# Derivatives Reform and Regulation




Economic Issues, Problems and Perspectives

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Editor

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# DERIVATIVES REFORM AND REGULATION



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# PREFACE

Financial derivatives allow users to manage or hedge 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. This book examines the key issues in derivatives reform and regulation; the conflicts of interest in derivatives clearing and the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Chapter 1- 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.

Chapter 2- In the wake of the financial crisis and unusual oil price volatility, new attention was drawn to the regulation of derivatives—and particularly toward the unregulated over-the-counter (OTC) derivatives market. What regulatory changes, if any, would reduce risks to the financial system from derivatives trading? A number of bills were introduced in the 111$^{th}$ Congress, and several congressional committees have held hearings. The Dodd-Frank Wall Street Reform and Consumer Protection Act (P.L. 111-203)

enacted a sweeping reform of derivatives trading and oversight and brought the unregulated OTC swaps market under the jurisdiction of federal regulators.

Chapter 3- The financial crisis implicated the over-the-counter (OTC) derivatives market as a source of systemic risk. In the wake of the crisis, lawmakers sought to reduce systemic risk to the financial system by regulating this market. One of the reforms that Congress introduced in the Dodd-Frank Act (P.L. 111-203) was mandatory clearing of OTC derivatives through clearinghouses, in an effort to remake the OTC market more in the image of the regulated futures exchanges. Clearinghouses require traders to put down cash or liquid assets, called margin, to cover potential losses and prevent any firm from building up a large uncapitalized exposure, as happened in the case of the American International Group (AIG). Clearinghouses thus limit the size of a cleared position based on a firm's ability to post margin to cover its potential losses.

Chapter 4- The financial crisis implicated the unregulated over-the-counter (OTC) derivatives market as a major source of systemic risk. A number of firms used derivatives to construct highly leveraged speculative positions, which generated enormous losses that threatened to bankrupt not only the firms themselves but also their creditors and trading partners. Hundreds of billions of dollars in government credit were needed to prevent such losses from cascading throughout the system. AIG was the best-known example, but by no means the only one.

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*Chapter 1*

# KEY ISSUES IN DERIVATIVES REFORM*

*Rena S. Miller*

## 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

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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. 4173, as passed by the House, and Title VII of the same bill, as amended with text from S. 3217 and passed by the Senate on May 20, 2010, 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.

## 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 swaps[1]— 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) market[3] grew by 475% and 522%, 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.

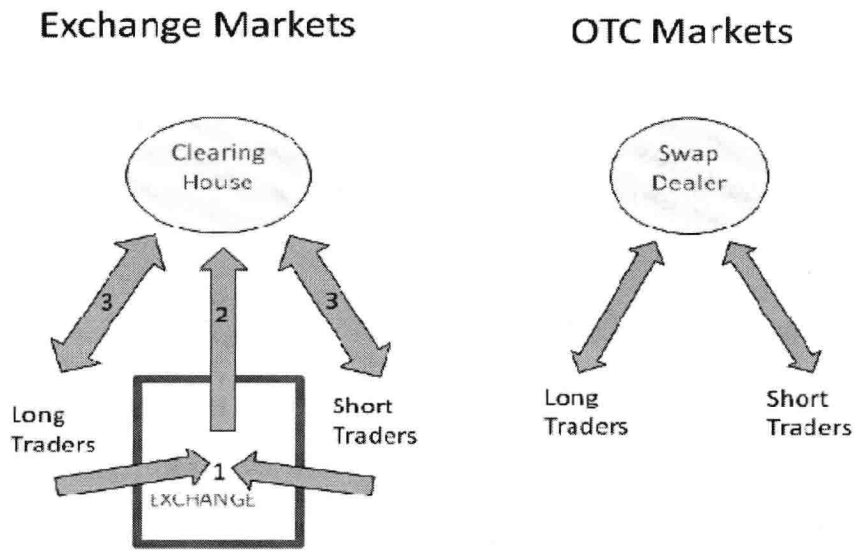
Exchanges are centralized markets where all the buying interest comes together. Traders who want to buy, or take a long position (longs), interact with those who want to sell, or go short (shorts), and deals are made and prices reported throughout the day. In the OTC market, contracts are made bilaterally, 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 third-party 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 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.




Source: CRS.

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

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-tomarket, 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
- 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.

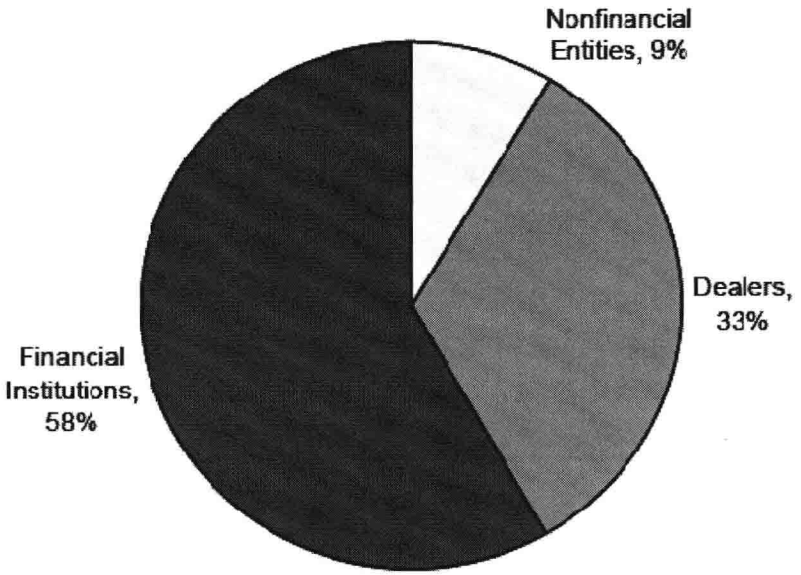
## END USERS

The derivatives titles of both the House- and Senate-passed versions of H.R. 4173 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 or in either version of the bill. In general, it refers to any OTC derivatives counterparty that is not a dealer or a major market participant, 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?

The Bank for International Settlements publishes data on counterparties in several OTC markets. As of December 2009, 33% of OTC contracts were between reporting dealers, 58% were between dealers and other financial institutions, and the remaining 9% 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 bail out the dealer using general federal revenues, 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 House and Senate bill versions provide exemptions for end users whose derivatives positions are intended to hedge business risk and who are not thought to pose systemic risk. The bill versions 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.




Source: CRS, using data from Bank for International Settlements.
Notes: Includes OTC interest rate, foreign currency, credit default swaps and equity-linked derivative contracts.

Figure 2. OTC Swap Counterparties, December 2009.

## LEGISLATIVE PROPOSALS AND EXEMPTIONS FOR END USERS

The Derivative Markets Transparency and Accountability Act was passed by the House as Title III of its version of the comprehensive financial reform bill, H.R. 4173. On May 20, 2010, the Senate passed its version of H.R. 4173. Title VII of the Senate bill deals with the regulation of OTC derivatives. Both the House and Senate versions are based on the Obama Administration's proposed legislative language as a base text, but depart from the model in significant ways.

Table 1 below sets out a comparison of the derivatives provisions and exemptions in H.R. 4173, as passed by the House, and as passed by the Senate, respectively.

**Table 1. Comparison of Derivatives Titles of H.R. 4173, as Passed by the House and Senate, respectively**

| Provision | House Version (Derivatives Title) | Senate Version (Derivatives Title) |
|---|---|---|
| Who wields regulatory authority? | After consulting with the Securities and Exchange Commission (SEC) and prudential regulators such as the Federal Reserve, Office of the Comptroller of the Currency (OCC), and Federal Deposit Insurance Corporation (FDIC), the Commodities Futures Trading Commission (CFTC) has rule-making authority over swaps.<br><br>SEC has rule-making authority over security-based swaps after consulting with CFTC and Prudential Regulators.<br><br>The CFTC and the SEC are not required to undertake joint rule-making on most issues. If, however, one of the agencies feels that the other one is encroaching upon its territory, that agency can file a petition for review of the rule by the D.C. Circuit U.S. Court of Appeals.<br><br>The Treasury, CFTC and SEC shall conduct a joint study of the desirability and feasibility of establishing, by January 1, 2012, a single regulator for financial derivatives. (§3005) | Most rule-making is either by CFTC alone or by the SEC alone. CFTC alone has rule-making authority over swaps. For instance, the CFTC alone issues rules to determine which swaps or category of swaps must be cleared. The CFTC issues rules further defining who is a major swap participant, and who is an end-user.<br><br>For security-based swaps, the SEC will issue rules further defining who is considered a major security-based swap participant (MSBSP), based on the definition given in §761. The SEC alone also issues rules defining which type of security-based swaps must be cleared. The SEC also issues rules determining what constitutes a "substantial threshold" for security-based swaps, to be considered a MSBSP. (§761) |

| Provision | House Version (Derivatives Title) | Senate Version (Derivatives Title) |
|---|---|---|
| How is swap defined? | Amends the Commodity Exchange Act (CEA) to include a very broad definition of swaps.<br><br>Foreign exchange swaps and forward contracts are excluded. However, if the CFTC determines that either foreign exchange swaps or foreign exchange forwards should be regulated as swaps and the Treasury concurs, then they shall be regulated as swaps. In this case, CFTC and Treasury will then jointly determine which powers the CFTC will exercise over foreign exchange swaps and foreign exchange forwards, and those powers will be exercised solely by the CFTC. (§3101(35)(D)(i))<br><br>Any transaction with the U.S. government or a federal government agency expressly backed by the full faith and credit of the U.S. government as a counterparty is excluded. Identified banking products, under the Legal Certainty for Bank Products Act of 2000, are excluded from the definition of "security-based swap," from CFTC regulation, and from coverage by the Commodity Exchange Act. There may, however, be exceptions to these exclusions for identified banking products. (§3103) | Similar broad definition of swaps. Swaps based on any broad-based index, including broad-based securities indices, are considered "swaps," and given to the CFTC to regulate. "Security-based swaps" fall to the SEC.<br><br>Only swaps based on narrow indices, single securities or loans, and single-reference entity swaps (such as credit default swaps based on a single entity or narrow index) are considered security-based swaps. (§761)<br><br>The bill includes foreign exchange swaps and foreign exchange forwards as swaps, which would bring them under CFTC regulation, unless the Treasury makes a written determination that they should not be regulated as swaps. In that case, they must still be reported to swap repositories, or to the CFTC if no such repository will accept them. This is similar to the treatment in the House version of H.R. 4173. (§721)<br><br>Amends The Legal Certainty for Bank Products Act of 2000 to state that the CFTC will have no authority over identified banking products. Also states that the definition of "security-based swap" in section 3(a)(68) of the Securities Exchange Act of 1934 does not include any identified bank product. Then provides for certain exceptions at regulators' discretion. (§725) |