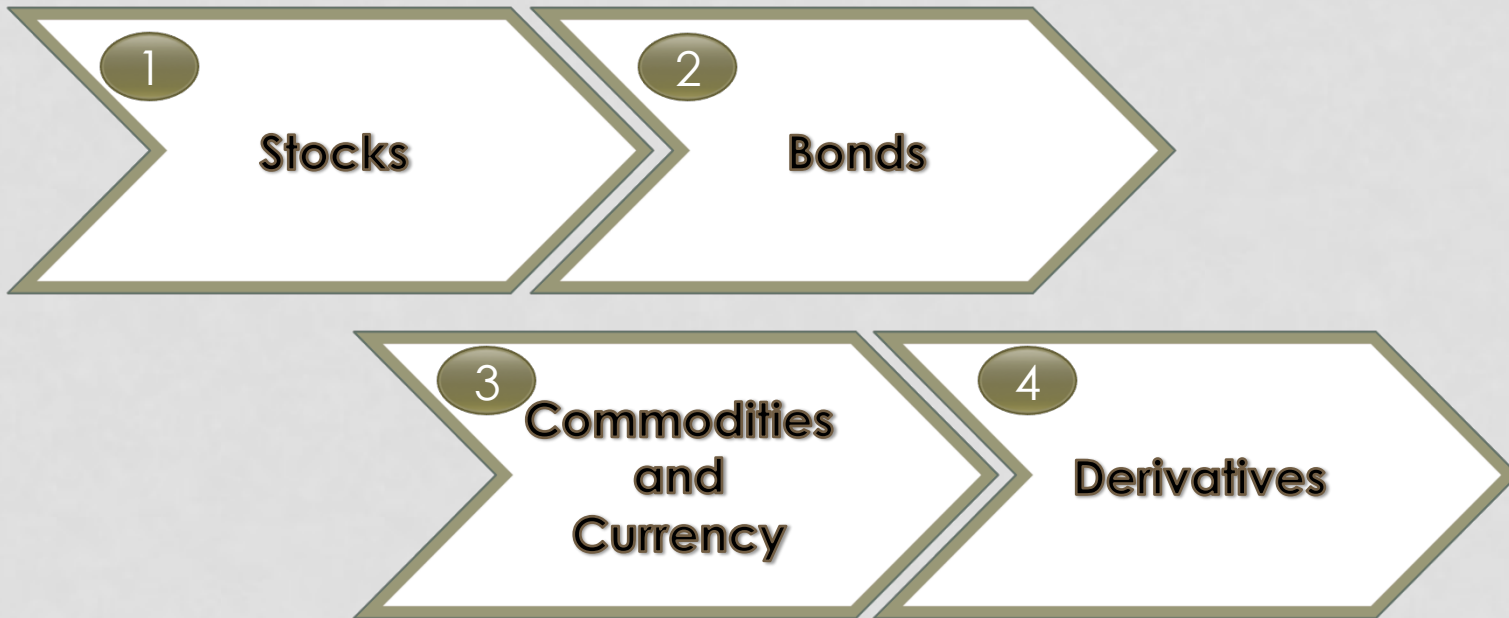


FINANCIAL INSTRUMENTS

ECON 4905 PRESENTATION

Siddhant Sachdev & Abigail Balsamo

AGENDA



COMMON AND PREFERRED STOCK



| Common Stock | Preferred Stock |
|---|---|
| <ul style="list-style-type: none">❖ Receives dividends | <ul style="list-style-type: none">❖ Receives dividends at a higher priority than Common Stock. If a company needs to be liquidated and they run out of funds, Preferred Stock dividends are paid first. |
| <ul style="list-style-type: none">❖ Permitted to attend/vote during shareholder meetings, which includes electing the board of directors to make corporate decisions. | <ul style="list-style-type: none">❖ These derivatives are usually standardized and require the payment of a margin which is later settled through a clearing house. |
| <ul style="list-style-type: none">❖ Dividend amount is not typically fixed | <ul style="list-style-type: none">❖ Dividend amount is typically fixed, but there is the potential for price appreciation/depreciation |

CALLING AND CONVERTIBILITY



Calling

- ❖ Bonds and preferred stocks can be “callable.”
- ❖ Callable securities allow that at some set point, determined at issuance, it can be purchased back by the issuer.

Convertibility

- ❖ Preferred stock and bonds can be “convertible.”
- ❖ Convertible preferred stock allow that at some set point, determined at issuance, they can be traded for a certain number of common stock.
- ❖ Convertible bonds allow that at some set point they can be converted to a predetermined amount of equity.

AUTHORIZED, ISSUED, AND TREASURY SHARES



Authorized Shares

- ❖ **Authorized Shares** represent the total number of shares that the company is legally permitted to sell.

Issued Shares

- ❖ **Issued Shares** represent the total number of shares, out of all authorized shares, that have been issued.

Treasury Shares

- ❖ **Treasury Stock** is the portion of total authorized shares owned by the company that they either have purchased back or never sold in the first place. They are not accompanied by voting rights nor dividend payments.

AUTHORIZED, ISSUED, AND TREASURY SHARES



- ❖ Companies choose not to issue all authorized shares for a variety of reasons.
 - ❖ It allows them to sell more shares in the future if they need to raise unforeseen funds
 - ❖ They can distribute some as employee stock options.
 - ❖ They may want to maintain a controlling interest to prevent a hostile takeover.
- ❖ The ratio of issued-to-authorized shares is of interest to investors because the higher the ratio, the lower the potential for **stock dilution**.
 - ❖ After purchase, the company may issue more stocks, decreasing existing owners' level of ownership, as well as earnings per share.

STOCK SPLITS, SHARE CONSOLIDATION, AND SHARE REPURCHASING



Stock Splits

- ❖ All stocks “split” in two -- shareholders now own double the quantity of stock, but their total value remains the same.
- ❖ Companies generally split stocks because they either wish to lower the individual stock price or improve liquidity.

Share Consolidation

- ❖ All individual stock values double -- shareholders now own half as many stocks, but their total value remains the same.
- ❖ Companies generally consolidate stocks because it deters short sellers and it raises the stock price.

Share Repurchasing

- ❖ Companies will repurchase stocks to increase their value, or decrease anticipated dilution.

RESTRICTED STOCKS AND EMPLOYEE STOCK OPTIONS



- ❖ **Restricted Stocks** are the portion of issued stocks owned by company affiliates, such as executives and directors.
- ❖ Restricted Stocks are highly regulated, and they cannot be traded. They are often offered either after a merger or acquisition, or just in general as compensation through Employee Stock Options.
- ❖ **Employee Stock Options** are offered by a company to employees, and give those employees the right to purchase stock on a given date, also known as the **vesting date**.
- ❖ On the **grant date**, or the date the stocks were issued, a purchase price for the stocks, as well as a maximum quantity, is determined. Stocks owned by employees that are not restricted are considered **closely-held**.
- ❖ Companies issue stock options for a variety of reasons, but they do it most commonly to ensure the entire company is backing the same ultimate goal: stock price appreciation.

FLOATING STOCKS



- ❖ **Floating Shares** represent the shares that are presently available for trade, i.e. not closely-held or restricted.
- ❖ Companies with lower amounts of floating stock, or a low float, usually signify *higher* volatility, *lower* liquidity, and a *higher* bid-ask spread.
- ❖ A company's float usually increases over time as they issue more stocks with a secondary offering, as employees exercise stock options, or if the company institutes a stock-split.

INTEREST RATES AND MARKET INDICES



Interest Rates

- ❖ The **nominal interest rate** does not take inflation into account. These are the rates given on loan and deposit contracts.
- ❖ The **real interest rate** is the nominal interest rate less the inflation rate. This is known as the **Fisher Effect**.
- ❖ In order to stimulate the economy, the Federal Reserve keeps nominal interest rates low to lower real interest rates. If inflation rates are too high, they raise nominal interest rates.

Market Indices

- ❖ **Market Indices** combine various assets and report their collective value. These indices are used to represent the value of a stock market, and track these values over time.
- ❖ An **Exchange Traded Fund (ETF)** is a security that is valued based on the value of an underlying asset or basket of assets, including an **index fund**, which comprises all of the stocks in a particular index.

THE DJIA AND BLUE-CHIP STOCKS



- ❖ The **Dow Jones Industrial Average** is the price-weighted average of the 30 most impactful companies traded on the New York Stock Exchange, and is the most common gauge for how the market is doing. It currently includes companies such as McDonald's, Microsoft, Apple, Nike, Disney, Wal-Mart, and Intel.
- ❖ **Blue-Chip Indices**, such as the Dow Jones Industrial Average (DJIA), follow the path of these stocks' collective performance. Many analysts agree that the performance of these well-established corporations is a good indicator of how the economy is doing as a whole.



THE S&P 500



- ❖ The **S&P 500** combines the values of 500 of the largest stocks based on a variety of factors, in order to provide an index assumed to be a comprehensive indicator of companies with a large market cap. Unlike the Dow Jones Industrial Average, the S&P 500 is a market-weighted average.
- ❖ There is also an S&P 600, which represents small market cap companies, and the S&P 400, which represents mid-market cap companies.

New York Stock Exchange



NASDAQ



- ❖ The **Nasdaq** is both a stock exchange marketplace as well as an index that includes the country's most significant technology stocks, including Microsoft, Apple, Google, Oracle, Intel, and Amazon.
- ❖ Other market indices include the **Wilshire 5000**, which includes over 6,700 American-based companies and is market-capitalization weighted, and the **Russell 2000**, which includes 2,000 small cap stocks, and frequently serves as a benchmark for small-cap ETFs and Mutual Funds.



BONDS/DEBT



- ❖ Opposite of a stock, a **bond** is fixed-income security created by the purchase of debt from a company, government, or other entity. The creditor, or debt-holder, lends money to the institution (issuer) to help finance various projects and operations.
- ❖ Each bond has a **par** or **face value**, which is the value of the bond at its **maturity** (usually \$1,000).
- ❖ The **market value** of the bond is its current value (post-purchase), and that is determined based on a number of factors including:
 - ❖ The credit value of the company
 - ❖ The coupon rate
 - ❖ The market rate
 - ❖ The time-length of the bond.
- ❖ If the coupon rate of the bond is higher than the market rate, the bond is offered at a **premium**. If the coupon rate of the bond is lower than the market rate, the bond is offered at a **discount**.

CORPORATE AND MUNICIPAL BONDS



Corporate Bonds

- ❖ **Corporate Bonds** are issued by companies, usually for a much higher interest rate than government bonds, as they are associated with much higher risk.
- ❖ Some corporate bonds are callable, with coupon payments, but many corporate bonds are also **bullet bonds**. Bullet bonds are non-callable, meaning their entire face value is paid on the maturity date, and have no added features.

Municipal Bonds

- ❖ **Municipal Bonds** are issued by state, local, and other governments, and are usually exempt from federal taxes, as well as taxes from the state/county from which the bond is offered.

TREASURY BONDS



- ❖ **Treasury Bonds** are offered by the U.S. government at fixed-interest with durations of more than 10 years, making semi-annual interest payments.
- ❖ Treasury bonds are only subject to federal taxes, and offered for amounts equaling no less than \$1,000.
- ❖ The U.S. treasury also offers smaller notes, at a minimum of \$100, with no duration limitations.
- ❖ Treasury bonds are known to be the safest investment, sporting little to virtually no-risk.

**United States
Treasury**



ZERO-COUPON, STRAIGHT, AND JUNK BONDS



Zero-Coupon Bonds

- ❖ Also known as an **accrual bond**, a **Zero-Coupon Bond** does not pay interest payments prior to maturity, but at maturity pays face value.
- ❖ These bonds are usually offered at an extreme discount, but some Zero-Coupon Bonds are created by stripping other types of bonds of their coupons.

Straight Bonds

- ❖ **Straight Bonds**, also known as “**plain vanilla**,” are coupon bonds with absolutely no added features. They simply make coupon payments semi-annually, and then pay the face value at maturity.

Junk Bonds

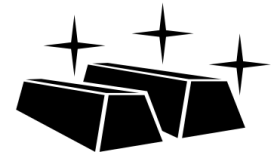
- ❖ **Junk Bonds** are bonds that are not **Investment Grade**, meaning they are poorly ranked by the S&P 500 and/or Moody's. They offer very high yields in exchange for their extremely high risk.

COMMODITIES AND CURRENCIES



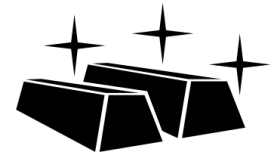
- ❖ **Commodities** are goods that have little or no distinction from one producer to another, and can be traded on an exchange like any other asset.
 - ❖ They are held to a certain standard, known as the **basis grade**, and they are most commonly traded on futures contracts.
- ❖ **National currencies** are usually distributed exclusively by the central bank of the country.
- ❖ **Digital currencies**, including bitcoin, crypto-currencies, and rewards programs such as credit card and airline miles, are not centralized and have widely fluctuating rates.
- ❖ Currencies are traded on **foreign exchange markets**. Some rates are fixed and some are floating.
- ❖ **Fixed rates** are based on the value of something with a steady value, such as gold or a basket of currencies.
- ❖ **Floating rates** change based on a specified foreign exchange market mechanism.

GOLD AS A CURRENCY



- ❖ **Gold** is technically a currency, and while it is priced in U.S. dollars, the value of the two currencies is roughly inversely correlated in the long-term.
- ❖ Gold tends to be the most successful when there is little faith in paper money and the stock market. Short-term, it is much more difficult to predict.
- ❖ Though it is not frequently used as a form of payment, gold is highly liquid and can easily be converted to virtually any currency.
- ❖ It can also be purchased through a variety of instruments aside from physically buying gold, including futures contracts, ETFs, and CFDs.
- ❖ It is important to note that while gold and the USD are strongly correlated, gold is connected globally, and represents the sentiment of the entire world economy, not just the economy of a single group.

GOLD AND THE U.S. DOLLAR



Long-Term
(5 years)



Short-Term
(5 months)

THE GLASS-STEAGALL ACT (1933)

- ❖ The **Glass-Steagall Act** was passed in 1933, officially (and permanently) separating the activities of investment and commercial banking.
- ❖ It was in direct response to the stock market crash of 1929, as many economists attributed the crash to commercial banks being too involved in stock market investment, more specifically commercial banks taking too many risks with shareholder money.
- ❖ Eventually, these theories were replaced by thoughts that the act was prohibiting the development of financial services, and thus it was repealed in 1999 with the **Gramm-Leach-Bliley Act**.

THE BRETTON WOODS AGREEMENT (1944)

- ❖ In July of 1944, the United Nations Monetary and Financial Conference provided the framework for exchange rate management that still exists today.
- ❖ The **Bretton Woods Agreement** is responsible for the creation of the International Monetary Fund, which they deemed responsible for handling disputes over international payments.
- ❖ The agreement was also the inception of the idea for foreign currency exchange, using an adjustable fixed peg exchange rate mechanism.
- ❖ Initially gold was the designated reserve currency, but the USD, linked to gold, gained momentum shortly thereafter.

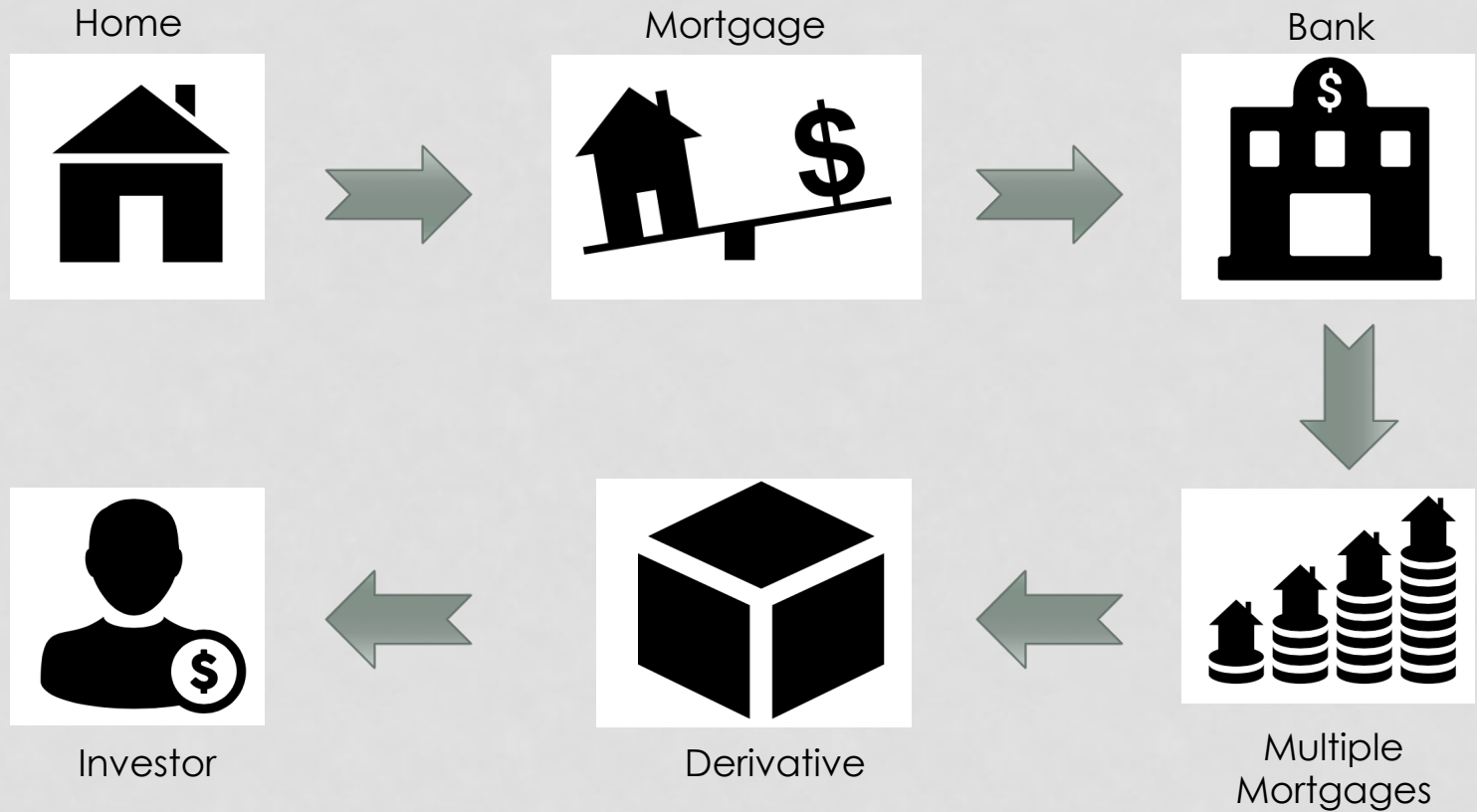
WHAT ARE DERIVATIVES?



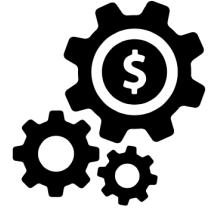
- ❖ A derivative is “**a contract between two or more parties** whose value is based on an agreed-upon **underlying financial asset, index or security**”
- ❖ Some examples of underlying instruments are: **stocks, bonds, currencies, commodities, interest rates and market indices**



DIAGRAMMATIC EXPLANATION



DERIVATIVES CAN BE CLASSIFIED INTO...



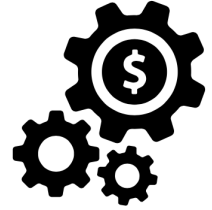
| Over-the-counter (OTC) | Exchange traded derivatives (ETD) |
|--|--|
| <ul style="list-style-type: none">❖ Trading of such derivatives is done without the supervision of an exchange. Also known as off-exchange trading. | <ul style="list-style-type: none">❖ Standardized derivative contracts that are traded through an organized futures exchange. |
| <ul style="list-style-type: none">❖ Typically riskier than ETD's due to something called counterparty risk. | <ul style="list-style-type: none">❖ These derivatives are usually standardized and require the payment of a margin which is later settled through a clearing house. |
| <ul style="list-style-type: none">❖ Forwards and swaps are typically traded OTC. | <ul style="list-style-type: none">❖ Futures and options are typically traded here. |

WHY DO DERIVATIVES EXIST?



- ❖ **Hedging:** Derivatives are mainly used by corporations to insure or protect against the risk of an asset. They act as a vehicle to hedge out unwanted risks
- ❖ **Leverage:** It refers to techniques which can be used to multiply gains or losses. Derivatives are particularly volatile securities and as a result, leverage is greatly enhanced by derivatives. Options are particularly profitable in a volatile market and the movement of the price of an underlying asset in a favorable direction magnifies the movement of the option.
- ❖ **Speculation:** Betting on future prices of an asset to make gains

RISKS ASSOCIATED WITH DERIVATIVES



- ❖ **Liquidity risk:** Investors face liquidity risk when they end a derivative trade before the maturity period. They face the following consideration- difficulty of closing out the trade versus the existing bid-ask spreads (represents cost)
- ❖ **Counterparty risk:** Also known as **default risk**, this arises if one of the parties involved in the derivative trade is unable to meet the obligation. It is **higher in the case of OTC derivatives** since ETD's are more regulated and require the payment of margin deposits. The deposits are adjusted on a daily basis through the mark to market process.

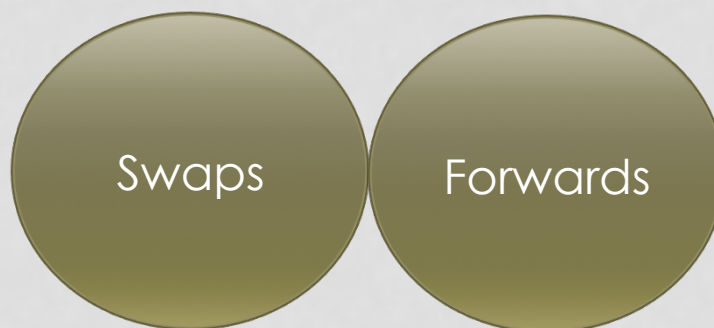
RISKS ASSOCIATED WITH DERIVATIVES

- ❖ **Interconnection risk:** Also known as systemic risks, these refer to the risk faced by the investor as a result of the interconnection between the different derivative instruments and dealers. For example, problems with major banks, which act as dealers in derivatives trade, might snowball into a threat for the entire market
- ❖ **Market risk:** These refer to the inherent risks associated with investments in general. Since investment decisions are often based on assumptions, investors evaluate the profitability of their investments along with the risk/reward ratio and as a result, investments are almost always risky to some extent.

DIFFERENT TYPES OF DERIVATIVES



DIFFERENT TYPES OF DERIVATIVES



DIFFERENT TYPES OF DERIVATIVES



Swaps

Forwards

Futures

DIFFERENT TYPES OF DERIVATIVES



Swaps

Forward

Futures

Options

TYPES OF DERIVATIVES



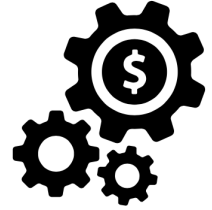
SWAPS

- ❖ They are **over-the-counter derivative contracts** through which the involved parties can **exchange financial instruments**.
- ❖ While these instruments can be anything, swaps usually involve cash flows, based on a notional principal amount.
- ❖ Examples of swaps include interest rate swaps, commodity swaps, currency swaps, debt-equity swaps, etc.
- ❖ An important example of a swap derivative that played an important role in the financial crisis of 2009 is **Credit Default Swap (CDS)**

CREDIT DEFAULT SWAPS

- ❖ In essence, a CDS is an **insurance against a non-payment**. Any CDS involves three parties- **financial institution** issuing the debt security in the first place, **the CDS or debt buyer** willing to enter into a contract and lastly the **CDS seller** who guarantees the underlying debt between the issuer of the security and the buyer.
- ❖ In case of a CDS, the **credit exposure of fixed income products** is transferred between two or more parties. In other words, the buyer of the swap makes payments to the seller until the maturity date. In return, the **seller issues a guarantee** to the buyer that in the event of a default on part of the debt issuer, the seller will pay the buyer **premium plus all interest payments** that would have been paid until the maturity date.

COLLATERALIZED DEBT OBLIGATIONS

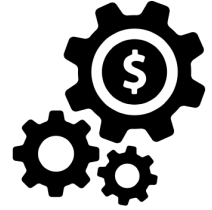


- ❖ A CDO on the other hand is a **structured financial product** which pools or **combines together pooled assets** like mortgages, bonds and loans and these debt obligations essentially serve as collaterals for the CDO.
- ❖ The cash-flow generating assets are pooled together and **repackaged into discrete tranches** which are then sold to investors.
- ❖ **Senior tranches are relatively safer** due to first access to collateral in the event of a default. As a result, they have a **higher credit rating and offer lower coupon rates** than the junior tranches.
- ❖ Both CDO's and CDS's played an important role in the financial crisis of 2008 and the video on the next slide shows how.

CDS AND CDO IN THE FINANCIAL CRISIS



TYPES OF DERIVATIVES



FUTURES & FORWARD CONTRACTS

- ❖ As the name suggest, a **futures contract** is an agreement, generally entered into **on a trading floor of a futures exchange**, to trade a particular financial instrument at a date in the future. **The price for the trade is pre-determined.**
- ❖ A futures contract details the specific quantity and quality of the underlying asset, along with its finalized price and date for trade.
- ❖ A **forward contract** or forward on the other hand is **a non-standardized contract** to buy or sell an asset at a later date and at a **pre-determined price**. The price in this case is the forward or delivery price and is decided at the time of entering the contract.

DIFFERENCE BETWEEN FUTURES AND FORWARDS CONTRACTS

Some important differences between futures and forward contracts:

| Futures Contract | Forwards Contract |
|--|--|
| Standardized and regulated by a futures exchange | Unregulated, non-standardized private transaction. |
| Does not entail a credit risk because a clearing house provides guarantee for both sides of the trade. | Entails a credit risk as there is no clearing house guarantee. |
| Since they are exchange traded, they are standardized. As a result, they are significantly less risky. | As they are traded OTC, they can be customized to better meet the buyers' needs and may include mark-to-market and daily margin calls. |

TYPES OF DERIVATIVES



OPTIONS

- ❖ An option is “**a financial derivative** that represents a contract sold by one party (option writer) to another party (option holder) and offers the buyer the **right to buy (call) or sell (put) a security** or other financial **assets at the strike price** during a certain period of time or on the **exercise date**”
- ❖ Call options give the option to buy at certain price, so the buyer would want the stock to go up.
- ❖ Put options, on the other hand, give the option to sell at a certain price, so the buyer would want the stock to go down.

WARREN BUFFET ON DERIVATIVES



**Derivatives are financial weapons
of mass destruction**

Warren Buffett, American business magnate and philanthropist (b. 1930)

THANK YOU

Questions



BIBLIOGRAPHY

- ❖ "Bond Basics: Introduction | Investopedia." *Investopedia*. 2003. Web. 11 Apr. 2016.
- ❖ "Derivatives 101 | Investopedia." *Investopedia*. 2010. Web. 11 Apr. 2016.
- ❖ "House of Lords - The Future Regulation of Derivatives Markets: Is the EU on the Right Track? - European Union Committee." *House of Lords - The Future Regulation of Derivatives Markets: Is the EU on the Right Track? - European Union Committee*. Web. 10 Apr. 2016.
- ❖ "Stocks Basics: Introduction | Investopedia." *Investopedia*. 2003. Web. 11 Apr. 2016.
- ❖ "What Is a Derivative? | Investopedia." *Investopedia*. 2012. Web. 11 Apr. 2016.
- ❖ Hentschel, Ludger, and Clifford W. Smith. *Risks in derivatives markets*. Wharton Financial Institutions Center, Wharton School of the University of Pennsylvania, 1996.