



Key Issues in Derivatives Reform

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Summary

Financial derivatives allow users to manage or hedge certain business risks that arise from volatile commodity prices, interest rates, foreign currencies, and a wide range of other variables. Derivatives also permit potentially risky speculation on future trends in those rates and prices. Derivatives markets are very large—measured in the hundreds of trillions of dollars—and they grew rapidly in the years before the recent financial crisis. The events of the crisis have sparked calls for fundamental reform.

Derivatives are traded in two kinds of markets: on regulated exchanges and in an unregulated over-the-counter (OTC) market. During the crisis, the web of risk exposures arising from OTC derivatives contracts complicated the potential failures of major market participants like Bear Stearns, Lehman Brothers, and AIG. In deciding whether to provide federal support, regulators had to consider not only the direct impact of those firms failing, but also the effect of any failure on their derivatives counterparties. Because OTC derivatives are unregulated, little information was available about the extent and distribution of possible derivatives-related losses.

The OTC market is dominated by a few dozen large financial institutions who act as dealers. Before the crisis, the OTC dealer system was viewed as robust, and as a means for dispersing risk throughout the financial system. The idea that OTC derivatives tend to promote financial stability has been challenged by the crisis, as many of the major dealers required infusions of capital from the government.

Derivatives reform legislation before Congress would require the OTC market to adopt some of the practices of the regulated exchange markets, which were able to cope with financial volatility in 2008 without government aid. A central theme of derivatives reform is requiring OTC contracts to be cleared by a central counterparty, or derivatives clearing organization. Clearinghouses remove the credit risk inherent in bilateral OTC contracts by guaranteeing payment on both sides of derivatives contracts. They impose initial margin (or collateral) requirements to cover potential losses initially. They further impose variation margin to cover any additional ongoing potential losses. The purpose of posting margin is to prevent a build-up of uncovered risk exposures like AIG's. Proponents of clearing argue that if AIG had had to post initial margin and variation margin on its trades in credit default swaps, it would likely have run out of money before its position became a systemic threat that resulted in costly government intervention.

Benefits of mandatory clearing include greater market transparency, as the clearinghouse monitors, records and usually confirms trades. Clearing may reduce systemic risk, by mitigating the possibility of nonpayment by counterparties. There are also costs to clearing. Margin requirements impose cash demands on “end users” of derivatives, such as nonfinancial firms who used OTC contracts to hedge risk. H.R. 3795, different versions of which were ordered to be reported by the House Committees on Financial Services and on Agriculture, and Title VII of the Senate Committee on Banking, Housing and Urban Affairs' comprehensive financial reform proposal provide exemptions from mandatory clearing for certain categories of market participants. If exemptions are too broad, then systemic risks, as well as default risks to dealers and counterparties, may remain. The bills seek to balance the competing goals of reducing systemic risk and preserving end users' ability to hedge risks through derivatives, without causing those derivatives trades to become too costly. This report analyzes the issues of derivatives clearing and margin and end users, and it discusses the various legislative approaches to the end-user issue. This report will be updated as events warrant.

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General Background

Derivative contracts are an array of financial instruments with one feature in common: their value is linked to changes in some underlying variable, such as the price of a physical commodity, a stock index, or an interest rate. Derivatives contracts—futures contracts, options, and swaps¹—gain or lose value as the underlying rates or prices change, even though the holder may not actually own the underlying asset.

Thousands of firms use derivatives to manage risk. For example, a firm can protect itself against increases in the price of a commodity that it uses in production by entering into a derivative contract that will gain value if the price of the commodity rises. A notable instance of this type of hedging strategy was Southwest Airlines' derivatives position that allowed it to buy jet fuel at a low fixed price in 2008 when energy prices reached record highs. When used to hedge risk, derivatives can protect businesses (and sometimes their customers as well) from unfavorable price shocks.

Others use derivatives to seek profits by betting on which way prices will move. Such speculators provide liquidity to the market—they assume the risks that hedgers wish to avoid. The combined trading activity of hedgers and speculators provides another public benefit: price discovery. By incorporating all known information and expectations about future prices, derivatives markets generate prices that often serve as a reference point for transactions in the underlying markets.

Although derivatives trading had its origins in agriculture, today most derivatives are linked to financial variables, such as interest rates, foreign exchange, stock prices and indices, and the creditworthiness of issuers of bonds. The market is measured in the hundreds of trillions of dollars, and billions of contracts are traded annually.

Derivatives have also played a part in the development of complex financial instruments, such as bonds backed by pools of other assets. They can be used to create “synthetic” securities—contracts structured to replicate the returns on individual securities or portfolios of stocks, bonds, or other derivatives. Although the basic concepts of derivative finance are neither new nor particularly difficult, much of the most sophisticated financial engineering of the past few decades has involved the construction of increasingly complex mathematical models of how markets move and how different financial variables interact. Derivatives trading is often a primary path through which such research reaches the marketplace.

Since 2000, growth in derivatives markets has been explosive (although the financial crisis has caused some retrenchment since 2008). Between 2000 and the end of 2008, the volume of derivatives contracts traded on exchanges,² such as futures exchanges, and the notional value of total contracts traded in the over-the-counter (OTC) market³ grew by 475% and 522%,

¹ For a description of the mechanics of these contracts, see CRS Report R40646, *Derivatives Regulation in the 111th Congress*, by Mark Jickling and Rena S. Miller.

² See Bank for International Settlements (BIS), Table 23B, for year 2000 turnover for derivative financial instruments traded on organized exchanges, available at http://www.bis.org/publ/qtrpdf/r_qa0206.pdf. For December 2008 figures for derivatives traded on organized exchanges, see BIS Quarterly Review, September 2009, International Banking and Financial Market Developments, available at http://www.bis.org/publ/qtrpdf/r_qt0909.pdf.

³ See Bank for International Settlements (BIS), Statistical Annex, Table 19, December, 2000 figure for notional amount of total OTC contracts, available at http://www.bis.org/publ/qtrpdf/r_qa0206.pdf. See Bank for International (continued...)

respectively. By contrast, during nearly unprecedented credit and housing booms, the respective value of corporate bonds and home mortgages outstanding grew by 95% and 115% over the same period.⁴

Market Structure and Regulation

Although the various types of derivatives are used for the same purposes—avoiding business risk, or hedging, and taking on risk in search of speculative profits—the instruments are traded on different types of markets. Futures contracts are traded on exchanges regulated by the Commodity Futures Trading Commission (CFTC); stock options on exchanges under the Securities and Exchange Commission (SEC); and swaps (and some options) are traded OTC, and they are not regulated by anyone.

Exchanges are centralized markets where all the buying interest comes together. Traders who want to buy, or take a long position, interact with those who want to sell, or go short, and deals are made and prices reported throughout the day. In the OTC market, contracts are made bilaterally, typically between a dealer and an end user, and there is generally no requirement that the price, the terms, or even the existence of the contract be disclosed to a regulator or to the public.

Derivatives can be volatile contracts, and the normal expectation is that there will be big gains and big losses among traders. As a result, there is a problem of market design. How do the longs know that the shorts will be able to meet their obligations, and vice versa? A market where billions of contracts change hands is impossible if all traders must investigate the creditworthiness of the other trader, or counterparty. The way this credit risk—often called counterparty risk—is managed is a key element of the current reform proposals.

The exchanges deal with the issue of credit risk through a clearinghouse. Once the trade is made on the exchange floor (or electronic network), it goes to the clearinghouse,⁵ which guarantees payment to both parties. The process is shown in **Figure 1**. Traders then do not have to worry about counterparty default: the clearinghouse stands behind all trades. How does the clearinghouse ensure that it can meet its obligations?

Clearing depends on a system of margin, or collateral. Before the trade, both the long and short traders have to deposit an initial margin payment with the clearinghouse to cover potential losses. Then at the end of each trading day, all contracts are repriced, or “marked to market,” and all those who have lost money (because prices moved against them) must post additional margin (called variation or maintenance margin) to cover those losses before the next trading session. This is known as a margin call: traders must make good on their losses immediately, or their broker may close out their positions when trading opens the next day. The effect of the margin system is that no one can build up a large paper loss that could damage the clearinghouse in case

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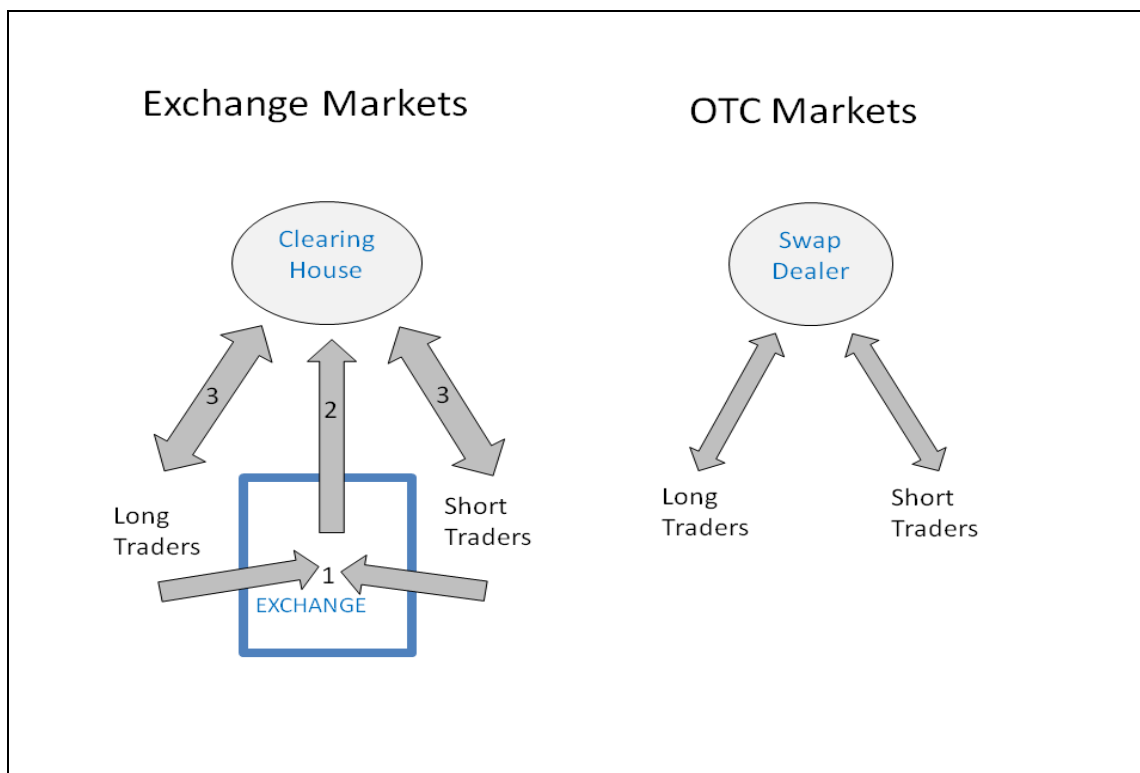
Settlements (BIS), BIS Quarterly Review, September 2009, Statistical Annex, Table 19, for December 2008 figure for notional amount of total OTC contracts, available at http://www.bis.org/publ/qtrpdf/r_qa0909.pdf.

⁴ Federal Reserve, *Flow of Funds Accounts of the United States*, September 17, 2009, accessible at <http://www.federalreserve.gov/releases/z1/Current/z1r-1.pdf>.

⁵ Also referred to as a central counterparty or as (in the statutory phrase) a derivatives clearing organization (DCO).

of default: it is certainly possible to lose large amounts of money trading on the futures exchanges, but only on a “pay as you go” basis.

Figure 1. Derivatives Market Structures: Exchange and Over-the-Counter (OTC)



Source: CRS.

In the OTC market, as shown in the right side of **Figure 1**, there is a network of dealers rather than a centralized marketplace. Firms that act as dealers stand ready to take either long or short positions, and make money on spreads and fees. The dealer absorbs the credit risk of customer default, while the customer faces the risk of dealer default. In this kind of market, one would expect the dealers to be the most solid and creditworthy financial institutions, and in fact the OTC market that has emerged is dominated by two or three dozen firms—very large institutions like JP Morgan Chase, Goldman Sachs, Citigroup, and their foreign counterparts. Before 2007, such firms were generally viewed as too well diversified or too well managed to fail; since 2008, they are more likely considered too big to be allowed to fail.

In the OTC market, some contracts require collateral or margin, but not all. There is no standard practice: all contract terms are negotiable. A trade group, the International Swaps and Derivatives Association (ISDA) publishes best practice standards for use of collateral, but compliance is voluntary.

The terms “collateral” and “margin” are similar—both are forms of a downpayment against potential losses to guard against a counterparty’s nonpayment—but technically they are not interchangeable. A margining agreement requires that cash or very liquid securities be deposited immediately with the counterparty. After this initial deposit, margin accounts are marked-to-market, usually daily. In the event of default, the counterparty holding the margin can liquidate the margin account. By contrast, collateral arrangements usually require the counterparty to

perfect a lien against the collateral.⁶ The range of assets allowable under a collateral agreement is usually wider than what is allowed under margining arrangements.⁷ Settlement of collateral shortfalls tends to be less frequent than under margining arrangements.⁸

Because there is no universal, mandatory system of margin, large uncollateralized losses can build up in the OTC market. The best-known example in the crisis was AIG, which wrote about \$1.8 trillion worth of credit default swaps guaranteeing payment if certain mortgage-backed securities defaulted or experienced other “credit events.”⁹ Many of AIG’s contracts did require it to post collateral as the credit quality of the underlying securities (or AIG’s own credit rating) deteriorated, but AIG did not post initial margin, as this was deemed unnecessary because of the firm’s triple-A rating. As the subprime crisis worsened, AIG was subjected to margin calls that it could not meet. To avert bankruptcy, with the risk of global financial chaos, the Federal Reserve and the Treasury put tens of billions of dollars into AIG, the bulk of which went to its derivatives counterparties.¹⁰

Derivatives Reform

The AIG case illustrates two aspects of OTC markets that are central to derivatives reform proposals. First, as noted above, AIG was able to amass an OTC derivatives position so large that it threatened to destabilize the entire financial system when the firm suffered unexpected losses, and the risks of default to AIG derivatives counterparties grew. In a market with mandatory clearing and margin, in which AIG would have been required to post initial margin to cover potential losses, there is a stronger possibility that AIG would have run out of money long before the size of its position reached \$1.8 trillion.

Second, because OTC contracts are not reported to regulators, the Fed and the Treasury lacked information about which institutions were exposed to AIG, and the size of those exposures. Uncertainty among market participants about the size and distribution of potential derivatives losses flowing from the failure of a major dealer was a factor that exacerbated the “freezing” of credit markets during the peaks of the crisis, and made banks unwilling to lend to each other.

A basic theme in the derivatives reform proposals before the 111th Congress is to get the OTC market to act more like the exchange market—in particular, to have bilateral OTC swaps cleared by a third-party clearing organization. There are some widely recognized benefits to clearing:

- Reduction of counterparty risk—collateral or margin collected by the clearinghouse prevents risk build-ups that could trigger systemic disruptions, and

⁶ To perfect a lien means following certain procedures required by law in order to create a security interest that is enforceable.

⁷ Office of the Comptroller of the Currency, *Risk Management of Financial Derivatives*, January, 1997, Appendix J, “Credit Enhancements”, p. 183, accessible at <http://www.occ.treas.gov/handbook/deriv.pdf>.

⁸ *Ibid.*

⁹ The credit events that trigger credit swap payments may include ratings downgrades, debt restructuring, late payment of interest or principal, as well as default.

¹⁰ For an account of this process, see Office of the Special Inspector General for the Troubled Asset Relief Program (“SIGTARP”), *Factors Affecting Efforts to Limit Payments to AIG Counterparties*, November 17, 2009.

- Transparency—because information on trades and positions is centralized in the clearinghouse, regulators will know who owes what to whom, improving the ability to respond to a crisis. In addition, as price information becomes public, dealer spreads should narrow, reducing the costs of hedging and other transactions.

At the same time, there are costs associated with a clearing regime that requires all participants to post margin. Firms that use derivatives to hedge business risks take positions that move in the opposite direction to the underlying market. In the example of Southwest Airlines, imagine that energy prices had dropped sharply, instead of rising as they actually did. The reduced fuel costs would have been good for the airline's bottom line, but its derivatives position would have lost money, and had the contracts been cleared, it would have had to post margin to cover those losses. Such losses would not threaten the firm's solvency, because it would still be effectively paying a price for fuel that allowed it to operate at a profit.¹¹ However, the margin demands could have created liquidity problems. In the current debate, "end users" of OTC derivatives argue that the costs of posting margin may prevent them from hedging, leaving them exposed to greater business risks.

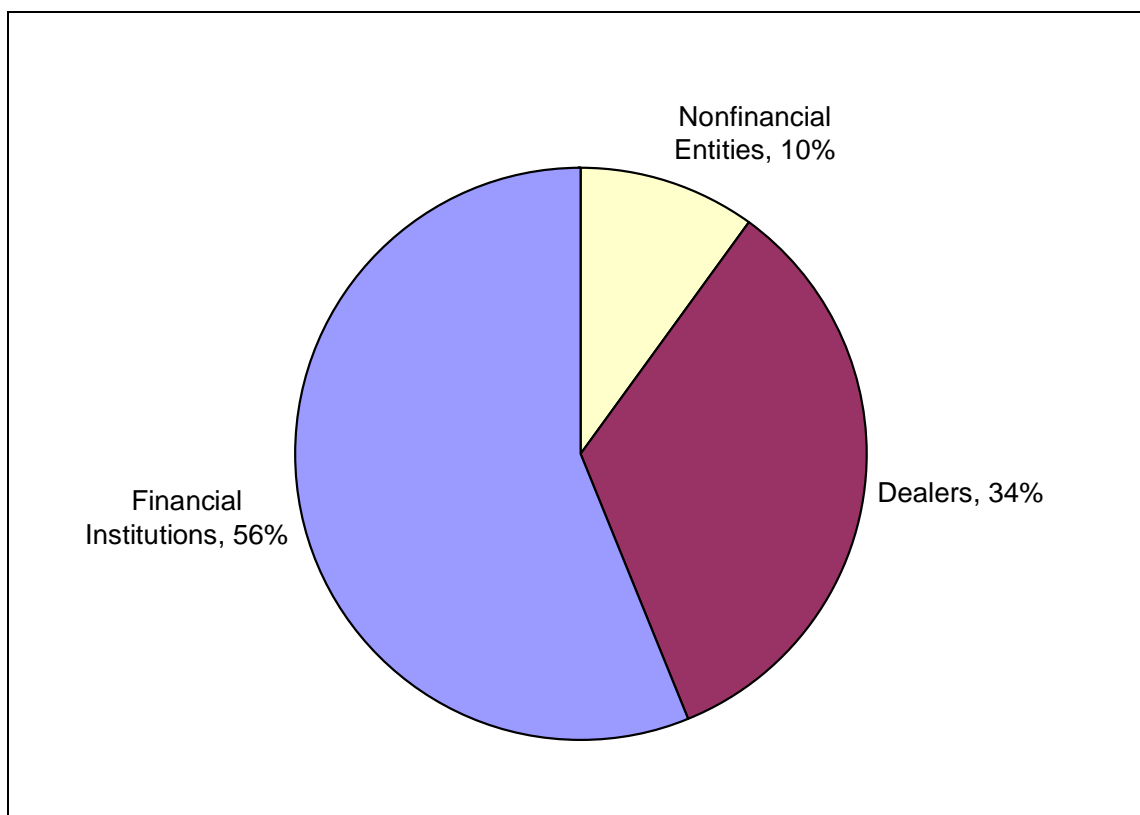
End Users

The derivatives proposals put forward by the Obama Administration, the House Committees on Agriculture and Financial Services, and the Senate Banking Committee all include exemptions from clearing requirements intended to avoid placing burdensome costs on end users of derivatives. *End user* is not a term defined in statute. In general, it refers to any OTC derivatives counterparty that is not a dealer, although in the current debate it sometimes appears to refer primarily to nonfinancial firms that use derivatives to hedge the risks of their businesses. How much of the OTC market do they account for?

¹¹ In other words, a hedging strategy locks in the price that prevails at the time the contract is made. If the firm loses money at that price, it will not hedge.

Figure 2. OTC Swap Counterparties

June 2009



Source: Bank for International Settlements.

Notes: Includes OTC interest rate, foreign currency, and equity contracts.

The Bank for International Settlements publishes data on counterparties in several OTC markets. As of June 2009, 34% of OTC contracts were between reporting dealers, 56% were between dealers and other financial institutions, and the remaining 10% involved dealers and nonfinancial entities (see **Figure 2**).¹²

Thus, nearly two-thirds of OTC derivatives involve an end user. If all end users are exempted from the requirement that OTC swaps be cleared, the market structure problems raised by AIG still remain. That is, if individual dealer firms that retain large amounts of credit risk get into trouble, the government will continue to face an unsatisfactory choice: allow the dealer to fail, and risk panic and cascading failures among interconnected dealers and counterparties, or provide a taxpayer bailout, with the undesirable consequence of reducing incentives for private parties to manage risk prudently.

Derivatives reform legislation seeks to strike a balance. Although the primary goal is to eliminate the problem of derivatives dealers that are too big or too interconnected to fail, the bills provide

¹² The markets covered are interest rate, foreign exchange, and equity derivatives (excluding credit default swaps). The total notional value of these contracts was \$493 trillion. Bank for International Settlements, *Semiannual OTC derivatives statistics at end-June 2009*, accessible at <http://www.bis.org/statistics/derstats.htm>.

exemptions for end users whose derivatives positions are intended to hedge business risk and who are not thought to pose systemic risk. The bills differ in the way they define classes of market participants who are to be subject to the mandatory clearing requirement (as well as other forms of regulation) and in the way the exemptions are structured.

Exemptions for End Users

The House Committee on Financial Services and the House Committee on Agriculture have each ordered to be reported separate versions of H.R. 3795, the Over-the-Counter Derivatives Markets Act of 2009.¹³ The Senate Banking Committee published a committee print of a draft comprehensive financial reform bill on November 16, 2009. Title VII of the Restoring American Financial Stability Act deals with regulation of OTC derivatives. Each of these proposals uses the Obama Administration's proposed legislative language as a base text, but all depart from the model in significant ways.

Table 1 below sets out the exemptions provided in the House and Senate proposals in a side-by-side format.

¹³ The House Committee on Financial Services approved the bill on October 15, 2009, by a vote of 43-26. The House Committee on Agriculture approved its version by voice vote on October 21, 2009.

Table 1. Clearing and Margin Requirements in House Financial Services, House Agriculture, and Senate Banking Committees OTC Derivatives Reform Proposals

Provision	House Financial Services	House Agriculture	Senate Banking
Swaps that can be cleared	Swaps that the SEC and/or CFTC determine to be acceptable for clearing		
Swaps are exempt from the clearing requirement...	if no derivatives clearing organization (DCO) will accept the swap for clearing, or	if no clearing organization can clear a swap or class of swaps in accordance with the core regulatory principles that apply to DCOs, or	if no derivatives clearing organization will accept the swap for clearing, or
	if one of the counterparties is not a swap dealer or a <i>major swap participant</i>	if one of counterparties is not swap dealer or <i>major swap participant</i> ; and demonstrates to CFTC or SEC how it generally meets its financial obligations associated with entering into noncleared swaps	if one counterparty is not a swap dealer or <i>major swap participant</i> ; and does not meet the eligibility requirements of any derivatives clearing organization that clears the swap. (Such exemptions require an SEC or CFTC finding that they are consistent with the public interest)
Who is a “major swap participant”?	Someone who is not a swap dealer, and		
	maintains a <i>substantial net position</i> in outstanding swaps, excluding positions held primarily for hedging, reducing, or otherwise mitigating commercial risk; or	maintains a <i>substantial net position</i> in outstanding swaps, excluding positions held primarily for hedging, reducing or otherwise mitigating its commercial risk; or	whose outstanding swaps create net counterparty credit exposures (current or potential future exposures) to other market participants that would expose those other market participants to significant credit losses in the event of the person’s default.
	whose outstanding swaps create substantial net counterparty exposure (current and potential future) that would expose counterparties to significant credit losses that could have a material adverse effect on capital of the counterparties.	whose outstanding swaps create substantial net counterparty exposure that could have serious adverse effects on the financial stability of the United States banking system or financial markets.	
Definition of “substantial net position”	Threshold that regulators determine prudent for effective monitoring, management and oversight of financial system	Threshold that regulator determines prudent for effective monitoring, management and oversight of entities which are systemically important or can significantly impact financial system	No provision.

Source: The Congressional Research Service.

Some basic elements are present in all three bills. First, transactions between swap dealers and major swap participants (MSPs) must be cleared, as long as a clearing organization will accept the swap and the appropriate regulators approve the swap for clearing. The purpose of this exception is twofold: (1) clearinghouses should not be forced to clear contracts that might pose risks to their solvency (as might be the case if a contract were highly customized, complex, difficult to price, or if the risk exposure of a class of contracts were concentrated in a single dealer), and (2) the regulatory approval requirement ensures that there will not be a “race to the bottom” among clearinghouses, in which competition for market share and clearing fees leads to imprudent risk taking.

In addition to the clearing requirement, dealers and MSPs will be subject to prudential capital requirements and other forms of regulatory oversight. Thus, to the end users, the definition of “major swap participant” is crucial because it determines the scope of exemptions from the clearing requirement.

All three bills define MSP in ways that attempt to minimize the likelihood that trades in uncleared swaps will present significant financial risks. The House bills make holding a “substantial net position”—to be defined by the regulators—a prerequisite for MSP status. However, a substantial net position does not make one an MSP if the position is used for hedging. But then, there is an exception to this exception: even a hedging position may qualify one as an MSP if the position creates counterparty risk that could threaten systemic stability (the Agriculture version) or could have a material adverse effect on capital of the counterparties (the Financial Services version).

The Senate Banking Committee proposal, in its Title VII, on the other hand, defines MSP in a way that may capture more derivatives market participants. It does not use the “substantial net position” test, but includes within the MSP category any trader whose position exposes counterparties to “significant credit losses” in the event of the trader’s default.

To give some hypothetical examples, a small nonfinancial hedger whose counterparty was a dealer like Goldman Sachs would probably not qualify as an MSP under any of the definitions. In the event that the firm defaulted, the effect on the dealer would probably not be material or significant.

In the case of a large industrial company, like Coca-Cola, it is more difficult to judge the effect, especially because regulatory discretion would be involved in administering the provisions of the statute. A company like Coca-Cola is likely to have very large derivatives positions to hedge foreign exchange, interest rate, and commodity price risk, and risks incurred by the financial assets on its balance sheet. By size alone, its positions may well meet the “substantial net position” test of the House bills. But it might also characterize its position as hedging commercial risk, and so be excluded from the definition. In that case, the question would be whether a hypothetical default by Coca-Cola on its derivatives obligations would cause significant or material harm to its counterparties (in the Senate Banking and House Financial Services versions, respectively) or to the financial system (in the House Agriculture version). This would call for the regulators to exercise judgment on a number of factors: was the position concentrated with a single dealer, or dispersed among a number of firms? What, under current market conditions, was the capacity of the dealer or dealers to absorb a loss of a given size? Was the financial system able to withstand the shock at that particular time?

Safeguards Applicable to Uncleared OTC Swaps

If end-user exemptions are too broad, some portion of the systemic risks posed by the unregulated OTC markets will remain. In recognition of this, the bills provide additional safeguards against the impact of defaults by traders (or dealers) in uncleared swaps. One such safeguard was mentioned above—swap dealers and MSPs will be subject to capital requirements to cushion them against the impact of derivatives losses. Another has to do with the imposition of margin requirements on uncleared contracts.

The bills direct the regulators to impose initial and variation margin requirements on contracts that are not cleared through a derivatives clearing organization. Again, a range of exemptions would apply to certain end users:

- Under the House Financial Services bill, imposition of such margin requirements is optional for swaps when one of the counterparties is not a swap dealer or an MSP. Any such requirements must provide for use of noncash collateral.
- Under the House Agriculture Committee bill, there is no explicit authority to impose margin requirements on swaps with end users.
- The Senate Banking Committee proposal permits regulators to exempt uncleared swaps from margin if one of the counterparties is (1) not a swap dealer or an MSP, (2) using the swap as a hedge in accordance with generally-accepted accounting principles (GAAP), and (3) predominantly engaged in nonfinancial activities. Such exemptions would require the additional approval of the systemic risk regulatory agency. Regulators may permit the use of noncash collateral, if consistent with swap market integrity and financial system stability.

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