National Finance Olympiad™

The #1 finance guidebook
for Indian students

Personal Finance Handbook

For Grades 10 to 12

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This book is designed to teach and engage children in the fundamentals of finance. It aims to inspire young readers with an understanding of money management, savings, and financial decision-making, equipping them with essential skills for their future.

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Preface

Dear Teachers,

Financial literacy is not just about understanding the jargon of the stock market or reciting complex economic principles; it's about empowering individuals to make informed decisions about their money. It's about building a solid foundation of knowledge and skills that can withstand the uncertainties of life and pave the way towards financial security and freedom.

The National Finance Olympiad (NFO) is a one-of-a-kind initiative in India driven by the mission to make India's youth financially literate. Increased financial literacy, especially among young students is crucial. Not just so that they can make sound financial decisions from an early stage in their lives, but also because it empowers the nation as a whole. This is because nations with higher levels of financial literacy tend to have stronger economies, lower poverty rates, and a more financially stable population.

The NFO guidebooks give a comprehensive overview of important financial topics ranging from money, banking, and investments, to taxes. These topics perfectly encapsulate all the important financial information suitable for school students. These guidebooks aim to create an enlightening blend of traditional financial topics combined with modern, practical financial tools that can be practiced in the real world. The language of the book is attuned to the understanding of a young adult, who is new to the world of finance. The breakdown of complex topics makes it easy for them to adapt to the book's flow.

The NFO guidebooks are not just reference books for students to excel in the Olympiad, these books work way beyond that to act like the perfect primer for youngsters who are new to the world of finance.
As students embark on this journey, we insist that you encourage them to keep an open mind and a willingness to learn. Financial literacy is not a destination but a lifelong pursuit, and continuously expanding our knowledge and honing our skills is the only way to navigate this path.

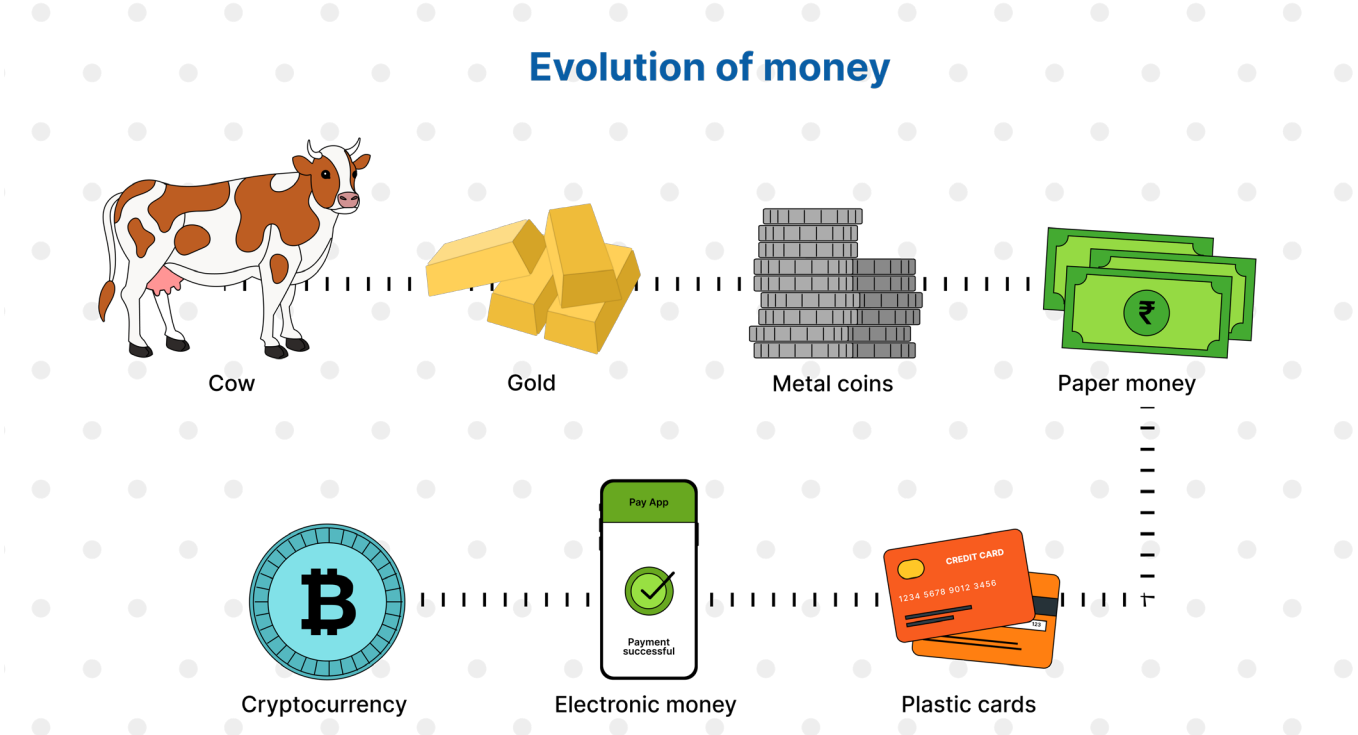
-Team NFO

Contents

1 Money

Key takeaways from the chapter:

1. By the end of this chapter, you will understand the concept of money and its role in facilitating trade and commerce.
2. You will be able to describe the characteristics of money, including its role as a store of value, unit of account, and a medium of exchange.
3. You will understand the evolution of money from barter to modern currency systems.
4. You can differentiate between commodity money and fiat money, including examples of each.
5. You will be able to discuss the concept of currency exchange and its importance in international trade and travel.
6. You will understand the demand for and supply of money, and the factors that influence each.
7. You can explain the basics of cryptocurrency, including its decentralised nature, blockchain technology, and key features.



Money is something that represents value and is used to buy things or pay back debts. It's what keeps economies moving, allowing people to trade goods and services. Economists study money to understand where it comes from and how much it's worth.

Early people relied on the barter system, i.e., they exchanged goods and/or services directly for other goods or services. For example, if a mechanic needed food, he would have to find a farmer who needed his car fixed. But this system had its difficulties. What if

people couldn't find the right person to trade with? Barter system works on a condition known as 'double coincidence of wants'. This means that in a barter system, both parties must have something the other wants, and they must want what the other has in equal measure. This requirement can make barter transactions complex and inefficient, as finding such a perfect match of wants can be challenging.

The utility of money over barter system

Money serves as a superior medium of exchange compared to the barter system due to its role as a store of value. In a barter system, goods and services are exchanged directly, requiring a coincidence of wants between trading parties. However, this system lacks a mechanism for storing value over time. Money, on the other hand, acts as a store of value by allowing individuals to save purchasing power for future use. This feature enables people to defer consumption, accumulate wealth, and plan for the future more effectively. Additionally, money's durability ensures that value can be preserved over extended periods, unlike perishable goods used in barter transactions.

Money has 3 important characteristics:

1. **Store of value:** Money can be saved and its value does not fluctuate significantly over time. This characteristic allows individuals to defer consumption and save for future needs.

2. **Unit of account:** Money provides a standard measure for valuing goods and services. Using a common unit of measurement, such as Dollars or Rupees, it is easier to compare the value of different items and make informed financial decisions.

3. **Medium of exchange:** Money facilitates transactions between buyers and sellers. This eliminates the need for a double coincidence of wants. Money overcomes this by providing a universally accepted intermediary that can be exchanged for any goods or services. This increases the efficiency of trade and promotes market growth.

The following are important properties of money:

1. **Fungible:** Money is fungible, meaning each unit is interchangeable with another. This interchangeability ensures that all units of money are equal in value.

2. **Durable:** Money is designed to be durable, capable of withstanding wear and tear over time. This durability ensures that money remains usable over an extended period.

3. **Portable:** Money is portable, as it allows individuals to carry and exchange it easily. This portability enables the convenience of transactions, whether large or small.

4. **Recognisable:** Money is recognisable, possessing distinct features that make it easily identifiable and distinguishable from counterfeit currency. This recognition is crucial for maintaining trust in the currency.

5. **Stable:** Money is stable, maintaining its value over time. This stability is essential for its acceptance and use as a medium of exchange, as people need to trust that their money will hold its value.

Types of money:

On a broader scale, money can be divided into two main types: Commodity money and Fiat money.

1. Commodity money

Commodity money has intrinsic value based on the material from which it is made. Historically, items like gold, silver, or even certain types of food items have been used as commodity money. Gold and silver coins were used for centuries because they could easily be melted down and used for other purposes if necessary. The value of commodity money is derived from the value of the material itself, making it a tangible asset with inherent worth. The commodities used as money are usually uniform in quality and size, ensuring consistency in trade. A specific weight of gold or silver, for example, has a known and consistent value.

2. Fiat money

Fiat money, on the other hand, has no intrinsic value and is not backed by a physical commodity. Instead, its value is derived from the trust and confidence that people have in the issuing government. Fiat money has value because the government regulates it and because people believe it can be used to pay for goods and services. Most of the money used in the world today, such as the Indian Rupees or the U.S. Dollar is fiat money.

In India, the concept of fiat money took root with the establishment of the Reserve Bank of India (RBI) in 1935. The RBI was given the sole authority to issue currency notes in India, and it effectively established fiat money as the official currency of the country.

Initially, the Indian Rupee was pegged to the British pound, which was tied to the gold standard. The gold standard was a monetary system in which a country's currency or paper money had a value directly linked to gold. Under this system, countries agreed to convert paper money into a fixed amount of gold. This meant that the value of the currency was tied to the value of a specific amount of gold, ensuring that money could be exchanged for a predetermined amount of gold at any time. The primary advantage of the gold standard was its ability to provide a self-regulating and stable monetary system, as the supply of money was limited to the amount of gold held by the country. This often led to lower inflation rates and greater confidence in the stability of the currency.

After India gained independence in 1947, the Rupee was decoupled from the pound, and the RBI assumed full control over the issuance and management of the currency. Since then, the Indian Rupee has evolved into a fully fiat currency, with its value determined by market forces and the policies of the RBI. The introduction of fiat money in India played a crucial role in stabilising the country's economy and facilitating economic growth. Today, the Indian Rupee is widely accepted as the official currency of India and is used for all transactions within the country.

1.1 All about currency

The word "currency" comes from the Latin word "currere" which means "to run" or "to flow" Currency refers to the physical paper notes and coins that are used in everyday transactions. Key benefits of currency are its portability and durability. Coins and paper notes are easy to transport and last a long time, which makes them ideal for buying and selling stuff. While most money today exists as electronic records in banks, currency remains an essential part of everyday transactions.

Difference between money and currency

Money is a broad concept that represents an intangible system of value enabling the exchange of goods and services both now and in the future. Currency, on the other hand, is a tangible form of money that we can hold in our hands.

The Indian currency - INR

The currency used in India is called the Indian Rupee, denoted by the symbol ₹. One Rupee is made up of 100 smaller units called 'Paise' (singular 'Paisa'). The Reserve Bank of India (RBI) manages the currency in India, and the circulation of banknotes and coins.

The RBI works closely with the Government of India to decide on the denominations of banknotes and the design of new currency, ensuring security features are included. The aim is to provide high-quality banknotes to the public. Banknotes that are unfit for circulation are destroyed to maintain the quality of currency in circulation.

Banknotes in India feature fifteen languages in addition to Hindi and English. The RBI manages currency operations through its offices and issue centres located across the country. These offices receive fresh banknotes from printing presses and distribute them to commercial banks for further distribution to the public.

How is the Euro different?

The Euro is a little different from the rest of the global currencies, as it is not just used in one

Indian currency

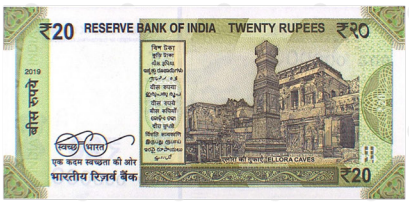
The first banknote from the new series was introduced by the Reserve Bank of India on November 8, 2016

₹10

Motif - Sun Temple, Konark
Base colour - Chocolate brown

₹20

Motif - Ellora Caves
Base colour - Greenish yellow



₹50

Motif - Hampi with chariot
Base colour - Fluorescent blue

₹100

Motif - Rani ki Vav
Base colour - Lavender

₹200

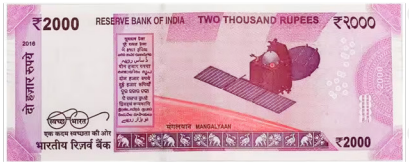
Motif - Sanchi Stupa
Base colour - Bright yellow

₹500

Motif - Red Fort
Base colour - Stone grey

₹2000

Motif - Indias first venture in interplanetary space - Mangalyan
Base colour - Magenta



The Reserve Bank of India has decided to withdraw ₹2,000 notes from circulation in pursuance of the central bank's Clean Note Policy.

country but the entire Eurozone which consists of 20 When there is a higher demand for imports of the 27 member states of the European Union. The Eurozone countries are collectively represented by the European Central Bank.

Currency exchange

Let's say you are going for a trip to a different country, like the United States of America. As you know the official currency of the USA is the U.S. Dollar, you will need to convert your money in Indian National Rupees (INR) to USD, so that you are able to spend it in the USA. The amount of Dollars you will get for a certain amount of Rupees will depend on the exchange rate, which is the price for exchanging one currency for another. For example, if the exchange rate is 1 USD/85 INR, and you exchange 1,000 INR, you would get 11.76 USD (1,000 INR ÷ 85 INR/USD = 11.76 USD).

Currency exchange, also known as foreign exchange or Forex, is the process of converting one currency into another currency. As the value of currencies from different countries can differ in relation to each other, currency exchange helps people determine the value of their currency with respect to another country's currency. This can be done for various reasons, such as travel, trade, or investment.

Currency exchange rates

Currency exchange rates, also known as foreign exchange rates, determine the value of one currency in terms of another. For example, if 1 U.S. Dollar is worth 80 Indian Rupees, then the exchange rate for Dollar to Rupee is 1:80. Exchange rates are determined by the foreign exchange market, where currencies are bought and sold. The exchange rate is composed of two parts, the domestic currency and the international currency. To maintain stability in foreign exchange rates and prevent the depreciation of domestic currencies, central banks of the countries often implement various measures and monetary policies.

The table shows the list of exchange rates of various countries with respect to the Indian Rupees, as of 1st January, 2024. Values of INR are with respect to 1 unit of foreign currency:

Currency	Conversion rate*
U.S. Dollars	83.04 INR
Euro	91.65 INR
British Pound	105.72INR
Australian Dollars	56.51INR
UAE Dirham	22.61 INR
New Zealand Dollar	52.46 INR
Canadian Dollar	62.64 INR
Swiss Franc	98.65 INR
Japanese Yen	0.5886 INR
Saudi Riyal	22.13 INR
Qatari Rial	22.63 INR
Omani Rial	215.10 INR
Bahraini Dinar	218.96 INR
Kuwaiti Dinar	269.59 INR
Singapore Dollar	62.91 INR
Malaysian Ringgit	18.06 INR
Swedish Krona	8.23 INR
Danish Krone	12.29 INR
Thai Baht	2.41 INR
Hong Kong Dollar	10.63 INR
South African Rand	4.53 INR
Chinese Yuan	11.71 INR

* as of 1st January, 2024

Several factors influence exchange rates, including economic, political, and psychological factors.

Economic indicators such as inflation, trade balances, and government policies can impact the value of a currency. Similarly, political instability or conflicts in a country can lead to fluctuations in exchange rates. Additionally, the psychology of market participants can influence currency values, leading to speculative activities that may further impact exchange rates.

The characteristics of foreign exchange are as follows:

1. **Comparative values**: Exchange rates not only show the comparative value of a currency but also help countries conduct transactions with international partners more efficiently. They play a crucial role in facilitating international trade.

2. **Fixing rates**: Economists use exchange rate to assess a country's economic well-being. If there is too much fluctuation in currency exchange rates, authorities may intervene to stabilise rates. This helps to maintain economic stability and prevent downturns in the economy.

3. **Demand growth and export increase:** When there is a higher demand for imports, the domestic currency typically depreciates (the exchange rate falls). This is because the increased demand for foreign goods requires more of the domestic currency to be exchanged for foreign currencies, increasing the supply of the domestic currency in the foreign exchange market and leading to its depreciation.

Importance of currency exchange:

1. **International trade:** Currency exchange enables businesses to buy and sell goods and services internationally. It allows companies to price their products in different currencies and manage their business effectively.

2. **Travel:** Currency exchange is essential for travellers who need to convert their home currency into the local currency of the country they are visiting. It allows them to pay for goods and services using the country's currency and manage their expenses while abroad.

3. **Investment:** Currency exchange is also useful for people who like to invest in foreign currencies or assets. Exchange rate movements can impact the value of investments and the returns they generate.

Currency pairs:

Currency pairs are a way of comparing the value of one currency to another. In the foreign exchange market, currencies are often traded, which means to buy and sell currencies with the aim of making a profit. Currencies are always traded in pairs because when we buy one currency, we are simultaneously selling another. For example, if we want to buy U.S. Dollars with Indian Rupees, the currency pair would be USD/INR. The first currency in the pair is called the base currency, and the second currency is called the quote currency. The exchange rate tells us how much of the quote currency we need to buy one unit of the base currency. Currency pairs are important because they help traders understand the value of one currency relative to another and make informed decisions when trading. Some examples of currency pairs are EUR/USD, (Euro/U.S. Dollar), USD/JPY (U.S. Dollar/Japanese Yen), GBP/USD (British Pound/U.S. Dollar) and many more.

Cross currency triangulation

Cross currency triangulation refers to a method used to calculate the exchange rate between two currencies, indirectly using a third currency. This process is essential when direct exchange rates between two currencies are not readily available. The cross currency triangulation method involves a base currency, a quote currency and an intermediate currency.

Cross currency triangulation can be useful to make a currency exchange involving two currencies for which there is no direct quote. However, it's important to note that the accuracy of the triangulated rate depends on the accuracy of the exchange rates used for the intermediary currency.

To understand this concept better, let's consider an example involving three currencies: the U.S. Dollar (USD), the Euro (EUR), and the British Pound (GBP). Suppose we want to find the exchange rate between EUR and GBP but direct quotes are not available. We can use the following steps to triangulate the rate:

USD as the base currency: First, we find the exchange rates of both EUR and GBP with the USD. This can be found out easily by visiting some financial news or bank websites. Let's say USD/EUR = 1.2 and USD/GBP = 1.5. This means 1 Euro is equivalent to 1.2 U.S. Dollars, and 1 British Pound is equivalent to 1.5 U.S. Dollars.

Triangulating the rate: Now, we can use these two rates to find the exchange rate between EUR and GBP. We divide the USD/GBP rate by the USD/EUR rate.

The basic formula always works like this:
A/B ÷ C/B = A/C
In this case, (USD/GBP) = 1.5 and (USD/EUR) = 1.2
Applying the formula to this:
(USD/GBP) ÷ (USD/EUR)
= 1.5 / 1.2 = 1.25
Therefore, 1 British Pound is equivalent to 1.25 Euros.

Fun Facts

Did you know, that the first coin in the U.S. was printed with the slogan 'Mind your business!' This was designed in the year 1787 by Benjamin Franklin.

Fugio cent

MCQs:

1. What is the primary function of money in an economy?
   a) To create goods and services.
   b) To facilitate the exchange of goods and services.
   c) To control the production of goods.
   d) To increase the population.

2. How did the evolution of money address the limitations of the barter system?
   a) It allowed for the storage of goods.
   b) It eliminated the need for direct exchanges of goods and services.
   c) It increased the value of goods.
   d) It reduced the production of goods.

3. Which of the following is NOT a characteristic of money?
   a) Fungible
   b) Perishable
   c) Portable
   d) Recognisable

4. What is the main difference between commodity money and fiat money?
   a) Commodity money is electronic, whereas fiat money is physical.
   b) Commodity money has intrinsic value, whereas fiat money does not.
   c) Fiat money is only used in modern economies.
   d) Commodity money cannot be used to buy goods and services.

5. What role does the Reserve Bank of India (RBI) play in the Indian economy?
   a) It issues and manages the Indian currency.
   b) It solely focuses on designing currency.
   c) It controls the global economy.
   d) It produces goods and services.

6. What does the exchange rate of a currency represent?
   a) The physical characteristics of the currency.
   b) The historical value of the currency.
   c) The value of one currency in terms of another.
   d) The number of goods that can be bought with that currency.

7. Which of the following best describes the process of currency exchange?
   a) Exchanging goods for services directly.
   b) Converting one currency into another for various purposes.
   c) Exchanging currency for gold only.
   d) Calculating the value of a currency based on its physical weight.

8. What is cross currency triangulation?
   a) A method to directly compare the value of two currencies.
   b) Calculating the GDP of a country using its currency value.
   c) Using a third currency to calculate the exchange rate between two other currencies.
   d) A system to eliminate the need for currency exchange.

Correct answers and explanations:

1. b) The primary function of money in an economy is to facilitate the exchange of goods and services. It serves as a medium of exchange, allowing people to trade goods and services without the need for direct barter.

2. b) Money eliminated the need for direct exchanges of goods and services, which was a challenge in the barter system where people had to find others with matching needs and wants for trade to occur.

3. b) Money is not perishable. Perishable means something that can decay or spoil over time, which does not apply to money.

4. b) Commodity money has intrinsic value, meaning it is made of a valuable substance like gold or silver. In contrast, fiat money does not have intrinsic value and is valuable because the government declares it as legal tender.

5. a) The RBI issues and manages the Indian currency, regulates the banking system, and controls the monetary policy to maintain price stability and economic growth.

6. c) The exchange rate of a currency represents the value of one currency in terms of another. It indicates how much of one currency is needed to purchase a unit of another currency.

7. b) Currency exchange involves converting one currency into another for various purposes, such as travel, trade, or investment.

8. c) Cross currency triangulation is using a third currency to calculate the exchange rate between two other currencies. It helps in determining the value of one currency in terms of another indirectly.

1.2 Demand vs supply of money

The demand for money

The demand for money refers to the desire of individuals and businesses to hold money for various purposes.

There are three main motives for holding money:

1. **Transaction motive:** This is the need for money to facilitate daily transactions. People hold money in the form of cash or in checking accounts to pay for goods and services.

2. **Precautionary motive:** Money is also held as a precautionary measure for unexpected expenses or emergencies. Having readily available cash provides a sense of security.

3. **Speculative motive:** Some individuals hold money as a form of investment, speculating that its value will increase in the future. This is particularly true in times of economic uncertainty.

Monetary policy is a set of actions taken by a country's central bank to control the supply of money and influence the economy. The main goals of monetary policy are to achieve stable prices (control inflation), promote maximum employment, and ensure economic growth.

It plays an essential role in stabilising economies, especially when the demand for money is consistent. However, when the demand for money fluctuates, it can lead to changes in real and nominal interest rates, which can result in economic ups and downs.

How monetary policy works

1. ### Interest rates:

   The central bank can change the interest rates, which are the cost of borrowing money. Lowering interest rates makes borrowing cheaper, encouraging people and businesses to take loans and spend more. This increases the money supply in the economy. Conversely, raising interest rates makes borrowing more expensive, reducing spending and the money supply.

2. ### Open market operations (OMO):

   The central bank buys or sells government bonds in the open market. When the central bank buys bonds, it pays with money, increasing the money supply. When it sells bonds, it takes money out of circulation, reducing the money supply.

3. **Reserve requirements:** Banks are required to keep a certain percentage of deposits as reserves. Lowering reserve requirements means banks can lend more money, increasing the money supply. Raising reserve requirements means banks have less money to lend, decreasing the money supply.

4. **Repo rate and reverse repo rate:**
   Repo rate: The rate at which commercial banks borrow money from the central bank by selling their securities with an agreement to repurchase them at a later date. Lowering the repo rate makes borrowing cheaper for banks, increasing the money supply.
   Reverse repo rate: The rate at which the central bank borrows money from commercial banks. Increasing the reverse repo rate encourages banks to park more funds with the central bank, reducing the money supply.

The demand for money is driven by people's need for a certain amount of money. This need is based on the value of transactions they need to manage. The more transactions people have, the more money they tend to want to keep. Earnings also play a significant role in determining the demand for money. When earnings increase, people generally want more money to manage their transactions. When people choose to save their money rather than invest it in interest-earning accounts, the amount of money they save is influenced by interest rates. Higher interest rates can discourage people from holding onto money, as it means they could be earning more by investing it. This can lead to a decrease in the demand for money at higher interest rates.

Factors affecting the demand for money

1. **Interest rates:** Higher interest rates incentivise people to hold less money because they can earn more by saving or investing it. Conversely, lower interest rates encourage people to hold more money as the opportunity cost of holding cash decreases.

2. **Income levels:** As incomes rise, the demand for money typically increases since people have more transactions to make. However, the relationship between income and the demand for money is not always straightforward.

3. **Inflation expectations on consumption and investment:** When people expect higher inflation in the future, they are likely to increase their current consumption to avoid higher prices later. This behavior can lead to a higher demand for money in the short term as individuals and businesses hold more money to make purchases before prices rise further. People's expectations about future inflation can influence their saving and investment decisions. For instance, if they expect high inflation, they might prefer to hold money in liquid forms rather than investing in long-term assets, increasing the demand for money.

The supply of money

The supply of money refers to the total amount of money available in an economy. It is controlled by the central bank, such as the Reserve Bank of India which largely controls the supply of money in India. The central bank can influence the supply of money through various tools, such as open market operations, reserve requirements, and the discount rate.

Factors affecting the supply of money

1. **Monetary policy:** Central banks use monetary policy to control the supply of money. By adjusting interest rates and other monetary tools, central banks can increase or decrease the money supply to achieve economic goals.

2. **Banking system:** The banking system plays a crucial role in the supply of money through the process of fractional reserve banking. Banks create money by making loans, which increases the money supply. Banks also facilitate the clearing and settlement of transactions, which helps in the smooth functioning of the payment system. This contributes to the efficient circulation of money in the economy. The central bank of any country has a major role in regulating the supply of money.

3. **Government spending:** When the government spends money, it often does so by borrowing from the central bank or selling government securities like bonds. This process injects money into the economy, increasing the money supply. For example, if the government buys goods and services, the sellers receive payments, which

they deposit in banks. These deposits increase the banks' reserves, allowing them to lend more money, further increasing the money supply. Conversely, if the government reduces spending or sells more securities, it can withdraw money from the economy, decreasing the money supply. This balance of spending and borrowing helps manage economic activity, influencing factors like inflation and interest rates.

Money supply is classified into several measures, including M1, M2, M3, and M4. These measures vary in terms of liquidity, with M1 being the most liquid and M4 the least. The Reserve Bank of India (RBI) publishes figures for these measures, which include currency (notes and coins) in circulation and various types of deposits.

The Reserve Bank of India (RBI) publishes figures for four different measures of money supply:

- **M1:** Includes currency (notes and coins) in circulation among the public and demand deposits held by commercial banks. It represents the most liquid form of money.
  M1 = Currency with the public + Demand deposits with banks

- **M2:** Includes M1 plus savings deposits with post office savings banks. It represents a broader measure of money supply.
  M2 = M1 + Savings deposits with post office savings banks

- **M3:** Includes M1 plus net time deposits of commercial banks. It represents a broader measure than M2.
  M3 = M1 + Time deposits with banks + Net value of UTI units + Shares of co-operative societies

- **M4:** Includes M3 plus total deposits with post office savings organisations (excluding National Savings Certificates). It is the broadest measure of money supply.
  M4 = M3+ Total deposits with post office savings organisations.

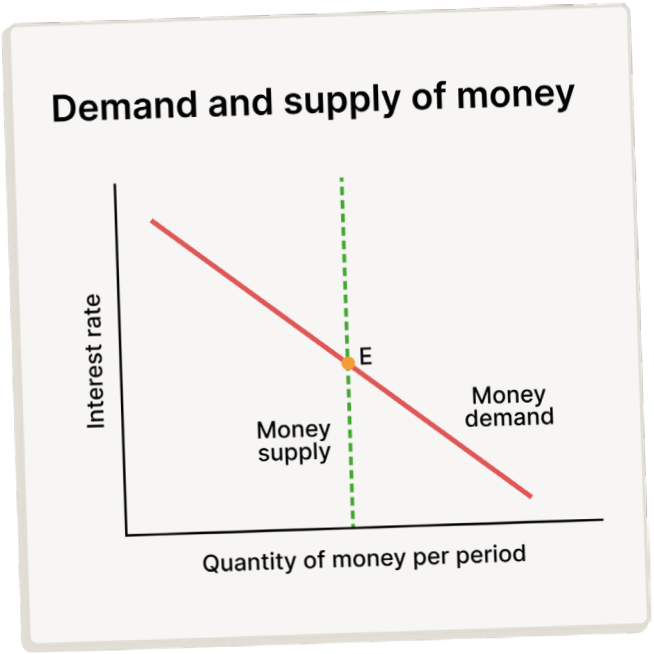
Effects on demand and supply of money

1. **Expansionary monetary policy:** This is used to increase the money supply. The central bank lowers interest rates, buys government bonds, and reduces reserve requirements. This makes borrowing cheaper and increases spending by consumers and businesses, boosting economic activity and aggregate demand (total demand for goods and services).

2. **Contractionary monetary policy:** This is used to decrease the money supply. The central bank raises interest rates, sells government bonds, and increases reserve requirements. This makes borrowing more expensive and reduces spending, slowing down economic activity and reducing aggregate demand.

Equilibrium in the money market

The equilibrium in the money market is achieved when the demand for money equals the supply of money. At this point, the interest rate is determined, balancing the desires of savers and borrowers.



The demand for money curve slopes downward (left to right), indicating that at lower interest rates, people demand more money.

The supply of money is a vertical line, showing that the total amount of money available is fixed in the short term, regardless of the interest rate.

Equilibrium (point E) occurs where the demand for money curve intersects the supply of money curve. At this point, the quantity of money demanded equals the quantity of money supplied, at a specific interest rate, known as equilibrium interest rate.

MCQs:

1. What does the demand for money refer to?
   a) The total amount of money in an economy.
   b) The central bank's policy to control money supply.
   c) The desire to hold money for transactions, precaution, and speculation.
   d) The interest rate set by the central bank.

2. Which motive for holding money is primarily for handling unexpected expenses?
   a) Transaction demand
   b) Precautionary demand
   c) Speculative demand
   d) Investment demand

3. What happens to the demand for money when interest rates increase?
   a) It decreases because people prefer to save or invest.
   b) It increases because money becomes more valuable.
   c) It remains unchanged, as interest rates do not affect money demand.
   d) There is no relationship between demand for money and interest rates.

4. Which of the following measures of money supply represents the most liquid form of money?
   a) M2
   b) M3
   c) M4
   d) M1

5. What is the role of the central bank in the context of the money supply?
   a) To control the inflation rate directly.
   b) To design the physical appearance of money.
   c) To influence the supply of money using various tools.
   d) To set the prices of goods and services in the economy.

6. At what point is equilibrium in the money market achieved?
   a) When the demand for money is greater than the supply.
   b) When the supply of money is greater than the demand.
   c) When the demand for money equals the supply.
   d) Equilibrium is never achieved in the money market.

Correct answers and explanations:

1. c) The demand for money refers to the desire to hold money for transactions, precaution (unexpected expenses), and speculation (investment opportunities).

2. b) The precautionary demand for money is primarily for handling unexpected expenses. It is the desire to hold money as a precaution against unforeseen events.

3. a) When interest rates increase, the demand for money decreases because people prefer to save or invest their money to earn higher returns.

4. d) M1 represents the most liquid form of money as it includes physical currency and assets that can be quickly converted to cash.

5. c) The central bank influences the supply of money using various tools such as setting interest rates, reserve requirements, and open market operations.

6. c) Equilibrium in the money market is achieved when the demand for money equals the supply of money. At this point, there is no excess demand or supply of money.

1.3 Cryptocurrency

Cryptocurrency is a type of digital currency that uses technologies like blockchain and cryptography to keep online transactions secure. There are a number of cryptocurrencies available in the world today - the largest and most popular one being Bitcoin. Bitcoin was first launched in 2009, but started to be accepted as a formal method of payment only after 2012. Other cryptocurrencies include Ethereum, Altcoin and so on. Here are a few terms associated with cryptocurrency that are important to understand:

Decentralisation

Imagine you are doing a group project at school. In a centralised system, there will be a head of the project or a group of heads, who will be responsible for making the rules and taking decisions like naming the topics, assigning tasks etc. On the other hand,

in a decentralised project, everyone in the group will have a say and the decisions will be taken together, making the project more fair and inclusive. Cryptocurrency is considered a decentralised currency because there is no central authority, like a bank or a government, controlling the currency. Instead, it's managed by a network of computers all over the world. This makes it more secure and less likely to be controlled or manipulated by a single entity. A regular(fiat) currency is managed by the central bank of the country in compliance with the government. For example, the Indian Rupee is controlled largely by the Reserve Bank of India, which is the central bank of India. These regulatory bodies usually make rules for currencies, but with cryptocurrency, this is not the case.

Blockchain

In stores and businesses, wherever there is frequent transfer of money, people keep a written record of transactions. This helps them keep track of transactions and also make changes if required by simply erasing and rewriting numbers or figures. Think of blockchain as a digital record book that keeps track of transactions in electronic form, like buying or selling things online. Instead of one person or company controlling the record book, data on blockchain is distributed among many computers, making it harder to cheat or change the records.

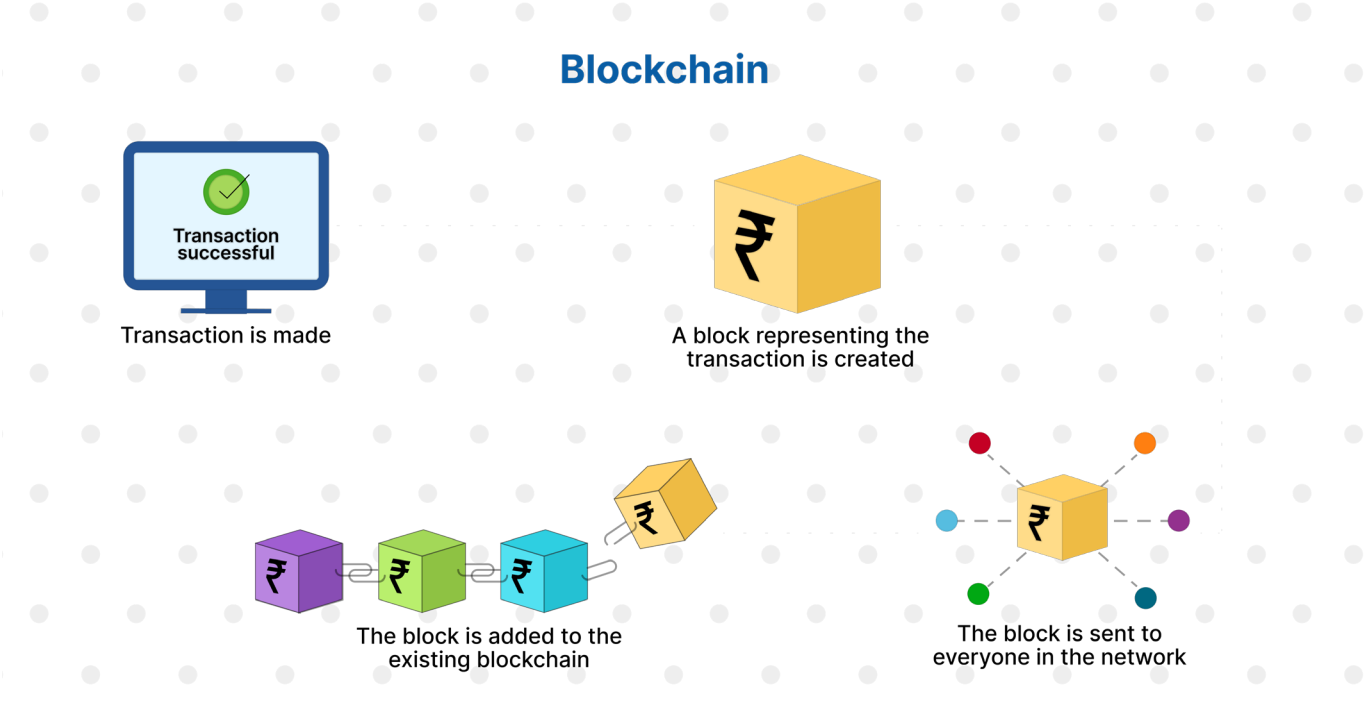
The blockchain database consists of a chain of blocks, where each block contains a list of transactions. When a new transaction occurs, it is linked together with other transactions that have happened around the same time to form a new block. This block is then added to the end of the chain, creating a chronological and unchangeable record of all transactions.

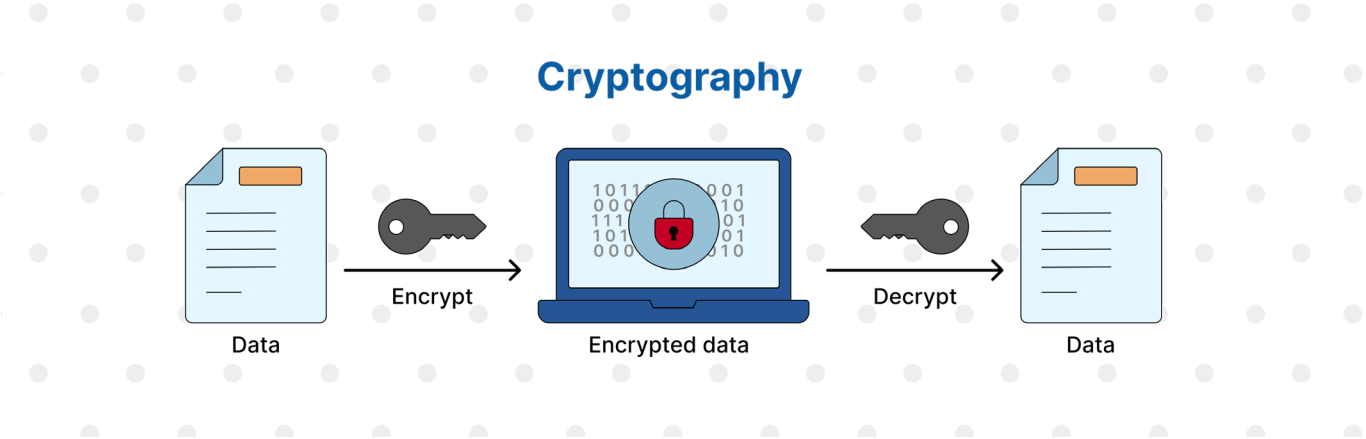
One of the main aspects of blockchain is its security. Blockchain makes use of cryptography to secure data. Each block in the chain is linked to the previous block using a hash code, which is a unique string of characters. This link ensures that once a block is added to the chain, it cannot be altered without changing the entire chain.

Another important aspect of blockchain technology is that it is transparent. Because the blockchain is shared among all the computers in the network, anyone can view the contents of the blockchain at any time. This transparency helps to ensure trust in the system, as users can verify for themselves that transactions are being recorded accurately.

Cryptography

Cryptography is a way to keep messages and data safe by using secret codes that only the intended recipient can understand. These secret codes are





often in the form of mathematical algorithms. To understand the codes and get access to the data, one needs a special “key”. With the help of this key, they can unlock the secret code and get access to the data. Cryptocurrencies use cryptography to protect sensitive data and information like passwords. The following are some important features of cryptocurrencies:

1. Cryptocurrencies like Bitcoin have a limited supply. This means that there is a cap on the total number of coins that can ever exist. The value of cryptocurrencies will be regulated by this feature.

2. People can remain anonymous while using cryptocurrencies. Even though the transactions are recorded on a blockchain network, which is public, the identities of the people involved are encoded and their real-world identities are hidden.

3. People can buy and sell cryptocurrencies in many different ways. Users today can buy cryptocurrencies from central exchanges, brokers, and individual currency owners or sell it to them. There are several platforms and apps that facilitate the process of buying, selling and investing in crypto currencies for individuals.

4. Lately, cryptocurrencies have emerged as an attractive investment option for people. Investing in cryptocurrency involves buying digital coins or tokens with the expectation that their value will increase over time, allowing you to sell them later at a higher price and make a profit. Investing in it can be a risky venture. Cryptocurrency can be volatile, i.e., its value can go up and down very quickly in a short period of time. Hence, one should do proper research and consult experts before investing in things like these.

Types of cryptocurrencies

Cryptocurrencies have gained popularity in recent years, with thousands of types existing. Some of the most well-known cryptocurrencies include:

1. **Bitcoin:**

Bitcoin was the first cryptocurrency, created in 2009 by an unknown person or group using the pseudonym Satoshi Nakamoto. It remains the most widely traded and recognised cryptocurrency.

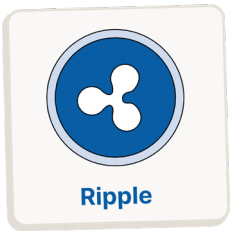
2. **Ethereum**

Launched in 2015, Ethereum is a blockchain platform featuring its own cryptocurrency called Ether (ETH). Ethereum is known for its smart contract functionality, allowing developers to create decentralised applications.

3. **Litecoin:**

Similar to Bitcoin, Litecoin was created in 2011 and offers faster transaction times and lower fees. It has been an early adopter of technological innovations in the cryptocurrency space.

4. **Ripple**:



Ripple, founded in 2012, is both a digital payment protocol and a cryptocurrency (XRP). Ripple's focus is on enabling fast and cost-effective cross-border payments, particularly for financial institutions.

Collectively, cryptocurrencies other than Bitcoin are referred to as "altcoins." These coins offer different features and use cases compared to Bitcoin, contributing to the diversity and innovation in the cryptocurrency market.

Cryptocurrency frauds

Cryptocurrency fraud and scams are becoming more common, so it's important to be aware of them. Here are some common cryptocurrency scams:

1. **Fake websites:** Scammers create websites that look legitimate and promise huge returns on your investment. They use fake testimonials and complex crypto terms to convince you to invest more money.

2. **Ponzi schemes:** These schemes promise high returns but actually pay earlier investors with the money from new investors. Eventually, the scheme collapses, and many people lose their money.

3. **Fake endorsements:** Scammers pretend to be famous people or companies and endorse a specific cryptocurrency. They create hype to drive up the price and then sell their own coins, causing the value to crash.

4. **Romance scams:** Scammers use dating apps or social media to build relationships with people and then convince them to invest in cryptocurrencies. These scams can lead to significant financial losses.

5. **Fraudulent traders and exchanges:** Some scammers pose as legitimate cryptocurrency traders or set up fake exchanges to steal money from unsuspecting investors and steal cryptocurrencies stored there. This type of theft is becoming more common as cryptocurrencies gain popularity.

It's essential to be cautious and do thorough research before investing in cryptocurrencies or engaging in any transactions. If something seems too good to be true, it probably is.

Is cryptocurrency legal in India

Before getting into cryptocurrency buying or selling, one must understand that cryptocurrencies can be highly volatile and risky. It is important to research and know about all the risks involved. The government of India and RBI usually warn against activities like holding or trading unregulated digital currencies. This is because cryptocurrency is not a fiat currency, i.e., it is not regulated or circulated by the government.

Also, if one incurs loss during the process, the government of India or RBI will not be responsible for any aspect of it and the user must undertake the process at their own risk.

This information is as per the RBI press release dated December 24, 2013.

Purchasing and storing cryptocurrencies

In India, buying cryptocurrency involves several steps. Firstly, you need to choose a cryptocurrency exchange that operates in India and supports the cryptocurrencies you want to buy, such as Bitcoin or Ethereum. Next, you'll need to create an account on the exchange and complete the necessary KYC (Know Your Customer) verification process, which typically requires providing your identity proof and address proof. Once your account is verified, you can deposit Indian Rupees (INR) into your exchange account using bank transfers or other supported payment methods. With funds in your account, you can place an order to buy the cryptocurrency of your choice, specifying the amount and price. Once your order is executed, the cryptocurrency will be credited to your exchange wallet. It's important to note that cryptocurrency investments carry risks, and it's advisable to do thorough research and consider your risk tolerance before investing.

Fun Facts

Did you know that, Bitcoin was created by an unknown person or group of people using the pseudonym Satoshi Nakamoto? Despite many investigations and theories, Satoshi's true identity remains unknown, as of 2024.

Once you've bought cryptocurrency, you need to store it safely to avoid hacks or theft. Most people use crypto wallets, which can be physical devices or online software that securely store the private keys to your cryptocurrencies. Some exchanges offer wallet services, but not all of them do.

There are two main types of wallets:

1. **Hot wallets:** These use online software to protect your private keys and are convenient for frequent trading. However, they can be more vulnerable to hacks.

2. **Cold wallets:** Also known as hardware wallets, these store your private keys offline on a device, making them more secure but less convenient for frequent trading.

When choosing a wallet, consider factors like security, convenience, and fees. It's also a good practice to diversify your holdings and use both types of wallets for different purposes. Choose a wallet that best suits your needs and helps keep your cryptocurrency safe.

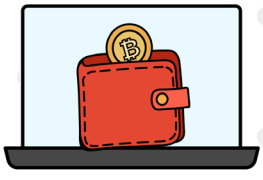
Difference between hot and cold wallets

Hot wallets	Cold wallets
As these are connected to the internet, they can be prone to hacking and theft.	These are more secure as they are not connected to the internet and can be safe from online frauds.
Hot wallets are more accessible and convenient for everyday transactions.	Cold wallets are better suited for long-term storage.
Hot wallets are better suited for active trading and transactions as they are more accessible.	Cold wallets are used for storing cryptocurrency for a longer term, and not for immediate use.

Advantages of cryptocurrency:

- Cryptocurrencies can reduce transaction costs, especially for cross-border payments, because they eliminate intermediaries like banks.

Hot wallet v/s **Cold wallet**



- The blockchain technology used ensures that all transactions are transparent and immutable, preventing fraud and ensuring data integrity.

- Cryptocurrencies offer new investment opportunities and have the potential for significant returns, although they also come with high risks.

MCQs:

1. What is the primary feature that distinguishes cryptocurrency from traditional currencies like the Indian Rupee?
   a) It is available in physical form.
   b) It is controlled by a central authority.
   c) It uses technologies like blockchain and cryptography for security.
   d) It has an unlimited supply.

2. Which of the following best describes blockchain technology?
   a) A centralised digital ledger that tracks all physical currency.
   b) An online banking system for managing digital transactions.
   c) A distributed digital ledger that records transactions across many computers.
   d) A type of cryptocurrency.

3. What is the significance of cryptocurrencies being decentralised?
   a) They can only be used in specific countries.
   b) They are less secure than traditional currencies.
   c) They are not controlled by any single entity like a bank or government.
   d) They are easier to counterfeit.

4. How does cryptography contribute to the security of cryptocurrencies?
   a) By physically securing the storage facilities.
   b) By using secret codes that only the sender and receiver can decipher.
   c) By limiting the supply of cryptocurrencies.
   d) By making transactions public to everyone.

5. Which of the following is a characteristic of cryptocurrency transactions?
   a) They can only be completed during business hours.
   b) They are anonymous and recorded on a public ledger.
   c) They require a physical signature.
   d) They are controlled by the Reserve Bank of India.

6. What distinguishes a hot wallet from a cold wallet?
   a) Hot wallet is only for storing Bitcoin, while cold wallet is for all cryptocurrencies.
   b) Hot wallet is connected to the internet and less secure, while cold wallet is offline and more secure.
   c) A hot wallet is a physical device, while a cold wallet is a software application.
   d) Hot wallet is used by the government, while a cold wallet is used by individuals.

Correct answers and explanations:

1. c) Cryptocurrency is distinguished by its use of technologies like blockchain and cryptography for security, as opposed to traditional currencies that rely on physical form and central authorities for control.

2. c) Blockchain technology is a distributed digital ledger that records transactions across many computers, providing transparency and security in cryptocurrency transactions.

3. c) Cryptocurrencies being decentralised means they are not controlled by any single entity like a bank or government. This decentralisation provides users with more control over their funds and reduces the risk of censorship or manipulation.

4. b) Cryptography contributes to the security of cryptocurrencies by using secret codes that only the sender and receiver can decipher, ensuring that transactions are secure and private.

5. b) Cryptocurrency transactions are anonymous and recorded on a public ledger called the blockchain, which ensures transparency while protecting the identities of the transacting parties.

6. b) Hot wallets are connected to the internet and are less secure, while cold wallets are offline and more secure. Cold wallets are used for long-term storage of cryptocurrencies, while hot wallets are used for frequent transactions.

1.4 How depreciation works ?

Imagine you buy a brand-new car for Rs. 10 Lakhs. The moment you drive it off the lot, it starts to lose value. This decrease in value over time is called depreciation. After a year of use, the car may only be worth Rs. 8 Lakhs. This means it has depreciated by Rs. 2 Lakhs in value. Several factors could have contributed to the depreciation of the original value of the car, such as wear and tear, mileage, age, and market demand for that particular model.

Depreciation always works on assets that an individual or a business owns. We should understand what are assets first:

What is an asset?

An asset is nothing but a valuable resource owned or controlled by an individual, corporation, or nation. An asset is owned with the aim of it yielding future advantages. It serves as a potential source of cash flow, cost reduction, or sales enhancement. In terms of physicality, assets can be divided into 2 types:

1. **Tangible assets:** Tangible assets have an actual physical presence (i.e., they can be touched, felt, etc.) Some examples of tangible assets are as follows:
   - Land
   - Building
   - Machinery
   - Equipment
   - Cash
   - Office supplies

- Inventory
- Marketable securities

2. **Intangible assets:** Intangible assets are assets that lack physical substance but hold long-term value for a company. They are typically non-monetary assets that are used over time to generate revenue for the business. Examples of intangible assets include:
   - Intellectual property
   - Software
   - Trademarks
   - Patents and copyrights

You can depreciate tangible assets and amortise intangible assets. Depreciation and amortisation are ways to spread out the cost of these assets over time, helping you manage your finances better.

Depreciation is like the wear and tear that happens to things we own over time. Just like how a new car loses value as soon as we start driving it, assets like machinery, buildings, or equipment lose value as they are used. This decrease in value is important for businesses to track because it affects their financial statements and taxes. Depreciation helps businesses show how much their assets have lost value over time, which is important for accurately reporting their financial health.

Depreciation is an important term for businesses, as it represents a way to spread out the cost of something expensive a business buys over time, instead of all at once. This helps them manage their finances better by planning how much money they write off each year. It's important to note that even though the term depreciation is used by accountants to show that an asset is losing value over time, in the real world, some assets can actually become more valuable.

Depreciation schedule:

A depreciation schedule is like a roadmap that helps you track how much an asset decreases in value over time. It's a table that lists details about each asset you own, such as when you bought it, how much it cost, and how long you expect it to last. The schedule also shows how much of the asset's value you can deduct from your taxes each year as it depreciates.

This helps you plan your finances and understand the value of your assets over time. The depreciation schedule is useful in a number of ways for a business. It can be used as a tool for tax deduction, asset management or financial reporting.

Straight-line depreciation is a method of allocating the cost of an asset evenly over its useful life. The formula for calculating straight-line depreciation is:

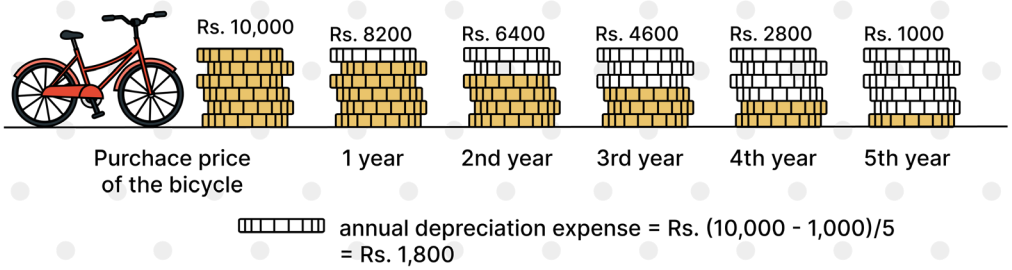
Depreciation expense = (Cost of asset - Residual value) / (Useful life)

where:

- **Cost of asset** is the initial cost of the asset.
- **Residual value** is the estimated value of the asset at the end of its useful life.
- **Useful life** is the estimated number of years the asset will be used.

Let's say a kid purchases a bicycle for Rs.10,000 with an estimated residual value of Rs. 1,000 and a useful life of 5 years. Using the straight-line depreciation method, the annual depreciation expense would be calculated as follows:

Depreciation using straight-line method



Depreciation expense = Rs. (10,000 - 1,000)/5
= Rs. 9,000/5 = Rs. 1,800

So, the annual depreciation expense for the bicycle would be Rs 1,800.

Apart from the Straight Line Method (SLM), which evenly spreads the depreciation expense over the asset's useful life, there are several other methods used to calculate depreciation:

Double Declining Balance (DDB): This method depreciates the asset at a faster rate than the SLM. It calculates depreciation by applying a fixed percentage (twice the straight-line rate) to the book value of the asset. Some companies or organisations use the double-declining balance method, which results in a large amount of depreciation expense.

Double Declining Balance Method Formula:
Depreciation = 2 * SLDP * BV

Where:

- **SLDP:** Straight Line Depreciation Percentage BV = Book Value
- **Units of production:** This method calculates depreciation based on how much an asset has been used and how many units a particular machinery has produced for a business. This method is particularly useful for assets like machinery, where the wear and tear depend on the number of units produced or hours used.
- **Annuity method:** The annuity method of depreciation calculates depreciation on the asset by calculating its rate of return. This method considers the asset as an investment. It takes into consideration the internal rate of returns on the cash outflows and inflows of the asset. Depreciation cost formula under the annuity method is:

  Depreciation = (Cost of the asset - Residual value) * Annuity factor

MCQs:

1. What is depreciation?
   a) The increase in value of an asset over time.
   b) The process of repairing an asset.
   c) The decrease in value of an asset over time.
   d) The cost of insuring an asset.

2. Which of the following is an example of a tangible asset?
   a) Intellectual property
   b) Software
   c) Machinery
   d) Customer relationships

3. What does the Straight-Line Method of depreciation involve?
   a) Allocating the asset's cost based on its usage.
   b) Dividing the cost of the asset evenly over its useful life.
   c) Decreasing the asset's value by a fixed percentage each year.
   d) Calculating depreciation based on market demand.

4. What purpose does a depreciation schedule serve?
   a) It determines the market value of the asset at the end of each year
   b) It tracks the increase in value of assets over time.
   c) It outlines the annual depreciation expenses for assets.
   d) It helps a business increase its sales.

Correct answers and explanations:

1. c) Depreciation is the decrease in value of an asset over time due to wear and tear, obsolescence, or other factors. It reflects the reduction in an asset's value on the balance sheet.

2. c) Tangible assets are physical assets that can be touched or seen. Machinery falls into this category as it is a physical asset used in operations.

3. b) The Straight Line Method involves dividing the cost of the asset evenly over its useful life. It is a simple and commonly used method for calculating depreciation.

4. c) A depreciation schedule outlines the annual depreciation expenses for assets. It helps track the reduction in asset value over time, which is important for financial reporting and tax purposes.

Quick look

1. Money represents value, facilitating trade and enabling economies to function efficiently by replacing bartering with a more accessible and efficient system.
2. Money serves as a store of value, unit of account, and medium of exchange, simplifying transactions and enabling economic growth.
3. Money is fungible, durable, portable, recognisable, and stable, ensuring its acceptance and use in trade.
4. Commodity money has intrinsic value (e.g., gold), while fiat money has value because of government backing and public trust (e.g., Indian Rupee).
5. Currency refers to physical notes and coins used in transactions, offering portability, durability, and convenience in everyday trade.
6. While money is a broader concept representing value, currency is a tangible form of money used for transactions.
7. The Indian Rupee is managed by the Reserve Bank of India (RBI), with denominations approved by the Central Government and designs focused on security and quality.
8. Currency exchange is the process of converting one currency into another, essential for travel, trade, and investment, with exchange rates fluctuating based on economic factors.
9. The demand for money is driven by transaction needs, income levels, and inflation expectations, while the supply is controlled by central banks through various monetary tools.

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