Derivatives and Default Swaps

Derivatives are financial contracts, or financial instruments, whose values are derived from the value of something else (known as the **underlying**). The underlying value on which a derivative is based can be an asset (e.g., commodities, equities (stocks), residential mortgages, commercial real estate, loans, bonds), an index (e.g., interest rates, exchange rates, stock market indices, consumer price index (CPI) — see inflation derivatives), weather conditions, or other items. Credit derivatives are based on loans, bonds or other forms of credit. The main types of derivatives are forwards, futures, options, and swaps.
Derivatives can be used to mitigate the risk of economic loss arising from changes in the value of the underlying. This activity is known as hedging. Alternatively, derivatives can be used by investors to increase the profit arising if the value of the underlying moves in the direction they expect. This activity is known as speculation.
Because the value of a derivative is contingent on the value of the underlying, the notional value of derivatives is recorded *off* the balance sheet of an institution, although the market value of derivatives is recorded *on* the balance sheet.

Hedging
Derivatives allow risk about the value of the underlying asset to be transferred from one party to another. For example, a wheat farmer and a miller could sign a futures contract to exchange a specified amount of cash for a specified amount of wheat in the future. Both parties have reduced a future risk: for the wheat farmer, the uncertainty of the price, and for the miller, the availability of wheat. However, there is still the risk that no wheat will be available due to causes unspecified by the contract, like the weather, or that one party will renege on the contract. Although a third party, called a clearing house, insures a futures contract, not all derivatives are insured against counterparty risk.
From another perspective, the farmer and the miller both reduce a risk and acquire a risk when they sign the futures contract: The farmer reduces the risk that the price of wheat will fall below the price specified in the contract and acquires the risk that the price of wheat will rise above the price specified in the contract (thereby losing additional income that he could have earned). The miller, on the other hand, acquires the risk that the price of wheat will fall below the price specified in the contract (thereby paying more in the future than he otherwise would) and reduces the risk that the price of wheat will rise above the price specified in the contract. In this sense, one party is the insurer (risk taker) for one type of risk, and the counterparty is the insurer (risk taker) for another type of risk.

Hedging also occurs when an individual or institution buys an asset (like a commodity, a bond that has coupon payments, a stock that pays dividends, and so on) and sells it using a futures contract. The individual or institution has access to the asset for a specified amount of time, and then can sell it in the future at a specified price according to the futures contract. Of course, this allows the individual or institution the benefit of holding the asset while reducing the risk that the future selling price will deviate unexpectedly from the market's current assessment of the future value of the asset.

Speculation and arbitrage
Derivatives can be used to acquire risk, rather than to insure or hedge against risk. Thus, some individuals and institutions will enter into a derivative contract to speculate on the value of the underlying asset, betting that the party seeking insurance will be wrong about the future value of the underlying asset. Speculators will want to be able to buy an asset in the future at a low price according to a derivative contract when the future market price is high, or to sell an asset in the future at a high price according to a derivative contract when the future market price is low.

Individuals and institutions may also look for arbitrage opportunities, as when the current buying price of an asset falls below the price specified in a futures contract to sell the asset.
Speculative trading in derivatives gained a great deal of notoriety in 1995 when Nick Leeson, a trader at Barings Bank, made poor and unauthorized investments in futures contracts. Through a combination of poor judgment, lack of oversight by the bank's management and by regulators, and unfortunate events like the Kobe earthquake, Leeson incurred a $1.3 billion loss that bankrupted the centuries-old institution.[1]

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Examples
Some common examples of these derivatives are:

UNDERLYING	CONTRACT TYPES				
	Exchange-traded futures	**Exchange-traded options**	**OTC swap**	**OTC forward**	**OTC option**
Equity Index	DJIA Index future NASDAQ Index future	Option on DJIA Index future Option on NASDAQ Index future	Equity swap	Back-to-back	n/a
Money market	Eurodollar future Euribor future	Option on Eurodollar future Option on Euribor future	Interest rate swap	Forward rate agreement	Interest rate cap and floor Swaption Basis swap
Bonds	Bond future	Option on Bond future	Total return swap	Repurchase agreement	Bond option
Single Stocks	Single-stock future	Single-share option	Equity swap	Repurchase agreement	Stock option Warrant Turbo warrant
Credit	n/a	n/a	Credit default swap	n/a	Credit default option

Other examples of underlying exchangeables are:

- Property (mortgage) derivatives
- Economic derivatives that pay off according to economic reports [1] as measured and reported by national statistical agencies
- Energy derivatives that pay off according to a wide variety of indexed energy prices. Usually classified as either physical or financial, where physical means the contract includes actual delivery of the underlying energy commodity (oil, gas, power, etc.)
- Commodities
- Freight derivatives
- Inflation derivatives
- Insurance derivatives[*citation needed*]
- Weather derivatives
- Credit derivatives

Criticisms: Derivatives are often subject to the following criticisms:

1. Possible large losses

The use of derivatives can result in large losses due to the use of leverage, or borrowing. Derivatives allow investors to earn large returns from small movements in the underlying asset's price. However, investors could lose large amounts if the price of the underlying moves against them significantly. There have been several instances of massive losses in derivative markets, such as:

- The need to recapitalize insurer American International Group (AIG) with $85 billion of debt provided by the US federal government[5]. An AIG subsidiary had lost more than $18 billion over the preceding three quarters on Credit Default Swaps (CDS) it had written.[6] It was reported that the recapitalization was necessary because further losses were foreseeable over the next few quarters.
- The loss of $7.2 Billion by Société Générale in January 2008 through mis-use of futures contracts.
- The loss of US$6.4 billion in the failed fund Amaranth Advisors, which was long natural gas in September 2006 when the price plummeted.
- The loss of US$4.6 billion in the failed fund Long-Term Capital Management in 1998.
- The bankruptcy of Orange County, CA in 1994, the largest municipal bankruptcy in U.S. history. On December 6, 1994, Orange County declared Chapter 9 bankruptcy, from which it emerged in June 1995. The county lost about $1.6 billion through derivatives trading. Orange County was neither bankrupt nor insolvent at the time; however, because of the strategy the county employed it was unable to generate the cash flows needed to maintain services. Orange County is a good example of what happens when derivatives are used incorrectly and positions liquidated in an unplanned manner; had they not liquidated they would not have lost any money as their positions rebounded.[*citation needed*] Potentially problematic use of interest-rate derivatives by US municipalities has continued in recent years. See, for example:[7]
- The Nick Leeson affair in 1994

2. Counter-party risk

Derivatives (especially swaps) expose investors to **counter-party risk**.
For example, suppose a person wanting a fixed interest rate loan for his business, but finding that banks only offer variable rates, swaps payments with another business who wants a variable rate, synthetically creating a fixed rate for the person. However if the

second business goes bankrupt, it can't pay its variable rate and so the first business will lose its fixed rate and will be paying a variable rate again. If interest rates have increased, it is possible that the first business may be adversely affected, because it may not be prepared to pay the higher variable rate.
Different types of derivatives have different levels of risk for this effect. For example, standardized stock options by law require the party at risk to have a certain amount deposited with the exchange, showing that they can pay for any losses; Banks who help businesses swap variable for fixed rates on loans may do credit checks on both parties. However in private agreements between two companies, for example, there may not be benchmarks for performing due diligence and risk analysis.

3. Unsuitably high risk for small/inexperienced investors

Derivatives pose **unsuitably high amounts of risk** for small or inexperienced investors. Because derivatives offer the possibility of large rewards, they offer an attraction even to individual investors. However, speculation in derivatives often assumes a great deal of risk, requiring commensurate experience and market knowledge, especially for the small investor, a reason why some financial planners advise against the use of these instruments. Derivatives are complex instruments devised as a form of insurance, to transfer risk among parties based on their willingness to assume additional risk, or hedge against it.

4. Large notional value

- Derivatives typically have a **large notional value**. As such, there is the danger that their use could result in losses that the investor would be unable to compensate for. The possibility that this could lead to a chain reaction ensuing in an economic crisis, has been pointed out by famed investor Warren Buffett in Berkshire Hathaway's annual report. Buffett called them 'financial weapons of mass destruction.' The problem with derivatives is that they control an increasingly larger notional amount of assets and this may lead to distortions in the real capital and equities markets. Investors begin to look at the derivatives markets to make a decision to buy or sell securities and so what was originally meant to be a market to transfer risk now becomes a leading indicator. (See Berkshire Hathaway Annual Report for 2002)

5. Leverage of an economy's debt

Derivatives massively **leverage the debt in an economy**, making it ever more difficult for the underlying real economy to service its debt obligations and curtailing real economic activity, which can cause a recession or even depression.[8] In the view of Marriner S. Eccles, U.S. Federal Reserve Chairman from November, 1934 to February, 1948, too high a level of debt was one of the primary causes of the 1920s-30s Great Depression. (See Berkshire Hathaway Annual Report for 2002)

Benefits

Nevertheless, the use of derivatives also has its benefits:

- Derivatives **facilitate the buying and selling of risk**, and thus have a positive impact on the economic system. Although someone loses money while someone else gains money with a derivative, under normal circumstances, trading in derivatives should not adversely affect the economic system because it is not zero sum in utility.
- Former Federal Reserve Board chairman Alan Greenspan commented in 2003 that he believed that the use of derivatives has softened the impact of the economic downturn at the beginning of the 21st century.

Definitions

- Bilateral netting: A legally enforceable arrangement between a bank and a counter-party that creates a single legal obligation covering all included individual contracts. This means that a bank's obligation, in the event of the default or insolvency of one of the parties, would be the net sum of all positive and negative fair values of contracts included in the bilateral netting arrangement.
- Credit derivative: A contract that transfers credit risk from a protection buyer to a credit protection seller. Credit derivative products can take many forms, such as credit default swaps, credit linked notes and total return swaps.
- Derivative: A financial contract whose value is derived from the performance of assets, interest rates, currency exchange rates, or indexes. Derivative transactions include a wide assortment of financial contracts including structured debt obligations and deposits, swaps, futures, options, caps, floors, collars, forwards and various combinations thereof.
- Exchange-traded derivative contracts: Standardized derivative contracts (e.g. futures contracts and options) that are transacted on an organized futures exchange.
- Gross negative fair value: The sum of the fair values of contracts where the bank owes money to its counter-parties, without taking into account netting. This represents the maximum losses the bank's counter-parties would incur if the bank defaults and there is no netting of contracts, and no bank collateral was held by the counter-parties.
- Gross positive fair value: The sum total of the fair values of contracts where the bank is owed money by its counter-parties, without taking into account netting. This represents the maximum losses a bank could incur if all its counter-parties default and there is no netting of contracts, and the bank holds no counter-party collateral.
- High-risk mortgage securities: Securities where the price or expected average life is highly sensitive to interest rate changes, as determined by the FFIEC policy statement on high-risk mortgage securities.
- Notional amount: The nominal or face amount that is used to calculate payments made on swaps and other risk management products. This amount generally does not change hands and is thus referred to as notional.
- Over-the-counter (OTC) derivative contracts : Privately negotiated derivative contracts that are transacted off organized futures exchanges.
- Structured notes: Non-mortgage-backed debt securities, whose cash flow characteristics depend on one or more indices and/or have embedded forwards or options.

- Total risk-based capital: The sum of tier 1 plus tier 2 capital. Tier 1 capital consists of common shareholders equity, perpetual preferred shareholders equity with non-cumulative dividends, retained earnings, and minority interests in the equity accounts of consolidated subsidiaries. Tier 2 capital consists of subordinated debt, intermediate-term preferred stock, cumulative and long-term preferred stock, and a portion of a bank's allowance for loan and lease losses.

Credit Default Swap (CDS)

A swap designed to transfer the credit exposure of fixed income products between parties. The buyer of a credit swap receives credit protection, whereas the seller of the swap guarantees the credit worthiness of the product. By doing this, the risk of default is transferred from the holder of the fixed income security to the seller of the swap.

A **credit default swap** (**CDS**) is a credit derivative contract between two counterparties. The *buyer* makes periodic payments to the *seller*, and in return receives a payoff if an underlying financial instrument defaults.[1]

CDS contracts have been compared with insurance, because the buyer pays a premium and, in return, receives a sum of money if one of the specified events occur. However, there are a number of differences between CDS and insurance, for example:

- the seller need not be a regulated entity;
- the seller is not required to maintain any reserves to pay off buyers, although all major CDS dealers are subject to bank capital requirements;
- insurers manage risk primarily by setting loss reserves based on the Law of large numbers, while dealers in CDS manage risk primarily by means of offsetting CDS (hedging) with other dealers and transactions in underlying bond markets;
- in the United States CDS contracts are generally subject to mark to market accounting, introducing income statement and balance sheet volatility that would not be present in an insurance contract;
- Hedge Accounting may not be available under US GAAP unless the requirements of FAS 133 are met; if it were not possible to, it could increase income statement and balance sheet volatility if the CDS was purchased to hedge an exposure;
- The buyer of a CDS does not need to own the underlying security or other form of credit exposure; in fact the buyer does not even have to suffer a loss from the default event.[2][3][4] By contrast, to purchase insurance the insured is generally expected to have an insurable interest such as owning a debt.

A **credit default swap** (**CDS**) is a swap contract in which the buyer of the CDS makes a series of payments to the seller and, in exchange, receives a payoff if a credit instrument - typically a bond or loan - goes into default (fails to pay). Less commonly, the credit event that triggers the payoff can be a company undergoing restructuring, bankruptcy or even just having its credit rating downgraded. Credit Default Swaps can be bought by any (relatively sophisticated) investor; it is not necessary for the buyer to own the underlying credit instrument.[5]

As an example, imagine that an investor buys a CDS from Citibank, where the reference entity is AIG Corp. The investor will make regular payments to Citibank, and *if* AIG Corp defaults on its debt (i.e., misses a coupon payment or does not repay it), the investor will receive a one-off payment from Citibank and the CDS contract is terminated. If the investor actually owns AIG Corp debt, the CDS can be thought of as hedging. But investors can also buy CDS contracts referencing AIG Corp debt, without actually owning any AIG Corp debt. This may be done for speculative purposes, to bet against the solvency of AIG Corp in a gamble to make money if it fails, or to hedge investments in other companies whose fortunes are expected to be similar to those of AIG.

If the reference entity (AIG Corp) defaults, one of two things can happen:

- Either the investor delivers a defaulted asset to Citibank for a payment of the par value. This is known as *physical settlement*.
- Or Citibank pays the investor the difference between the par value and the market price of a specified debt obligation (even if AIG Corp defaults, there is usually some *recovery*; i.e., not all your money will be lost.) This is known as *cash settlement*.[*citation needed*]

The **spread** of a CDS is the annual amount the protection buyer must pay the protection seller over the length of the contract, expressed as a percentage of the notional amount. For example, if the CDS spread of AIG Corp is 50 basis points, or 0.5% (1 basis point = 0.01%), then an investor buying $10 million worth of protection from Citibank must pay the bank $50,000 per year. These payments continue until either the CDS contract expires or AIG Corp defaults.

All things being equal, at any given time, if the maturity of two credit default swaps is the same, then the CDS associated with a company with a *higher* CDS spread is considered *more likely* to default by the market, since a higher fee is being charged to protect against this happening. However, factors such as liquidity and estimated loss given default can impact the comparison.

Uses

Like most financial derivatives, credit default swaps can be used by investors for speculation, hedging and arbitrage.

Speculation

Credit default swaps allow investors to speculate on changes in CDS spreads of single names or of market indexes such as the North American CDX index or the European iTraxx index. Or, an investor might believe that an entity's CDS spreads are either too high or too low relative to the entity's bond yields and attempt to profit from that view by entering into a trade, known as a *basis trade*, that combines a CDS with a cash bond and an interest rate swap. Finally, an investor might speculate on an entity's credit quality, since generally CDS spreads will increase as credit-worthiness declines, and decline as credit-worthiness increases. The investor might therefore buy CDS protection on a company in order to speculate that the company is about to default. Alternatively, the investor might sell protection if they think that the company's creditworthiness might improve.

For example, a hedge fund believes that AIG Corp will soon default on its debt. Therefore it buys $10 million worth of CDS protection for 2 years from CITI Bank, with AIG Corp as the reference entity, at a spread of 500 basis points (=5%) per annum.

- If AIG Corp does indeed default after, say, one year, then the hedge fund will have paid $500,000 to CITI Bank, but will then receive $10 million (assuming zero recovery rate, and that CITI Bank has the liquidity to cover the loss), thereby making a tidy profit. CITI Bank, and its investors, will incur a $9.5 million loss unless the bank has somehow offset the position before the default.
- However, if AIG Corp does not default, then the CDS contract will run for 2 years, and the hedge fund will have ended up paying $1 million, without any return, thereby making a loss.

Note that there is a third possibility in the above scenario; the hedge fund could decide to liquidate its position after a certain period of time in an attempt to *lock in* its gains or losses. For example:

- After 1 year, the market now considers AIG Corp *more likely* to default, so its CDS spread has *widened* from 500 to 1500 basis points. The hedge fund may choose to *sell* $10 million worth of protection for 1 year to CITI Bank at this higher rate. Therefore over the two years the hedge fund will pay the bank 2 * 5% * $10 million = $1 million, but will receive 1 * 15% * $10 million = $1.5 million, giving a total profit of $500,000 (so long as AIG Corp does not default during the second year).
- In another scenario, after one year the market now considers AIG much *less likely* to default, so its CDS spread has *tightened* from 500 to 250 basis points. Again, the hedge may choose to *sell* $10 million worth of protection for 1 year to CITI Bank at this lower spread. Therefore over the two years the hedge fund will pay the bank 2 * 5% * $10 million = $1 million, but will receive 1 * 2.5% * $10 million = $250,000, giving a total loss of $750,000 (so long as AIG Corp does not default during the second year). This loss is smaller than the $1 million loss that would have occurred if the second transaction had not been entered into.

Transactions such as these do not even have to be entered into over the long-term. If AIG Corp's CDS spread had widened by just a couple of basis points over the course of one day, the hedge fund could have entered into an offsetting contract immediately and made a small profit over the life of the two CDS contracts.

Hedging

Credit default swaps are often used to manage the credit risk (i.e. the risk of default) which arises from holding debt. Typically, the holder of, for example, a corporate bond may hedge their exposure by entering into a CDS contract as the *buyer* of protection. If the bond goes into default, the proceeds from the CDS contract will cancel out the losses on the underlying bond.

Pension fund example: A pension fund owns $10 million of a five-year bond issued by Risky Corp. In order to manage the risk of losing money if Risky Corp defaults on its debt, the pension fund buys a CDS from Derivative Bank in a notional amount of $10 million. The CDS trades at 200 basis points (200 basis points = 2.00 percent). In return for this credit protection, the pension fund pays 2% of 10 million ($200,000) per annum in quarterly installments of $50,000 to Derivative Bank.

- If Risky Corporation does not default on its bond payments, the pension fund makes quarterly payments to Derivative Bank for 5 years and receives its $10 million back after 5 years from Risky Corp. Though the protection payments totaling $1 million reduce investment returns for the pension fund, its risk of loss due to Risky Corp defaulting on the bond is eliminated.
- If Risky Corporation defaults on its debt 3 years into the CDS contract, the pension fund would stop paying the quarterly premium, and Derivative Bank would ensure that the pension fund is refunded for its loss of $10 million (either by physical or cash settlement - see above). The pension fund still loses the $600,000 it has paid over three years, but without the CDS contract it would have lost the entire $10 million.

Hedging issues related to banks and corporations subject to taxation or using US GAAP for financial reporting: While the economics of entering into a CDS contract to hedge the credit risk in an asset is the same for a pension fund, a bank and a corporation, there are two significant practical differences in how hedges using CDS contracts affect banks and corporations compared to pension plans:

- Taxes - - for tax purposes the loss incurred on the Risky Corp.'s debt may be treated very differently from the payout by Derivative Bank to either a corporation or a bank. If the loss on the asset is taxed at a different rate from the profit made on the hedge, then the amount of the CDS swap needed to create a hedge of the Risky Corp.'s debt to the bank or corporation will differ from the [principle] amount of the debt. See Tax Treatment following.
- Financial reporting treatment may not parallel the economic effects. For example, GAAP generally require that Credit Default Swaps be reported on a mark to market basis, and assets that are held for investment, such as a commercial loan or bonds, be reported at cost unless a probable and significant loss is expected. Thus, hedging a commercial loan using a CDS can induce considerable volatility into the income statement and balance sheet as the CDS changes value over its life due to market conditions and due to the tendency for shorter dated CDS to sell at lower prices than longer dated CDS. Clearly, one can try to account for the CDS as a hedge under FASB 133 but in practice that can prove very difficult unless the risky asset owned by the bank or corporation is exactly the same as the Reference Obligation used for the particular CDS that was bought.

Risk

When entering into a CDS, both the buyer and seller of credit protection take on counterparty risk. Examples of counter party risks:

- The buyer takes the risk that the seller will default. If Derivative Bank and Risky Corp. default simultaneously ("double default"), the buyer loses its protection against default by the reference entity. If Derivative Bank defaults but Risky Corp. does not, the buyer might need to replace the defaulted CDS at a higher cost.
- The seller takes the risk that the buyer will default on the contract, depriving the seller of the expected revenue stream. More important, a seller normally limits its risk by buying offsetting protection from another party - that is, it hedges its exposure. If the original buyer drops out, the seller squares its position by either unwinding the hedge transaction or by selling a new CDS to a third party. Depending on market conditions, that may be at a lower price than the original CDS and may therefore involve a loss to the seller.

As is true with other forms of over-the-counter derivative, CDS might involve liquidity risk. If one or both parties to a CDS contract must post collateral(which is common), there can be margin calls requiring the posting of additional collateral. The required

collateral is agreed on by the parties when the CDS is first issued. This margin amount may vary over the life of the CDS contract, if the market price of the CDS contract changes, or the credit rating of one of the parties changes.

Arbitrage

Capital Structure Arbitrage is an example of an arbitrage strategy which utilises CDS transactions.[6] This technique relies on the fact that a company's stock price and its CDS spread should exhibit negative correlation; i.e. if the outlook for a company improves then its share price should go up and its CDS spread should tighten, since it is less likely to default on its debt. However if its outlook worsens then its CDS spread should widen and its stock price should fall. Techniques reliant on this are known as capital structure arbitrage because they exploit market inefficiencies between different parts of the same company's capital structure; i.e. mis-pricings between a company's debt and equity. An arbitrageur will attempt to exploit the *spread* between a company's CDS and its equity in certain situations. For example, if a company has announced some bad news and its share price has dropped by 25%, but its CDS spread has remained unchanged, then an investor might expect the CDS spread to increase relative to the share price. Therefore a basic strategy would be to go long on the CDS spread (by buying CDS protection) while simultaneously hedging oneself by buying the underlying stock. This technique would benefit in the event of the CDS spread widening relative to the equity price, but would lose money if the company's CDS spread tightened relative to its equity.

An interesting situation in which the inverse correlation between a company's stock price and CDS spread breaks down is during a leveraged buyout (LBO). Frequently this will lead to the company's CDS spread widening due to the extra debt that will soon be put on the company's books, but also an *increase* in its share price, since buyers of a company usually end up paying a premium.

Another common arbitrage strategy aims to exploit the fact that the swap adjusted spread of a CDS should trade closely with that of the underlying cash bond issued by the reference entity. Misalignments in spreads may occur due to technical reasons such as specific settlement differences, shortages in a particular underlying instrument, and the existence of buyers constrained from buying exotic derivatives. The difference between CDS spreads and asset swap spreads is called the *basis* and should theoretically be close to zero. Basis trades can aim to exploit any differences to make risk-free profits.

Criticisms

Critics of the huge credit default swap market have claimed that it has been allowed to become too large without proper regulation and that, because all contracts are privately negotiated, the market has no transparency. Furthermore, there have even been claims that CDSs exacerbated the 2008 global financial crisis by hastening the demise of companies such as Lehman Brothers and AIG.[29]

In the case of Lehman Brothers, it is claimed that the widening of the bank's CDS spread reduced confidence in the bank and ultimately gave it further problems that it was not able to overcome. However, proponents of the CDS market argue that this confuses cause and effect; CDS spreads simply reflected the reality that the company was in serious trouble. Furthermore, they claim that the CDS market allowed investors who had counterparty risk with Lehman Brothers to reduce their exposure in the case of their default.

It was also reported after Lehman's bankruptcy that the $400 billion notional of CDS protection which had been written on the bank could lead to a net payout of $366 billion from protection sellers to buyers (given the cash-settlement auction settled at a final price of 8.625%) and that these large payouts could lead to further bankruptcies of firms without enough cash to settle their contracts.[30] However, industry estimates after the auction suggested that net cashflows would only be in the region of $7 billion.[30] This is because many parties held offsetting positions; for example if a bank writes CDS protection on a company it is likely to then enter an offsetting transaction by buying protection on the same company in order to hedge its risk. Furthermore, CDS deals are marked-to-market frequently. This would have led to margin calls from buyers to sellers as Lehman's CDS spread widened, meaning that the net cashflows on the days after the auction are likely to have been even lower.[27] Senior bankers have argued that not only has the CDS market functioned remarkably well during the financial crisis, but that CDS contracts have been acting to distribute risk just as was intended, and that it is not CDSs themselves that need further regulation, but the parties who trade them. [31]

Some general criticism of financial derivatives is also relevant to credit derivatives. Warren Buffett famously described derivatives bought speculatively as "financial weapons of mass destruction." In Berkshire Hathaway's annual report to shareholders in 2002, he said, *"Unless derivatives contracts are collateralized or guaranteed, their ultimate value also depends on the creditworthiness of the counterparties to them. In the meantime, though, before a contract is settled, the counterparties record profits and losses—often huge in amount—in their current earnings statements without so much as a penny changing hands. The range of derivatives contracts is limited only by the imagination of man (or sometimes, so it seems, madmen)."*[32] It is true that entering a CDS transaction gives you counterparty risk, but bear in mind that it is also possible to hedge this risk by buying CDS protection on your counterparty! Furthermore, it is not strictly true to say that profit and loss is recorded without any money changing hands since positions are marked-to-market daily and collateral will pass from buyer to seller (or vice versa) to protect both parties against counterparty default. It is also worth noting that Buffett seems to have since changed his stance on derivatives since he made this statement, since in October 2008 Berkshire Hathaway was forced to reveal to regulators that it has entered into at least $4.85 billion in derivative transactions.[33] In addition, Berkshire Hathaway was a large owner of Moody's stock during the period that it was one of two primary rating agencies for subprime CDOs, a form of mortgage security derivative dependant on the use of credit default swaps.

Systemic risk

The risk of counterparties defaulting has been amplified during the 2008 financial crisis, particularly because Lehman Brothers and AIG were counterparties in a very large number of CDS transactions. This is an example of systemic risk, risk which threatens an entire market, and a number of commentators have argued that size and deregulation of the CDS market have increased this risk. For example, imagine if a hypothetical mutual fund had bought some Washington Mutual corporate bonds in 2005 and decided to hedge their exposure by buying CDS protection from Lehman Brothers. After Lehman's default, this protection was no longer active, and Washington Mutual's sudden default only days later would have led to a massive loss on the bonds, a loss that should have been

insured by the CDS. There was also fear that Lehman Brothers and AIG's inability to pay out on CDS contracts would lead to the unraveling of complex interlinked chain of CDS transactions between financial institutions.[34] So far this does not appear to have happened, although some commentators have noted that because the total CDS exposure of a bank is not public knowledge, the fear that one could face large losses or possibly even default themselves was a contributing factor to the massive decrease in lending liquidity during September/October 2008.[35]

Chains of CDS transactions can arise from a practice known as "netting".[36] Here, company B may buy a CDS from company A with a certain annual "premium", say 2%. If the condition of the reference company worsens, the risk premium will rise, so company B can sell a CDS to company C with a premium of say, 5%, and pocket the 3% difference. However, if the reference company defaults, company B might not have the assets on hand to make good on the contract. It depends on its contract with company A to provide a large payout, which it then passes along to company C. The problem lies if one of the companies in the chain fails, creating a "domino effect" of losses. For example, if company A fails, company B will default on its CDS contract to company C, possibly resulting in bankruptcy, and company C will potentially experience a large loss due to the failure to receive compensation for the bad debt it held from the reference company. Even worse, because CDS contracts are private, company C will not know that its fate is tied to company A; it is only doing business with company B.

As described above, the establishment of a central exchange or clearing house for CDS trades would help to solve the "domino effect" problem, since it would mean that all trades faced a central counterparty guaranteed by a consortium of dealers.

[edit] Tax treatment

The U.S federal income tax treatment of credit default swaps is uncertain.[37] Commentators generally believe that, depending on how they are drafted, they are either notional principal contracts or options for tax purposes,[38] but this is not certain. There is a risk of having credit default swaps recharacterized as different types of financial instruments because they resemble put options and credit guarantees. In particular, the degree of risk depends on the type of settlement (physical/cash and binary/FMV) and trigger (default only/any credit event).[39] If a credit default swap is a notional principal contract, periodic and nonperiodic payments on the swap are deductible and included in ordinary income.[40] If a payment is a termination payment, its tax treatment is even more uncertain.[41] In 2004, the Internal Revenue Service announced that it was studying the characterization of credit default swaps in response to taxpayer confusion,[42] but it has not yet issued any guidance on their characterization. A taxpayer must include income from credit default swaps in ordinary income if the swaps are connected with trade or business in the United States.[43]

Loan Credit Default Swap (LCDS): Three Definitions

1. A new type of default swap is the "loan only" credit default swap (LCDS). This is conceptually very similar to a standard CDS, but unlike "vanilla" CDS, the underlying protection is sold on syndicated secured loans of the Reference Entity rather than the broader category of "Bond or Loan". Also, as of May 22, 2007, for the most widely traded LCDS form, which governs North American single name and index trades, the default settlement method for LCDS shifted to auction settlement rather than physical settlement. The auction method is essentially the same that has been used in the various ISDA cash settlement auction protocols, but does not require parties to take any additional steps following a credit event (i.e., adherence to a protocol) to elect cash settlement. On October 23, 2007, the first ever LCDS auction was held for Movie Gallery.[12]

Because LCDS trades are linked to secured obligations with much higher recovery values than the unsecured bond obligations that are typically assumed to be cheapest to deliver in respect of vanilla CDS, LCDS spreads are generally much tighter than CDS trades on the same name.

2. A type of credit derivative in which the credit exposure of an underlying loan is swapped between two parties. A loan credit default swap's structure is the same as a regular credit default swap, except that the underlying reference entity is limited strictly to syndicated secured loans, rather than any loan or bond. For example, the buyer of a credit swap will be entitled to the par value of the bond by the seller of the swap, should the bond default in its coupon payments.

A specific kind of counterparty agreement which allows the transfer of third party credit risk from one party to the other. One party in the swap is a lender and faces credit risk from a third party, and the counterparty in the credit default swap agrees to insure this risk in exchange of regular periodic payments (essentially an insurance premium). If the third party defaults, the party providing insurance will have to purchase from the insured party the defaulted asset. In turn, the insurer pays the insured the remaining interest on the debt, as well as the principal.

3. Also know as a "loan-only credit default swap". As with regular CDS, these derivatives can be used to hedge against credit exposure the buyer may have or to obtain credit exposure for the seller. These products can also be used to make bets on the credit quality of an underlying entity to which parties have not had previous exposure. It is important to understand why LCDS are broken out separately from CDS. The fact that the reference loans are secured leads to higher recovery values if those loans default. As a result, LCDS generally trade at tighter spreads.