

How should we regulate derivatives markets?

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Introduction

This briefing paper provides background on the derivatives markets and their role in the financial crisis, and evaluates aspects of the main reform proposals before Congress. On July 30, 2009, the chairs of the House Financial Services Committee and the House Agriculture Committee outlined their joint principles for new derivatives legislation (the Frank- Peterson principles).² On August 11, 2009, the Obama administration released its proposed “Over-the-Counter Derivatives Markets Act of 2009” (the Treasury plan).³ On June 26, 2009, the House passed the American Clean Energy and Security Act (Waxman-Markey), which would impact a wide range of derivatives.⁴

The architecture of derivatives markets is now in play because of two, related policy concerns that arose from the financial crisis: systemic risk and market efficiency. Systemic risk is the danger that failing financial institutions will destabilize the financial system and thereby threaten the wider economy. When unconstrained by effective risk management or regulation, derivatives enable high concentrations of risk in individual financial institutions. Derivatives markets are efficient if trading costs are low and risk is well distributed among investors. The most important ingredient for market efficiency is competition, which in turn depends on price transparency and on relatively unencumbered access to trading by a broad set of market participants.

After a brief review of the institutional features of derivatives markets, I will outline what went wrong with them during the financial crisis, and evaluate the main proposals with respect to several stated policy options that are believed, in varying degrees, to reduce systematic risk or improve the efficiency of the derivatives markets. They are: centralized clearing, improved price transparency, improved position transparency, migration of over-the-counter trading to exchanges, speculative position limits, and improved corporate governance in the area of risk management.

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² Available at: www.house.gov/apps/list/press/financialsvcs_dem/pressbfder_073009.shtml

³ Available at: financialservices.house.gov/Financial%20Regulatory%20Reform/Section-by-Section/Title%20VII%20sec-by-sec%20FINAL.pdf

⁴ Available at: <http://www.govtrack.us/congress/bill.xpd?bill=h111-2454>

Background

Derivatives are contracts that transfer financial risk from one investor to another for compensation. For example, a call option gives one investor the right to buy an asset from another in the future at a pre-arranged price. Derivatives are traded on exchanges or over the counter (OTC), meaning through private negotiation. The world’s largest derivatives exchange is the Chicago Mercantile Exchange (CME). Exchange-based trades tend to be relatively transparent and are almost invariably cleared, that is, guaranteed by a central clearing counterparty. Most regulatory and public attention is now focused on the OTC market, where trades are less transparent and less frequently cleared.

Most OTC derivatives trades are arranged with a dealer. Table 1 shows a list of prominent derivatives dealers. A dealer usually lays off much of the net risk of the derivatives positions requested by its counterparties by entering new derivatives contracts with other counterparties, frequently other dealers.

The “notional amount” of a derivatives contract is the market value (or, in the case of fixed-income markets, the principal amount) of the asset whose risk is transferred by the derivative. For example, an option to buy 1 million shares of an equity whose price is \$50 per share represents a notional derivatives position of \$50 million dollars. Data collected by the Bank of International Settlements (BIS) show that the total notional amount of outstanding derivatives is roughly \$1,000 trillion, of which about 59% was

Table 1: Dealers invited to an April 1, 2009 meeting on over-the-counter derivatives hosted by the New York Federal Reserve.

Bank of America, N.A.
Barclays Capital
BNP Paribas
Citigroup
Credit Suisse
Deutsche Bank AG
Dresdner Kleinwort
Goldman, Sachs & Co.
HSBC Group
JPMorgan Chase
Morgan Stanley
The Royal Bank of Scotland Group
Société Générale
UBS AG
Wachovia Bank N.A. (Wells Fargo)

Source: The New York Federal Reserve Bank

obtained over the counter. The proportion of derivatives obtained through OTC trading has increased over time, from about 46% in 1998, when the total notional amount of derivatives was about \$198 trillion. The largest OTC derivatives dealer by volume is J.P. Morgan, whose notional positions total to about \$87 trillion according to data from the Office of the Comptroller of the Currency.

The majority of OTC derivatives are interest-rate swaps, held in an aggregate notional amount of about \$500 trillion. These are commitments to make periodic exchanges of one interest rate, such as the London Interbank Offering Rate (LIBOR), for another, such as a fixed rate, on a stated principal amount of debt, until a stipulated maturity date.

As opposed to assets held in positive net supply, such as equities, the total supply of any type of derivative is zero. The total amount held long (positive) is equal to the total amount held short (negative). Thus, the total market value of all derivatives contracts is zero, as a mere accounting identity. For example, the call option in our simple example may have a substantial market value to the buyer, say \$10 million. The seller in that case has a market value that is negative by the same amount, \$10 million. Derivatives transfer wealth from counterparty to counterparty, but do not directly add to or subtract from the total stock of wealth in the economy. Indirectly, however, derivatives can cause substantial distress losses. For instance, financial institutions experiencing large losses on derivatives contracts may also be forced to incur bankruptcy costs such as legal fees, and their failures may lead to distress costs for their counterparties.

A useful gauge of counterparty risk in the OTC market is the amount of exposure to default represented by the potential failure of counterparties to meet their contractual obligations. In our simple option example, the current exposure of the buyer to the seller is the \$10 million market value of the option, unless the seller has provided collateral against its obligation. If the seller provides \$8 million in collateral, the exposure is reduced to \$2 million.

Normally, the OTC derivatives trades between a given pair of counterparties are legally combined under a master swap agreement between those two counterparties. The master swap agreements signed by

dealers generally conform to standards set by the International Swaps and Derivatives Association (ISDA). Credit support annexes of these master swap agreements govern collateral requirements as well as the obligations of the two counterparties in the event that one of them cannot perform. As the market values of the derivatives contracts between two counterparties fluctuate, the collateral required is recalculated, normally on a daily basis.

One of the key features of master swap agreements is the netting of exposures and of collateral requirements across different derivatives positions. For example, suppose that the owner of the call option that is worth \$10 million in our previous example is a dealer that also holds a currency forward contract with the same counterparty, whose market value to the dealer is minus \$6 million. In this case, the net exposure of the dealer to its counterparty is $10 - 6 = 4$ million dollars, before considering collateral. Netting lowers default exposure and lowers collateral requirements.

As the financial crisis that began in 2007 deepened, the range of acceptable forms of collateral taken by dealers from their OTC derivatives counterparties was narrowed, leaving over 80% of collateral in the form of cash during 2008, according to ISDA data.

Table 2 shows the total gross exposures of major dealers in over-the-counter derivatives of various types, as estimated from dealer surveys collected by the BIS, before considering netting and collateral. The table shows that netting achieves a substantial reduction in exposure.

Table 2: Total exposures of OTC derivatives dealers by asset class

Asset Class	Exposure (\$billions)
Interest Rate	18,420
CDS	5,652
Foreign Exchange	3,917
Unallocated	3,381
Equity linked	1,113
Commodity	955
Total	33,889
Total after netting	5,004

Source: BIS, May, 2009

At least one of the two counterparties of most OTC derivatives is a dealer. For instance, it would be uncommon for a hedge fund to trade directly with an insurance company. Instead, the hedge fund and the insurance company would normally trade with dealers.

Dealers themselves frequently trade with other dealers. Further, when offsetting a prior OTC derivatives position, it is common for market participants to avoid negotiating the cancellation of the original derivatives contract. Instead, a new derivatives contract that offsets the bulk of the risk of the original position is frequently arranged with the same or another dealer. As a result, dealers accumulate large OTC derivatives exposures, often with other dealers.

Dealers are especially likely to be counterparties to other dealers in the case of credit default swaps (CDS), which are in essence insurance against the default of a named borrower. When a hedge fund decides to reduce a CDS position, a typical step in executing this offset is to have its original CDS position “novated” to another dealer, which then stands between the hedge fund and the original dealer by entering new back-to-back CDS positions with each. In this fashion, dealer-to-dealer CDS positions grew rapidly over the years. Based on data provided by the Depository Trust and Clearing Corporation (DTCC) in April 2009, of the current aggregate notional of about \$28 trillion in credit default swaps whose terms are collected by DTCC's DerivServ Trade Information Warehouse, over \$23 trillion are in the form of dealer-to-dealer positions.

Collateralized debt obligations (CDO) are debt securities whose cash flows are backed by payments on packages of mortgages and other types of securities. Whether CDOs and related asset-backed securities should be considered as “derivatives” or not is a matter of labeling. In any case, CDOs are not the objects of proposed derivatives regulations because they are regulated under laws governing the issuance of debt securities, and because CDOs are not held under ISDA master swap agreements.

What went wrong during the financial crisis

The financial crisis was exacerbated by derivatives markets in two basic ways. First, insurance companies such as AIG, Ambac, and MBIA used CDS to sell protection on CDOs backed by sub-prime mortgages to such an extent that they were severely impaired when those CDOs experienced large losses from mortgage defaults. This in turn contributed to the weaknesses of the banks that had bought and relied upon the protection of these credit default swaps. Second, the failures of the large investment banks

Bear Stearns and Lehman Brothers were exacerbated by a run of their OTC derivatives counterparties. The flight of these derivatives counterparties, as they sought new positions with other dealers, may also have contributed to the fragility of global financial markets. In the same vein, a number of other large dealer banks had to be bailed out for reasons that included the dangers posed by the potential flights of their derivatives portfolios.

The AIG Fiasco

AIG, the most egregious example of the first type, was bailed out in response to losses suffered by its subsidiary AIG FP, which had sold CDS protection on over \$400 billion of CDOs. As AIG's losses mounted, downgrades to its credit rating were about to trigger contractual obligations for AIG to post large amounts of additional collateral on its CDS positions. AIG did not have the resources to meet these calls for more collateral. The federal government stepped in to support AIG, at a massive cost to U.S. taxpayers.

Clearing would not have helped here. The AIG credit derivatives contracts were customized to the particular CDOs that they covered. Even had CDS clearing existed at the time, these AIG CDS would not have been sufficiently standard to have been cleared. Only better risk management by AIG and better regulatory supervision could have prevented this disaster.

Runs by OTC derivatives Counterparties

As an example of the second major type of danger posed by derivatives, Bear Stearns' OTC derivatives counterparties reduced their exposures to Bear Stearns as news of its weakness spread. As they moved their derivatives positions to other dealers, they withdrew the cash collateral they had posted with Bear Stearns, reducing Bear Stearns' liquidity and accelerating its failure.

Further, the derivatives positions that had been held by the counterparties of Bear Stearns and Lehman had served a particular business purpose, such as hedging business risks. With the failures of these dealers, those counterparties needed to quickly replace their derivatives positions. A surge of demands

for new derivatives positions with other dealers caused severe pressures on a range of financial markets, sometimes distorting normal price relationships and adding to general disruptions in financial markets. For example, almost invariably, the rates quoted on interest-rate swaps are higher than comparable-maturity government bond yields, in recognition of the fact that the inter-bank loan rates referenced in swap contracts reflect the lower credit quality of bank loans relative to government debt. At the bankruptcy of Lehman, however, a large quantity of interest-rate swap hedges that had been provided by Lehman needed to be quickly replaced. Other dealers, themselves under financial stress, were willing to provide these hedges only at swap rates *below* government yields. This strange inversion between swap rates and government yields was noted at various maturities in most major currencies.

Evaluating the proposals⁵

The three main derivative reform proposals under discussion – the Treasury plan, the Frank-Peterson principles and Waxman-Markey Act – can be evaluated with respect to several stated policy options that are believed, in varying degrees, to reduce systematic risk and improve the efficiency of the derivatives markets. They are: centralized clearing, improved price transparency, improved position transparency, migration of over-the-counter trading to exchanges, speculative position limits, and improved corporate governance in the area of risk management.

Centralized clearing

A move towards the centralized clearing of OTC derivatives is an important component of all of the proposed packages of reforms. A contract is cleared when a central clearing counterparty, informally known as a “clearing house,” legally assumes the position of buyer from the original seller, and seller to the original buyer. The original counterparties post initial performance margin with the clearing house. As the position is marked to market each day, they pay or receive “variation” margin in recognition of

⁵ Although this note maintains a domestic focus, it is vitally important that regulators coordinate internationally in order to avoid unnecessary risks and inefficiencies arising from protectionism. Uneven regulations across national jurisdictions would in any case push derivatives trading into the weakest regulatory regimes.

any reductions or increases in the market values of their positions. These margin payments are normally made in cash or treasury securities.

Clearing insulates counterparties from each other, provided that the clearing houses are themselves well designed and capitalized. In addition to any direct reductions in counterparty risk, clearing reduces the sort of run-on-the-bank behavior that was likely to have quickened the failures of Bear Stearns and Lehman. The main concern is how to encourage the growth of effective central clearing.

Clearing is a relatively expensive process. For each type of derivatives contract, a clearing house must set up standard terms for acceptable contracts, determine formulas for initial margins, and set up a methodology for pricing cleared derivatives for the purpose of determining variation margin payments. Proper financial controls and carefully crafted legal contracts are required. Systems for the processing of trades and collateral are needed. Because of these costs and because of the requirement for daily or even more frequent pricing, it only makes sense to clear types of derivatives that are relatively “commoditized,” that is, widely and heavily traded in a standard form.

Interest-rate swap clearing began in 2001, and now covers roughly half of inter-dealer interest-rate swap positions. Of Lehman’s interest-rate swaps, for example, roughly \$9 trillion were covered by SwapClear, which is operated by the London-based clearing house, LCH.Clearnet. To varying extents, there is also some clearing of derivatives on natural gas, equities, and currencies. In early 2009, ICE Trust began clearing index-style CDS contracts.

In July 2009, Eurex began clearing CDS contracts, partly in response to the European Commission’s demand that dealers arrange for separate Europe-based clearing of Eurozone credit default swaps. In general, counterparty risk is higher when clearing is separated across clearing houses. This follows from the lost opportunity to offset the exposures that can arise when a financial institution’s cleared derivatives positions have a net negative market value at one clearing house and a net positive market value at another clearing house. From this viewpoint, it is better to have a small number of central clearing counterparties, and to have joint clearing of interest-rate swaps, credit default swaps, and other

derivatives. National regulators would do well to cooperate on the regulation and supervision of clearing houses. Among the issues to be resolved for the effective international supervision of clearing houses is the division of responsibility for bailouts, should a clearing house need government support.

Overall, while the clearing of inter-dealer OTC derivatives positions is still quite limited, the clearing of positions between dealers and their customers is even less common. The New York Fed has asked dealers to arrange for more clearing of customer positions. The development of new frameworks for clearing customer-to-dealer CDS positions is in progress.

IOSCO has published suggested standards for the proper capitalization and operation of clearing houses, which are approved and supervised on a national basis. In the United States, central clearing counterparties for OTC derivatives have been regulated by the Commodity Futures Trading Commission (CFTC), the Securities and Exchange Commission (SEC), and the Federal Reserve.

The Treasury plan would allocate the main responsibility for regulatory supervision of clearing houses to the CFTC and the SEC. It is presumed that in the event of an imminent failure, a large clearing house would be bailed out by governments or central banks, given the central position of a clearing house in the web of derivatives contracts that connect it to other systemically important financial institutions. At this point, there are no signs of weaknesses in the capitalization and operational controls of derivatives clearing houses, which handled the bankruptcy of Lehman with no notable hitches.

Waxman-Markey would require over-the-counter derivatives to be cleared, except where specific regulatory exemptions are granted. The Treasury plan and the Frank-Peterson principles both seek to have all "standardized" derivatives cleared. Rules that draw legal boundaries between what is "standard" and what is not may cause the ground beneath those boundaries to shift wherever there are incentives for market participants to be outside of the boundaries. For example, a standard interest-rate swap can be expressed as a combination of two non-standard derivatives. The better path is to increase the incentives of market participants to have a larger fraction of their derivatives cleared. That can be done in part with capital regulation.

Banks are required by regulations to hold capital against their counterparty exposures on OTC derivatives positions. Going forward, positions that are cleared by a recognized central clearing counterparty should be assessed a lower capital charge than those that are not. This proposal is included in the Frank-Peterson principles. This is also consistent with the Treasury plan, which defines a derivatives contract to be “standardized” if it is cleared, or if judged by the CFTC and the SEC to be standardized according to several suggested criteria.

Capital regulations, which are coordinated internationally under the “Basel” accords, are cumbersome to change in the short run. The New York Federal Reserve has achieved some degree of success using moral suasion. For example, suasion by the Fed was sufficient, beginning in 2005, to get electronic warehousing of the documentation of most CDS trades, which allowed big reductions in trade processing backlogs. Similarly, pressure from the Fed is likely to have been the catalyst for the clearing of some CDS contracts.

Rather than waiting for new capital standards to be implemented and eventually lead to an increase in clearing, a reasonable immediate step is for the Fed extract from dealers a commitment to clear at least a specified fraction of their exposures (before netting and collateral) in each of a list of classes of derivatives by a given date.

In summary, the increased use of central clearing represents the most powerful way to reduce systemic risk arising from OTC derivatives markets. Some key steps that regulators should take are: (1) pressuring dealers to adopt specific numerical targets for lowering exposures (before collateral) on uncleared derivatives positions, (2) increasing regulatory capital requirements for uncleared versus cleared derivatives, (3) persuading dealers to clear a greater fraction of dealer-to-customer positions, and (4) fostering international coordination in the regulation, supervision, and failure resolution of clearing houses. It would be counterproductive, in my opinion, for regulators to reach for legal definitions of the types of derivatives that are to be cleared.

Improved price transparency

Markets tend to be more efficient when the "going price" is well known by market participants. OTC derivatives markets have limited price transparency. For relatively standard types of derivatives, such as certain interest-rate swaps and credit default swaps, representative quotes are published through financial reporting services such as Markit Partners and Bloomberg, or on inter-dealer broker screens. Customers of dealers are nevertheless normally much less well informed about recent execution prices than are the dealers with whom they execute their trades, and are thus at a bargaining disadvantage to the dealers. This is not a big issue from the viewpoint of systemic risk, but it is a relevant concern with respect to market efficiency and the division of gains from trade between dealers and their customers.

About 6 years ago, a post-trade price reporting system known as TRACE was forced by U.S. regulation into the OTC markets for corporate and municipal bonds, which operate in a manner that is otherwise similar to the OTC derivatives markets. The prices of essentially all corporate bond transactions are now available to the public shortly after the trades. Dealers resisted the introduction of TRACE, claiming that more price transparency would reduce the incentives of dealers to make markets and in the end reduce market liquidity. So far, empirical evidence appearing in the academic literature has not given much support to these claims.

A similar post-trade price reporting system could be brought into some OTC derivatives markets. Some analysis should be devoted to the question of which markets deserve this additional level of price transparency. None of the main legislative proposals require significantly more public price transparency. The Treasury plan does call for the public dissemination of daily closing prices of those derivatives that are cleared.

Improved position transparency

A separate issue is the availability of data on the sizes of derivatives positions, which allow the monitoring of risk concentrations that can have systemic implications. There are concerns, however, about what amount and type of data is appropriate to be disclosed, and to whom. The Treasury plan

and the Frank-Peterson principles call for all OTC derivative trades to be reported to qualified trade registries. The Treasury plan also calls for public disclosure of aggregate position information, and proposes that individual positions should not be disclosed.

Aggregate position information

Public disclosure of market-aggregated position sizes seems well warranted. Currently, for example, for each of 1,000 large corporate or sovereign borrowers, DerivServ discloses the total quantity of CDS positions that are held as protection against the default of the borrower. This “open interest” information assists investors in judging the degree to which investors, in aggregate, are concerned about the creditworthiness of individual borrowers, as well as the degree to which sellers of protection in the CDS market could be harmed, in aggregate, if the borrower defaults.

The BIS, the Office of the Comptroller of the Currency, ISDA, and other agencies provide some aggregate market position information, although the frequency of these reports and their coarse levels of aggregation leave room for significant improvements in the information that investors can collect on OTC market risks. Regulators should push, in broad set of active OTC derivatives markets, for something akin to the frequency (weekly) and degree of refinement of DerivServ open-interest reporting.

In a letter to New York Federal Reserve Bank President Bill Dudley, dealers offered to provide, by specified dates, trade registries covering large chunks of their OTC derivatives positions.⁶ These registries could allow regulators to monitor dangerous build-ups of risk, and to supervise the timeliness and orderliness of trade processing and documentation. The growth and quality of trade registries should be supported.

For example, had the DerivServ Trade Information Warehouse, which now provides electronic documentation of almost all standard CDS contracts, not existed by the time of the financial crisis, the default of Lehman Brothers would probably have been accompanied by substantially greater market uncertainty, and potentially by panic as dealers and others attempted to determine the extent of their

⁶ <http://www.ny.frb.org/newsevents/news/markets/2009/060209letter.pdf>

CDS exposures. In fact, the CDS positions triggered by Lehman's default were well documented and were settled in an orderly manner. All recorded sellers of protection performed on their obligations.

Individual position information

It is sometimes claimed that OTC derivatives pose dangerous risks because the public does not have the opportunity to see the sizes of positions held by individual investors. OTC derivatives markets are no more opaque in this respect than organized derivatives exchanges. Indeed, individual positions are almost never disclosed in *any* financial markets. The main exception is the SEC requirement for investors in the common shares of public corporations to disclose holdings once they exceed given thresholds, relative to the total number of outstanding shares. These equity position disclosures are not motivated by systemic risk monitoring, but are instead designed to address issues related to the potential control of U.S. corporations. Derivatives positions do not convey control.

In general, the public disclosure of individual derivatives positions would reduce the incentives of investors to collect and analyze fundamental information. The efficiency with which prices are determined would decline correspondingly. Privacy concerns might also be raised. The public disclosure of individual derivatives positions should not be mandated as an approach to reducing systemic risk unless there is compelling evidence that disclosure to regulators alone is not sufficient.

There is, however, a good case for mandating the public disclosure of derivatives positions (whether obtained on exchanges or over the counter) that offset the economic exposures of major holders of debt or equity in public corporations. For example, the public has an interest in discovering whether a major shareholder, who ostensibly contributes to proper corporate governance, has severely diluted its governance incentives through a derivatives position. Likewise, the major creditors of a distressed corporation are normally presumed to act in a manner that mitigates distress costs. If, however, a creditor has purchased protection against default using credit derivatives, the creditor may even have a net incentive to accelerate the default or may have a substantially diluted interest in raising the recovery

value of debt claims. In general, regulators should rationalize disclosure requirements for derivatives positions that raise substantial concerns over moral hazard in corporate governance.⁷

Migration of derivatives trading onto exchanges

Because derivatives traded on exchanges have almost immediate price transparency and are almost invariably cleared, exchanges offer obvious improvements over OTC trading for those types of derivatives that have enough volume of trade to justify the setup costs of exchange trading. Once traded on exchanges, moreover, a broader set of investors can take part in the benefits of hedging and speculation, and can further add to market efficiency and, particularly, liquidity.

Dealers, however, reap substantial profits from OTC trading, and have little incentive to foster the migration of trading from the OTC market to exchanges, even after a derivative product achieves a high level of standardization and breadth of investor activity. Anyone suggesting otherwise should be embarrassed by the examples of standardized and extremely heavily traded derivatives that are available only in the OTC market, such as “CDX.NA.IG” default-swap index derivatives, which are based on a basket of bonds issued by large investment-grade North American corporations. I can think of no good reason that the public interest is best served by having such benchmark financial products available only through negotiation with dealers.

There also exist electronic trading platforms that offer a degree of price transparency and breadth of access lying between the extremes represented by fully private OTC negotiation and central exchange trading. These platforms are organized by dealers, inter-dealer brokers, or specialty financial services firms such as TradeWeb or BrokerHub. On such platforms, dealers compete for orders by displaying quotes. Typically, counterparties can contact other counterparties offering quotes, and then complete the negotiation of trades in private.

⁷ See Hu and Black (2008), at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1084075

More extensive use of electronic trading platforms and of TRACE-like price transparency would reduce the inefficiencies associated with OTC market opaqueness. Indeed, the Treasury plan would require that all standardized derivatives be traded on exchanges or on “alternative swap execution facilities,” apparently referring to trading platforms of the sort mentioned above.

Forcing derivatives trading onto exchanges by regulation must nevertheless be done with caution. It is not easy to gauge the costs and benefits, case by case. Simple rules based on measured volume might encourage unintended behavior by dealers, such as using excessive customization to limit the development of liquidity. Further, even for relatively high-volume products, OTC markets are sometimes able to handle very large trade sizes more easily than exchanges, just as large blocks of equities are often handled by private negotiation despite the availability of active equity exchanges. Beneficial financial innovation could also be stifled if OTC derivatives are regulated onto exchanges before dealers can generate a sufficient return on their investment in developing new financial products.

Curbing Speculative Trade

It has been proposed that speculative derivatives trading should be severely curbed, or even --- in the case of CDS markets --- outlawed. These proposals are based, at least in part, on a misconception of the role of speculation.

The U.S. House of Representatives has voted in favor of Waxman-Markey, which, if passed without alteration, would prevent an investor from entering into a credit default swap unless the investor has an associated commercial business exposure to the borrower named in the CDS. (The disallowed trade has been called a “naked CDS.”) This measure is seriously flawed. If it is enacted, an investor that does have a commercial hedging need for CDS protection would often face difficulty finding a suitable counterparty. Apparently, the counterparty would also be legally required to have a commercial need to hedge against the default of the same borrower.

The elimination of speculation through this measure is analogous to regulation against hurricane insurance. Insurers have no natural hedging motive in offering hurricane insurance. They are effectively

speculators. That is, they believe that the likelihood of a hurricane is low enough relative to the insurance premium that they can generate an expected profit on each new policy, although taking the risk of a significant loss in the event of a hurricane. To the extent that insurers are prevented from speculating in this manner, those with a desire to reduce risk by purchasing insurance would lose access to counterparties willing to bear the risk, or would pay a much larger insurance premium given the resulting scarcity of risk-bearing capacity.

A related measure, proposed by George Soros and included as a legislative option in the Frank-Peterson principles, would allow speculators to sell default protection but not to buy default protection.⁸ Such a rule would lead to a loss of market liquidity and a reduced quality of price discovery. Suppose, for example, that the CDS market currently offers protection on a named borrower at a premium that is much lower than the borrower's poor financial condition actually warrants. Under the proposed regulation, speculators would not have the incentive to discover the true financial health of the borrower, buying protection until the market price of protection rises, thereby revealing the weakness of the borrower to everyone. Outlawing the speculative use of credit default swaps to buy protection would have the unintended consequences of reducing market liquidity (because those selling protection would have less incentive to incur the costs of remaining informed and active traders) and of driving this form of speculation "under the radar," through the use of less effective and transparent types of financial products.

In the oil derivatives markets, there have been claims that speculators are responsible for excessively high prices or high price volatility. No convincing evidence or logic supporting these claims has been provided. Speculators attempt to buy low and sell high. For example, a speculator that buys oil futures at \$70 per barrel anticipates that the conditions of supply and demand in the spot market for oil will eventually lead to a higher price of, say, \$100. If that happens, they can exit their positions at a profit. Commentators who suggest that \$70 per barrel will remain a sufficiently high price to clear the spot market would have a difficult time explaining the motives of speculators who buy futures at that price.

⁸ Soros, George (2009), "The Game Changer," *Financial Times*, Jan. 28.

Likewise, if the spot price indeed rises to \$100 per barrel, why would producers, shippers, and refineries clear the market at this higher price if \$70 per barrel is sufficient to match supply and demand? Once the price reaches \$100 per barrel, if fundamental market conditions indeed warranted a spot price of only \$70 per barrel, would not speculators at this point have an incentive to bet in favor of a decline in the price of oil? In general, speculators in competitive markets tend to support the movement of prices toward their “fundamental” levels, and tend to dampen price volatility.

If speculation in oil derivatives were to be severely curtailed, it would be more difficult for hedgers to execute their trades without driving prices up or down. This would lead to an increase in price volatility. Hedging demands to buy and to sell oil futures do not arrive at the market simultaneously and in equal aggregate quantities, thereby offsetting each other. With a reduction in the capacity of speculators to absorb excess net demands on one side of the market or the other, prices would be more sensitive to demand imbalances.

Regulatory limits on speculative position sizes are justified if the default of a speculator who is unable to meet its obligations would otherwise lead to a costly systemic risk. Individual speculators should also be prevented from “cornering” a market, holding such a large fraction of the available supply that those who need to purchase are at the effective mercy of the corner holder when negotiating a price. For example, the market for silver was temporarily cornered in 1979-80, when the Hunt brothers held silver derivatives positions representing approximately half of annual global silver production. In the end, the Hunt brothers were unable to maintain a corner, and as they sold their silver positions in order to make margin variation payments, they themselves drove the price down, causing themselves calamitous losses.

Systemic risk has not figured prominently in the debate over oil speculation, nor have there been serious allegations that a speculator has actually cornered the oil market. (Given the immense size of the oil market, it is difficult to imagine how a corner might have occurred, absent a vast and undiscovered conspiracy.) Current speculative position limits on exchange-traded derivatives may or may not be adequate to prevent systemic risk. For instance, the failure of the hedge fund Amaranth in

2006 over losses on large positions in natural gas futures may have caused some systemic risk. (In the end, Amaranth's positions were safely unwound.) There are no specific regulatory limits on the sizes of OTC derivatives positions that may be held by a hedge fund, although dealers holding the other sides of these positions indirectly limit systemic risk to some extent through their own limits on counterparty exposures and with the collateral requirements that they impose on hedge funds.

Through laws that prohibit price manipulation, the SEC and the CFTC already have an adequate legal framework for pursuing anyone attempting to corner or otherwise manipulate organized securities or derivatives markets. For example, both the CFTC and the Federal Energy Regulatory Commission (FERC) charged Amaranth with market manipulation over its natural gas futures positions. (As of this writing, a settlement has been filed in the FERC case, while the CFTC case remains unresolved.) As for over-the-counter derivatives markets, I am not aware of laws against market manipulation, except to the extent that OTC trading interferes with a regulated market for securities or derivatives. The proposed Treasury plan includes several new measures designed to limit manipulation of OTC derivatives markets, mainly with respect to trading on "alternative swap execution facilities."

Improved corporate governance in the area of risk management

Derivatives that are not easily cleared or exchange traded are typically those customized to suit the specific business uses of investors. There should be some tolerance for financial innovation and customization. Economic efficiency is harmed if those with commercial needs for hedging are forced entirely into standard derivatives positions that are relatively poor hedges, or if derivatives markets are unable to innovate along with changes in the economy. For example, when interest-rate swaps first appeared in the 1980s, they were low-volume customized financial instruments. Had non-standard derivatives been heavily penalized at that time, a useful financial innovation could have been stifled.

The AIG derivatives fiasco was extremely costly to taxpayers. The AIG credit default swaps would not have been sufficiently standard to be cleared. By their nature, the risks of customized derivatives are more difficult to monitor than those of standard derivatives. Risk management by AIG's

senior management and board, and supervision by the regulator of its derivatives activities, the Office of Thrift Supervision, were inadequate.

In my opinion, corporate boards and regulatory supervisors should have more effective risk management credentials or training. The quality of risk management by corporate boards might also be raised by the increased use of professional services in “risk auditing,” in the manner that boards currently rely on independent financial accounting auditors.

Conclusion

In order to reduce systemic risk arising in derivatives markets, regulators should push for more extensive clearing through immediate pressure on dealers for numerical targets and, as soon as possible, through revisions to regulatory capital requirements. Regulatory language that defines the specific types of derivatives to be cleared would have counterproductive unintended consequences. Derivatives positions should be comprehensively disclosed to regulators, and should be disclosed to the public only after aggregation, except for cases in which the disclosure of specific individual positions would inform the public about significant moral hazards in corporate governance.

In order to improve market efficiency, over-the-counter prices should be published much more systematically, for example through TRACE-like post-trade reporting systems, which should be mandated for at least all cleared derivatives. Greater competition, even within the OTC market, can be achieved with more effective and widespread use of electronic trading platforms. Regulators should foster the migration of trading from over-the-counter markets to exchanges whenever warranted by sufficiently active trading. Severe curbs on speculation detract from market efficiency and increase price volatility. Speculative position limits should be adopted only where valid concerns over systemic risk or market manipulation cannot be addressed by other means. Corporate boards should be encouraged to improve their corporate governance in the area of risk management, for example from increased representation on boards of suitable specialists or by the retention of professional risk auditors.

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