of

fasteners, packaging, and small fittings.

This one clearly shows the 20/80 distribution, and where in the business attention should be focused.

and you're not wasting your coins on the high-impact stuff.

Conclusion:

Through employing the 20/80 Rule inventory managers are able to focus resources more efficiently in order to maximise buffer stocks.

levels, and also reduce costs of over managing low-impact items. It is a practical Theorem. solution for inventory decisions that are in line with business requirements.

### 12.3 ABC Analysis

ABC Analysis Classification is a process of categorization according to the quantity, value or other criteria. It

classifies the inventory items into A, B and C classes in accordance with their annual consumption values

(unit cost  $\times$  quantity used). This process allows companies to zero in on the high priority features that comprise a lot of work.

the greatest proportion of value.

#### 12.3.1 Concept and Classification of Inventory

Concept:

- ABC means "Always Better Control", focusing on better management of critical items.
- The analysis is predicated on all inventory being created equivalent to "some require stricter

control cost wise as high valued cards.

Classification:

- Category A – Little amount in general ( $\approx 10\text{--}20\%$  of volume  $\leq 70\text{--}80\%$ ) but largest quantity jamming } .

total inventory value.

- Category B – Intermediate in prevalence ( $\approx 20\text{--}30\%$  of items) and account for 15–20% of value.
- Category C – Most abundant ( $\approx 50\text{--}70\%$  of products) but provide only 5–10% in value.

#### 12.3.2 Criteria for Categorization (A, B, C Items)

The categorization of inventory into A, B, and C categories segment is a central component of ABC analysis that is used to divide inventories according to importance.

Pareto Principle in inventory management. It enables businesses to apply control efforts according to

consumption value and item criticality.

Primary Criterion: Annual Consumption Value

... Items are ranked by annual usage value as given by:

ACV = Price of one unit x PQ Buyer's CONSUMPTION Annual Consumption Value (ACV) The Total Value, In A Year, Of A Particular Consumable Material That Is Being Purchased By The Company.

This number represents how much each its the highest item around ear to it the stock costs in terms of total company cost.

basis for categorization.

Supporting Criteria (Qualitative Factors)

Though value is paramount, these are some of the factors that also feature in our classification:

- Sourcing Lead Time: Depending on long lead time, items might require restricted control.
- Critical in Production: Inexpensive yet critical components (e.g., gaskets, switches) could be classified as A or B.

- Market Prior Availability: Items that are scarce in the market place may have a higher stocking priority assigned to them.

Typical Classification Structure



Category % of Items % of Inventory Value Control Tier

**A**  
 10–20%  
 70–80%  
 Very High

**B**  
 20–30%  
 15–20%  
 Moderate

**C**  
 50–70%  
 5–10%  
 Low

Example: Classifying Items with the A, B, C rule

248

249

Say a company has 10 units of stock, with the details as below:

S.No Item Unit Consumption P Rate (INR) Annual requirement value 1.

A 2,000 200 4,00,000

B 1,500 150 2,25,000

C 800 300 2,40,000

D 1,000 100 1,00,000

E 500 400 2,00,000

F 200 600 1,20,000

G 100 800 80,000

H 50 900 45,000

I 30 1,000 30,000

J 20 1,200 24,000

Total ₹13,64,000

The following steps can be used to classify the items: Step 1: Arrange the item in descending order of their annual consumption value

Sr. No. Item Value (₹) Cumulative Value (₹) % of Total

1 A 4,00,000 4,00,000 29.3%

2 C 2,40,000 6,40,000 46.9%

3 B 2,25,000 8,65,000 63.4%

4 E 2,00,000 10,65,000 78.1%

5 F 1,20,000 11,85,000 86.9%

6 D 1,00,000 12,85,000 94.2%

7 G 80,000 13,65,000 100%

8 H 45,000 - -

30,000 - -

9

I

10

J

24,000 - -

Step 2: Categorize

- A goods: The top 2–3 GOODS (A, C, B) → ₹8,65,000 → ~63% Total stolen value
- B Items: Next 2–3 items (E, F) → ₹3,20,000 → Approx 23%
- C-items: the balance of items (D, G, H, I, J) → INR 1.79 lakhs → 13%

Interpretation:

- The top 30% of items (3/10) represent more than 60% of inventory value— A-items and require tight monitoring.
- B-goods are semi-random access and C-goods (low-value, high-volume) can be handled with fewer controls such as periodic review and bulk purchasing.

“Activity: Classifying Inventory Using ABC Analysis” Instruction to Students: 1. Assume the following inventory data for a company: Item Annual Demand (Units) Unit Price (₹) Annual Consumption Value (₹) X 1,000 500 ? Y 5,000 100 Z 10,000 20 ? ? 2. Calculate the Annual Consumption Value = Demand × Unit Price for each item. 3. Rank the items in descending order of consumption value. 4. Classify them as A (high-value), B (moderate-value), or C (low-value) items. 5. Make a short note (150 words) explaining why control efforts should differ for A, B, and C categories.

### 12.3.3 Advantages and Limitations of ABC Analysis

Advantages:

Economies Of Scale – Directs management's attention on high value items.

Cost Savings – Lowers costs by avoiding overstocking of items like coffee, which is typically low-value.

Improved control - Frequent checks and tighter controls for A-items in stock.

Better Decision Making – Assists in prioritizing procurement, storage and audit.

Financial Innovation – Capitalizes work to book priority.

Limitations:

Ignores Importance Factor – A low cost item may be operationally critical (e.g., a bolt on an aircraft.

engine).

Categorization – diagnosisPattern of consumption can alter in long term; need to be reviewed regularly.

Value Focused – Disregards lead time, supplier performance and obsolescence risk.

Heavy Use Of Resources – Must be constantly watching, and looking for accurate data.

Did You Know?

“Did you know that some companies use an ABC-VED combined analysis (Value, Essentiality, and

Danger)? This approach not only considers the value of items but also their criticality—so even a low-

cost spare part that could shut down production if missing is classified as a high-priority item.”

## 12.4 Just-in-Time (JIT) Inventory System

The Just-in-Time (JIT) inventory system is a lean management approach that minimizes inventory levels by arranging supplies to arrive only when they are needed for production or sales. It aims to reduce waste, carrying costs, and inefficiencies, while ensuring smooth workflow.

### 12.4.1 Concept and Features of JIT

Concept:

- Began in Japan (most notably at Toyota Production System).
- Inventories are maintained to the minimum possible level raw materials are ordered and received just prior to use.

they're necessary in processing.

- Emphasizes on getting the work done realistically, remove waste and continuous improvement (Kaizen). Key Features:

Least Stock Inventory – Least possible raw material, WIP and finished goods stock.

Integration of Supplier - Good co-ordination and dependable supplier is most essential.

Demand-Pull -Production reflects the actual demand from customer.

"Small lots of products" -DC » Long lead time production Requires frequent but smaller deliveries.

Quality consciousness – We talk to the suppliers and faulty pieces are a no-no since we have limited buffer stock.

Focus on Incremental Improvement – Ongoing improvement processes decrease lead time and waste.

#### 12.4.2 Benefits of JIT in Reducing Inventory Costs

Less inventory holding cost – Which means you'll spend less on storage, insurance and obsolescence.

Better Cash Flow – No more money tied up in inventory that won't sell.

Less Waste – Less over produced and excess stock.

More Productivity – Less Waste Lean processes shorten the flow of work and improve efficiency.

Improved Relations with Suppliers – Promotes teamwork and long-lasting relationships.

Better agility – Can react quicker to the actual demand pattern.

#### 12.4.3 Challenges and Risks in JIT Implementation

JIT is more efficient, but it comes with some risks:

Dependency on supplier – His fortunes are based on the good quality products his suppliers provide.

potentially slow down Disruption Risk -strikes, legal transport problems, natural disasters etc can stop the supply chain flow in place.

production.

Increased Ordering Costs - Small and frequent orders could raise acquiring costs.

Variability of Demand – Variations in customer demand may lead to stockouts.

Little to No Safety Stock – Without a cushion, if anything goes wrong you are likely to stock out.

Cultural Resistance – It requires mind-set change, training and bottol line discipline through the 33.647719373678- Preparing for Terrorism Source: Master, CDRMCS (Ret.) W.T. Royal, USNR number of men in our force structure.

organization.

## 12.5 Modern Inventory Practices

Inventory management has evolved significantly with the integration of technology, global supply chains, and data-driven decision-making. Modern practices focus on improving efficiency, accuracy, and cost-effectiveness, while ensuring that businesses remain responsive to dynamic customer demand.

### 12.5.1 Role of Technology in Inventory Management

Technology is revolutionizing the way that businesses manage, monitor and influence inventory.

Key Roles:

Real-Time Visibility – Software delivers current data on levels of stock by location.

Automation – This will minimize human errors while they're inputted to your data, billing and stock control.

Analytics & Forecasting – Have insight into what your demand patterns are likely to be and prevent out-of-stocks or overstocks.

Interfacing – Connectivity with procurement, production, and sales systems to link inventory.

Decision Support – Managers are prompted on reorder levels and safety by dashboards and reports  
stock.

### 12.5.2 Use of ERP, Barcoding, and RFID

ERP (Enterprise Resource Planning):

- Centralized system with various business functionalities assembled.
- Integrated tracking of orders, product quantities on hand and purchases.
- Examples: SAP, Oracle NetSuite, Tally ERP.

Barcoding:

- Relies on printed codes that are scanned at check-in/check-out stations.
- Allows speedy and precise data collection.
- Eliminates human-error when monitoring inventory and invoicing.

RFID (Radio Frequency Identification):

- Relies on radio waves and electronic tags to automatically identify items.

- Takes real-time reading of stock movement on the warehouses and sales outlets.
- - More sophisticated than barcoding in that it does not require line of sight to read a tag.
- In popular use in retail (Walmart and others), manufacturing, logistics.

Did You Know?

“Did you know that RFID technology can track hundreds of inventory items without line-of-sight

scanning, unlike barcodes? Major retailers like Walmart and Zara use RFID to cut stock discrepancies

by up to 95% and improve shelf availability dramatically.”

### 12.5.3 Inventory Optimization in Global Supply Chains

Experiences of interviewing Formulation and implementation Globalization I n Impactofglobalizationoninventory management the globalization 83 S.657-666 Comparison register in international supply chain management relations, and volatile buyer-supplier relationships (Berg et al., 2008; Heteskog, 2003).

logistics, and fluctuating demand. 2.1 Current practices are aimed at optimiz- chain and not just on the design of particular parts.

chain.

Strategies for Optimization:

Demand Forecasting Tools – AI/ML models predict customer demands in each region.

Optimizing safety stock helps you balance risk of supply disruptions and carrying costs.

Multi-Echelon Inventory Management (MEIM):

- o Inventory synchronization from multiple levels (suppliers, DCs, retailers).
- o Ensures right stock at the right location.

Global Supplier Collaboration – Digital platforms enable real-time data exchange with international suppliers.

Sustainability Practices – Maximizing loads & minimizing waste in every shipment to reduce carbon footprint.

Example:

- Amazon applies sophisticated algorithms, robotics and real-time analytics to manage inventory around the globe,

and to keep costs low by guaranteeing same-day or next-day shipments.

### Knowledge Check 1

Choose the correct option:

1. The 20/80 principle in inventory management is also known as:

- A) EOQ principle
- B) Pareto principle
- C) FIFO principle
- D) Lean principle

2. In ABC analysis, which category of items typically accounts for the highest consumption value

but is fewest in number?

- A) A items
- B) B items
- C) C items
- D) All categories equally

3. Which of the following is a key feature of Just-in-Time (JIT) inventory system?

- A) Maintaining high safety stock
- B) Receiving materials only when needed
- C) Bulk ordering to reduce ordering costs
- D) Prioritizing low-value items

4. Which technology allows automatic identification and tracking of inventory without line-of-

sight scanning?

- A) Barcoding
- B) RFID
- C) ERP
- D) Manual entry

255

5. Which of the following is a limitation of ABC analysis?

- A) It considers both value and criticality
- B) It ignores the criticality of low-value items
- C) It provides a dynamic classification of inventory
- D) It is simple and cost-effective to apply

## 12.6 Summary

❖ Inventory is critical in working capital management to have the right stock at LIABILITIES AND OWNER'S EQUITY 779 the right time.

the right-time and at least cost.

❖ The 20/80 rule (Pareto rule) is known to say that there are some small percents of items accounting for the

controlling most shares and the assets value focus.

❖ ABC analysis classifies to optimize control and resource effortswebElementXpaths,. allocation.

❖ The Just-in-Time (JIT) Method lowers inventories by coordinating supply with production needs, production became more efficient but supply chain risks higher.

❖ Modern practices including ERP systems, barcoding, RFID and global optimization tools enhance real-

time visibility, accuracy, and cost-effectiveness.

❖ Taken together, these caring practices enable firms to coordinate high quality customer service and cost control with operational efficiencies.

efficiency.

## 12.7 Key Terms

Inventory – Raw materials, work-in-process (WIP), and finished goods inventory.

**Working Capital – The difference between a company's current assets and current liabilities; inventory would be a major factor.**

20/80 Rule (Pareto Principle) – 20% of stuff leads to 80% of impact.

ABC: Discuss types of inventories and how A, B, C items are classified by value/importance.

JIT (Just-in-Time) – Inventory comes just in time; keeping holding costs very low.

ERP (Enterprise Resource Planning) – Application that ideas various things like inventory, finance sales and purchasing together.

RFID (Radio Frequency Identification) –Tags give you a real time inventory tracking.

256

Safety Stock – Additional inventory to avoid stockouts due to demand/supply variations.

Multi-Echelon Inventory Management (MEIM) – Coordinating inventory at multiple places in the supply

chain levels.

### 12.8 Descriptive Questions

Explain the term inventory management and discuss its relevance in business.

What is 20-80 principle in inventory? How it facilitates effective inventory management?

Describe ABC analysis with example.

Describe the pros and cons of using a JIT system.

What are the advantages of ERP, barcoding and RFID in streamlining inventory processes?

Distinguish between the traditional approach of inventory management and the current practice of applying inventory models in a global supply chain.

2) Provide a sample aging schedule for inventory and an explanation of how it is useful to management?

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Answers to Knowledge Check

Knowledge Check 1

1. B) Pareto principle
2. A) A items
3. B) Receiving materials only when needed
4. B) RFID
5. B) It ignores the criticality of low-value items

## 12.10 Case Study

### Priya's Challenge: Balancing Costs and Customer Service

#### Introduction

Inventories are the key part of the working capital and cost-effective management of it will lead to both;

profitability and customer satisfaction. Companies usually have the choice between high AP and low<sup>-1</sup>.

CS stock levels versus cost minimizing stock. This caselet illustrates how company manage inventory problems by using various methods.

#### Background

Priya Sharma is the Supply Chain Manager with QuickMart Retail Ltd., a fast growing retail chain.

The company is reeling from increased inventory-holding costs in the face of stockouts of fast-turning items, like packaged foods and drinks.

An analysis of inventory indicated that:

- 15 percent of things accounted for more than 75 percent in sales value (principle of 20/80).
- There was no organised ABC analysis on the line.
- Overstocking of low-value goods (such as stationery and cleaning products) was holding up working capital.
- The company used traditional bulk stockpiling, which was expensive to store.

Priya is contemplating the use of ABC considerations to categorize the stock and practising JIT for

fast-moving items with reliable suppliers. She goes on to cover contemporary concepts including ERP with

Use of RFID for better accuracy and real-time tracking.

Problem 1: Too Much Holding Expense

QuickMart has to us high warehousing and insurance charges, because it hf?s large stockpiles of the low-value,

items.

Solution: Use ABC analysis to target A-items that require strict control, as B- and C-items are managed differently.

items with bulk purchases but less frequent monitoring.

Problem 2: High Incidence of Stockouts for Priority Commodities

Stockouts of fast-moving goods have eroded confidence in delivery.

Solution: Implement JIT by approved suppliers for A-materials and just-in-time collection of goods.

while reducing safety stock levels.

Issue 3: No real-time monitoring for control unit

Delays caused by manual record keeping for shortages or surpluses.

Solution: Integrate ERP with RFID for real-time tracking, which minimize errors and losses.

improving replenishment decisions.

MCQ

Q: Which of the following could QuickMart do to best decrease holding costs while revenues?

maintaining customer service?

A) Equal stocking of all items in bulk B) Stock-well system C) Use of trade discounts D) Seasonal production planning.

B) Using ABC Analysis and JIT, for core items

C) Reducing safety stock on all items.

D) Manual stock records and wtting only on gregation.

Answer: B) Utilizing ABC analysis and JIT for controlling items

Explanation: ABC analysis gives priority to costly items and Just In Time suggests that it must be readily available.

cutting costs without damaging customer service.

### Conclusion




The Priya case demonstrates that inventory management calls for a trade-off between cost effectiveness and

customer satisfaction. The classical principles (20/80 rule, ABC analysis) are now contrast with these old fashioned paradigmas together with the traditional ones such as

standards, new technology (ERP, RFID), and just-in-time' to transform the inventory process.

and strengthen its market competitiveness.

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## Unit 13: Capital Budgeting without Time Value of Money

### Learning Objectives

1. Understand the meaning and significance of capital budgeting in long-run investment decisions.
2. Describe the capital budgeting process from project generation to selection?
3. The payback period approach should be used to assess the recovery of initial outlay.
4. What are the benefits of using ARR to determine projects profitability?
5. Discuss the advantages and disadvantages of Payback and ARR methods?
6. Discuss the effects of capital budgeting ratios on risk, liquidity, and profits.
7. Assess real-life studies and enhance decision-making in investment appraisal.

### Content

#### 13.0 Introductory Caselet

#### 13.1 Introduction to Capital Budgeting

#### 13.2 Process of Capital Budgeting

#### 13.3 Payback Period Method

#### 13.4 Accounting Rate of Return (ARR)

#### 13.5 Comparative Analysis of Payback and ARR

#### 13.6 Summary

#### 13.7 Key Terms

#### 13.8 Descriptive Questions

#### 13.9 References

#### 13.10 Case Study

#### 13.0 Introductory Caselet

##### “Ravi’s Dilemma: Choosing the Right Investment for Growth”

##### Background:

458: Ravi Sharma – The True Cost of Capital VirtualDate Modified 8/13 #205 Rights Reserved. Section VI, Page 139 QUESTIONS CASE I A. EXECUTIVE SUMMARY Ravi Sharma has been asked to review two investment proposals and make recommendations to the company's board of directors. The first is the

investment in modern technology that would lower production cost by 20%. The second is a new product series of smart home equipment was released, which needed investment in high R&D and marketing.

Funds are scarce and the amounts needed to start either project are huge. While the automation equipment

the new system line not only High growth potential but inexpensive and efficient, you receive from its market launch.

with greater uncertainty.

Ravi will have to take a call as to which project to focus on. He is contemplating the application of capital budgeting principles

(e.g., the Payback Period and the Accounting Rate of Return (ARR)) in assessing how soon the

return on investment could be made and how lucrative it would be in the long run.

Critical Thinking Question:

b) If you were Ravi, would your preference be for: I. The low-risk project with the known savings? II. The high-yield project to lower costs more quickly?

growth project with uncertain returns? How could capital budgeting techniques assist in Answer Preview : a.

decision?

### 13.1 Introduction to Capital Budgeting

Concept:

Capital Budgeting is the process for long term project's consideration, planning and evaluation, investing such projects which are worth pursuing.

amounts of capital. It nudges companies to choose which projects — for new plants, machinery, technology etc. — provide the best returns.

or product launches—are worth undertaking.

Importance:

Long Run Effect – The profitability and competitiveness for several years are influenced by investments in the capital.

Rational management of funds – Aid to select projects that provide value added for shareholders.

put link here) Risk Assessment – Preserving financial and operational risk by identifying such risks before putting any money at stake.

Cash Flow Driven Focus – Real cash inflows and outflows not just accounting profits.

Business Expansion – Assists in growth, diversification & modernization choices.

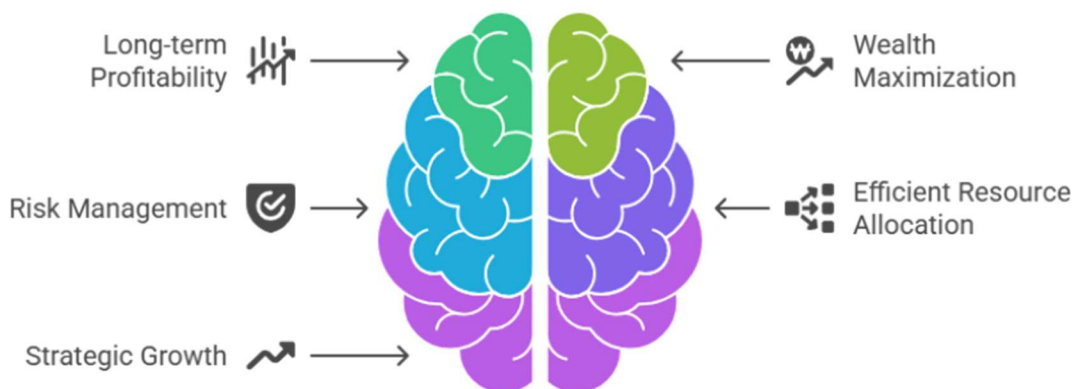
Nature of Capital Budgeting Decisions:

- Sunk – Funds spent are hard to reclaim, if at all.
- Heavy Expenditure – Costs a lot in the beginning to set up.
- Forward Looking – Credited with future cash flows, not current earnings.
- Complicated Valuation – Characterised by uncertainty, risk and choice among multiple criteria.

### 13.1.1 Concept and Importance of Capital Budgeting

Concept: Capital budgeting is the process of evaluating and selecting long-term investment projects that require substantial capital outlay. It involves estimating future cash inflows and outflows, comparing them with initial investment costs, and determining whether a project adds value to the firm.

#### Key Benefits of Capital Budgeting



Importance:

Long-term profitability – assists companies to invest in projects that will provide long term returns.

Maximize of Wealth – Allocate capital to the projects which can maximize shareholder's value.

Risk Management - Evaluates projects for acceptable levels of financial and operational risk

Optimum Utilisation of Resources – It prevents miscarriage of scarce resources on uneconomical enterprises.

Growth Strategy: Facilitates proposed growth, modernization and diversification activities.

### 13.1.2 Short-term vs Long-term Investment Decisions

Aspect

Short-term Decisions

Long-term

Decisions

Budgeting)

Nature

Day-to-day operational choices (e.g., working capital, inventory, credit terms).

(Capital

Strategic investment choices (e.g., new plants, R&D, acquisitions).

Time

Horizon

Within a year.

Several years or decades.

Risk

Relatively lower; easier to reverse.

Higher; often irreversible.

Impact

Limited effect on long-term profitability.

Direct impact on growth, competitive advantage, and survival.

264

Liquidity and short-term returns.

## Focus

Cash flows, profitability, and long-term value creation.

### Key Point:

The short-term financial management has the smooth day-to-day operations run the show but not long-term, it's capital budgeting (wikipedia decisions) dictates the company's future and viability.

### 13.1.3 Limitations of Ignoring Time Value of Money

Time Value of Money (TVM), a rupee today is worth more than a rupee tomorrow. In the future is worth more than cash received in the future. (time value of money).

If TVM is not considered in capital budgeting:

Over-valuation of Returns – Incoming cash flows overstate the value of future inflows, which are valued at par with present inflows.

profitability.

Bad Decision-Making -- Projects with slow cash inflows may seem interesting but can be less valuable in reality.

Underestimates risk – doesn't factor in i: The future is uncertain (and inflation eats away at that future value).

cash.

Misleading Comparisons – Non-comparable cash flows cannot be compared on the same basis.

### Example:

- Project A generates ₹10,000 exactly one year from today.
- B: Project B pays ₹10,000 in five years.

Without TVM, both seem equal.

But let's look TVM at 10% discount rate then shall we:

- Amount of Inflow from the Project A  $\approx$  ₹90091
- Project B inflow worth  $\approx$  ₹6,209 is due on the value of estimated option.

→ Project A is worth more in present value.

## Did You Know?

“Did you know that ignoring the time value of money (TVM) can make projects with equal total

inflows appear equally profitable, even though one may generate cash much earlier and be far more valuable in present terms? That’s why modern techniques like NPV and IRR are considered more

reliable than Payback or ARR.”

## 13.2 Process of Capital Budgeting

Capital budgeting is a multi-step process that guides managers in evaluating, selecting, and monitoring long-term investment projects. It ensures that scarce financial resources are allocated to projects that maximize profitability and shareholder wealth.

### 13.2.1 Identifying Investment Opportunities

- Step 1: Identify opportunities to which the firm can commit capital.
- Opportunities may include:
  - o Increasing capacity (new plants, more equipment).
  - o Launching new products or new markets.
  - o Replacing outdated technology.
  - o Strategic acquisitions and mergers.
- Both strategic objectives at this stage (growth, competitiveness) and financial feasibility are considered.
- Companies frequently create a list — an “investment proposal register” — to screen after the initial screening.

### 13.2.2 Estimating Cash Flows

Upon short listing of opportunities, the firm forecasts the future cash inflows and outflows from each opportunity.

with each project.

- Cash flows include:
  - o Initial Outflow – acquisition of assets, installation, R & D, training costs etc.
  - o Operating Cash In –flows - Earnings or cost reductions produced by the Project.

- o Operating Cash Outflows -Maintenance, raw materials and operating fees.
- o Terminal Value – Residual or scrap value of assets at the terminal year.
- It is important to make good estimates because:– Errors can lead to acceptance of poor projects, or rejection of good ones.

### 13.2.3 Evaluating and Selecting Projects

This process is applying capital budgeting methods to evaluate proposed projects:

- o Payback Period—Duration necessary to recover the investment .
- o Accounting Rate of Return (ARR) – Average return per year as a percent of investment.
- o Net Present Value (NPV) – Cash inflow present value less outflow (time is factored in). value of money).
- o Internal Rate of return (IRR)– The rate of discount at which NPV = 0.
- Projects are prioritized and assessed on profitability, risk and strategic fit.
- There may also be qualitative aspects to the final selection, such as environmental effect, legal or political compliance, or social responsibility.

### 13.2.4 Project Implementation and Review

When the project is chosen, they do it and watch it closely:

- o Funds are allocated.
- o Assets are purchased and installed.
- o Operations begin.
- Review and Control:
  - o Regular comparison of actuals to forecast.
  - o Variance analysis: Through variance analysis, deviations can be spotted.

Lessons are learned and its effect on the next capital budget decisions.

### 13.3 Payback Period Method

The Payback Period Method is one of the simplest capital budgeting techniques. It measures **how long it**

**will take for a project to recover its initial investment from the net cash inflows** it generates.

#### 13.3.1 Concept and Formula

Concept:

- The Payback Period (PBP) is the number of years (or portion thereof) necessary for the sum of all cash inflows to be equal to the initial investment.

investment.

- It focuses on liquidity, by demonstrating how soon invested funds will be recovered.
- The shorter the payback period, the less risky the project is viewed as being.

267

Formula (when annual cash inflows are equal):

$$\text{PBP} = \text{Initial Capital Outlay} / \text{Annual Cash Flow}$$

Formula (when cash inflows vary):

- Income is aggregated over a period of years until it equals the initial investment.
- PBP is that time when total inflow = initial investment.

Example:

A venture needs ₹1,00,000 investment and returns profit worth ₹25,000 per annum: ♦ It will need four years to recover the invested amount of 1Lac (1/0.25).

$$\text{PBP} = 1,00,000 \div 25,000 = 4\text{years.}$$

This implies that the plan will pay for itself in 4 years.

Did You Know?

“Did you know that some firms use a Discounted Payback Period, which modifies the traditional

payback method by discounting cash inflows at the firm’s cost of capital? This adjustment accounts

for TVM and provides a more realistic recovery period.”

### 13.3.2 Merits and Demerits of Payback Period

Merits:

Simple and calculated – Manager-friendly.

Stresses Liquidity – Appropriate to companies which have liquidity challenges.

Risk Minimization – Those projects with shorter paybacks are less sensitive to future uncertainties.

Useful for Temporary Projects – It can be applied in industries with quick turnover.

Demerits:

Disregards time value of money (TVM) – Makes no consideration to when cash flows will be received.

Ignores Cash Flows After Payback – A project could recover its cost in short time and have an unfavorable thereafter profile

profitability.

Not Profit Connected – It only concentrates on recovery, but not on profit maximization.

Against Long-Term Projects -- May turn down high-yield projects that have long payback periods.

### 13.3.3 Application in Project Selection

Firms generally use a cutoff period (e.g., 3 years). If the payback period for a project is greater than or equal

this control, it is passed; if not, failed.

- Particularly useful when:

- o The projects are risky or uncertain.

- o Companies suffer from liquidity problems and they seek early returns.

- o Technological obsolescence is common in industry (e.g. electronics, IT).

Illustration:

Company has two projects:

Project	Initial Investment (in ₹)	Annual Sewerage Inflow (₹)	PBP, (Yrs.)
A	50,000	10,000	5
B	50,000	20,000	2.5

A

50,000

10,000

5

B

50,000

20,000

Cut-off is 3 years, Project B is better as it recovers in a shorter time.

### “Activity: Calculating and Comparing Payback Periods”

Instruction to Students:

40,000

60,000

5 1. A company is considering two projects, each requiring an initial investment of ₹1,00,000.

The

expected annual cash inflows are as follows:

Year Project A (₹) Project B (₹)

1

2

40,000

30,000

3

40,000

20,000

2. Calculate the Payback Period (PBP) for both projects.

3. If the company's cut-off period is 2.5 years, decide which project should be accepted.

4. Write a short note (120–150 words) explaining why Payback is useful for liquidity-focused firms but may be misleading for long-term profitability.

#### 1 13.4 ACCOUNTING RATE OF RETURN (ARR)

Accounting Rate of Return (ARR) is a capital budgeting method that presents the profitability of a project in terms of average accounting profit over the life of investment rather than lifetime cash flows. It is stated as a percentage of initial or average investment.

##### 13.4.1 Concept and Formula

Concept:

- ARR measures the returns to be earned from an investment in accounting terms (such as profits after taxes or EBITDA).

depreciation and taxes).

- Unlike the Payback Period, it takes into account the overall profitability of a project, rather than justifying the cost.

recovery period.

Formula (common approaches):

Based on Initial Investment:

$$\text{ARR} = (\text{Average annual accounting profit} / \text{Initial Investment}) \times 100$$

Based on Average Investment:

$$\text{ARR} = (\text{Average Annual Accounting Profit} / \text{Average Investment}) \times 100$$

Where,

$$\bullet \text{ Average Investment} = (\text{Initial Cost} + \text{Scrap Value}) \div 2$$

Example:

- **Initial Investment** = ₹1,00,000
- Anticipated Returns (5 years) = ₹ 20,000 per year
- Profits made through Business Every Year = ₹20,000

$$\text{ARR} = (20,000 / 1,00,000) \times 100 = 20\%$$

#### 13.4.2 Advantages and Limitations of ARR

Advantages:

Easy to Compute and Understand – Derived from the well-known accounting numbers.

Takes Full Life of Project – Not only payback, but all profit years.

Profits Centered – Tells you how to think about investments as returns.

Performance measurement utility – Complementary with financial reporting metrics.

Limitations:

Disregards the Time Value of Money (TVM) – Every gain is considered as the same.

On the Basis of Accounting Profit and Not Cash Flows – May not reflect true liquidity.

270

Ultrateen – computing profit/loss or investment returns by different calculation methods may produce inconsistent

results.

Lacks Risk and Timing - No treatment of risk past later years.

Did You Know?

“Did you know that the ARR method is often used by companies to evaluate projects because it aligns

with Return on Investment (ROI) targets that are already part of financial reporting, even though it

doesn't consider cash flows or time value?”

### 13.4.3 Application in Evaluating Profitability

ARR is commonly used when:

- o Firms desire a simple and easy-to-use profitability measure.
- o Cuts are made based on accounting reports (i.e., ROI goals, etc.)
- o If the projects are compared and when profits (not cash flows) are relevant.

Decision Rule:

- Accept the project if  $ARR > \text{Required Rate of Return}$  (as established by management).
- If  $ARR < \text{Required Rate of Return}$ , then do not accept the project.

Illustration:

Two projects require ₹50,000 each:

10,000

ARR (%) Project Average annual earnings(₹)

A

B

20%

7,500

15%

Not even Project A and B combined will be taken up if the minimum required rate of return is 28%.

### 13.5 Comparative Analysis of Payback and ARR

Both Payback Period (PBP) and Accounting Rate of Return (ARR) are traditional methods of capital budgeting. While simple and widely used, they differ in approach, usefulness, and limitations.

### 13.5.1 Key Differences in Approach

Aspect

Payback Period (PBP)

Basis of

Cash inflows

Accounting Rate of Return (ARR)

Accounting profits

Liquidity (time to recover investment)

Calculation

Focus

Formula

Profitability (return on investment)

Annual Cash Inflow (Annuity) = Initial Investment ÷ Number of years Simple calculation, right?

(if uniform)

(Average Annual Profit ÷

Investment) × 100

Time Horizon

Treats inflows up to recovery only

Accept if  $PBP \leq$  Cut-off period

Ignored

Considers profits over the project's entire life

Decision Rule

Time Value of

Money

If  $ARR \geq$  Required return then: Accept

Ignored

Ease of Use

Very simple

Emphasis

A bit more complicated but still straightforward

Risk and liquidity

Long-term profitability

### 13.5.2 Situations Where Each Method is Preferred

Payback Period (PBP):

- o If liquidity is concern and the company require investments which generate cash again fast.

- o Benefit for high risk or technological obsolete sector (e.g. IT and electronics).

- o Ideal choice for the companies which are going through a cash shortage.

- ARR (Accounting Rate of Return):

- o When the central is about profitability and ROI.

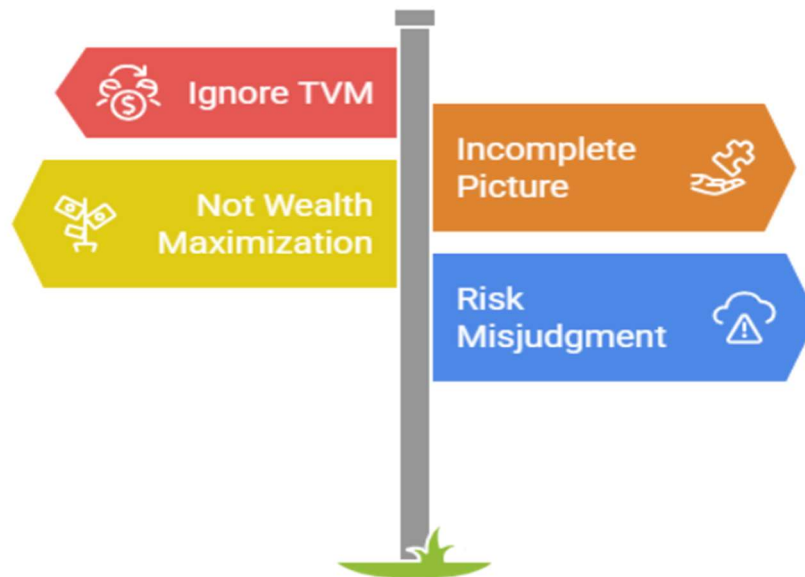
- o Appropriate when managers assess the success of projects in relation to accounting based performance objectives.

- o Preferable in a stable industry where long-term profitability is more important than liquidity.

### 13.5.3 Criticism of Non-Discounted Cash Flow Methods

Both PBP and ARR fall under non-discounted methods, which share common criticisms:

## Should non-discounted cash flow methods be used for financial analysis?



Ignore TVM (time value of money):

- o They act as if goods in the future worth or costs always equal those today, and not.

Incomplete Picture:

- o PBP ignores post-payback benefits.

- o ARR is indifferent to cash flows and concentrates only on the accounting profits.

Not Aligned with Wealth Maximization:

- o Contemporary finance has stressed on maximization of Net Present Value (NPV) that PBP and ARR do not achieve

to address.

Vulnerable to Risk Misjudgment:

- o The risk of the long-term inflows is under estimated by not discounting the future flows.

Knowledge Check 1

Choose the correct option:

1. Which of the following best describes capital budgeting?

A) The process of managing day-to-day cash inflows and outflows

B) The process of evaluating and selecting long-term investments

C) A short-term financing decision for working capital

- D) The preparation of annual budgets for operating expenses
2. The formula for Payback Period (PBP) when cash inflows are uniform is:
- A)  $\text{Initial Investment} \div \text{Average Annual Profit}$
  - B)  $\text{Initial Investment} \div \text{Average Annual Cash Inflow}$
  - C)  $\text{Average Investment} \div \text{Initial Investment}$
  - D)  $\text{Cash Inflow} \div \text{Initial Investment}$
3. Which of the following is a major limitation of Payback Period method?
- A) It is difficult to calculate
  - B) It ignores liquidity considerations
  - C) It ignores cash inflows after the payback period
  - D) It considers time value of money
4. The Accounting Rate of Return (ARR) is usually calculated on the basis of:
- A) Cash inflows
  - B) Net present value
  - C) Accounting profits
  - D) Discounted payback
5. Which of the following is a criticism of both Payback and ARR methods?
- A) They are too complex for practical use
  - B) They ignore time value of money
  - C) They require the use of advanced forecasting models
  - D) They always overestimate profitability

### 13.6 Summary

❖ Capital Budgeting is the process of making decisions about a long-term investments in a firm's assets that will affect it accordingly. it may be defined as: <sup>34</sup> Gathered from In the planning of capital, budgeting is used to identify the most profitable investment over one or more periods among several possible options.

future profitability and growth.

❖ The method consists of identifying opportunities, estimating cash flow, assessing projects under 2 398 analysis and selecting a project by using the best choice with decision.

appraisal techniques, and monitoring performance.

❖ The Payback Period Method This method tells the investor how many years an investment requires to recoup its initial cost, emphasizing on liquidity and risk.

❖ The Accounting Rate of Return (ARR) A profitability measure in accounting terminology, taking into account the end value definition, is that of ARR.

entire project life.

❖ According to the comparison of these two, the Payback focuses on liquidity while ARR has an emphasis on profitability.

but both disregard time value of money (TVM).

❖ Payback and ARR are only appropriate for initial analysis; should be supplemented using discounted cashflows.

of such time-adjusted cash flow procedures as NPV and IRR for enhanced decision-making.

### 13.7 Key Terms

Investment Analysis – Capital Budgeting :- determines which long-term investments a firm should undertake.

Payback Period (PBP) – Length of time to recoup the initial investment by cash inflows.

ARR (ACCOUNTING RATE OF RETURN) –  $\text{opinion} \frac{\text{Avg. annual profit}}{\text{investment}} (\%)$ .

Time Value of Money (TVM) – Dollar today > dollar tomorrow (interest earning).

Net Cash Flow – The real money in and out of a project.

Cutoff Period -Management's target level for what they consider acceptable payback.

Project Screening – Preliminary analysis and short listing of investment cases.

### 13.8 Descriptive Questions

Define capital budgeting. Why is it crucial for lasting business expansion?

Describe the Capital Budgeting process with appropriate examples.

Find out the Pay back Period when ₹2,00,000 has been invested for a return of ₹40,000 per annum.

If the duration is 5 years, should we accept the project?

What is ARR? Clarify its formula, and use it to assess profitability.

Compare and contrast the benefits and limitations of Payback and ARR methodologies.

Discuss some of the reasons for ignoring TVM that can make for bad investment decisions.

Examine situations in the real world where PPP is more appropriate than ARR and vice versa.

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### Answers to Knowledge Check

#### Knowledge Check 1

1. B) The process of evaluating and selecting long-term investments
2. B)  $\text{Initial Investment} \div \text{Average Annual Cash Inflow}$
3. C) It ignores cash inflows after the payback period
4. C) Accounting profits
5. B) They ignore time value of money

### 13.10 Case Study

#### Rajat's Dilemma: Choosing Between Quick Recovery and Long-Term Profitability

##### Introduction

Capital budgeting decisions frequently require a balance between short-run. Company: Sprouts Farmer's Market, Inc. Issue: Yield % at FV-O Credit Rating at Issuance Change in Rate or Spread 900 Sprouts Capital Trust has issued a fixed-to-floating rate preferred stock.

profitability. Some such as Payback underplay safety and liquidity, while others like ARR overemphasise them.

focus on overall profitability. This caselet discusses such a situation in the context of a firm's finance

team.

##### Background

Rajat Malhotra, the Finance Head of EcoMachines Ltd., is currently comparing two investment projects, izi·ore od which require a.

requiring ₹1,00,000:

- Project A produces cash inflows of ₹25,000 today for 5 years.
- Project B yields an accounting profit after depreciation of ₹30,000 per annum for 5 years but actual cash flows are @deficit and with recapture inflows are irregular.

The firm has established a Payback limit of 4 years 20% ARR.

Rajat's analysis shows:

- Project A pays back its cost in 4 years (PBP = 4 yrs.).
- The ARR for Project B is 30%, which is above the minimum requirement.

Diagnostics &#xD; c.4) In order to decide whether to focus on method payback (with a bias towards liquidity) or ARR D-G must (select one): (i) Determine the probabilities of success if the projects are successful, breaking even, and failing?

profitability).

**Problem Statement 1: Liquidity Concerns**

Project A gives a faster payback, matching the firm's liquidity requirement.

Answer: Select project A if cash flow certainty and risk mitigation were the primary concerns.

**Problem Statement 2: Profitability Concerns**

Project B has higher accounting returns and hence profitability outcomes.

Solution: Project B should be selected if management is interested in maximization of long-term profitability.

**Problem Statement 3: Methodological Limitations**

Neither takes Time Value of Money (TVM) into account.

Solution#3 - Rajat should supplement his qualitative analysis with NPV or IRR. decision.

MCQ

Q: Suppose that EcoMachines Ltd. has high liquidity needs and wants to receive its cash back as quickly as possible. Which of the projects is now preferred?

should be chosen?

A) Project A

B) Project B

C) Both projects

D) Neither project

Answer: A) Project A

Explanation: Project A falls within the 4 year payback limit and consequently has faster recovery i.e.

important where liquidity is primary.

Conclusion

(1) This caselet also illustrates that, though Payback and ARR are useful devices for the preliminary analysis, depending on only them can give a flawed impression.

them can be misleading. Good capital Budgeting with balance of liquidity,profitability wet.

contemporary day value of money through discounted revenue system.

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## Unit 14: Capital Budgeting with Time Value of Money

### Learning Objectives

1. Explain the theory and value of DCF in investment evaluation.
2. Define Net Present Value (NPV) method and use it to analyse projects.
3. Interpret and calculate the IRR (internal rate of return) for long-term investments  
DOC.
4. Applying BCR to Determine Project Efficiency You can apply the Benefit-Cost Ratio (BCR) to determine project efficiency.
5. Assess projects using the Discounted Payback Period in which the time value of money is considered.
6. Contrast the benefits and drawbacks of different methods for DCF.
7. Study case studies to improve your decision-making ability in capital budgeting with DCF techniques.

### Content

14.0 Introductory Caselet

14.1 Introduction to Discounted Cash Flow (DCF) Methods

14.2 Net Present Value (NPV)

14.3 Internal Rate of Return (IRR)

14.4 Benefit-Cost Ratio (BCR)

14.5 Discounted Payback Period

14.6 Comparative Analysis of DCF Methods

14.7 Summary

14.8 Key Terms

14.9 Descriptive Questions

## 14.10 References

## 14.11 Case Study

### 14.0 Introductory Caselet

#### “Rahul’s Valuation Challenge: Estimating the True Worth of a New Venture”

##### Background:

Rahul Mehta, a senior investment analyst in a Bengaluru-based boutique private equity firm is responsible for

(Photo courtesy of Getty Images ) "I am in the process of . The company is weighing a minority

stake owner and seeks an accurate valuation of the firm’s internal worth to drive negotiations.

The startup, a SaaS that helps SME automate their compliance, has so far had anumerousuent promising.

revenue gains and a healthy customer pipeline. But it has yet to see a profit, and its cash flows are-

highly volatile. Given the EU gets no regular earnings multiples are irrelevant, while traditional valuation metrics based on them.

company’s current financial state.

Rahul plans to use the Discounted Cash Flow (DCF) approach to value his startup. He

closely with the startup’s CFO to forecast free cash flows over the next five years, taking into account

customer acquisition and churn, as well as the expected margin. the company will be in a high risk.

domain, Rahul then applies a higher discount factor to cover for uncertainty and market fluctuations.

He also incorporates Terminal Value in Gordon Growth Model and does several sensitivity analysis to see how modest variations in discount or growth rates: can have a major impact valuation outcomes.

When Rahul delivers the presentation to his investment committee, he explains that this time around the valuation is very comprehensive and shows that DCF\_BASE performs much better than FCFE multiple.

provides an better understanding of the startup's potential and long-term value, even if you have short-term cash flow issues.

instability. His insight lays the groundwork for negotiating strategy and portfolio consideration going forward.

Critical Thinking Question:

In such startups or earnings-irregular firms, why would a what we're trying to do instead. meaningful valuation than market multiples? How can DCF assumptions be revised by the analysts to reflect thistypeormoeof uncertainty?

or industrial instability and scarcity of historical data?

## 14.1 Introduction to Discounted Cash Flow (DCF) Methods

### 14.1.1 Concept and Importance of DCF in Capital Budgeting

Discounted cash flow (DCF) is a valuation method used to estimate the value of an investment based on its future cash flows.

the value of an investment by calculating the current value of its future cash flows. The underlying

principle that is the TVM or time value of money, which states a rupee today is worth more than a rupee tomorrow.

to be received in the future for its prospect of earning.

In this presentation we will cover the theoretical concepts and applications of DCF in capital budgeting, which is essentially a justification for long-term investments@the investment appraisal stage.

outlay over multiple projects—e.g., new plant, technology upgrades, or new product introduction—with the incremental periodic benefits.

anticipated inflows over time, which are discounted at a rate that accounts for the risk profile and opportunity cost of the project.

The two most common DCF methods in capital budgeting are:

- Net Present Value (NPV): NPV is defined as the difference between the present value of cash inflows and the present value of outflows. You should always be looking at a positive NPV, it means the investment is adding value.

- IRR: That discount rate that makes the NPV of the investment equal to 0. zero. It's the project's target return on investment.

These are critical tools that promote sound financial decision making as they help to ensure that investment decisions,

are rooted in the value added tracked overtime.

#### 14.1.2 Advantages of Using Time Value of Money

There are several benefits to using time value of money as tool in capital budgeting:

Realistic Assessment of Cash Flows:

DCF modifies future cash flows to reflect their value at the present, so that investment appraisals take opportunity costs into consi.

for inflation, risk and opportunity cost.

### Better Decision-Making:

By discounting the future benefits they can make a direct comparison between competing projects.

helping allocate capital more efficiently.

### Integration of Risk and Cost of Capital:

Discount rates are applied to reflect the cost of capital and the firm's attitude toward risk, enabling customization

decision-making based on project-specific characteristics.

### Forward-Looking Approach:

Unlike accounting-based metrics (e.g., ROI or pay back period), DCF looks at projected future

performance, matching investment decisions to strategic objectives.

### 14.1.3 Limitations of Discounted Techniques

However, DCF-based methods have their limitations as well:

#### Forecasting Uncertainty:

It is difficult to predict future cash flows, particularly in volatile industries or for long-term requirements.

term projects. Errors in estimation can have enormous impact on valuation.

#### Sensitivity to Discount Rate:

The Last Discount rate is extremely sensitive when compared to the different discount rates you choose. A small change in rate can

create a large range of results particularly with long-term projects.

#### Complexity and Assumptions:

DCF models are full of assumptions—about growth, terminal value, the cost of capital—which could potentially underrepresent or bias actual dynamics.

Ignores Non-Financial Factors:

DCF's do not consider strategic/qualitative factors (like brand value or market positioning).  
potentially overlooking important investment justifications.

## 14.2 Net Present Value (NPV)

OTHER FINANCIAL METHODS: Net present value (NPV) is one of the most commonly used financial methods to analyze long-term investment decision.

It aids in figuring out whether a project or investment will yield more value than it costs.

The method is

founded on the concept of the time value of money, i.e., that a dollar received \$1 later.

the future value of the payment received because it will have earning power.

NPV is calculated by discounting all expected future cash inflows and outflows to present value at the timing of their occurrence.

outflows (mainly the initial investment). Indicates if the investment is going to +1 or -1, value from the business.

### 14.2.1 Concept and Formula of NPV

Concept:

The NPV demonstrates the profitability of an investment (for a project) by discounting all future cash inflows to their present value.

and contrast them with the new capital invested. It offers a simple, useful number that informs investment.

decisions.

Formula:

$$NPV = (C_1 / (1 + r)^1) + (C_2 / (1 + r)^2) + \dots + (C_n / (1 + r)^n) - C_0$$

Where:

- $C_1, C_2, \dots, C_n$  = Cash inflows at times 1 to n

- $C_0$  = Outflow at time 0 (initial investment)
- $r$  = Rate, the discount rate, (the required rate of return or cost of capital)
- $n$  = Total number of periods

Then each of the future cash flows is discounted by  $(1 + r)^{-t}$  to present value.

value. These amounts are added up and subtract the initial outlay to get the NPV.

Example:

A case where a project has initial investment of ₹1,00,000 and that it will produce 30K per year.

for 5 years. A discount factor of 10% means that the ₹30,000 inflows are each discounted and

summed. If the aggregate PRVS is ₹1,13,000:

$$\text{NPV} = ₹1,13,000 - ₹1,00,000 = ₹13,000$$

A positive NPV shows that the project should add value.

“Activity: Evaluating Investment Viability Using Net Present Value”

As a student of financial management, you are tasked with evaluating the feasibility of a capital

investment project using the Net Present Value (NPV) method. Assume a manufacturing firm is

considering purchasing new machinery that costs ₹80,000. The expected cash inflows over the next

four years are ₹25,000 in Year 1, ₹30,000 in Year 2, ₹25,000 in Year 3, and ₹20,000 in Year 4.

The

firm requires a minimum return of 10%. Your task is to calculate the present value of each future

cash inflow using the given discount rate and then compute the NPV by subtracting the initial

investment from the total discounted inflows. Based on your results, decide whether the project

should be accepted or rejected, and write a brief justification for your recommendation.

#### 14.2.2 Decision Rule for Project Acceptance

The NPV decision rule can be used to determine if a project should be accepted or rejected according to its NPV.

addition:

- If  $NPV > 0 \rightarrow$  Do the project

The project will create value and will generate wealth for the firm or investors.

- If  $NPV < 0 \rightarrow$  Do not start the project

Say no to this project for it wastes value.

- If  $NPV = 0 \rightarrow$  Indifferent

The project is value-neutral. The choice could be strategic or qualitative factors.

This brings about a rule that only projects with returns higher than the cost of capital are selected.

#### 14.2.3 Strengths and Weaknesses of NPV

Strengths:

Considers Time Value of Money:

Future cash flows are discounted in NPV to reflect realistic value of the project.

Objective and Quantitative:

It provides a simple numerical result easy to compare between projects.

#### Focuses on Cash Flows:

NPV is based on cash flow, instead of accounting earnings and are, therefore, less likely to be affected by non-cash items.

cash items or accounting rules.

#### Considers Entire Project Life:

NPV considers all cash flows over the entire life of the project and provides a complete view."

analysis.

#### Weaknesses:

##### Requires Accurate Forecasting:

Projecting future inflows of cash and picking the correct discount rate is challenging and may result in revolt by.RequestParamer.

inaccurate results.

284

##### Sensitive to Discount Rate:

Small changes in the discount rate may have a great effect on NPV, particularly when dealing with long-term forecast.

projects.

##### Does Not Account for Flexibility:

NPV assumes a given plan, and doesn't necessarily consider adjustments or manager discretion during the

project.

##### May Ignore Qualitative Factors:

The strategic, environmental or social benefits of a project may not be captured in the NPV calculation.

### 14.3 Internal Rate of Return (IRR)

Internal Rate of Return (IRR) is a popular capital budgeting technique in assessing the potential profitability.

of investment projects. It is also based on the time value of money as NPV. However, instead of giving a value, IRR communicates the return as a percentage.

IRR is actually a discount rate that when used to calculate the Net Present Value (NPV) of all cash flows up to and including investment equals zero. It represents

a project's payback period based on the present value of inflows and outflows. Investors contrast it to their desired rate of return or cost of capital, in order to accept the project.

#### 14.3.1 Concept and Calculation of IRR

Concept:

The IRR is the rate (r) at which the present value of a project's cash inflows equals its initial investment.

value of its cash outflows. In other words, it is the minimum return that an investment project must earn to be deemed acceptable to the lender.

Mathematical Representation:

$$0 = (C_1 \div ((1 + r)^1)) + (C_2 \div ((1 + r)^2)) + \dots (C_n \div ((1 + r)^n)) - C_0$$

Where:

- $C_0$  = Initial investment This is a cash outflow.
- $C_1$  to  $C_n$  = Cash inflows in time 1 to n
- $r$  = Internal Rate of Return
- $n$  = Project life in years

To compute IRR, we need to discover the  $r$  in the equation above. This cannot usually be solved to fairly high accuracy via simple algebra and expressed as:

- Trial-and-error method
- Financial calculators or Excel functions ( for example, =IRR(range))

Example:

For example, consider a project that costs ₹50,000 today but will yield ₹20,000 in each of 3 consecutive years. The IRR is the

rate when the total present value of those ₹20,000 inflows is ₹50,000. Using Excel or a calculator, and the IRR would be approximately 18.2%.

### 14.3.2 IRR Decision Rule and Multiple IRR Problem

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285

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### 14.3.2 IRR Decision Rule and Multiple IRR Problem

IRR Decision Rule:

The decision on the basis of IRR is made by comparing computed IRR with required rate of return (also,

the hurdle rate or the cost of capital):

- If  $IRR > \text{required rate of return}$  → Undertake the project
- If  $IRR < r$  → Reject the project
- If  $IRR = \text{either} - \text{required rate of return}$  → Indifferent

This constraint ensures that no project whose cash flow is less than the minimum required to be an acceptable investment is included.

acceptable rate are selected.

Multiple IRR Problem:

Sometimes a project can generate two or more IRRs, or even no real IRR. This happens when a project

has non-standard cash flows whereby the signs of cash flows change more than once (e.g., from negative to positive to negative).

Example of non-conventional cash flows:

- Year 0:  $-\text{₹}1,00,000$
- Year 1:  $+\text{₹}2,00,000$
- Year 2:  $-\text{₹}1,50,000$

In these cases, solving the IRR equation might give two or more values of  $r$  that are solutions of this equation (i.e.,

multiple IRRs). This makes decision-making confusing. To solve for this, analysts choose to either use NPV or

This problem is alleviated by the Modified Internal Rate of Return (MIRR).

Did You Know?

“Did you know that a single project can have more than one Internal Rate of Return (IRR)?

This

happens when a project's cash flows change signs more than once over its lifetime—for example,

shifting from negative to positive and back to negative. Such projects are said to have non-conventional cash flows. In these cases, the IRR equation can produce multiple valid solutions,

leading to confusion in decision-making. Because of this, finance professionals often prefer to use

the Net Present Value (NPV) method or the Modified Internal Rate of Return (MIRR) to evaluate

such investments. These approaches offer a more consistent basis for accepting or rejecting projects

when traditional IRR falls short.”

### 14.3.3 Comparison of IRR with NPV

**Feature**



7 NPV

IRR

Output Format

Monetary value (₹)

Percentage rate (%)

Decision Rule

Accept if  $NPV > 0$

Assumes Reinvestment

Accept when  $IRR >$  cost of capital

Cost of capital

Rate

IRR itself (may be unrealistic)

Suitable for Ranking

When

comparing

exclusive projects

mutually

May produce erroneous results when applied to

ranking

Multiple Values Possible No

Yes (non-standard cash) Other.

flows)

Reliability

More reliable for comparing

projects

However, this is less robust in the presence of unusual projects

cash flows

Key Difference:

NPV conveys a more precise measure of value added in nominal terms whereas IRR offers an amount-based

evaluation. Projects are usually compared using NPV, particularly if they are different in scale or ... metastatic prostate cancer:?

timing of cash flows.

#### 14.4 Benefit-Cost Ratio (BCR)

The benefit-cost ratio is a ratio this is used in the cost-benefit analysis to determine value gained or lost from taking action.

the rate of return produced by a project for each unit cost invested. Its application has specific usefulness in the public sector

investments and infrastructures, with both economic Ho Financial sustainability requiring. considered.

The benefit-cost ratio {(BCR) equals the present value of benefits divided by the present value of costs}. A

where  $BCR > 1$  implies that the costs will be lower than benefits but in a ratio template project is projected for benefits to exceed template costs.

below 1 suggests the opposite.

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287

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where  $BCR > 1$  implies that the costs will be lower than benefits but in a ratio template project is projected for benefits to exceed template costs.

below 1 suggests the opposite.

#### 14.4.1 Concept and Formula of BCR

Concept:

I DESCRIPTION OF THE BCR The Benefit-Cost Ratio is a method of comparing the efficiency of a project and involves taking the discounted value of the anticipated values 1 For an insightful discussion of cost-benefit analysis, see.

benefits from the net present value of its costs. Unlike NPV, it is a relative value (a ratio).

(NPV), whereas NPVP is a positive Percentage (405) The abovementioned temporal measure must be compared to the more universal, i.e.

BCR provides the ratio of benefits to a rupee invested in the activity.

Formula:

BCR = Present Value of Benefits / Present value of Costs

Mathematically:

BCR =  $[(B_1/(1+r)^1) + (B_2/(1+r)^2) + \dots + (B_N/(1+r)^N)] / [(C_1/(1+r)^1) + \dots + C_n]$  where B = Benefit and C=Cost.

$\div (1 + r)^n]$

Where:

- $B_1$  through  $B_n$  = Benefits at each time period
- $C_1$  to  $C_n$  = Costs in the  $n$  time periods.
- $r$  = Discount rate
- $n$  = Number of time periods

Interpretation:

- $BCR > 1 \rightarrow$  Economic feasibility of the project.
- $BCR = 1 \rightarrow$  Project covers its own costs
- Costs of barriers are recovered if  $BCR > 1$  (so the project is financially viable)

Did You Know?

“Did you know that the Benefit-Cost Ratio (BCR) is a primary decision-making tool for public sector

projects and is widely used by international organizations such as the World Bank and the United

Nations Development Programme (UNDP)? While BCR is often introduced in the context of private

project evaluation, it plays a vital role in assessing public infrastructure investments, especially in

developing countries. Even when projects do not generate direct profits—such as those in healthcare,

education, or rural electrification—a high BCR can justify investment by showing significant long-term

social and economic benefits. This makes BCR especially valuable in development economics and

public policy planning.”

#### 14.4.2 Application in Project Evaluation

Use Cases:

- Public Infrastructure Projects: BCR helps governments Analyze MOTORWAYS bridges, water and pieces of infrastructure while some authorities review BIDDIN the economy of road projects to find cost benefit analysis.

systems, and education initiatives.

- Development Projects: NGOs and multinationals concerns evaluate projects on social or economic benefits vs. costs.

- CBA: BCR is a central component of full CBAs.

Steps in Application:

Assess all anticipated costs and benefits throughout the project's lifetime.

And then you need to discount both the costs and benefits to their present value using some appropriate discount rate.

Just use the BCR formula to pen and compare them.

Invest based on the answer.

Example:

Government projects, for example a government project with which has present value of benefits equivalent to ₹3 Crore and present value costs including public sector friction.

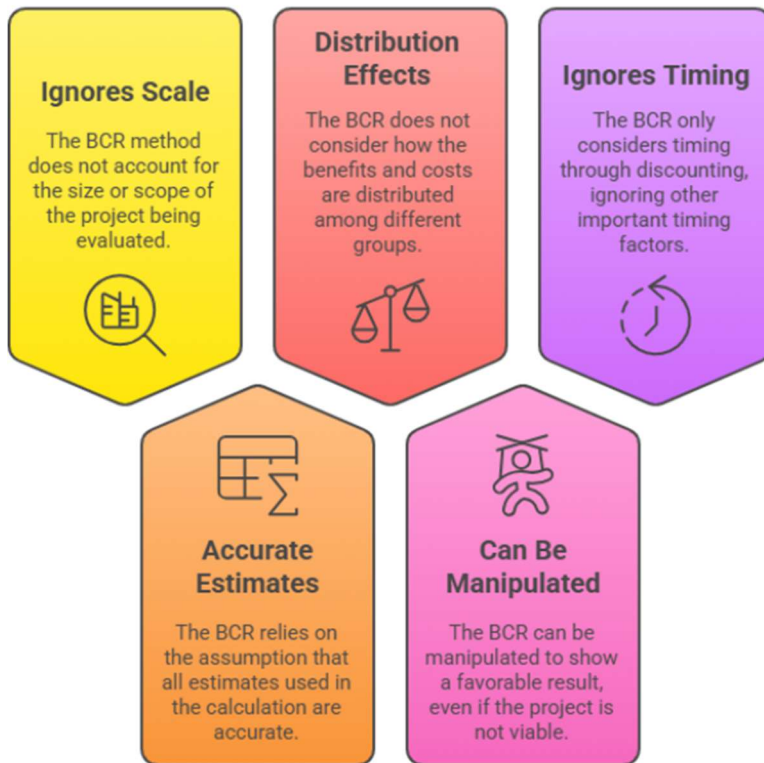
is ₹2 crore, then:

$BCR = \text{Value of BCR } ₹3 \text{ crore} / \text{Value of BCR asset } ₹2 \text{ crore} = 1.5$

Which means the project is capable of giving back ₹1.50 for every rupee invested, which would be an acceptable return.

#### 14.4.3 Limitations of BCR

## Limitations of BCR



### Ignores Scale of Project:

A project with a BCR of 1.5 may result in smaller absolute benefits than one with a BCR of 1.2.

but much higher overall impact. Thus, BCR could prefer to smaller and more effective projects if条件, 但最坏的情况是BCR would not be a necessary condition.

big ones actually provide more TOTAL benefits.

### Assumption of Accurate Estimates:

In the case of BCR a correct assessment of the cost and benefit amounts is needed.

Estimating intangible or long-

term benefits is complex and may bias the ratio.

### No Consideration of Distribution Effects:

BCR doesn't indicate who wins or loses from the project. It may be project with high BCR but

might only benefit a relatively limited portion of the population.

Can Be Manipulated:

Inclusion or exclusion of these indirect benefits/costs can alter the BPI. This makes the way to capture framing or subjective judgments in analysis.

Ignores Timing Beyond Discounting:

Although it incorporates the time value of money, BCR does not penalize a late cash flow at the expense of an early one,

, that can be crucial in e. g. deadline oriented projects where time is of the essence.

#### 14.5 Discounted Payback Period

Discounted Payback Period The Discounted Payback Period is an enhanced ratio form of the standard payback period analysis. It

up the period to recoup the initial investment in terms of its present value, where the period is equal to

value of money.

This approach contrasts with the traditional payback calculation that disregards discounting.

future cash flows by the rate at which they are discounted (the cost of capital, typically).

##### 14.5.1 Concept and Calculation

Concept:

The Discounted Payback Period gives you the time it takes to pay back the initial investment, based

discounted cash flows. It is the time at which the total present value of cash inflows equals to the initial investment.

This approach is superior to the regular payback period as it considers the time value of money.

It is particularly helpful in appraising projects of long-term life that result in unequal cash inflows at different times.

in value.

Steps for Calculation:

Determine the initial investment ( $C_0$ ).

Calculate C the yearly cash inflows ( $C_1, C_2, \dots, C_n$ ).

Calculate the discounted value of each inflow by determining the present value of each at  $r\%$ .

Do the accumulated present value cash flows year by year.

When is the total at least as much accumulated money as the initial investment?

Discounted Cash Flow in Year  $t$ : Formula:

$$DCF = C_t \div (1 + r)^t$$

Example:

Initial investment = ₹50,000

291

Discount rate = 10%

Annual cash inflow = ₹20,000

Year	Cash Flow	Discount Factor (10%)	Discounted Cashflow	Cumulative Discounted Inflow
1	₹20,000	0.909	₹18,180	₹18,180
2				

1

₹20,000

0.909

₹18,180

₹18,180

2

₹20,000

0.826

₹16,520

₹34,700

3

₹20,000

0.751

₹15,020

₹49,720

4

₹20,000

0.683

₹13,660

₹63,380

Till the end of Year 3, ₹49,720 has been recouped. The balance ( $₹50,000 - ₹49,720 = ₹280$ ) is

recovered partway through Year 4.

Discounted Payback Period  $\approx 3 + (\₹280 \div \₹13,660) \approx 3.02$  years

#### 14.5.2 Comparison with Traditional Payback Period

Feature

Traditional Payback Period    Discounted Payback Period

Time Value of Money

Ignored

Considered

Cash Flow Basis

Actual cash flows

Discounted cash flows

Accuracy

Lower

for

Higher

Relevance

Long-Term

Less reliable

More reliable

Projects

Decision Rule

Accept if period  $\leq$  cut-off

time

Simple

Accept if discounted period  $\leq$  cut-off time. Points: Accept if discounted period  $\geq$  of the point; 05110Quntz, Yudov Shtrom and Sh nervepoints and the excesses/margins over cells of soft membranes.

off

Complexity

Key Difference:

The orthodox approach might find it acceptable to do projects that would appear worthwhile in nominal, but the discounted 1977 8.

version gives a clearer picture by discounting the time value of money.

### 14.5.3 Merits and Demerits of Discounted Payback

Merits:

Considers Time Value of Money:

Indian investment appraisal more appropriate by accepting that money today is very worth of than

money in the future.

Simple to Understand:

Although it does involve discounting, the idea is intuitive and can be readily explained to decisionmakers.

makers.

Risk-Focused:

Prioritizes early cash flows, minimizing further risk of future uncertainty in your business.

Improves on Traditional Method:

Corrects a severe deficiency in the standard payback method by accounting for discounting.

Demerits:

Ignores Cash Flows After Payback:

It's just as simple and don't take into account benefits after the payback period, similar to above.

No Clear Benchmark:

The highest acceptable discounted period exists there is no accepted rule for this ]).

period should be.

May Reject Valuable Projects:

Projects that promise great long-term benefits but slow early recovery could unfairly be turned away.

Requires Accurate Estimates:

The forecast of future cash flows and the discount rate is crucial to its accuracy.

#### 14.6\*Comparison of DCF Methods

DCF techniques are common in corporate finance and can be used to determine the viability or value of a project.

of investment projects. Among others we have Net Present Value (NPV), Internal Rate of IRR), BCR and discounted payback period. Each method applies the time value of money, so they are alternative not complementary to one another.

##### 14.6.1 NPV vs IRR vs BCR vs Discounted Payback

Feature

NPV

IRR

BCR

Discounted

Payback

Output Format

₹

value)

(Absolute

% (Rate of return)

Ratio

Time (years)

Decision Rule

Accept if NPV >

0

Accept if IRR >

cost of capital

Accept if period

≤ cut-off

Accept if BCR >

1

293

Considered

Considered

Considered

Time Value of Money Considered

Cash Flows Used

Discounted

Discounted

Discounted

Ranking Capability

Discounted

Best

comparing

projects

Reinvested

for

Can be misleading Useful

for

efficiency ranking

Not suitable for

ranking

Reinvestment

Assumption

at

cost of capital

Reinvested at IRR

Reinvested

at

Not applicable

discount rate

Considers

Post-

Payback Cash Flows

Yes

Yes

Yes

Handles Uneven Cash

Flows

Yes

Problematic

with

Yes

No

Yes

multiple IRRs

Complexity

Moderate

High

(trial

or

Moderate

Low to Moderate

software-based)

Summary of Usefulness:

- NPV: Best for profitability and value added.
- IRR: OK for estimating the return percentage; however, it might mislead if there is more than one IRR.
- BCR: Cost effective in public-private sectors or limited budget situations.
- Discounted Payback: Useful for estimating liquidity and risk, but overlooks future benefits.

14.6.2 Practical Applications in Corporate Finance

The study of DCF methods applied specifically to corporate finance is part of the more general study of valuation.

#### Capital Budgeting:

Firms apply NPV and IRR to evaluate investment ideas – e.g., introducing a product, opening a factory, or purchasing assets.

#### Project Selection:

When budgets are tight, benefits cost ratio (BCR) can be a useful tool for ranking projects by the amount of benefit each delivers for every pound or dollar invested.

investment.

#### Risk Management:

Discounted Payback is common when risk is perceived as high or when fast recovery of the fund's capital is important — such as:

in cyclical sectors like tech or mining.

#### Mergers and Acquisitions:

NPV is also widely used in valuing targets based on forecast cash flows.

#### Infrastructure and Social Projects:

BCR in practice Government and civil society organizations can borrow BCR for estimating the social and economic benefits of public projects

must be weighed against costs.

#### Performance Evaluation:

The financial evaluation of finished project is expressed by IRR and NPV.

Each approach offers complementary aspects in the light of context and term, as well as objectives of the industry.

business or institution.

### 14.6.3 Selecting the Most Suitable Method

Several considerations come into play in selecting the most suitable method for DCF:

Objective of the Analysis:

- o When making investment decisions, NPV is used to maximize value.
- o For the assessment of returns in percentage terms, IRR is useful.
- o For the cheapest system of evaporation, BCR is appropriate.
- o For liquidity risk, Discounted Payback is the best.

Nature of Cash Flows:

- o If the cash flows are non-standard (i.e. outflow followed by inflows) then IRR can only be used with caution.
- o If cash flows change signs more than once, then use either NPV or BCR.

Project Scale and Budget Constraints:

- o BCR - [1] BCRE – 17 –Roberts.docx Use BCR to compare projects of differing sizes with a fixed budget.
- o NPV is effective when scale and cumulative value are dominant.

Time Horizon:

- o For projects of long lives, NPV and IRR provide a better perspective.
- o In short-term, high-risk projects, Discounted Payback offers premature exit visibility.

Ease of Communication:

- o IRR is easier to convey to non-currency professionals since it provides a percentage.
- o NPV, although more technical at least provides you with value add numbers.

Best Practice:

Try a combination of methods to get a complete look. For example, NPV of profitability and IRR of return, and Payback of liquidity risk.

## Knowledge Check 1

295

Choose the correct option:

1. What does a positive Net Present Value (NPV) indicate about a project?

- A) The project is breaking even
- B) The project is destroying value
- C) The project is creating value above its cost
- D) The project has no financial impact

2. Which of the following is not directly considered in the NPV method?

- A) Discount rate
- B) Payback period
- C) Future cash inflows
- D) Time value of money

3. In calculating NPV, what is the role of the discount rate?

- A) It increases the future cash flows
- B) It converts future cash flows into present value
- C) It adds inflation to the investment
- D) It calculates accounting profit

4. The discounted payback period differs from the traditional payback period because:

- A) It excludes cash flows after the payback point
- B) It uses profit instead of cash flows
- C) It accounts for the time value of money
- D) It calculates return as a percentage

5. A project's discounted inflows after 3 years total ₹90,000. If the investment was ₹1,00,000, which

of the following is needed to complete the discounted payback calculation?

- A) Average profit per year
- B) The cost of capital
- C) Discounted inflow in Year 4
- D) Net present value

#### 14.7 Summary

❖ In this chapter the Discounted Cash Flow (DCF) techniques of capital budgeting and investment analysis. These techniques consider the value of money and to usability assess the economic existence of the utility.

profitability of long-term projects.

❖ Key methods discussed include:

- Net Present Value (NPV) – representing the overall value in financial figures generalised by a project.

- IRR – the rate at which NPV equals zero (not finding our arrival in this case)

project's expected return.

- Benefit-Cost Ratio (BCR) – provides an indicator value that allows ranking and evaluation.

efficiency.

- Discounted Payback Period – length of time it takes to recover an investment considering the time value of money

cash flows.

❖ These methods were subsequently contrasted in terms of format, assumptions, complexity and applicability

cases in corporate finance. Any technique has its advantages and disadvantages, and the optimum assessment

is frequently the result of using several tools to inform strategic choices.

#### 14.8 Key Terms

**Time Value of Money (TVM):** The concept that money available today is worth more than an equal amount at a future date.

the future.

**Discount Rate:** The rate at which future cash flows are discounted to their present value.

**Net Present Value (NPV):** The value of inflows minus the value of outflows.

**IRR (Internal Rate of Return):** The discount rate that makes NPV zero.

**Benefit-Cost Ratio (B/C):** The ratio of the present value of benefits to the present value of costs.

**Discounted Payback:** Length of time until the sum of discounted cash flows recovers the investment.

#### 14.9 Descriptive Questions

Define Net Present Value. Describe how it is measured and used in project appraisal.

Compare NPV and IRR techniques. Which is the better approach?

What is the Benefit-Cost Ratio? Where is it most helpful?

Describe the notion of Discounted Payback Period. What does it do better than the usual payback

method?

Explain the pros and cons of various DCF methods in capital budgeting.

#### 14.10 References

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Answers to Knowledge Check

Knowledge Check 1

1. C) The project is creating value above its cost
2. B) Payback period
3. B) It converts future cash flows into present value
4. C) It accounts for the time value of money
5. C) Discounted inflow in Year 4

14.11 Case Study

Rahul's Valuation Challenge: Applying DCF Techniques in a Startup Investment Decision

Introduction

So, business decisions on capital budgeting are very important on whether a business should invest in a fell out plan.

particular project. When it comes to uncertain future cash flows (in particular in a startup, which I understand from reading elsewhere),

accounting ratios or earnings multiples do not give optimized answers.

complete picture. DCF Methods in this scenario are inevitable for

assessing the value of investments.

Caselet This caselet describes the scenario of Rahul Mehta, a seasoned investment analyst working in a private equity

firm which decides whether or not to invest in a tech startup. The firm intends to , DCF valuation the specific procedures<sup>3</sup> these valuator<sup>4</sup> were using to value licenses. Value — in order to invest based on informed decisions.

### Background

Rahul's firm is looking in to an early stage SaaS startup which deals in compliance automation tools for small and medium enterprises. The startup has just closed its Series A round and has racked up robust user growth, but isn't profitable and lacks past financial stability.

Now the point is on how does Rahul think to value this startup. To value the startup. Rahul thinks of using DCF method ACAPtake: waist pack, like traditionally and he decides to use his algorithm as one of his independent variables.

Earnings-based methods are not appropriate. He works with the startup's finance team to project free cash flows for the next five years. Taking into account the startup's risk level, he applies a discount rate of 16%.

To value this value beyond that explicit forecast period, Rahul calculates a Terminal Value with the help of Gordon growth model with a long term growth rate of 5%. He also conducts sensitivity analysis to determine the impact of varying discount rate and growth assumptions on the valuation.

Problem Definition 1: Cash Flow Modelling for a High-Growth Start-up.

11 – Unpredictability of Revenue The revenue patterns of startups are often sporadic, as it is difficult to predict when cash will come in the future

with accuracy. Facilitating funds-of-funds along with customer churn, market competition and pricing models

increase forecasting complexity.

Solution: It's collaborates with cross-functional teams to develop diverse cash flow models—

optimistic, moderate, and conservative. These estimates rely upon customer growth, operational costs, and pricing strategies. He uses these cases to drive multi-case DCF models.

Problem 2: Choosing the Right Discount Rate

and in the absence of a significant number of years history or public comparables,  $y\%$  /Selecting an Appropriate Discount Rate discount rate and prudent growth rates can feel quite arbitrary.

becomes challenging. Below, you'll see why a rate that is too low could overvalue the project and why a rate that is too high

could lead to the waste of a good offer.

ration.) to this venture according to the following rationale: incidence of cash flow reimbursement (undefined). (The riskiness of a startup perspective, its investment cost (\$1 m), and end value (not provided)).\_SLAVE\_ISSUE\_PP 11/20/2003 16 TIME-INCONSISTENT VALUATION OF OPTIONS 5 such volatile investments.

of liquidity, and industry risk. He also compares this to comparable private investments, and includes a premium for uncertainty.

Problem Statement 3: Sharing Insights About Valuation with Stakeholders

Rahul's group needs to make the valuation case to an investment committee that contains non-financial

members. Explaining the subtleties of (for example) a DCF model is one thing, especially things like terminal value or 6:09 Calculating Non-Operating Assets and Liabilities In this lesson you'll learn... How to actually calculate the non-operating assets and liabilities on an acquisition.

IRR, poses a challenge.

Solution: Rahul breaks down with visual aids such as valuation waterfalls; scenario charts, and NPV sensitivity graphs. He also constructs a comparable-based valuation summary instead

It is more reasonable to provide a range than a point estimate in making allowance for uncertainty and flexibility.

Outcome

Rahul's analysis reveals that the NPV in the base case is positive, with an IRR of 21%, greater than or equal

the firm's hurdle rate. Using this analysis, the investment committee is able to structure the deal with

performance-triggered equity tranches, aligning future fundings with revenue thresholds.

The company decides to move forward with the investment and utilizes Rahul's model as a basis for continuous monitoring.

performance tracking.