



Fundamentals of Stock Market

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CONTENTS

Introduction to Derivatives:

Basics of Futures and Options (F&O) contracts; Risk Management in Stock Market: Diversification and asset allocation strategies, Hedging techniques using derivatives



Derivatives

- Derivatives are **financial contracts** that **derive** their **value from an underlying asset**, a **real asset** (gold) or a **financial asset** (interest rate).
- Like- stocks, indices, commodities, currencies, exchange rates, or the rate of interest.
- These financial instruments help you make profits by betting on the future value of the underlying asset.
- Derivatives **don't have** its own **physical existence** but its value depends/derived from the underlying asset
- Derivatives are used by investors for various purposes, including hedging, speculation, and arbitrage



Arbitrage: Practice of taking advantage of price differences of the same asset in different markets to make a profit with minimal risk.

- This occurs when an asset, such as a stock, currency, or commodity, is priced differently in two or more markets or exchanges

Suppose:

Company A's stock is trading at \$100 on the New York Stock Exchange (NYSE) and \$101 on the London Stock Exchange (LSE). An arbitrageur could buy the stock at \$100 on the NYSE and sell it at \$101 on the LSE, making a \$1 profit per share



Classification of Derivatives:

1. **Commodity Derivatives & Financial Derivatives-** In commodity derivatives the underlying asset is a **physical** or real asset like wheat, pulses, rice or even metals gold, silver, etc.
 - Financial derivatives- underlying asset is a financial asset like bonds, equity, debentures, etc
2. **Elementary Derivatives & Complex Derivatives-** Elementary derivatives are the most basic forms of derivatives used in financial markets, generally involving simpler structures and commonly traded assets.
 - They provide essential tools for risk management, hedging, speculation, and price discovery.
 - These derivatives are easier to understand and more accessible to a wide range of market participants, from individual investors to institutions



Complex derivatives are advanced financial instruments that derive their value from underlying assets and involve intricate structures, often combining elements of simpler derivatives like options, swaps, and futures.

- They are generally used by sophisticated investors or institutions for specialized purposes, such as complex risk management, yield enhancement, or speculative strategies.
- Due to their complexity, these derivatives carry higher risks and require a deep understanding of financial markets and models

3. Exchange traded Derivatives & Over The Counter (OTC) Derivatives- Exchange-traded derivatives are standardized, regulated and settled via a clearing house (Stock Index futures, Stock index options, etc.).

- OTC derivatives are customized (specific to the need of the parties), negotiated privately and involve counterparty risk. OTC refers to a transaction conducted directly between two parties, without the supervision of an exchange.



Types of Derivatives

1. **Forward Contracts:** A forward contract is a **private bilateral agreement between two parties to buy & sell a specified asset at a specified price on a specified future date.**
 - These contracts **only trade OTC**
 - When a forward contract is created, the buyer and seller may customize the terms, size, and settlement process.

Features/ Characteristics

1. Customizability

- Forward contracts are tailor-made to fit the specific needs of the buyer and seller regarding the contract size, asset type, and settlement date. This flexibility is valuable in meeting specific requirements.

2. Over-the-Counter (OTC) Nature

- Forward contracts are traded OTC rather than on stock exchanges. This means they are private agreements between two parties, often conducted through banks or brokers without a centralized trading platform.



3. Settlement at Maturity

- Forward contracts are typically settled at the agreed-upon future date. There are no interim settlements or payments. Settlement can be made through physical delivery of the asset or cash settlement, depending on the contract terms. It can be cancelled only with the consent of the both parties.

4. No Upfront Payment

- Generally, no upfront payment is required when entering into a forward contract. However, both parties may need to post collateral, especially if they are dealing with significant counterparty risk.

5. Counterparty Risk

- Since forwards are OTC and not standardized, there's a risk that one party might default on their obligations. This counterparty risk is a key disadvantage compared to standardized contracts traded on exchanges.

6. Lack of Liquidity

- Due to their OTC nature and customization, forward contracts are generally less liquid than standardized derivatives like futures contracts. This makes it harder to exit the contract before maturity unless both parties agree.

**Example:**

Imagine a coffee producer who is concerned about the price of coffee beans falling in the future. To protect against this risk, they enter into a forward contract with a coffee buyer/CCD as on 1/07/24.

Contract Details:

- Asset: Coffee beans
- Quantity: 1,000 kilograms
- Forward Price: Rs. 450 per kg
- Settlement Date: Six months from today 1/01/25

Scenario 1: Price Drop In six months, if the market price of coffee beans has dropped to Rs. 350 per kg, the coffee producer benefits. Even though the market price is lower, the buyer is still obligated to pay Rs. 450 per kg (according to the forward contract), protecting the producer from losses due to falling prices.

Scenario 2: Price Rise Alternatively, if the price of coffee beans rises to Rs. 600 per kg, the buyer benefits. Despite the higher market price, the buyer only pays Rs. 450 per kg, gaining a favorable price.

In both cases, the forward contract provides price certainty, helping both parties manage their respective risks.



2. Futures Contracts: Futures contract, or simply futures, is an bilateral agreement between two parties for the purchase and delivery of an asset at an agreed-upon price at a **future date**.

- Futures are **standardized contracts** that **trade on an exchange**.
- Allow the traders to **lock in the price** of the underlying asset or commodity

Features/ Characteristics

1. Standardization

- Futures contracts are standardized in terms of contract size, settlement date, and asset type. This makes them interchangeable and allows for easier trading on exchanges.

2. Exchange-Traded

- Unlike forward contracts, futures contracts are traded on regulated exchanges (e.g., BSE, NSE, NYSE). Exchanges set the terms, ensure standardization, and act as intermediaries in transactions.



3. Margin Requirements

- All future contracts have margin requirements.
- Margin money is required to be deposited with the stock exchange by both seller & buyer at the time of entering the contract.
- Margin is important to safeguard the interest of the other parties.
- Participants in futures contracts must post an initial margin (collateral) and maintain a minimum margin level, known as the maintenance margin. If the account balance falls below this level, the participant will receive a margin call to restore the balance.

4. Clearinghouse Role

- A clearinghouse acts as a middleman in futures trading. By taking on counterparty risk, it ensures the contract obligations are met even if one party defaults. This reduces counterparty risk significantly compared to forward contracts.

5. High Liquidity

- Futures contracts are highly liquid due to their standardization and the presence of exchanges and clearinghouses. This allows traders to enter or exit positions easily before the contract's expiration date.



6. Settlement Options

- Futures can be settled through physical delivery of the asset (e.g., commodities like oil or wheat) or cash settlement (e.g., financial futures such as stock indices), depending on the contract specifications.

Example:

Suppose an airline company wants to hedge against a potential increase in fuel prices and enters into a futures as on 1/07/24, which would raise its operational costs.

Contract Details:

- Asset: Crude oil
- Contract Size: 1,000 barrels
- Futures Price: Rs. 7000 per barrel
- Settlement Date: Six months from today 1/01/25

Scenario 1: Price Increase

If, in 6 months, the market price of crude oil rises to Rs.8000 per barrel, the airline benefits from the futures contract. Even though the market price is higher, the contract obligates the seller to provide oil at Rs.7000 per barrel. This saves the airline Rs.1000 per barrel compared to the current market price.



Scenario 2: Price Decrease

If the price drops to Rs.6000 per barrel, the airline still has to pay Rs.7000 per barrel under the futures contract. While it could have benefited from the lower price, the futures contract fixed their cost, providing cost certainty.

In both scenarios, the futures contract allowed the airline to manage its exposure to fluctuating fuel prices, highlighting its value as a risk management tool.

3. Option: An agreement between two parties to buy or sell an asset at a predetermined future date for a specific price

- But with an **Option**, the buyer/holder is not obliged to exercise their agreement to buy or sell
- It is an opportunity only, not an obligation, as futures contracts
- **Options** contract gives a **right** (to buy) to the **buyer/holder** but no obligation.
- Traded both OTC and on exchanges, premium paid by option buyers, high flexibility



- The **seller** has the obligation but **no right**.
- In case of Options, the buyers/holder and sellers are **not equal**.
- Buyer has a privilege position.
- Buyer has a right but no obligation, he pays a price called **Options Premium** to the seller as a compensation for the obligations he undertakes.
- Specified price also called **Strike price**/exercise price

Types of Options

Call Options- a call option gives the holder/buyer the **right to buy, a specific asset at a specific price on or before a specified future date**

- **No obligation, to buy** the underlying asset at the strike price on or before expiration.
- A call option will therefore become more valuable when the **assets' stock price is greater than the Strike price**/exercise price

**Example:**

If current SBI share is Rs. 119. Mr. A expects that the shares will increase so buys a call option of SBI shares at the strike price of Rs. 120. The expiration date is after 1 month. Further, assume that the option can be exercised only on the expiry date and not before. Now, if on the expiry date the SBI shares is more, Rs. 125, then Mr. A will exercise the call option. He will buy the share by exercising his call option at Rs. 120. He can sell it at Rs. 125 and make a spot gain of Rs. 5.

If, SBI shares dropped to Rs. 115 on the expiry date, then Mr. A will not exercise the option. His loss in this case will be the amount of the Option Premium that he must have paid at the time of buying the call option.



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Put Options- a put gives the holder the **right to sell a specific asset at a specific price on or before a specified future date**

- **No obligation, to sell** the stock at the strike price on or before expiration
- A put option will be exercised when the **assets' stock price is lower than the Strike price**/exercise price

Example:

Imagine an investor, Mr. A, owns shares in Company ABC, currently trading at Rs 50 per share. Mr. A is worried that the stock price might drop, so they decide to buy a put option to protect against potential losses.

Option Details:

- Type of Option: Put
- Strike Price: Rs. 45
- Premium: Rs 2 per share
- Contract Size: 100 shares (typical for options contracts)



Scenario 1: Stock Price Falls

If the stock price drops to Rs 40 before the option expires, Mr. A can exercise the put option and sell the shares at the higher strike price of Rs 45. Here's how the profit works out:

- Profit per share = Strike Price - Market Price - Premium
- Profit per share = Rs 45 - Rs 40 - Rs 2 = Rs 3 per share
- For 100 shares, the total profit = Rs 3 \times 100 = Rs 300

This allows Mr. A to offset the loss from the stock price drop by selling the shares at a higher price than the current market.

Scenario 2: Stock Price Rises

If the stock price rises to Rs 55, Mr. A would let the option expire without exercising it, as selling at Rs 45 would be unnecessary when the market price is higher. In this case, the maximum loss is limited to the premium paid for the put option:

- Loss = Premium \times Contract Size = Rs 2 \times 100 = Rs. 200



Difference between Futures & Forwards

1. Trading Venue

- **Futures:** Traded on organized exchanges (e.g., BSE, NSE, NYSE). This makes them standardized and regulated, providing more transparency.
- **Forwards:** Traded over-the-counter (OTC), meaning they're private agreements between two parties, often facilitated by a broker or bank.

2. Standardization

- **Futures:** Highly standardized with set contract sizes, expiration dates, and asset specifications, making them easy to trade.
- **Forwards:** Customized contracts tailored to meet the specific needs of the parties involved. Terms can vary in contract size, expiration date, and other conditions.

3. Settlement and Expiration

- **Futures:** Settled daily through a process called mark-to-market, where gains or losses are credited or debited at the end of each trading day. Final settlement may be through cash or physical delivery.
- **Forwards:** Settled only at the contract's expiration. There's no daily settlement, so the actual payment or delivery happens at the end of the contract



4. Counterparty Risk

- **Futures:** Involve low counterparty risk because exchanges and clearinghouses guarantee the contracts. If one party defaults, the clearinghouse steps in.
- **Forwards:** Higher counterparty risk since they're private contracts without a central clearinghouse. If one party defaults, the other party may incur losses.

5. Liquidity

- **Futures:** Generally more liquid due to their standardization and the presence of multiple buyers and sellers on exchanges.
- **Forwards:** Typically less liquid, as they are customized contracts and not traded on exchanges, making them harder to transfer to another party.

6. Purpose and Use

- **Futures:** Commonly used by speculators and hedgers. Because of their liquidity and daily settlement, they're suitable for short-term trading and hedging strategies.
- **Forwards:** Primarily used by businesses and individuals looking to hedge specific risks with a tailor-made solution, particularly in foreign exchange and commodities markets.



Difference between Futures & Options

1. Obligation vs. Right

- **Futures:** Both parties (the buyer and the seller) are obligated to execute the contract at the specified price and date. The buyer must purchase, and the seller must sell the underlying asset upon expiration.
- **Options:** The buyer of an option has the right, but not the obligation, to buy (call option) or sell (put option) the underlying asset at a specified price before or on the expiration date. The option holder can choose whether to exercise the contract.

2. Risk and Potential Loss

- **Futures:** Both parties have potentially unlimited risk because futures obligate both the buyer and the seller to fulfill the contract, which means they are fully exposed to the asset's price movements.
- **Options:** The risk for the option buyer (holder) is limited to the premium paid for the option, as they are not obligated to exercise the option if it is unprofitable. However, sellers (writers) of options can face substantial risk if the market moves unfavorably.

3. Cost Structure (Premiums)

- **Futures:** No upfront cost is paid to enter a futures contract (other than initial margin requirements). Gains and losses are marked to market daily based on price changes.
- **Options:** Buyers must pay an upfront premium to acquire the option. If the option is exercised, they still must pay the strike price, but the premium cost is a non-refundable expense.



4. Exercise and Expiration

- Futures: Futures contracts are automatically exercised at expiration. Both parties must settle the contract either by delivering the asset or through cash settlement.
- Options: The holder of an option contract can choose whether or not to exercise it. If the option is out-of-the-money (unprofitable), it simply expires worthless, and the holder loses only the premium paid.



Risk Management in Stock Market

Risk management in the stock market involves **strategies to minimize potential losses and protect investments while aiming for returns**

Key Strategies:

1. Diversification

- **Purpose:** Reduces the impact of a poor-performing stock or sector.
- **How:** Spread investments across different sectors, asset classes (stocks, bonds, commodities).
- **Example:** If technology stocks decline, holdings in consumer goods or utilities may stabilize the portfolio.

2. Position Sizing

- **Purpose:** Limits the amount invested in any single asset to avoid large losses.
- **How:** Decide in advance the percentage of capital to allocate to each stock or asset class.
- **Example:** Limiting each stock investment to 5% of total capital prevents one stock from heavily impacting the portfolio.



3. Hedging

- **Purpose:** Reduces risk exposure using financial instruments like options, futures.
- **How:** For example, buying put options allows investors to sell a stock at a set price, minimizing potential losses.
- **Example:** If the market outlook is bearish, hedging with put options on a stock can offset some losses.

4. Regular Portfolio Review and Rebalancing

- **Purpose:** Adjusts the portfolio to align with risk tolerance and market conditions.
- **How:** Review asset performance regularly, selling over performing assets and buying undervalued ones to maintain desired allocation.
- **Example:** If stocks outperform bonds significantly, rebalance by selling some stocks to buy bonds and restore the preferred stock-bond ratio.

5. Risk-Reward Ratio Assessment

- **Purpose:** Helps to determine whether potential returns justify the risk involved.
- **How:** For each investment, calculate the risk-reward ratio by comparing potential gains to possible losses.
- **Example:** If a stock has a risk-reward ratio of 1:3, it means for every Rs. 1 risked, there is a potential Rs. 3 gain, which may be attractive.



6. Market Research and Analysis

- **Purpose:** Informed investment decisions minimize risks related to market trends, economic indicators, or company fundamentals.
- **How:** Use technical analysis (price movements) and fundamental analysis (company's financial health) to time and select stocks wisely.
- **Example:** Avoid stocks with declining revenue or high debt, as they may carry a higher risk of loss.

7. Psychological Preparedness and Discipline

- **Purpose:** Helps investors avoid emotional decisions during volatile markets.
- **How:** Set clear rules and avoid making impulsive trades based on short-term price fluctuations.
- **Example:** Investors with a long-term outlook may stick to their strategy even if short-term losses occur, avoiding panic selling.



Diversification and Asset Allocation Strategies

Diversification and asset allocation are two of the most important strategies for managing investment risk while optimizing potential returns

Some practical strategies:

1. Diversification

- **Purpose:** Reduces the risk of loss by spreading investments across a variety of assets, sectors, or geographic areas, so that the poor performance of one asset doesn't disproportionately affect the portfolio.
- **Key Elements:**
 - **Asset Classes:** Allocate investments among stocks, bonds, real estate, and commodities to capture different risk-return profiles.
 - **Industries and Sectors:** Invest in diverse industries (e.g., technology, healthcare, consumer goods) to protect against sector-specific downturns.
 - **Geographic Diversity:** Investing in domestic and international markets helps reduce risks associated with political or economic conditions in any single country.



- **Common Diversification Strategies:**
 - **Equity Diversification:** Own stocks across various industries and market capitalizations (large-cap, mid-cap, small-cap).
 - **Fixed-Income Diversification:** Mix corporate bonds, government bonds, and other debt instruments with different credit qualities and maturities.
 - **Alternative Assets:** Include commodities, real estate, or private equity to further balance the portfolio against stock and bond volatility.

2. Asset Allocation

- **Purpose:** Allocates investment capital among different asset classes to reflect the investor's goals, risk tolerance, and time horizon.
- **Types of Asset Allocation:**
 - **Strategic Asset Allocation:** Sets long-term asset class targets based on risk tolerance. Rebalancing is done periodically to maintain these targets.
 - **Tactical Asset Allocation:** Allows flexibility to temporarily deviate from long-term targets to take advantage of market opportunities.



- **Dynamic Asset Allocation:** Adjusts allocations continuously based on market conditions, often used by active managers.
- **Common Asset Allocation Models:**
 - **Aggressive Allocation:** Heavy in stocks (70-90%) and suitable for younger investors with higher risk tolerance and long time horizons.
 - **Moderate Allocation:** Balanced mix of stocks (50-60%) and bonds, suitable for investors with moderate risk tolerance and a medium-term horizon.
 - **Conservative Allocation:** Higher allocation to bonds and cash (70-80%) with limited equity exposure, ideal for risk-averse investors or those nearing retirement.

3. Blending Diversification and Asset Allocation

- **Equities:** Diversify across market caps (small, mid, large) and styles (growth, value).
- **Bonds:** Include a mix of government, corporate, and municipal bonds across various credit qualities and durations.
- **International Exposure:** Add international equities and bonds to capture global growth and reduce domestic risk concentration.
- **Real Assets:** Include real estate, commodities, or add tangible assets that tend to perform differently from stocks and bonds.



4. Adjusting for Life Stage and Goals

- **Young Investors:** Higher allocation to equities and alternative assets (e.g., emerging markets) to capitalize on growth potential.
- **Mid-Career Investors:** A balanced allocation with a blend of stocks, bonds, and perhaps real assets for stability and growth.
- **Near or In Retirement:** Focus on income-generating and lower-risk assets, like bonds and dividend stocks, to preserve wealth.

5. Rebalancing

- **Purpose:** Brings the portfolio back in line with the original allocation after market fluctuations.
- **How Often:** Periodically (e.g., annually) or when the allocation shifts by a set percentage, like 5-10% from the target.



Hedging Techniques using Derivatives

Hedging with derivatives is a strategic approach used to reduce risk by using financial instruments.

The most common derivatives for hedging are options, futures, forwards

1. Using Options for Hedging

- **Purpose:** Options provide the right (but not the obligation) to buy or sell an asset at a specified price within a set timeframe, making them flexible hedging tools.
- **Types of Options for Hedging:**
 - **Put Options:** Provides the right to sell an asset at a predetermined price (strike price). This is useful for hedging against potential losses in a long (owned) position.
 - **Call Options:** Provides the right to buy an asset at a predetermined price. This is often used to hedge short (sold) positions or to lock in a buying price.



- **Examples:**
 - **Protective Put:** An investor holding shares in a stock might purchase a put option for those shares. If the stock price falls, the investor can exercise the put option to sell at the strike price, limiting potential losses.

2. Using Futures Contracts for Hedging

- **Purpose:** Futures are standardized contracts obligating the buyer or seller to purchase or sell an asset at a predetermined price on a specific future date. They are often used to hedge commodities, currencies, and stock indices.
- **Examples:**
 - A farmer can sell futures contracts for their crop in advance to lock in a price, thus protecting against a future drop in commodity prices.



3. Using Forward Contracts for Hedging

- **Purpose:** Forward contracts are similar to futures but are private, customizable agreements between two parties. They are often used for hedging interest rates, currencies, and commodities.

Examples:

- **Commodity Hedge:** A manufacturer needing a commodity for production can use forwards to lock in future purchase prices and avoid cost fluctuations.