From over-the-counter to centralized clearing – The case of credit derivatives

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Executive Summary

The sub-prime crisis has highlighted several shortcomings of over-the-counter (OTC) nature of trading in credit derivatives – most notably, counterparty and operational risk concerns and the lack of transparency. We argue the primary issue is that bilaterally set collateral and margin requirements in OTC trading do not take account of the counterparty risk externality that each trade imposes on rest of the system, allowing systemically important exposures to be built up without sufficient capital to mitigate associated risks. We propose the following comprehensive solution to address this and other shortcomings:

(1) OTC markets that grow “sufficiently large” should be migrated to a centralized clearinghouse which also acts as a counterparty to ALL trades ensuring minimal, near-zero counterparty risk;

(2) Well-standardized products such as credit default swaps (CDS) or credit indices should be considered for migration to exchange-based trading where several well-capitalized market-makers provide liquidity, the clearinghouse of the exchange acts as a counterparty to ALL trades, and also provides significant transparency in terms of aggregated or trade-level price and volume information;

(3) OTC markets deemed important for counterparty risk concerns but that are not sufficiently large should also be subject to a centralized registry;

(4) Regardless of market structure (centralized registry, centralized counterparty, or exchange), regulators should have expedient access to information on bilateral positions in significant OTC markets;

(5) Finally, given the binary nature of default events, collateral and margining arrangements based on daily marking-to-market should be carefully designed to ensure minimal counterparty risk of centralized counterparties in credit derivatives, recognizing that some counterparty risk – higher than that in other products – may be unavoidable. Adverse consequences arising from such residual counterparty risk can be mitigated through a choice of appropriate level of transparency regarding bilateral exposures.
I. OTC Credit derivatives – A snapshot

Credit derivatives, mainly Credit Default Swaps (CDS) and Collateralized Debt Obligations (CDOs), have been under great stress since the inception of the sub-prime financial crisis, and in turn, they have contributed to the severity of the market disruption. It has been argued that this is in large part because these relatively new products are traded over-the-counter (OTC) in bilateral transactions between banks and other institutions, unlike other financial derivatives such as equity options and futures contracts, which are mainly traded on exchanges.

Although OTC contracts can be more flexible than standardized exchange-traded derivatives, they also suffer from greater counterparty and operational risks, as well as less transparency. Each party in an OTC contract bears the risk that the counterparty will fail to fulfill its obligation in the future. Operational risk creates uncertainty about whether OTC trades will be cleared and settled in an orderly manner. Since there is no centralized trading platform in OTC markets, information about prices and trading volume is very limited, making trading much less transparent than exchange trading. An important reason why these risks and lack of transparency can be detrimental to financial stability in a stressed environment is that even information on the total amount of outstanding credit derivatives is misleading because of a lack of a centralized database. Although the Depository Trust and Clearing Corporation (DTCC) has recently begun publishing some disaggregated information on volumes of one credit derivative – the credit default swap – it is only a small step towards the level of transparency desirable for market resilience during stress.

Consider first the CDS market. This market has grown by leaps and bounds since its inception in the mid-1990’s, with reported total notional amounts outstanding rising from around $180 billion in 1998 to a peak of over $60 trillion by mid-2008. Many commentators express concern that this is much more than the total value of the underlying corporate bonds and loans that these contracts are designed to insure. But in this OTC market, the outstanding amount is estimated from surveys of dealers. To see how this distorts the picture, consider an investor who owns $100 million in XYZ corporation debt and buys protection by entering into a $100 million credit default swap with Bank A. Since both counterparties are surveyed, this would be reported as two $100 million CDS contracts. Bank A then hedges its exposure by buying a CDS from Bank B. This raises the total outstanding CDS to $400 million. Bank B buys a CDS from Bank C - another $200 million in CDS - and finally, to cut the example short, Bank C hedges by buying protection on XYZ from an end investor, that is, an investor that wants to bear XYZ's credit risk, rather than hedging it, in return for receiving the swap spread as a premium. Due to the bilateral nature of OTC trading, this chain, which involves one buyer of $100 million of protection, one ultimate protection seller, and three market-
making intermediaries would be reported as an increase of $800 million in outstanding CDS notional principal.

The settlement of CDS contracts written on Lehman Brothers, following its bankruptcy in September 2008, provides a striking example of this phenomenon. About $400 billion of CDS were presented for settlement, but once all the offsetting trades, like those between Banks A, B, and C above, were netted out, the DTCC estimated that only about $6 billion ultimately changed hands. The key issue though is how investors are to know the exact translation from $400 billion of gross notional amount outstanding to just $6 billion net. At the time of Lehman Brothers' bankruptcy, the substantial ambiguity about the likely net figure that would change hands, and whether this would lead to counterparty losses for some other banks, sufficed to paralyze inter-bank lending markets (up until the government rescue plans were rolled out).

Although both CDS and CDOs have contributed to the credit crisis, they have done so in quite different ways because the instruments themselves vary in their risk characteristics. Most CDOs represent claims on an underlying pool of risky debt instruments, such as corporate bonds or mortgage loans. Default risk is inherent in the securities that are placed in the pool. That risk exposure is split up among the different CDO tranches that are created in the securitization process, with buyers of the riskiest "equity" and "mezzanine," tranches bearing most of it. These investors may end up losing most or even all of their principal value. But this risk is comparable to the risk on a bond: the investor cannot lose more than was invested initially. By contrast, a credit default swap is like an insurance contract. The protection buyer pays a regular premium, maybe a few hundred basis points a year, while the protection seller is exposed to the risk that the "reference entity" (the firm or sovereign borrower the CDS is written on) will default. If that happens, the seller is liable for the default loss on the obligor's debt, which can be as much as the entire principal amount of the CDS. In the Lehman case, the protection sellers had to pay out about 92 cents on the dollar, several times the initial cost of the protection.

We therefore feel that the need to bring credit derivatives out of the purely OTC market in which they are currently traded is most pressing for the CDS market. We will concentrate on them in this paper, discussing briefly at the end the relevance of our proposal for other credit derivatives such as CDOs.

II. Weaknesses in the CDS trading infrastructure: Some examples

A firm's CDS spread - the fee a buyer pays for default protection - is widely believed to be one of the best market indicators of its credit risk. The spread tends to widen dramatically during a period of general financial stress, such as we are experiencing
now. Is this widening simply due to a rise in the credit risk of underlying obligors? Increased default risk of obligors is clearly the most important factor, but an increase in perceived counterparty risk – the risk that the writer of the CDS contract will fail to fulfill its obligations or that the buyer of the contract will default leaving the seller with risk of replacing the contract at new prices and terms – is also an important culprit. In fact, when the underlying obligor is a financial institution, the counterparty risk effect can be substantial as the intermediaries in the CDS market are also other financial institutions. In particular, large global financial firms fluctuate in value together, due to their interconnectedness in the global markets, so that an increase in the credit risk of one is generally adverse news about the credit risk of others. This effect, along with the fact that such institutions are tied to each other through chains of OTC derivative contracts described above, means that the failure of one institution can substantially raise CDS spreads on other institutions, making it difficult for investors to separate the credit risk of the obligor from CDS counterparty risk.

Such systemic concerns arising from counterparty risk in CDS contracts have grown dramatically over the last year. For example, like Bank B above, Bear Stearns was a leading “clearer” of the CDS contracts between financial institutions. Its imminent failure in the first half of March 2008, sparked fear amongst major financial institutions over the settlement and clearing of many trades, that would have resulted in market disruption and mark-to-market losses for other institutions. The lack of transparency in the exposures of different institutions to each other aggravated such fears immensely, causing CDS spreads on financials to rise substantially beyond what would be based only on their credit risk. The Fed and the Treasury orchestrated a bailout of Bear Stearns because it was “too interconnected” to be allowed to fail. The consequences of allowing a large OTC derivatives intermediary to fail became painfully visible also when Lehman Brothers filed for bankruptcy shortly thereafter, once again causing CDS spreads to rise sharply and in fact leading to a freeze in inter-bank markets as well. Many observers now feel, with the benefit of hindsight, that Lehman was a systemically important counterparty and it was a serious mistake to let it fail.

The claim that widening of CDS spreads around these bank failures was likely attributable to counterparty risk concerns is substantiated empirically by Exhibit I (Leland, 2008) which compares the behavior of market-quoted CDS spread on Goldman Sachs relative to its equity-implied CDS spread.\(^1\) The two series increasingly

\(^1\) This graph by Hayne Leland employs a structural model of credit risk to find the asset volatility and asset value level that matches the model equity volatility with options-market's implied volatility, and the model equity value with actual equity value. It assumes a constant (and relatively low 9 basis points) liquidity premium on CDS contracts. The model builds on Hayne Leland’s 2006 Princeton lectures which include jump risk and liquidity premiums on debt
grow out of sync as the Bear Stearns default approaches; the “dislocation” reduces after the resolution of Bear, retaining nevertheless a higher level than during the pre-March period; dislocation skyrockets again around the Lehman Brothers and AIG episode of mid-September, reducing again to an extent in October 2008 following the announcement of rescue package for banks. While there may be other liquidity factors delinking the CDS and equity markets, counterparty risk and clearing concerns stand out as a primary candidate.

The specific problems experienced by AIG during September 2008 highlight yet another shortcoming of OTC credit default swaps. AIG was in the position of the ultimate protection seller in our example that takes on the default risk of XYZ and does not hedge. AIG regarded default protection as just another kind of insurance, like insuring automobiles. Because of its AAA credit rating, AIG’s counterparties did not require it to post collateral when it sold protection, but they did impose the condition that collateral would be required if AIG’s credit rating fell. On September 17, 2008 AIG was downgraded to A- by Standard and Poor’s and to A2 by Moody’s, which touched off an immediate collateral call for over $13 billion. AIG could not raise that amount quickly and had to be saved from insolvency by a hasty bailout by the Fed and the Treasury.

III. The benefits of centralized clearing

The above examples show that OTC markets have some undesirable features, especially during a financial crisis. Yet, the huge OTC market for interest rate swaps has thrived for the past 25 years. Why can’t participants in the CDS market privately achieve outcomes that efficiently address these undesirable features? Put another way, why might a regulatory solution in the form of a centralized clearinghouse or exchange be desirable for credit default swaps?

First, all OTC contracts – including CDS – feature collateral or margin requirements, wherein counterparties post a deposit whose aim is to minimize counterparty risk. The deposit is adjusted daily based on fluctuations in value of the underlying contract (marking to market) and the creditworthiness of the counterparties (as we discussed in the case of AIG above). The difficulty, however, is that such collateral arrangements are negotiated on a bilateral basis. Parties in each contract do not take full account of the fact that counterparty risk they are prepared to undertake in a contract also affects other players; indeed, they often cannot take account of this counterparty risk

(www.princeton.edu/bcf/newsevents/events/links/lectures-in-finance/index.xml). We are grateful to Hayne Leland for sharing the exhibit with us.
externality in an OTC setting, due to lack of adequate transparency about the other positions of counterparty and its inter-connectedness with the rest of the market. While bilateral collateral arrangements do respond to the worsening credit risk of counterparties, such response is tied to agency ratings which are sluggish in capturing credit risk information and potentially inaccurate due to the current incentive structure of ratings provision.

Second, it would be natural to require counterparties with large shares of exposures to post higher collateral requirements. Otherwise, when the counterparties unwind these exposures in an abrupt manner, as witnessed in the case of Lehman Brothers and AIG, severe price pressure can be exerted on markets at large. Since OTC markets prevent aggregation of information about institution-specific positions, they also preclude a ready identification of large exposures. Indeed, AIG was an extreme case but it also reflected clearly that each of its individual counterparties did not fully internalize the benefit of its margining on other counterparties, resulting in low overall margins, which allowed AIG to take on the systemically large underwriting of CDS protection. Specifically, had the counterparties been aware of AIG’s large exposure, they would have insisted on larger margins being posted, restricting AIG’s ability to accumulate such a large position over time.

Finally, the same forces outlined above create resistance from large players to move trading from OTC markets to centralized clearing or exchanges. Large players benefit from the lack of transparency in OTC markets since they “see” more orders and contracts than other players do. They can also unwind or take on large positions at lower costs (that is, without moving the market much) in an OTC setting as they can trade with different counterparties and thereby ensure that their overall trade remains disguised. Not only would they lose these benefits, but large players would also be required to post higher collateral to clearing houses and exchanges. However, we will argue below that during a systemic crisis, no player enjoys a significant relative advantage of trading on their own credit. Hence, in a situation such as the one we are in right now, the public good aspects of a reduction of systemic risk in the context of a clearing house or an exchange likely far outweigh any specific benefits that even best-rated and largest players may enjoy from bilateral contracting in an OTC market.

IV. Possible solutions and their relative merits

In what specific form should OTC trading be migrated to centralized clearing? Let us first distinguish three forms a clearinghouse might take (Exhibit II).

**Solution I: Registry.** The most basic form would just be a central registry of deals that are set up privately in bilateral negotiations between counterparties. Such a clearing
facility could perform such functions as holding collateral for the counterparties, marking deals and collateral to market daily, and facilitating the associated transfers of funds, with appropriate netting of amounts, among all of the institutions it deals with. Centralization of information about outstanding CDS deals would allow a major improvement in transparency in the market, and netting of margin flows among the counterparties would increase efficiency. But counterparty credit risk would remain a problem to be dealt with privately by the participants. At this time, the DTCC performs some of these functions for a large fraction of the OTC traded CDS. An important limitation of this level of centralization is that the risk of counterparty failure prevents two identical, offsetting contracts from being netted out; thus, the gross amounts outstanding would be much larger. Another limitation is that even though regulators, in principle, can access information on positions from DTCC, strictly speaking there is no such requirement on part of the DTCC; and, even if regulators could obtain the information, they would need to undertake the extra step of marking-to-market these positions and translating the network of gross positions into net ones. In essence, under a pure registry solution, information on exposures that would be desirable for efficient response in a stressed environment is unlikely to be available to regulators with expediency.

Solution II: Clearing House. The next level of centralization would be for the clearing facility to become the counterparty and guarantor to each of the original counterparties in a deal. Each trade would be set up bilaterally, but then the CDS would be broken into two separate contracts with the clearing house in the middle, as is done by the clearinghouse of a futures exchange or by the Options Clearing Corporation for exchange-traded options. This kind of clearinghouse would greatly reduce counterparty risk in the market, as long as it was adequately protected against default. An important element of that protection is that the clearinghouse would set uniform margin requirements on all deals. In contrast to a pure registry arrangement (Solution I), a centralized counterparty cum clearinghouse would enable netting of identical, offsetting contracts, an attractive feature given the problems witnessed in CDS markets during the current crisis. However, by designating a single entity as the centralized counterparty, this arrangement puts the onus of maintaining near zero counterparty risk entirely on that one entity.

Solution III: Exchange. The most centralized form of market organization would be to move CDS trading to a formal exchange. An exchange eliminates the bilateral nature of OTC trading and opens it up to a much broader range of market participants, at highly visible prices. As with a centralized clearinghouse, two identical, offsetting contracts are netted out: in other words, a counterparty can completely exit a position by putting through an offsetting trade on the exchange. In effect, the clearing corporation of the exchange absorbs the counterparty risk. Differently, however, in an exchange, several market makers would be licensed instead of there being just one
centralized counterparty and these licensed entities would be required to meet standard collateral requirements. If a market maker defaults, the exchange clearinghouse uses its resources to honor all affected contracts, and if necessary, draws upon the capital of its member firms. One important benefit of this would be that the CDS market making function - which currently sits under the universal banking structure that is subsidized by government guarantees - would be (spun off and) separately capitalized as “specialists” in CDS, reducing significantly the likelihood of systemic spillovers from the failure of a CDS intermediary to the banking sector.

Exchanges also set margin requirements for individual buyers and sellers. Whenever the amount on deposit becomes too low, the exchange sends a margin call, and failure to restore the margin to the required level leads to immediate liquidation of the position. This system mitigates counterparty risk between a trader and the brokerage firm and between the broker and the clearinghouse, thus effectively eliminating it entirely for contracts traded on the exchange. Futures exchanges proudly point to the fact that no trader of an exchange-traded futures contract has ever lost money due to a default by the clearinghouse.

Finally, exchanges also aggregate trade-level information and provide transparent dissemination of information about prices, volumes and open interest to market participants and the general public. This information makes it possible for regulators, both at exchanges and at government agencies, to monitor the outstanding positions of a particular institution, and also of a particular contract. Going beyond issues of counterparty risk, exchange-based trading would also facilitate introduction and enforcement of other rules such as insider trading and market manipulation laws.

One significant inconvenience of exchange trading of derivatives is that the contracts need to be quite standardized to permit a large number of traders to be trading the same instrument. Standardization would create a challenge for many OTC products, like CDO tranches. However, OTC credit default swaps are already highly standardized with regard to maturities, and other terms that are mostly specified by selecting standard options in an ISDA (International Swaps and Derivatives Association) agreement. A bigger issue is resistance from large players to move trading from OTC markets to centralized exchanges, because they benefit from lack of transparency of OTC markets and would likely be required to post higher collateral to clearinghouses and exchanges.

Of course, such higher collateral requirements would reduce the willingness of some players to take large positions, and standardized contracts would limit customization and innovation. However, in the current context, reining in risk-taking motives of financial institutions and limiting the possibility of trading “toxic” securities in opaque markets may be seen as desirable objectives. With exchange-based trading, the most creditworthy institutions would not enjoy a substantial comparative advantage, given
the uniformity of collateral requirements and the anonymity of trading. Also, greater transparency would reduce the profits of institutions with large market-making shares. For example, it would be harder to disguise their activities in putting on or unwinding large trades. However, exchanges such as the New York Stock Exchange, have successfully dealt with such concerns by creating an “upstairs” market for negotiation and execution of large trades.

In considering the three levels of centralized clearing, we feel that the lowest level - a basic registry of deals - is not enough. While transparency is substantially improved and some efficiency is gained in dealing with cash flows, the critical problem of counterparty risk is not dealt with. On the other hand, while we see significant value in moving to a fully public exchange, the need to standardize products sufficiently to allow a liquid market would be a problem for credit derivatives other than the CDS, and of course, the overhead cost of setting up and running an exchange could be substantial. The major gains from establishing a centralized clearing facility are obtained once there is a clearinghouse that assumes the role of counterparty and guarantees every trade.

The key issue in ensuring minimal, near-zero counterparty risk is how to set margin requirements such that the creditworthiness of the clearing house is never called into question. A trader must have confidence that there is no counterparty risk in a contract with the clearinghouse on the other side. This is where credit default swaps present a different type of risk exposure than other derivatives that are traded on or off exchanges. Established exchanges set the initial and maintenance margin requirements for a derivative contract based on the estimated size of daily price changes. The amount on deposit should be more than adequate to cover the loss that would occur on a day when the price moves by an unusually large amount. When there is a deficiency, the margin call must be satisfied by the next day. By marking the position to market daily and requiring that at least the maintenance margin amount be on deposit each day, the clearinghouse is almost completely protected against default by a market participant.

Similar to a futures contract, the daily fluctuations in a CDS market spread are quite visible and the clearinghouse would have no trouble establishing settlement prices for mark to market calculations. But, unlike futures contracts, when there is a credit event, the liability of the protection seller in a CDS immediately jumps to a much higher level, possibly up to the entire amount of the protected principal in case recoveries in default are low (as was the case with the Lehman CDS). No margin requirement less than 100% of the notional principal can provide full protection against the counterparty risk borne by the clearinghouse. This presents an important problem. If 100% margin were required to sell protection on an obligor whose probability of defaulting may be only a few percent or less, the market would disappear. But if the clearinghouse is exposed to
a significant default risk whenever a CDS protection seller has to pay off, its guarantee loses effectiveness.\footnote{Note that this issue of margining for the “binary” or “digital” nature of obligor’s default applies also to bilateral contracts in OTC credit derivatives markets. To our knowledge, margining in bilateral contracts does not explicitly deal with the issue, perhaps explaining the significant counterparty risk concerns that arose with regard to the CDS contracts during the sub-prime crisis.}

One possibility might be to require that participants (or market makers in case of an exchange) post significant initial margins to the clearinghouse. While this would limit entry, it would ensure that CDS market-making activity is always sufficiently well-capitalized. Another possibility is to set 100% margin for a protection seller’s largest position across different reference entities (perhaps even setting limits on maximum exposures, as many futures exchanges do), and substantially lower amounts for additional positions. This would cover the clearinghouse fully in case of a first default, and provide time to issue a margin call for additional collateral on the remaining positions, as long as no more than one credit event occurred on the same day. Nevertheless, clearinghouse would have to accept the fact that it may periodically face the risk of collateral shortfalls when credit events occur and manage its liquidity accordingly. The clearinghouse can, for example, pre-arrange a line of credit to be drawn down in the event of such a contingency.

However it is handled, the issue of how to protect the clearinghouse from counterparty default when a credit event occurs must be dealt with carefully. Some experimentation in setting margin requirements to address this issue will be natural and should help converge to feasible solutions. In case, counterparty risk cannot be fully eliminated, then transparency levels could play a substitute role as we explain below.

V. Desirable levels of transparency

As discussed earlier, systemic risk arises naturally from the exposure to counterparty risk that is inherent in OTC markets. We argued so far that counterparty risk can be essentially eliminated by a centralized clearing and counterparty system. In markets where this solution is not adopted, counterparty risk should be priced – in terms of exchange or in bilateral margin and collateral arrangements – and for this case it must be visible and easy to evaluate. This creates an important role for transparency in OTC markets.
In order to determine the appropriate risk premium for an OTC contract with a counterparty, an investor should be able to calculate not only the probability of default of the counterparty but also the exposure of the counterparty to various other risks. For example, if the investor is buying protection on a particular reference entity, then if the counterparty has a big exposure to default of the same entity, the protection is less valuable. In just the state of nature when the protection is most important, the counterparty is more likely to default. This is the so-called “wrong-way” counterparty exposure, an example of which is the monoline insurers having sold a large amount of protection on highly correlated risks. A similar outcome would arise if the first counterparty was exposed to a second counterparty which in turn was exposed to the reference entity. While it is not possible to know the full risk exposure of any counterparty, it would clearly be useful to know the exposure of every counterparty to major risks. Then, OTC contract prices would differ bilaterally because of the relevant counterparty exposure and counterparties would in turn have an incentive to reduce risk.

Of course, in order to regulate a level of transparency in derivatives markets it is essential not to eliminate the incentive to invest in information. If transparency means that trading strategies become public and price impacts become enormous, then the survival of the market will be in jeopardy. The following proposal on transparency requirement for credit derivatives is designed to balance these considerations by adjusting the detail and timeliness of public disclosure.

In all three solutions we described (Exhibit II), both price and contract information and counterparty positions should be visible to the relevant regulatory authorities. In the Registry solution, aggregate exposure of each counterparty to a particular contract should be made public on a delayed basis such as monthly or biweekly. That is, the public should be able to find out the net notional value of CDS written by one company on a particular reference company. This means that a bank or hedge fund would periodically report its net exposures to a list of reference names. At this time the DTCC reports roughly 1000 underlying names, hence under our proposal, this report would give for example the net notional position of each bank to each of these 1000 names one month ago.

In the Clearing House and Exchange solutions, these counterparty reports would not need to be made public, because counterparty risk is not priced in these outcomes. The information would still need to be visible to regulators and to the clearing house for use in margin requirements, but the centralized trading arrangement facilitates such information gathering. Importantly, the lack of public disclosure on centralized trading would be an incentive for OTC market players to help migrate the market to a clearing house or an exchange.
We acknowledge that the level of transparency for the Registry solution we propose is not as great as could be desired. It does not reveal the counterparty of counterparties. A more detailed report would include the entire matrix of net exposure of counterparty A to counterparty B with respect to reference entity C. Further, even such bilateral transparency is deficient when similar products are traded simultaneously on exchanges and OTC. The OTC contracts would be revealed but the exchange positions would not. Regulators could therefore see these relations but investors could not. Finally, the report we propose would be lagged at least biweekly or monthly, which would make them outdated measures of counterparty exposures in at least some cases.

Nevertheless, the improvement in risk assessment from even such crude level of transparency would be enormous. An investor would be able to assess the exposures of a counterparty much better than in the currently opaque OTC environment and price contracts accordingly. If the counterparty then takes on even more risk, the investor will have a capital loss on his position because this is public information and the contract could only be resold at a lower price. As a consequence, counterparties would have incentives to manage their risk exposures in order to continue business.

To summarize, transparency and marginging or collateral arrangements act as substitutes. Where the latter are sufficiently rich to ensure near-zero counterparty risk, public transparency of bilateral exposures is redundant. Absent such richness, however, transparency can in fact provide incentives to market participants to manage their risks more prudently.

VI. Recent proposals and will they succeed?

In response to concerns regarding the OTC nature of credit derivatives markets, the Federal Reserve has initiated a move to migrate the clearing of credit default swap contracts through a platform offered jointly by the Chicago Mercantile Exchange and the hedge fund Citadel. The DTTC (New York) and LCH.Clearnet Group (London) have announced a merger to create the world’s largest derivatives clearing-house, also providing services for OTC products such as interest-rate swaps and credit default swaps. These developments augur well for the credit derivatives market and overall financial stability. The AAA credit rating and risk-management expertise of centralized clearinghouses will help assuage fears over counterparty and operational risks. Centralized clearing will also enable aggregation of trade-level information so that prices, volumes and open interest can be disseminated to market participants beyond the direct participants. Such dissemination would make it possible for regulators to monitor the outstanding positions of a particular institution, and also of a particular contract. And, prices of credit default swaps would reflect what they are supposed to –
the credit risk of the underlying entity – rather than that of the counterparty providing
the insurance.

Will these initiatives succeed? Some institutions, especially large players, will likely resist
calls to move away from the OTC. Hence, the regulatory resolve to do so must be
strong. The resisting players must realize (or be informed) that OTC markets can
continue to arise whenever the financial sector needs to innovate and customize new
products, but once these markets grow beyond a critical size, they should move the
standardized versions of the products to centralized clearing and counterparty or to
exchanges.

VII. Implications for other markets

Although we have focused on CDS markets as the proximate example, many other
markets that have figured prominently in the current crisis, most notably those trading
mortgage-backed securities, collateralized debt obligations (CDOs), and asset-backed
commercial paper, have also experienced severe stress. Fundamentally, there is no
reason why these products cannot be traded and cleared more centrally. The key
difference between them and CDS is in the relatively standardized nature of CDS
contracts. But this simply suggests that some of these other derivatives should be
provided the centralized counterparty cum clearing structure (Solution II) unlike the CDS
which can potentially even trade on an exchange (Solution III). In principle, centralized
counterparty and exchange trading solutions can be applied also to traditional OTC
markets such as those in foreign exchange derivatives, commodity derivatives, and
equity- and credit-linked structured products. Migration of some of these products
away from the OTC markets will help reduce counterparty and operational risk
concerns, and also allow for an explicit assignment of jurisdiction applicable to these
products (Federal Reserve, Commodity Futures Trading Corporation (CFTC), or Securities
Exchange Commission (SEC)), something that is unclear at best in the status quo trading
infrastructure for these products.

In summary, we believe it is high time to lift the veil of opacity of bank balance sheets
and inter-bank linkages, starting with more transparent trading infrastructure for credit
derivatives.

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3 Indeed, over time existing exchanges have innovated their products to compete with OTC
markets even on non-standardized contracts. A case in point here is the introduction of “FLEX”
options on options exchanges, which are semi-standardized products unlike the standard
options contracts.
Exhibit I: The relative behavior of CDS spread and equity-implied CDS spread for Goldman Sachs during the sub-prime crisis (Leland, 2008)
### Exhibit II: Three possible solutions to centralized clearing and their relative merits

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