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**financialDerivatives**

**What are Derivatives?**

Derivatives are financial contracts whose value is linked to the value of an underlying [asset](https://corporatefinanceinstitute.com/resources/accounting/types-of-assets/). They are complex financial instruments that are used for various purposes, including speculation, [hedging](https://corporatefinanceinstitute.com/resources/derivatives/hedging-arrangement/) and getting access to additional assets or markets.

**Key Highlights**

* Derivatives are powerful financial contracts whose value is linked to the value or performance of an underlying asset or instrument and take the form of simple and more complicated versions of options, futures, forwards and swaps.
* Users of derivatives include hedgers, arbitrageurs, speculators and margin traders.
* Derivatives are traded over-the-counter bilaterally between two counterparties but are also traded on exchanges.

**Types of Derivatives**

Derivative contracts can broken down into the following four types:

**Options**

Options are financial derivative contracts that give the buyer the right, but not the obligation, to buy or sell an underlying asset at a specific price (referred to as the [strike price](https://corporatefinanceinstitute.com/resources/derivatives/strike-price/)) during a specific period of time. American options can be exercised at any time before the expiry of its option period. On the other hand, European options can only be exercised on its expiration date.

**Futures**

[Futures contracts](https://corporatefinanceinstitute.com/resources/derivatives/futures-contract/) are standardized contracts that allow the holder of the contract to buy or sell the respective underlying asset at an agreed price on a specific date. The parties involved in a futures contract not only possess the right but also are under the obligation to carry out the contract as agreed.

Futures contracts are traded on the [exchange market](https://corporatefinanceinstitute.com/resources/equities/stock-exchange/) and as such, they tend to be highly liquid, intermediated and regulated by the exchange.

Because of the highly standardized nature of futures contracts, it is easy for buyers and sellers to unwind or close out their exposure before the [expiration of the contract](https://corporatefinanceinstitute.com/resources/derivatives/expiration-date-derivatives/).

**Forwards**

Forwards contracts are similar to futures contracts in the sense that the holder of the contract possesses not only the right but is also under the obligation to carry out the contract as agreed. However, forwards contracts are [over-the-counter products](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/over-the-counter-otc/), which means they are not regulated and are not bound by specific trading rules and regulations.

Since such contracts are unstandardized, they are customizable to suit the requirements of both parties involved. Given the bespoke nature of forward contracts, they tend to be generally held until the expiry and delivered into, rather than be unwound.

**Swaps**

Swaps are derivative contracts that involve two holders, or parties to the contract, to exchange financial obligations. [Interest rate swaps](https://corporatefinanceinstitute.com/resources/derivatives/interest-rate-swap/) are the most common swaps contracts entered into by investors. Swaps are not traded on the exchange market. They are traded over the counter, because of the need for swaps contracts to be customizable to suit the needs and requirements of both parties involved.

As the market’s needs have developed, more types of swaps have appeared, such as credit default swaps, inflation swaps and total return swaps.

**Vanilla versus Exotic Derivatives**

In capital markets, we most often hear derivatives described as either being “plain vanilla” (or just simply vanilla) and “exotics”.

[Vanilla](https://corporatefinanceinstitute.com/resources/derivatives/vanilla-option/) derivatives tend to be simpler, with no special or unique characteristics and are generally based upon the performance of one underlying asset.

[Exotics](https://corporatefinanceinstitute.com/resources/derivatives/exotic-options/), on the other hand, tend to have more complex payout structures and may combine several options or may be based upon the performance of two or more underlying assets.

**The Derivatives Market**

Most derivatives are traded over-the-counter (OTC) on a bilateral basis between two counterparties, such as banks, asset managers, corporations and governments. These professional traders have signed documents in place with one another to ensure that everyone is in agreement on standard terms and conditions.

However, some of the contracts, including options and futures, are traded on specialized exchanges. The biggest derivative exchanges include the CME Group (Chicago Mercantile Exchange and Chicago Board of Trade), the [National Stock Exchange of India](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/national-stock-exchange-of-india-limited-nse/), and [Eurex](https://corporatefinanceinstitute.com/resources/derivatives/eurex-exchange/).

Derivatives can be bought and sold on almost any capital market asset class, such as equities, fixed income, commodities, foreign exchange and even cryptocurrencies.

**Derivatives market history**

Derivatives are not new financial instruments. For example, the emergence of the first futures contracts can be traced back to the second millennium BC in Mesopotamia. However, the financial instrument was not widely used until the 1970s. The introduction of new valuation techniques sparked the rapid development of the derivatives market. Nowadays, we cannot imagine modern finance without derivatives.

Derivatives are very powerful and complex financial instruments and as such, have been at the heart of various financial crises throughout history, the most recent being the Global Financial Crisis of 2008, where derivatives linked to the U.S. housing market and credit instruments caused the failure of venerable firms Lehman Brothers, Bear Stearns and forced sale of Merrill-Lynch.

**Participants in the derivatives market**

The participants in the derivatives market can be broadly categorized into the following four groups:

**Hedgers:**Hedgers use financial markets instruments, such as derivatives, to reduce their existing risk or future exposure. An example might be a farmer who sells cattle futures now in order to reduce price uncertainty when her herd is finally ready to be sold. Another example might be a bond issuer that uses interest rate swaps to convert their future bond interest obligation to better match their expected future cashflows.

A derivative is a very popular hedging instrument since its performance is derived, or linked, to the performance of the underlying asset.

**Speculators:**[Speculation](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/speculation/) is a common, but risky, market activity for financial market participants of a financial market take part in. Speculators take an educated gamble by either buying or selling an asset in the expectation of short-term gains. It is risky because the trade can move against the speculator just as quickly, resulting in potentially significant losses.

Since using derivatives, especially options, is an inexpensive and highly liquid way to gain exposure to an asset without necessarily owning that asset, derivatives are a very important part of the arsenal for financial market speculators. As an example, a speculator can buy an option on the S&P 500 that replicates the performance of the index without having to come up with the cash to buy each and every stock in the entire basket. If that trade works in the speculators favor in the short term, she can quickly and easily close her position to realize a profit by selling that option since S&P 500 options are very frequently traded.

**Arbitrageurs:**Arbitrage is a very common activity in financial markets that comes into effect by taking advantage of mispricings in assets, resulting in risk-free profits. For example, let’s consider a situation where gold futures trade much higher than the spot price of gold. An arbitrageur may sell the gold future, purchase the gold now at spot, store it and deliver it into the futures contract to essentially lock-in riskless profit.

Arbitrageurs are therefore, an important part of the derivative markets as they ensure that the [relationships between certain assets](https://corporatefinanceinstitute.com/resources/economics/law-of-one-price-loop/) are kept in check.

**Margin traders:**In finance terms, [margin](https://corporatefinanceinstitute.com/resources/wealth-management/margin/) is the collateral deposited by an investor with their broker or the exchange in order to borrow money to leverage their investment power. By employing [leverage](https://corporatefinanceinstitute.com/resources/accounting/leverage/), a trader is able magnify gains but also may suffer larger losses.

Derivatives are often used by margin traders, especially in foreign exchange trading, since it would be incredibly capital-intensive to fund purchases and sales of the actual currencies. Another example would be cryptocurrencies, where the sky-high price of [Bitcoin](https://corporatefinanceinstitute.com/resources/cryptocurrency/bitcoin/) makes it very expensive to buy. Margin traders would use the leverage provided by Bitcoin futures in order to not tie up their trading capital and also amplify potential returns.

**What are Exchange-Traded Derivatives?**

Exchange-traded derivatives (ETD) consist mostly of options and futures traded on public exchanges, with a standardized contract. Through the contracts, the exchange determines an [expiration date](https://corporatefinanceinstitute.com/resources/derivatives/expiration-date-derivatives/), settlement process, and lot size, and specifically states the underlying instruments on which the derivatives can be created.

Hence, exchange-traded derivatives promote transparency and liquidity by providing market-based pricing information. In contrast, over-the-counter derivatives are traded privately and are tailored to meet the needs of each party, making them less transparent and much more difficult to unwind.

Only members of the exchange are allowed to transact on the exchange and only after they pass the exchange’s requirements to be a member. These may include financial assessments of the member, regulatory compliance and other requirements designed to protect the integrity of the exchange and the other members, as well as to ensure the stability of the market.

**Types of exchange-traded derivatives**

**Stock or equity derivatives:**Common stock is the most commonly traded [asset class](https://corporatefinanceinstitute.com/resources/wealth-management/asset-class/) used in exchange-traded derivatives.

As exchange-traded derivatives tend to be standardized, not only does that improve the liquidity of the contract, but also means that there are many different expiries and strike prices to choose from.

Global stock derivatives are also seen to be a leading indicator of future trends of common stock values.

**Index derivatives:**Not only are you able to transact derivatives in single-name stocks, but you can also trade derivatives tied to the performance of a stock index or basket of stocks.

Index-related derivatives are sold to investors that would like to buy or sell an entire exchange instead of simply futures of a particular stock. Physical delivery of the index is impossible because there is no such thing as one unit of the S&P or TSX.

**Currency derivatives:**Exchange-traded derivatives markets list a common currency pairs for trading. Futures contracts or options are available for the pairs, and investors can choose to go long or short.

Interestingly, currency derivatives also allow for investors to access certain FX markets that may be closed to outsiders or where forward FX trading is banned. These derivatives, called [non-deliverable forwards](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/non-deliverable-forward-ndf/) (NDF), are traded offshore and settle in a freely-traded currency, mostly USD. However, NDFs tend to trade OTC rather than on an exchange.

**Commodities derivatives:**Derivatives trading in commodities includes futures and options that are linked to physical assets or commodities. Most commonly, we see trading in oil and gas futures, agricultural and metals.

These are very important not only for the producers of commodities, such as oil companies, farmers and miners, but also a way that [downstream](https://corporatefinanceinstitute.com/resources/valuation/downstream-operations/) industries that rely on the supply of these commodities hedge their costs.

Recently, we have even seen the market develop for cryptocurrency futures on leading tokens such as Bitcoin and [Ethereum](https://corporatefinanceinstitute.com/resources/cryptocurrency/ethereum/).

**Interest rate derivatives:**Another family of commonly traded ETDs are those related to fixed income products, such as government bond futures. These bond futures give fixed income traders an efficient and effective way to manage their [interest risk exposure](https://corporatefinanceinstitute.com/resources/career-map/sell-side/risk-management/interest-rate-risk/).

While many interest rate derivatives are always available on exchanges, after the [Wall Street Reform and Consumer Protection Act of 2010](https://corporatefinanceinstitute.com/resources/economics/dodd-frank-act/) (also known as the “Dodd-Frank Act”) was passed after the Global Financial Crisis, we have seen more and more OTC derivatives move onto exchanges, such as [credit default swaps](https://corporatefinanceinstitute.com/resources/derivatives/credit-default-swap-cds/) (CDS).

**Clearing and settlement of exchange-traded derivatives**

While an OTC derivative is cleared and settled bilaterally between the two counterparties, ETDs are not. While both buyer and seller of the contract agree to trade terms with the exchange, the actual clearing and [settlement](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/settlement-date/) is done by a clearinghouse.

[Clearing houses](https://corporatefinanceinstitute.com/resources/valuation/clearing-house/) will handle the technical clearing and settlement tasks required to execute trades. All derivative exchanges have their own clearing houses and all members of the exchange who complete a transaction on that exchange are required to use the clearing house to settle at the end of the trading session. Clearing houses are also heavily regulated to help maintain financial market stability.

Clearing houses ensure a smooth and efficient way to clear and settle cash and derivative trades. For derivatives, these clearing houses require an [initial margin](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/initial-margin/) in order to settle through a clearing house. Moreover, in order to hold the derivative position open, clearing houses will require the derivative trader to post [maintenance margins](https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/maintenance-margin/) to avoid a margin call.

If the trader cannot post the cash or collateral to make up the margin shortfall, the clearing house may liquidate sufficient securities or unwind the derivative position to bring the account back into good standing.

The clearing house then, is effectively the counterparty for the transaction that faces the trader and not the other party as would be the case in an OTC transaction. By stepping in between the buyer and seller of a derivative contract, the clearing house guarantees that trades will be successfully completed and more importantly, that traders who are on the losing end of a derivative transaction have the ability to pay their obligation. This reduces much of the counterparty credit risk present in an OTC derivative transaction.

**Benefits of exchange-traded derivatives**

**Highly liquid.**Exchange-traded derivatives have standardized contracts with a transparent price, which enables them to be bought and sold easily. Investors can take advantage of the liquidity by offsetting their contracts when needed. They can do so by selling the current position out in the market or buying another position in the opposite direction.

The offsetting transactions can be performed in a matter of seconds without needing any negotiations, making exchange-traded derivatives instruments significantly more liquid.

High liquidity also makes it easier for investors to find other parties to sell to or make bets against. Since more investors are active at the same time, transactions can be completed in a way that minimizes value loss.

**Intermediation reduces the risk of default.**Exchange-traded derivatives are also beneficial because they prevent both transacting parties from dealing with each other through intermediation. Both parties in a transaction will report to the exchange; therefore, neither party faces a counterparty risk.

The intermediate party, the clearinghouse, will act as an intermediary and assume the financial risk of their clients. By doing so, it effectively reduces counterparty credit risk for transacting parties.

**Regulated exchange platform.**The exchange is considered to be safer because it is subject to a lot of regulation. The exchange also publishes information about all major trades in a day. Therefore, it does a good job of preventing the few big participants from taking advantage of the market in their favor.

**Disadvantage of exchange-traded derivatives**

**Loss of flexibility.**The standardized contracts of exchange-traded derivatives cannot be tailored and therefore make the market less flexible. There is no negotiation involved, and much of the derivative contract’s terms have been already predefined.