



## **GLOBAL CREDIT DERIVATIVES MARKETS OVERVIEW:**

### **Evolution, Standardization and Clearing**

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**IntercontinentalExchange**  
Creditex • ICE Link • ICE Trust U.S. • ICE Clear Europe CDS

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## EXECUTIVE SUMMARY

This paper examines global credit default swap (CDS) markets in the context of recent initiatives to improve transparency, automation, regulation and market standardization. Industry groups, market participants and infrastructure providers have worked closely with regulators including the Federal Reserve Bank of New York, the European Central Bank, the U.K. Financial Services Authority (FSA), the U.S. Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) — among others — who are actively engaged in market reform.

These cooperative efforts to restructure the CDS market and to support the development of the market are part of a larger effort to strengthen regulation of global financial markets following the shocks of 2008. A vibrant and more transparent CDS market is widely acknowledged as a critical public policy objective in order to reduce systemic financial risk. The resulting infrastructure should engender greater confidence in the CDS market and better serve market participants in this regard.

While liquidity in the commercial paper, corporate bond and interbank lending markets disappeared during the recent financial crisis, the CDS market remained active and provided lenders and investors with a way to hedge risk and — just as importantly — a function for market-based price determination. Broader availability of credit protection encourages lending, which supports the expansion of global economies. As lenders and investors consider ways to improve credit risk evaluations, CDS spreads have proven to be a more dynamic indicator of the creditworthiness of an institution rather than credit ratings agencies' ratings alone.

In this paper, we cover:

- The role of CDS in global credit markets
- The evolution of CDS markets, including recent financial market dislocations
- Market-supported regulatory reform, CDS market restructuring initiatives and the results of these initiatives to date, including clearing, compression of gross notional value outstanding and increased market transparency
- Suggested next steps for market enhancement by the industry

## ROLE AND EVOLUTION OF CREDIT DEFAULT SWAPS

Nascent markets arise out of commercial needs, with the CDS market evolving from a need that has been addressed through the use over-the-counter instruments in order to meet a hedging requirement. New markets tend to form up among front-office and trading staff where demand for such hedging requirements would be recognized. Back-office operational procedures tend to take shape as a secondary part of this process, and CDS were not an exception. The speed of development in sales, trading and product design has consistently outstripped the ability of vital back-office functions and technology to capture and process trading information or to automate workflows effectively.

Just as equity and real estate investments have historically presented the risk of bankruptcy, the extension of credit carries the risk of default. While market participants have actively managed interest rate, equity, foreign exchange and commodity risks for several decades, institutions only began to focus on hedging credit risk in the 1990's.

"Plain vanilla" CDS quickly became the most efficient and liquid instrument for lenders, loan underwriters, bond investors, traders and portfolio managers to efficiently transfer and manage credit risk. CDS enable the syndication of credit risk by enabling hedgers to lay off concentrated credit risk to investors willing to take on such risk. In addition to mitigating the concentration of credit risk at banks and other capital providers, CDS enable credit providers to diversify exposure and expand lending capacity. Ultimately, CDS help lower the cost of capital for debt issuers globally by reducing risk for bondholders.

In a plain vanilla CDS, a buyer pays a seller a premium, which is generally expressed in basis points against a notional value (for example, \$10 million), in exchange for the right to sell the underlying bonds at par in the event of default, or to receive the cash equivalent. A default is defined within the terms of a CDS contract, and typically includes bankruptcy, failure to pay interest or a material restructuring of the issuer's obligations. Today, cash settlement has replaced physical settlement as the default mechanism for settling CDS contracts upon the occurrence of a default (this is also referred to as a "credit event"). Cash settlement emerged primarily as a result of a series of automobile industry defaults in 2005, which demonstrated that a shortage of bonds available for delivery against outstanding CDS was increasingly likely. While moving from physical settlement to cash settlement is an early example of CDS market evolution, it is also representative of the gradual maturation of the market over the course of this decade.

Suppliers, customers and other stakeholders with direct financial exposure to a company also use CDS for risk management. Because payments to creditors can be delayed by lengthy bankruptcy proceedings following a default, CDS can help recover cash more quickly.

Credit derivatives have been among the fastest growing derivatives markets, with outstanding notional value increasing from \$100 billion in 1998 to \$1 trillion in 2000 to \$60 trillion in 2007. Notional value declined below \$30 trillion in 2009 as industry initiatives netted gross notional outstanding through portfolio compression and clearing. The adoption of these functions has

increased the accuracy of the true level of net outstanding positions in the CDS marketplace and provided transparency to regulators with regard to market size.

CDS also play a vital role in the provision of transparent, market-based information about credit conditions for bankers, policymakers, regulators, investors and other capital market stakeholders. CDS spreads have been shown to consistently produce timelier and more accurate assessments of credit conditions than rating agencies. While rating agencies are paid by an issuer and rating reviews can take weeks or months to complete, CDS trade continuously. Therefore, credit derivatives markets function as an important real-time signaling mechanism for market participants and observers. The graph below illustrates this point, by comparing the most liquid CDS for Ford Motor Company with Moody's ratings downgrades (red lines) and upgrades (orange line). Clearly, relying only upon the information conveyed in credit ratings is no longer sufficient in making capital allocation decisions.



Ford Motor Company 5Y Senior CDS from 06/04/07 to 02/12/09. Source: Bloomberg

The size of the CDS market is frequently discussed, particularly in relation to the underlying market for corporate debt. At the end of June 2009, the U.S. corporate bond market had an

outstanding notional of \$6.8 trillion<sup>1</sup>, representing only a fraction of all debt securities outstanding across global corporate and government markets. Many derivative markets have gross notional values outstanding that are far in excess of underlying cash market values. This occurs when the demand for a financial claim on an asset is larger than the underlying asset itself, which is a common outcome when multiple counterparties seek to manage similar risk exposures.

Because the Depository Trust & Clearing Corporation (DTCC) confirms most plain vanilla CDS transactions, the DTCC provides the most comprehensive information on gross notional value outstanding, which is a good way to measure the size of the CDS market. Gross notional value is defined as the sum of CDS contracts bought (or equivalently sold) for all contracts in aggregate, by sector or for single reference entities displayed. The aggregate gross notional value and contract data provided are calculated on a per-trade basis. For example, a transaction of \$10 million notional between buyer and seller of protection is reported as one contract and \$10 million gross notional, as opposed to two contracts worth \$20 million<sup>2</sup>. For the end of 2009, the DTCC showed \$26 trillion in gross notional value. Based on current results emanating from ICE's clearing initiatives, which breaks existing long chains of bilateral trades between counterparties by approximately ten-to-one through multilateral netting, this gross notional amount most likely nets down to approximately \$2.5 trillion in true notional outstanding risk. These statistics demonstrate the importance of understanding terminology and how markets are measured, because the gross notional value of CDS — and potentially of other markets — overstates the risk-adjusted size of the market by up to ten times. The reduction in notional is the result of multi-lateral netting, as opposed to bilateral netting, in which multi-lateral netting typically achieves netting ratios of over 90%.

### **Operation of the CDS Markets**

Reports by the President's Working Group on Financial Markets<sup>3</sup>, the Financial Stability Forum and the Senior Supervisors Group<sup>4</sup> confirm that the CDS market performed as expected during the 2008 financial crisis, and demonstrate that the market provided a means of securitizing and distributing credit risk.

The causes leading into the financial crisis of 2007-2009 was notable for its systemic linkages, and the number of institutions and instruments involved were so numerous as to be all-encompassing. Because derivatives were at the center of some of the major episodes of the financial crisis, including the near-collapse and eventual bailout of AIG, no discussion of the crisis is complete without an analysis of the role derivatives played in the turmoil.

<sup>1</sup> [http://www.sifma.org/uploadedFiles/Research/Statistics/SIFMA\\_USBondMarketOutstanding.pdf](http://www.sifma.org/uploadedFiles/Research/Statistics/SIFMA_USBondMarketOutstanding.pdf)

<sup>2</sup> [http://www.dtcc.com/downloads/products/derivserv/tiw\\_data\\_explanation.pdf](http://www.dtcc.com/downloads/products/derivserv/tiw_data_explanation.pdf)

<sup>3</sup> [http://www.treas.gov/press/releases/reports/pwgpolicystatemktturmoil\\_03122008.pdf](http://www.treas.gov/press/releases/reports/pwgpolicystatemktturmoil_03122008.pdf)

<sup>4</sup> [http://www.newyorkfed.org/newsevents/news/markets/2009/ssg\\_030909.pdf](http://www.newyorkfed.org/newsevents/news/markets/2009/ssg_030909.pdf)

It is essential, however, to distinguish between CDS as a product and the wider credit derivatives market. CDS products themselves did not fail and the markets for credit risk remained sound and liquid during the credit crisis. The primary CDS-related issue was that too much risk was concentrated in a firm in a market with minimal transparency, insufficiently collateralized positions at a time when and liquidity simultaneously disappeared.

The causes can be divided into four broad categories:

1. Poor understanding of the risks associated with structured products, including mortgage-backed securities and collateralized debt obligations (CDO's)
2. Excessive reliance on leverage to enhance returns
3. Regulatory gaps and insufficient institutional risk controls
4. Misaligned compensation incentives

The bailout of AIG, for example, was a direct consequence of the size of AIG's portfolio and the fact that it was over-leveraged, too concentrated and over-exposed to highly correlated multiple default risks. AIG's portfolio was erroneously reported, at the time, to have been dominated by CDS, but it was later shown that AIG's portfolio comprised large positions in mortgage-backed securities and complex structured instruments that are not representative of the broader CDS market. In addition, compensation structures failed to appropriately align the interests of risk takers and AIG shareholders. Finally, exposure to CDO's placed the firm at the mercy of a market whose liquidity would disappear at the very moment it would be needed most.

Had AIG procured an arrangement with a clearing house the clearing house would have provided risk managers and regulators a means for indicating the concentration of risk and size of exposure, while marking to market and collecting margin on a daily basis. This would have made holding such a position far more costly — likely to the point of being uneconomic — and subject to scrutiny because of capital costs, concentration risks as well as capital requirements. However, because many of the derivatives that AIG held were likely not clearable (due to their lack of standardization), the broader issue became insufficient capital to back up the positions. By contrast, many of today's reforms call both for clearing, where standardization is available, and for higher capital requirements against non-clearable positions. This two-pronged approach strongly reduces incentives to avoid transparency and collateralization of positions.

The developments that contributed to problems at AIG and other firms were not limited to the credit derivatives market. Illiquidity, fragmentation and lack of transparency characterize many over-the-counter markets because of the customized nature of these markets. Large losses and a lack of appropriate controls have also been seen in more liquid and transparent markets such as futures and liquid OTC products alike. However, these issues can now be addressed through the effective use of increasingly available risk management tools and via the initiatives as described below.

## INDUSTRY AND GOVERNMENT-LED REFORM INITIATIVES

Initiatives undertaken by the financial services industry have been met with the encouragement of global regulators and central banks over the past three years —especially since the events that accelerated the crisis in September 2008 — and have done much to mitigate counterparty and systemic risk, and to increase standardization, transparency and liquidity.

Recognizing the rapid growth in credit derivatives and the potential for systemic risk, the Federal Reserve Bank of New York began an effort to institute standards for CDS operational processing in 2005. Through a series of meetings aimed at bringing improvements in market structure, the industry agreed to work toward reducing trade confirmation backlogs and enhancing post-trade processing.

These and other efforts continue and can be classified into four distinct categories:

1. Trade processing
2. Standardization
3. Price transparency
4. Risk management

## TRADE PROCESSING

The ability to swiftly and efficiently process trade activity is crucial for a market to sustain significant volume growth without introducing excessive operational risk. Initiatives that have enhanced trade processing include:

**Straight-Through Processing (STP):** STP is the electronic system-to-system delivery of trade messages. This eliminates human error that can result when manually keying in trade information into multiple systems. Today, the vast majority of CDS trades that occur are messaged electronically between execution venues, market participants systems and downstream service providers.

**Post-Trade Events:** Once executed, CDS trades often require additional processing for accurate trade capture. For example, a trade can be “allocated” by an investment advisor to multiple funds or accounts. A trade can be assigned or “novated” to a third party. Trades can also be “given-up” to a prime broker for intermediation. Each of these post-trade events introduces added complexity to trade capture process. Today, several post-trade service providers provide workflow and connectivity that allows automated processing of these post-trade events.

**Trade Confirmation:** Trade confirmation is the process by which a CDS contract is legally executed via electronic means, eliminating the need for physical signing of contracts between the counterparties. Confirmation backlogs were one of the most serious deficiencies noted in the 2005 International Swaps and Derivatives Association

(ISDA) Operations Benchmarking Survey<sup>5</sup>. Backlogs can pose significant documentation risk, particularly for names that are subject to a credit event. Such backlogs may result in a direct loss as they can cause a counterparty to rely upon on or hedge a position that is thought to be in place but has not actually been processed. Today, automated trade confirmations take place on the same-day as the trade, as opposed to the day- or sometime week-long confirmation delay that the industry previously experienced, and the backlog has largely been eliminated.

## STANDARDIZATION

**Standardization of Documentation:** No market can truly hope to grow to any significant size without standardization because of the central role that standardization plays in driving liquidity. The CDS industry has made continuous and significant efforts to improve both the standardization and content of documentation, as reflected in the ISDA 1999 and 2003 master documents, and more recently, the 2009 'Big Bang' and 'Small Bang' protocols. These protocols are described in the appendix to this report.

The standardization of documentation is a pre-requisite for electronically processing trades at any significant level of volume, for the increased provision of liquidity and for building investor confidence in the overall market. The use of identical economic terms for single-name trades has also been significant in improving operations across the marketplace. Netting of trades within or outside a clearing house is vastly simplified by creating trades with economic risks that directly offset each other and have the same coupon and cash flow payments.

**Credit Event Settlement:** As CDS volumes grew, a new potential issue arose – that in the event of a default, there may be more outstanding notional of CDS to be settled than bonds eligible to settle the contracts. This would typically cause an increase in demand for the bonds before the settlement which artificially alters the market price.

Credit event auctions (CEA's) provide the CDS market with a standardized and efficient way to determine the price at which all CDS contracts for an individual reference entity can be fairly settled when a credit event occurs. The first CEA was conducted by ICE's Creditex subsidiary and Markit in May 2005, and CEAs conducted by these two firms are now the primary method for cash settlement of standardized CDS since their inclusion in the ISDA 'Big Bang' Protocol of 2009. Ten auctions were conducted in 2008, and 45 CEAs were successfully completed in 2009<sup>6</sup>.

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<sup>5</sup> [http://www.isda.org/c\\_and\\_a/pdf/ISDA-OBS-FpML-2005.pdf](http://www.isda.org/c_and_a/pdf/ISDA-OBS-FpML-2005.pdf)

<sup>6</sup> [www.creditfixings.com](http://www.creditfixings.com)

CEA's allow users to obtain the operational benefits of cash settlement while ensuring a true reflection of market demand and supply to determine a final CDS price. Credit event auctions also help to reduce the risk of a situation where there are fewer bonds available than notional of CDS outstanding, which can artificially drive up the price of the bonds.

The introduction of an ISDA determinations committee (comprised of both buy- and sell-side market participants) to publish determinations concerning credit event issues has further bolstered the transparency, reduced uncertainty around the economic impact of credit events and thus boosted the credibility of the CEA process. This standardized and widely accepted process has also served as a prerequisite for clearing houses to ensure they are able to clear contracts with restructuring as a credit event.

## PRICE TRANSPARENCY

The liquidity of the CDS market, as in all financial markets, depends on striking a balance between the interests of market makers and customers. Market participants require appropriate incentives to risk their own capital in the process of price determination in liquid markets, where price and size at a given point in time is known. The availability of this information to all market participants instantaneously increases investment incentives. Consequently, a balance needs to be struck between the interests of risk and profit, and the CDS market has evolved in this direction.

**Increasing Transparency:** The availability of multiple sources of consensus-based end-of-day (EOD) and intraday pricing has improved efficiency in identifying the best available market prices, facilitated independent valuation of portfolios and improved knowledge about a product's price behavior.

Reports by the DTCC based on trades registered in the Trade Information Warehouse (TIW) provide useful insights to about the outstanding notional on individual reference entities. In addition, centralized trade reporting has enabled the provision of detailed and consistent regulatory reporting.

## RISK MANAGEMENT

The CDS market presents some of the most unusual challenges for risk managers of any financial market. The actual events triggering payout are infrequent compared to trigger events in other financial markets, and seldom arrive without warning.

The management of credit risk becomes more complex when defaults are correlated. The automobile industry in 2005-2006 and the financial services industry in 2008 are excellent

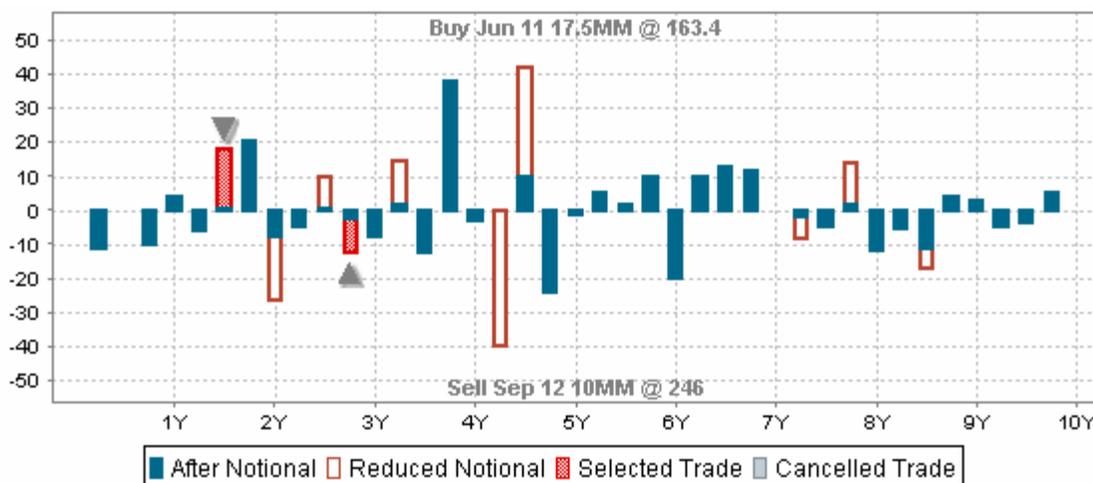
examples of how the default of a major company can cause related industry suppliers, customers, creditors and competitors to fail as well.

Finally, the ease with which CDS writers could undertake offsetting and mitigating positions led to significant levels of partially hedged risk on market makers' portfolios. The lack of efficient post-trade processing then led to the build-up of gross positions that vastly overstated net exposure.

**Gross Notional Reduction:** The historic practice of executing new trades to hedge instead of assigning or terminating existing trades increased the gross notional size of trading books significantly above their net positions. This increased regulatory capital requirements because regulatory capital charges are typically calculated on a gross basis, rather than on a net basis.

The termination of existing trades, and replacement with a smaller number of new trades carrying the same risk profile, effectively reduces gross notional without affecting net positions or risk, resulting in a smaller regulatory capital requirement. Furthermore, there are many operational benefits to maintaining a smaller portfolio of outstanding trades, including the reduction of related back-office work and expense and operational risk.

**Jump-to-default Risk:** Mitigating jump-to-default risk requires the management of the instantaneous profit or loss recorded for a given net notional position that results from a credit event trigger. In the low default environment that existed prior to 2008, jump-to-default was considered a relatively low risk to manage. However, as expectations of default risk changed during 2008 and 2009, so did the importance of managing this risk. Significant amounts of jump-to-default risk are created organically by the three-month rolling of standard CDS contract maturity dates. Participants frequently have significant offsetting long and short positions where the maturity dates differ by three months. The overall market risk of the portfolio may appear fully hedged, but the occurrence of a credit event between the two maturities would subject the participant to a large gain or loss depending upon whether the longer maturity position was a purchase or sale of protection.



In 2008, increased risk-management focus led to the creation of an electronic platform by ICE's Creditex subsidiary that permitted the simultaneous electronic execution of many hedges, in multiple curves, in an extremely short period of time. By 2009 most major market participants were actively using these platforms and achieving a system-wide reduction of over \$1 trillion in jump-to-default risk reduction.

### Central Counterparty Clearing

The absence of a central counterparty clearing house for CDS resulted in a significant amount of uncertainty during the financial crisis of 2008. A clearing house helps to provide the transparency and risk management discipline necessary to eliminate counterparty risk and to ensure appropriate levels of trade collateralization. One of the key developments in restoring market confidence was ICE's introduction of CDS clearing in March 2009.

It is important to note that not all CDS are clearable due to non-standardization and lack of liquidity. Examples of non-clearable credit derivatives include asset-backed indexes, MBS and CMBS indexes and loan-only CDS (LCDS). In addition, securities such as CDO's tend to be more structured and less standardized, and are difficult markets for which to establish clearing.

Clearing relies on a certain level of market liquidity and available pricing data to meet the daily mark-to-market requirements of clearing. As such, it is likely that trading and clearing of CDS will coalesce around more standardized products for which pricing exists. The last few years have shown that not all counterparties are equally risky, and clearing houses are no exception to this rule. In the next section, we provide some of the criteria that are necessary for a clearing house to be effective in guarding against the introduction of systemic risk, and at the same time managing counterparty risk for highly complex instruments.

## Evaluating Central Counterparty Alternatives

### Overview

A key accomplishment in the advancement of this public policy objective has been the establishment of regulated central counterparties (CCP), or clearing houses, to clear standardized CDS contracts. In March and July 2009, respectively, ICE Trust U.S. and ICE Clear Europe began clearing standardized North American and European CDS index contracts, substantially reducing counterparty risk previously associated with OTC bilateral CDS transactions. In December 2009, both of ICE's CDS clearing houses began clearing single-name contracts. At the same time, ICE Trust began clearing for trades involving the buy-side (clients of CDS dealers). Since March 2009, ICE has cleared over \$5.7 trillion of CDS contracts, resulting in approximately \$400 billion of open interest and achieving a 90% reduction of counterparty risk based on gross notional compression. Prerequisites for central clearing include both sufficient contract standardization and reliable, tradable prices; all of which facilitate rigorous risk management. Through the efforts of the marketplace, the industry now has clearable standardized index and single name CDS contracts, together with documentation that removes basis risk when using a CCP.

An important hallmark of mature financial markets is the oversight of and access to a CCP by government regulators. In addition to providing transparency and appropriate levels of regulation, CCP access may protect taxpayers by ensuring consistent rules, appropriate capitalization and accountability. Numerous regulators have oversight of and access to CDS clearing houses, including the Federal Reserve Bank of New York, the New York State Banking Department, the SEC and the CFTC in the United States; and the FSA and German Central Bank in Europe. Regulators, market participants and independent firms help ensure that the management and transfer of credit risk continue to become more transparent with the benefits of clearing.

Market participants have a choice of clearing houses for clearing their credit derivatives positions. Each clearing house has been approved to clear CDS by their respective regulators, and each serves to transfer and mutualize counterparty credit risk. However, there are different approaches to achieve this goal - are all methods as equally effective at reducing systemic risk? Are all equally creditworthy? These are extremely important questions, because the failure of a central counterparty can be as disruptive as or potentially more disruptive to financial markets than the failure of any single market participant, thus impacting clearing members and non-members alike.

When examining the range of competitive clearing offerings, it becomes evident that not all clearing houses are created equal. While we are cautious about oversimplification, central counterparty strength, and the ability to mitigate systemic risk, can generally be evaluated by considering five basic objectives. Each clearing house addresses these objectives differently. The key features a market participant should observe when evaluating a clearing house include:

1. Adequacy and quality of capital
2. Adherence to market standards
3. Open architecture
4. Governance
5. Segregation of risk pools between non-correlated products

### **Adequacy and Quality of Capital**

The financial strength of the central counterparty, including its protections and procedures related to a participant's default, are critical when mitigating the concentration of risk in a way that generate a true reduction of systemic risk. A best-practice approach to the assessment of the financial strength of an individual clearer requires a look beyond risk models alone in order to determine whether sufficient capital will be in place when it is required. This section considers the key risk model inputs that are needed for a robust and conservative clearing framework.

**Price Discovery:** Variation margin, determined by accurate valuation of positions, is at the frontline of protecting the guaranty fund, and ensures that a clearing house does not fail due to lack of funds. Inaccurate prices can create a shortfall in this protection when the clearing house transfers a defaulted member's positions. Given that the size of a single member's gross positions can run to hundreds of billions of dollars, relatively small price differences can cost hundreds of millions of dollars, increasing the risk of using, either partially or completely, the guaranty fund, or of making further assessments on members.

The importance of establishing the market price for every product which clears cannot be overstated. Polling and model-based interpolation processes can be particularly inadequate for providing a true representation of the market, especially when dealing with infrequently traded maturities or reference credits. Even with liquid names, without a requirement to submit executable prices, there is no disincentive to manipulate prices. Therefore, pricing that is utilized for mark-to-market of positions should be based on executable, market prices.

**Robust Models:** The risk models used to establish initial margin and guaranty fund contributions obviously play a critical role in determining the stability of a clearing house. However, such models can only be effective if they accurately reflect the specific nature of the risk associated with the underlying products they are designed to protect. Levels of regulatory scrutiny also play a significant role in determining how much existing risk a clearing house has to ensure that it will not allow margin levels to be driven by commercial pressures. Pressure to reduce the cost of clearing could serve to reduce margin requirements, reducing the integrity and security of the clearing house and its participants, thereby driving up systemic risk.

Finally, because clearing member firms may also be traded and cleared as single name CDS reference entities, this correlation needs to be appropriately accounted for in terms of the number of simultaneous member defaults that could be managed.

**Execution Practicalities:** In extreme market scenarios that involve a defaulting clearing participant, liquidity is likely to deteriorate. A sufficient liquidation period assumption is extremely important to ensure that notional values amounting to several days of normal trading volume can be liquidated effectively. Anything less than five days as a liquidation period almost certainly overstates the ability of OTC markets to absorb a significant portfolio of positions; the requirement for a sufficient liquidation period was demonstrated by Lehman Brothers' default on positions across various asset classes<sup>7</sup>.

**Quantity and Quality of Collateral:** The liquidation of any collateral in stressed markets almost inevitably results in lower levels of sale proceeds. The greater percentage of the guaranty fund held as cash or cash-equivalent assets mean greater protection that will be provided to the clearer. Non-reliance on participants making new contributions of cash (assessment rights), or on the sale of illiquid assets such as corporate obligations or equity shares to fund the portfolio liquidation has clear and obvious benefits for all parties. This is particularly true if the debt or shares of the clearer are eligible as collateral.

Because the risks and liabilities of futures and swaps are different, segregation of mutualized risk pools between these asset classes appears warranted. For example, futures contracts have full delivery liabilities and tend to have short lives, while swap contracts often have much longer maturity dates and have only payments at the stipulated periods and in the case of CDS contracts, a fixed and maximum final payment.

### **Adherence to Market Standards**

Cleared trades also benefit from standardization, not just in economic terms, but in legal documentation between parties; this vastly simplifies the documentation and execution process and eliminates documentation risk. Support of trade-date clearing, which allows executed trades to be processed through novation and affirmation platforms (such as ICE Link) and immediately receives protection by the clearer, further reduces the need for any bilateral documentation. For those clients willing to have broken trades as the fallback in the unlikely event of an unclearable trade, bilateral derivative documentation will be eliminated.

### **Open Architecture**

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<sup>7</sup> [http://www.lchclearnet.com/media\\_centre/press\\_releases/2008-10-08.asp](http://www.lchclearnet.com/media_centre/press_releases/2008-10-08.asp)

The design of a clearing house, and its ability to operate seamlessly and flexibly within the market infrastructure, are an important to consider when evaluating a CCP's effectiveness in reducing systemic risk. A commitment to open architecture, independent of execution venue, will allow a clearer to respond dynamically to customer needs, to the marketplace in general and to regulators in a much more effective manner.

**Pre-trade Price Transparency and Trade Capture:** All clearing houses should be willing and able to support any major trade capture and affirmation platforms and provide equal access and support. Failure to support existing platforms that already have market-wide connectivity will significantly slow the speed of implementation.

**Post-trade Reporting:** Clearing houses should be able to accommodate any current or future requirements to report price and size of transactions when executed.

**Customer Protections:** Well-defined segregation and portability are central requirements of a CCP. In order to reduce systemic risk and protect client trades and collateral in the event of a clearing member default, customer positions and margin must be segregated and portable, without legal uncertainty. A clear resolution of the systemic risks and uncertainty that have previously occurred around these issues is of paramount importance. In addition, segregation rules should comport with applicable bankruptcy law in order to avoid lengthy court proceedings.

## **Governance**

Experience managing clearing organizations is essential to effective operation of a CCP. Rules, procedures and models are only effective to the extent that they are carried out with precision. Clearing organizations require a rigorous system of independent checks and balances, experienced staff, and a culture that values the clearer's role in protecting the market and the public at large. Some of the key characteristics of an effective clearinghouse governance model include:

- An Independent board of directors with extensive regulatory, clearing and market expertise
- A formal risk committee to represent and protect the interests of the members and their contributed capital to the guaranty fund
- Industry advisory committees to represent the views and interests both of clearing members and their clients
- An executive management team with extensive regulatory, operational and market expertise
- A culture that understands clearing and the importance of regulation, and values its role as a service provider to the industry and the public

## NEXT STEPS FOR DEVELOPMENT AND GROWTH

What can we expect to see as these important changes transform the CDS market? In our view, the many steps taken to-date will drive the market's repair and recovery. Yet, there are more changes to come in order to strengthen the market and ensure it is appropriately regulated and restructured.

**OTC Clearing:** The advent of clearing has been one of the most important changes to the market — but it is not a panacea. In less than one year since the inception of ICE Trust, ICE's clearing houses have collectively cleared over \$5 trillion in CDS index trades in the U.S. and Europe. Since the commencement of buy-side and single-name clearing in December 2009, and the continued evolution of risk and pricing systems, clearing is well on its way to becoming a comprehensive market solution.

Besides the mutualization of counterparty risk, the introduction of clearing brings potentially the final significant standardization of CDS documentation. Movement away from bi-laterally negotiated contracts (ISDA Master Agreements), or collateral arrangements, to a truly standard contract will reduce documentation risk. Clearing houses by their nature can only operate effectively with one set of documentation being used by all participants. This step will go far toward completing the risk management and standardization requirements of industry and regulators.

**Normal Market Maturation:** Increased standardization, transparency, processing efficiency and risk management are coming to the CDS market. Like all markets that arise to serve a commercial need for hedging and risk management, credit derivatives are commoditizing to ensure the viability of the product for the longer term. This is not dissimilar to previous developments in many benchmark futures or options contracts for financial and commodity products, which went through several iterations in product design and standardization before becoming the product that best served the market.

**Regulatory Change:** The need for regulatory uniformity and coordination, especially between the U.S., U.K. and E.U. is evident. Ultimately, this will prevent the possibility of regulatory arbitrage having a more significant effect on the marketplace than enactment of new legislation. While considerable uncertainty remains about the direction of public policy, the market itself is providing solutions that can be codified and adopted broadly, such as clearing of standardized products and regulatory reporting.

As the market continues to absorb current developments, regulators have opened the discussion of increased electronic trading of CDS and other increasingly standardized OTC derivatives. In CDS, it is still not clear what model of trading will emerge — whether it will be electronic dealer-to-dealer execution, parallel dealer-to-client trading, or a more

exchange-based model. Regardless, electronic trading has traditionally opened markets to more participants and increased market liquidity for standardized products and importantly, a robust clearing system is in place to support the CDS market, regardless of the trading solution.

## Conclusion

While it is perhaps too early to draw conclusions about the future size and expanded role of the credit derivatives market, it is clear the CDS market has made significant improvements to its overall market structure over the last two years. These changes have been significantly broader and deeper than any set of changes seen in recent financial markets, and have been implemented on an unprecedented timescale amid significant market turmoil. These major reforms include:

- Automation of trade capture and affirmation
- Reduction of outstanding unsigned trades
- Reduction of unnecessary gross notional outstanding
- Contract standardization
- Introduction of clearing
- Increased market transparency and regulatory reporting

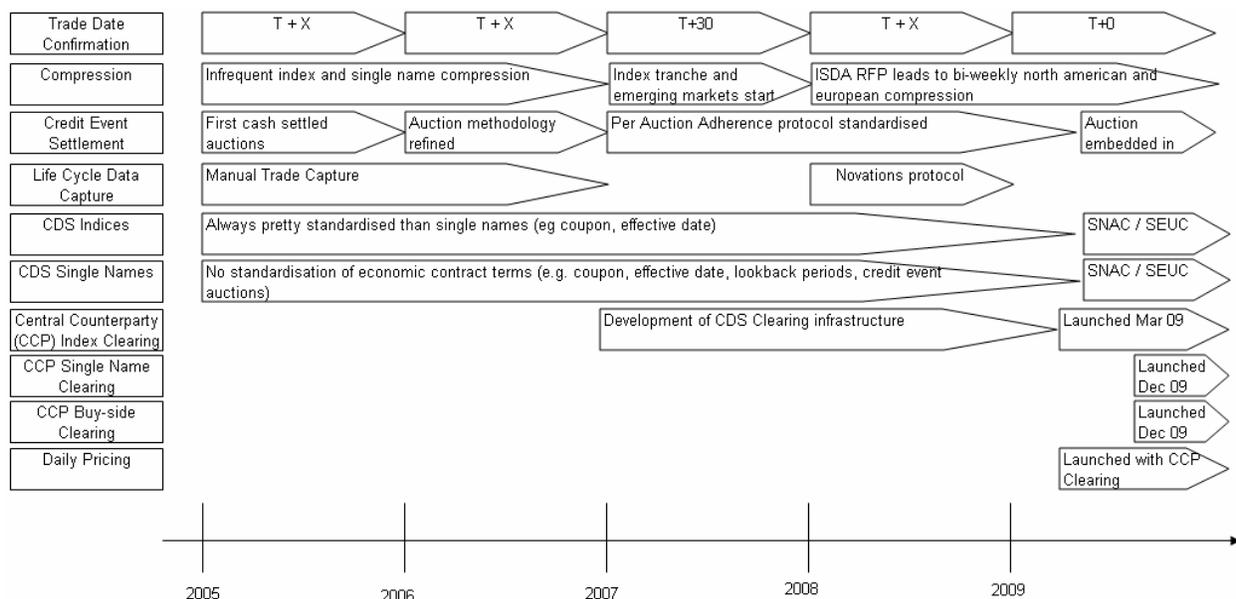
These changes are helping to rebuild liquidity, create transparency and improve risk management practices. Increased regulation is bringing confidence to existing and potential market participants alike, and the recovery of financial markets is bringing capital to support credit markets.

Several of these changes, notably clearing, are still in the early stages of implementation. As service providers and participants continue to facilitate the adoption of these changes, they will become widespread and deeply embedded in the market, just as they have in other markets. Automation of trade capture and communication will likely increasingly be a prerequisite for market participation. Market participants and regulators have played a key role in the development of new, market-driven solutions that fit into existing workflow while improving the soundness of the CDS market infrastructure and the continued evolution of this market will likely be driven by the need for hedging credit risk in a secure, regulated environment.

## Appendix A:

### Operational Initiatives

The table below provides a summary of the operational changes in the CDS market since 2005



### Glossary:

**Affirmation** — The process by which two counterparties verify that they agree the primary economics of a trade. The affirmation process may be done by telephone, voice recording, and email or on an electronic checkout platform. Source: [http://www.isda.org/c\\_and\\_a/oper\\_commit-dcq-glossary.html](http://www.isda.org/c_and_a/oper_commit-dcq-glossary.html)

**Backload** — The process of inputting existing trades into a trade repository, such as a clearing house, or the DTCC Trade Information Warehouse. The process includes agreeing the full economics and legal documents between two counterparties before the trade is placed. Source: [http://www.isda.org/c\\_and\\_a/oper\\_commit-dcq-glossary.html](http://www.isda.org/c_and_a/oper_commit-dcq-glossary.html)

**Big Bang Protocol** — Formally known as the 2009 ISDA Credit Derivatives Determinations Committees and Auction Settlement CDS Protocol, the Big Bang Protocol incorporated auction settlement “hardwiring” terms into standard CDS documentation. Source: <http://www.isda.org/press/press040809.html>

The Big Bang Protocol was a major change for the credit derivatives market, not just in terms of the documentation, but also in the changes that have made the determination of the future of the market more inclusive. It standardized coupon rates, the date upon which contracts were effective and the periods of time for the triggering of credit events. In addition the market standard credit event triggers were cut to two – Bankruptcy and failure to pay (restructuring was

removed). Upon a credit event, all contracts now cash settle as default, instead of requiring physical settlement. The settlement price is determined by a single set of auctions.

A later 2009 CDS Protocol (known as the Small Bang protocol) made changes specific to the European market, where restructuring is still a credit event trigger, to provide for the more nuanced settlement process that exists in the event of a restructuring credit event trigger.

Source: [http://www.isda.org/smallbang/sbprot\\_faq.html#sf1](http://www.isda.org/smallbang/sbprot_faq.html#sf1)

DTCC Trade Information Warehouse (Warehouse or TIW) — The DTCC Warehouse is the global repository for OTC credit derivatives. TIW maintains the official legal or "gold" record for virtually all credit derivatives transactions throughout their multi-year lifecycle. The repository also stores key information on market participants' single-sided, non-legally binding, CDS transactions to help regulators and market participants gain a clearer and more complete snapshot of the market's overall risk exposure. Source:

[http://www.dtcc.com/products/derivserv/suite/trade\\_reporting\\_repository.php](http://www.dtcc.com/products/derivserv/suite/trade_reporting_repository.php)

DTCC Deriv/SERV — DTCC Deriv/SERV provides automated matching and confirmation services for OTC derivatives trades. Source: <http://www.dtcc.com/about/subs/derivserv.php>

Guaranty fund — A fund of cash or highly liquid securities (e.g., U.S. government debt) capitalized by the members of a clearing house to mutualize losses in the event of a default by a clearing member or its customers.

ISDA Master Agreement— The governing document for most OTC derivatives, including credit derivatives. The agreement includes terms that the parties wish to include in all future transactions—for example, governing law, covenants, and so on. Once the parties execute the agreement, it serves as the contract under which all future OTC derivative deals take place. Each deal is evidenced by a confirmation, which contains the terms of the individual transaction such as reference entity, maturity, premium, notional amount, credit events, settlement method, and other transaction-specific terms. The terms of the confirmation in turn draw from the ISDA definitions pertaining to the product; for CDS, the relevant definitions are the 2003 ISDA Credit Derivatives Definitions. Source: [http://www.frbatlanta.org/filelegacydocs/erg407\\_mengle.pdf](http://www.frbatlanta.org/filelegacydocs/erg407_mengle.pdf) David Mengle, "Credit Derivatives: An Overview," Federal Reserve Bank of Atlanta Economic Review, Fourth Quarter 2007

ISDA Novation Protocol — ISDA Novation Protocol offers parties to the various Master Agreements published by ISDA an efficient means to agree to a uniform process by which consents to transfer of interests in Credit Derivative Transactions and Interest Rate Transactions (Covered Transactions as defined in ISDA Novation Protocol) may be obtained. ISDA Novation Protocol sets out a process by which the Transferor, the Transferee and the Remaining Party will communicate prior to or concurrent with a transfer by novation of a Covered Transaction and anticipates that the transfer must be requested and provided using one of the specified electronic means Source:

<http://www.isda.org/isdanovationprotll/isdanovationprotll.html>

Jump-to-default risk — the risk of a sudden default occurring before the market has had time to factor the increased default risk into current spreads. Source:

<http://www.ecb.int/pub/fsr/shared/pdf/financialstabilityreview200906enspecialfeaturesE.pdf?65dc7f76dd6a08ab8b50072139a52aae> European Central Bank Financial Stability Review, June 2009

Novation — The process by which one counterparty (transferor) agrees to transfer to a third party (transferee) its obligations under an existing transaction they have with another counterparty (remaining party). Source: [http://www.isda.org/c\\_and\\_a/oper\\_commit-dcg-glossary.html](http://www.isda.org/c_and_a/oper_commit-dcg-glossary.html)

Segregation and portability — In a clearing house context, these terms refer to the disposition/handling/administration of customer margin deposited with a member of a clearing house. In the event of a default of by clearing member, segregation ensures that the customer's margin is protected from any mutualization or liquidation associated with the clearing member's loss. Portability ensures that the customer's positions and margin can be transferred to a new clearing member in the event of a default by the customer's designated clearing member. Source: [https://www.theice.com/publicdocs/ICE\\_CDS\\_Clearing\\_Buyside\\_FAQ.pdf](https://www.theice.com/publicdocs/ICE_CDS_Clearing_Buyside_FAQ.pdf)

Trade capture — A usually automated process for recording the terms of an OTC transaction. Generally, both counterparties to a transaction enter trade details and other information (credit risk, market risk, position verification) into their respective trade capture systems. Source: [http://www.isda.org/c\\_and\\_a/pdf/ISDACommoditiesLifecycleEvents.pdf](http://www.isda.org/c_and_a/pdf/ISDACommoditiesLifecycleEvents.pdf)

Trade confirmation — The process immediately following an over-the-counter (OTC) transaction in which traders confirm details of a trade. Source: [http://www.isda.org/c\\_and\\_a/oper\\_commit-dcg-glossary.html](http://www.isda.org/c_and_a/oper_commit-dcg-glossary.html)

Trade confirmation backlog — An accumulation of unconfirmed trades. In September 2005, the Government Accounting Office reported that more than 60 percent of trade confirmations of the 14 largest credit derivatives dealers had been outstanding for more than 30 days. Large backlogs of unconfirmed trades increase operational risk, because unconfirmed trades could allow undetected errors to cascade, resulting in losses and other problems. Source: <http://www.gao.gov/new.items/d09397t.pdf>

Variation Margin — Payment made on a daily or intraday basis by a clearing member to the clearing organization based on adverse price movement in positions carried by the clearing member, calculated separately for customer and proprietary positions. Source: [http://www.cftc.gov/educationcenter/glossary/glossary\\_uv.html](http://www.cftc.gov/educationcenter/glossary/glossary_uv.html)

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