12. Financial Market

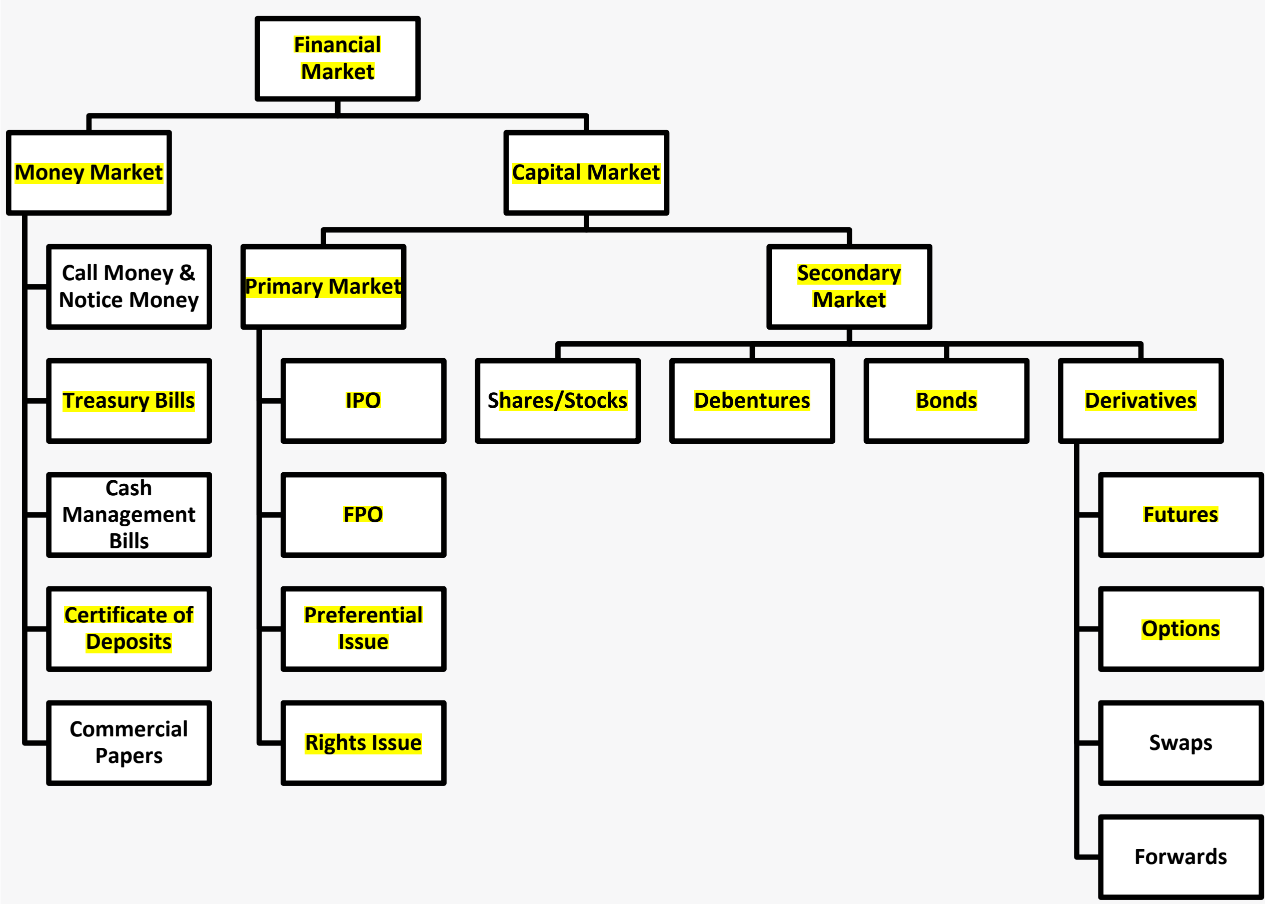
Contents

Chapter 12
Financial Market

Financial markets are platforms where buyers and sellers trade financial securities, such as stocks, bonds, currencies, and commodities, among others. These markets serve as a medium through which individuals, businesses, and governments can access funds or invest surplus funds in a profitable manner.

Types of Financial Market

There are two main types of financial markets - the money market and the capital market.



Criteria	Money Market	Capital Market
Meaning	A segment of the financial market that deals with short-term borrowing and lending, typically less than one year.	A segment of the financial market that deals with long-term financing, typically more than one year.
Purpose	Provides a platform for institutions and individuals to manage their short-term liquidity needs.	Provides a platform for companies to raise funds for long-term capital expenditures, such as investment in property, plant, and equipment.
Instruments traded	Treasury bills, commercial paper, certificate of deposit, repurchase agreements, and call money.	Shares, debentures, bonds, securities, and derivatives.
Risk	Low risk as the instruments traded are generally considered safe and are backed by the creditworthiness of the issuer.	Relatively higher risk as the instruments traded are subject to market volatility and depend on the financial performance of the issuing company.
Returns	Typically lower returns due to the lower risk associated with money market instruments.	Can generate higher returns as the investment horizon is longer and there is a higher risk associated with capital market instruments.
Regulatory	Reserve Bank of India (RBI)	Securities and Exchange Board of India

Criteria	Money Market	Capital Market
body		(SEBI)

Money Market Instruments

Concept	Borrower	Lender	Duration	Example
Call Money	Banks and financial institutions	Banks and financial institutions	Short-term	Borrowing money from other banks and they can ask for it back whenever they want.
Treasury Bill	Government	Investors	Short-term	Giving the government some money for a short time and getting interest.
Commercial Bill	Businesses	Banks	Short-term	Borrowing money from a bank to buy something for your business.
Certificate of Deposit	Individuals	Banks	Short-term	Putting your money in a bank for a while and getting interest.
Commercial Paper	Companies	Investors	Short-term	Borrowing money from a big group of people to buy supplies or pay employees.

Call Money and Notice Money

Call money is a short-term money market instrument that is used for borrowing and lending money in the inter-bank market. It is called "call" money because the lender can demand repayment at any time, or "call" back the money. This makes it a very flexible instrument for banks to manage their short-term liquidity needs. Call money is generally used for overnight transactions, but it can also be extended for a few days.

For example, suppose Bank A has a temporary shortfall of funds, while Bank B has surplus funds that it wants to lend out. Bank A can borrow money from Bank B in the call money market at an agreed interest rate. This rate can change on a daily basis, depending on the demand and supply of funds in the market. At the end of the day, Bank A will have to repay the money to Bank B, along with the agreed interest.

Notice money, on the other hand, is similar to call money, but with a slightly longer tenor. It is a short-term money market instrument that is used for borrowing and lending money in the inter-bank market for a fixed period of time, ranging from 2 to 14 days. Notice money transactions are done through a notice, which is given by the lender to the borrower, specifying the date on which the lender wants the money back.

For example, let's say Bank C wants to borrow money from Bank D for 7 days. Bank D can lend the money to Bank C in the notice money market at an agreed interest rate. The notice period gives Bank D a bit more certainty about when it will get its money back, compared to call money.

Treasury Bills (T-Bills)

Treasury bills, also known as T-bills, are short-term debt securities issued by the Reserve Bank of India (RBI) on behalf of the Government of India. These bills are issued with a maturity period of 14 days, 91 days, 182 days, and 364 days.

The Government of India issues T-bills to raise money to meet its short-term financial requirements. It's important to note that T-bills are considered to be one of the safest investment options as they are backed by the government's creditworthiness.

T-bills are also highly liquid and can be easily traded in the secondary market. They are usually sold through an auction process and can be bought by anyone, including individuals, firms, banks, and other financial institutions.

For example, let's say that the Government of India needs to raise funds to finance some of its short-term expenditures. It decides to issue a 91-day T-bill with a face value of Rs. 1,000. The auction is held, and the T-bill is sold to the highest bidder at a discount. Suppose the highest bidder agrees to pay Rs. 990 for the T-bill. In that case, they will receive the T-bill with a face value of Rs. 1,000 when it matures after 91 days, thereby earning a profit of Rs. 10.

Cash Management Bills (CMB)

CMBs are short-term debt instruments issued by the Reserve Bank of India (RBI) on behalf of the Government of India to meet its short-term cash needs. The tenure of CMBs usually ranges between 14 days to 91 days.

Like Treasury Bills, CMBs are also auctioned, and the bids are accepted at a discount rate. CMBs can be held till maturity, or they can be traded in the secondary market. CMBs are also issued in electronic form, which makes it easy for investors to buy and sell them.

For example, let's say that the Government of India needs funds to pay for its immediate expenses. It decides to issue a 30-day CMB with a face value of Rs. 10,000. The auction is held, and the CMB is sold to the highest bidder at a discount. Suppose the highest bidder agrees to pay Rs. 9,950 for the CMB. In that case, they will receive the CMB with a face value of Rs. 10,000 when it matures after 30 days, thereby earning a profit of Rs. 50.

Certificate of Deposits (CDs)

CDs are short-term, negotiable promissory notes issued by banks and financial institutions to raise funds from the market. The tenure of CDs usually ranges between 7 days to 1 year, and they are issued at a discount to face value.

Investors can buy CDs directly from the issuing bank or financial institution, or they can purchase them from the secondary market.

For example, let's say that a bank needs funds to meet its lending requirements. It decides to issue a 90-day CD with a face value of Rs. 1,00,000. The CD is issued at a discount of, say, Rs. 98,000. The investor will receive the face value of Rs. 1,00,000 when the CD matures after 90 days, thereby earning a profit of Rs. 2,000.

Commercial Papers (CPs)

CPs are unsecured, short-term debt instruments issued by highly rated corporates and financial institutions to raise funds from the market. The tenure of CPs usually ranges between 7 days to 1 year, and they are issued at a discount to face value.

For example, let's say that a highly rated corporate needs funds to meet its working capital requirements. It decides to issue a 60-day CP with a face value of Rs. 1,00,000. The CP is issued at a discount of, say, Rs. 98,500. The investor will receive the face value of Rs. 1,00,000 when the CP matures after 60 days, thereby earning a profit of Rs. 1,500.

Capital Market

The capital market is a market for long-term funds with a maturity ranging from more than one year.

The capital market can be further classified into two segments:

- **Primary Market:** This is the market where new securities are issued by companies for the first time to raise funds. This is also called the new issue market.
- **Secondary Market**: This is the market where existing securities are traded among investors without the involvement of the issuing company. This is also called the stock market or the stock exchange.

Primary Market	**Secondary Market**
Also known as the "new issue market"	Also known as the "stock exchange" or "secondary market"
Deals with the issuance of new securities to the public for the first time	Deals with the trading of previously issued securities among investors
Securities are sold by the issuer (company, government, etc.) to raise funds	Securities are bought and sold among investors without the involvement of the issuer
Primary market transactions help companies raise capital to fund business operations or expansion	Secondary market transactions provide liquidity to investors by allowing them to buy and sell securities easily
Prices of securities in the primary market are determined by the issuer based on market demand and supply	Prices of securities in the secondary market are determined by market forces of supply and demand
Examples include initial public offerings (IPOs), rights issues, and private placements	Examples include stock exchanges, over-the-counter markets, and electronic trading platforms

Primary Market Instruments

Initial Public Offer (IPO)

An Initial Public Offering (IPO) is a process through which a private company becomes a public company by selling its shares to the public for the first time. The company which offers its shares is known as the issuer.

Once the IPO is launched, members of the public can buy shares of the company by subscribing to the offer. If the demand for the shares exceeds the supply, the share price may go up, and if the demand is lower than the supply, the share price may go down.

An example of an IPO is the recent public offering of the Indian food delivery company, Zomato. In July 2021, Zomato launched its IPO and offered its shares to the public. The IPO was oversubscribed, which means that the demand for shares was higher than the number of shares offered. As a result, the share price of Zomato increased on the day of listing, providing significant returns to the investors who subscribed to the IPO.

Follow on public offer (FPO)

A Follow-on Public Offer (FPO) is a process through which a public company raises additional capital by issuing new shares to the public.

An FPO is different from an IPO as in an IPO, a private company becomes a public company for the first time by issuing shares to the public. However, in an FPO, an already public company raises additional capital by issuing new shares. By issuing additional shares, the ownership of the company is diluted, which means that the existing shareholders will hold a smaller percentage of the company's shares.

An example of an FPO is the public offering of Reliance Industries Limited in 2020. Reliance Industries Limited had already issued shares and was listed on the stock exchange. In July 2020, the company announced an FPO and raised additional capital by issuing new shares to the public. The funds raised through the FPO were used to reduce the company's debt and for other capital expenditures.

Preferential Issue

Preferential Issue is a method of raising capital by companies in which they offer shares to select investors on a preferential basis. This means that the shares are issued to a specific group of investors, typically promoters, institutional investors, or high net worth individuals, at a price that is usually lower than the market price.

Preferential issues are usually made to raise capital quickly and to avoid the lengthy and complicated process of a public issue.

An example of a Preferential Issue is the recent issue by Adani Ports and Special Economic Zone Ltd. In February 2021, the company announced a preferential issue of shares to raise around Rs 3,000 crore. The shares were offered to a group of investors, including a subsidiary of the Qatar Investment Authority, at a price of Rs 800 per share, which was significantly lower than the market price of the shares at that time. The funds raised through this issue were to be used for debt reduction and capital expenditure.

Rights Issue

A Rights Issue is a method of raising capital by companies by offering its existing shareholders the right to buy additional shares of the company at a discounted price. It's a way for the company to raise funds from its existing shareholders without diluting the ownership percentage of the existing shareholders.

For example, if a company announces a rights issue of 1:3, it means that for every three shares held by a shareholder, they will be offered the right to buy one additional share at a discounted price.

The shareholders have the option to either buy the additional shares or sell their right to buy the shares to other investors. The discounted price at which the shares are offered to the shareholders is usually lower than the current market price, making it an attractive investment opportunity for the shareholders.

An example of a rights issue is the recent issue by Tata Motors Limited in January 2021. The company announced a rights issue of up to 533.5 million shares to its existing shareholders at a price of Rs. 150 per share, which was a discount of around 10% from the market price at that time. The funds raised through this rights issue were to be used to repay the company's debt and to fund its growth plans.

Debt and Equity

Financial debt refers to the debt incurred by financial institutions and corporations to finance their operations and investments. This includes loans from banks, corporate bonds, and other debt instruments issued by financial entities.

Non-financial debt, on the other hand, is the debt incurred by non-financial entities such as households, governments, and non-profit organizations. It includes debt related to personal consumption, government expenditures, infrastructure projects, and other non-financial activities.

Aspect	**Debt**	**Equity**
Ownership	Debt represents a loan or obligation	Equity represents ownership in a company
Return	Interest payments (coupon)	Variable returns through dividends and capital appreciation
Repayment	Debt must be repaid at maturity	No repayment obligation, perpetual ownership

Aspect	Debt	Equity
Risk	Debtholders have priority claim	Equity investors bear higher risk and volatility
Voting Rights	No voting rights for debtholders	Equity shareholders generally have voting rights
Control	No control over company's management	Equity shareholders have control and voting rights
Subordination	Debtholders have priority over equity	Equity holders are subordinated to debt holders in liquidation
Examples	Bonds, Debentures, Money Market Instruments	Stocks, Shares

Secondary or Stock Market

This is the market where existing securities are traded among investors.

Products available in a Secondary Market

Shares

Shares, also known as stocks, are units of ownership in a company. Owning shares in a company entitles the shareholder to a portion of the company's profits, as well as a say in how the company is run through voting rights at shareholder meetings.

When a company wants to raise capital, it can do so by issuing more shares to the public or to institutional investors. These shares can be bought and sold on the stock market, and their value is determined by supply and demand, as well as various other factors such as the company's financial performance and industry trends.

For example, let's say that Company XYZ has issued 100 shares of stock, and you purchase 10 of those shares. You now own 10% of the company, and you are entitled to 10% of the company's profits. If the company's profits increase, your investment in the shares will increase in value, and you may be able to sell your shares for a profit. On the other hand, if the company's profits decrease, the value of your investment in the shares will decrease, and you may end up selling your shares at a loss.

There are two main types of shares - equity shares and preference shares.

1. **Equity Shares**: Equity shares are also known as ordinary shares. They represent ownership in the company and provide shareholders with voting rights and a share in the company's profits. The value of equity shares fluctuates based on the performance of the company and demand and supply in the market. Equity shareholders have the potential to earn higher returns as they are entitled to a share in the company's profits.
2. **Preference Shares**: Preference shares are a type of share that provides fixed dividends to the shareholders before any dividends are paid to equity shareholders. Preference shareholders are given priority over equity shareholders in terms of dividends and repayment of capital in case the company is liquidated. However, they do not have any voting rights, which means they do not have a say in the company's decisions. Preference shares are preferred by investors who seek regular income and are risk-averse as they offer a fixed rate of return.

It's important to note that companies may also issue different classes of shares with varying rights and restrictions, such as non-voting shares or shares with limited voting rights.

Dividend

Dividend is a payment made by a company to its shareholders out of its profits or reserves. It is a way for a company to distribute its profits to its owners, the shareholders.

When a company makes a profit, it can decide to either retain the profit within the company or distribute it among its shareholders in the form of a dividend. Companies usually declare dividends at regular intervals, such as quarterly or annually.

Dividends are usually paid on a per-share basis, so the amount of dividend a shareholder receives is proportional to the number of shares they own. For example, if a company declares a dividend of Rs. 5 per share and a shareholder owns 100 shares, then the shareholder will receive Rs. 500 as dividend.

Debentures

Debentures are a type of long-term debt instrument issued by companies, which are essentially loans that are paid back with interest at a fixed rate. In other words, debentures are a way for companies to borrow money from investors or the public for a long period of time, usually 10-30 years, to finance their operations or expansion plans.

Unlike equity shares, debenture holders do not have any ownership rights in the company. However, they do have a priority claim on the company's assets in case of liquidation, which means that if the company goes bankrupt, the debenture holders will be paid back before the equity shareholders.

Debentures can be secured or unsecured. Secured debentures are backed by some sort of collateral, such as company assets or property, which gives the debenture holders a greater level of security. Unsecured debentures, on the other hand, are not backed by any collateral and are riskier for the investor.

Debentures can also be convertible or non-convertible. Convertible debentures allow the holder to convert their debentures into equity shares of the company at a predetermined rate, giving them the opportunity to participate in the company's growth potential. Non-convertible debentures, as the name suggests, cannot be converted into equity shares.

An example of debentures would be a company that needs to raise a large amount of capital to build a new factory. Instead of taking out a loan from a bank, the company issues debentures to the public. Investors can then buy these debentures, which will provide the company with the necessary funds. The debenture holders will receive interest payments at a fixed rate and will eventually receive their principal back at maturity.

Bonds

Bonds are debt instruments issued by companies, governments, or other organizations to raise capital. When an entity issues a bond, it is essentially borrowing money from investors. In return, the entity agrees to pay the investors interest at a fixed rate, usually annually or semi-annually, until the bond matures. At maturity, the entity repays the principal amount of the bond to the investors.

Some of the common types of bonds include:

1. *Coupon Bonds*: Coupon bonds, also known as **bearer bonds**, are a type of bond that comes with interest coupons attached to them. These bonds are issued by governments, corporations, and other institutions to raise funds for various purposes, such as financing projects or expanding operations.

When you buy a coupon bond, you are essentially lending money to the issuer, who promises to repay the principal amount (the amount you invested) at the bond's maturity date. In addition to the principal repayment, coupon bonds also pay periodic interest payments to bondholders. The interest payments are usually made semi-annually, annually or quarterly and the coupon rate is fixed at the time of issuance.

For example, let's say you bought a coupon bond from XYZ Corporation for Rs. 10,000. The bond has a coupon rate of 5%, which means that you will receive Rs. 500 as interest every year until the bond matures. The bond has a maturity period of 10 years, which means that at the end of 10 years, you will receive the principal amount of Rs. 10,000 along with the final interest payment.

Coupon bonds are tradable securities and can be bought and sold in the secondary market. One important thing to note about coupon bonds is that the coupon rate remains fixed throughout the life of the bond, but the market interest rates may fluctuate. If the market interest rates rise above the bond's coupon rate, the bond may become less attractive to investors, and its market price may decline. On the other hand, if the market interest rates fall below the bond's coupon rate, the bond may become more attractive, and its market price may increase. This relationship between bond prices and market interest rates is known as the bond's price-yield relationship.

2. *Government Bonds*: These are bonds issued by governments to raise funds. They are generally considered to be safe investments because they are backed by the creditworthiness of the government. For example, the Government of India issues bonds such as Sovereign Gold Bonds, Government of India Savings Bonds, etc.
3. *Corporate Bonds*: These are bonds issued by companies to raise funds for their business operations. Corporate bonds generally offer higher interest rates than government bonds but also carry a higher risk of default. For example, Tata Steel issued a 10-year bond with a coupon rate of 8.25% in 2021.
4. *Municipal Bonds*: These are bonds issued by state or local governments to raise funds for public projects such as schools, hospitals, and highways. For example, Municipal Corporation of Greater Mumbai issued municipal bonds worth Rs. 2000 crore in 2021 to fund its infrastructure projects.
5. *Zero Coupon Bonds*: These are bonds that do not pay any interest but are issued at a discount to their face value. The investor earns a return by buying the bond at a discount and receiving the face value at maturity. For example, a zero coupon bond with a face value of Rs. 1,000 may be issued at a discount of Rs. 800. At maturity, the investor receives Rs. 1,000, earning a return of Rs. 200.
6. *Sovereign Gold Bond*: A Sovereign Gold Bond (SGB) is a government security denominated in grams of gold. It offers an alternative to holding physical gold and is aimed at providing investors with the opportunity to invest in gold, without having to worry about the storage and security of physical gold.

    - SGBs are issued by the Reserve Bank of India (RBI) on behalf of the government and are traded on stock exchanges.
    - The bonds have a maturity period of 8 years, with an option to exit after the 5th year.

- The price of the bond is determined based on the average closing price of gold of 999 purity for the previous 3 days, as published by the India Bullion and Jewellers Association Limited.
- SGBs offer investors an interest rate of 2.5% per annum, payable semi-annually on the initial investment amount. They also provide capital gains on redemption of the bond based on the prevailing market value of gold.
- Additionally, investors are allowed to use the bonds as collateral for loans.

For example, let's say that an investor wants to invest in gold but does not want to purchase physical gold due to the storage and security concerns. The investor decides to invest in a Sovereign Gold Bond instead. The investor purchases SGBs worth Rs. 50,000 at a price determined based on the average closing price of gold for the previous 3 days. The investor will receive an interest of 2.5% per annum, which will be paid semi-annually. After 8 years, the investor will receive the maturity amount based on the prevailing market value of gold at that time.

7. *Green Bond*: A green bond is a type of bond that is specifically issued to finance projects with environmental benefits.

The concept of green bonds has gained popularity in recent years due to growing concern about climate change and the need for sustainable development.

Green bonds work like other bonds, in that investors purchase the bond and receive regular interest payments until the bond reaches maturity. At maturity, the investor receives the full principal amount of the bond.

For example, a company may issue a green bond to finance the construction of a wind farm.

8. *Masala Bond:* Masala bonds are rupee-denominated bonds issued in offshore markets. They are named "masala" because the term refers to Indian cuisine and the bonds are denominated in Indian rupees. These bonds are issued by Indian companies to raise funds from foreign investors.

Masala bonds are typically issued in overseas financial centers such as London, Singapore, and Hong Kong, and are available to foreign investors who want to invest in the Indian market.

One of the benefits of masala bonds is that they can help Indian companies diversify their investor base by attracting foreign investment without being subject to exchange rate risk.

For example, let's say that an Indian company, XYZ Ltd., wants to raise funds to finance its expansion plans. It decides to issue masala bonds with a face value of Rs. 100 crore, offering a coupon rate of 7% per annum and a maturity period of 5 years. The bonds are issued in London and are subscribed by foreign investors who are looking to invest in the Indian market. The company receives Rs. 100 crore in funds, which it can use for its expansion plans. The investors receive regular interest payments in Indian rupees, and the principal amount is repaid at maturity. Any change in exchange rate during this period does not put additional burden on the company.

9. *Social Impact Bond:* A social impact bond (SIB), also known as a pay-for-success bond, is a financial instrument designed to encourage private investment in social programs that provide measurable social outcomes.

   In a social impact bond, private investors provide upfront funding to social service providers, such as non-profits or community organizations, to deliver specific social programs. The government agrees to repay investors only if the social program achieves predetermined outcomes.

   For example, let's say that a non-profit organization wants to provide job training to homeless individuals to help them find employment. The non-profit organization needs funding to support the program, but traditional funding sources may not be available. The non-profit organization may turn to a social impact bond to raise the necessary funds.

   Private investors would provide the initial funding to the non-profit organization. The government would then agree to repay the investors their initial investment plus a return, but only if the program meets certain predetermined outcomes, such as a 20% increase in employment for the participants. If the program is successful in meeting the predetermined outcomes, the government will repay the investors. If not, the investors may lose some or all of their investment.

10. *Electoral Bonds:* Electoral bonds are a type of financial instrument that can be purchased by individuals and companies in India to donate funds to political parties.

   The process of purchasing electoral bonds is done through a designated bank during a specific period of time. The donor can purchase the bond in multiples of Rs. 1,000, Rs. 10,000, Rs. 1 lakh, Rs. 10 lakhs, or Rs. 1 crore. The donor's identity remains anonymous, and the political party receiving the donation only knows the value of the bond and not the identity of the donor.

   Political parties (registered under Representation of the People Act 1951 and which has secured atleast 1% votes polled in the last Lok Sabha or State Legislative Assembly Elections) can redeem the electoral bonds at authorized banks and receive the value of the bond in their account. The bonds must be redeemed within 15 days of issuance.

   Electoral bonds are seen as a means of curbing the use of black money in political funding and bringing transparency to the process. However, some critics argue that the anonymity of donors undermines the purpose of transparency and accountability in political funding.

   For example, if a company wants to donate funds to a political party, they can purchase electoral bonds worth Rs. 10 lakhs from a designated bank. The company's identity remains anonymous, and the political party receiving the funds only knows that they have received a bond worth Rs. 10 lakhs. The party can redeem the bond at an authorized bank and receive the value of the bond in their account.

11. *Inflation-Indexed Bonds:* Inflation-indexed bonds (IIBs) are a type of bond where the principal value and interest payments are adjusted to account for changes in inflation. These bonds are designed to help protect investors from the erosion of purchasing power caused by inflation. Unlike traditional fixed-rate bonds, the coupon rate of IIBs is lower because it includes an inflation adjustment component.

    Here's how inflation-indexed bonds work:

    Let's say you purchase an inflation-indexed bond with a face value of ₹10,000 and a fixed interest rate of 2%. Each year, the bond's principal value is adjusted based on the prevailing inflation rate. If the inflation rate for the first year is 3%, the principal value of the bond will be increased by 3% to account for the rise in prices. So, in this case, the principal value after the first year would be ₹10,300. The interest payment for the first year would be 2% of ₹10,300, which is ₹206.

12. *Convertible Bonds:* Convertible bonds are a type of bond that gives the bondholder the option to convert the bond into a predetermined number of the company's common stock shares. It combines the characteristics of both debt and equity instruments.

    Here's how convertible bonds work:

    Imagine a company issues convertible bonds with a face value of ₹10,000 and a conversion ratio of 10:1. This means that each bond can be converted into 10 shares of the company's common stock.

    If the bondholder decides to convert the bond, they can submit the bond and receive 10 shares of the company's common stock in exchange. The conversion can usually be done at any time during the bond's maturity period, as specified in the terms of the bond.

    The benefit of convertible bonds is that they offer the potential for both fixed income through the bond's interest payments and the opportunity to participate in the company's growth if the bond is converted into equity. These bonds typically offer a lower interest rate compared to traditional bonds because of the added benefit of potential equity upside.

    For example, if the company's stock price rises significantly during the bond's maturity period, the bondholder can choose to convert the bond into shares and benefit from the price appreciation. However, if the stock price does not rise significantly, the bondholder can continue to receive regular interest payments until the bond matures.

Concept	Definition	Issued By	Purpose	Return	Voting Rights
Shares	A unit of ownership in a company	Publicly traded companies, Private companies	To raise equity capital for the company	Dividend payments, Capital gains	Voting rights in certain matters.
Bonds	A type of investment where an investor lends money to an entity (e.g. government, corporation) for a fixed period of time.	Governments, Corporations, Municipalities	To raise debt capital for the entity.	Interest payments	No voting rights.
Debentures	A type of bond that is not secured by collateral, and relies solely on the issuer's creditworthiness.	Governments, Corporations, Municipalities	Same as bonds.	Interest payments	No voting rights.

Derivatives

Derivatives are financial instruments that derive their value from an underlying asset or security. The underlying asset can be anything, like a stock, bond, commodity, currency. The value of a derivative is based on the value of its underlying asset, but it is not the same as owning the asset itself.

There are several types of derivatives, including futures, options, swaps, and forwards. Let's take a closer look at each of them:

Futures

Futures are a type of financial instrument that allow individuals or organizations to buy or sell an asset at a predetermined price and time in the future. Futures contracts are legally binding agreements between two parties, where the buyer agrees to purchase a certain quantity of an underlying asset from the seller at a future date, and at a price that is agreed upon today.

Futures are commonly used in financial markets to speculate on the future price movements of assets such as commodities, stocks, and currencies. For example, a farmer may sell a futures contract for their crop harvest to lock in a guaranteed price for their goods. Similarly, an investor may buy a futures contract for a certain stock if they believe that the stock's price will increase in the future.

Futures contracts are standardized and traded on exchanges, such as the National Stock Exchange (NSE) or the Bombay Stock Exchange (BSE) in India. Futures contracts have a specified expiry date, which is when the transaction is completed and the buyer pays the agreed-upon price for the asset.

Futures contracts can be settled in two ways - either by physical delivery or by cash settlement. In physical delivery, the underlying asset is delivered to the buyer at the specified price and time. In cash settlement, the buyer receives a cash payment equal to the difference between the agreed-upon price and the market price of the asset at the time of the contract's expiry.

Futures trading involves a high degree of risk, as price movements can be unpredictable and volatile.

Options

An option is a contract between two parties giving the buyer (holder) the right, but not the obligation, to buy or sell an underlying asset at a specified price (strike price) within a specified time period. The seller (writer) of the option is obligated to sell or buy the asset at the specified price if the buyer chooses to exercise their option.

There are two main types of options: call options and put options. A call option gives the holder the right to buy an underlying asset at the strike price, while a put option gives the holder the right to sell an underlying asset at the strike price.

Let's say you're interested in purchasing shares of a company that are currently trading at Rs. 100 per share, but you're not sure if the price will go up or down in the next few months. You could purchase a call option, giving you the right to buy the shares at a specified price (say, Rs. 110) within a specified time period (say, 3 months). If the price of the shares does go up to Rs. 120 during that time period, you could exercise your option and purchase the shares at the lower strike price of Rs. 110, thereby earning a profit of Rs. 10 per share.

On the other hand, if the price of the shares remains below the strike price of Rs. 110, you could choose not to exercise your option and simply let it expire. In this case, you would lose the premium you paid to purchase the option but would not be obligated to buy the shares at the higher strike price.

Overall, options can be a useful tool for investors looking to hedge against risk or speculate on the future movements of an underlying asset.

Swaps

Swaps are financial contracts between two parties to exchange cash flows at a future date. These cash flows are based on a specific underlying asset or financial instrument, such as interest rates, currencies, or commodities. The two most common types of swaps are interest rate swaps and currency swaps.

Interest rate swaps involve two parties exchanging interest payments. For example, a company that has borrowed money at a variable interest rate may enter into an interest rate swap to exchange the variable rate for a fixed rate. In this case, the company would pay a fixed interest rate to the other party in exchange for receiving the variable interest rate payments.

Currency swaps involve two parties exchanging cash flows denominated in different currencies. For example, a company in India that needs US dollars may enter into a currency swap with a US company that needs Indian rupees. The Indian company would pay the US company a fixed rate of Indian rupees in exchange for receiving a fixed rate of US dollars.

Swaps are often used by companies and financial institutions to manage their risks and hedge against unfavorable market conditions. They can also be used for speculative purposes, such as betting on future interest rates or currency exchange rates.

Forwards

Forwards are a type of financial contract between two parties where they agree to buy or sell an underlying asset at a predetermined price on a specific date in the future. These contracts are traded over-the-counter (OTC) and are customized according to the needs of the two parties involved. In contrast to futures, traders cannot buy or sell forward contracts on the exchange before the delivery date, limiting their flexibility in trading.

Let's say you are a farmer who has grown a crop of wheat and expects to harvest it in six months. You want to ensure that you get a good price for your wheat when you sell it, but you are worried that the price might drop in the next six months. On the other hand, a food processing company wants to ensure that it has a steady supply of wheat for the next six months at a price it can afford.

You and the food processing company could enter into a forward contract where you agree to sell your wheat to the company at a fixed price in six months. This means that you have locked in the price you will receive for your wheat, and the company has locked in the price it will pay.

For example, let's say the current market price for wheat is Rs. 20 per kilogram, and you and the company agree to a forward contract at Rs. 25 per kilogram in six months. If the market price drops to Rs. 18 per kilogram, you will still receive Rs. 25 per kilogram from the company, and if the market price rises to Rs. 30 per kilogram, the company will still pay only Rs. 25 per kilogram to you.

In this way, forward contracts provide certainty to both parties by eliminating the risk of price fluctuations in the future.

Government Securities Market in India

What is a Government Security (G-Sec)?

A Government Security (G-Sec) is a type of investment issued by the Central Government or State Governments in India. G-Secs can be short-term, known as treasury bills, with maturities of less than one year, or long-term, called Government bonds or dated securities, with maturities of one year or more. The Central Government issues both treasury bills and bonds, while State Governments issue bonds, also known as State Development Loans (SDLs). G-Secs are considered very safe as they have practically no risk of default, making them risk-free investments.

Type of Government Security	Description	Features
Treasury Bills (T-bills)	Short-term debt instruments	- Issued in 91 days, 182 days, and 364 days tenors. Don't pay regular interes. Issued at a discount, redeemed at face value
Cash Management Bills (CMBs)	Short-term debt instruments	- Similar to T-bills, but with maturities less than 91 days. Help manage temporary cash flow mismatches
Dated G-Secs/Government Bonds	Long-term government securities	- Have fixed or floating interest rates. Interest paid every six months. Tenor ranges from 5 to 40 years
SDL (State Development Loans)	Long-term state government securities	- Similar to Dated G-Secs, but issued by State Governments. Have fixed or floating interest rates. Tenor varies by state

Government securities (G-Secs) are initially bought through primary market auctions conducted by the Reserve Bank of India (RBI) through the Negotiated Dealing System - Order Matching (NDS-OM). NDS-OM is an electronic platform that facilitates the auction process and allows market participants to submit their bids for G-Secs. In the primary market, interested buyers, including individuals, institutional investors, banks, and financial institutions, participate in auctions by placing bids for the desired quantity and price (yield or coupon rate) of the G-Secs being offered.

Successful bidders are allotted G-Secs based on their bid prices, and the securities are credited to their respective accounts in dematerialized (demat) form. NDS-OM ensures transparency, efficiency, and competitiveness in the auction process, making it easier for investors to participate in government debt auctions.

Subsequently, in the secondary market, G-Secs are traded among investors on stock exchanges such as the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE), as well as over-the-counter (OTC) markets. Most G-Secs are held in demat form, and investors can easily trade them through their demat accounts.

Investment Funds

Investment funds, are a type of investment vehicle where individuals pool their money together to invest in a diversified portfolio of assets, such as stocks, bonds, and other securities. The fund is managed by a professional fund manager, who makes investment decisions based on the investment objective of the fund.

Types of Investment Funds

Mutual fund

A mutual fund is an investment vehicle that pools money from many individual investors to purchase a diversified portfolio of stocks, bonds, or other securities. Essentially, it's like a big basket of investments that many people contribute to, and then a professional fund manager uses that money to invest in a variety of assets.

Here's an example to help illustrate how mutual funds work: Let's say you want to invest in the stock market, but you don't have the time or expertise to research and choose individual stocks. Instead, you could invest in a mutual fund that holds a diversified portfolio of stocks selected by a professional fund manager. By buying shares in the mutual fund, you're essentially buying a piece of that diversified portfolio.

The benefits of investing in a mutual fund include diversification (since the fund holds many different securities), professional management (since the fund is managed by an experienced professional), and accessibility (since mutual funds are widely available to individual investors).

There are many different types of mutual funds, including

- **Equity funds** - which invest primarily in stocks
- **Bond funds** - which invest in fixed-income securities like bonds
- **Hybrid funds** - which invest in both stocks and bonds
- **Index funds** - which track the performance of a specific market index (like the S&P 500)
- **Actively managed funds** - where the fund manager makes decisions on which securities to buy and sell in an attempt to outperform the market.

Investors in a mutual fund typically earn returns through capital appreciation (an increase in the value of the securities held by the fund) or through dividend or interest income generated by the securities in the fund's portfolio.

Hedge Funds

A hedge fund is a type of investment fund that pools money from investors and uses advanced investment strategies to generate high returns. Hedge funds are usually only open to wealthy investors and require a high minimum investment.

Unlike mutual funds, which invest in a variety of assets like stocks, bonds, and commodities, hedge funds can invest in almost anything, including derivatives, real estate, currencies, and even art. Hedge funds are known for their use of complex financial instruments and techniques, such as leverage, short selling, and options trading, to maximize returns.

Hedge funds are also known for their high management fees and performance fees.

Hedge funds are not as tightly regulated as mutual funds, which means they have more freedom to pursue their investment strategies. This can lead to higher returns, but also higher risks.

An example of a hedge fund is the Bridgewater Associates, one of the largest hedge funds in the world, which uses a variety of quantitative and qualitative investment strategies to generate returns for its investors.

Alternative Investment Fund (AIF)

Alternative Investment Fund (AIF) is a type of pooled investment vehicle in India that pools together capital from different investors and invests it in non-traditional assets such as private equity, hedge funds, real estate, and other alternative investments. AIF is regulated by the Securities and Exchange Board of India (SEBI).

AIFs are different from traditional investment funds such as mutual funds, as they are not regulated under the same laws and have fewer restrictions on the types of assets they can invest in. They are designed for high net worth individuals and institutional investors who are looking for higher returns and are willing to take higher risks.

There are three categories of AIFs in India, Category I, Category II, and Category III, each with different investment strategies and requirements:

- **Category I AIFs** invest in start-ups, MSMEs, social ventures, infrastructure, or other areas that the government or regulators consider economically or socially desirable.
- **Category II AIFs** invest in debt or equity securities of companies that are not listed on a stock exchange, or in listed securities that are not frequently traded.
- **Category III AIFs** use complex trading strategies and invest in derivatives, commodities, or other high-risk assets with the aim of generating high returns for investors.

One example of an AIF in India is the KKR India Alternative Credit Opportunities Fund, which is a Category II AIF managed by KKR, a global investment firm. The minimum investment requirement for this fund is INR 1 crore.

Real Estate Investment Trust (REIT)

A real estate investment trust (REIT) is a type of investment vehicle that allows individuals to invest in real estate without actually owning physical property. Instead, REITs own and operate income-generating real estate properties such as shopping malls, apartments, office buildings, hotels, and warehouses.

When you invest in a REIT, you are essentially buying shares of that company, which in turn invests your money in real estate properties. The income generated from these properties, such as rent or lease payments, is then distributed among the shareholders in the form of dividends. REITs are required by law to distribute at least 90% of their taxable income to their shareholders, which makes them an attractive investment option for those seeking a steady stream of income.

In India, REITs were introduced in 2014 and they operate under the regulations of the Securities and Exchange Board of India (SEBI). The first REIT launched in India was Embassy Office Parks REIT, which is a joint venture between Embassy Group and Blackstone Group. The minimum investment requirement for investing in REITs in India is typically Rs. 50,000.

Infrastructure Investment Trusts (InvITs)

Infrastructure Investment Trusts (InvITs) are a type of investment vehicle that invests in infrastructure projects like highways, power transmission lines, and renewable energy assets. They work similar to REITs, but instead of investing in real estate, they invest in infrastructure projects. InvITs are regulated by the Securities and Exchange Board of India (SEBI).

Investors

Investors are individuals or entities who put their money into different investment avenues with the expectation of earning a return on their investment.

Types of Investors

1. *Retail Investors*: These are individuals who invest smaller amounts of money in various investment options, such as mutual funds, stocks, and bonds.
2. *Institutional Investors*: These are large organizations, such as pension funds, insurance companies, and mutual funds that invest on behalf of their clients or members. Institutional investors have a higher level of financial knowledge and can invest in riskier assets like private equity or hedge funds.
3. *Accredited Investors*: These are high-net-worth individuals or entities with more than a certain amount of investable assets or income, as defined by regulatory authorities. Accredited

investors have access to exclusive investment opportunities, such as private equity or venture capital.

4. *Foreign Institutional Investors (FIIs)*: These are institutional investors from other countries who invest in the securities of the domestic market. FIIs can include hedge funds, pension funds, and sovereign wealth funds.
5. *Angel Investors*: These are wealthy individuals who invest their personal funds in startup companies, usually in exchange for an equity stake. Angel investors provide seed capital to startups that have a high potential for growth but are unable to secure funding from traditional sources.
6. *Venture Capitalists*: These are professional investors who invest in early-stage companies with high growth potential. Venture capitalists usually invest larger amounts of money than angel investors and provide more hands-on support to the startup.
7. *Private Equity Investors*: These are investors who provide capital to companies that are not publicly traded, usually in exchange for equity ownership. Private equity investors typically invest in mature companies with a track record of success and aim to improve their operations and profitability.

India's securities market infrastructure

1. Securities and Exchange Board of India (SEBI): SEBI is the primary regulatory authority responsible for overseeing and regulating India's securities market. It formulates rules and regulations, ensures investor protection, and promotes fair and transparent practices in the market.

2. Stock Exchanges: India has several prominent stock exchanges where securities are listed and traded. The two major national stock exchanges are the National Stock Exchange of India (NSE) and the Bombay Stock Exchange (BSE). These exchanges provide a platform for buyers and sellers to trade a wide range of financial instruments, including equities, derivatives, and debt securities.

3. Depositories: The two depositories in India are the National Securities Depository Limited (NSDL) and the Central Depository Services Limited (CDSL). They operate as custodians of securities in electronic (dematerialized) form. Investors hold their securities in demat accounts, which eliminates the need for physical certificates and simplifies the transfer and settlement process.

4. Clearing Corporations: Clearing corporations ensure the smooth settlement of trades executed on stock exchanges. They act as intermediaries between buyers and sellers, guaranteeing the fulfillment of trade obligations. In India, the two major clearing corporations are the National Securities Clearing Corporation Limited (NSCCL) for the NSE and the Indian Clearing Corporation Limited (ICCL) for the BSE.

5. Electronic Trading Platforms: In addition to traditional floor-based trading, electronic trading platforms have become popular in India. The NSE and BSE have introduced their electronic trading platform, where orders are matched electronically, ensuring faster and more efficient execution of trades. Online brokerage platforms like Zerodha and Groww provide seamless access to these electronic trading platforms, enabling investors to place orders and execute trades online.

6. Negotiated Dealing System - Order Matching (NDS-OM): NDS-OM is an electronic platform used for primary market auctions of government securities. It facilitates the auction process and allows market participants to submit bids for G-Secs.

7. Payment and Settlement Systems: Payment and settlement systems ensure the transfer of funds between buyers and sellers after the trade is executed. The Real-Time Gross Settlement (RTGS) and the National Electronic Funds Transfer (NEFT) systems are commonly used for settling funds in India.

Stock Exchange

A stock exchange is a marketplace where stocks and other securities are bought and sold. It provides a platform for companies to raise capital by issuing and selling shares, and for investors to buy and sell these shares.

In India, the two leading stock exchanges are the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE).

Basis of Comparison	BSE	NSE
Brief Introduction	Oldest stock exchange in Asia	Largest stock exchange in India
Founded In	1875	1992
Benchmark Index	Sensex (30 companies)	Nifty 50 (50 companies)
Website	bseindia.com	nseindia.com
Total Listed Companies	Around 7400	Around 1790
Market Capitalization	Around Rs 266 trillion	Around Rs 199 trillion
Global Rank (by market capitalization)	10^{th}	11th
Trading Mechanism	Combination of electronic and traditional trading	Fully electronic trading platform
Liquidity	Comparably lower than NSE	In case of liquidity, NSE is a clear winner, since volume traded in NSE are much higher compared to BSE

Securities and Exchange Board of India

SEBI is an autonomous regulatory body established under the Securities and Exchange Board of India Act, 1992 to protect the interests of investors in securities and promote the development and regulation of the securities market.

Composition

SEBI is governed by a board of directors consisting of nine members, including one chairman, two members from the Union Finance Ministry, one member from the Reserve Bank of India, and five members nominated by the government. Out of these five members, three are full-time members.

Tenure of Chairman

The tenure of the SEBI chairman is three years or until they attain the age of 65 years, whichever is earlier. However, the government can extend the tenure of the chairman by one year at a time, up to a maximum of two years.

Functions

SEBI has a wide range of functions to regulate and promote the securities market. Some of the key functions of SEBI are as follows:

1. **Regulating the securities market:** SEBI is responsible for regulating both primary and secondary securities markets. It can frame rules, regulations, guidelines, and directions for intermediaries and financial institutions operating in securities markets.
2. **Protecting investors' interests**: It ensures that investors get fair treatment, and their rights are not violated.
3. **Promoting transparency:** SEBI promotes operational transparency and disclosure of information to ensure investor protection.
4. **Registration and regulation of intermediaries:** SEBI regulates intermediaries such as stockbrokers, sub-brokers, bankers to the issues, and venture capital funds.
5. **Regulating substantial acquisition of shares and takeovers:** SEBI regulates substantial acquisition of shares and takeovers to prevent market manipulation and ensure transparency.

Appellate Mechanism

Any person aggrieved by an order of SEBI can file an appeal with the Securities Appellate Tribunal (SAT). SAT is a quasi-judicial body that hears appeals against orders passed by SEBI. If a person is not satisfied with the SAT's decision, they can further appeal to the Supreme Court.

Suppose a company issues shares to the public for the first time, and some of the investors complain that they were misled about the company's financial position. SEBI would investigate the matter, and if it finds that the company has violated any securities laws, it can take action against the company and its intermediaries. This action may include imposing fines, issuing warnings, or even suspending the company's trading on the stock exchange. The investors can also appeal to the SAT if they are not satisfied with SEBI's decision.

Various reforms implemented by SEBI

1. Securities Market Code: The Securities Market Code aims to create a single unified code that governs all aspects of the securities market, making it easier for investors and market participants to understand and follow the rules. It was proposed in Budget 2021.

2. Investor Charter: The Investor Charter is a document created by SEBI to educate and inform investors about their rights and responsibilities while participating in the securities market.

3. Circuit Breaker System: The Circuit Breaker System is a mechanism introduced by SEBI to prevent excessive volatility and sudden price swings in the stock market. When certain predetermined thresholds are breached, trading is temporarily halted to allow investors to cool down and reassess their positions. The circuit breaker system helps maintain market stability and reduces the impact of sharp market movements.

4. PAN Card: The PAN (Permanent Account Number) card is a unique identification number issued by the Indian government to individuals and entities involved in financial transactions, including securities trading. A PAN card is mandatory for opening a demat account and participating in the securities market. It helps track financial activities and prevents tax evasion.

5. Investor Protection Fund: The Investor Protection Fund is a reserve fund set up by stock exchanges under SEBI's guidelines. It aims to compensate investors in case of fraud, default, or other unforeseen events that cause financial losses.

6. Insider Trading Regulations: SEBI established stringent regulations against insider trading, prohibiting individuals with access to privileged information from trading in securities based on such information. This ensures a level playing field for all investors.

Previous Years Prelims Questions

1.	With reference to the India economy, what are the advantages of "Inflation-Indexed Bonds (IIBs)"? 1. Government can reduce the coupon rates on its borrowing by way of IIBs. 2. IIBs provide protection to the investors from uncertainty regarding inflation. 3. The interest received as well as capital gains on IIBs are not taxable. Which of the statements given above are correct? (a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3	2022
2.	With reference to the expenditure made by an organisation or a company, which of the following statements is/are correct? 1. Acquiring new technology is capital expenditure. 2. Debt financing is considered capital expenditure, while equity financing is considered revenue expenditure. Select the correct answer using the code given below: (a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2	2022
3.	Convertible Bonds, consider the following statements: 1. As there is an option to exchange the bond for equity, Convertible Bonds pay a lower rate of interest. 2. The option to convert to equity affords the bondholder a degree of indexation to rising consumer prices. Which of the statements given above is/are correct?	2022

	(a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2	
4.	With reference to India, consider the following statements: 1. Retail investors through Demat account can invest in Treasury Bills and Government of India Debt Bonds in the primary market 2. The "Negotiated Dealing System-Ordering Matching" is a government securities trading platform of the Reserve Bank of India. 3. The "Central Depository Services Ltd" is jointly promoted by the Reserve Bank of India and the Bombay Stock Exchange. Which of the statements given above is/are correct? a) 1 only b) 1 and 2 c) 3 only d) 2 and 3	2021
5.	Indian Government Bond yields are influenced by which of the following? 1. Actions of the United States Federal Reserve 2. Actions of the Reserve Bank of India 3. Inflation and short-term interest rates. Select the correct answer using the code given below a) 1 and 2 only b) 2 only c) 3 only d) 1, 2 and 3	2021
6.	With reference to the Indian economy, consider the following statements : (1) Commercial Paper is a short-term unsecured promissory note. (2) Certificate of Deposit is a long-term Instrument issued by RBI to a corporation. (3) 'Call Money' is short-term finance used for interbank transactions. (4) "Zero-Coupon Bonds' are the interest-bearing short-term bonds issued	2020

	by the Scheduled Commercial Banks to corporations. Which of the statements given above is/are correct? (a) 1 and 2 only (b) 4 only (c) 1 and 3 only (d) 2, 3 and 4 only	
7.	In the context of the Indian economy, non-financial debt includes which of the following? (1) Housing loans owed by households (2) Amounts outstanding on credit cards (3) Treasury bills Select the correct answer using the code given below : (a) 1 only (b) 1 and 2 only (c) 3 only (d) 1, 2 and 3	2020
8.	Consider the following statements: (1) The Reserve Bank of India manages and services Government of India Securities but not any State Government Securities. (2) Treasury bills are issued by the Government of India and there are no treasury bills issued by the State Governments. (3) Treasury bills offered are issued at a discount from the par value. Which of the statements given above is/are correct?	2018

	(a) 1 and 2 only (b) 3 Only (c) 2 and 3 only (d) 1, 2 and 3	
9.	What is/are the purpose/purposes of the Government's 'Sovereign Gold Bond Scheme' and 'Gold Monetization Scheme'? (1) To bring the idle gold lying with Indian households into the economy (2) To promote FDI in the gold and jewellery sector (3) To reduce India's dependence on gold imports Select the correct answer using the code given below. (a) 1 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3	2016
10.	What does venture capital mean? (a) A short-term capital provided to industries (b) A long-term start-up capital provided to new entrepreneurs (c) Funds provided to industries at times of incurring losses (d) Funds provided for replacement and renovation of industries	2014

Answers

1.	A	2.	A
3.	C	4.	B
5.	D	6.	C
7.	D	8.	C
9.	C	10.	B

15. Infrastructure

Contents

Chapter 15 Infrastructure

The Indian economy has grown to become the fifth largest globally, and its infrastructure has played a critical role in accelerating this progress. Quality infrastructure is essential for sustaining economic growth and increasing productivity and efficiency. Additionally, infrastructure development has a significant impact on poverty reduction and supports rural and agricultural development.

Physical Infrastructure

Road

The road infrastructure includes the construction, maintenance, and operation of highways, expressways, and other major roads throughout the country. India has the second-largest road network in the world, spanning over 5.5 million kilometers.

Challenges:

1. Lack of adequate funding: Financing for road projects is a major challenge, as the government often struggles to secure the necessary funds for construction and maintenance.
2. Poor road conditions: Many of India's roads are in poor condition, leading to safety concerns and difficulties for vehicles to travel on them.
3. Congestion: Traffic congestion is a major issue on many of India's roads, leading to increased travel time and reduced efficiency for transport of goods and people.

Government reforms/initiatives:

1. Bharatmala Project: This is a government initiative to improve the quality of national highways in India, including the construction of new highways and the improvement of existing ones.
2. Pradhan Mantri Gram Sadak Yojana (PMGSY): This scheme is aimed at improving rural road connectivity in India, by providing funds for the construction and maintenance of rural roads.
3. Toll-Operate-Transfer (TOT) model: The government has introduced this model to monetize the road assets built using public funds. Under this model, the private sector can take over the operation and maintenance of public highways for a period of time, after which they are transferred back to the government.

Examples:

Some examples of major road infrastructure projects in India include:

- The Golden Quadrilateral: This is a network of highways connecting the major cities of Delhi, Mumbai, Chennai, and Kolkata, covering a total distance of 5,846 kilometers.

- The Yamuna Expressway: This is a 165-kilometer-long six-lane expressway that connects Noida to Agra, reducing travel time between the two cities from over four hours to around two hours.
- The Mumbai-Pune Expressway: This is a six-lane expressway connecting Mumbai and Pune, reducing travel time between the two cities from around six hours to around three hours.

Railways

The Indian Railways is one of the largest railway networks in the world, covering around 68,000 kilometers of track and transporting more than 23 million passengers daily. It is a crucial part of India's transportation system, connecting people and goods across the country.

Challenges:

1. Capacity: One of the biggest challenges for the Indian Railways is capacity, as it struggles to keep up with the increasing demand for transportation. Many trains run over capacity, leading to discomfort for passengers.
2. Safety: Another challenge is safety, as the rail network is often prone to accidents, especially during the monsoon season when tracks get flooded, and landslides occur. Additionally, the outdated infrastructure and equipment pose safety risks to passengers.
3. Modernization: The Indian Railways has been slow to modernize, with many of its systems and processes remaining outdated. This makes it difficult to provide quality service to passengers, and also affects the ability to increase capacity.

Government reforms/initiatives:

1. Modernization: The government has launched several initiatives to modernize the Indian Railways, including the introduction of high-speed trains, such as the Vande Bharat Express, and the implementation of new technologies like the Train Collision Avoidance System (TCAS).
2. Safety: To address the safety concerns, the government has initiated several measures, including the elimination of unmanned level crossings, the installation of CCTV cameras in trains and stations, and the introduction of the Emergency Medical Services (EMS) system in trains.
3. Investment: The government has also increased its investment in the Indian Railways, with a focus on upgrading infrastructure, improving passenger amenities, and increasing capacity. For example, the Dedicated Freight Corridor (DFC) project, which aims to increase the speed and volume of freight transportation.

Civil Aviation

The civil aviation sector in India includes airports, airlines, and other related services that are responsible for transporting passengers and goods within the country and internationally.

Challenges:

1. Infrastructure: India faces challenges in terms of infrastructure development, particularly with regards to airport capacity and maintenance.
2. Competition: The aviation industry in India is highly competitive, with both domestic and international airlines vying for market share.

3. Rising fuel costs: As the cost of aviation fuel continues to rise, airlines are facing increasing pressure to keep ticket prices low while still remaining profitable.
4. Regulatory challenges: The aviation industry is heavily regulated, and airlines must comply with a range of safety and security standards.

Government reforms/initiatives:

1. Regional Connectivity Scheme: The Indian government has launched a scheme to improve regional connectivity by subsidizing airlines to operate on underserved routes.
2. UDAN: UDAN, or the Ude Desh Ka Aam Nagrik scheme, is aimed at making air travel affordable and accessible for all Indians. The scheme includes measures such as capping airfares on regional routes and providing financial incentives for airlines to operate on these routes.
3. Privatization of airports: The Indian government has been privatizing airports across the country, with the aim of improving efficiency and service quality.
4. Open skies policy: The Indian government has implemented an open skies policy, which allows foreign airlines to operate more freely in the Indian market. This has led to increased competition and lower ticket prices for consumers.

Ports

Ports play a vital role in the country's economic growth. These are facilities where ships can dock to load and unload cargo. India has a long coastline of over 7,500 kilometers, and the country's ports handle more than 90% of its international trade by volume and 70% by value.

Challenges:

1. Insufficient capacity and outdated technology are some of the significant challenges faced by Indian ports. As a result, they often face congestion, leading to delays in cargo movement.
2. The lack of adequate hinterland connectivity and inadequate last-mile connectivity to ports creates a bottleneck in the overall logistics chain.
3. High turnaround times and the lack of modern facilities, such as container terminals, hinder the efficient handling of cargo at ports.
4. Issues related to land acquisition, environmental clearances, and security concerns pose challenges to the development of new ports and port-led projects.

Government reforms/initiatives:

1. The Sagarmala Program was launched by the government to develop India's ports and maritime sector by improving port infrastructure, connectivity, and logistics to reduce logistics cost and time.
2. The government has also allowed 100% FDI in the port sector to attract investments and develop new ports.
3. The Ministry of Shipping has undertaken several initiatives to promote the use of digital technology in the port sector to enhance efficiency and transparency.

4. The government has also taken steps to improve the ease of doing business in the port sector by reducing the number of documents required for import and export, simplifying customs procedures, and reducing cargo dwell time at ports.

For example, the Jawaharlal Nehru Port Trust (JNPT) in Mumbai is one of the largest container ports in India. It handles more than half of the country's container traffic. The JNPT has undertaken several initiatives to enhance its capacity and efficiency, such as the construction of a new container terminal and the implementation of a Direct Port Delivery system to reduce cargo dwell time.

Inland Water Transport

Inland water transport (IWT) refers to the movement of goods and people via rivers, canals, and other inland waterways. In India, Inland Water Transport plays a crucial role in connecting various regions and promoting trade and commerce.

- India has an extensive network of inland waterways, including five major rivers: the Ganga, Brahmaputra, Godavari, Krishna, and Mahanadi.
- The total length of navigable inland waterways in India is around 20,000 km, which includes rivers, canals, backwaters, and creeks.
- Inland water transport is primarily used for transporting bulk goods such as coal, iron ore, food grains, fertilizers, and petroleum products.

Challenges:

1. Inadequate infrastructure and lack of modernization have been major challenges for the IWT sector in India.
2. The low depth of many waterways and inadequate dredging make it difficult for larger vessels to operate.
3. Limited access to funding and lack of private sector participation have also hampered the growth of the sector.

Government reforms/initiatives:

1. The Jal Marg Vikas Project (JMVP) is a major initiative aimed at developing the National Waterway-1 (NW-1) on the Ganga River, which spans 1,390 km from Haldia in West Bengal to Varanasi in Uttar Pradesh. The project includes the construction of new multi-modal terminals, modernization of existing infrastructure, and dredging of the river to make it navigable for larger vessels.
2. The government has also introduced several policy measures to promote private sector participation in the IWT sector, including the granting of infrastructure status to the sector, allowing for 100% FDI under the automatic route, and providing tax incentives to private players.
3. The National Waterway Act, 2016, which declared 111 waterways as national waterways, is another major initiative aimed at promoting IWT in India.

Electricity

Electricity plays a vital role in powering the nation's homes, industries, and economy. Electricity is generated through various sources such as coal, natural gas, hydro, wind, and solar power plants. The electricity generated is then transmitted and distributed through a network of power lines, transformers, and substations to reach consumers in homes and businesses.

Challenges:

1. Inadequate power supply in many parts of the country, leading to frequent power cuts and load shedding.
2. High transmission and distribution losses due to outdated infrastructure and theft.
3. Uneven distribution of power supply, with rural areas often facing power shortages and poor quality of electricity.
4. Dependence on non-renewable sources of energy such as coal, leading to environmental concerns and carbon emissions.
5. Lack of investment in renewable energy sources such as solar and wind power.

Government reforms/initiatives:

1. The government has launched the "Power for All" initiative with the aim of providing electricity access to all households in the country by 2022.
2. Various schemes have been launched to promote renewable energy such as the National Solar Mission, which aims to achieve 100 GW of solar power capacity by 2022.
3. The government has also introduced measures to improve the efficiency of the power sector such as Ujwal DISCOM Assurance Yojana (UDAY), which aims to improve the financial health of distribution companies (DISCOMs) by reducing their losses and improving operational efficiencies.
4. Smart grid technologies are being implemented to improve the efficiency and reliability of the power system.
5. Initiatives are being taken to promote energy conservation and demand-side management through schemes like the Energy Conservation Building Code (ECBC) and the Perform, Achieve and Trade (PAT) scheme.

Digital Infrastructure

Telecommunications

Telecommunications enables communication over long distances through the use of various technologies like phones, internet, and other wireless communication methods. This industry is crucial to modern society, as it allows people to stay connected and access information from anywhere in the world. In India, the telecommunications sector has seen rapid growth in recent years, with the government taking various initiatives to improve connectivity across the country.

Challenges:

1. High competition: There are several players in the market, leading to intense competition among telecom operators.
2. Infrastructure: Despite the growth in recent years, there is still a need for more infrastructure development to reach remote areas of the country.

3. Digital divide: The digital divide in India is a major challenge, as many people in rural areas still do not have access to basic telecommunications services.

Government reforms/initiatives:

1. National Optical Fiber Network (NOFN): This initiative aims to provide high-speed broadband connectivity to all gram panchayats (village councils) in India.
2. BharatNet: This project aims to connect all villages in India with high-speed broadband.
3. Spectrum auction: The government has held spectrum auctions to allocate radio frequencies to telecom operators, thereby enabling them to provide better services to customers.
4. Digital India: This initiative aims to transform India into a digitally empowered society and knowledge economy by providing universal access to digital services.

Examples:

Some of the major players in the Indian telecommunications market include Reliance Jio, Bharti Airtel, Vodafone Idea, and BSNL. These companies offer a range of services, including mobile, broadband, and enterprise solutions. With the help of government initiatives, the sector has seen rapid growth in recent years, with more and more people gaining access to high-speed internet and other communication services. For example, Reliance Jio disrupted the market by offering free calls and data, leading to a price war among telecom operators and making data more affordable for the average Indian.

Digital Public Infrastructure

Digital public infrastructure refers to a range of digital services, platforms, and tools that are used to provide citizens with access to various government services and information. These include platforms for online payments, e-governance portals, digital identity systems, and more.

Challenges:

1. Lack of access to technology and infrastructure in some parts of the country, particularly in rural areas.
2. Cybersecurity concerns, including the risk of data breaches and identity theft.
3. Limited awareness and understanding of digital services among some citizens, particularly those who are older or less tech-savvy.

Government Reforms/Initiatives:

1. The government's Digital India initiative aims to transform India into a digitally empowered society and knowledge economy. This includes initiatives to improve digital infrastructure and connectivity, promote digital literacy, and develop e-governance systems.
2. The Aadhaar digital identity system, launched in 2009, provides citizens with a unique 12-digit identification number that can be used to access a range of government services and benefits.
3. The Unified Payments Interface (UPI) system, launched in 2016, allows citizens to make instant and secure digital payments from their bank accounts using their mobile phones.
4. The National Knowledge Network (NKN) is a high-speed network that connects academic and research institutions across India, providing them with access to digital resources and tools.

Key Government Initiatives

National Infrastructure Pipeline (NIP)

The National Infrastructure Pipeline (NIP) is a significant initiative by the Indian government aimed at improving the country's overall quality of life and driving economic growth. It focuses on providing world-class infrastructure across the nation to support India's aspiration of becoming a $5 trillion economy by the financial year 2025. The NIP encompasses both economic and social infrastructure projects, and its main objectives are to attract domestic and foreign direct investments and enhance project preparations.

Public-Private Partnership (PPP)

Public-Private Partnership (PPP) is a collaborative arrangement between the government and private sector entities to develop and operate infrastructure projects. In PPPs, the private sector brings in investments, technology, and expertise, while the government provides regulatory support and access to public resources. PPPs are used to address funding constraints, accelerate project implementation, and enhance efficiency in delivering public services.

Benefits of PPP:

1. *Efficient Project Execution*: PPPs leverage the private sector's expertise in project management and execution, leading to faster and more efficient implementation of infrastructure projects.
2. *Risk Sharing*: Risks related to design, construction, and operations are shared between the government and private partners, reducing the burden on public finances.
3. *Innovation and Technology*: Private sector involvement often brings innovative technologies and practices, enhancing the quality and sustainability of infrastructure.
4. *Access to Capital*: PPPs attract private investments, bridging the funding gap and reducing the burden on government budgets.
5. *Quality Service Delivery*: PPPs promote better service delivery as private entities are incentivized to meet performance targets and ensure customer satisfaction.

Types of PPP:

PPP Model	Explanation
BOT (Build-Operate-Transfer)	Private entity designs, builds, and operates the infrastructure for a specific period, after which it transfers ownership to the government. The private partner generates revenue during the concession period. This model is suitable for revenue-generating projects like toll roads and

	bridges.
BOOT (Build-Own-Operate-Transfer)	Similar to BOT, but the private entity owns the infrastructure during the concession period, and the transfer to the government happens later. BOOT is applicable for projects with a long-term revenue stream, such as power plants and water supply systems.
BOLT (Build-Own-Lease-Transfer)	The private entity owns and operates the infrastructure, leasing it to the government for a specified period. Ownership transfers to the government at the end of the lease term. This model is used for projects with a shorter concession period and assured revenue streams.
DBFOT (Design-Build-Finance-Operate-Transfer)	The private partner is responsible for designing, building, financing, and operating the infrastructure for a specific period before transferring it to the government. DBFOT is suitable for projects where the private partner is involved in the complete lifecycle of the project.
BOT Annuity	In this model, the private partner builds and operates the infrastructure and receives annuity payments from the government over the concession period. The ownership transfers to the government at the end of the concession period. BOT Annuity is commonly used in road and highway projects.
Lease Contract Model	The private entity constructs the infrastructure and leases it to the government for an agreed period. The government pays lease rentals to the private partner for the use of the infrastructure. Ownership remains with the private partner during the lease period.
EPC (Engineering, Procurement, and	The private entity is responsible for the engineering, procurement, and construction of the infrastructure. After completion, ownership is transferred to the government, and the private partner is not involved in

Construction) Model	operation and maintenance. EPC is common for one-time capital projects.
HAM (Hybrid Annuity Model)	HAM is a variation of BOT Annuity, where the government and private partner share the project cost in a predetermined ratio. The government pays the private partner in the form of annuities over the concession period. This model is used to reduce the financial burden on the private partner.

Factors to be considered while designing a PPP:

1. *Project Viability and Bankability*: The project's feasibility and financial viability are crucial considerations. A thorough assessment of revenue streams, cost projections, and potential risks is necessary to attract private investment.
2. *Risk Allocation*: Proper allocation of risks between the public and private partners is vital for the success of a PPP. Identifying and mitigating risks related to design, construction, operation, and revenue generation is essential.
3. *Regulatory and Policy Framework*: A stable and supportive regulatory environment is essential for attracting private investors. Clear policies, transparent bidding processes, and a robust legal framework contribute to the success of PPP projects.
4. *Value for Money (VFM)*: The project's VFM analysis compares the cost of delivering the project through PPP with the traditional public procurement method. A thorough VFM assessment ensures that the PPP offers an optimal solution in terms of cost and quality.
5. *Stakeholder Engagement*: Involvement of all relevant stakeholders, including local communities, civil society, and government agencies, are crucial for the smooth implementation and sustainability of PPP projects.

Examples of successful PPP Projects in India

1. *Delhi Metro*: One of the most notable PPP projects in India is the Delhi Metro, which has been a significant success in providing efficient and reliable public transportation in the capital city. The partnership between the Delhi Metro Rail Corporation (DMRC) and private companies has resulted in the development of a modern and extensive metro network.
2. *Indira Gandhi International Airport, Delhi*: The modernization and expansion of the Delhi airport through a PPP model have been a success story. GMR-led consortium partnered with the Airports Authority of India (AAI) to develop the airport into one of the busiest and most well-equipped airports in the country.

3. *Mumbai-Pune Expressway*: The Mumbai-Pune Expressway is India's first six-lane concrete high-speed expressway, connecting Mumbai and Pune. It was developed under the PPP model and has significantly reduced travel time between the two cities.

Criticism of PPP:

1. *Cost Overruns and Delays*: PPP projects are sometimes criticized for cost overruns and delays in implementation. Private partners may face financial difficulties or underestimate project complexities, leading to project delays and increased costs.

2. *Lack of Transparency*: Critics argue that some PPP contracts lack transparency in terms of project details, financial arrangements, and risk-sharing. This opacity can raise concerns about potential conflicts of interest and mismanagement.

3. *Imbalanced Risk Allocation*: In some cases, the risk allocation between the public and private partners is perceived as unfair, putting an undue burden on the government or taxpayers.

4. *Profit Motive vs. Public Interest*: Critics contend that private partners may prioritize profit motives over public interest, leading to higher user fees, reduced service quality, or reluctance to take on unprofitable projects.

5. *Limited Accountability*: PPPs may face challenges in terms of accountability and oversight. The private partner's contractual obligations and performance may be difficult to enforce, especially if there are no proper mechanisms for addressing non-compliance.

6. *Shifting Liability to the Future*: PPPs can involve long-term concession agreements, transferring the responsibility of maintaining and operating the infrastructure to future generations. This may lead to deferred liabilities for the government and result in significant financial burdens for future administrations.

7. *Political and Regulatory Risks*: Changes in government policies, regulations, or political priorities during the project's concession period can create uncertainties and impact the profitability of private partners.

Infrastructure Development of Urban and Rural Areas:

1. *Smart Cities Mission*: The Smart Cities Mission aims to develop 100 cities across India as "smart cities" by integrating technology and infrastructure to enhance urban living. The mission focuses on areas such as efficient urban mobility, improved public services, sustainable energy solutions, and enhanced citizen engagement. It seeks to create vibrant and livable urban spaces with better connectivity and amenities.

2. Rurban Mission: Shyama Prasad Mukherji Rurban Mission focuses on developing rural areas with urban amenities and services while retaining the essence of rural life. The mission aims to create "Rurban" clusters, which are rural areas that have the economic activities and quality of life of urban areas while preserving their rural character. It seeks to bridge the rural-urban divide and promote sustainable and inclusive development.

3. *AMRUT (Atal Mission for Rejuvenation and Urban Transformation)*: AMRUT aims to improve the infrastructure in cities and towns, focusing on areas such as water supply, sewerage, urban transport, and green spaces. The mission emphasizes the provision of basic amenities to urban areas and promotes sustainable urban development.

4. *Pradhan Mantri Awas Yojana (PMAY)*: PMAY is a flagship scheme that aims to provide affordable housing to all by 2022. It focuses on constructing houses for the economically weaker sections, low-income groups, and middle-income groups in both urban and rural areas. The scheme also supports the development of necessary infrastructure and facilities in housing colonies.

5. *Rural Infrastructure Development Fund (RIDF)*: RIDF is a fund created by the National Bank for Agriculture and Rural Development (NABARD) to support rural infrastructure development projects in areas such as irrigation, roads, bridges, and rural electrification.

Previous Years Mains Questions

1.	Do you think India will meet 50 percent of its energy needs from renewable energy by 2030? Justify your answer. How will the shift of subsidies from fossil fuels to renewables help achieve the above objective? Explain.	2022
2.	Why is Public Private Partnership (PPP) required in infrastructural projects? Examine the role of PPP model in the redevelopment of Railway Stations in India.	2022
3.	Explain the meaning of investment in an economy in terms of capital formation. Discuss the factors to be considered while designing a concession agreement between a public entity and a private entity.	2020
4.	Examine the developments of Airports in India through Joint Ventures under the Public-Private Partnership(PPP) model. What are the challenges faced by the authorities in this regard?	2017
5.	What are ‘Smart Cities’? Examine their relevance for urban development in India. Will it increase rural-urban differences? Give arguments for ’Smart Villages’ in the light of PURA and RURBAN Mission.	2016
6.	Explain how private-public partnership agreements, in longer gestation infrastructure projects, can transfer unsuitable liabilities to the future. What arrangements need to be put in place to ensure that successive generations’ capacities are not compromised?	2014
7.	Write a note on India’s green energy corridor to alleviate the problem of conventional energy.	2013
8.	Adoption of the PPP model for infrastructure development of the country has not been free of criticism. Critically discuss the pros and cons of the model.	2013