

Financial Literacy

COURSE CODE: SGB24CM101VC

Value Added Course
For FYUG Programmes
Self Learning Material



SREENARAYANAGURU
OPEN UNIVERSITY

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The State University for Education, Training and Research in Blended Format, Kerala

Vision

To increase access of potential learners of all categories to higher education, research and training, and ensure equity through delivery of high quality processes and outcomes fostering inclusive educational empowerment for social advancement.

Mission

To be benchmarked as a model for conservation and dissemination of knowledge and skill on blended and virtual mode in education, training and research for normal, continuing, and adult learners.

Pathway

Access and Quality define Equity.

Financial Literacy

Course Code: SGB24CM101VC

Semester - III

Value Added Course
For Four Year Undergraduate Programmes
Self Learning Material
(With Model Question Paper Sets)



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SREENARAYANAGURU
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FINANCIAL LITERACY

Course Code: SGB24CM101VC
Semester- III
Value Added Course
For FYUG Programmes

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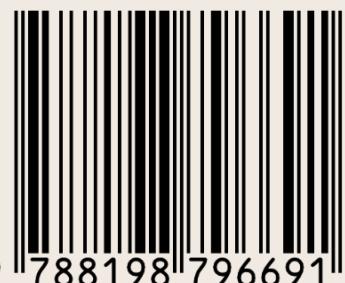
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Dear Learner,

It is with great pleasure that I welcome you to the Four Year BCom Programme offered by Sreenarayanaguru Open University.

Established in September 2020, our university aims to provide high-quality higher education through open and distance learning. Our guiding principle, 'access and quality define equity', shapes our approach to education. We are committed to maintaining the highest standards in our academic offerings.

Our University proudly bears the name of Sreenarayanaguru, a prominent Renaissance thinker of modern India. His philosophy of social reform and educational empowerment serves as a constant reminder of our dedication to excellence in all our academic pursuits.

Financial literacy is an essential life skill that empowers individuals to make informed and effective decisions with their financial resources. This Value Added Course titled Financial Literacy, designed as an elective for all FYUG learners, aims to build awareness and confidence in managing personal finances early in your academic journey. I encourage all learners to take full advantage of this opportunity to gain practical knowledge that will benefit you throughout life.

Our teaching methodology combines three key elements: Self Learning Material, Classroom Counselling, and Virtual modes. This blended approach aims to provide a rich and engaging learning experience, overcoming the limitations often associated with distance education. We are confident that this programme will enhance your understanding of commercial principles and practices, preparing you for various career paths and further academic pursuits.

Our learner support services are always available to address any concerns you may have during your time with us. We encourage you to reach out with any questions or feedback regarding the programme.

We wish you success in your academic journey with Sreenarayanaguru Open University.

Best regards,



Dr. Jagathy Raj V.P.
Vice Chancellor

01-06-2025

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BLOCK
01

An Overview of Financial Literacy



Unit 1

Basic Concepts

L

Learning Outcomes

Upon completion of this unit, the learner will be able to:

- ◆ determine how to plan finance properly and achieve financial goals
- ◆ gain insights into identifying the various factors that must be considered before investing their funds
- ◆ identify the difference between investment, speculation, and gambling based on risk factors and potential returns

P

Prerequisite

Mr. Anil earns ₹1,00,000 as his monthly income. Despite his impressive salary, he finds it difficult to make ends meet due to his impulse purchases, bills, and unplanned expenses. His account balance turns out to be almost zero by the end of the month, and he ends up saving nothing.

Consider another person, Mr. Sarang, who earns ₹50,000 as his monthly income, which is half of what Mr. Anil earns. Knowing the need to manage money wisely, he carefully allocates his earnings to meet essential expenses while curbing unnecessary spending, but at the same time satisfying all his essential requirements. By the end of the month, he's not only able to comfortably pay his bills but has also managed to save a part of his income as a cushion for meeting his future requirements. With an income of half of what Mr. Anil earns, Mr. Sarang meets all his basic requirements and has savings left. How? Mr. Sarang is financially literate and thus knows how to plan and manage finance.

These two scenarios shed light on the need to be financially literate so that one can plan their finances properly and achieve financial well-being.

K

Keywords

Financial planning, Investment, Speculation, Gambling

D

Discussion

Money management is an inevitable part of achieving financial well-being. Income can be generated from multiple sources. Likewise, there are numerous sources—both essential and non-essential—where you spend the money you've earned. Establishing a proper balance between the two is vital to cultivate financial discipline. It is only through proper money management that one can set aside funds for meeting future requirements, acting as a seedbed in case of any financial emergencies in the future. It is clear from the above two scenarios that the amount of income earned only is not what matters. However, the way it is handled does matter.

Therefore, in this unit, we will discuss the meaning and components of financial literacy, the need to develop a financial plan, and also the various concepts related to investment.

1.1.1 Meaning of Financial Literacy

What do you mean by needs and wants? How is a need different from a want? A proper classification between needs and wants is essential for managing your money in the right way. A need is a necessity or a basic requirement that one must have in order to survive. Needs include basic necessities like clothing, food, and shelter, the absence

of which would impair a person's capacity to survive. A want, on the other hand, does not have to be fulfilled in order for life to function properly. For example, buying a luxury car to uphold one's status in society is a want and not a need. However, needs and wants are not the same for everyone. One person's want may be another person's need. For instance, if purchasing a luxury car is a want for an average person, it might be a need for a businessman to draw more customers to boost sales. Hence, it becomes a need for him. Financial literacy is the ability to recognise and distinguish between such needs and wants and plan finances accordingly.

Financial literacy is a “combination of financial awareness, knowledge, skills, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being.” (Atkinson and Messy, 2012)

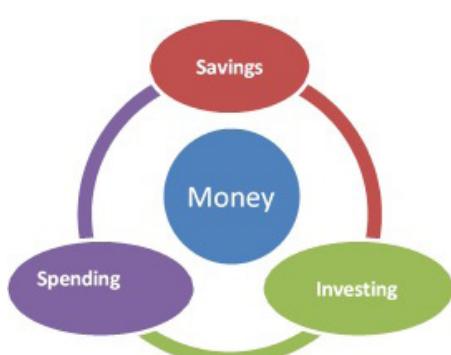


Figure 1.1.1 Financial literacy-Elements



Financial literacy is the capability of an individual to understand financial skills, empowering them to make use of different financial products efficiently, thereby helping them to achieve their financial goals. A financially literate person will not fall prey to any kind of financial fraud or scams. It helps in taking informed financial decisions, giving priority to satisfying needs rather than wants. In our previous example, Mr. Sarang is financially literate, whereas Mr. Anil isn't, leaving him financially vulnerable. Mr. Sarang carefully plans his expenses by focusing on his needs, leading towards financial stability and well-being.

1.1.1.1 Components of Financial Literacy

A strong understanding of finance is essential to attain many life objectives, such as paying for children's education, starting and growing a business, saving for retirement, travelling the world, managing debt sensibly, and so on. The capacity to make a budget, plan for retirement, efficiently manage debt, and keep an eye on personal spending are all crucial aspects of financial literacy. The following are the key components of financial literacy:

- i. **Budgeting** - You might receive income from several sources such as salary, dividends, interest from investments, rental income from let-out house property, and so forth. Similar to the different sources, there are different uses to which these funds are utilised, such as loan payments, groceries, insurance premiums, travelling expenses, etc. Estimation of such incomes and expenses plays an important part in financial literacy, which is termed budgeting.

Budgeting involves developing a proper plan in which a person makes an estimate regarding the income that he is expected to earn from

all the possible sources, and also the application of such income for meeting all the anticipated expenses. A proper classification between needs and wants arises at this stage, since a financially literate person must focus only on spending to satisfy his needs and eliminate spending on wants. A balance between the incomes earned and spent helps people to keep aside a part of their income as savings for meeting future requirements, which will eventually help them achieve financial well-being and thereby improve their standard of living.

- ii. **Saving** - The monthly income of Mr. Sarang, as mentioned in the example, was ₹50,000. Assume that he spends ₹40,000 to meet all his expenses. He is left with an amount of ₹10,000. This surplus represents his savings, indicating the portion of his income not utilised for immediate expenditures. Savings of a person means the balance amount left after meeting all the expenses from that person's income. A financially literate person will have clarity on what to do with the funds saved. Some people save money to cover unforeseen expenses. Some people save money to meet their desires, like buying a fancy car or travelling abroad, among other things. But they have to decide how to utilise their savings until they are ready to follow through on their plans. This is the part where investing comes into the picture.
- iii. **Investing** - Investing involves the transformation of savings into income-generating assets. With the goal of becoming financially successful, people invest their money in a range of financial products and services such as mutual funds, fixed deposits, insurance, gold, and so forth. This is the stage where an individual must use their financial knowledge

(after considering the expected risk and return) to make investments by selecting appropriate financial products and services according to their level of risk tolerance.

iv. **Managing debt** - People rely on debt in different ways. While working individuals can depend on personal and home loans, students can take out education loans; banks also offer loans for agriculture. Some people depend on credit cards for making their purchases. Businesses generally use credit to purchase things, which is essentially another type of debt. A debt is the sum of money owed by one individual to another. Borrowing an amount is acceptable as long as the borrower has determined how to pay back the loans in a timely manner prior to taking on debt. If debt management is not done correctly, someone who lacks financial literacy may find themselves in financial distress.

v. **Taxation** - Tax is the amount that is levied by the government from the public for meeting infrastructure and developmental activities of a country. Persons whose income exceeds the taxable threshold established by several laws and regulations must pay taxes. Tax planning focuses on creating savings by using available deductions, exemptions, and reliefs to reduce the tax burden in an ethical way. A financially literate person might use such savings to make investments in several investment channels and earn extra money. Apart from this, paying your taxes on time also protects your revenue from penalties and fines that arise from delayed tax payments.

vi. **Fund protection** - Saving and investing alone are not enough; people also need to know how to safeguard their investments against several types of financial fraud. It is essential to be aware of the many financial frauds that are common in society, including identity theft, money laundering, and misappropriation. In addition to financial scams, one should think about the risk involved in every source of investment they make to avoid losing money on them. One way to do this is through risk diversification, which involves investing in a variety of asset classes as opposed to just one.

Financial literacy lays down a foundation that facilitates people to use their financial skills to plan their incomes and expenses and opens up various investment avenues to invest the part of the income they saved. Thus, all these components of financial literacy provide the knowledge and skills for financial planning. The following section explains the concept and need for financial planning.

1.1.2 Financial Planning

The two situations that financially literate people make sure to avoid while managing their finances are: first, a situation of fund shortage to meet their immediate requirements, and second, a situation where they have excess funds that remain unutilised. Financial planning helps people to overcome these two critical situations related to financial management.

Financial planning means estimating the fund requirements and identifying the sources from where it could be raised. It thus ensures the availability of the required amount of funds at the right place and at the right time for the right purpose. The absence of proper financial planning leads to unnecessary spending, as seen in the case of Mr. Anil in the previous example. Whereas Mr. Sarang, with a financial plan, was able to eliminate over-expenditure and thereby save a part of his income for meeting future contingencies.



Financial planning facilitates the smooth fulfilment of needs by ensuring that a sufficient amount of funds is available whenever required. An individual entering into a six-month agreement, for example, to purchase a property for ₹50 lakhs, would have to make arrangements to cover this expense without sacrificing the funds needed for everyday living. Such an individual should be able to pinpoint the sources of funding as well as the means to pay them. One could say of such a person that they adhere to a financial plan.

A financial plan is a blueprint that provides financial guidance to achieve financial goals. It helps individuals achieve their short-term and long-term financial objectives. Financial planning can thus be classified as short-term financial planning and long-term financial planning.

Short - term financial planning includes fulfilment of those financial objectives that are to be fulfilled within one year. Long-term financial planning includes fulfilment of those financial objectives that extend beyond one year. Buying an Mobile Phone the next month requires a short-term financial plan. It requires budgeting the cost of the Mobile Phone within the next month, ensuring that the necessary funds are available without significantly affecting overall financial stability. Whereas the need for an individual to construct a house worth ₹50 lakhs the next year requires a long-term financial plan, as it requires a lump sum. The person must identify all the possible sources to raise funds, and also the means to return the same. Financial planning will vary for each individual because different people have different financial objectives. Everyone should create a financial plan that takes into account both their current financial status and their anticipated future needs. This emphasises how important financial planning is for achieving economic satisfaction.

“If you fail to plan, you plan to fail”

- Benjamin Franklin

1.1.2.1 Need for Financial Planning

People's lifestyles have drastically changed from the past, particularly following the COVID pandemic. It has been observed after the pandemic that people started to enjoy life more and became more knowledgeable about investments, as a result of which financial planning started to gain more popularity on social media and in general. The following are the reasons why financial planning is important.

- a. **Financial planning helps to curb inflation :** Inflation refers to the increase in the prices of products and services in the economy. Earlier, small candies were available at 50 paise per candy, but now you cannot buy such candies until you spend at least ₹1. This is because of the rise in the price of products and services and the fall in the value of money. The absence of sound financial plans makes it challenging for people to make ends meet, particularly when income growth does not keep pace with price increases.
- b. **Financial planning is essential to cope with the increase in the standard of living :** The lifestyle of people has changed over the years, which has resulted in an increase in the standard of living. Products such as mobile phones, laptops, vehicles, etc., which were considered luxuries earlier, have turned out to be necessities now. It takes financial planning to cover the costs associated with such shifting trend patterns.

- c. **Financial planning helps in managing credit :** Nowadays, it is easy for a person to get loans. The usage of credit cards as a mode of payment while purchasing durables is also common. However, such easily available sources of credit can turn into a crisis if they are not managed properly. It could lead a person to end up in a situation of financial distress if such loans and credits are taken without proper plans.
- d. **To deal with the unexpected shocks and surprises of life, it is essential to plan your finances:** The existence of a financial blueprint helps you to meet unforeseen contingencies if they arise. It acts as a cushion to protect you from falling into a financial crisis. The most common example seen now is that people take various types of insurance, like health insurance, life insurance, term insurance, etc., as part of their financial plan. In the event of an emergency, this provides them comfort and a sense of security for themselves and their family.
- e. **Financial planning helps you to prepare for your future:** There is a growing trend among people to save and invest their money for fulfilling future goals. Retirement plans are the best example of financial planning that is meant for preparing you to have a safe and secure future. Financial planning also becomes important when it comes to your children's education, marriage, and other important life events. Financial planners prepare plans for situations so that they know what to do in each situation.
- f. **Planning and controlling income is yet another important outcome of financial planning:** There might be several sources for individuals to obtain

their income, such as salary, dividends, interest from investments, rental income from let-out house property, and so forth. Financial planning helps to manage these incomes so generated and channelise them into the best investment opportunities so that your money never remains idle.

Thus, financial planning helps to overcome your financial worries and helps you attain financial freedom and independence. A properly drawn financial plan gives a balance between the amount of income generated from different sources by an individual and the various requirements to which the income so generated must be utilised. An organised process is necessary for estimating the necessary funds and sources of income to achieve the financial objectives. The process involved in financial planning is discussed below.

Financial Plan - Procedure

These days, there are financial planners who consider financial planning as their profession and give financial advice to their clients to make financial decisions. However, people can develop their own financial plans by following a step-by-step procedure to achieve their financial goals. For instance, consider that the financial goal of Mr. Sarang is to construct a house worth next year. The following is the procedure to be followed for developing a financial plan and achieving such an objective:

- a. **Assessing your present financial status** - Creating a foundation for developing your financial plan is essential. The present financial status of an individual is affected by the income generated, the expenses and debts to be paid out of such income, and the amount that can be saved after meeting all the expenses. Creating a list of all these items forms the base for financial planning. In order to achieve



the goal of constructing a house the next year, the initial step is to ascertain how much income one can generate during the current year. Then he must determine the requirements for which such income should be disposed of, such as household expenses, interest to be paid for the car loan, educational fees for children, petrol expenses, and so on. He should also determine the amount left as savings, such as contributions towards recurring deposits, premiums for life insurance, etc.

- b. Developing financial objectives :** Financial objectives, which differ from person to person, can be set for the short term and long term. Setting financial goals helps people to ensure that their income is spent only on satisfying their needs and eliminates spending on wants. Building a house might be viewed as long-term goal because the consequences of such an investment will follow him for a good deal of years.
- c. Identifying alternative courses of action :** At this stage, one must identify the sources of finance for constructing the house. He can use his available deposits to build the house. Alternatively, he might take out loans for the entire amount needed to build the property. Alternatively, he might use his deposits and obtain a loan to cover the outstanding balance. Identifying and developing all the available alternatives is a critical task that depends on many factors. It involves analysing financial alternatives within one's financial policy and deciding the appropriate means of raising funds.
- d. Evaluating alternatives :** After identifying the alternatives, one must

evaluate the positives and negatives of each selected course of action. For example, he can avoid paying interest on the loan if he chooses the first option, which is to pay for the expense with his own money. However, when taking into account the tax benefits and reliefs, taking out loans enables him to claim an income deduction in accordance with the rules of the income tax act. Thus, the pros and cons of each alternative must be evaluated before taking a financial decision. Decisions should be taken by considering the opportunity cost. Opportunity cost is the amount that is forgone by choosing one alternative rather than the other. In the above example, the opportunity cost of building a house with personal finance is the missed opportunity to claim tax deductions for loan interest payments.

- e. Creating and implementing a financial action plan :** -An individual, after evaluating the available alternatives, must develop an action plan. He must choose one alternative and implement it. If he chooses to borrow money for construction, he should go to a bank, apply for a loan, and begin construction. The implementation of a financial plan sometimes needs the help of others. For instance, for obtaining loans, you need the assistance of a bank manager.
- f. Re-evaluating and revising the plan**
- Financial plans, once implemented, need continuous monitoring so that revisions can be made as and when required. For example, one person may have taken out home loans to build the property. However, upon reassessment, he discovered that the interest rate is reduced when he takes out a gold loan. In order to pay back the money borrowed in home loans and

save a significant amount of interest, he can take out a gold loan. Regularly reviewing the plan will help you make priority adjustments that will bring your financial goals and activities in line with your current life situation.

Thus, financial planning involves a step-by-step procedure, each step to be practised with due diligence. For those who follow the steps correctly, the process of financial planning facilitates economic satisfaction for people. It sows the seeds of investments in the minds of people, thereby transforming their savings into investments.

1.1.3 Investment

From the income received, people spend on consumption and save the remaining to meet any future contingencies. Money can be directed towards avenues of income generation until it becomes necessary, allowing people to profit further from their savings until that time. Such sources from where savings are utilised to earn additional income are called investments. In Mr. Sarang's case, investing would be the process of depositing his savings into a bank's fixed deposit account until they are used for building construction, which is his intended use of the money. Investment means the commitment of funds with the hope that some benefits will accrue in the future. Such benefits expected from investment are termed returns. Investment is that amount of money that is utilised in an income-generating source with the expectation of getting a return. A person who makes an investment is called an investor.

There is a possibility that investors will receive only a smaller return than they had anticipated. For instance, if Mr. Sarang had invested his money in a mutual fund with the expectation of getting a return of 15%, he was only able to produce 12% real returns. In this case, the actual returns fall short of the expected returns. This variation

of actual returns from expected returns is termed as risk in investments. The benefit of investment is obtained only in the future, and the future is uncertain, which is the reason why investment is said to have risk. Thus, return and risk are the two important elements of investment.

The main objective of an investor will be to generate maximum return and minimise the level of risk. Investments should be made in such a way that they strike a balance between liquidity and profitability. Liquidity ensures that funds are invested in sources which can easily be converted into cash. While there is less danger when investing in liquid assets, there will also be less return. Profitability focuses on generating maximum profit or returns from the money invested. When you focus on profitability, you have the possibility to obtain more returns, but there is more risk. Holding cash in hand guarantees liquidity, but idle cash does not yield returns. And if you invest in risky investments aiming for profit, sometimes you won't be able to use it when you require funds. So striking a balance between the two is essential. For instance, depositing funds as a fixed deposit gives high liquidity since fixed deposits can be closed at any time and funds can be withdrawn, but it gives only a return of 5-6%, which is very low, ultimately leading to low profitability.

Investments can be made in financial assets and physical assets. Purchasing a plot of land is an investment in a physical asset. Purchasing shares of a company is an investment in financial assets. Almost all individuals own a portfolio of investments. A portfolio includes a mix of different investment avenues such as mutual funds, purchasing shares of a company, or investing in real estate. All financial planners create their portfolios after careful planning. Risk can be reduced by diversifying the portfolio, i.e., adding more securities to the portfolio.



1.1.3.1 Needs for Investment

- a. **Grow your wealth** : The returns that can be generated by reinvesting the funds are called the power of compounding. For example, Mr. Sarang invested ₹10 lakhs in a fixed deposit for an annual interest of 6% for 3 years. After one year, the amount of his fixed deposit along with interest turns out to be ₹10,60,000, where the interest that he receives is ₹ 60,000. He gets ₹11,23,600 at the end of the 2nd year, generating an interest of ₹63,600. After reinvesting, at the end of the 3rd year, he will receive ₹11,91,016 with interest of ₹ 67,416. If the interest had not been reinvested, he would have obtained a total interest of ₹1,80,000 (60,000 + 60,000 + 60,000) instead of ₹1,91,016 (60,000 + 63,600 + 67,416) at the end of 3 years. The difference of ₹11,016 is the result of the power of compounding.
- b. **Outpace inflation** : The rise in the cost of goods and services in the economy is referred to as inflation. A normal coffee used to cost ₹5 a few years ago, but as of right now, you have to spend at least ₹10 to purchase one. This is due to the decline in the value of money and the increase in the cost of goods and services. People find it difficult to make ends meet when they don't have solid financial planning, especially when their wage growth isn't keeping up with inflation.
- c. **Increased capacity for risk-taking** : Investing when you are young has the potential to yield higher profits because young people have a higher risk tolerance than older people with more responsibilities. By the time you reach middle age, this early investment effort may have resulted in a sizeable savings account you can access.
- d. **To meet financial goals** : Let us consider Mr. Sarang once more. As part of his long-term financial plan to purchase a house, he places his money into fixed deposits. Like this, every person has their own short- and long-term objectives. Investment gives you the ability to fulfil your goals.
- e. **To obtain financial security**: A strong financial plan protects you from unforeseen financial emergencies by acting as a safety net. The growing tendency of people choosing different insurance policies, such as health, life, and term insurance, as essential parts of their financial planning is a perfect example of this idea. In an emergency, this planning provides people and their families with a sense of security and comfort. Preparing for future demands requires financial planning, of which retirement plans are a prime example. The goal of financial planning is to guarantee a stable and secure future.
- f. **Attain financial independence**: You should be able to fulfil your needs and wants with your own finances. Investment makes you capable of doing this. Saving a part of your income and investing it helps to make you financially independent. Saving money will help the younger generation in their future, enabling them to be financially secure when they retire.

1.1.3.2 Investment, Speculation and Gambling

These days, buying lottery tickets is a

common pastime for the general public. Is it investment, gambling, or speculation? Buying lottery tickets is considered a form of gambling. When someone purchases a lottery ticket, they are essentially wagering a small amount of money in the hopes of winning a much larger prize. The outcome of the lottery draw is based entirely on chance, with no skill or strategy involved in determining the winner. Whereas an individual buying stocks of a new tech company, hoping that the value of such stock will skyrocket soon, is

speculation. Here, the individual is making a risky investment based on the hope of short-term price increases, rather than thorough analysis of the company's fundamentals or long-term prospects. Thus, gambling, speculation, and investing are performed with the expectation of obtaining a return, and all seem to be surrounded by uncertainty. But these three terms are not the same. The following table gives a comparison of these three terms.

Table 1.1.1
Comparison of Investment, Speculation and Gambling

Basis	Investment	Speculation	Gambling
Meaning	Commitment of funds with the expectation of generating returns.	Buying and selling of securities for profit arising from short term price fluctuations.	Employment of funds at high risk prospects for earning high return motivated by thrill and fun.
Purpose	Generating returns in the form of interest, capital appreciation, dividend etc..	Profit made out of short term price fluctuations.	Trying luck for thrill and fun by risking money.
Nature	Planned and scientific.	Planned.	Unplanned and non-scientific and is based on tips and rumours.
Risk	Less risky when compared to speculation and gambling since risk can be reduced through diversification.	Moderate risk since it depends on short term price movements.	High risk since it is a game of chance.
Period of commitment of funds	Long term.	Short term.	Short term.
Returns	Reasonable return over a period of time. In most of the cases, investment will earn profit.	High returns, however, over a long period of time, speculators do not earn on their investment.	Very high but depends upon luck and odds.
Type of investors	Cautious and conservatives.	Aggressive and high risk taking.	Ready to lose original investment for fun.



In conclusion, investors can expect steady returns over the long run. However, in order to protect their hard-earned money and raise the possibility of wealth creation, they must invest carefully and thoroughly research companies. Given the increased danger of losing the initial investment in unfavourable

circumstances, it is imperative for speculators to carefully consider when to enter and depart the market. For financial success, it is essential to stay away from gambling and to place a high value on making wise decisions.

R Recap

- ◆ Financial literacy- use of financial skills to make smart financial choices.
- ◆ Financial planning- avoids money shortages and unused surpluses.
- ◆ Financial plan- blueprint that provides financial guidance to achieve financial goals.
- ◆ Budgeting- estimation of sources and application of funds.
- ◆ Savings- balance of income left after meeting all the expenses.
- ◆ Tax- charged by the government from public for infrastructure and developmental activities.
- ◆ Investment- commitment of funds for return.
- ◆ Elements of investment- risk, return, liquidity, profitability.
- ◆ Return- benefit in the form of capital appreciation or yield from investment.
- ◆ Risk- variation in actual returns from expected returns.
- ◆ Invest wisely for growth while balancing liquidity and risk, building a diverse portfolio.
- ◆ Speculation- buying and selling of securities for profit arising from short term price fluctuations.
- ◆ Gambling- employment of funds at high risk prospects motivated by thrill and fun.
- ◆ Portfolio- set of financial assets held by an investor.

O Objective Questions

1. State the main objectives of investment.
2. What is financial planning?
3. List out the key elements of investment.
4. What do you mean by risk in investment?
5. List out the components of financial literacy.
6. How is savings related to income and spending?
7. Provide an example of a need that is universally recognized across cultures.
8. What are the dual objectives of financial planning?
9. What is the primary difference between a need and a want?
10. Give examples of income generating assets individuals might invest in.
11. What does a financial plan serve as?
12. State the term which denote the rise in the prices of goods and services over a period of time.

A Answers

1. Maximum returns and minimize risk.
2. Estimation of fund requirements and identification of the sources from where the funds are to be raised.
3. Risk, return, profitability, liquidity.
4. Deviation of actual return from expected.
5. Budgeting, saving, investing, managing debt, fund protection, taxation.
6. Savings= Income – Amount spent for consumption.
7. Clean water.
8. Eliminate shortage of funds and eliminate excess funds remaining unutilized.
9. Need is a necessity for survival, while a want is something desired but not essential for survival.
10. Stocks, bonds, real estate, and mutual funds.



11. Blueprint.

12. Inflation.

A

Assignments

1. Outline your short-term and long-term financial objectives and detail a strategic plan for accomplishing them.
2. Select an investment option according to your preference. Evaluate the anticipated returns linked with this option. Additionally, enumerate all the advantages and disadvantages of investing in this avenue.
3. Create a guide that explains ten important ways to succeed when investing money.
4. Write a short note on about Financial Literacy Centers and discuss their advantages and disadvantages?
5. What are your thoughts on investing in bank deposits as a reliable investment option? Additionally, could you suggest an alternative investment avenue that potentially offers higher returns? Please outline the advantages and disadvantages of this alternative investment option.

S

Self Assessment Questions

1. What is financial literacy and why is it crucial for individuals to possess?
2. Compare and contrast the terms Investment, Speculation, and Gambling.
3. Explain the various elements of investment.
4. What is a financial plan?
5. How does saving differ from investment?
6. Why is managing debt important for maintaining financial stability?
7. How does financial planning contribute to saving for future contingencies?
8. How can investments help in achieving financial goals, such as retirement, buying a home, or starting a business?

9. What are the two critical situations financially literate individuals strive to avoid while managing their finances?
10. Explain briefly the relationship between liquidity and profitability.
11. How do the components of financial literacy collectively contribute to improving one's financial well-being?
12. How is expected return related to risk in investment?
13. What role does budgeting play in financial planning?
14. Describe the role of savings in financial literacy.
15. Why is it important to prioritize needs over wants when managing finances?

R

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S

Suggested Reading

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Unit 2

Traditional Financial Products and Services

L

Learning Outcomes

Upon completion of this unit, the learner will be able to:

- ◆ identify various investment avenues
- ◆ select an appropriate investment option according to his investment objective
- ◆ make a wise investment decision based on his/her risk tolerance and expected return

P

Prerequisite

You are convinced of the need for keeping a part of your income for a rainy day in the form of an investment. You might have noticed different investment options being advertised, where the focal points highlighted may be perks such as guaranteed return, growth of investment, or an exemption from taxation of the earned income. Some investments give you fixed returns and ensure the repayment of the principal amount after its tenure, say for instance, Government bonds. The matter may be different in the case of investment in the shares of a company. Though it can offer higher returns, its market price is highly volatile and may erode even a part of the principal amount invested. Take the case of a fixed deposit with a banker, which will give you a reasonable return and repay your principal amount. The income from such a deposit (say interest) is subject to income tax. There exists a plethora of investment avenues with varying characteristics. An investor has to make the best choice based on their future need. Remember that money doesn't grow on trees; it can grow when you save and invest wisely. This section tries to bring out the various traditional investment options and will highlight the features of each avenue.

K

Keywords

Fixed income investment options, Variable Income Investments, Insurance Schemes, Retirement Benefits Schemes, Investment in Physical Assets

D

Discussion

The objectives of investment differ from investor to investor. For instance, when a pensioner invests, his primary motive is regular return. His risk tolerance will also be lower.

Whereas a multi-billionaire expects a higher return with a reasonable appreciation in the value of his investment. He will be able to take higher risks in this regard. From the above discussion, you might have understood that the investor has to choose the right investment based on their investment objectives: nature of return (fixed vs varying), safety of investment (risk), easiness of converting the investment back into cash (liquidity), and the tax implications on income (income tax payable).

In this unit, we will discuss various investment avenues under the umbrella of their nature of return—Fixed and Variable, Insurance Schemes, Retirement Benefits Schemes, Tax Saving Schemes, and investment options in the form of physical assets.

1.2.1 Fixed income investment options

Let us begin the discussion with fixed income investment options. Here, the issuer is obliged to make payments of a fixed amount on a fixed schedule. For example, the

borrower may have to pay interest at a fixed rate once a year or half yearly. The repayment of the principal amount on maturity (terminal value) is also known with certainty.

A detailed discussion about fixed income investments is appended below.

1.2.1.1 Debenture

Debenture is a type of debt instrument used by company and government to raise function. Investors who prefer a fixed return can opt for debentures issued by private companies. Interest is paid at a predetermined rate based on the face value of the debentures. For example, if a company issues a 7% debenture of Rs.100, the investor will get Rs.7 per year. The date of payment of interest is also pre-defined. It may be annually or half yearly. If the company returns the amount of debentures after a fixed period of time, say after 10 years, such debentures are called redeemable debentures. But if the investor wants to encash the debentures before maturity, they can sell them through the stock market at the existing market price. Another category of debenture is convertible debentures, wherein the company will convert such debentures into equity shares after a fixed period instead of paying back the money. It is better to go for a convertible debenture in a company with higher growth



prospects since you will get a pre-determined number of shares in the future.

Debentures are issued by private companies and are not backed by any physical asset of the company. Hence, if the company is in a debt trap or is moving towards liquidation, the debenture holders may be put in a position where there is a likelihood of them not being paid back the principal amount.

Note: Interest payable on floating-rate debentures will vary according to market interest rates. The floating rate of interest is based on some benchmark rate, say LIBOR (London Interbank Offered Rate), PLR (Prime Lending Rate), or MIBOR (Mumbai Interbank Offered Rate).

1.2.1.2 Bonds

Large corporations, financial institutions, and government agencies issue bonds for their long-term capital requirements. Every bond has an interest rate (coupon rate) indicating the annual yield payable to the bondholder, which cannot be changed during the tenure of the instrument. Hence, the investors are not affected by changes in market interest rates. However, the market value of bonds will appreciate when the market interest rate is lowered, and the market value of bonds will decline in tune with the appreciation in market interest rates.

Though the interest rate of bonds is a little bit lower than that of debentures, bonds are more secure than debentures since they are fully secured by the physical assets of the company.

1.2.1.3 Government Securities (G-Sec)

The securities issued by the Central and State Governments and Quasi-Government agencies are known as Government securities or gilt-edged securities. These securities

carry a minimum amount of default risk as they are guaranteed by the RBI on behalf of the Central Government. The minimum investment in G-Secs is Rs 10,000 (100 units of securities), which enables small investors to park their funds.

The Reserve Bank of India conducts auctions for government securities in the primary market. You can participate in these auctions directly by submitting bids or can approach banks and primary dealers who are authorised to purchase G-Sec. Once the bidding process is complete, the G-Secs are listed on the exchange. This allows the investor to sell off their holding and thus ensures liquidity.

The major G-Secs include:

- i. **Dated G-Secs** : These are securities that carry a fixed or floating coupon (interest rate) and are paid on the face value on a half-yearly basis. Generally, the tenor of dated securities can range from 5 years to 40 years.
- ii. **Fixed Rate Bonds** : These are bonds on which the coupon rate is fixed for the entire life (i.e. till maturity) of the bond. Most Government bonds in India are issued as fixed-rate bonds.
- iii. **Sovereign Gold Bond Scheme (SGB)** : The Sovereign Gold Bond Scheme was launched by the Government of India in November 2015 under the Gold Monetisation Scheme. Under this scheme, people who want to invest in gold, instead of buying physical gold, can purchase the bond. The rate of SGB will be declared by the RBI before every new tranche by issuing a Press Release. Look at the advertisement given below for a better understanding of the features of SGB.

- **Denomination** : The bonds will be denominated in multiples of

gram(s) of gold with a minimum investment of 1 gram of gold, and the upper limit is 4 kgs of gold per investor (individual & HUF). For entities like trusts, 20 kgs of gold is permissible.

- **Tenure** : The bond's maturity period is for 8 years. However, you can choose to exit the bond from the 5th year onwards (only on interest payout dates).
- **Interest rate** : The current interest rate for SGB is 2.50% annually. They are paid twice a year on the nominal value.
- **Redemption price** : The redemption price must be in INR, based on the average closing price of gold of 999 purity in the 3 previous working days. The amount will be deposited to your registered bank account.
- **Tax treatment** : There is no tax deducted at the source on the proceeds from sovereign gold bond redemption. You can also claim indexation benefits along with long-term capital gains when you decide to transfer the bond.

1.2.2 State Development Loans (SDLs)

State Governments also raise loans from the market which are called SDLs. The interest on SDLs is serviced at a half-yearly interval, and the principal is repaid on the maturity date. Most SDLs are issued for a tenure of 10 years.

So far, we have discussed various fixed income securities having medium or long term tenures. The securities which are issued for a shorter duration (say less than one year) are called money market securities. Some of them are listed below:

1.2.3 Treasury Bills (T-bills)

A treasury bill is basically an instrument of short-term borrowing by the Government of India. Presently in India, T-bills are issued in one of three tenors - 91 days, 182 days, and 364 days. They are issued at a discount and are redeemed at the face value at maturity. For instance, a 91-day Treasury bill having a face value of 100/₹100 may be issued at ₹98.25, that is, at a discount of ₹1.75 1.75 and would be redeemed at the face value of ₹100. The bills are issued through an auction bidding process by the RBI, which occurs at regular intervals. An investor can purchase T-bills through a dealer or online.

1.2.4 Commercial Paper (CP)

Commerical paper is an unsecured shortterm, debt instrument issued by corporations to raise capital.

Corporates whose tangible net worth is not less than ₹4 crores and the All-India Financial Institutions (FIs) are eligible to issue a CP. The issuer should obtain a credit rating of at least A-2 either from CRISIL, ICRA, CARE, FITCH, or any other credit rating agency specified by the RBI for this purpose. A CP can be issued in denominations of ₹5 lakhs or multiples thereof, and its maturity period varies between 7 days to one year.

Note: Though retail investors can participate in the purchase of T-bills and CPs, they are mainly preferred by institutional investors and companies rather because of their higher denomination.

1.2.5 Deposits offered by Commercial Banks

Commercial banks offer four types of deposits, namely:

1.2.5.1 Savings Bank Deposit (SB)

Savings Bank Deposit (SB) the name



suggests, a savings account is designed to park your savings which are meant for immediate use with greater flexibility with respect to deposit and withdrawal. Even though the savings account is more liquid and convenient to handle, the rate of savings deposit is lower. The Reserve Bank of India announced deregulation of the interest rate on savings bank deposits with effect from April 1, 2010. Now the bank can fix the rate on a daily product basis. The rate of interest varies from bank to bank. However, on average, the rate of interest on SB deposits is 4 per cent.

1.2.5.2 Recurring Deposit (RD)

Recurring Deposit (RD) is a method by which an investor may, at regular intervals, deposit a fixed sum of money in a bank. This amount is to be paid for a stated number of years, at the termination of which the investor receives the principal sum with interest. The recurring deposits are usually for a period ranging from 12 months to 120 months.

1.2.5.3 Fixed Deposit (FD)

Fixed Deposit (FD) account is intended to park your funds for a longer duration with a higher rate of return compared to SB and RD accounts. Though the rate of interest varies from banker to banker, the average interest rate offered is between 6-8% per annum. The investor can receive the interest either at the date of maturity along with the principal amount, or he can choose to have the interest deposited to his SB account monthly. Bankers will revise the interest rate from time to time based on the monetary policy of the RBI. However, once you have invested money in your FD account, you will get the promised interest irrespective of changes in the market interest rate. Though the investor parks his funds for a fixed period, he can withdraw the money before the tenure expires. This is called

premature withdrawal. But in that case, the banker will reduce a fixed percentage as a penalty, and you will get a lower rate than the rate promised before.

Bank deposits are highly liquid and guaranteed. Deposits up to ₹5,00,000 are guaranteed by the Deposit Insurance and Credit Guarantee Corporation (DICGC). The interest earned from the different bank deposits is subject to Income Tax. However, an interest income of up to ₹10,000 from a savings account can be claimed as a deduction under Section 80TTA of the Income Tax Act.

1.2.6 Post Office Deposits

Post Offices offer many schemes to small investors which can be opened and operated through a wide network of post offices. The popular small saving schemes offered by post offices are:

1.2.6.1 The National Savings Certificate (NSC)

The National Savings Certificate (NSC) is a fixed-income investment scheme that you can open with any post office branch. You can make a minimum investment of ₹1,000 which carries an interest rate of 7.6% p.a. An NSC cannot be withdrawn before its maturity, i.e., five years from the date of investment. The principal investment of NSC qualifies for tax savings under Section 80C of the [Income Tax Act](#) (up to ₹1.5 lakhs annually). The interest earned annually is deemed to be reinvested and hence the interest is not subject to tax each year. Tax on the earned interest is payable on maturity at the time of withdrawal.

1.2.6.2 Kisan Vikas Patra

Kisan Vikas Patra was introduced as a small saving certificate scheme in 1988. At the end of the tenure of the scheme (9 years and 5 months), you will get back double the

amount. The minimum investment amount is ₹1,000, and there is no upper limit. Initially, it was meant for farmers to enable them to save for the long term; hence the name. Now the scheme is available for all.

1.2.6.3 The Sukanya Samriddhi Yojana

The Sukanya Samriddhi Yojana is a savings scheme designed for female children in a family. It can be opened by the parent or legal guardian of a girl child before she reaches ten years of age. The minimum and maximum deposit to this account per year is ₹250 and ₹1.5 lakhs respectively. The deposit currently carries an interest rate of 8.2% p.a. The account can be kept active for 21 years from the date of opening the account. You can also withdraw the money from the account when the girl child gets married after the age of 18 years. Deposits qualify for deduction under section 80C, and interest earned from the account is exempted under section 10 of the Income Tax Act. Apart from this, Post offices also maintain:

1.2.6.4 Post Office Savings Bank Account

Post Office Savings Bank Account—which can be opened with a minimum amount of ₹500. Core banking and ATM facilities are attached to the account.

1.2.6.5 Post Office Recurring Deposit

Post Office Recurring Deposit- Every person who has reached the age of 10 years can start this account with a minimum amount of ₹100. The minimum period of deposit is 5 years.

1.2.6.6 Post Office Time (Fixed) Deposit account

Post Office Time (Fixed) Deposit account—is available for different time spans, ranging from 1 year to 5 years. Interest is compounded quarterly, and you can receive the interest yearly.

On completion of the discussion on fixed income securities, you have internalised that:

The risk element of the above investment options is low since they are backed by either the central government or the Reserve Bank of India. But in the case of debentures, the risk element is moderate because if the company goes into liquidation, there is a possibility of losing either a part or the full amount invested.

The returns from all investment options discussed above are obviously fixed.

You will get a better understanding of the tax implications and redemption options while going through table 1.

Table 1.2.1

Tax implication and redemption options of fixed income investment options

Type of Asset	Tax Implication	Redemption option
Debentures/ Bonds/ Govt. Securities	Annual Interest is taxable. On maturity, the investor will get back the principal amount. So there is no question of capital gain and tax implications.	The issuer will redeem the amount on maturity date. However, if it is listed in stock exchanges, the same can be traded at the current market price.



Sovereign Gold Bond	Annual Interest is Taxable. Maturity value is exempted from Income Tax	After 8 years. However, exit option available from the 5 th year onwards
State Development Loan	Annual interest is taxable and maturity value exempted from tax	After 10 years
Savings Bank	Annual interest up to Rs.10000 is exempted from Income Tax u/s 80TTA	As required by the investor
Recurring Deposit	Interest is Taxable at the time of redemption	On completion of the tenure
Fixed Deposit	Annual Interest is taxable	On completion of the tenure. However, you can make a pre-mature withdrawal with a penal interest
National Savings Certificate (NSC)	Annual interest earned is deemed to be reinvested and hence the interest is not subject to tax each year. Tax on interest earned is payable on maturity at the time of withdrawal	
Kisan Vikas Patra	Interest is taxable on maturity	After 9 years and 5 months
Sukanya Samriddhi Yojana	Annual interest and maturity value is fully exempted from Income tax. The investment falls under exempt-exempt-exempt (EEE) category	When the child reaches 21 years. However, exit option is available when the child complete 18 years subject to conditions

1.2.7 Variable Income Investments

The term variable-income security refers to investments that offer a volatile rate of return which is directly linked with market forces. Though variable-income securities can provide a higher return in comparison to fixed income investments, they have greater risks associated because the yield and maturity

value are not known with certainty. It is even possible for these returns to be negative. Various investment options under variable income investments are:

1.2.7.1 Equity Shares

The holders of equity shares are not guaranteed a fixed dividend. However, over the long run, equity shares are more rewarding and can outperform every other

asset class. By investing in the ownership capital of companies with high growth potential, the investor can benefit.

But selecting the right company at the right time (entry and exit strategy) is important since the performance of equity shares is more market driven.

Based on the nature of income and growth, equity shares can be classified as:

- i. **Growth Shares :** Shares of companies having a high potential for growth. When the economy and market are booming, growth stocks provide maximum returns on investment. Growth stocks also carry higher risks due to the uncertainty of future earnings.
- ii. **Income Shares :** Offer regular and steady income, usually in the form of dividends, over a period of time with low exposure to risk. For example, companies belonging to the Fast Moving Consumer Goods sector have comparatively regular demand and stable operations, which in turn lead to stable profits and a stable dividend.

iii. **Defensive Shares :** Are relatively unaffected by market movements. These shares usually outperform the market during recessions.

iv. **Cyclical Shares :** The market price of these shares is highly affected by the upward and downward movements of the economy. If you can predict economic cycles seamlessly, then you can earn substantial returns by investing in cyclical stocks. Though cyclical shares can offer higher returns, they are more volatile.

1.2.7.2 Preference Shares

The characteristics of preference shares resemble fixed income securities because the rate of dividend is specified in the instrument, and they are given priority in the repayment of capital over equity holders. However, due to the insufficiency of profit, companies can decide not to distribute dividends to preference holders, which makes for variation in return. There are different types of preference shares such as cumulative, redeemable, participating, and convertible.

Table 1.2.2
Variable Income Instruments- A Comparison

Type of Asset	Rate of Return	Risk in Repayment of principal amount	Value Appreciation	Liquidity	Redeemable option
Preference Shares	Fixed provided company makes profit	Low/ Moderate*	No	High**/ Low	Any trading day through stock exchange
Equity shares	Unpredictable	High	Positive or negative	High	Any trading day at market rate



Note:

*If the company goes into liquidation, investors may lose part or the full amount invested.

** If listed and traded on the stock exchange

1.2.7.3 Insurance Schemes

Since life insurance provides financial security to your family, life coverage may be viewed as an investment. Apart from life coverage, there are many insurance policies which can pay an assured return after a fixed period or during post-retirement period. The important types of insurance policies in India are:

- i. **Endowment assurance policy**- a lump sum amount is received after a specific term (maturity) or on death whichever occurs earlier.
- ii. **Money back policy** - maturity benefits are paid in installments by way of survival benefits in every 5 years
- iii. **Whole life policy** - In addition to providing a death benefit, whole life policy also contains a savings component where cash value may accumulate.
- iv. **Unit Linked Insurance Plans**- Offer both investment and insurance benefits under a single policy contract. A portion of the premium that you pay towards a Unit Linked Insurance Plan is allocated to a variety of market-linked equity and debt instruments.
The remaining premium contributes towards providing the life cover throughout the policy tenure.
- v. **Child insurance plan**- combines the benefits of both long-term investment

options and life insurance. You need to invest a fixed amount in periodic intervals. On maturity, you will get back a lump-sum amount which can be used for child's higher education fees and marriage expense. In case of your untimely demise, the insurance company will pay a premium on your behalf and you will get the maturity amount back as originally agreed. Risk element of investment in insurance Companies

There has been a surge of private insurance companies in the Indian economy after globalization. But even now, people are afraid of investing in private insurance companies. But you should understand that investment in such companies are safe due to the following reasons:

1. Since all these companies are regulated by the Insurance Regulatory and Development Authority (IRDA)
2. According to Section 64VA of the Insurance Act 1938, there is a Solvency Margin of Rs 150 crores that needs to be maintained by each and every insurance company. Thus, even if the insurer winds up its business and decides to move out of the country, the RBI can repay the customers
3. Each Insurance company is attached with a Re-Insurance company who takes up the liability of repayment to customers in case of a very large claim if the Insurer is unable to pay.
4. If there is any dispute with any insurer, policyholders can approach the Insurance Ombudsman. The customer can go to the Consumer Forum or the Court of Law if the award passed by the Ombudsman is not satisfactory.

Tax Implications of Insurance Products

The premium paid towards term insurance plans can be claimed as a deduction while calculating your taxable income under section

80C, thus reducing your tax liability. The maturity benefit and bonuses received from your life policy is also exempted under section 10(10D) of Income Tax Act.

What are the best investments for me?

The answer depends on your financial goal and when you will need your money back. For instance, if you belong to a middle age group and you have 20 more years before you retire, a part of your investment can be parked in instruments with moderate risk. A common mistake people make is putting money they will not need for a very long time in investments that pay a low amount of interest.

On the other hand, if you are saving for a short-term goal, five years or less, it is not advisable to choose risky investments, because when it's time to sell, you may have to take a loss. Since the market price of risky investments is highly volatile, you want to make sure that you can wait and sell at the best possible time.of income tax and inflation.

1.2.8 Retirement Benefits Scheme

A retirement plan is designed to take care of your post-retirement days and help you lead a stress-free life.

It is a social security scheme provided by the Employees' Provident Fund Organisation (EPFO). Members of the schemes working in the organized sector are eligible for a pension after retirement at the age of 58. Both the employer and employee contribute 12% each of the employee's pay towards EPF.

1.2.8.1 Employee Pension Scheme

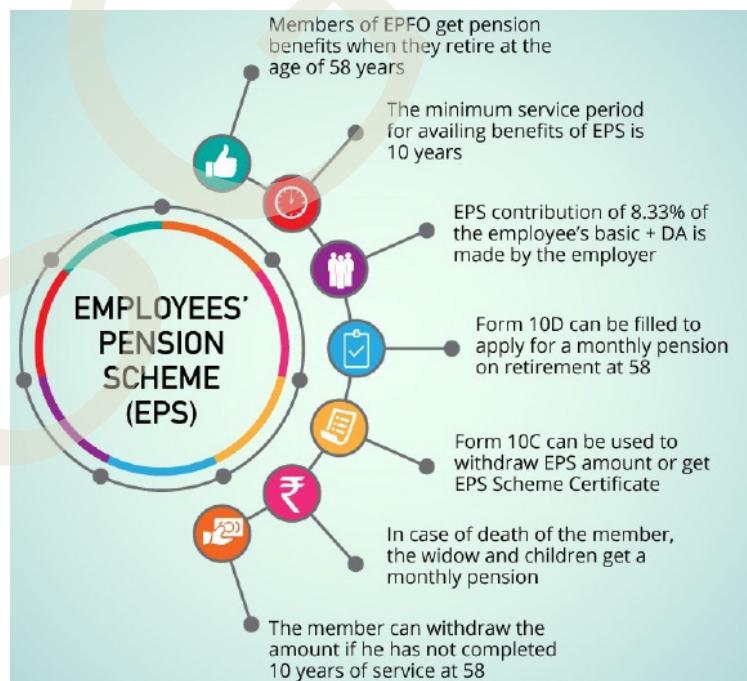


Fig. 1.2.1 Features of Employee Pension Scheme(EPS)

1.2.8.2 National Pension Scheme (NPS)

This pension programme is open to employees from the public, private and even the unorganised sectors, except those from the armed forces. NPS is a market-linked scheme with a probability of high returns in the long run. Subscribers in the scheme can choose the proportion of allocation to different asset classes like equity, corporate debt, government securities and alternative assets. The scheme is regulated by the Pension Fund Regulatory and Development Authority (PFRDA). Presently, a person can withdraw up to 60% of the total corpus as a lump amount at the age of 60, with the remaining 40% going into an annuity plan for periodic payment of pension.

Apart from this, there are various retirement benefit plans offered by banks and financial institutions which suit the requirements of employees of the unorganised sector. But in these cases, the employees need to make the entire contribution towards the fund. If you are an as an employee outside the preview of a pension scheme, it is always better to start a pension scheme based on disposable income.

Risk and Return- The return from the Employee Pension Scheme is almost guaranteed since over 85% of its corpus is invested in debt instruments. But NPS allocate the fund between equities, government bonds and corporate bonds. This allows you to earn higher returns with a probability of variation

in return. However, if you are risk-averse, you can choose to allocate a major portion to bonds, which in turn will provide you with a lower steady return.

Tax implications—Contributions to the Employee Pension Scheme and NPS both qualify for reduction (up to Rs.150000) under section 80 C of the Income Tax Act. Contributions to Tier I accounts of NPS also qualify for an additional deduction of Rs.50000 under section 80CCD (1B).

1.2.9 Investment in Physical Assets

The discussions made so far relate to investment in financial assets—those that are not visible, and the value of which is derived from the value of an underlying asset.

Investment options in physical assets, which can be seen or felt, are also available. Let's examine the investment avenues in physical assets.

1.2.9.1 Gold

From time immemorial, gold has been considered the best investment avenue to protect the investor, especially during stock market declines and inflation. This is a favorite form of investment amongst the rural and semi-urban population. However, the price of gold also has its highs and lows. But on average, the performance of gold shows an increasing trend. Look at the figure to see how the gold price moves over the last 20 years.

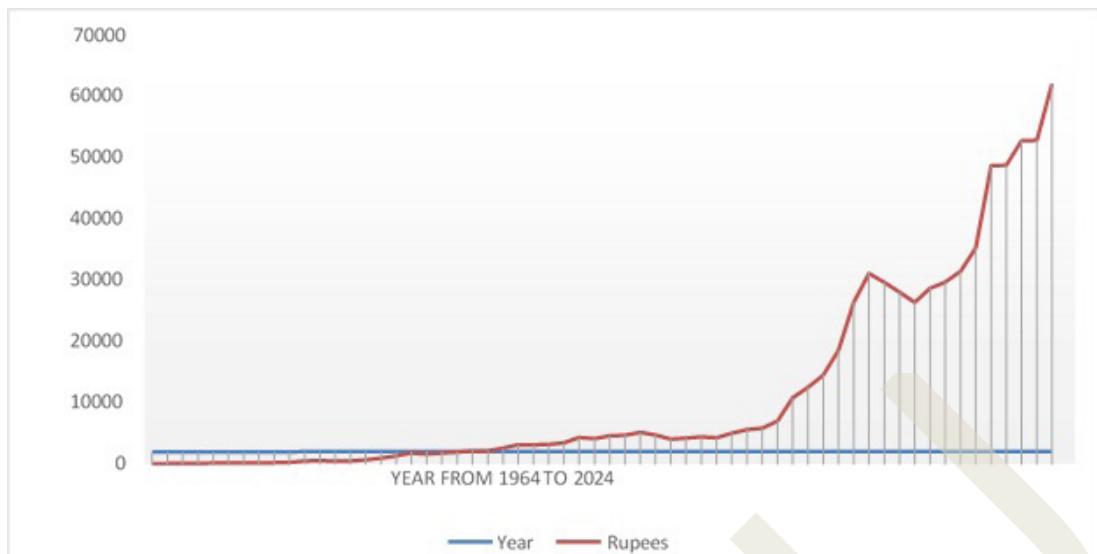


Fig 1.2.2 Gold price movement over 20 years

Source: www.goldprice.org

Historical data shows an increasing trend in the value of gold. From time immemorial, people have used gold to show their social standing, wealth, and power, and hence, they feel an emotional attachment to gold. When the economic condition is not progressive, the stock market is under stress, and the value of international currency declines, investment in gold is seen as the best alternative. There are various options available for investment in gold: jewellery, coins, bullions, ETF, and Sovereign Gold Bonds.

You can sell your gold holdings at any time, which makes the investment attractive. At the same time, holding physical gold creates the problems of physical storage and safety. To overcome the limitations of investing in physical gold, new instruments like Gold ETFS and Gold Exchange-Traded Funds, etc., were introduced. You will have a detailed discussion on the same in the forthcoming units.

1.2.9.1 Real Estate Investments

The real estate market offers a high return to investors. The word real estate means land and buildings. The population growth and the

exodus of people towards urban cities have made the prices increase manifold. Real estate investing is the purchase, lease, or sale of land and any structures on it for the purpose of earning money. Real estate investments can be classified into three categories: residential, commercial, and industrial.

The volume of real estate investments is higher than that of gold, i.e., you can purchase even one gram of gold.

- i. **Return and Risk** - The growth potential of real estate investment is higher, particularly in urban areas, than gold. The Returns from gold fluctuate according to market conditions in comparison to real estate investments.
- ii. **Tax Advantage** - Investing in gold is not going to provide you with any type of tax advantage. But both interest and principal repayment of housing loans are eligible for deduction under the Income Tax Act, which in turn reduces the tax liability of the investor.



R Recap

- ◆ Fixed income investment options- Here the issuer is obliged to make payments of a fixed amount on a fixed schedule. It consists of debentures, bonds, Govt. securities, sovereign gold bonds, State Development Loans, deposits in commercial banks and Post offices.
- ◆ Variable-income investments refer to investments that offer a volatile rate of return that is directly linked to market forces. Equity shares and preference shares fall under this category.
- ◆ Insurance Schemes-Apart from life coverage, there are many insurance policies that can pay an assured return after a fixed period or during the post-retirement period.
- ◆ Retirement Benefits Schemes-The Employee Pension Scheme and the National Pension Scheme are the major schemes for employees working in the organised sector. In addition, various retirement benefit plans are offered by banks and financial institutions that suit the requirements of employees of the unorganized sector.
- ◆ Investment in Physical Assets- Apart from the investment in financial assets,
- ◆ Investment options in physical assets like gold and real estate are also available.

O Objective Questions

1. List out any four investments which are eligible for deduction u/s 80C of the Income Tax?
2. Risk and return are inversely related. Explain
3. Give two advantages of Sovereign Gold Bond
4. What are money market instruments?
5. Explain the features of 'Sukanya Samriddhi Yojana'
6. Distinguish between debentures and bonds.
7. To what extent are investments in private insurance safe in India? Explain.
8. Examine the key features of NPS



Answers

1. NSC, Life Insurance, NPS, Repayment of principal amount of housing loans
2. When risk is low, return will be high and vice versa
3. No storage costs involved, 2.5% annual interest on total investment
4. T-Bills and Commercial paper
5. Attractive interest rate, Triple Tax benefit (Exempt-Exempt-Exempt)
6. Bonds are generally secured by the collateral or physical assets of the issuing company. Debentures are unsecured and are not backed by any collateral
7. Regulated by the Insurance Regulatory and Development Authority (IRDA), Solvency Margin of Rs 150 crores, Re-insurance and the Insurance Ombudsman
8. Higher return, Tax benefit, pension payment and partial withdrawal



Assignments

Make an investment plan in each of the following scenarios:

1. Your child is likely to pursue higher education abroad, say, six years from now. The expected cost of education is 40 Lakhs. Your current family income after tax is Rs . 50000/- per month.
2. Because of ill health, you were compelled to quit a lucrative job in a Gulf country and return to Kerala. As your terminal benefit, the company paid you Rs . 25 Lakhs. You are no longer in a position to undertake any job. In your family of 4 members, no one is an earning member. You need a monthly amount of at least Rs.22000/- to run your family.
3. You belong to a middle-class family with monthly family earnings of Rs.40000. You have one girl child of 6 years. You dream of making your child a doctor, and you are a little tense about how you are going to meet the huge educational expenses.
4. Your anticipated tax liability of the current financial year is Rs . 30000 (20% tax bracket). You are willing to invest Rs.1 Lakh. What all investment options will you choose to reduce your tax liability? Compute your tax



liability assuming that you have invested Rs . 1 lakh in various tax-saving schemes.

5. You are 28 years old and working in a multinational company. You have a total savings of Rs . 5 lakhs now, and you have saved the money to buy a brand new car in five years. The expected price of your dream car (a Next-Gen Car) is Rs . 8 Lakhs. You are so particular about buying the new car only from your investments.

You are convinced that Next Gen Car is a market leader and will sell many more cars in the years ahead. The automobile company offers both stocks and bonds. With the bonds, the company agrees to pay you back your initial investment in 5 years and pay you interest twice a year at the rate of 8%.

Historic data shows that the company's stock has gone up in price by an average of 15% a year, and it has typically paid stockholders a dividend of 3% from its profits each year. Which investment option will you choose (bond or stock)? Substantiate your answer.

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Self Assessment Questions

1. Make a note on retirement benefit schemes
2. Apart from life coverage, insurance schemes provide you assured return. Explain.
3. Explain the impact of inflation and income tax on your investment return
4. Compare and contrast the Savings bank, recurring and fixed deposits of Commercial banks and the post office
5. What are the different gilt-edged securities?
6. Explain the features of sovereign gold bonds in terms of:
7. Maturity
8. Persons eligible for investment
9. Tax implications
10. Redemption value
11. Exit option

R

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Suggested Reading

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Unit 3

Innovative Financial Products and Services

L

Learning Outcomes

Upon completion of this unit, the learner will be able to:

- ◆ identify innovative financial products and services
- ◆ gain insights into the pros and cons of various innovative financial products and services
- ◆ familiarize themselves with the tax implications of innovative financial products
- ◆ recognize the risks linked with innovative financial products
- ◆ construct a diversified portfolio by incorporating various innovative financial products, considering individual risk tolerance and financial goals

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Prerequisite

Consider the scenarios of a few individuals regarding their future investment perspectives:

- ◆ Akash is equipped with a lump sum and aims to invest it wisely for maximum long-term benefits.
- ◆ Vikas is searching for a flexible monthly investment plan to build a secure future.
- ◆ Rajeev desires higher periodic returns alongside capital appreciation.
- ◆ Erfan is focused on generating a steady, recurring income from his monthly investments to fund his retirement.
- ◆ Noufal is seeking to secure his life while maximising his investment returns.
- ◆ Thomas aims for a moderate level of investment growth with comparatively lower risk.

- ◆ Vijay is interested in investing in gold but is unwilling to tolerate high making charges.
- ◆ Mahesan is open to taking high risks for early-stage financing of innovative ideas.

While all members are familiar with traditional investment options like banks, cooperative societies, life insurance, or post office savings, they prefer to explore other avenues. The reason is that these traditional options often fail to provide substantial returns.

So, they started looking for new investing ways that fit what they want. That's when they found out about some new and different financial products. These new options promise more profit compared to the old ones.

But these new choices bring up some questions:

- ◆ What are these products exactly?
- ◆ What are the good and bad things about them?
- ◆ Are there any risks involved, and if so, to what extent?
- ◆ What return can I expect given the associated risks?
- ◆ Are there any time constraints or lock-in periods for these investments?
- ◆ How will taxes affect my money?

So, this unit is made to help them pick the best financial product for them based on how much they can afford, how much risk they can take, how much money they expect to get back, and what taxes might mean for their investments.



Keywords

Mutual fund, SIP, SWP, ETF, ULIPs, REITs, SGB, Cryptocurrency



Discussion

“Someone is sitting in the shade today because someone planted a tree a long time ago.” - Warren Buffett

In today's rapidly evolving financial landscape, innovative financial products are pivotal in providing individuals with diverse and dynamic investment opportunities. Traditional options, such as bank deposits,



have their merits. Still, investors seeking to optimise their portfolios for specific goals, like retirement planning, home construction, or future car purchases, children's education, future business formulations, or any other purposes, are increasingly turning to innovative financial instruments. These innovative products offer unique features and benefits beyond the conventional avenues of saving and investing.

The need for innovative financial products arises from the desire for better returns, increased flexibility, and tailored solutions to meet individual financial goals. Traditional bank deposits often provide stable but relatively low returns. On the other hand, innovative products such as Mutual Funds, SIPs, and ETFs offer the potential for higher returns through diversified portfolios and market exposure. The flexibility in investment patterns, including options like SIPs, allows investors to contribute regularly and systematically, promoting disciplined wealth accumulation over time.

Understanding the risks and returns associated with innovative financial products is crucial for informed decision-making. This knowledge empowers investors to navigate various investment patterns—whether opting for lump-sum investments or periodic contributions—and make choices aligned with their risk tolerance and expected returns. Furthermore, considering the tax implications of these investments becomes essential for optimizing overall financial planning.

The unit is designed to address these intricacies and empower learners with the skills to effectively identify and evaluate innovative financial products. By exploring the landscape of Mutual Funds, SIPs, SWPs, Cryptocurrencies, ETFs, and other advanced financial instruments, individuals gain insights into how these tools can be strategically employed to achieve financial

objectives. This knowledge broadens their investment horizons and equips them to adapt to the changing dynamics of the financial market. Ultimately, the unit serves as a comprehensive guide for individuals seeking to make informed and strategic decisions in their financial journeys.

1.3.1 Mutual fund

Akash has a lump sum of ₹100,000. He decides to use the entire amount to buy shares of a company in the pharmaceutical industry. Unfortunately, due to challenges in the external environment, the pharmaceutical industry faces a sudden decline, posing a high risk of Akash losing his money. This is because he invested all his money in just one sector.

Now, consider an alternative scenario. Akash decides to diversify his investment by allocating ₹10,000 each in shares of 10 different companies spanning various industries. While this reduces the potential risk, managing 10 individual shares can be quite challenging for an average person.

This is where mutual funds come into play.

A mutual fund is a collective effort where numerous investors pool their money. The fund then strategically invests this collective pool in a variety of securities such as stocks, bonds, and short-term debt. The combined investments constitute the mutual fund's portfolio. Investors, including Akash, purchase shares in the mutual fund, with each share representing a fractional ownership in the fund and its generated income. What sets mutual funds apart is their professional management. Skilled fund managers conduct the necessary research, select securities, and monitor performance. This professional oversight allows investors like Akash to enjoy the benefits of diversification without the hassle of personally managing multiple individual shares.

A mutual fund constitutes a collection of stocks, bonds, or other securities collectively owned by hundreds or thousands of investors, overseen by a professional investment company. These investors, who share similar investment objectives, become shareholders in the fund. Each mutual fund is defined by specific investment criteria outlined in its prospectus – the official booklet detailing its characteristics. This transparency ensures that investors understand the fund's objectives, enabling them to align their investment goals with those of the fund. According to SEBI, a Mutual fund is a mechanism for pooling resources by issuing units to investors and investing funds in securities in accordance with the objectives as disclosed in the offer document.

The combined funds from investors form the mutual fund's CORPUS, representing a consolidated pool of money. This pooled capital, with increased purchasing power compared to individual investors, empowers the fund to hold a diverse portfolio of hundreds of securities. Consequently, the fund's success is not contingent on the performance of a single or a few companies, mitigating risk and enhancing the potential for sustained returns.

When investors purchase a mutual fund, they own a piece of an investment portfolio. They share in the gains, losses, and expenses in proportion to the amount they have invested in the fund. At the close of every trading day, a mutual fund company tallies the value of all the securities in its portfolio and deducts its expenses (e.g., management fees, administrative expenses, advertising costs). The balance is divided by the number of shares owned by shareholders to arrive at the value of one share of the mutual fund.

Investments in securities are spread across a wide cross-section of industries and sectors, and thus the risk is reduced. Diversification reduces the risk because all

stocks may not move in the same direction in the same proportion at the same time. Mutual funds are not risk-free. The value of your investment can go up or down depending on market movements. Mutual fund issues units to the investors in accordance with the quantum of money invested by them. Investors of mutual funds are known as unit holders.

How Do Mutual Funds Work?

Investing: You, the investor, buy shares (units) in the mutual fund. The price of each unit is called the Net Asset Value (NAV), which reflects the total value of all the assets in the fund divided by the number of outstanding units.

Pooling Money: Your money, along with contributions from other investors, gets combined into a large pool. The AUM of the Indian MF Industry has grown from ₹8.26 trillion as on December 31, 2013, to ₹50.78 trillion as on December 31, 2023, more than 6-fold increase in a span of 10 years.

The MF Industry's AUM has grown from ₹ 22.86 trillion as on December 31, 2018, to ₹50.78 trillion as on December 31, 2023, more than a 2-fold increase in a span of 5 years.

Professional Management: A dedicated fund manager, with their team of analysts, researches and selects a mix of investments based on the fund's objective (growth, income, etc.). They constantly monitor and adjust the portfolio to optimize returns.

Returns and Distributions: The fund's performance is reflected in the NAV. If the value of the underlying assets increases, the NAV rises, and so does your unit's value. You can earn returns in two ways:

Capital appreciation: When you sell your units at a higher price than you bought them.



Dividends: Some funds may distribute a portion of the income earned from the investments (like rent from properties) to the unitholders.

1.3.1.1 Benefits of Investing in Mutual Funds

- i. **Diversification :** Investing in mutual funds allows individuals to benefit from diversification by spreading their investments across a wide range of assets. This reduces the impact of poor performance in any single investment on the overall portfolio. For example, a mutual fund may hold stocks from different sectors, bonds with varying maturities, and other securities, providing a balanced approach to risk.
- ii. **Professional Management :** Mutual funds are overseen by experienced fund managers who conduct in-depth research and make informed investment decisions on behalf of investors. These professionals leverage their expertise to navigate financial markets, monitor economic trends, and optimize the fund's performance. This professional management is particularly advantageous for investors who may not have the time, knowledge, or resources to actively manage their investments.
- iii. **Liquidity :** Mutual funds offer liquidity as investors can buy or sell fund units at the end of each trading day at the current net asset value (NAV). This liquidity ensures that investors can easily enter or exit positions without the challenges of finding buyers or sellers for individual securities. It provides a level of convenience, especially in dynamic market conditions.
- iv. **Affordability :** Mutual funds provide

an affordable entry point for investors to access a diversified portfolio. Unlike purchasing individual stocks or bonds, investors can buy mutual fund units with a relatively small investment amount. This affordability democratizes access to a broad range of investment opportunities, making it accessible to a wide spectrum of investors with varying financial capacities.

1.3.1.2 Limitations of investing in Mutual Funds

Investing in mutual funds offers several advantages, but it also comes with certain limitations and risks that investors should be aware of:

- i. **Market Risks :** Mutual funds are subject to market risks, and the value of their portfolios can fluctuate based on changes in the financial markets. Economic downturns or adverse market conditions can lead to losses for investors.
- ii. **Fees and Expenses:** Mutual funds typically charge fees and expenses, including management fees, operating expenses, and possibly sales charges (loads). These costs can impact the overall returns for investors, especially if not closely monitored.
- iii. **Lack of Control :** Investors in mutual funds relinquish control over specific investment decisions to professional fund managers. While this can be an advantage, it also means that individual investors have limited say in the day-to-day management of the fund's portfolio.
- iv. **Dilution of Returns :** As mutual funds pool money from numerous investors, any gains generated by the fund are distributed among all shareholders. This can result in the

dilution of returns, particularly in large funds with many investors.

v. **Tax Implications :** Mutual fund investors may face tax implications due to capital gains distributions. Even if an investor does not sell their fund shares, they may be liable for taxes on capital gains realized by the fund, potentially resulting in unexpected tax liabilities.

vi. **Style Drift :** Fund managers may deviate from the stated investment objectives or style over time, a phenomenon known as "style drift." This can impact the fund's performance and may not align with the expectations of investors who initially chose the fund for its specific characteristics.

vii. **Overdiversification :** While diversification is a key advantage, excessive diversification within a mutual fund can lead to over diversification. This may result in the fund mirroring the overall market performance without providing the potential for outperformance.

viii. **Market Timing :** Investors entering or exiting a mutual fund may be subject to market timing risks. Rapid inflows or outflows can affect the fund's performance and may result in unfavorable transactions for investors trying to time the market.

ix. **Benchmark Dependency :** Mutual fund performance is often measured against a benchmark. While this provides a reference point, funds that closely track benchmarks may lack the potential for active management to outperform the market.

x. **Limited Investment Options:** Some mutual funds may have restrictions on the types of securities they can invest in. For example, certain funds may focus exclusively on a specific sector or market, limiting the range of investment opportunities for investors.

1.3.1.3 Entities in a mutual fund operation

In India, the following entities are involved in mutual fund operations:

i. **Sponsor :** The sponsor of a mutual fund is like the promoter of a company, who shall be a bank, financial institution, or financial services company. The sponsor is responsible for setting up and establishing the mutual fund. In addition, the sponsor acts as the settlor of the mutual fund trust and delegates the trustee function to the trustees. It is to be noted that the sponsor can either be Indian or foreign. For example, the sponsor of Templeton Mutual Fund (now Franklin Templeton Mutual Fund) is Templeton International Inc. The sponsor has to obtain a license from SEBI, for which it has to satisfy several conditions relating to capital, profits, track record, default-free dealings, and so on.

ii. **Mutual Fund :** The mutual fund is constituted as a trust under the Indian Trust Act, 1881, and registered with SEBI. The beneficiaries of the trust are the investors who invest in various schemes of the mutual fund.

iii. **Trustees :** A trust is a notional entity that cannot contract in its name. So, the trust enters into contracts in the name of the trustees, whom the sponsor appoints. The trustees can be individuals or a corporate body (a trustee company). In the majority of the cases, the trustee will be a corporate body. For example, the trustee of the Templeton Mutual Fund is Templeton Trust Services Private



Ltd, a company incorporated with limited liability under the Companies Act, 1956. To ensure that the trustees are fair and impartial, SEBI rules mandate that at least two-thirds of the trustees are independent, which means that they have no association with the sponsor.

The role of trustees includes:

- Appointing the asset management company (AMC),
- Securing necessary approvals,
- Periodic monitoring of how the AMC functions, and
- Hold the properties of the various schemes in trust for the benefit of investors.

It has to be noted that Trustees can be held accountable for the financial irregularities of the mutual fund.

iv. Asset Management Company :

The Asset Management Company (AMC), also known as Investment Manager, is a separate company appointed by the trustees to run the mutual fund. For example, Templeton Asset Management (India) Private Ltd. is the AMC of the Templeton Mutual Fund. The AMC handles all operational matters such as:

- Designing the schemes,
- Launching the schemes,
- Managing investments, and
- Interacting with investors.

In return for its services, the AMC is compensated through investment management and advisory fees. Each scheme of the mutual fund pays the AMC an annual investment management and advisory fees, which are linked to the size of the scheme. Currently, this fee is subject to the following limits:

- On the first Rs. 100 crores of the weekly average net assets - 1.25 percent;
- On the balance of net assets - 1.00 percent.

The head of the AMC is generally referred to as the chief executive officer (CEO). Next to him is the chief investment officer (CIO), who shapes the fund's investment philosophy and who is supported by fund managers responsible for managing various schemes.

The fund managers are assisted by a team of analysts who track markets, sectors, and companies.

v. Custodian :

The custodian handles the back-office operations of a mutual fund. In addition, it also looks after:

- The receipt and delivery of securities,
- The collection of income,
- Distribution of dividends, and
- Segregation of assets between schemes.

The sponsor of a mutual fund cannot act as its custodian. Thus, it is ensured that the assets of the mutual fund are not in the hands of its sponsor.

vi. Registrars and Transfer Agents :

The registrars and transfer agents handle investor- related services such as

- Issuing units,
- Redeeming units,
- Sending fact sheets and annual report.

Some funds handle such functions in-house, while others outsource it to SEBI- approved registrars and transfer agents like Karvy and CAMS.

1.3.1.4 Types of mutual funds

The mutual fund schemes can be broadly classified based on:

1. Maturity
2. Equity schemes,
3. Debt schemes,
4. Hybrid schemes,
5. Solution-oriented schemes, and
6. Other schemes.

Classification based on maturity

Based on maturity mutual funds can be classified into open-ended schemes and close-ended schemes.

Open-ended schemes: These are funds that are continuously available for subscription and repurchase without a fixed maturity period. Investors can buy or sell the units at Net Asset Value (NAV)-related prices on any business day. Such schemes are not listed on any exchange, offering flexibility and liquidity. The unit capital of open-ended funds can fluctuate daily, reflecting the ongoing transactions. The key feature is liquidity.

Close-ended schemes : Close-ended schemes have fixed maturity periods, such as 5-7 years.

Investors can buy into these funds only during the initial issue period.

After the initial period, these schemes cannot issue new units, except in cases of bonus or rights issues.

Investors can exit through periodic repurchase at NAV-related prices or, in some cases, through listing on stock exchanges. SEBI regulations mandate at least one of these exit routes.

NAV disclosure for close-ended schemes is generally on a weekly basis.

Classification based on equity schemes

Before studying the types of mutual funds based on the equity scheme, we need to understand the small-cap, mid-cap, and large-cap funds. The Securities and Exchange Board of India (SEBI) established certain regulations in 2017 to categorize companies according to their market capitalization.

Large - cap companies: The top 100 companies listed in the stock market based on market capitalization are classified as large-cap companies. The mutual funds that hold the companies from the large-cap are called 'Large-cap funds'. The market cap for these companies is around ₹20000 crores and more, and they have a strong market presence. E.g., ITC, HDFC Bank, ICICI, HUL etc.

Mid - cap companies: SEBI established a rule in the year 2017, according to which companies that are ranked from 101 to 250 in terms of market capitalization are known as mid-cap companies. The market cap for these companies will be around ₹5000 to ₹20000 crores. Mutual funds that hold stocks from the mid-cap are called 'Mid-cap funds'. E.g., Metropolis Healthcare, Castrol India etc.

Small - cap companies: The companies ranked from the 251st position onwards in terms of market capitalization are known as small-cap companies. The market cap for these companies is below Rs.5000 crores. The mutual funds that hold stocks from the small-cap are called 'Small-cap funds'. E.g., Bajaj Consumer Care, Shobha Ltd, VST Industries etc.

The classification of mutual funds based on equity schemes is presented in Table 1.3.1.



Table 1.3.1
Mutual funds based on equity schemes

Type	Description
Small Cap Fund	An open-ended equity scheme that invests at least 65% of total assets in equity and equity-related instruments of small-cap companies.
Mid Cap Fund	An open-ended equity scheme that invests at least 65% of total assets in equity and equity-related instruments of mid-cap companies.
Large Cap Fund	An open-ended equity scheme that invests predominantly (at least 80% of total assets) in equity and equity-related instruments of large cap companies.
Multi Cap Fund	An open-ended equity scheme with at least 65% of total assets in equity and equity-related instruments of large cap, mid cap, and small cap companies.
Large and Mid Cap Fund	An open-ended equity scheme that invests at least 65% of total assets each in equity and equity-related instruments of large cap companies and mid cap companies.
Dividend Yield Fund	An open-ended equity scheme that invests at least 65% of total assets in dividend yielding stocks.
Value Fund/ Contra Fund	An open-ended equity scheme that invests at least 65% of total assets in equity and equity-related instruments and follows a value/contrarian investment strategy. Mutual funds are permitted to offer either value fund or contra fund.
Focused Fund	An open-ended equity scheme that invests at least 65% of total assets in equity and equity-related instruments and has a maximum number of 30 stocks. It mentions where the scheme intends to focus, viz., multi cap, large cap, mid cap, or small cap.
Sectoral/ Thematic Fund	An open-ended equity scheme that invests at least 80% of total assets in equity and equity-related instruments of a particular sector/theme.
Equity Linked Savings Scheme (ELSS) Fund	An open-ended equity-linked saving scheme that invests at least 80% of total assets in equity and equity-related instruments. It has a statutory lock-in of 3 years and tax benefit.

Classification based on debt schemes

Debt schemes primarily invest in debt instruments such as bonds and cash. The diverse array of debt schemes offered by mutual funds in India can be categorized into various sub- categories, which are presented in Table 1.3.2.

Table 1.3.2
Mutual funds based on debt schemes

Fund Type	Description
Overnight Fund	An open-ended debt scheme that invests in overnight securities having a maturity of 1 day.
Liquid Fund	An open-ended liquidity scheme that invests in debt and money market securities with maturity of up to 91 days only.
Ultra Short Duration Fund	An open-ended debt scheme that invests in debt and money market instruments with a Macaulay duration of the portfolio between 3-6 months.
Low Duration Fund	An open-ended low duration debt scheme that invests in debt and money market instruments with a Macaulay duration between 6-12 months.
Money Market Fund	An open-ended debt scheme that invests in money market instruments having maturity up to 1 year.
Short Duration Fund	An open-ended short-term debt scheme that invests in debt and money market instruments with a Macaulay duration between 1 and 3 years.
Medium Duration Fund	An open-ended medium-term debt scheme that invests in debt and money market instruments with a Macaulay duration between 3 and 4 years.
Medium to Long Duration Fund	An open-ended debt scheme that invests in debt and money market instruments with a Macaulay duration between 4 and 7 years.
Long Duration Fund	An open-ended debt scheme that invests in debt and money market instruments with a Macaulay duration greater than 7 years.
Dynamic Bond Fund	An open-ended debt scheme that invests across durations.
Corporate Bond Fund	An open-ended debt scheme that invests at least 80% of total assets in highest rated corporate bonds.
Credit Risk Fund	An open-ended debt scheme that invests at least 65% of total assets in below highest rated corporate bonds.
Banking and PSU Fund	An open-ended debt scheme that invests at least 80% of total assets in debt instruments of banks, public sector undertakings, and public financial institutions.
Gilt Fund	An open-ended debt scheme that invests at least 80% of total funds in Government Securities (Gilts) of various maturities.



Gilt Fund with 10 Year Constant Duration	An open-ended debt scheme that invests at least 80% of total assets in Government Securities (Gilts) such that the Macaulay duration of the portfolio is equal to 10 years.
Floater Fund	An open-ended debt scheme that invests at least 65% of total assets in floating rate instruments.

The fund style of a debt fund can be characterized by two key attributes: credit quality and interest rate sensitivity as shown below:

Classification Based on Hybrid schemes

Hybrid schemes, also known as balanced schemes, invest in a combination of equity and debt instruments. Such schemes can be categorized as equity-oriented, debt-oriented, or featuring a variable asset allocation, as presented in Table 1.3.3.

Table 1.3.3
Mutual funds based on hybrid schemes

Fund Type	Description
Conservative Hybrid Fund	An open-ended hybrid scheme investing 75% - 90% in debt instruments and the balance (10% - 25%) in equity and equity-related instruments.
Balanced/Aggressive Hybrid Fund	An open-ended balanced scheme investing between 40% - 60% (65% - 80%) in equity and equity-related instruments, and 40% - 60% (20% - 35%) in debt instruments.
Dynamic Asset Allocation or Balanced Advantage Fund	An open-ended dynamic asset allocation fund investing in both equity and debt.
Multi Asset Allocation Fund	An open-ended scheme investing at least 10% of total assets in all three asset classes (equity, debt, and another asset class).
Arbitrage Fund	An open-ended scheme following an arbitrage strategy with at least 65% of total assets in equity and equity-related instruments.
Equity Savings Fund	An open-ended scheme investing in equity, arbitrage, and debt with at least 65% of total assets in equity and related instruments and 10% in debt.

Table 1.3.4
Classification of mutual funds based on solution oriented schemes

Fund Type	Description	Lock-In Period
Retirement Fund	An open-ended scheme with a lock-in for at least 5 years or until retirement age, whichever comes earlier.	At least 5 years or until retirement age, whichever is earlier.
Children's Fund	An open-ended scheme with a lock-in for at least 5 years or until the child becomes a major, whichever comes earlier.	At least 5 years or until the child becomes a major, whichever is earlier

Table 1.3.5
Classification of mutual funds based on other schemes

Fund Type	Description	Asset Allocation
Index Funds/ETFs	An open-ended scheme with at least 90% of total assets invested in securities of a specific index that is replicated or tracked.	At least 90% in securities of a particular index being replicated or tracked.
Fund of Funds (Overseas/ Domestic)	An open-ended fund investing at least 95% of total assets in other specified funds.	At least 95% in other specified funds, which may be either overseas or domestic funds depending on the type of Fund of Funds.

1.3.2 Strategic Investment Plan

Suppose that, Vikas is a person who cannot invest a lump sum amount, but he is capable of setting aside a portion of his monthly income for the future. In our lives,

the majority of people are like Vikas. An innovative investment product suitable for someone with this investment approach, is the strategic investment plan. A Systematic Investment Plan (SIP) is a method of investing



in mutual funds that allows investors to contribute a fixed amount of money at regular intervals (typically monthly or quarterly) into a chosen mutual fund scheme. SIP is

a disciplined and systematic approach to investing and offers several advantages to investors.



Fig. 1.3.1 Growing trend of SIPs in India

If you are planting a tree, you wouldn't expect it to grow into a mighty oak overnight, right? You need to water it regularly, give it enough sunlight, and nourish it with good soil. Similarly, with SIPs, you invest small amounts over time, and over the years, your investment grows steadily, just like a tree.

How to invest in SIP

To start a SIP an investor will have follow the following steps:

1. Select a mutual fund scheme
2. Provide instructions to invest a fixed amount regularly.

The chosen amount is then automatically debited from the investor's bank account and used to purchase units of the mutual fund at the prevailing Net Asset Value (NAV).

Details of new SIPs registered and discontinued during FY 23-24 are as under (SIP Count in Lakh)

Table 1.3.4 Details of new SIPs during FY 23-24

Month	Total No. of outstanding SIP Accounts	No. of New SIPs registered	No. of SIPs discontinued/ tenure completed	SIP AUM ₹ crore	SIP Contribution ₹ crore
Apr 23 - Dec 23	763.66	283.58	155.91	9,95,925	1,41,923
Dec 23	763.66	40.33	20.81	9,95,925	17,610
Nov 23	744.14	30.80	16.69	9,31,333	17,073
Oct 23	730.03	34.66	17.57	8,59,924	16,928
Sep 23	712.94	36.77	20.69	8,70,363	16,042

Aug 23	696.86	35.92	19.59	8,47,131	15,814
Jul 23	680.53	33.06	17.90	8,32,275	15,245
Jun 23	665.37	27.78	15.26	7,93,609	14,734
May 23	652.85	24.70	14.19	7,52,944	14,749
Apr 23	642.34	19.56	13.21	7,17,176	13,728
Apr 22 -Mar 23	635.99	251.41	143.15	6,83,296	1,55,972
Apr 21– Mar 22	527.73	266.36	111.17	5,76,358	1,24,566

Source: Association of Mutual Funds in India

1.3.2.1 Features of Systematic Investment Plan

i. **Fixed amount:** You decide how much you want to invest each time, and that amount is automatically deducted from your bank account and invested in the chosen mutual fund scheme.

Example: You decide to invest ₹500 every month through an SIP in a mutual fund scheme. This amount will be automatically deducted from your bank account on a chosen date each month and invested in the fund.

ii. **Regular intervals:** You can choose to invest monthly, quarterly, half-yearly, or even annually. The key is to be consistent.

Example: You choose to invest monthly through your SIP. This means your ₹500 will be invested in the mutual fund scheme every month, on the same date.

iii. **Long-term investment:** SIPs are best suited for long-term goals, such as retirement planning, children's education, or buying a house.

Example: You start an SIP when you're 25 years old, aiming to accumulate a corpus for your retire-

ment at 60. This means you'll be investing regularly for 35 years, allowing your money to grow significantly through compounding.

iv. **Rupee-Cost Averaging:** By investing at regular intervals, you buy mutual fund units at different price points, averaging out the cost per unit. This helps you mitigate market volatility. Imagine buying groceries throughout the month instead of buying everything at once. You'll likely get a better average price than buying everything on the most expensive day.

Example: The mutual fund units cost ₹10 per unit in your first month of investing, ₹12 per unit in your second month, and ₹8 per unit in your third month. By investing ₹500 each month, you'll buy more units when the price is low and fewer units when the price is high, averaging out your cost per unit.

v. **Compounding:** This is the magic of SIPs. When you invest regularly, your money earns returns, and those returns are also reinvested. Over time, this compounding effect can significantly boost your investment. Example: Let's say your SIP earns an annual return of 10%. In your



first year, your ₹500 monthly investments will grow to ₹6,000 (including returns). In your second year, the returns will be calculated on both your initial investment and

the previous year's returns, leading to a higher amount. Over the long term, this compounding effect can significantly increase your investment value.

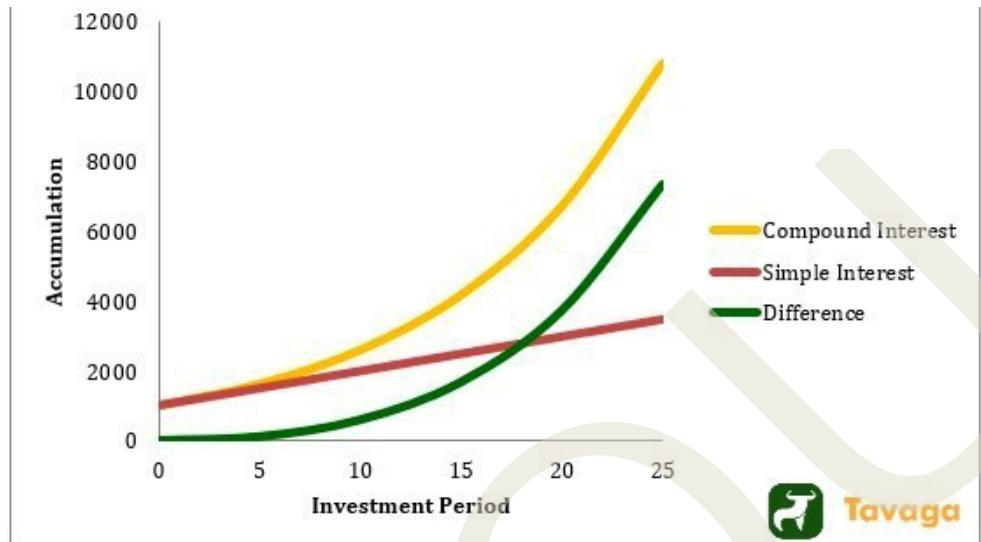


Fig. 1.3.2 Effect of compounding on return

1.3.2.2 Advantages of Systematic Investment Plan

The following are the advantages of Systematic Investment Plan

- i. **Disciplined Investing :** SIPs are not a get-rich-quick scheme, rather it encourages disciplined investing by allowing investors to contribute a fixed amount regularly. This systematic approach promotes a regular savings habit. They require discipline and patience to achieve your financial goals. However, they offer a convenient and effective way to invest for the long term and build wealth gradually.
- ii. **Affordability :** SIPs make mutual fund investments accessible to a broad range of investors, as they can start with a relatively small amount. This is especially beneficial for individuals with limited capital.
- iii. **Rupee Cost Averaging :** SIPs utilize the strategy of rupee cost averaging, where investors buy more units when prices are low and fewer units when prices are high. Over time, this helps in averaging the cost per unit and reduces the impact of market volatility.
- iv. **Compounding Benefits :** SIPs leverage the power of compounding, as the returns generated are reinvested. Over the long term, compounding can significantly enhance the overall returns on the investment.
- v. **Flexibility :** Investors have the flexibility to choose the frequency and amount of their SIP contributions. Additionally, they can easily increase, decrease, or pause their SIPs based on their financial goals and circumstances.
- vi. **Diversification :** SIPs allow investors to spread their investments across

different market conditions, as they buy units at various price points over time. This helps in reducing risk through diversification.

- vii. **Convenience** : Automated deductions from the investor's bank account make SIPs convenient, eliminating the need for active market monitoring and timing.
- viii. **Goal-Oriented Investing** : SIPs are often used for goal-oriented investing, helping investors work towards specific financial objectives, such as education, home purchase, or retirement planning.

1.3.2.3 Disadvantages of Systematic Investment Plan

Apart from the benefits, SIPs also have some limitations, as follows:

- i. **Market Risk** : SIPs are subject to market risk, and the value of investments can fluctuate based on market conditions. While rupee cost averaging helps mitigate this risk, there is no guarantee against losses.
- ii. **Returns Depend on Market Performance** : The returns generated in SIPs depend on the performance of the underlying mutual fund scheme and the overall market. Poor market conditions can impact returns negatively.
- iii. **Lack of Control Over Timing** : Investors relinquish control over the timing of their investments in SIPs. This may be a disadvantage for those who prefer to time the market based on their analysis.
- iv. **Fees and Expenses** : Mutual funds often charge fees and expenses, which can affect overall returns. It's essential for investors to be aware of these costs and factor them into their investment decisions.

- v. **Not Guaranteed Profit** : While SIPs offer a disciplined approach to investing, they do not guarantee profits. Investment outcomes are influenced by market conditions and the performance of the chosen mutual fund.
- vi. **Limited Liquidity** : Some mutual funds may have a lock-in period or exit load, limiting the liquidity of investments, especially in the short term.

1.3.3 Systematic Withdrawal Plan

Erfan is an employee working in an unorganized sector. Though he was worried about his retirement life, as he knows that employees in the unorganized sector will not receive a pension, apart from a nominal amount provided by the government as part of social security measures. However, he is aware that this amount is much smaller compared to employees working in the organized sector.

Did you know that Erfan is not alone in this dilemma? According to the Economic Survey 2021-22, around 43.99 crores of individuals were employed in the unorganized sector during 2019-20. Now, the question arises: How can we assist people like Erfan in securing a substantial and regular income? The answer is Systematic Withdrawal Plan (SWP). It is an investment strategy offered by mutual funds where investors can withdraw a predetermined amount of money from their mutual fund investments at regular intervals. This plan is designed to provide a steady stream of income to investors.

1.3.3.1 Features of Systematic Withdrawal Plan

Here are the key features of a Systematic Withdrawal Plan (SWP):

- i. **Regular Withdrawals** : SWP allows investors to receive a fixed amount



or a percentage of their investment regularly, typically on a monthly, quarterly, or annual basis. This provides a source of income for investors.

- ii. **Flexibility** : Investors have the flexibility to choose the frequency and the amount of withdrawals based on their financial needs. They can customize the SWP according to their income requirements.
- iii. **Automated Process** : Similar to Systematic Investment Plans (SIPs), SWPs can be set up as an automated process. The predetermined withdrawal amount is automatically transferred from the mutual fund scheme to the investor's bank account.
- iv. **Capital Appreciation** : SWP can be a strategy for investors who want to derive a regular income from their investments while allowing the remaining capital to stay invested in the market. This approach can be beneficial for retirees or individuals looking for a steady income stream.
- v. **Tax Implications** : The tax implications of SWP depend on the type of mutual fund and the holding period. In some cases, gains from unit redemption may be subject to capital gains tax.
- vi. **Redemption of Units** : When an investor opts for an SWP, mutual fund units are redeemed to meet the withdrawal amount. The redemption amount is then credited to the investor's bank account.

1.3.3.2 Advantages of Systematic Withdrawal Plans

- i. **Regular Income Stream** : Assume you invest a lump sum amount in a mutual fund and receive a fixed

amount each month via SWP. This generates a predictable income stream, making it ideal for retirees or individuals seeking consistent cash flow.

- ii. **Rupee Cost Averaging** : If you invest in a lump sum and use SWP, you may find yourself selling units at different NAVs (Net Asset Values) due to market fluctuations. This can result in rupee cost averaging, which reduces the impact of market volatility.
- iii. **Flexibility in Withdrawals** : Investors can tailor the frequency and amount of withdrawals to their financial needs. For example, you can opt for monthly, quarterly, or annual withdrawals, and you can adjust the withdrawal amount to meet your needs.
- iv. **Tax Efficiency** : In some cases, withdrawal through the SWP may be more tax-efficient than selling units directly. Gains from mutual funds held for more than one year are eligible for long-term capital gains tax (10%), which can be lower than short-term capital gains tax (15%).

1.3.3.3 Disadvantages of Systematic Withdrawal Plans

- i. **Market Risk** : If the market performs poorly, the value of mutual fund units may fall. Withdrawing a fixed amount from SWP during a bear market may deplete the investment faster, posing the risk of running out of funds.
- ii. **Possibility of Capital Erosion** : If the withdrawal amount is not carefully planned, the capital may erode over time. This is especially noticeable if the withdrawal rate is excessively high and the investment returns are insufficient to cover it.

- iii. **Transaction Costs** : Each SWP withdrawal may be subject to transaction charges or exit loads, depending on the mutual fund's policy. These costs can accumulate over time, affecting overall returns.
- iv. **Dependency on Fund Performance** : The success of SWP is dependent on the performance of the underlying mutual fund. If the fund underperforms, the withdrawal strategy may not yield the expected results, influencing the investor's financial plan.

1.3.4 Unit Linked Insurance

Plans

Suppose you need an insurance plan to cover the risks in your life while also desiring an investment opportunity. What will you do? Will you purchase an insurance policy and start investing in various avenues? If yes, then you must know that a new innovative scheme covers your life and assures an investment. This is called a Unit Linked Insurance Plan (ULIP).

A Unit Linked Insurance Plan (ULIP) is an insurance product that offers the dual benefit of investment to fulfill long-term goals and a life cover to financially protect one's family in case of an unfortunate event. The premium paid towards a ULIP is divided into two parts:

1. A portion is allocated to the life cover, and
2. The remainder is invested in a fund of the policyholder's choice.

Based on their risk appetite and goals, investors can choose to invest in equity, debt, or a combination of both funds. This makes ULIPs an ideal investment option for individuals and their families to achieve long-term financial objectives. Examples: SBI Life—eWealth Unit-linked insurance

plan, SBI Life—Smart InsureWealth Plus, ICICI Pru LifeTime Classic.

1.3.4.1 Features of ULIPs

- i. **Market-Linked Returns** : An important feature of Unit-Linked Insurance Plans (ULIPs) is market-linked returns, providing the opportunity to build long-term wealth with favourable returns on investments. ULIPs allow you to choose from a diverse array of market-linked funds, including equities, bonds, debt, and hybrid options. Your investments in these funds make you eligible for market returns based on their performance.
- ii. **Tax Saving** : ULIPs offer substantial tax benefits based on your income. By investing in a ULIP, you can reduce your taxable income (up to Rs. 1.5 Lakhs) under Section 80C of the Income Tax Act.

Notably, as your ULIP investment grows, any money received, whether as a maturity amount or death benefit, is tax-free up to a certain limit under Section 10(10D)1, provided the sum assured is at least 10 times the annual premium paid. In essence, ULIPs not only help you save on taxes during investment but also enable you to retain all profits without any tax deductions upon withdrawal, making it a prudent choice for your financial well-being.

- iii. **Insurance Component** : Integral to ULIPs is the insurance component, ensuring the financial protection of your family in the event of an unfortunate incident during the policy period.

The payout in case of the life assured's demise serves as a vital financial backup,



covering family needs, debts, and securing their future.

- iv. **Investment Component :** When you invest in a ULIP, a portion of your money is allocated to various investment funds. The growth of your investment depends on the performance of these funds over time. Before opting for a ULIP, it's crucial to assess the risks, associated charges, and potential returns to make an informed decision.
- v. **Partial Withdrawal :** A key benefit of ULIPs is partial withdrawal, allowing you to access funds for immediate financial needs before the policy matures without cancelling the entire policy. While there is a lock-in period (typically five years) and a minimum amount that must remain in the policy after withdrawal, the insurance company determines the maximum limit for the amount or percentage that can be withdrawn.

1.3.4.2 Advantages of ULIPs

- i. **Enhanced Returns :** When you invest in a ULIP, your money is strategically invested in the stock market, increasing the potential for high returns. During market upswings, substantial profits can be earned.
- ii. **Multifaceted Benefits :** A single ULIP policy provides multiple benefits. It allows you to leave a legacy for your heirs and dependents through a sum assured, while securing your own future through periodic investments. This results in a comprehensive set of advantages.
- iii. **Emergency Fund Utility :** Despite being perceived as mid or long-term investments, ULIPs offer a valuable feature—short-term withdrawals. In times of urgent financial need, a

ULIP can function effectively as an emergency fund.

- iv. **Tax Benefits :** Enjoy tax benefits with ULIPs. The premiums paid can be claimed as a deduction up to ₹1.5 lakh under Section 80C of the Income Tax Act of 1961. Additionally, the death benefit paid to the nominee upon the policyholder's demise is exempt from income tax under the same act.
- v. **Flexibility in Fund Switching :** ULIPs provide flexibility by allowing you to switch between funds multiple times. This feature ensures that your money is positioned for optimal growth, adapting to changing financial circumstances.

1.3.4.3 Disadvantages of ULIPs

- i. **Subject to Market Risk :** ULIPs expose your investments to market risk as they allocate funds to the stock market. The inherent volatility means that your returns are contingent on market performance, leading to potential profits or significant losses based on market fluctuations.
- ii. **Higher Costs Compared to Other Insurance Plans :** In comparison to alternative insurance plans like term insurance or whole life insurance, ULIPs can be more expensive. This higher cost may pose challenges for individuals on a budget, making it less suitable for those seeking more economical insurance options.
- iii. **Fixed Lock-In Period :** A notable limitation of ULIPs is the fixed lock-in period of 5 years. During this duration, you are restricted from accessing or withdrawing your invested funds. This lack of liquidity can be a drawback for individuals who require more flexibility and immediate access to their money.

1.3.5 Real Estate Investment Trusts (REITs)

Assume that Erfan is someone who is aware that the real estate business is one of the high-return investment strategies in India. However, he knows that a substantial amount is required to invest in real estate, whether for purchasing land, buildings, or apartments. Unfortunately, his current income does not meet this requirement. In this situation, what he can do to benefit from the real estate business is to make use of Real Estate Investment Trusts (REITs). REITs offer a helpful and suitable solution for individuals like Erfan.

REIT is a unique investment vehicle that pools funds from various investors to directly invest in a diversified portfolio of income-generating real estate assets. This structure provides individual investors with an opportunity to participate in the real estate market without the burden of property ownership and management.

REIT is somewhat like a mutual fund that invests in real estate, but there are significant differences between the two. Essentially, it is a trust that pools money from people to invest in commercial real estate. Investors in REITs own a share of the real estate and hence receive an appropriate share of its income after deduction of expenses. REITs, which are regulated by SEBI, are meant to primarily invest in finished and rented out commercial properties-80% of the investment must be in such assets. So, real estate under development is ruled out.

Example: Embassy Office Park, Mindspace Business Park, Brookfield India, Nexus Select Trust. REITs are similar to mutual funds in that they pool the capital of many investors. However, unlike mutual funds, REITs are required to distribute at least 90% of their taxable income to shareholders in the form of dividends. This makes REITs an attractive investment for those seeking income

1.3.5.1 Features of Real Estate Investment Trusts

- i. **Income Focus :** REITs are designed to generate consistent income for investors through rent payments or mortgage interest. They achieve this by owning and operating income-producing real estate assets like apartments, offices, warehouses, hotels, or investing in real estate loans.
- ii. **High Dividend Payout :** By law, REITs must distribute at least 90% of their taxable income to shareholders as dividends. This makes them attractive to investors seeking regular income streams, similar to bonds but with higher potential returns.
- iii. **Liquidity and Tradability :** Unlike physical real estate, most REITs are publicly traded on stock exchanges. This translates to high liquidity, allowing investors to easily buy and sell their shares, unlike the often lengthy and complicated process of selling a physical property.
- iv. **Diversification :** REITs offer diversification benefits within the real estate sector. By investing in a variety of property types across different geographic locations, REITs spread the risk associated with any single property or market downturn.
- v. **Professional Management :** REITs are typically managed by experienced professionals who handle property selection, tenant relations, maintenance, and financial oversight. This frees investors from the burdens of property management, allowing them to reap the benefits of real estate ownership without the hands-on responsibilities.
- vi. **Accessibility :** Compared to the high upfront costs of purchasing individual



properties, REITs offer lower entry barriers, allowing smaller investors to participate in the real estate market with smaller investments.

1.3.5.2 Advantages of Real Estate Investment Trusts

- i. **Diversification** : REITs can help to diversify your portfolio and reduce your overall risk.
- ii. **Liquidity** : REITs are publicly traded on major stock exchanges, so they are relatively easy to buy and sell.
- iii. **Income** : REITs typically pay high dividends, which can provide a valuable source of income for investors.

- iv. **Potential for capital appreciation** : In addition to dividends, REITs can also appreciate in value over time.

1.3.5.3 Disadvantages of Real Estate Investment Trusts

- i. **Interest rate risk** : Rising interest rates can make it more expensive for REITs to finance their properties, which can lead to lower dividends or share prices.
- ii. **Property value risk** : The value of REITs can also decline if the value of the properties they own goes down.
- iii. **Economic risk** : REITs are also susceptible to economic downturns, which can lead to lower occupancy rates and lower rents.

Infrastructure Investment Trust (InvIT)

InvITs may be viewed as a modified version of REITs designed to suit the specific circumstances of the infrastructure sector. An InvIT, or Infrastructure Investment Trust, works like a mutual fund. An InvIT is designed to pool small sums of money from a number of investors to invest in infrastructure assets that generate cash flows over a period of time which are distributable to investors. InvITs are regulated under the SEBI Infrastructure Investment Trust Regulations, 2014

1.3.6 Exchange Traded Funds (ETF)

Thomas is an individual who lacks the risk tolerance for high-risk investments. Consequently, he is not inclined to invest in shares, mutual funds, and similar instruments. However, he is aware that the stock exchange indices in developing countries like India are growing upward. Rather than seeking returns from individual stocks or commodities, Thomas desires returns aligned with the overall market indices. He believes that by doing so, he can diversify his risk exposure while still achieving moderately high returns. Is this approach feasible? If so, what is it called, and how does it work?

An Exchange-Traded Fund (ETF) is a type of investment fund and exchange-traded product that owns underlying assets such as stocks, bonds, or commodities. ETFs are traded on stock exchanges, similar to individual stocks, and their shares can be bought and sold throughout the trading day at market prices.

As these funds are traded on stock exchanges throughout the day, ETFs offer flexibility, enabling investors to buy and sell shares anytime during market hours. This contrasts with mutual funds, which only trade once a day after the market closes. The prices of ETFs continuously fluctuate based on supply and demand, reflecting

real-time market dynamics. These funds can encompass diverse assets, including stocks, bonds, commodities, or a blend of different asset classes. This built-in diversification helps spread risk and provides investors with broader exposure to the overall market. Various types of ETFs cater to specific preferences, tracking indices (e.g., the S&P 500), sectors (e.g., technology), commodities (e.g., gold), or even employing complex investment strategies.

1.3.6.1 Features of Exchange Traded Funds

- i. **Traded on exchanges** : ETFs trade throughout the day like individual stocks, offering flexibility and real-time price adjustments.
- ii. **Basket of assets** : ETFs hold a diversified portfolio of assets like stocks, bonds, commodities, or a mix, reducing risk compared to single-asset investments.
- iii. **Track various indices** : Different ETFs track various indices like the S&P 500, specific sectors, or even complex investment strategies.
- iv. **Low expense ratios** : Compared to actively managed funds, ETFs generally have lower fees, leading to higher returns for investors.
- v. **High transparency** : Holdings and investment strategies are readily available, offering clear insight into what you're buying.

1.3.6.2 Advantages of Exchange Traded Funds

- i. **Diversification** : Easy access to diverse portfolios helps mitigate risk and avoid overexposure to single assets

ii. **Lower fees** : Compared to actively managed mutual funds, ETFs often have lower expense ratios, meaning you pay less in management fees.

iii. **Transparency** : The underlying holdings of an ETF are readily available and updated often, providing transparency about what you're invested in.

iv. **Liquidity** : Easy to buy and sell throughout the day, offering flexibility and the ability to react quickly to market changes.

1.3.6.3 Disadvantages of Exchange Traded Funds

- i. **No guaranteed returns** : Like any investment, ETFs carry market risks and can experience losses.
- ii. **Tracking error** : Some ETFs may slightly deviate from their target index performance.
- iii. **Potential for complex strategies** : Certain ETFs utilize sophisticated investment strategies, requiring careful research.
- iv. **Commissions and fees** : While expense ratios are low, brokerage commissions can still apply to trades.
- v. **Limited control** : Unlike stock picking, investors don't directly choose individual holdings within an ETF.

1.3.6.4 Distinction between Exchange Traded Funds and Mutual Funds

The Difference between Mutual Funds and Exchange Traded Funds are as follows:



Table 1.3.5
Difference between Mutual Funds and Exchange Traded Funds

Feature	ETF	Mutual Fund
Trading	Traded on stock exchanges throughout the day, similar to individual stocks.	Traded only once a day at the NAV (net asset value), after the market closes.
Pricing	Price fluctuates throughout the day based on supply and demand.	Price set once a day based on the NAV, which considers the underlying assets' value.
Liquidity	Highly liquid, easy to buy and sell at any time during market hours.	Less liquid, you can only buy and sell after the market closes, based on the next day's NAV.
Transparency	Holdings and investment strategy are readily available and updated often.	Holdings and investment strategy may be less transparent, updated once a day or quarterly.
Fees	Generally lower expense ratios compared to actively managed mutual funds.	Expense ratios vary, some actively managed funds may have higher fees than ETFs.
Minimum investment	No minimum investment requirement, you can buy fractional shares.	Some mutual funds may have minimum investment requirements.
Control	No direct control over individual holdings within the ETF.	No direct control over individual holdings, unless choosing specific share classes.

1.3.7 Sovereign Gold Bond

Vijay has some money in hand, and he wants to deposit it for future growth. He knows that the price of gold is increasing every year, so he decides to buy gold from the nearest jewellery store. His intention is

to invest for the long term, not for wearing. Here, buying physical gold may not be a good strategy, because extra charges, such as making charges and GST, are incurred at the time of purchasing physical gold. If kept in a locker, there are additional locker charges, and if kept at home, the fear of theft

becomes another obstacle. Therefore, this is not a recommended strategy.

This is where Sovereign Gold Bonds (SGBs) come in. SGBs are government securities denominated in grams of gold, acting as substitutes for holding physical gold. Investors pay the issue price in cash, and the bonds are redeemed in cash upon maturity. Issued by the Reserve Bank on behalf of the Government of India, SGBs provide a government-backed investment scheme where investors pay the issue price in cash and receive the market value of gold at maturity, typically 5-8 years later, along with periodic interest payments.

The Government of India launched the Sovereign Gold Bond (SGB) scheme in 2015. Since then, it has continued to launch different tranches of this scheme at regular intervals. Bonds are sold through offices or branches of Nationalized Banks, Scheduled Private Banks, Scheduled Foreign Banks, designated Post Offices, Stock Holding Corporation of India Ltd. (SHCIL), and authorized stock exchanges, either directly or through their agents. Investors receive a Certificate of Holding on the issuance date, which can be collected from the issuing banks, SHCIL offices, post offices, designated stock exchanges, or agents, or obtained directly from the RBI via email if the email address is provided in the application form.

1.3.7.1 Features of Sovereign Gold Bonds

- i. **Denomination in Grams of Gold** : SGBs are government securities denominated in grams of gold. Investors can choose the quantity of gold they want to invest in.
- ii. **Government Backing** : These bonds are issued by the Reserve Bank of India (RBI) on behalf of the Government of India, providing high security and credibility.

iii. **Fixed Tenor** : SGBs typically have a tenor of 5-8 years, providing a specific time frame for investment.

iv. **Interest Rate** : The bonds bear interest at a fixed rate, providing investors with an additional income stream. The interest is credited semi-annually to the investor's bank account.

v. **Redemption in Cash** : Investors receive the maturity amount in cash, which is based on the prevailing market value of gold at the time. While the tenure is fixed, early redemption is allowed after the fifth year on coupon payment dates.

vi. **Tradability** : SGBs can be traded on exchanges if held in dematerialized (demat) form. They can also be transferred to other eligible investors.

1.3.7.2 Advantages of Sovereign Gold Bonds

If you are investing in SGBs, you will get the following advantages.

i. **Interest payment** : Interest payments are one of the most significant benefits of the Sovereign Gold Bond scheme. The government provides a fixed annual interest rate for your SGB investment. This interest payment is divided into two installments and is made every six months to the investor. Regardless of whether the price of gold rises or falls, you are guaranteed to receive interest.

ii. **Capital Appreciation** : Due to its widespread use, gold is always in demand, so the possibility of unsteady movements in its intrinsic value is negligible. This enables the investment corpus to grow regardless of market fluctuations or global economic conditions.



- iii. **Paper and Demat Format :** When you invest in SGB, you will not receive physical gold, but rather a holding certificate. This means you won't have to worry about the safety of your gold or pay an annual fee to store it in a bank locker. The certificate will be in your name and has no risk of being stolen.
- iv. **Tax Benefit :** There is no TDS on the interest you receive from your SGB investment. You can also transfer the bond before it matures and receive indexation benefits. If you redeem the bond after its maturity date, you will be exempt from paying capital gains tax. However, the interest is fully taxable based on your income tax slab.
- v. **Convenience :** Physical gold is required in Indian families during events and festivities, but comes with many additional servicing and making charges. There is always a risk of theft associated with it. The most important benefit of SGB is that it is entirely digital, making it convenient for you to invest in gold without worrying about its security and maintenance charges.
- vi. **Hedge against inflation :** When a country's inflation is high, its currency loses purchasing power, which has a significant impact on investment returns. Gold prices tend to rise during periods of high inflation. Consequently, investment in gold schemes is considered a hedge against inflation, and sovereign gold bonds are no exception.
- vii. **Loan facility :** One of the primary advantages of SGBs is that they can be used as collateral to obtain a loan from any of the scheduled financial institutions, as per the Reserve Bank of India's Loan-to-Value (LTV) guidelines. LTV is the ratio of loan

size to bond value against which the loan is secured. For instance, if your SGB holding is worth ₹1 lakh, you can obtain a loan of up to ₹75,000.

1.3.7.3 Disadvantages of Sovereign Gold Bonds

- i. **Long holding period :** Many investors are hesitant to invest in gold bonds because of their long 8-year maturity period. However, gold bonds have a significant advantage due to their extended tenure.
The government has set a long maturity to protect investors from potential losses caused by fluctuations in the gold price. It's important to note that investors can redeem the bond after only 5 years from the investment date.
- ii. **Market risk :** Investing in SGB involves the risk of capital loss because bond prices are linked to international gold market prices. If you buy the bond at a higher price than the redemption value at maturity, you may lose money. However, it's important to note that gold is a significant commodity, and the government strives to maintain its price stability. If you stay invested for 5-8 years, the chances of capital losses are minimal, although it cannot be entirely ruled out.
- iii. **Limited Liquidity :** SGBs have lower liquidity compared to physical gold due to a 5-year lock-in period for early redemption. Additionally, trading volume and frequency on stock exchanges may be limited.
- iv. **Subscription Periods :** SGBs are issued periodically, and investors need to subscribe during specific subscription periods, limiting the entry points for investment

Table 1.3.6
Difference between Gold ETF and SGB

Features	Gold ETF	Sovereign Gold Bond (SGB)
Issuer	Mutual Fund	Government of India
Investment type	Market-traded fund	Government bond
Interest	No	Fixed interest rate (currently 2.5%)
Lock-in Period	No	5 years (except early exit under specific conditions)
Liquidity	High (traded on stock exchanges)	Moderate (traded on stock exchanges after 5 years)

1.3.8 Crowdfunding

Mahesan has some money to invest for future growth, but he really doesn't like to invest in the stock market and traditional investments like banks, cooperative societies, chit funds, etc. So, he inquired about other investment avenues and methods. A friend introduced him to a new method of investment called crowdfunding.

Crowdfunding is a method of raising money for a project or venture by collecting small amounts of capital from a large number of people, typically through online platforms. It leverages the power of the internet and community to gather financial support for various initiatives, ranging from creative projects and startups to charitable causes and personal expenses.

1.3.8.1 How it works

Fundraisers: Individuals, organizations, or businesses present their project or cause on a crowdfunding platform like Kickstarter, Indiegogo, or GoFundMe.

Contributors: People browse through various projects and can donate any amount they wish, often receiving rewards or perks in return, such as early access to the product, exclusive merchandise, or a shout-out.

Platforms: Crowdfunding platforms host campaigns, facilitate online payments, and provide communication tools for creators and contributors. Crowdfunding for investors offers a unique blend of high potential returns, diverse opportunities, and direct involvement in projects. However, it also comes with inherent risks and uncertainties. Careful research, prudent project selection, and understanding the limitations are crucial for successfully navigating this exciting investment landscape.

1.3.8.2 Types of crowdfunding

- i. **Donation-based :** Donors support a cause or project without expecting financial returns. Rewards may be offered, but they often have symbolic value.
- ii. **Reward-based :** Contributors receive tangible rewards like



products, services, or experiences in exchange for their donations.

- iii. **Equity-based** : Investors contribute funds in exchange for ownership shares in the company or project, potentially profiting from its future success.
- iv. **Debt-based** : Lenders provide loans to the project or business, expecting repayment with interest.

1.3.8.3 Advantages of crowdfunding

- i. **Potential for outsized returns** : Early access to promising ventures can yield significantly higher returns compared to established companies or traditional investments.
- ii. **Reduced risk** : Invest smaller amounts across multiple projects, spreading risk and mitigating potential losses in case one project fails.
- iii. **Early access to innovative ideas** : Be among the first to support pioneering projects shaping the future, gaining early insights and potential benefits
- iv. **Active participation** : Engage directly with creators and project teams, influencing decisions and feeling part of the journey.
- v. **Community building**: Connect with like-minded individuals passionate about similar causes or ventures, fostering collaboration and networking opportunities.

1.3.8.4 Disadvantages of crowdfunding

- i. **High risk** : Startups and early-stage projects carry inherent risks of failure, potentially leading to complete loss of investment.
- ii. **Uncertainty** : Predicting project

success can be challenging, requiring careful evaluation and due diligence.

- iii. **Limited liquidity** : Depending on the type of crowdfunding, invested funds may be locked in for a period, limiting immediate access to capital.
- iv. **Fraudulent projects** : Scams and fraudulent campaigns exist, requiring thorough research and platform selection to avoid losing money.
- v. **Limited control**: Investors often have limited influence on project decisions compared to traditional venture capital or angel investments.
- vi. **Cryptocurrency** : Niyas wants to invest in the fastest-growing financial instruments, regardless of the associated risks. He is prepared to endure any level of risk, even if it means losing his capital, as his sole focus is on achieving a substantial return. Cryptocurrency is a financial product that would be suitable for someone like Niyas, who is willing to take on any level of risk for a significant return.

1.3.9 Cryptocurrency

Niyas wants to invest in the fastest-growing financial instruments, regardless of the associated risks. He is prepared to endure any level of risk, even if it means losing his capital, as his sole focus is on achieving a substantial return. Cryptocurrency is a financial product that would be suitable for someone like Niyas, who is willing to take on any level of risk for a significant return.

Cryptocurrency is a digital or virtual currency secured by cryptography, making it difficult to counterfeit. It operates independently of central banks and governments, relying on decentralized systems like blockchain technology for its creation and transaction verification. Some popular examples include Bitcoin, Ethereum, and Dogecoin.

Bitcoin's Pricy Past

In 2010, someone in Florida paid 10,000 bitcoins for two pizzas! At today's prices (24th January 2024), those bitcoins would be worth over \$570 million (₹345,00,00,000)!

This event is often considered the first real-world transaction using Bitcoin, marking a significant milestone in its history. Who knew two pizzas could be worth more than a mansion!

1.3.9.1 Cryptocurrency and its legal recognition

Here is a table summarizing the legality of cryptocurrencies in different parts of the world

Table 1.3.7

Legaly of cryptocurrencies

Region	Legal Status	Key Regulations and Developments
U.S.	Legal, but the regulatory landscape is evolving	FATF (Financial Action Task Force) recommends applying Travel Rule to crypto wire transfers
		Cryptocurrencies are considered securities for institutional buyers in July 2023
		SEC regulates crypto exchanges and coin offerings to institutional investors
Asia	Japan: Legal	The Payment Services Act defines Bitcoin as legal Property
	China: Banned	Cryptocurrency exchanges, transactions, and mining Banned
	India: Not illegal, awaiting regulatory framework	Exchanges free to offer cryptocurrencies until regulatory framework enacted
Europe	Legal in the European Union	(Markets in Crypto-Assets) MiCA regulation in effect since June 2023
		Cryptocurrencies are legal



El Salvador

El Salvador is the only country to accept Bitcoin as legal tender for monetary transactions as of August 2023. In the rest of the world, cryptocurrency regulation varies by jurisdiction.

1.3.9.1 Legal Recognition in India:

The legal status of cryptocurrency in India is currently ambiguous. It's neither explicitly banned nor fully recognized. Here's a breakdown:

- i. **Not Illegal:** The Supreme Court struck down the RBI's 2018 ban on cryptocurrency trading in 2020. Individuals are free to hold, invest in, and trade cryptocurrencies.
- ii. **Not Legal Tender:** Cryptocurrencies are not recognized as legal tender in India, meaning they cannot be used for official payments or debt settlement.
- iii. **Regulated under Anti Money Laundering (AML):** Virtual Digital Assets (VDAs, a term encompassing cryptocurrencies) fall under the Prevention of Money Laundering Act (PMLA) since March 2023. This mandates KYC checks and compliance with AML reporting for crypto exchanges and service providers.
- iv. **Taxable:** Income from crypto transactions is subject to a 30% capital gains tax and a 1% TDS (Tax Deducted at Source).
- v. **Pending Legislation:** The government is actively considering a specific cryptocurrency bill which may either regulate or entirely ban the industry.

1.3.9.2 Features of cryptocurrency

- i. **Security :** Cryptocurrencies use cryptography to secure transactions and prevent counterfeiting. Complex algorithms and distributed ledger technology make it extremely difficult to hack or double-spend currency.
- ii. **Pseudonymity :** Transactions are recorded on the blockchain, but user identities are kept anonymous, increasing privacy and protecting users from financial surveillance. However, complete anonymity is not guaranteed, and authorities may be able to track transactions in some cases.
- iii. **Immutability :** Transactions that are recorded on the blockchain are permanent and tamper-proof. This ensures transparency and prevents fraudulent manipulations of financial records. All transactions are publicly viewable on the blockchain, increasing transparency and accountability in the system.
- iv. **Limited Supply :** Many cryptocurrencies, like Bitcoin, have a pre-determined maximum supply, designed to control inflation and maintain the value of the currency over time.
- v. **Borderless Transactions:** Cryptocurrencies can be sent and received anywhere in the world without intermediaries, enabling faster and cheaper international transactions compared to traditional banking systems.

1.3.9.3 Advantages of cryptocurrency

- i. **Financial Inclusion :** Many Indians remain unbanked or underbanked due to various factors. Cryptocurrencies

offer an alternative financial system with lower barriers to entry. Mobile wallets and simple apps can enable easier access to financial services for rural and underserved communities.

- ii. **International Transactions :** Sending and receiving money across borders can be expensive and time-consuming through traditional channels. Cryptocurrencies offer faster and cheaper options, potentially boosting cross-border trade and remittances for migrant workers.
- iii. **Investment Opportunities :** The Indian stock market can be volatile and require high entry points. Despite their risks, Cryptocurrencies offer access to a rapidly growing asset class with the potential for high returns.
- iv. **Inflation Hedge :** Some cryptocurrencies have limited supply, potentially making them a hedge against inflation, which has historically been a concern in India.
- v. **Financial Autonomy :** Decentralization offers individuals greater control over their finances, bypassing dependence on traditional banking institutions.

1.3.9.4 Disadvantages of cryptocurrency

- i. **Volatility :** The Indian rupee itself sees fluctuations, but cryptocurrency markets are notoriously volatile, exposing investors to significant potential losses.
- ii. **Regulatory Uncertainty :** The lack of clear regulations creates

uncertainty, discouraging widespread adoption and hindering potential benefits.

- iii. **Technological Barriers :** Access to secure crypto wallets and technical knowledge remains limited for many, creating an entry barrier for potential users.
- iv. **Cybersecurity Risks :** The Indian market has seen growing crypto-related scams and hacking incidents, highlighting significant security concerns.
- v. **Environmental Impact :** Cryptocurrency mining, particularly for Bitcoin, consumes immense energy and raises environmental concerns in a country battling climate change.
- vi. **Potential for Illicit Activities :** The anonymity of cryptocurrencies can make them attractive for money laundering and other illegal activities, posing challenges for law enforcement.

1.3.10 Selection of appropriate financial products and services

In the above sessions, we have discussed various innovative financial products. Since the risk level, return potential, and tax implications can vary based on individual circumstances and market conditions, it is very difficult to classify innovative financial products based on risk, return, and tax implications. However, a general guideline for the classification of all the aforementioned innovative financial products based on their risk, return, tax implications, and suitability is given below:



Table : 1.3.8
Guideline for the classification of innovative financial products

Product/Service	Risk Level	Potential Return	Tax Implications	Suitable Investors
Mutual Funds	Moderate to High (Depends on fund type)	Moderate to High (Depends on fund type)	Capital gains taxed based on holding period (<1 year - short-term capital gains tax, >1 year - long-term capital gains tax with indexation benefit)	Investors seeking diversified exposure across various asset classes with varying risk appetites.
ULIPs	Moderate to High (Depends on type of ULIP)	Moderate to High (Depends on type of ULIP)	Market-linked returns are taxed as per capital gains. Life insurance cover comes tax-free under certain conditions.	Investors seeking both wealth creation and life insurance cover in a single product. May have higher charges and lock-in periods compared to pure mutual funds.
Systematic Investment Plan (SIP)	Varies with underlying investment	Varies with underlying investment	Similar to underlying investment (e.g., mutual funds, ETFs)	Disciplined investors with long-term goals willing to invest regularly through market ups and downs.
Systematic Withdrawal Plan (SWP)	Low to Moderate (Depends on underlying investment)	Low to Moderate (Depends on underlying investment)	Taxed as per underlying investment (e.g., interest income for debt funds, capital gains for equity funds).	Investors seeking regular income from their investments, particularly retirees.
Real Estate Investment Trusts (REITs)	Moderate	Moderate (Rental income and capital appreciation)	Dividend income taxed as per individual income tax slab. Capital gains taxed as per holding period.	Investors seeking stable income and potential capital appreciation from real estate without direct ownership hassles.
Exchange Traded Funds (ETFs)	Moderate to High	Moderate to High	Similar to underlying	Investors seeking low-cost,

R Recap

- ◆ Mutual Funds- Pooled investment vehicle managed by a professional fund manager
- ◆ Sponsor - responsible for setting up and establishing the mutual fund
- ◆ Asset Management Company - appointed by the trustees to run the mutual fund
- ◆ ULIPs- Insurance with Investment
- ◆ Small-cap – Market capitalization up to ₹5000 crores
- ◆ Mid-cap – Market capitalization between ₹5000 and ₹20000 crores
- ◆ Large-cap – Market capitalization over ₹20000 crores.
- ◆ Multi Cap Fund – Mutual fund investing in stock having diverse market capitalization.
- ◆ Dividend Yield Fund - Prioritizes stocks with high dividend payouts.
- ◆ Focused Fund - Concentrated portfolio mutual fund.
- ◆ ELSS Fund (Equity Linked Savings Scheme) - Tax-saving equity mutual fund.
- ◆ Open-ended schemes - Mutual funds with continuous issuance and redemption.
- ◆ Closed-ended schemes - Mutual funds with fixed maturity and limited units.
- ◆ SIP- Strategic Investment Plan, is an option for investors to invest a fixed amount at regular intervals.
- ◆ SWP- Strategic Withdrawal Plans are the opposite of SIPs. Here investors can withdraw a fixed amount periodically from a fund.
- ◆ REITs- Real Estate Investment Trusts are investment vehicles that own, operate, or finance income-generating real estate
- ◆ ETFs- Exchange Traded Funds is an investment fund traded on stock exchanges, mirroring an index.
- ◆ Gold ETF- An investment fund which is backed by gold.
- ◆ SGBs- Bonds which are backed by gold that are issued by Government.
- ◆ Crowdfunding- Collecting funds from interested investors to fund multiple projects.
- ◆ Cryptocurrency- Virtual Currency managed and stored in a distributed ledgers, which can be used for cross border transactions.
- ◆ Equity Fund – Mutual funds that invest in Stock.



- ◆ Debt Fund – Fixed income mutual fund.
- ◆ Hybrid Fund - Balanced asset mix mutual fund.
- ◆ Stock Market - Equities trading marketplace.



Objective Questions

1. What is the primary purpose of a mutual fund?
2. Who is responsible for managing a mutual fund?
3. What combination of elements characterises ULIPs?
4. What does SIP involve?
5. What is the main advantage of SIP?
6. For what purpose is SWP commonly used?
7. How are withdrawals typically managed in SWP?
8. In what do REITs predominantly invest?



Answers

1. To pool investments for diversification.
2. A fund manager.
3. A combination of insurance and investment.
4. Regular fixed investments.
5. Flexible investment amounts.
6. For regularly withdrawing funds.
7. Withdrawals are typically fixed and predetermined.
8. Real estate.

A

Assignments

1. Analyse the factors that influence the performance of Real Estate Investment Trusts (REITs) and assess their role in a diversified investment portfolio.
2. Investigate the benefits and risks of investing in Sovereign Gold Bonds (SGBs) compared to physical gold. Discuss the tax implications.
3. Compare the tax regulations and legal frameworks surrounding cryptocurrency investments in different countries. Highlight key considerations for investors.

S

Self Assessment Questions

1. Elaborate on the benefits of using SIP as an investment strategy.
2. Provide a step-by-step guide on how to start and manage a SIP
3. Explain the purpose of SWP and how it helps in managing investment withdrawals.
4. Describe how REITs operate and their role in the real estate market.
5. Analyse the risks and challenges associated with crowdfunding for both investors and fundraisers
6. Examine the features and benefits of investing in Sovereign Gold Bonds
7. Compare ETFs with individual stocks in terms of risk and return.

R

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S

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**BLOCK
02**

Digital Payments and Security Measures



Unit 1

Modes of Digital Payments

L

Learning Outcomes

Upon completion of this unit, the learner will be able to:

- ◆ get an awareness regarding the different modes of digital payments that are currently available
- ◆ acquaint with the process of card-based payments and their applications
- ◆ gain insights on the concept of internet banking and mobile banking, enabling learners to perform financial transactions via mobile phones and the internet

P

Prerequisite

Assume that you are a bystander at an accident scene where your friend is admitted to the hospital with a minor injury that requires plastering. You are waiting in a large queue to finish paying the hospital expenses. When it was your turn to pay, that's when you realized that your wallet had been stolen. You lack the necessary cash to make the payment. All others in the queue are waiting for your money to settle in order for them to make their payments. How would you respond in such a circumstance?

If you had used any kind of digital payment method, this issue would not have arisen. You could have easily swiped your debit card and finished the payment if you had used one. Otherwise, you could have easily covered the costs if you had installed mobile payment applications like Google Pay, PayTM, PhonePay, etc. Alternatively, you might have deposited the funds straight to the hospital's account if you had chosen to use mobile banking. You have now found yourself in a stressful scenario only because of the non-usage of innovative payment mechanisms.

Similar to this scenario, those who would rather not utilise digital payment methods must wait in long lines to pay for things like taxes, electricity bills, book train tickets, and other necessities. While others who make use of innovative payment mechanisms simply sit at home or in the office and just swipe their cards or tap

their phones to make a payment and complete a transaction instantaneously. The need to use digital payments arises in such situations.

K

Keywords

Debit card, Credit card, Mobile banking, Internet banking, E-Wallet

D

Discussion

The advancements in technology have made a drastic change in the mode of fulfillment of payment transactions. Earlier, people residing in the rural areas of the country had to travel long distances in search of banks to make even a small transaction.

Understanding this difficulty, National Payment Corporation of India (NPCI), the umbrella organization that handles all retail payments in India, introduced various innovative modes of making payments.

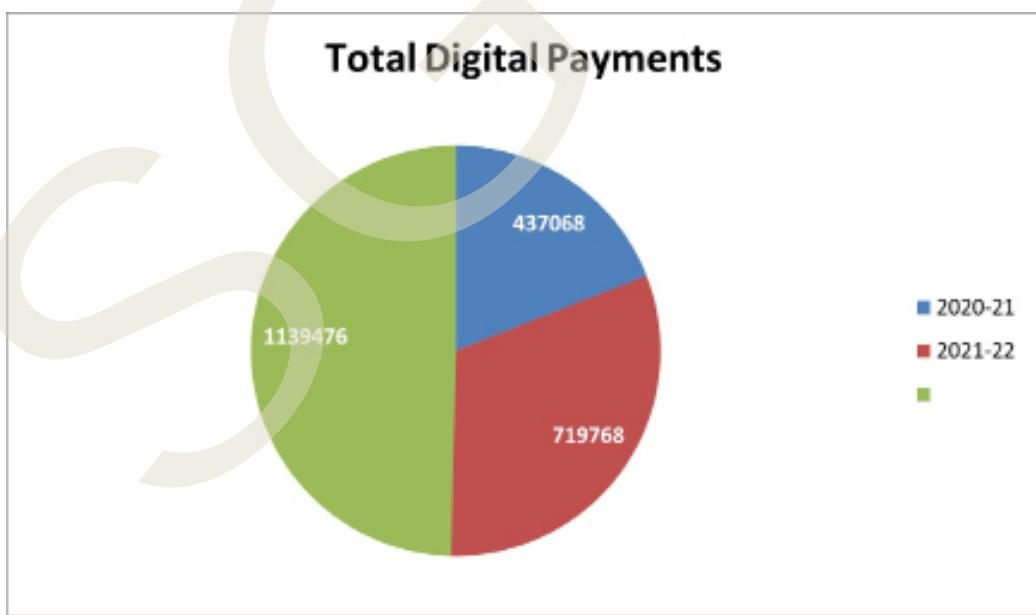


Figure 2.1.1
Volume of Total Digital Payments
Source : RBI Annual Report

The growth of digital payment transactions is evident from the above figure, which depicts the volume of digital payment transactions for the period 2020-2023. Introduction of new technologies, growing population of mobile phone users in the country, ease in access to various banking services, enhanced customer loyalty obtained through offering of quality banking services online, personalized customer interactions, and so forth have contributed to the increased use of digital payment mechanisms. Creating satisfied and loyal customers was the major challenge among banks due to the growing rivalry among banks. Thus, technology was used as a key to customer satisfaction. As a result the new delivery channels of banks were launched, such as ATMs, smart cards, internet banking, mobile banking and so on, which has replaced the use of cash and cheques. This unit covers the recently developed digital payment methods that are now in use.

2.1.1 Banking Cards

You might have heard about debit cards, credit cards, ATM cards, etc., during your daily routine. Those cards, such as debit cards, credit cards, and prepaid cards, issued by a bank to its customers to carry out different banking services, are called banking cards. With the help of banking cards, you can avail of several services such as withdrawing money, making payments for purchases, buying items on credit, depositing money into the bank, and so on. Payments for online transactions as well as offline transactions can be carried out securely using banking cards. It ensures more security since transactions are authenticated by using a Permanent Identification Number (PIN) or One Time Password (OTP). These cards can be used in an Automated Teller Machine (ATM), micro-ATMs, Point of Sales, online transactions, etc.

A banking card includes details such as the card's name, name of the account holder,

bank's name, card number, a validation code called Card Verification Value (CVV), expiration date, and a magnetic strip and EMV (Europay, Mastercard, Visa) chip. Banking cards are issued through different payment networks such as RuPay, Master, Visa etc.. RuPay is an Indian domestic network that is only accepted in India.

The procedure to obtain a banking card is simple and easy. Customers have to open a bank account after filling up the Know Your Customer (KYC) details. For providing the KYC details, you will have to submit documents like copies of any of your identity cards, such as Aadhar card, Voter ID, Driving license, Permanent Account Number (PAN) card, etc., as part of identity verification, and also submit bills such as electricity bill, water connection bill, telephone bill, etc., for address verification. After providing such details, the customers can apply for banking cards such as debit cards and credit cards. Then you will have to activate the card by generating a new PIN of your choice or using the PIN given by the bank itself, by visiting an ATM counter.

As was previously discussed, there are various kinds of banking cards. Each type of banking card differs from the others based on the nature of its use. The main types of banking cards are as follows:-

2.1.1.1 Credit card

Consider a scenario where you have an urgent need to buy a laptop, but you lack the adequate cash in your account to make a payment for the full amount. A credit card comes to the rescue in such situations. Credit cards are small plastic cards issued by banks to their customers to purchase goods and avail services without making immediate payments. The cardholders can save money by deferring the payments for a future date and buy items on credit until the time allowed by the bank. The cardholder must

pay interest for the remaining amount that has not been repaid within the time allowed. The payments for such items purchased can be paid in installments. It helps those people who do not have a large amount of money to spend on purchasing consumer durables, etc. Depending on the income generated by a customer, the banks will set a credit limit on credit cards beyond which the customers cannot use them for credit purchases.

There are four parties involved in a transaction using credit cards: the cardholder, the card issuing agency, the merchant, and the acquiring bank. When a cardholder submits the card to make a payment using a credit card, the merchant will swipe the card or enter the credit card details and purchase information, and then submit the details to the acquiring bank. It is the responsibility of the acquiring bank to ensure that the details submitted are correct, that the card has not been reported as stolen, that the card has not been cancelled, and that the credit limit of the customer has not been exceeded. Thus the acquiring bank must seek the approval of the card issuing agency. After getting approval, the acquiring bank will credit the merchant's account, submit the transaction for settlement, and issue a receipt to the cardholder. The card issuing agency will then debit the cardholder's account and send a monthly statement to the cardholder, who in turn must pay the card issuing agency.

2.1.1.2 Debit card

Relying solely on cash for payments, particularly in emergencies like covering hospital bills, isn't widely recommended. Debit cards offer a more accepted and practical solution for various transactions, including purchasing groceries, paying utility bills, and handling other everyday expenses. Debit cards are those issued by banks to account holders, which facilitate the cardholder to make payments out of the amount left as a balance in their accounts. The

major advantage of using debit cards is that the cardholders need not carry cash and can use the electronic mode of payment, which provides more safety and security. It not only allows the cardholder to make payments, but the cardholder can also withdraw cash, check balances, generate a PIN, obtain mini statements, and deposit money through the Cash Deposit Machine (CDM).

Usually, banks do not charge the cardholder for carrying out transactions using debit cards unless the situation demands. For instance, out-of-network fees will be levied if the cardholder withdraws money from the ATM of another bank rather than the bank that issued the debit card. Charges will be levied if you try to withdraw over and above the balance left in your account. The cardholder will also be charged for replacing the cards once if it is lost, stolen, or damaged.

2.1.1.3 Prepaid card

Imagine you are going on a trip and want to stick to a budget. A prepaid card helps you limit your expenses to attain such a budget. You load ₹15,000 onto your prepaid card. During your travels, you use it to pay for meals, transportation, and souvenirs. Once you have spent the ₹15,000, the card stops working until you reload it. Prepaid cards offer the same services as a credit card. The only difference being that, in prepaid card you need to reload money. Before using the cards for payment, the cardholder must ensure that the card is loaded with funds and such funds get reduced as and when you make a payment out of it. Thus, you need to reload it with funds when the balance is low. Some prepaid cards allow cardholders the facility to automatically reload the funds once the balance is low.

The greatest advantage of using a prepaid card when compared to a debit card and a credit card is that you can keep an eye on the amount you spend and thus follow



your budget. It thus helps in controlling your expenses by loading only the required amount. For issuing prepaid cards, there are no credit checks as in the case of credit cards.

2.1.2 Mobile Banking

Mobile banking refers to the process of carrying out the banking operations through a smart phone. Any banking function that can be completed in person at a bank, such as fund transfers, account opening, loan applications, balance checks, and so forth, may be completed online with mobile banking. The rapid growth in users and wider coverage of mobile phone networks have made this channel an important platform for extending banking services to customers.

2.1.2.1 Unified Payments Interface (UPI)

A person may often have more than one bank account. Using different banking applications for carrying out banking services each time is tedious. This difficulty is overcome by the Unified Payments Interface (UPI). UPI handles several bank accounts through one application. It is offered by National Payments Corporation of India (NPCI). It is very customer-friendly, like having a personal bank in your phone. The most commonly used UPI apps include Google Pay, Phone Pay, Paytm, Amazon Pay, WhatsApp Pay, Bharat Interface for Money (BHIM), etc.

UPI also offers the facility of making payment through scanning of Quick Response code (QR code). You just have to scan the code using your smart phone and enter the amount and the UPI pin to complete your payments.

2.1.3 Internet Banking

Internet banking refers to the process of carrying out banking transactions electronically by making use of a laptop, smartphone, or computer via a bank's

website. It is also known as online banking. All banking services that are offered through a physical visit to a bank can be performed online under internet banking, such as fund transfers, opening deposit accounts, availing loans, checking balances, paying bills, and so on. It thus helps to overcome the limitations of time and space.

Customers access their accounts from a browser. Customers have to visit the website of the bank where they maintain accounts and register or sign up to avail the facility of internet banking. For registration, the customers must press the submit button after entering the details such as the account number of the customer, the bank IFSC, mobile number, etc. For identity authentication, you have to enter the OTP, which will be sent to the customer's registered mobile number. After completing this, the customer will receive a user ID and password, which can be changed as per their discretion. By logging into the website using the user ID and password, the customer can avail the facility of internet banking.

2.1.3.1 Factors leading to the adoption of internet banking

The products and services obtained through internet banking may mirror products and services offered through other bank delivery channels. The factors influencing the growth of internet banking include:

- a. Internet banking services are economical. When compared to traditional banking services, the use of internet banking considerably saves cost and time of customers. Customers need not visit physical banks to avail the banking products and services which helped them save time.
- b. The accessibility of banking services 24*7 also led to the increased adoption. Customers

could perform transactions anywhere and at anytime further attracted more customers on to internet banking.

- Competition among banks created a necessity for banks to offer quality services to retain customers and thereby ensure their survival, which was made possible through internet banking.
- Expanding customer base by increasing the geographical coverage was possible by internet banking. The elimination of the limitations of geographical boundaries thus further increased the adoption of online banking.
- Internet banking was considered indispensable in attracting new customers and retaining existing customers and thereby building customer loyalty.
- The use of PIN and OTP for data authentication created a feeling of security and safety in the minds of customers, which led to increased adoption of online banking.

There are three ways in which funds can be transferred through internet banking. They are:

- National Electronic Fund Transfer (NEFT)
- Real-time Gross Settlement system (RTGS)
- Immediate Payment Services (IMPS)

2.1.3.2 National Electronic Fund Transfer (NEFT)

National Electronic Fund Transfer (NEFT) is a system of fund transfer operated by the Reserve Bank of India (RBI) which allows the account holders to transfer funds to

beneficiaries electronically under a batch settlement mode. Under batch settlement mode, payment requests of a large number of customers are processed in groups over a period of time and not individually. The transactions will be completed within the same day if it is within the cut-off time and the next working day if it is beyond the cut-off time prescribed. NEFT thus works on a net settlement basis. The details of the beneficiaries should be added by the account holder like the name of the beneficiary (that is the name of account holder in which the amount is to be sent), name of the beneficiary bank, the account number of the beneficiary, the amount to be transferred, the Indian Financial System Code (IFSC), account number which is to be debited etc..

NEFT services are operated all days a year and carry no transaction charges at the destination bank. NEFT transactions can be performed using mobile banking or internet banking, and thereby customers can avoid physical visits to banks for fund transfers. RBI has not imposed limits on the amount of funds to be transferred using NEFT.

2.1.3.3 Real-time Gross Settlement system (RTGS)

As the name indicates, the Real-time Gross Settlement system (RTGS) transfers funds electronically on a real-time basis. RTGS, a system initiated by the RBI, is the fastest mode of fund transfer in India through the banking channel. It is a combination of two words- Real time, which indicates that the instructions are processed as and when they are received, and Gross settlement, which indicates that the fund transfer instructions are carried out on a one-to-one basis without bunching with any other transactions. RTGS is used for transferring funds of a larger amount, starting with a minimum limit of ₹2,00,000. Due care must be enforced while transferring funds through RTGS since the transactions once carried out cannot be



cancelled. Customers must enter details such as the name of the beneficiary, name of the beneficiary bank, amount to be sent, account number of the beneficiary, account number which is to be debited, IFSC of the beneficiary's bank, etc.

The benefit of using RTGS is that it carries no risk since the transactions are settled immediately and also small nominal fees will only be charged from the customers for availing the service. And customers can avail this service 24*7. RTGS is thus a modernized payment system that offers a fast and secure payment.

2.1.3.4 Immediate Payment Service (IMPS)

Immediate Payment Services (IMPS) is another mode of fund transfer offered by National Payments Corporation of India (NPCI) where funds up to a maximum of ₹2,00,000 can be transferred to beneficiaries. It offers a 24*7 service to the account holders which can be carried out using mobile phones, internet, computers, SMS, laptops, and ATMs. IMPS was introduced in 2010.

The parties involved in an IMPS transaction are the sender, the receiver, the bank, and the National Financial Switch (NFS). NFS is a payment system infrastructure that regulates fund transfer between banks. For transferring funds using IMPS, the details required include the mobile number of the beneficiary, the account number, the IFSC, or the Aadhaar number. Customers can avail the facility of IMPS by paying a small nominal fee. To initiate an IMPS money transfer, you have several convenient options available. Whether using your mobile phone via SMS, a smartphone through net banking, or a mobile app, a computer via internet banking, or even an ATM with your ATM card. First, you will need to log in to your chosen channel using your credentials. Then, input either the recipient's MMID (Mobile Money Identifier)

and mobile number, bank account number and IFSC, or Aadhaar number, along with the desired transfer amount and any remarks for reference. After confirming the details, authenticate the transfer request by entering your PIN. Once completed, both you and the recipient will receive SMS notifications confirming the successful transfer. This method provides flexibility and ease in sending money securely across various platforms.

2.1.4 E-Wallets

It is not always a good idea to make payments using the cash in your wallet. You never know when it might be stolen. The possibility of not having change with you would make it difficult for you to make modest payments. An e-wallet is useful in such situations. By using an E-Wallet, you do not have to worry about your wallet being stolen, and you don't need to carry change always.

E-Wallet means electronic wallet, also called a mobile wallet. It is a software that stores a user's bank card in one place, which offers the facility to fulfill payment transactions or any other transaction without using a physical card or cash. It offers similar facilities to a physical wallet, the advantage being that you need not carry it in your hand and thus ensures more security and safety. The only thing you must do is to scan the QR code and make payment wherever required. Examples of E-Wallets include Google Pay, PayPal, Paytm, etc..

In order to use the E-Wallet's many features, including money transfers, bill payment, ticket booking, online shopping, and more, users must link the application to their bank accounts. It ensures security since it is password protected. In order to sign up, users must download the mobile application, submit their mobile number, enter their OTP sent to their mobile phone, and set a password for the application.

Subsequently, the necessary information, like your name, country, birthdate, and address must be added. The next step is to enter the bank account details, such as the account number and card number, to link the application to your bank account.

E-Wallet offers high speed and convenience to its users in completing their transactions. They can avail the services anywhere and anytime, thereby the users of the underserved areas gain access to the banking services. It also retains a history of all the transactions undertaken by the user using the application. By using it, users also benefit through discounts, cash back, loyalty points, and other offers.

2.1.5 Unstructured Supplementary Service Data (USSD)

You might have noticed that all the payment options discussed above need the internet to function. However, what happens if someone just has a keypad phone that isn't connected to the internet? How can such persons make use of these innovative banking services? Unstructured Supplementary Service Data (USSD) offers a way around this.

USSD is an innovative mode of payment that can be used to make payments via mobile phones without the need to have an internet connection. People can avail banking services such as fund transfer, checking balance, obtaining mini statements, know MMID (Mobile Money Identifier) (7 digit code issued by banks to its customers which is required for the process of fund transfer), change M-PIN, and generate OTP by dialing a specific code in their mobile phone which is the common number to use USSD. This service is offered in 12 different languages such as English, Malayalam, Hindi, Marathi, Bengali, Gujarati, Punjabi, Tamil, Assamese, Oriya, Telugu, and Kannada. The USSD

code for Malayalam is *99#. A maximum amount of ₹5000 per day or ₹50000 per annum can be transferred using USSD.

The service through USSD is even available in feature phones with SMS facility. The only thing the user must do is to register the mobile number with a bank account and use the USSD code to access the services. The use of USSD will put you in trouble only if your mobile phone is lost or stolen. Such mobile number should be blocked if mobile phone is lost to avoid misuse of funds.

The major advantage of using USSD is that it is customizable according to customer needs. It is tailor-made to meet the specific needs of the customers. USSD provides international access. It is a very effective payment method which can be accessed from all over the world, even in places where there are low bank penetration rates and poor or no internet connection. The services can be accessed without net connection on your phone, which is another key benefit of using USSD. All other payment mechanisms like UPI, IMPS, E-Wallets etc. cannot function without internet. USSD thus offers great convenience for users and it is simple and easy to use. It also offers its service 24*7. It ensures that the availability of banking services reach all sections of society and paves the way towards financial inclusion.

2.1.6 Aadhaar enabled Payment System (AePS)

Aadhaar Enabled Payment System (AePS) is a digital payment mechanism initiated by the National Payment Corporation of India, Government of India, which enables citizens to avail banking services using their Aadhaar number and biometric authentication. Transactions are performed using micro ATMs by entering Aadhaar details. The users must visit a business correspondent and provide details such as the Aadhaar number, inform the transaction type, bank



name, and amount, and should give their biometric fingerprint or iris in the micro ATM. After the completion of the transaction, a receipt of the transaction will be given to the user by the business correspondent, which can be used for future inquiries. A Business Correspondent (BC) is an agent appointed by a bank to provide banking services in remote areas where the bank does not have a physical presence. The BC acts as an intermediary between the bank and the customers, facilitating various banking transactions using Aadhaar authentication. People can do balance enquiries, cash withdrawals, cash deposits, mobile updates, mini statements, and Aadhaar to Aadhaar fund transfers in minutes using AePS. They can even make fund transfers by entering their own Aadhaar number and the Aadhaar number of the beneficiary. Customers can even open a new bank account in a quick time through e-KYC by contacting their bank. The maximum amount for an AePS transaction is ₹10,000, and the maximum limit for an AePS account is ₹25,000. This limit can, however, change depending on the service providers. There might be chances that customers link more than one bank with Aadhaar. In such cases, the customer must select the right bank to perform the transactions.

The basic requirement to perform such transactions is to link the bank accounts of the customers with Aadhaar and then log in to access the account by entering the Aadhaar number and biometric authentication. Apart from this, customers can also avail these services using AePS-enabled mobile applications. Banks and financial institutions act as AePS service providers to offer services to customers. It promotes financial inclusion by offering services in remote areas that lack access to physical bank branches.

AePS transactions ensure more security since transactions are authenticated using the Aadhaar number and biometric

authentication. The service is offered 24/7, eliminating the limitation of time and space to perform a transaction. It is simple and easy to use and provides people in remote areas access to banking services, facilitating financial inclusion. It also protects the privacy of customers as customers need not disclose bank account details to complete a transaction.

2.1.7 Point of Sale (POS)

Point of Sale (POS) is the location where a transaction occurs between a buyer and a seller for the exchange of goods and services. POS can be compared to an electronic cash register which facilitates the payment of a transaction. It also offers the facility of inventory tracking, generating sales reports, and so on. It is also called Point of Purchase. Point of Purchase is related to the location where a transaction occurs, typically at the checkout counter. The equipment that is used to perform the sales transaction and process the payment is called the POS terminal or POS system.

The usage of different POS systems depends upon the nature of the business. The most common POS systems include restaurant POS systems, bar POS systems, retail POS, small business POS, and salon and spa POS. Each POS serves its own purposes. For instance, a restaurant POS helps to make payments, track sales, and handle tax data. Whereas retail POS is designed for a retail environment and deals with barcode scanning, payment methods, customer discounts, tracking inventory, and so on. It cannot work for a restaurant or bar as the requirements are different. Your customers will be more satisfied the faster you can complete a transaction, which is ensured by a POS system.

The developments in the banking system have led to the replacement of traditional payment mechanisms such as cash and cheques with innovative payment

mechanisms such as UPI, IMPS, E-Wallets, and so on. This transformation has led to the expansion of financial inclusion in the country by giving the people of underserved areas access to banking services. As the digital economy continues to evolve, these

modes of digital payments will likely play an increasingly integral role in shaping the future of financial transactions, driving greater efficiency, transparency, and accessibility across the board.

R Recap

- ◆ Banking cards - Debit cards, credit cards, prepaid cards issued by banks to customers.
- ◆ Debit cards - access banking services with the balance available in the account.
- ◆ Credit cards - credit purchase limited to the credit limit allowed.
- ◆ Prepaid cards - function like debit and credit cards but limited to the funds loaded.
- ◆ Mobile banking - access to all banking services via smartphones.
- ◆ UPI - handles several bank accounts through one application.
- ◆ Internet banking - access to all banking services electronically.
- ◆ NEFT - transferring funds based on net settlement.
- ◆ RTGS - transferring funds based on gross settlement.
- ◆ IMPS - real-time fund transfer for small and large volume transactions.
- ◆ E-wallets - mobile app which offers similar facilities to a physical wallet.
- ◆ USSD - payment mode via mobile phones with SMS facility.
- ◆ AEPS - payment mechanism using Aadhaar number and biometric authentication.
- ◆ POS - location where a transaction occurs between buyer and seller.

O Objective Questions

1. What are the components involved in authenticating a transaction dealing with banking cards?
2. Name the type of payment network that is accepted only in India.



3. What is the validation code called on a banking card?
4. What is UPI?
5. List out the different means of fund transfers available using internet banking.
6. What is the potential risk associated with using an E-Wallet?
7. What does USSD standsstand for?
8. What is the purpose of UPI in terms of handling multiple bank accounts?
9. How does AePS authenticate payment transactions?
10. What is the term used to denote the equipment which is used to process the payment in a POS transaction?
11. What details are included in a banking card?
12. Who offers Unified Payments Interface (UPI)?
13. Where is RuPay accepted?
14. What are credit cards primarily used for?
15. Name the parties involved in a credit card transaction.

A

Answers

1. PIN, OTP.
2. RuPay.
3. Card Verification Value (CVV).
4. A system that allows handling multiple bank accounts through one application.
5. RTGS, NEFT, IMPS.
6. Risk of misuse of E-Wallet if mobile phones are lost or stolen.
7. Unstructured Supplementary Service Data.
8. To streamline banking services through one application.
9. Transactions are authenticated using Aadhar number and biometric authentication.

10. POS terminal.
11. Card name, account holder name, bank name, card number, CVV, expiration date, magnetic strip, EMV chip.
12. National Payments Corporation of India (NPCI).
13. India.
14. Purchasing goods and services without immediate payment.
15. Cardholder, card issuing agency, merchant, acquiring bank.

A

Assignments

1. What payment methods do you often use for day-to-day activities? Enumerate the different services you utilise with those payment methods. Discuss their pros and cons.
2. The new modes of digital payments offer great convenience to the users. However, they also come along with some safety and security issues. Identify and make a report of the security issues related to each mode of digital payments and suggest measures to prevent them.
3. Describe how to deal with a situation where an RTGS or NEFT transaction results in money being transferred to the incorrect account.
4. Discuss the potential future advancements in mobile banking technology and their impact on the banking industry.

S

Self Assessment Questions

1. Explain the a debit card and credit card.
2. Who are the parties involved in a credit card payment transaction? Explain the process involved in such a transaction.
3. How can customers access their accounts using AePS?
4. What banking services can be performed online?



5. Short note on RTGS and NEFT.
6. State the advantages of using USSD as a mode of payment.
7. How has the expansion of digital payments contributed to financial inclusion?
8. What do you mean by POS? What functions does a POS system perform besides facilitating transactions?
9. Elucidate the different types of banking cards.
10. What is IMPS, and how does it enable fund transfers?
11. How do customers access their accounts in internet banking?
12. What are the factors that led to the increased adoption of internet banking?
13. How have developments in the banking system impacted traditional payment mechanisms?
14. Briefly explain E-Wallets and their applicability.
15. What are the benefits of AePS in terms of security and privacy?

R

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S

Suggested Reading

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3. <https://economictimes.indiatimes.com/definition/e-wallets>
4. <https://www.investopedia.com/terms/d/digital-wallet.asp>
5. <https://www.bankbazaar.com/ifsc/ussd.html>

SGOU



Unit 2

Financial Fraud

L

Learning Outcomes

Upon completion of this unit, the learner will be able to:

- ◆ familiarise themselves with the concept of phishing and Ponzi schemes
- ◆ explain the meaning and features of investment fraud and identity theft
- ◆ gain insight into the concepts of tax evasion and spoofing

P

Prerequisite

Bank account holders sometimes get calls and emails from people who say they are from the bank. They say there is something strange happening with the customer's account. Account holders may be asked to give an OTP that will come to their phone soon. Or, they might be asked to click on a link to check their details. After a short while, the customer receives an OTP on their phone. They think the caller is genuine, so the account holders tell them the OTP. But by doing this, they give the scammer access to their bank account. Then, the scammer can make transactions without permission. Sometimes, the email is used to trick people into sharing private information. Falling for this trick can cause big money problems because the scammer can get into the victim's bank account. People might also get urgent text messages from someone they know asking for money. But these messages could be from scammers pretending to be someone else. This can make worried people give money to the scammers without realising.

Some people might fall into traps online where they are promised things like free vacations. But if they click on links or share personal details, they might give away important information to fraudulent people, leading to identity theft or fraud. People who shop online could also become victims. Sometimes, their card details can be stolen when they buy things from trusted websites. Then, fraudulent people use these details to buy things without permission, causing money problems. These examples show how common online threats are and why being careful is essential.

K

Keywords

Phishing, Ponzi schemes, Money laundering, Identity theft, Tax evasion, Spoofing

D

Discussion

2.2.1 Phishing

Bank account holders get messages from someone saying they are from the bank, warning about strange things happening with their accounts. The sender asks bank account holders to click a link or share personal info to prove who they are. But without knowing they are being tricked, bank account holders give essential details to them, and the information may be used for fraudulent activities. This tricky method is called phishing, where scammers try to catch bank account holders to steal their valuable information.

Phishing is a deceptive practice in which an attacker impersonates a legitimate entity or person via an email or other form of contact. Phishing emails are widely used by attackers to deliver malicious links or files capable of extracting login credentials, account numbers, and other personal information from victims. Deceptive phishing is a common cybercrime because it is far easier to fool someone into clicking on a dangerous link in a seemingly valid phishing email than it is to breach a computer's defences. Phishing is a type of social engineering and cybersecurity assault in which the attacker impersonates another individual using email or other electronic communication techniques, such as social networks and text messages, in order to get sensitive information. Phishers can

acquire the victim's personal information, employment history, interests, and activities from publicly available sources such as LinkedIn, Facebook, and Twitter. These resources are frequently used to gather information about potential victims, such as their names, job titles, and emails. An attacker can then utilise the information to create a convincing phishing email.

Typically, a victim receives a message that appears to have come from a known contact or organisation. The assault is then carried out when the victim clicks on a malicious file attachment or a hyperlink that takes them to a malicious website. In either situation, the attacker's goal is to put malware on the user's device or redirect them to a fraudulent website. Fake websites are designed to deceive people into disclosing personal and financial information, such as passwords, account IDs, or credit card numbers.

2.2.1.1 Types of phishing

Cybercriminals continue to improve their phishing skills and develop new sorts of phishing scams. The following are some common types of phishing attempts.

- i. **Spear phishing attacks** : Spear phishing attacks target specific individuals or companies. These



assaults frequently use victim-specific information to better depict the message as real. Spear phishing emails may include allusions to coworkers or executives at the victim's company, as well as the victim's name, location, or other personal details.

- ii. **Whaling attacks** : Whaling assaults are a sort of spear phishing attack that targets senior executives within an organisation with the goal of stealing significant amounts of sensitive information. Attackers conduct thorough research on their victims in order to craft a more genuine message, as employing information relevant or specific to a target increases the likelihood of the assault being successful. Because a typical whaling attack targets an employee with the ability to authorise payments, the phishing message frequently looks to be a directive from an executive to authorise a large payment to a vendor, but in reality, the payment is made to the attackers.
- iii. **Pharming** : Pharming is a sort of phishing assault in which domain name system cache poisoning redirects people from a valid website to a fraudulent one. Pharming involves tricking visitors into logging in to a false website using their personal information.
- iv. **Clone phishing attacks** : Clone phishing attempts leverage previously delivered but valid emails that include a link or an attachment. Attackers produce a replica of the legitimate email and change links or attachments with malicious ones. Victims are frequently fooled into clicking on the malicious link or opening the harmful attachment. This approach is commonly employed by attackers who have gained control of another victim's machine. In this scenario, the attackers leverage their control over a

single system within an organisation to send emails from a trustworthy sender known to the victims.

- v. **Evil twin attacks**: Hackers utilise evil twin attacks to fool users into joining a fake Wi-Fi network that appears to be a legitimate access point. The attackers build a duplicate hotspot that emits its own radio signal and shares the same name as the original network. When the victim joins the evil twin network, attackers gain access to all data transmitted to and from the victim's devices, including user IDs and passwords. Attackers may also utilise this channel to target victim devices with their own bogus prompts.
- vi. **Voice phishing** : Voice phishing is a type of phishing that occurs using voice-based media, such as voice over IP or traditional telephone service. This sort of scam employs speech synthesis software to create voicemails informing the victim of unusual activity in a bank or credit account. The call asks the victim to respond to authenticate their identity, which compromises their account credentials.
- vii. **Calendar phishing** : Calendar phishing is an attempt to deceive victims by sending fraudulent calendar invites that can be placed on calendars automatically. This form of phishing attack aims to seem like a typical event request with a malicious link.
- viii. **Page hijack attacks** : Page hijacking attacks take the victim to a hacked website that is a replica of the page they meant to visit. The attacker employs a cross-site scripting attack to inject malware on the cloned website, redirecting the victim to that site.

2.2.2 Spoofing

Sometimes, people receive a text from a friend asking for money and saying they're

in trouble. They believe it's their friend and send the money quickly. Later, they find out it wasn't their friend texting at all. This happens because malicious individuals can pretend to be someone you trust by changing their phone number or email address. It's essential to be careful and double-check before sending money or sharing personal information, even if it seems urgent. Always make sure it's your friend reaching out before you send money.

Spoofing is misrepresenting a message from an unknown source as coming from a known and trusted source. Faking can apply to emails, phone calls, and websites. It can also be more technical, such as a computer faking an IP address, Address Resolution Protocol (ARP), or Domain Name System (DNS) server.

Spoofing can be used to obtain a target's personal information, spread malware via infected links or attachments, circumvent network access controls, or redistribute traffic to launch a denial-of-service attack. Spoofing is frequently used by hostile actors to acquire access to carry out a bigger cyber attack, such as an advanced persistent threat or a man-in-the-middle attack.

There are a variety of methods and types of spoofing.

i. **IP Spoofing** : Attackers may use IP (Internet Protocol) spoofing to disguise a computer IP address, thus concealing the sender's identity or impersonating another computer system. One aim of IP address spoofing is to obtain access to networks that authenticate users using IP addresses. More commonly, attackers will impersonate a target's IP address in a denial-of-service attack to flood the victim with traffic. The attacker will send packets to various network recipients, and when the packet recipients respond, they will be routed to the target's falsified IP address.

ii. **ARP Spoofing** : ARP stands for Address Resolution Protocol. Address Resolution Protocol (ARP) is a protocol that converts IP addresses to Media Access Control (MAC) addresses before delivering data. ARP spoofing connects an attacker's MAC to a legitimate network IP address, allowing the attacker to receive data intended for the owner of that IP address. ARP spoofing is typically used to steal or manipulate data, but it can also be used in denial-of-service, man-in-the-middle attacks, and session hijacking.

iii. **E-Mail Address Spoofing** : Spoofing occurs when an email communication looks to be from a reputable source but is actually from an impostor. E-mail spoofing can be used for malevolent purposes such as virus distribution, searching for sensitive corporate data, and other industrial espionage activities. When you receive a letter via snail mail, you look for the return address in the upper left corner to determine where it came from. However, the sender might use any name and address; you have no guarantee that the mail is truly from that person and address. Return addresses are also present in e-mail communications, although they might be purposely false, or "spoofed."

iv. **Web Spoofing** : Web or hyperlink spoofing, like other forms of spoofing, offers victims bogus information. Web spoofing is an attack that allows a person to read and manipulate all web pages sent to a victim's computer. They can observe any information entered into forms by the victim. This can be especially dangerous because of the nature of the information entered into forms, such as addresses, credit card numbers, bank account numbers, and the passwords used to access these accounts.

v. **DNS Spoofing** : A DNS spoofing attack occurs when a host successfully



inserts false resolution information that it does not have the permission to supply. It can be carried out using a variety of tactics, including social engineering and the exploitation of flaws in the DNS server software. Using these approaches, an attacker may introduce IP address information that will reroute a customer from a genuine website or mail server to one under the attacker's control—thereby acquiring consumer information through common man-in-the-middle mechanisms.

2.2.3 Cyber Trapping

You may be on social media and find an advertisement for a complimentary trip. You may eagerly click the link to find out more. Rather than receiving vacation specifics, you may be redirected to an odd website that requests personal information. You may be unaware that online scammers have duped you. They utilise enticing offers like this to get your personal information or install malicious software on your machine. This demonstrates how people fall into online traps, where their safety and privacy can be jeopardised.

Cyber entrapment is a strategy used by hackers to trick people into compromising circumstances online. It usually entails tricking someone into providing sensitive information or engaging in actions that can be exploited by the attacker. For example, cyber trapping could entail building phoney social media profiles or websites in order to trick people into disclosing personal information such as passwords or bank details. Once the victim has fallen for the scam, the cybercriminal can exploit the information for a variety of nefarious objectives, including identity theft, money fraud, and blackmail. Cyber entrapment takes advantage of human vulnerabilities and trust to manipulate people into performing acts that benefit the attacker's goals. Individuals must exercise caution and be aware of the risks involved with online

interactions in order to avoid falling victim to such scams.

2.2.4 Debit and Credit Card Fraud

Fraud

Sometimes, you may have a meal at a restaurant and pay for it using your debit card. The restaurant staff may swap your card and ask you to enter the PIN. You may make the payment by entering the PIN in the swapping machine. Everything seems normal until you check your bank statement later and notice several unauthorised transactions have occurred. You look into it more and find that the waiter probably skimmed your card information or used a hacked payment terminal. Despite taking precautions, such as covering your PIN when entering it, you may fall victim to debit card fraud.

Individuals and financial institutions face enormous risks from debit and credit card fraud, as criminals develop new strategies to exploit payment system vulnerabilities. Unauthorised transactions or the compromising of card information associated with a bank account are examples of debit card fraud. Credit card fraud is the unauthorised use of a credit card to make purchases or access cash, usually without the cardholder's knowledge.

Criminals who commit debit card fraud may obtain card information through methods such as skimming, which involves using equipment to record card information while doing valid transactions. Phishing, spyware, and data breaches are other popular ways to access sensitive debit card information. Once equipped with this information, scammers can make unauthorised withdrawals or purchases, directly affecting the victim's bank account.

Credit card theft frequently involves the use of stolen card information to make purchases, with the victim held accountable for a certain amount based on the card issuer's

restrictions. Criminals can access credit card information through data breaches, phishing scams, or physically snatching the card. Furthermore, card-not-present transactions, such as online purchases, allow criminals to leverage stolen credit card credentials without needing the physical card.

2.2.5 Online payment fraud

Sometimes, you may search online sites for a new pair of shoes. You find a website that offers a great deal and enter your credit card information to make the purchase. After a few days, you notice strange charges on your credit card statement for things you didn't buy. The website you used was fake, and the scammers behind it stole your credit card details. Now, they're using your information to make purchases without your permission. Criminals trick online shoppers and obtain payment information from online customers and steal money or make unauthorised purchases. To avoid this fraud, it's essential to be cautious when shopping online and only use reputable websites.

As more transactions move to digital platforms, online payment fraud becomes more of a worry. This sort of fraud entails unauthorised or misleading activity aimed at exploiting vulnerabilities in online payment systems, endangering individuals, businesses, and financial institutions. Phishing is a common form of online payment fraud in which criminals use fake emails or websites to fool people into disclosing critical payment information. Another technique is to use harmful software, such as keyloggers or malware, to record login and payment information during online transactions. Furthermore, account takeover occurs when fraudsters acquire unauthorised access to a user's account, frequently using stolen login credentials, and make fraudulent transactions.

To counteract online payment fraud, a variety of security methods are used, including encryption, multi-factor authentication, and

real-time transaction monitoring. Financial institutions use advanced fraud detection algorithms to detect strange patterns or suspicious activity. Additionally, firms frequently use secure payment gateways and technology like tokenisation to safeguard client data during online transactions.

Consumers can help avoid online payment theft by creating secure and unique passwords, constantly monitoring their accounts for unauthorised activity, and being wary of phishing attempts. Education and awareness efforts also assist individuals in recognising potential dangers and practising safe online behaviours, which contributes to a more secure digital payment landscape. As technology advances, continual efforts to improve security measures and keep up with emerging fraud strategies are critical to maintaining trust in online payment systems.

2.2.6 Identity theft

Identity theft, sometimes, one person may receive a notification from a lender informing him that his loan payment is due. Confused, he investigates further and realises that someone has used his personal information to apply for a loan without his knowledge. Fraudsters use stolen identities to obtain loans from financial institutions, leaving victims with a financial burden.

Identity theft is the criminal act of obtaining another person's personal or financial information in order to commit fraud, such as making unauthorised transactions or purchases. Personal information is used with the aim of conducting fraud, usually for financial benefit. Clearly aware that they have stolen another person's identity, the offender intends to utilise it to open new accounts or tamper with existing accounts using the stolen identity. Identity theft occurs in a variety of ways, and victims often suffer damage to their credit, income, and reputation. Identity theft happens when someone steals your personal information,



including your Social Security number, bank account number, and credit card information. All sensitive personal information is at risk because the perpetrator will have access to a list of resources associated with the stolen identity. These resources can then be utilised to build accounts in several businesses, including medical, financial, insurance, and gambling. Whatever an individual may have that is beneficial to identity thieves is up for grabs once an identity has been stolen.

More sophisticated approaches entail breaking into corporate databases to collect lists of client information. Once identity thieves obtain the information they seek, they can destroy a person's credit rating and the status of other personal data. Identity thieves are increasingly using computer technology to steal the personal information of others in order to commit identity fraud. To find such information, they may scan the hard drives of stolen or discarded computers, hack into computers or computer networks, access computer-based public records, use information-gathering malware to infect computers, surf social networking sites, or send false emails or text messages.

2.2.6.1 Types of identity theft

Different types of identity theft are

- i. **Exploiting Weakness in Specific Technologies and Information Systems :** Credit card fraud is likely the clearest example of identity theft that focuses on a specific technology, namely the plastic card and its multiple features. In this case, the fraudster uses a variety of tactics to tamper with or alter credit cards that have been stolen from victims or are counterfeit but have all of the identification information from the victim's financial records. As previously stated, casual or even organised credit card theft may not progress to "full-blown" identity theft if the card is used and discarded

quickly. The amount of harm done to the cardholder may be little, aside from the inconvenience of having to obtain a new credit card and cancel the old one. However, credit card fraud is a common method for thieves to transform what they stole into cash or expensive products that they purchase. Check and card fraud provides access to information systems that will dispose of products and services without the substantial chance of the offender being found

Other typical targets for this type of identity theft include electronic databases containing personal and financial information about clients. Offenders have utilised some of this information to gain access to bank accounts, obtain credit cards, and open telephone or utility accounts, converting the stolen information into cash. The most publicised examples of database theft were those in which perpetrators attempted to extort money from the corporations or authorities that hold the databases

- ii. **Financial Scams :** There are numerous scams that can be used to obtain victims' personal information. These sorts of identity theft are clearly linked to the exploitation of specific technology and information systems. They are used in telemarketing schemes, such as seeking personal information while pretending to be conducting a security check or collecting donations for a charity. Fraudsters create bogus "store fronts" on the internet that replicate well-known web stores, or they send phishing emails or pop-ups asking for financial and personal information in the name of well-known retailers and, in many cases, government institutions. The majority of these sorts of fraud rely on tried-and-true old frauds that have been updated for new technologies. They all rely on fooling or duping the victim

- iii. **Facilitating Other Crimes :** Document theft and fraud are the most common identity crimes that enable the commission of other crimes. A seasoned identity thief will collect a few key parts of an individual's identification, such as a birth date and a social security number, and use these to "breed" new documents. The careful use of this information, whether over the phone, on the Internet, in person with a bank official, or even when filling out a credit application, may help gain additional information such as bank account numbers, driver's licences, visas, and passports. The information may be used to manufacture new papers, such as counterfeit credit cards that may have account numbers and names of legitimate account holders, making them more difficult to identify. It is possible to open new bank accounts and obtain credit cards. The entire process of doing business and executing necessary transactions to carry out more crime of a different kind can then be completed.
- iv. **Repeat Victimisation :** As previously stated, this is the most well-known form of identity theft. It concentrates on what happens to the victim, but it also suggests a constant and repeated endeavour by the perpetrator to utilise the individual's identity again and again until the identity's utility in generating money and opportunities for additional crimes is depleted. While there is extensive testimony from victims that this process occurs and occurs over a long period of time, little research has been conducted to describe this process from the offender's perspective, though some evidence suggests that experienced offenders who specialise in cheque and card fraud know how long to turn over a card and when to dispose of it on the street.
- v. **Child Identity Theft :** Child identity theft occurs when someone utilises a child's identity for personal advantage. This is common because youngsters often do not have information associated with them, which could provide hurdles for the criminal.

2.2.7 Money Laundering

Individuals involved in illegal activities, such as smuggling or black market trading, seek to transfer their ill-gotten gains across borders without attracting attention from authorities. They turn to a clandestine money transfer system. A criminal in India may want to move a large sum of money to one in another country. They approach brokers and provide the amount they wish to transfer and the recipient's details. By using the Hawala system, the broker arranges for the equivalent amount to be paid to the recipient in local currency without any official records. Criminals launder their illicit proceeds and transfer money across borders undetected.

Money laundering is the process of concealing the origin of money received from unlawful sources and changing it to a legitimate source in order to avoid prosecution, conviction, and confiscation of criminal funds. It is an illegal activity that turns black money into white money and constitutes a significant financial crime. It gives the impression that significant sums of money earned through major crimes, such as drug trafficking or terrorist action, came from a legitimate source. Money laundering makes it possible for criminals to hide and legitimise the proceeds of unlawful activity. Money laundering promotes corruption, distorts economic decisions, exacerbates social problems, and jeopardises the integrity of financial institutions.

The term 'laundering' refers to the investment or other movement of funds from racketeering, drug trades, and other



unlawful sources into legitimate channels in such a way that the original source cannot be traced. Money launderers can be found in numerous walks of life, but in most jurisdictions, anyone who assists a criminal in laundering the proceeds of his crime is also a money launderer. This means that bankers, lawyers, accountants, car dealers, and others are money launderers if they allow another person to utilise their businesses to launder criminal proceeds. Persons possessing assets from the proceeds of crime are also money launderers.

2.2.7.1 Process of Money Laundering

To comprehend money laundering as it is performed now on a worldwide scale, one must view money as a commodity. In this regard, professional money launderers and corporate money managers are nearly identical. A corporate money manager joins the money markets of numerous nations where the corporation will require national currencies in the coming year, buying and selling currencies in an ongoing effort to increase the manager's average position at the time of payment. Similarly, money launderers employ a bidding mechanism to purchase and sell drug proceeds. Money brokers diversify their holdings in the same way that a good investment portfolio does.

The operational principles of money laundering are a three-step procedure that includes, first, shifting the cash away from any direct relationship with crime; second, concealing the trail to thwart pursuit; and, third, making the money available to criminals again while keeping the source hidden. The deeper the "dirty money" penetrates the worldwide banking system, the more difficult it is to trace its origin. Financial crooks use legal methods like "walking accounts," in which banking workers are instructed to shift accounts to another jurisdiction at the first sign of an

investigation by law enforcement agents.

There are also similarities between the various tactics employed by money launderers to launder their unlawful gains. There are three typical factors observed in laundering operations:

- The need to conceal the origin and true ownership of the proceeds;
- The need to maintain control of the proceeds;
- The need to change the form of the proceeds in order to shrink the huge volumes of cash generated by the initial criminal activity.

There are three stages of money laundering. These three stages in money laundering are:

- a. Placement Stage :** The first stage involves the physical disposal of currency. The launderer transfers illegal profits into the financial system. This placement is performed by depositing funds in domestic banks or other formal or informal financial institutions. This is accomplished by dividing large sums of cash into less visible smaller sums and depositing them straight into a bank account, or by acquiring a succession of monetary instruments. The cash is frequently siphoned off across borders for deposit in foreign financial institutions, or used to acquire high-value products, such as artwork, aeroplanes, and precious metals and stones, which can then be resold for payment by cheque or bank transfer.
- b. Layering Stage :** The second step in money laundering is called layering. The term "layering" refers to the process of separating illicit gains from their source through the use of complex financial transactions. Layering

hides the audit trail and ensures anonymity. The launderer converts or moves the cash in a sequence of transactions to separate them from their source. The funds may be channelled through the purchase and sale of investment instruments such as bonds, stocks, and traveller's cheques, or the launderer may simply wire the funds through a network of accounts at various banks around the world, particularly in jurisdictions that do not cooperate in anti-money laundering investigations.

c. **The Integration Stage :** The term "integration" refers to the reinjection of laundered proceeds back into the economy in such a way that they enter the financial system as normal company finances. The funds return to the legitimate economy. The launderer may decide to invest the funds in real estate, luxury possessions, or commercial initiatives.

The layering and integration stages of money laundering employ more complex money laundering strategies. Cash is currently being held in large quantities or transferred into the financial system via exchange houses and other non-bank financial entities. Not only is it moved through wire transfers, but also through innumerable varieties of licit and illicit financial instruments, including letters of credit, bonds and other securities, and prime bank notes and guarantees, without a parallel increase in the ability of the far-flung elements of the world's financial system to verify the beneficiaries or authenticity of such instruments.

A bank customer depositing several transactions under £10,000 each over a period of several days is an example of structuring.

i. **Structuring :** Structuring occurs when a significant sum of money is purposefully divided into smaller transactions in order to dodge AML and/or counter-terrorist financing (CTF) requirements. Structuring is unlawful. While the money being transferred may have been legally obtained, structuring remains prohibited, even if the funds were legitimately earned. With structuring, the criminal intentionally makes deposits below the reporting threshold. They may also utilise many accounts to keep transactions hidden and avoid reporting suspicious activity. Criminals can employ structuring to conceal how their funds were generated or received. Individuals sometimes utilise structuring to avoid tax liabilities. This could happen if high-ranking officials or others with a considerable sphere of influence accept a monetary bribe or kickback. To avoid paying taxes on this additional money, they may make repeated minor contributions across multiple accounts in order to avoid regulatory inspection.

ii. **Smurfing :** Smurfing occurs when criminals divide a huge sum of money into small chunks of currency, completing many transactions and distributing the funds to other accounts, making it difficult to trace the origin. Smurfing is a type of structuring that uses unlawfully obtained funds and the services of low-level financial criminals known as 'smurfs'. The term "smurf" is considered to have originated in illegal drug manufacture and now refers to a junior money launderer or runner. Criminals utilise smurfs



to transfer unlawful funds into the regular banking system.

iii. **Offshore Banking :** The term offshore refers to a location other than one's own nation. The word is often used in the banking and financial industries to identify places with distinct legislation from the home country. Offshore destinations are typically island nations where businesses establish firms, investments, and deposits. Companies and individuals (usually those with a high net worth) may relocate abroad for more favourable conditions, such as tax evasion, reduced restrictions, or asset protection. Offshore can refer to a wide range of foreign-based organisations, accounts, and other financial services. To be considered offshore, the action must take place in a country other than the corporation or investor's home country.

Offshore banking is securing assets in financial institutions in other nations, which may be restricted by the rules of the customer's home country. Consider the well-known Swiss bank account, which keeps wealthy individuals' money out of the grasp of their own government. People and businesses can use offshore accounts to avoid the negative consequences of retaining money in a bank in their home country. The majority of entities use this to avoid paying taxes. Offshore bank accounts are also more difficult for authorities to seize.

iv. **Money Mules :** A money mule is someone who receives money from a third party and either moves it to another bank account or withdraws it in cash and provides it to someone else in exchange for a commission. A money mule is someone who collects and transfers money from

victims of fraud. Criminals may even enlist money mules to utilise stolen credit card information. Individuals used as money mules may be willing participants, although some are unaware that they are being utilised to perpetrate fraud. Some money mules are aware that they are assisting criminals, while others are uninformed that their acts are aiding fraudsters. Cash smugglers who assist in transporting unlawful cash across borders and depositing it in countries with less **severe** tax rules are held to the same standard as money launderers.

v. **Cryptocurrencies:** Cryptocurrency is a digital currency in which transactions and records are validated and maintained by a **decentralised** system that uses encryption rather than a centralised authority. It is not issued by a central authority; hence it is theoretically immune to government intervention or manipulation. The introduction of **online** transacting currency in the form of cryptos such as Bitcoin and others has heightened the risk of money laundering. Cryptocurrencies are more susceptible to illicit activities and money laundering. They offer more anonymity than conventional payment systems since the public keys used in a transaction cannot be immediately connected to an individual.

Criminals set up online accounts with digital currency exchanges that accept fiat currency from regular bank accounts. Then they begin the 'cleaning' process (mixing and layering), which involves moving money into the cryptocurrency system via mixers, tumblers, and chain hopping (also known as cross-currency). Money is moved from one cryptocurrency to another via digital currency exchanges.

2.2.8 Ponzi scheme

Sometimes, a new company may promise investors big profits. Companies say they'll use the money in business, make a lot of profit, and distribute it among investors. Excited investors invest in the business, hoping to make a quick buck. However, the company may not really make a profit from the business. Instead, they're using the money from new investors to pay returns to earlier investors. So, when it's time for investors to get their profits, the company is just giving them money from new investors. This goes on for a while, with the company getting more and more money from new investors to pay profits to old partners. But eventually, there won't be enough new investors, and the company won't be able to keep up. The whole thing collapses, and people realise they've been tricked. Many end up losing the money they put in. So, a Ponzi scheme by a company promises big profits but just uses money from new investors to pay off earlier ones.

A Ponzi scheme is an investment strategy in which the operator or operating firm pays returns to investors based on new cash received from new investors rather than the business's profitability. A Ponzi scheme is a fraudulent investment scam that promises high rates of return with no risk for investors. It creates returns for early investors by taking funds from later investors. In a Ponzi scheme, the operator or operating company pays returns to investors based on new capital received from new investors rather than business earnings. Investors are drawn to these schemes because they provide abnormally high rates of return in shorter time periods than other traditional investing options.

It is a mechanism for attracting investors with the promise of future rewards. The operator of a Ponzi scheme can only keep it going as long as new investors join.

Companies that engage in Ponzi schemes devote all of their efforts to acquiring new investors. This new money is utilised to pay the original investors' returns, which are recorded as a profit from a valid transaction. Ponzi schemes rely on a steady stream of new investments to continue providing returns to older investors. When this flow runs out, the plan collapses. To secure the trust of investors, promoters normally offer generous payments in the initial few months, encouraging them to spend additional money. This causes a ripple effect, attracting additional investors to participate. The initial ones are then paid out using monies raised from new investors. In many circumstances, when investors receive profits, they prefer to stay invested rather than withdraw capital. The promoter is also delighted, simply presenting them balances of what they have made, thereby continuing the pretence that the scheme is providing promised returns. To boost confidence, the scheme permits the initial investors to make complete withdrawals.

Such schemes can unravel due to any of the below-mentioned reasons:

1. The promoter vanishes with the entire investment fund without giving payouts to investors.
2. New investments stop flowing in, creating a liquidity crunch. This causes a panic situation as more people start demanding returns.
3. Market forces prompt mass withdrawal of funds, creating an issue for the promoter.

2.2.8.1 Ponzi Scheme Working

- i. **Attracting Investors :** Organisers frequently utilise social media marketing or online forums to create an image of exclusivity in order to attract investors into feeling they are part of an elite group participating



in a clever investment that will pay them well for getting in early on. These returns are often significantly higher than legitimate investments, which may raise red flags.

- ii. **Paying Early Investors** : To give the illusion of authenticity, the organiser pays returns to early investors, who can then spread the word that the opportunity is genuine. These payouts are made from new participants' investments rather than actual profits.
- iii. **Encouraging Reinvestment** : The scheme operator may persuade investors to reinvest their profits with the promise of even greater returns. This strategy maintains the plan running and seeks to prevent investors from withdrawing their money
- iv. **Collapse and Disappearance** : Late-stage Ponzi schemes are frequently characterised by issues with investors' ability to access funds or make withdrawals. The plan will cease when it is eventually unable to attract enough new investors to compensate earlier investors, or the operators quit with the funds, leaving the remaining investors with large losses.

2.2.9 Investment fraud

Sometimes, your friend may say that there is a fantastic investment opportunity. He says if you give him some money to invest, you'll get back even more money in no time. You may give him your money. He may not invest your money. Instead, he's just taking it for himself. When it's time for you to get your profits, he might give you some money back, but it's likely just a tiny portion of what you gave him. Someone tricks you into giving them money for an investment that doesn't exist or isn't what they said. It's essential to be cautious and

study before giving anyone your money to invest.

Investment fraud, also known as stock fraud or securities fraud, is a misleading activity in the stock or commodities markets that leads investors to make purchase or sale decisions based on incorrect information. Investment fraud is a dangerous white-collar crime that can take many forms, but it typically includes distorting information that investors use to make decisions. The fraudster could be a stockbroker, speculator, or financial industry executive. It could be a business, brokerage firm, or investment bank. Investment fraud includes high-yield investment fraud, Ponzi schemes, pyramid schemes, advance fee schemes, foreign currency fraud, broker embezzlement, hedge-fund-related fraud, and late-day trading. In many situations, the fraudster attempts to defraud investors by misrepresentation and manipulates financial markets in some way. This crime includes providing misleading information, withholding critical information, giving poor advice, and offering or acting on inside information.

2.2.9.1 Types of securities fraud

There is no full list of investment market frauds, and people continue to devise new sorts of frauds. Insider trading, misrepresentation in meeting the requirements for large acquisitions of shares, fraudulent tactics and market manipulation in the securities market, and stock frauds such as technology fraud and accounting fraud are examples of specialised forms of securities market fraud. Securities market fraud typically involves a large sum of money when compared to other types of fraud. The various types of securities market frauds arising from securities transactions are as follows.

- i. **Insider Trading** : People who are tightly connected to a corporation,

often known as insiders, have easy access to private information that others do not have. Confidential information includes a company's profits, proposed dividends, bonus shares, rights issues of shares, and expansion plans such as mergers, acquisitions, amalgamations, and disinvestments, among other things. Insiders have access to this confidential information before it is made public. This is 'Material Information' because it is not available to the general public. Insiders can misuse material information for their own profit. Such insider acts are injurious to the interests of investors and the capital market. Insider trading is the use of substantial, non-public knowledge to trade a business's shares by a corporate insider or another individual with a fiduciary duty to the company. A person is an insider if he has non-public information about a corporation. Insiders must not utilise non-public information to purchase or sell shares of a company, nor should they advise others to buy or sell shares of that firm until such information is disclosed to the public

ii. **Advance Fee Fraud** : Advance fee fraud occurs when investors are requested to pay upfront fees before obtaining promised profits or accessing investment opportunities. Fraudsters utilise a variety of excuses, such as administrative expenditures, taxes, or legal bills, to persuade victims to hand over their money. After the payments are made, the scammers leave, leaving the investors with financial losses.

iii. **Boiler Room Scams** : Boiler room scams use aggressive sales tactics, typically over the phone, to sell fictional or worthless investments. Fraudsters generally operate in high-pressure circumstances, pressuring potential victims to make fast decisions without doing adequate due diligence. The investments advertised in boiler room scams are frequently overpriced or non-existent.

iv. **Churning** : Churning happens when a broker unnecessarily trades stocks in a client's account to generate commissions. While the broker may pretend to actively manage the portfolio, the primary purpose is to maximise commissions rather than to meet the investor's financial goals. Churning can cause considerable financial losses for investors because of transaction expenses and associated tax issues.

v. **Internet and Social Media Fraud** : With the rise of online platforms, scammers use the internet and social media to pitch fraudulent investment opportunities. These scams may include misleading claims of large profits, forged testimonials, or the use of sophisticated websites to create the appearance of credibility. Investors should take caution and conduct extensive research before engaging in online investment opportunities.

vi. **Pump and Dump Schemes** : Pump and dump schemes involve fraudsters artificially inflating a stock's price by distributing positive, often deceptive, information. Once the stock price reaches a peak, the fraudsters sell their shares, causing the price to drop and resulting in large losses for naive investors who acquired at inflated rates.

vii. **Affinity Fraud** : Affinity fraud targets members of a certain group, such as religious or ethnic communities, and takes advantage of trust and shared relationships. Fraudsters infiltrate these groups, frequently posing as members, and persuade people to invest based on their common affiliations. The trusting nature of the



group may result in large financial losses for its members.

viii. Real Estate Investment Schemes

: Real estate investment fraud refers to fraudulent methods in property investments. Fraudsters may sell homes at overstated or fabricated prices, misrepresent rental revenue possibilities, or neglect to disclose critical facts about the property. Investors should conduct due diligence to ensure the legitimacy of real estate investment prospects.

2.2.10 Tax evasion

There are persons who earn income from many sources. When it's time to pay taxes on that money, they may decide not to report all of their earnings to the government. Instead, they only report part of what they made, hoping to pay less tax. This is called tax evasion, and it's against the law. By not reporting all of their income, they are cheating the government out of the taxes they owe. If they get caught, they could face serious consequences, like having to pay back the taxes they owe plus penalties or even going to jail.

Tax evasion is the deliberate and illegal act of avoiding paying taxes by misrepresenting or concealing information about income, assets, or transactions to reduce tax liability. It typically involves activities like underreporting income, overstating deductions, or hiding assets in offshore accounts. Tax evasion is a serious crime that undermines the fairness and integrity of the tax system, depriving governments of crucial revenue needed for public services and infrastructure. It can have significant consequences, including hefty fines, penalties, and even imprisonment for those found guilty. Governments employ various measures to detect and combat tax evasion, such as audits, investigations, and international cooperation agreements to track offshore accounts.

Tax evasion is a worldwide issue with major legal and economic ramifications. Tax evasion is illegal, and those who do so incur penalties. This not only hurts the state budget but also holds the taxpayer legally accountable. The Tax Authority has the authority to collect public revenues and is protected by the legal system when dealing with fraudulent conduct under criminal or fiscal legislation. To prevent these transgressions, public policies should recognise the complexities of human behaviour and motivations, particularly in the digital age. This insight can help policymakers develop more successful budgetary policies.

Tax evasion is a key issue that threatens nations' financial health by depriving governments of cash needed for public services and infrastructure. It refers to the illegal act of purposefully underreporting income, exaggerating deductions, or engaging in other dishonest methods to lower tax liability. This essay focuses on the reasons, repercussions, and solutions to combat tax evasion.

2.2.10.1 Causes of Tax Evasion

Tax evasion occurs when individuals or businesses purposefully lie about their income or alter their expenses in order to pay less in taxes. Several factors contribute to tax evasion. First, when taxes are really high, people may believe it is unjust, and they want to keep more of their money, so they strive to avoid paying a lot of taxes. Second, if the tax rules are overly complicated, it becomes simpler for people to manipulate their money in order to avoid paying their taxes. When the tax system is complex, some people use it to cheat on their taxes.

Another cause of tax evasion is that the authorities fail to ensure that everyone respects the regulations. If people believe they won't be detected, they may attempt

to cheat on their taxes. Furthermore, when transactions are conducted in cash, the government has a more difficult time keeping track of the money, making it simpler for people and corporations to conceal their income and fail to pay the appropriate taxes. Furthermore, if there is not enough transparency, which means clear and open information about financial activities, tax evasion becomes more likely because it is difficult for authorities to find out if someone is cheating on their taxes.

Other issues include how businesses function globally. International transactions make it difficult for tax authorities to monitor and supervise all financial operations. Small firms, particularly those that are not formally registered, may feel compelled to cheat on taxes in order to remain competitive or maximise earnings. Cultural views and societal attitudes can also have an impact; in some areas, people may believe it is acceptable to cheat on taxes, making it more widespread. Corruption, in which officials accept bribes or collude with taxpayers to allow them to avoid paying taxes, can exacerbate the problem. Finally, while it is acceptable to plan for taxes properly, some businesses go too far, bending the rules to avoid paying taxes, which can lead to tax evasion concerns.

2.2.10.2 Consequences of Tax Evasion

Tax evasion has serious consequences for a country's finances and society. The most pressing concern is a loss of government funds, which are critical for funding public services, infrastructure, and social welfare programmes. This financial crisis has far-reaching consequences for society, including finances. Another major concern with tax evasion is that it exacerbates economic

inequality. Regular people and honest businesses bear more of the burden of paying for public services, widening the wealth disparity. This unequal distribution of financial duties exacerbates disparities in wealth and opportunity.

A concerning outcome is the erosion of trust in government produced by widespread tax cheating. People believe the tax system is unjust, with the wealthy receiving more rewards.

This loss of trust may result in less interaction with the government and less cooperation with tax authorities. To compensate for the lost revenue from tax evasion, governments may increase taxes on those who obey the laws. This reaction poses a problem: greater taxes may encourage more people to evade taxes, resulting in an ongoing conflict between tax authorities and those attempting to escape their financial obligations. This not only has an impact on economic stability, but it also calls into question the usefulness of taxes as a source of revenue for governments. Furthermore, tax avoidance reduces overall economic growth. Less revenue from taxes means the government cannot invest in critical infrastructure such as roads, schools, and healthcare. This has a knock-on effect on society, limiting job prospects, curtailing education, and impeding development in healthcare. Tax evasion causes more than simply financial losses to the government. They include increased economic disparity, lower faith in the government, greater taxation, and a reduced ability to invest in critical sectors. Solving tax evasion needs a variety of tactics, including legislative changes, improved enforcement, and initiatives to raise public awareness, with the goal of creating a fair and open financial system that benefits everyone.



R Recap

- ◆ Money laundering - the process of hiding the illegal source of money and converting it to a clean source
- ◆ Three stages of money laundering - Placement Stage, Layering Stage, Integration Stage
- ◆ Integration - reinjection of the laundered proceeds back into the economy
- ◆ A money mule - receives and moves money that came from victims of fraud
- ◆ Phishing attack that specifically targets senior executives - Whaling attacks
- ◆ Voice phishing - Phishing that occurs over voice-based media
- ◆ Phishing attack that uses text messaging - SMS phishing
- ◆ Identity theft - the crime of obtaining the personal or financial information of another person
- ◆ ARP - Address Resolution Protocol
- ◆ Tax evasion - deliberate and illegal act of avoiding paying
- ◆ Churning - broker unnecessarily trades stocks in a client's account
- ◆ Affinity fraud – aims at the members of a certain group, such as religious or ethnic communities
- ◆ Insiders - People who are tightly connected to a corporation.
- ◆ Child identity theft - when someone utilises a child's identity for personal advantage
- ◆ Calendar phishing - attempt to deceive victims by sending fraudulent calendar invites
- ◆ Page hijacking attacks - take the victim to a hacked website that is a replica of the page they meant to visit.
- ◆ Web spoofing - an attack that allows a person to read and manipulate all web pages sent to a victim's computer



Objective Questions

1. What is the process involving the separation of illicit proceeds from their source by creating complex layers of financial transactions known as?
2. What is the term for the practice in which criminals break a large sum of funds into small increments of cash, conducting multiple transactions and distributing the amount across various accounts?
3. What is the term commonly used in the banking and financial sectors to describe areas where regulations are different from the home country?
4. What term is used to describe a person who receives money from a third party in their bank account, transfers it to another account, or withdraws it in cash to provide it to someone else, earning a commission for the transaction?
5. What is the term for a digital currency in which transactions are verified and records are maintained by a decentralized system using cryptography, rather than by a centralized authority?
6. What is the term for attacks that are specifically directed at individual persons or companies?
7. What is the term for a type of phishing attack that employs domain name system cache poisoning to redirect users from a legitimate website to a fraudulent one?
8. What type of investment plan involves the operator or the operating company paying returns to investors from the new capital coming in from new investors instead of the profits of the business?
9. What term describes the practice of transferring assets to offshore accounts to evade taxes?
10. What is the primary goal of a phishing attack?
11. What is the term for a phishing attack that targets users via text messages?
12. What is the term for a phishing attack that targets a specific high-ranking individual within an organization?
13. What is the term for a phishing attack that targets a large group of people without specific targeting?
14. Which layer of the OSI model does MAC Spoofing operate at?
15. Which sector is particularly vulnerable to GPS Spoofing attacks?
16. What is the term for a cyber trapping technique that involves creating a fake persona to establish trust with the victim?



17. What is the term for cyber trapping techniques that target minors for exploitation?
18. What is the term for cyber trapping techniques that involve exploiting vulnerabilities in software or systems?
19. What is the term for identity theft that involves someone using another person's identity to commit crimes?
20. What is the term for identity theft that involves stealing someone's personal information to file fraudulent tax returns?
21. What is the term for deliberately understating income on tax returns to reduce taxes owed?

A

Answers

1. Layering Stage
2. smurfing
3. Off
4. Smurfing
5. Offshore shore banking
6. money
7. Money mule
8. Cryptocurrency
9. phishing
10. Phishing
11. Spear phishing attacks
12. Pharming
13. Pharming
14. Tax haven
15. Stealing sensitive information
16. Smishing

17. Whaling
18. General phishing
19. Data Link Layer (Layer 2)
20. Transportation
21. Catfishing



Assignments

1. Research and provide examples of recent phishing attacks.
2. Analyse the tactics used and recommend preventive measures for individuals and organisations.
3. Investigate a historical Ponzi scheme and create a presentation outlining the key elements, impact on investors, and lessons learned.
4. Discuss regulatory measures to prevent such schemes.
5. Explore a case study involving money laundering in a specific industry.
6. Analyse the methods employed, regulatory gaps, and propose measures to enhance anti-money laundering (AML) efforts.
7. Conduct research on identity theft trends in a particular region or industry.
8. Develop a guide on best practices for individuals and businesses to prevent identity theft and respond effectively if it occurs.
9. Examine a high-profile tax evasion case and assess the legal and ethical implications. Discuss the role of tax authorities and suggest reforms to improve tax enforcement.
10. Investigate a real-world incident of spoofing, such as a cyber attack or financial market manipulation.
11. Analyse the impact, the techniques employed, and propose cybersecurity measures to.





S

Self Assessment Questions

1. Briefly explain spoofing and types of spoofing.
2. What are the causes of Tax evasion
3. Explain tax evasion and consequence of tax evasion
4. What are the different types of identity theft
5. What are the different types of securities fraud



R

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Unit 3

Security And Preventive Measures

L

Learning Outcomes

Upon completion of this unit, the learner will be able to:

- ◆ get an idea on meaning and scope of digital financial fraud
- ◆ familiarise with different trends in digital payment fraud
- ◆ explain the methods used for defence against attacks of financial fraud
- ◆ comprehend the RBI guidelines on digital payments and customer protection

P

Prerequisite

Cars, fridges, houses, factories, gadgets, etc., are being controlled and monitored remotely using computers. At the same time, more and more people around the globe have access to these new technologies and depend on them in their daily lives. But, the mass of interconnected things referred to as the Internet of Things, and technological innovation come with a risk—they increase the number of potential targets for malicious cyber activity.

Malicious cyber activity is a growing challenge for organisations worldwide. It ranges from straightforward online fraud to sophisticated cyber espionage and calculated cybercrime, used to steal secrets and other information stored digitally on systems and networks. Malicious cyber activities have the potential not just to seriously harm an organisation's business and reputation, but also to compromise a nation's security, stability, and prosperity. The number of incidents has spiked in recent years, as perpetrators aggressively exploit flaws in digital infrastructure. This has catapulted cybersecurity to the front of the mind for business leaders, regulators, and politicians who are anxious to shore up defences and improve resilience.

Cyber adversaries are constantly devising new ways to exploit vulnerable systems and networks. This is forcing organisations—banks, energy companies, government

agencies, and charities to strengthen their cyber defenses. The internet has opened doors to various possibilities, especially in the financial sector. You can make online payments, apply for loans, and buy goods online. However, not all websites are reliable, and not every link is verified or safe to open. Digital security attacks can compromise your savings after falling prey to a fraudster's trickery. Therefore, digital awareness and cyber vigilance are of paramount. This unit discusses more about digital financial frauds and security measures importance taken by the government to prevent such activities.

K

Keywords

Digital financial fraud, Phishing, Malware, UPI, Authentication, Authorisation, Data security, Encryption, Biometric, OTP, PCI, DSS

D

Discussion

2.3.1 Digital Financial Frauds

Digitisation has swept through all industries. One of the main industries that has seen rapid transformation is payments. Globally, digital payments have been seen to be growing steadily over the years in a variety of ways. The indigenous UPI is now spreading outside the nation, having taken the nation by storm. The two main objectives of digital payments are to be more user-friendly and secure than conventional payment systems. One of the biggest issues facing banks and other financial institutions now a days is finding a balance between security and easy payments. The financial services business has undergone significant transformation due to the emergence of fintech, cryptocurrency, and embedded financing solutions from lenders in recent times.

Digital fraud can take many different forms, and there is no uniform definition across jurisdictions. By its nature, digital fraud spans multiple dimensions (e.g. consumer protection, conduct, market integrity, anti-money laundering and combatting the financing of terrorism (AML/CFT), financial stability and is therefore cross-sectoral in nature. In the context of the banking system, digital fraud encompasses all fraudulent activities perpetrated by external parties through digital means (e.g. emails, websites, malicious software, etc.) to steal banking assets or credentials of bank customers. This definition does not capture digital fraud in other parts of the financial system. Digital fraud is related to, but different from, operational risk/resilience, cyber risk, and/or social engineering.

The proliferation of fraudsters, who are growing more cunning as they embrace new



technologies, is another effect of digitisation. Online fraud has increased as a result of the exponential growth in digital payments brought about by the quick adoption of technology in our daily lives. Nowadays, a great deal of people enjoy making payments online, which has encouraged scammers to come up with creative techniques to trick victims. Numerous customers have given critical information to these con artists and lost their hard-earned money as a result. Customers are more susceptible to deception as a result of online activity and connected smart gadgets, which has contributed to the rise in payment fraud. Online payment fraud is expected to cause e-commerce losses to rise by 131% between 2022 and 2027.

2.3.2 Types of Digital Financial Fraud

Fraud risks have also evolved in response to the Covid-19 pandemic. The pandemic has accelerated changes in customers' behaviour, including the increased reliance on remote and online financial services. This, in turn, has further increased the scope and nature of fraud risks. Cybercriminals are constantly devising new methods to defraud unsuspecting individuals and organisations of their hard-earned money. People need to learn how they can be duped to avoid this from happening. Let us decode some of the most common types of online financial fraud.

2.3.2.1 Phishing, smishing, and vishing

The classic method of obtaining personal data is still widely used; it involves assuming the identity of reliable sources, such as banks, social networking sites, or organisations. Automated bots are being used by scammers to pose as companies and communicate with their clients. Spoof websites, links, and SMS are used by fraudsters to trick unwary victims into divulging critical personal information.

2.3.2.2 Fake identity fraud

The increasing use of artificial intelligence (AI) and other emerging technologies to mimic people's voices and faces has made it harder for businesses to confirm an individual's identification. By using social engineering, fraudsters can create new profiles using documents, voice cloning, or facial photos, or they can use compromised data to authenticate verification.

2.3.2.3 Malware

Fraudsters trick easily deceivable customers into installing malware, screen mirroring, or remote access software by sending them emails, cashback links, or phony customer support. After installation, the compromised device is utilised to obtain financial data and trick customers by making purchases using their cards or accounts.

2.3.2.4 UPI Frauds

The advent of UPI transactions in India led to a significant advancement in digital payments. Nevertheless, scammers quickly adjusted and developed new strategies for tricking customers. UPI-related frauds pose a serious threat to the Indian payment ecosystem, ranging from masking collect requests as phony cashback offers and QR codes to fabricating fraudulent VPAs (Virtual Payment address) for disaster assistance, refunds, and other services.

2.3.2.5 Refund Frauds

Since the internet has spread so quickly, scammers have shifted from using the dark web to exchange advice and tactics on forgery and deception to offering "Fraud as a Service" (professional refunders), using Reddit (social new site) and Discord (Chat platform) as marketing platforms. Due to an abundance of refunds, customers band together with refunders, who then pose as customers to swindle e-retailers by using a variety

of techniques such as requesting refunds using photoshopped images that purport to show ingredient leakage, a partially empty box, etc. In addition to being a worry for retailers, refund fraud carries the potential of jeopardising the virtual assets of customers, including passwords, credit card numbers, and email addresses, as refunders that provide Fraud-as-a-Service can obtain access to the buyer's account.

2.3.2.6 Identity theft/ impersonation

Fraudsters acquire users' personal information (e.g. PAN/Aadhaar details or social media credentials) or critical information about their bank accounts to gain access and initiate online payments or open a payment account to execute transactions. The personal data of customers is made available on the dark web, enabling fraudsters to carry out this type of fraud. There have been multiple incidents in India involving banks, payments banks, and other FinTechs wherein the victims of identity theft have reported that their details were used by fraudsters to perform fraudulent transactions, including availing themselves of credit card facilities from banks.

Fraudsters may also impersonate an authorised official (bank employee, police, government official, health official, etc.) or the user's trusted acquaintance, and manipulate the user into transferring money.

2.3.2.7 Web skimming

Web skimming is a hacking technique wherein fraudsters install malicious software on the payment or checkout pages of an application and obtain confidential payment information. For instance, e-commerce websites employ the use of third-party applications, paving the way for fraudsters to install their malicious code into the trusted third-party host site.

There have been multiple reported cases of web skimming in India where fraudsters obtain the card details — such as card number, CVV, and expiry date — of unsuspecting users through e-commerce websites. The e-commerce websites have been particularly targeted due to their popularity and widespread presence.

2.3.2.8 By using QR code

The number of Bharat quick response (BQR) codes deployed in India in 2020—21 (49.7 lakh) has increased by 39.3% from 2019—20. At the same time, fraudsters have exploited the use of QR codes to conduct fraudulent transactions.

In many cases, fraudsters send a fake QR code to the unsuspecting customer, scanning which will enable the customer to receive money in his or her bank account. However, once the code is scanned, the money gets deducted from the customer's account instead. Also, in some cases, the fraudsters replace the physical QR code with their own QR code at shops or merchant locations, thereby deceiving customers into making payments to the wrong account.

2.3.2.9 Social engineering

Social engineering attacks generally involve exploiting unsuspecting users by convincing them of a serious issue related to their bank accounts so that the users reveal confidential information. In most cases, the fraudster psychologically manipulates the unsuspecting user into disclosing their banking details or convinces them to make payments. The perpetrator generally pretends to be from a trusted organisation or poses as a family member of the user or an employee of a financial institution.

2.3.2.10 Account takeover

This type of fraud involves fraudsters trying to take illegitimate control of the user's



account by stealing their login credentials and making payments. In most cases, the fraudsters remain unnoticed as they change the details obtained at the first step before performing payments.

2.3.2.11 Database breach

Fraudsters, or a group of organised criminals, gain access to banking systems or payment service provider networks to initiate or alter transactions. The 2016 cyberattack on the Bangladesh Bank, Central Bank of Bangladesh, is a classic example, where organised criminals got access to the bank's credentials and authorised payment transfers.

2.3.2.12 Remote access assistance

In this type of fraud, the fraudsters convince the user to provide remote access to their device to resolve some technical issues. They often do so by impersonating a member of a laptop servicer's technical support team, or a bank official helping to unblock the user's account or provide KYC support. After gaining remote access, the fraudsters gather all confidential information related to the user's payment accounts and misuse it to make payments.

Several cases have been reported where people receive an SMS asking for the KYC update of their bank account, along with a number to call for assistance. When people call for assistance, the fraudsters ask them to download a remote support application and share a code to receive confidential information and siphon off money from the bank account.

2.3.2.13 Botnet attack

Fraudsters inject malicious software (also known as bots) into a group of computers and link them together to launch coordinated botnet attacks. This allows fraudsters to gain

access to the user's devices and override their existing security methods to record the user's sensitive information. Later, this information is used to conduct fraudulent activities.

Several incidents have taken place where botmasters gained access to private shopping data across various brands and personal computers using bots. These bots are downloaded by an unsuspecting user via pirated software, advertising links, email attachments, etc.

These are some of the common and emerging fraud typologies and methods used by fraudsters to target various digital payment channels used by financial institutions in India. Incidents of fraud in digital channels have been on the rise when compared with those in conventional channels. The risks of conventional channels are widely known, and people are aware of the methods to protect themselves against such fraud. However, they lack the experience and awareness when it comes to newer or digital channels.

2.3.3 Tips for Preventing Financial Frauds

2.3.3.1 Phishing links

Modus Operandi

Fraudsters create a third-party phishing website that looks like an existing genuine website, such as a bank's website, an e-commerce website, a search engine, etc. Links to these websites are circulated by fraudsters through Short Message Service (SMS), social media, email, Instant Messenger, etc. Many customers click on the link without checking the detailed Uniform Resource Locator (URL) and enter secure credentials such as their personal identification number (PIN), one-time password (OTP), password, etc., which are captured and used by the fraudsters.

Precautions to be taken as follows:

- ◆ Do not click on unknown/unverified links and immediately delete such SMS/email sent by unknown sender to avoid accessing them by mistake in the future.
- ◆ Unsubscribe from the emails providing links to a bank/e-commerce/search engine website and block the sender's e-mail ID before deleting such emails.
- ◆ Always go to the official website of your bank/service provider. Carefully verify the website details, especially where it requires entering financial credentials. Check for the secure sign (HTTPS with a padlock symbol) on the website before entering secure credentials.
- ◆ Check URLs and domain names received in emails for spelling errors. In case of suspicion, inform

2.3.3.2 Vishing calls

Imposters call or approach customers through telephone calls or social media, posing as bankers, company executives, insurance agents, government officials, etc. To gain confidence, imposters share a few customer details, such as the customer's name or date of birth. In some cases, imposters pressurise or trick customers into sharing confidential details such as passwords, OTPs, PINs, Card Verification Values (CVV), etc., by citing an urgency or emergency such as the need to block an unauthorised transaction, payment required to stop some penalty, an attractive discount, etc. These credentials are then used to defraud the customers.

Precautions to be taken as follows:

- ◆ Bank officials / financial institutions / RBI / any genuine entity never asks customers to share confidential information such as username/password/card details / CVV / OTP.

- ◆ Never share these confidential details with anyone, even your family members, and friends.

2.3.3.2 Frauds using online sales platforms

- ◆ Fraudsters pretend to be buyers on online sales platforms and show an interest in the seller's product/s. Many fraudsters pretend to be defense personnel posted in remote locations to gain confidence.
- ◆ Instead of paying money to the seller, they use the "request money" option through the Unified Payments Interface (UPI) app and insist that the seller approve the request by entering a UPI PIN. Once the seller enters the PIN, money is transferred to the fraudster's account.

Precautions to be taken as follows:

- ◆ Always be careful when you are buying or selling products using online sales platforms.
- ◆ Always remember that there is no need to enter a PIN/password anywhere to receive money.
- ◆ If UPI or any other app requires you to enter a PIN to complete a transaction, it means you will be sending money instead of receiving it.

2.3.3.4 Frauds due to the use of unknown/unverified mobile apps

- ◆ Fraudsters circulate through SMS/email / social media / Instant Messenger, etc., certain app links, masked to appear similar to the existing apps of authorized entities.
- ◆ Fraudsters trick the customer into clicking on such links which results in downloading of unknown/unverified apps on the customer's mobile/laptop/desktop, etc.,



- ◆ Once the malicious application is downloaded, the fraudster gains complete access to the customer's device. These include confidential details stored on the device and messages / OTPs received before/ after installation of such apps.

Precautions to be taken as follows:

- ◆ Never download an application from any unverified/unknown sources or on being asked/ guided by an unknown person.
- ◆ As a prudent practice before downloading, check on the publishers/ owners of the app being downloaded as well as its user ratings, etc.
- ◆ While downloading an application, check the permission/s and the access to the data it seeks, such as contacts, photographs, etc. Only give those permissions that are required to use the desired application.

2.3.3.5 ATM card skimming

- ◆ Fraudsters install skimming devices in ATMs and steal data from the customer's card.
- ◆ Fraudsters may also install a dummy keypad or a small / pinhole camera, well hidden from plain sight to capture ATM PIN.
- ◆ Sometimes, fraudsters pretending to be other customers standing nearby gain access to the PIN when the customer enters it in an ATM.
- ◆ This data is then used to create a duplicate card and withdraw money from the customer's account.

Precautions to be taken as follows:

- ◆ Always check that there is no extra device attached, near the card insertion slot or keypad of the ATM, before making a transaction.

- ◆ Cover the keypad with your other hand while entering the PIN.
- ◆ NEVER write the PIN on your ATM card.
- ◆ Do not enter the PIN in the presence of any other/unknown person standing close to you.
- ◆ Do not give your ATM card to anyone for withdrawal of cash.
- ◆ Do not follow the instructions given by any unknown person or take assistance/ guidance from strangers / unknown persons at the ATMs.
- ◆ If cash is not dispensed at the ATM, press the 'Cancel' button and wait for the home screen to appear before leaving the ATM.

2.3.3.6 Frauds using screen sharing app / Remote access

- ◆ Fraudsters trick the customer into downloading a screen-sharing app.
- ◆ Using such an app, the fraudsters can watch/control the customer's mobile/ laptop and gain access to the financial credentials of the customer.
- ◆ Fraudsters use this information to carry out unauthorized transfer of funds or make payments using the customer's Internet banking/payment apps.

Precautions to be taken as follows:

- ◆ If your device faces any technical error and you need to download any screen-sharing app, deactivate/log out of all payment-related apps from your device.
- ◆ Download such apps only when you are advised through the official Toll-free number of the company as appearing on its official website. Do not download such apps in case an executive of the company contacts you through his / her contact number.

- ◆ As soon as the work is completed, ensure that the screen-sharing app is removed from your device.

2.3.3.7 Frauds by compromising credentials on results through search engines

- ◆ Customers use search engines to obtain contact details/customer care numbers of their bank, insurance company, Aadhaar updating centre, etc. These contact details on search engines often do NOT belong to the respective entity but are made to appear as such by fraudsters.
- ◆ Customers may end up contacting unknown/unverified contact numbers of Precautions the fraudsters displayed as bank/company's contact numbers on search engines.
- ◆ Once the customers call these contact numbers, the imposters ask the customers to share their card credentials/details for verification.
- ◆ Assuming the fraudster to be a genuine representative of the RE, customers share their secure details and thus fall prey to fraud.

Precautions to be taken as follows:

- ◆ Once the customers call these contact numbers, the imposters ask the customers to share their card credentials/details for verification.
- ◆ Assuming the fraudster to be a genuine representative of the RE, customers share their secure details and thus fall prey to fraud.
- ◆ Always obtain customer care contact details from the official websites of banks/companies.
- ◆ Do not call the numbers directly displayed on the search engine results page as these are often camouflaged by fraudsters.

- ◆ Please also note that customer care numbers are never in the form of mobile numbers.

2.3.3.8 Scam through QR code scan

- ◆ Fraudsters often contact customers under various pretexts and trick them into scanning Quick Response (QR) codes using the apps on the customers' phones.
- ◆ By scanning such QR codes, customers may unknowingly authorize the fraudsters to withdraw money from their accounts.

Precautions to be taken as follows:

- ◆ Be cautious while scanning QR code/s using any payment app. QR codes have account details embedded in them to transfer money to a particular account.
- ◆ Never scan any QR code to receive money. Transactions involving receipt of money do not require scanning barcodes / QR codes or entering mobile banking PIN (m-PIN), passwords, etc

2.3.3.9 Money mules

- ◆ Money Mule is a term used to describe innocent victims who are duped by fraudsters into laundering stolen / illegal money via their bank account/s.
- ◆ Fraudsters contact customers via emails, social media, etc., and convince them to receive money into their bank accounts (money mule), in exchange for attractive commissions.
- ◆ The money mule is then directed to transfer the money to another money mule's account, starting a chain that ultimately results in the money getting transferred to the fraudster's account.
- ◆ Alternatively, the fraudster may direct the money mule to withdraw cash and hand it over to someone.



- ◆ When such frauds are reported, the money mule becomes the target of a police investigation for money laundering

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- ◆ Alternatively, the fraudster may direct the money mule to withdraw cash and hand it over to someone.
- ◆ When such frauds are reported, the money mule becomes the target of a police investigation for money laundering.
- ◆ Do not allow others to use your account to receive or transfer money for a fee/ payment.
- ◆ Do not respond to emails asking for your bank account details.
- ◆ Do not get carried away by attractive offers/commissions and give consent to receive unauthorized money and to transfer it to others or withdraw cash and give it out for a handsome fee.
- ◆ If the source of funds is not genuine, or the rationale for the underlying transaction is not proved to authorities, the receiver of the money is likely to land in serious trouble with police and other law enforcement agencies.

2.3.3.10 Fake advertisements for extending loans by fraudsters

- ◆ Fraudsters issue fake advertisements offering personal loans at very

attractive and low rates of interest or easy repayment options or without any requirement of collateral/ security, etc

- ◆ Fraudsters send emails with such offers and ask the borrowers to contact them. To gain credibility with the gullible borrowers and to induce confidence, these emails are made to look like the email IDs of senior officials of well-known/genuine Non-Banking Financial Companies (NBFCs).
- ◆ When borrowers approach the fraudsters for loans, the fraudsters take money from the borrowers in the name of various upfront charges like processing fees, Goods and Services Tax (GST), intercity charges, advance Equated Monthly Instalment (EMI), etc., and abscond without disbursing the loans.
- ◆ Fraudsters also create fake website links to show up on search engines, when people search for information on loans.

Precautions to be taken as follows:

- ◆ Loan processing fee charged by NBFCs / banks is deducted from the sanctioned loan amount and not demanded upfront in cash from the borrower.
- ◆ Never pay any processing fee in advance as NBFCs / banks will never ask for an advance fee before the processing of a loan application.
- ◆ Do not make payments or enter secure credentials against the online offer of loans at low- interest rates, etc., without checking/verifying the particulars through genuine sources.

These are the guidelines/tips that have been provided by RBI to secure the dealing of customers online/digitally.

To ensure the confidentiality, integrity, and availability of information, organizations can choose from a variety of tools. Each of these tools can be utilized as part of an

overall information-security policy. The basic security for all technologies in today's world is authentication and authorization.

2.3.4 Authentication

Authentication is a key procedure for ensuring the security of information. To improve authentication in cloud computing, a lot of research has been done. Remote authentication is a method commonly used to determine the identity of a remote client. In this chapter, we proposed an effective method for authenticating clients, namely: the use of passwords, OTP, and access control based on biometric data. The proposed system includes user identification/password, biometric functions, and a mobile phone for generating a unique password. A multifactor authentication method uses more than one factor, so it is not easy to do it than single-factor authentication. Therefore, correctly developed and applied methods of multifactor

authentication are more reliable and have stronger limitations of fraud.

Existing authentication methodologies involve three basic factors:

- Something the user knows (e.g., password, PIN);
- Something the user has (e.g., ATM card, smart card)
- Something the user is (e.g., biometric characteristic, such as a fingerprint).

2.3.4.1 Common Multi-Factor Authentication Methods

Following authentication methods to design a strong access control mechanism

- PIN/Password
- SMS-based mobile OTP
- Biometrics

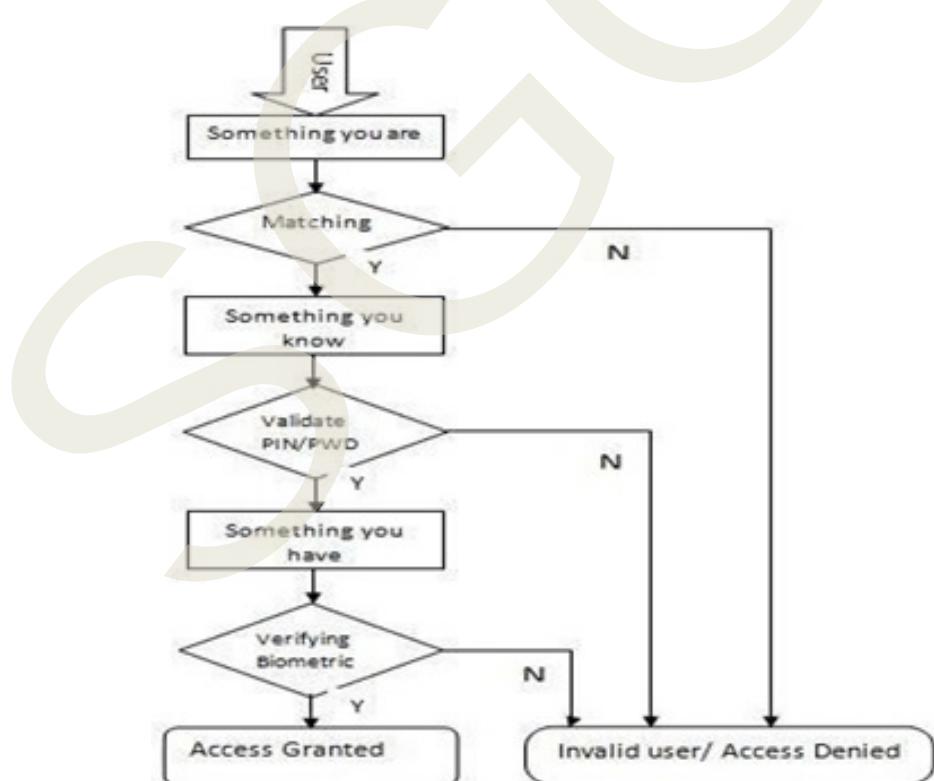


Figure 2.3.1: Multifactor Authentication Overview



A. PIN/Password

Password-based authentication such authentication methods require the user to create a password for their account and then the password is hashed using hashing algorithms like SHA-1, Bcrypt, etc. Then the hashed password is stored in the database in case the database is compromised, the hacker cannot make out the correct password. When the user wants to sign In, He/she submits the credentials and if connect, they are authenticated otherwise asked to re-enter.

B. OTP

The combined user authentication method and password is a method that is often used for authentication but can be hacked using existing hacker tools. OTP means "Password once." In the OTP method, a password is provided upon request. OTP can disrupt the possibility of theft and re-use of the password. The assigned password is only valid for a login session or a transaction timeout and can only be used once. The most important error solved by OTP is that, compared to static passwords, they are not vulnerable to repeated attacks. These systems are not cheap and reliable to protect the system. Users of OTP systems are still sensitive to the type of attack in the system known as the attacks of people in the middle.

The OTP Server and Authentication Protocol

The secret key and the security are the two main constraints on which OTP safety is based. OTP cannot produce the same code twice and cannot return to the original code. Even if a hacker intercepts a lot of OTP, an attacker cannot learn the algorithm, which means that even if he knows the key, he cannot return to the counter that OTP generates. Then, without a key and counter, it is impossible to find a template, even with millions of OTPs, to guess the key and the value of the current counter. OTPs are typically used to authenticate or verify

a transaction using a credit card. In the case of a transaction, OTP is sent to the user's mobile phone. For authentication, you can use a secure token or request to send OTP to the user's phone/e-mail.

C. Biometric Authentication

Biometric refers to the study of measurable biological characteristics. Regarding computer security, biometrics refers to authentication methods that are based on measured physical characteristics that can be automatically verified.

Biometric security mechanisms acquire biometric data from an individual, extract a set of characteristics from the data, compare established functions with sets of functions stored in the database, and perform an action based on the result of the comparison. Identification became complicated in a highly interconnected cloud network. The need for an agreed method based on cloud security has increased as a result of greater concern for security.

Biometric recognition is a reliable and adequate methodology for identifying people based on their biometric characteristics. It can be defined as an automated methodology that makes it possible to uniquely identify people using their physiological or behavioural characteristics. The introduction of biometric recognition requires serious protection of confidentiality from possible misuse, loss, or theft of biometric data. Existing biometric identification methods and methodologies that preserve confidentiality are based primarily on conventional cryptographic primitives, such as homomorphism encryption and unconscious transmission. These primitives inevitably bring enormous costs to the system and do not apply to large-scale practical applications. Data leaks and security leaks may be caused by inadequate authentication.

At present, biometrics is the security system most used in various organizations,

academics, and different societies. This helps overcome many of the disadvantages of the authentication methods mentioned above.

There are several types of biometric identification schemes:

The following are the different types of biometric identification schemes :-

- i. **Fingerprint Recognition** : The fingerprint is a drawing of the crests and valleys on the surface of the fingertip, the formation of which is determined during the first seven months of development of the fetus. It was empirically determined that the prints of the twin prints are different. Fingerprint recognition refers to an automated method of checking the correspondence between two human prints. Dry fingers and dirty fingers can affect the system and can show an error. The problem with large-scale fingerprint recognition systems is that they require a lot of computing resources. Finally, the fingerprints of a small proportion of the population may be unstable for automatic identification due to the aging of genetic factors. A professional reason, similar to manual work, can have a large number of cuts and bruises in their fingerprints that are constantly changing.
- ii. **Voice Recognition** : Voice is a combination of different physiological or behavioural biometric characteristics. The physiological features of an individual's voice are based on the shape and size of appendages (vocal tracts, mouth structure, and cavities of nasal and lips). Voice recognition is used to authenticate a user's identity based on patterns of voice pitch and speech style.

However, a user's voice can be easily recorded and may be used by

unauthorized users. A disadvantage of voice-based recognition is that human speech features are very sensitive to several factors such as noise and voice signal quality is typically degraded in the quality by the communication channel.

- iii. **Signature Recognition** : Signature recognition is used to authenticate a user's identity based on the characteristics of their unique signature. This is the biometrics of behaviour that changes over time. It is influenced by the physical and emotional conditions of the signatures.
- iv. **Retinal Recognition** : Recognition of the retina is the recognition of people following the pattern of the retinal blood vessels. However, this is a very intrusive and expensive technique.
- v. **Iris Recognition** : Iris recognition is a method of identifying people based on unique patterns in the annular region that surrounds the pupil of the eye. The accuracy and speed of the realized diaphragm recognition system are compatible and allow the implementation of large-scale identification systems based on information on the iris. Iris recognition systems have a very low false acceptance rate (FAR), and the false rejection rate (FRR) of the system can be high compared to other biometric characteristics, such as fingerprints, voice, retina, and face.
- vi. **Palm Recognition** : The recognition of the palm is based on ridges, main lines, and wrinkles on the palm surface.

This method is very expensive and not suitable for children, as the palm lines change when they are fully grown. All the above methods,



as a rule, tell us that none of them is feasible because of their various shortcomings.

vii. **Face Recognition** : It is a non-intrusive methodology and facial attributes are probably the most common biometric feature used by humans to recognize one other. So, a facial recognition system works well in practice as follows:

- **Face Detection:** It should automatically detect whether a face is present in the acquired image.
- **Face Location:** To locate the face if there is one in the used face database.
- **Recognition of Face:** To recognize the face from a general viewpoint from any posture/ profile.

Multifactor authentication for access control has become the most important requirement to achieve the goals of secrecy, integrity, and confidentiality. It is important to more closely integrate computer and network security to develop a true security discipline. We use multi-factor access mechanisms to authenticate a person's identity. Therefore, increasing the number of authentication factors increases the complexity of access, but we have increased the security of user data. We believe that complexity is permissible with improved safety.

2.3.2 Authorization

The process of granting someone access to a resource is called authorization. Of course, this description may seem cryptic, but numerous real-world examples can clarify what permission entails, allowing you to apply those ideas to computer systems. Owning a home is a prime illustration. The resource's (the property's) owner has complete access rights, but they can also

grant others access. You mention that access is permitted by the owner. We may teach a few topics in the permission context with this straightforward example. For example, having authorization to enter the house means having the ability to take action on a resource. There may be additional approvals needed for the house's furniture, cleaning, repairs, etc. Permission becomes a privilege (or right) when it is assigned to someone. So, if you assign permission to furnish your house to your interior decorator, you are granting them that privilege.

‘Authentication and authorization’ are one important part of making a website or product secure but only implementing it will not make our website secure as there are many other open routes for it to be hacked like sending HTML.

Authentication and Authorization are the bases of security for all the Technologies present in this world today. Starting from your smartphone, where a user authenticates himself before he can access the data inside, to entering the White House, you must authenticate yourself, and based on that, you are authorized. In this digital world where every Business, MNC, Government Body, Companies, users, etc. need a website to inform the world about their presence on the internet, provide services online, and become a “Brand”, the risk of leaking users' sensitive information increases. It could be dangerous to the users of the hacked website because their sensitive information, like credit card, bank account details, etc., could be sold on the black market of the “dark web”. Both authentication and authorization work together to ensure the website's security to the core; if one of them is removed, the app's security is sacrificed.

2.3.3 Data Security and Encryption

Information or data is a valuable asset in

any organization. Almost all organization, whether social, governmental, educational, etc., have now automated their information systems and other operational functions. They have maintained the databases that contain crucial information. So, database security is a serious concern. To go further, we shall first discuss what database security is. Protecting the confidential/sensitive data stored in a repository is database security. It deals with making databases secure from any form of illegal access or threat at any level. Database security demands permitting or prohibiting user actions on the database and the objects inside it. Organizations that are running successfully demand the confidentiality of their database. They do not allow unauthorized access to their data/information. They also demand the assurance that their data is protected against any malicious or accidental modification. Data protection and confidentiality are the security concerns. The properties of database security are confidentiality, integrity, and availability.

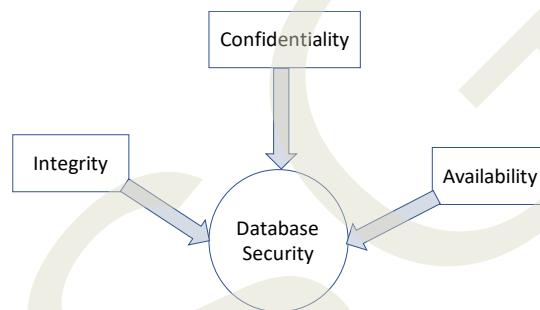


Fig. 2.3.2 Diagram of the database

Access controls ensure that all direct accesses to the system are authorized. The access controls govern that that can access the system's objects. Often it happens that important information or data is leaked out or misused not because of defective access control but because of improper information flow. When policies for information flow are not properly defined, then the system data is less protected. The cryptographic control secures the data by encrypting it.

Another approach has been adopted for securing the databases. It has been discussed that to make the databases secure, different policies at the organization level can be implemented. Data/information is always the most important asset for any organization, whose security cannot be compromised. With the advances in technology, the risk to these valuable assets increases. So, their security is a big challenge. In different databases, database administrators, system administrators, security officers, developers, and employees are the security layer at the organizational level. For each layer, some well-defined security policies have been anticipated. These policies ensure security features, privacy, confidentiality, and integrity.

2.3.7 Security Risks to Databases

The initiative database organization is subject to a prodigious variety of threats. Some serious threats are envisioned in this unit.

2.3.7.1 Excessive Privilege Abuse

When users are specified with access rights that allow them to perform other tasks not included in their job, harmful intent can be discovered through such tasks, thus leading to misuse of such privileges. When we talk of such abuse, an example of a university can be quoted in which an administrator is given access to all databases and holds the privilege to change the records of any student. This may lead to misuse such as changing grades, marks of students, or a change in the amount of fine charged to any student. As a result, all users who perform different tasks are given a default level of privileges that grant access in excess.



2.3.7.2 Legitimate Privilege Abuse

Legitimate privilege abuse can be in the form of misuse by database users, administrators, or a system manager doing any unlawful or unethical activity. It is, but not limited to, any misuse of sensitive data or unjustified use of privileges.

2.3.7.3 Privilege Elevation

Excessive exposure leads to the discovery of flaws that are taken advantage of by attackers and may result in the change of privileges e.g. ordinary users given access to administrative privileges. The loss of which could result in bogus accounts, transfer of funds, and misinterpretation of certain sensitive analytical information. Such cases are also found to be in database functions, protocols, and even SQL statements.

2.3.7.4 Database Platform Vulnerabilities

Vulnerabilities in previous operating systems such as Widow 98, Windows 2000, etc. may create data loss from a database, data corruption, or service denial conditions. For instance, the Blaster worm created a denial of service condition from a vulnerability found in Windows 2000.

2.3.7.5 SQL Injection

Random SQL(Structured Query Language) queries are executed on the server by some spiteful attacker. In this attack, the SQL statement is followed by a string identifier as input. That is validated by the server. If it does not get validated it might get executed. Through these unobstructed rights, attackers may gain access to the whole database.

2.3.7.6 Weak Audit Trail

A database audit policy ensures automated, timely, and proper recording of database

transactions. Such a policy should be a part of the database security considerations since all the sensitive database transactions have an automated record the absence of which poses a serious risk to the organization's databases and may cause instability in operations.

2.3.7.7 Denial of Service

It is the attack that prevents the legitimate users of a program/application/data from using or accessing that specific service. DOS can take place using different techniques. An attacker may get access to the database and try to crash the server or resource overloading, network flooding, and data corruption can be the techniques for creating conditions of a DOS attack. It is a serious threat to any organization.

2.3.7.8 Database Communication Protocol Vulnerabilities

A large number of security weaknesses are being identified in the database communication protocols of all database retailers. Deceitful activity directing these susceptibilities can vary from illegal data access to data exploitation to denial of service.

2.3.7.9 Weak Authentication

A weak authentication strategy renders the databases more vulnerable to attackers. The identity of database users is stolen or the login credentials are obtained through some source which then helps in the modification of data or obtaining sensitive information if authentication is not properly implemented and is weak, it helps the attacker to steal data.

2.3.7.10 Backup Data Exposure

Backup data exposure is an important threat that needs to be taken care of. Since backups on tapes, DVDs, or any external

media are exposed to high risks, they need to be protected from attacks such as theft or destruction. So far, we have discussed some important threats to database security. Now we shall see what can be done to limit these risks and threats.

2.3.8 Database Security Considerations

To eliminate the security threats every organization must define a security policy. And that security policy should be strictly enforced. A strong security policy must contain well-defined security features.

2.3.8.1 Access Control

Access control ensures all communications with the databases and other system objects are according to the policies and controls defined. This makes sure that no interference occurs by any attacker, neither internally nor externally, and thus, protects the databases from potential errors that can make an impact as big as stopping the firm's operations. Access control also helps in minimizing the risks that may directly impact the security of the database on the main servers. For example, if any table is accidentally deleted or access is modified, the results can be rolled back, or for certain files, access control can restrict their deletion.

2.3.8.2 Inference Policy

An inference policy is required to protect the data at a certain level. It occurs when the interpretations from certain data in the form of analysis or facts are required to be protected at a certain higher security level. It also determines how to protect the information from being disclosed.

2.3.8.3 User Identification/ Authentication

User identification and authentication are the necessities to ensure security since the

identification method defines a set of people that are allowed to access data and provides a complete mechanism of accessibility. To ensure security, the identity is authenticated and it keeps the sensitive data safe and from being modified by any ordinary user.

2.3.8.4 Accountability and Auditing

Accountability and audit checks are required to ensure the physical integrity of the data which requires defined access to the databases and that is managed through auditing and record keeping. It also helps in the analysis of information held on servers for authentication, accounting, and access of a user.

2.3.8.5 Encryption

Encryption is the process of concealing or transforming information using a cipher or a code so that it becomes unreadable to all other people except those who hold a key to the information. The resulting encoded information is called encrypted information. Data is a valuable asset of an organization. So, its security is always a big challenge for an organization. In recent times, the security of shared databases has been studied from a cryptographic viewpoint. A new framework was proposed in which different keys are used by different parties to encrypt the databases in an assorted form that was named a Mixed Cryptography Database (MCDB).

Different governmental, non-governmental, private, and many other organizations have sensitive data on web servers that need to be protected from attackers or intruders. To make the databases secure, different security techniques were developed. One of them is encryption techniques. Though encryption improves the protection its implementation decisions are also very important. Like what, how, when, and where is to be encrypted.



Developing the encryption strategies raises some important questions also, like how, when, and where the encryption will be performed.

2.3.9 Encryption in Database

Data encryption is a method of converting data from a readable format (plaintext) into an unreadable, encoded format (ciphertext). Encrypted data can only be read or processed after it has been decrypted, using a decryption key or password. Only the sender and the recipient of the data should have access to the decryption key.

As you deploy an encryption solution, you should be aware that encryption is vulnerable to attack from several directions:

- It is possible to use computer programs to break some encryption algorithms and gain access to encrypted content, although stronger encryptions require a massive amount of computing resources to break.
- Encrypted data in transit can be vulnerable. Authorized devices can be infected by malware that ‘sniffs’ data or ‘eavesdrops’ as data travels across networks.
- Encrypted data at rest can be compromised, either by malware on a storage device or by unauthorized users who gain access to user passwords or keys.

Nevertheless, data encryption can deter hackers from accessing sensitive information and is essential to most security strategies. Your security strategy should not, however, solely rely on encryption.

Encryption can be performed at four levels:

- Application-level encryption: data is encrypted by the application that modifies or generates the data before it is written to the database. This

makes it possible to customize the encryption process for each user, based on user roles and permissions.

- Database encryption : the entire database, or parts of it, can be encrypted to secure the data. Encryption keys are stored and managed by the database system.
- File system level encryption: allows computer users to encrypt directories and individual files. File-level encryption uses software agents, which interrupt read and write calls to disks and use policies to see if the data needs to be decrypted or encrypted. Like full disk encryption, it can encrypt databases along with any other data stored in folders.
- Full disk encryption: automatically converts data on a hard drive into a form that cannot be deciphered without the key. Databases stored on the hard drive are encrypted along with any other data.

Our personal information is continuously being collected and often stored electronically, whether we like it or not. The latest Facebook and Cambridge Analytica incident serves as a stark reminder of how sensitive our personal information is and how crucial it is to handle and use it appropriately.

Three notable examples of laws and regulations that have been put in place by governments and by industry to protect personal data are HIPAA, GDPR, and PCI-DSS. In this unit, we have to discuss PCI-DSS in detail:

2.3.9.1 PCI-DSS Requirements

Payment Card Industry Data Security Standards (PCI-DSS) is a set of security standards developed by the major credit card companies to help protect sensitive cardholder data. Unlike HIPAA and GDPR requirements, which are based on governmental regulation,

PCI-DSS compliance requirements are contractual commitments maintained and enforced by the Payment Card Industry Security Standards Council (PCI SSC), an independent global body established in 2006.

PCI-DSS applies to all merchants or organizations that accept, transmit, or store cardholder data. However, different PCI-DSS compliance levels depend on the number of payment transactions that a merchant/organization has handled over the previous twelve months. The PCI-DSS describes six categories of control objectives:

1. Build and Maintain a Secure Network and Systems
2. Protect Cardholder Data
3. Maintain a Vulnerability Management Program
4. Implement Strong Access Control Measures
5. Regularly Monitor and Test Networks
6. Maintain an Information Security Policy

It is the merchant organization that is held responsible for the security of the cardholder data that it collects and holds, even if it uses a third-party company to handle credit card payments. There are two ways that the merchant/organization is expected to validate its PCI- DSS compliance:

- i. **Quarterly vulnerability scans:** Any merchant/organization that electronically stores cardholder data after a payment is authorized must submit to a vulnerability scan run by an Approved Scanning Vendor once per quarter. The merchant's internet applications and networks are remotely reviewed by a non-intrusive scan. This scan seeks to identify vulnerabilities in operating systems, apps, and devices that could

be used to gain unlawful access to the company's network.

- ii. **Annual assessment:** Merchants that process less than six million transactions per year must submit an annual Self-Assessment Questionnaire (SAQ) or a Report on Compliance (ROC).

Merchants that process more than six million transactions per year must be audited on-site by a Qualified Security Assessor (QSA) certified by the PCI SCC.

PCI- DSS regulations non-compliance can result in fines to the acquiring bank of \$5,000- 100,000 per month, with the banks usually seeking to pass the fine along to the merchant. In addition, the bank could terminate the relationship with the merchant or raise the transaction fees considerably. Should the data breach become public knowledge, the merchant may also have to bear indirect costs related to damage to its reputation.

2.3.10 Customer Protection – Limiting Liability of Customers in Unauthorised Electronic Banking Transactions

The Reserve Bank of India's annual report states that 6,659 instances of digital fraud (card and internet) totalling Rs 276 crore were detected in 2022–2023. This is more than the 3,596 fraudulent transactions totalling Rs 155 crore that were recorded the previous year. The government is currently preparing to implement certain measures to stop the rising number of these internet scams.

With the increased thrust on financial inclusion and customer protection and considering the recent surge in customer grievances relating to unauthorized transactions resulting in debits to their accounts/ cards, the criteria for determining



customer liability in these circumstances have been reviewed. The revised directions in this regard are set out below.

i. Strengthening of systems and procedures : Broadly, the electronic banking transactions can be divided into two categories:

- Remote/ online payment transactions (transactions that do not require physical payment instruments to be presented at the point of transactions, e.g. internet banking, mobile banking, card not present (CNP) transactions), Pre-paid Payment Instruments (PPI), and
- Face-to-face/ proximity payment transactions (transactions that require the physical payment instrument, such as a card or mobile phone, to be present at the point of transaction, e.g., ATM, POS, etc.)

The systems and procedures in banks must be designed to make customers feel safe about carrying out electronic banking transactions. To achieve this, banks must put in place:

- appropriate systems and procedures to ensure the safety and security of electronic banking transactions carried out by customers;
- robust and dynamic fraud detection and prevention mechanism;
- mechanism to assess the risks (for example, gaps in the bank's existing systems) resulting from unauthorized transactions and measure the liabilities arising out of such events;
- appropriate measures to mitigate the risks and protect themselves against the liabilities arising therefrom; and

- a system of continually and repeatedly advising customers on how to protect themselves from electronic banking and payments-related fraud.

ii. Reporting of unauthorized transactions by customers to banks

: Banks must ask their customers to mandatorily register for SMS alerts and wherever available register for e-mail alerts, for electronic banking transactions. The SMS alerts shall mandatorily be sent to the customers, while email alerts may be sent, wherever registered. The customers must be advised to notify their bank of any unauthorized electronic banking transaction at the earliest after the occurrence of such transaction and informed that the longer the time taken to notify the bank, the higher the risk of loss to the bank/ customer. To facilitate this, banks must provide customers with 24x7 access through multiple channels (at a minimum, via website, phone banking, SMS, e-mail, IVR, a dedicated toll-free helpline, reporting to home branch, etc.) for reporting unauthorized transactions that have taken place and/ or loss or theft of payment instrument such as card, etc. Banks shall also enable customers to instantly respond by "Reply" to the SMS and e-mail alerts and the customers should not be required to search for a web page or an e-mail address to notify the objection, if any. Further, a direct link for lodging the complaints, with a specific option to report unauthorized electronic transactions shall be provided by banks on the home page of their website. The loss/ fraud reporting system shall also ensure that immediate response (including auto response) is sent to the customers acknowledging the complaint along with the registered complaint number. The communication systems used

by banks to send alerts and receive their responses thereto must record the time and date of delivery of the message and receipt of the customer's response, if any, to them. This shall be important in determining the extent of a customer's liability. The banks may not offer facilities for electronic

transactions, other than ATM cash withdrawals, to customers who do not provide mobile numbers to the bank. On receipt of the report of an unauthorized transaction from the customer, banks must take immediate steps to prevent further unauthorized transactions in the account.

R Recap

- ◆ Digital fraud: all fraudulent activities perpetrated by external parties through digital means
- ◆ Phishing: A technique for attempting to acquire sensitive data, such as bank account numbers, through a fraudulent solicitation in email or on a website, in which the perpetrator masquerades as a legitimate business or reputable person.
- ◆ PCI DSS: "Payment Card Industry Data Security Standard."
- ◆ Data security: it is the process of safeguarding digital information throughout its entire life cycle to protect it from corruption, theft, or unauthorized access.
- ◆ Encryption: It is the method by which information is converted into secret code that hides the information's true meaning.
- ◆ Authentication: Authentication is the process of determining whether someone or something is who or what they say they are.
- ◆ Authorization: Giving official permission

O Objective Questions

1. Who is known as the father of cyber security?
2. Who coined the term "cyberspace"?
3. Which of the digital means is a popular victim of cyber attackers looking to the IP address of a target or victim user?
4. Which digital mean does not qualify as a form of peer-to-peer cybercrime?
5. An act to injure, corrupt, or threaten a system or network is called
6. An internet fraud in which a consumer is digitally persuaded to reveal personal data by cybercriminals is called?
7. The authenticity and Security of data traveling over a network are ensured by?





Answers

1. August Kerkhoffs
2. William Gibson
3. Websites
4. On the deep Web, payment information is leaked.
5. Cyberattack
6. Phishing attack
7. Network-Security protocols



Assignments

1. Explain the tips for preventing financial fraud as per RBI guidelines.
2. Describe the popular digital financial frauds in the modern world. Illustrate the same.
3. Describe the term database encryption with an example. Try to draw the sequence of practices in the process.



Self Assessment Questions

1. What do you mean by digital financial fraud? Give examples
2. Explain the terms “Authentication and Authorization”.
3. What are the precautions stated by RBI regarding fraudulent practices in the current digital world?
4. What are the precautions instructed by RBI regarding ATM card skimming?
5. Explain several types of biometric identification schemes.



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SET- 1

FYUGP THIRD SEMESTER EXAMINATION

VALUE ADDED COURSE

COURSE : SGB24CM101VC- FINANCIAL LITERACY

2025-2026 Admission Onwards

Time: 1 Hour

Max Marks: 23

SECTION A

**Answer any five questions in a word or sentence. Each question carries one mark
($5 \times 1 = 5$ Marks)**

1. What are variable income investments?
2. Who is responsible for managing mutual fund?
3. What does USSD stands for?
4. List any two popular small savings offered by post offices are?
5. State the main objective of investment
6. What are the 3 stages of money laundering
7. Name the type of payment network that is accepted only in India?
8. Expand the term PFRDA

SECTION B

**Answer any four questions in two or three sentences each.
Each question carries two marks.**

($4 \times 2 = 8$ Marks)

9. What is financial literacy
10. List out the features of sovereign gold bonds



11. Explain how a debit card is different from a credit card
12. What is spoofing
13. What are the common multi-factor authentication methods
14. What are the money market instruments

SECTION C

Answer any two questions. Each question carries five marks.

$(2 \times 5 = 10 \text{ Marks})$

15. Explain the components of financial literacy
16. Explain the features, advantages and disadvantage of unit linked insurance plan(ULIPs)
17. Write a note on various digital payment methods





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SET- 2

FYUGP THIRD SEMESTER EXAMINATION

VALUE ADDED COURSE

COURSE : SGB24CM101VC - FINANCIAL LITERACY

2025-2026 Admission Onwards

Time: 1 Hour

Max Marks: 23

SECTION A

**Answer any five questions in a word or sentence. Each question carries one mark
($5 \times 1 = 5$ Marks)**

1. State the main objective of investment
2. What is the primary purpose of a mutual fund
3. What does NEFT stands for
4. Which digital mean does not qualify as a form of peer –to- peer cybercrime
5. What does ARP stands for
6. What are the types of digital financial frauds
7. Examine the key features of NPS
8. In what do REITs predominantly invest?

SECTION B

**Answer any four questions in two or three sentences each.
Each question carries two marks.**

($4 \times 2 = 8$ Marks)

9. What is financial planning
10. Explain insider trading



11. Explain AePS
12. What is crowdfunding
13. What is E-wallets
14. What are the different types of biometric identification scheme

SECTION C

Answer any two questions. Each question carries five marks.

$(2 \times 5 = 10 \text{ Marks})$

15. Write a note on various types digital financial frauds?
16. Explain types of phishing
17. Write a note on fixed income investment options?



സർവ്വകലാശാലാസീതം

വിദ്യയാൽ സ്വത്രതാക്കണം
വിശ്വപ്രഭരായി മാറണം
ഗഹപ്രസാദമായ് വിളങ്ങണം
സുരൂപ്രകാശമേ നയിക്കണേ

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അതാനകേന്ദ്രമേ ജൂലിക്കണേ

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Financial Literacy

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