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Report to Congressional Requesters

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COMMODITY EXCHANGE ACT

Issues Related to the Regulation of Electronic Trading Systems

GAO

Accountability * Integrity * Reliability

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The Honorable Richard G. Lugar
Chairman
Committee on Agriculture, Nutrition
and Forestry
United States Senate

The Honorable Thomas W. Ewing
Chairman
Subcommittee on Risk Management,
Research, and Specialty Crops
Committee on Agriculture
House of Representatives

As part of your deliberations on the Commodity Futures Trading Commission's (CFTC) reauthorization, you expressed an interest in exploring concerns related to the application of technology to derivatives[1] trading. The application of technology has resulted in the development and use of electronic systems that are changing the way derivatives are traded. While these systems have benefited derivatives markets and their participants, they have also raised regulatory concerns. In various forums during 1999 and 2000, including congressional hearings, concerns were raised about the appropriate regulation of electronic trading systems for exchange-traded futures[2] and over-the-counter (OTC) derivatives.[3] To assist you in your deliberations related to these concerns, we agreed to answer the following questions:

- How is technology being used in the exchange-traded futures market, and what concerns does this use raise under the Commodity Exchange Act (CEA)?

[1] Derivatives are contracts that have a market value determined, in part, by the value of an underlying asset, reference rate, or index (called the underlying). Underlyings include stocks, bonds, agricultural and physical commodities, interest rates, foreign currency rates, and stock indexes.

[2] Exchange-traded futures are derivatives contracts that are transacted on organized exchanges and that obligate the holder to buy or sell a specific amount or value of an underlying asset, reference rate, or index at a specified price on a specified date. These contracts may be satisfied by (1) delivery or cash settlement if held to expiration or (2) offset prior to expiration.

[3] OTC derivatives traditionally have had negotiable terms, including price, maturity, and quantity, and have been transacted outside of an organized exchange.

- How is technology being used in the OTC derivatives market, and what concerns does this use raise under the CEA?
- What alternatives have been suggested for addressing the concerns raised under the CEA by the use of technology in the exchange-traded futures and OTC derivatives markets?

Results in Brief

The application of technology is changing the way that exchange-traded futures are traded. Automated order routing systems (AORS) have been used for over 10 years to route orders from futures commission merchants (FCM)[4] to and within futures exchanges. However, FCMs are extending the use of AORS to customers, enabling them to use their computers instead of telephones to place orders. AORS can now transmit orders from the customer's computer to the FCM's computer, and then to the exchange for execution. To the extent that AORS provide for enhanced trade monitoring and control, more precise trading records, and more direct market access, their use can benefit the exchange-traded futures market and its participants and can reduce some regulatory concerns. Nonetheless, according to some futures market participants, the use of AORS without adequate controls can also raise regulatory concerns about, among other things, the adequacy of system capacity and security as well as opportunities to engage in unauthorized trading. The National Futures Association (NFA),[5] a self-regulatory organization (SRO),[6] along with the Futures Industry Institute (FII),[7] is developing best practices for order routing systems that will, according to NFA officials, help address these concerns.

Introduced in the United States in the early 1990s, electronic trade-matching systems are being used in place of or in addition to open outcry—a method of public auction that occurs on an exchange floor—to execute orders. Similar to AORS, electronic trade-matching systems can offer many benefits and reduce some regulatory concerns. Futures market participants have also said that the use of these systems without adequate

[4] An FCM is an individual, corporation, association, partnership, or trust that solicits or accepts orders to buy or sell futures contracts and accepts payment from those whose orders are accepted.

[5] NFA is responsible, under CFTC oversight, for qualifying commodity futures professionals and for regulating the sales practices, business conduct, and financial condition of firms that are not members of exchanges.

[6] SROs play an extensive role in the regulation of the U.S. securities and futures industries. They include all of the U.S. securities and futures exchanges, the National Association of Securities Dealers, NFA, and the Municipal Securities Rulemaking Board. In addition, state agencies also oversee banking, securities, and insurance activities.

[7] FII is a non-profit educational foundation established by the board of directors of the Futures Industry Association, the national trade association of the futures industry.

controls can raise regulatory concerns. CFTC officials told us that they review electronic trade matching systems for compliance with international standards as part of their exchange-designation process. These standards generally address futures market participants' concerns.

Operating in the United States since at least 1994, electronic trading systems for OTC derivatives more directly link buyers and sellers that previously interacted through telephones and faxes. To the extent that these systems enhance trader monitoring and control and interface with risk management software, they can reduce both firm-specific and systemic risk.[8] Moreover, to the extent that these systems link multiple participants and transmit contract execution details electronically, they can improve market transparency[9] and reduce the time and cost of trade execution and reporting. Nonetheless, without adequate controls, these systems can raise concerns about inadequate system security and unauthorized customer trading. In addition, uncertainty exists over whether the use of electronic trading systems for OTC derivatives may cause transactions that are otherwise excluded or exempted from the CEA to fall under its provisions. According to CFTC and market participants, this uncertainty could call into question the legal enforceability of electronically traded OTC derivatives and inhibit the development and use of electronic trading systems. For example, the potential for an electronic trading system for OTC derivatives to be classified as a board of trade or a multilateral transaction execution facility (MTEF)[10] could prevent OTC derivatives traded through the system from qualifying for an exclusion or exemption from the CEA.

General agreement exists among regulators and market participants that the current approach to regulation needs to be revised to better accommodate electronic trading systems for exchange-traded futures and OTC derivatives. Market participants have suggested three approaches for accomplishing this objective: drafting a separate section of the CEA to deal

[8] Systemic risk is the risk that a disruption—at a firm, in a market, or from another source—will cause difficulties at other firms, in other markets, or in the financial system as a whole.

[9] Market transparency is the availability of information about a market, such as bid, offer, and execution prices and amounts.

[10] Although CFTC has not defined MTEF by rule, CFTC has defined an MTEF in the preamble to the final rule on the Exemption of Certain Swap Agreements as a physical or electronic facility in which all market makers and other participants have the ability to execute transactions and bind both parties by accepting offers that are made by one member and open to all members of the facility. In this release, CFTC also said that a computer-based system for swap agreements is beyond the scope of the rules regarding the exemption of certain swaps but may be the proper subject of CFTC's authority at a later time. Exemption for Certain Swap Agreements, 58 Fed. Reg. 5587, 5591 (1993) (codified at 17 CFR Part 35).

with electronic trading, developing core principles to which all electronic trading systems must adhere, and developing a flexible regulatory structure under which electronic systems are regulated based on the extent to which they raise specific public policy concerns under the CEA. In addition, a November 1999 report[11] of the President's Working Group on Financial Markets (Working Group)[12] included several recommendations designed, in part, to enhance legal certainty concerning the use of electronic trading systems for OTC derivatives that do not involve nonfinancial commodities with finite supplies. The Working Group acknowledged that its recommendations, if implemented, would not only blur distinctions between exchange-traded futures and OTC derivatives but also create differences in the level of regulation between OTC derivatives that are electronically traded and cleared and exchange-traded products with similar characteristics. Recognizing that some exchange-traded futures would have characteristics similar to the excluded OTC derivatives, the Working Group has supported CFTC efforts to provide appropriate regulatory relief for the exchange-traded futures market. CFTC has proposed actions and taken others that, in aggregate, could provide significant regulatory relief to this market. In addition, House and Senate committees are considering actions that would address issues related to electronic trading systems in the OTC derivatives and/or exchange-traded futures markets.

Continued progress in addressing the regulatory concerns raised by electronic systems could be critical to the ability of the U.S. exchange-traded futures and OTC derivatives markets to remain innovative and globally competitive. Such progress requires that the federal financial market regulators remain aware of how rapidly changing technology is affecting the derivatives markets. In particular, regulators need to know whether existing regulations are impeding the development of electronic trading systems in the United States, and whether additional regulations or different regulatory approaches are needed to protect the U.S. markets and their users. Recognizing the difficulty of ensuring that regulations appropriately address market risks in stable periods, and the additional challenges that are likely to be presented by ongoing and rapid advances in technology, we are recommending that the Working Group monitor and report to Congress, as appropriate, on regulatory concerns related to the

[11] See Over-the-Counter Derivatives Markets and the Commodity Exchange Act, the President's Working Group on Financial Markets (November 1999).

[12] The Working Group was created following the October 1987 stock market crash to address issues concerning the competitiveness, integrity, and efficiency of the financial markets. The Secretary of the Treasury chairs the Working Group, and the other members are the chairmen of CFTC, the Federal Reserve System, and the Securities and Exchange Commission.

application of technology in the derivatives markets. We are also making a separate but similar recommendation to CFTC. The federal financial regulators and derivatives industry officials that reviewed a draft of this report generally agreed with our conclusions and recommendations.

Background

Since the mid-1980s, the exchange-traded futures and OTC derivatives markets have experienced substantial growth. Exchange-traded futures and OTC derivatives have similar characteristics and economic functions but traditionally have differed in some ways. Futures are regulated by CFTC under the CEA, which provides for specific exclusions and exemptions from its provisions. In comparison, OTC derivatives—including options[13] and swaps[14]—generally are not subject to direct federal regulation. General agreement exists that any regulation of the derivatives markets should serve to protect market integrity, financial integrity, and customers.

The Derivatives Markets Have Experienced Significant Growth

The U.S. exchange-traded futures market has experienced significant growth over the last decade. Between December 1989 and September 1998, the annual trading volume on U.S. futures exchanges increased approximately 93 percent, from 323 to 625 million contracts. Notwithstanding this decade of growth, from September 1998 to September 1999, the annual trading volume decreased by approximately 2 percent, from 625 to 614 million contracts.

Worldwide, the notional amount outstanding of exchange-traded futures and options has also grown, but not at the same pace as has the OTC derivatives market. The June 1999 total estimated notional amount[15] outstanding of exchange-traded financial futures and options worldwide was $15.1 trillion, an increase of approximately 6 percent from June 1998 and an increase of approximately 583 percent from December 1989. In comparison, the June 1999 estimated total notional amount of the OTC derivatives market worldwide was $81.5 trillion, an increase of

[13] Option contracts (American style) give the purchaser the right, but not the obligation, to buy (call option) or sell (put option) a specified quantity of a commodity or financial asset at a specified price (the exercise or strike price) on or before a specified future date. Options can be transacted on an organized exchange or OTC.

[14] Swaps traditionally are privately negotiated contracts that typically require counterparties to make periodic payments to each other for a specified period. The calculation of these payments is based on an agreed-upon notional amount that is not typically exchanged.

[15] The notional amount is the amount upon which payments between parties to certain types of derivatives contracts are based. When this amount is not exchanged, it is not a measure of the amount of risk in a transaction.

approximately 17 percent from June 1998 and an increase of approximately 4,075 percent from December 1989.[16]

Similarities and Differences Exist Between Exchange-Traded Futures and OTC Derivatives

Exchange-traded futures and OTC derivatives have similar characteristics and can serve similar economic functions but traditionally have differed in some ways. The market values of both types of contracts are determined, in part, by the value of an underlying asset, reference rate, or index. The economic uses of both contracts include providing users a means of hedging (i.e., shifting the risk of price changes to those more willing or able to assume this risk) and speculating (i.e., investing with the intent of profiting from price changes). In some cases, both contract types can also serve a price discovery function.[17] However, this function is more typically associated with exchange-traded futures, and according to the Working Group, prices established in OTC derivatives transactions do not serve a significant price discovery function.

Exchange-traded futures and OTC derivatives differ in the ways they are transacted and cleared. As discussed below, all futures must be traded on a CFTC-designated exchange, unless otherwise excluded or exempted from the CEA. As such, futures have traditionally been traded in central locations on the floor*s* of organized exchanges, with clearinghouses assuming responsibility for daily clearance[18] and settlement[19] of all trades. Clearinghouses manage credit risk,[20] in part, by substituting themselves as the buyer to every seller and the seller to every buyer. They also guarantee daily settlement, thereby eliminating the need for the original counterparties to monitor each other's creditworthiness. In contrast, OTC derivatives contracts traditionally are privately negotiated between counterparties, also called principals. These negotiations have typically occurred outside of centralized trading facilities. Because OTC derivatives are entered into on a principal-to-principal basis and are not typically settled through a clearinghouse, each counterparty is exposed to credit risk, which is addressed through the negotiation of contract terms.

[16] These data were reported by the Bank for International Settlements, which was established in 1930 to, in part, provide a forum for cooperative efforts by the central banks of major industrial countries.

[17] Price discovery is the process of determining a price level based on supply and demand factors.

[18] Clearance is the process of capturing trade data, comparing buyer and seller versions of the data, and guaranteeing that the trade will settle once the data are matched.

[19] Settlement is the process of determining the daily closing price for each contract and marking all open positions to that price—that is, collecting losses from clearing members carrying losing positions and making payments to clearing members carrying gaining positions.

[20] Credit risk is the risk of loss resulting from a counterparty's failure to meet its financial obligation.

Finally, exchange-traded and OTC derivatives typically differ in their degree of standardization. Exchange-traded futures generally have standardized terms, except for price,[21] which the market determines. In contrast, the terms of OTC derivatives contracts—such as price, maturity, and quantity—generally are negotiated to meet the specific economic needs of the counterparties. However, according to the Working Group, as OTC markets have developed, the extent to which market participants engage in large numbers of transactions with similar terms has increased. For example, while the opportunity to negotiate the terms of an OTC contract may exist, this opportunity may not be used to a great extent for certain types of instruments, such as "plain vanilla," or relatively standardized and uncomplicated interest rate swaps.

Futures Are Generally Regulated Under the CEA

Congress created CFTC as an independent agency by amending the CEA in 1974 and gave CFTC exclusive jurisdiction over all futures and commodity options, except options on securities and options on foreign currencies traded on a national securities exchange.[22] The CEA establishes a regulatory structure that was historically designed to ensure that all futures on regulated commodities are traded on self-regulated exchanges and through regulated intermediaries. The act does not define the term futures contract but broadly defines commodity to include virtually anything. Although the CEA generally requires futures to be traded on an exchange, it excludes certain transactions from CFTC regulation under the Treasury Amendment.[23] As amended in 1992, the CEA also provides CFTC with the authority to exempt certain transactions from all but one of its provisions.

[21] For example, the futures markets have developed products, such as flexible options, in which terms other than price can be negotiated.

[22] CEA section 2(a)(1)(B), which codified the Shad-Johnson Jurisdictional Accord, excludes these options from CFTC's jurisdiction. The accord, reached between the Chairmen of the Securities and Exchange Commission and CFTC in 1981, resolved a dispute concerning jurisdiction over exchange-traded securities-based derivatives. Under the accord, the Securities and Exchange Commission was given jurisdiction over options on securities and options on foreign currencies traded on a national securities exchange. We reviewed issues related to the Shad-Johnson Jurisdictional Accord in a separate report. See CFTC and SEC: Issues Related to the Shad-Johnson Jurisdictional Accord (GAO/GGD-00-89, Apr. 6, 2000).

[23] The CEA also provides an exclusion for forward contracts to facilitate the movement of commodities through the merchandizing chain. Forward contracts are privately negotiated, cash transactions in which commercial buyers and sellers agree upon the delivery of a specified quantity and quality of goods at a specified future date. A price may be agreed upon in advance or determined at the time of delivery. CFTC has distinguished forwards from futures on the basis of whether the contract serves primarily as a vehicle for deferred delivery or for risk shifting. Delivery is typically expected under a forward contract.

The Treasury Amendment

In 1974, Congress adopted the Treasury Amendment to exclude from CFTC regulation certain transactions in, among other things, foreign currency and government securities, unless conducted on a board of trade. As part of the legislative history accompanying the 1974 amendments to the CEA, Congress noted that the interbank market, also called the interdealer market,[24] was more properly supervised by bank regulators and, thus, regulation by CFTC under the CEA was unnecessary. That is, unlike some participants in the exchange-traded futures markets who might need the protection provided by the CEA, foreign exchange market participants were sophisticated and informed institutions not requiring such protection.

CFTC Exemptive Authority

To address the legal risk faced by many OTC derivatives, Congress gave CFTC broad authority under the Futures Trading Practices Act of 1992[25] to exempt any contract from all but one CEA provision.[26] Congress required that the exemption must be consistent with the public interest, and the contract must be entered into solely between appropriate persons, as defined in the act.[27] Under its exemptive authority, CFTC can change the conditions of an exemption or eliminate the exemption. In providing CFTC exemptive authority, Congress responded to industry concerns that because of their similarities to exchange-traded futures, swaps and other OTC derivatives faced the possibility of falling within the judicially crafted definition of a futures contract. This possibility posed a legal risk for many OTC derivatives because of the CEA requirement that futures be traded on an exchange to be legal and, thus, enforceable.[28]

[24] The interbank market is an informal network of banks and dealers that serves the needs of international business to hedge risk stemming from foreign exchange rate movements. It includes not only banks but also other financial institutions and industrial corporations.

[25] Pub. L. No. 102-546.

[26] The Futures Trading Practices Act of 1992 did not authorize CFTC to exempt swaps and other OTC derivatives from CEA section 2(a)(1)(B)—the Shad-Johnson Jurisdictional Accord.

[27] Appropriate persons, as defined in the Futures Trading Practices Act (7 USC § 6(c)(3)), include banks, savings associations, certain employee benefit plans, insurance companies, investment companies, commodity pools, broker-dealers, FCMs, and government entities. A corporation or partnership may be an appropriate person if it has a net worth exceeding $1 million or total assets exceeding $5 million. CFTC may determine that the inclusion of other persons is appropriate based on financial or other qualifications or on the applicability of appropriate regulatory protections.

[28] In 1989, to reduce the legal risk facing swaps, CFTC issued a swaps policy statement that clarified the conditions under which it would not regulate certain swaps as futures. In part, CFTC predicated its policy statement on the rationale that swaps lacked certain elements that facilitated futures trading on exchanges, such as standardized terms and a clearinghouse.

In January 1993, CFTC exempted a broad group of swaps from virtually all CEA provisions, including the exchange-trading requirement.[29] CFTC retained the CEA's antimanipulation and antifraud provisions, but these are applicable only to the extent that swaps are determined to be futures. In granting the swaps exemption, CFTC was not required to, nor did it, determine that the OTC derivatives covered by its exemptions were futures.

CFTC established four conditions that swaps are required to meet to qualify for an exemption. First, they must be entered into solely by eligible swap participants.[30] Second, they may not be part of a fungible class of agreements that are standardized as to their material economic terms. Third, the creditworthiness of the parties to the swap must be a material consideration in entering into and determining the terms of a swap agreement. Under this third condition, exempted swaps could not be cleared through clearinghouses similar to those used to clear exchange-traded futures. However, CFTC noted in issuing the swaps exemption that it would consider the terms and conditions of an exemption for a swaps clearinghouse in the context of a specific proposal.[31] Fourth, the swap may not be entered into and traded on or through an MTEF. According to CFTC, these four conditions were intended to reflect the way that swaps transactions occurred when the exemption was granted and to describe the conditions under which such transactions would not raise significant regulatory concerns under the CEA.

[29] Swap Exemption, 17 C.F.R. 35.2.

[30] Eligible swap participants include banks, securities firms, FCMs, insurance companies, commercial firms with a net worth exceeding $1 million, and individuals with total assets exceeding $10 million. 17 C.F.R. § 35.1(b)(2) (1999).

[31] In March 1999, CFTC approved a petition by the London Clearing House to exempt certain swaps submitted for clearing through its clearinghouse, called SwapClear, from most CEA provisions and CFTC regulations.

OTC Derivatives Generally Are Not Subject to Direct Federal Regulation

In contrast to exchange-traded futures, OTC derivatives generally are not subject to direct regulation by a federal financial market regulator.[32] They may be indirectly regulated, but only to the extent that their users or dealers[33] are regulated. Most U.S. OTC derivatives dealers are banks or affiliates of broker-dealers[34] or FCMs. U.S. banks are overseen by federal bank regulators and subject to supervision and regulation that includes minimum capital, reporting, and examination requirements. Affiliates of broker-dealers and FCMs are generally unregulated, although SEC and CFTC have limited authority to obtain information about the activities of such affiliates. In addition, these affiliates may be subject to an industry SRO. Recognizing the limits of these approaches to oversight, SEC has instituted an alternative regulatory scheme for OTC derivatives dealers that conduct limited securities activities.[35] However, participation in this scheme is voluntary and has been very limited. According to the Working Group, a small number of OTC derivatives dealers are not affiliated with entities subject to direct or indirect banking, securities, or futures regulation. Such dealers include insurance, finance, and energy companies.

OTC derivatives have generally been viewed by the federal financial market regulators as presenting limited regulatory concerns. For example, OTC financial derivatives have been viewed as presenting limited market integrity concerns because they are considered to be less susceptible to price manipulation and are not viewed as serving a significant price discovery function. They have also been considered less susceptible to price manipulation because the vast majority are settled in cash, based on a rate or price determined by a separate, highly liquid market with a very large or virtually unlimited deliverable supply. Finally, they have been generally viewed as presenting limited customer protection concerns because participation is limited to eligible participants acting for their own accounts.

[32]Although OTC derivatives generally are not subject to direct regulation by a federal financial market regulator, CFTC has authority to regulate certain commodity options that are traded off-exchange, and SEC has authority to regulate OTC options on securities.

[33] Dealers stand ready to act as buyers, sellers, or counterparties for end-users and other dealers.

[34] Broker-dealers are agents that handle public orders to buy and sell securities. They also act as principals that buy and sell securities for their own accounts.

[35] See various sections of 17 C.F.R. part 240.

Regulation Serves to Protect Market Integrity, Financial Integrity, and Market Participants

General agreement exists that the public policy goals of federal financial market regulation are to protect market integrity, financial integrity, and customers. Protecting market integrity requires that controls be in place to prevent price manipulation and to provide for accurate price discovery. The prevention of price manipulation and the provision of accurate price discovery are two primary goals of the CEA. Protecting financial integrity requires that controls be in place to address both credit and systemic risks. CFTC regulations focus on, among other things, ensuring the financial integrity of futures exchanges, clearinghouses, and FCMs, in part, to protect the financial system from systemic risk. Protecting customers requires controls to ensure that customers are treated appropriately by intermediaries and that their orders are fairly executed. The need for customer protection is implicit throughout the CEA.

Scope and Methodology

To address our three objectives, we interviewed officials of CFTC; the Securities and Exchange Commission (SEC); the Office of the Comptroller of the Currency (OCC); and the Federal Reserve Board; two futures exchanges that are SROs (the Chicago Board of Trade (CBT) and the Chicago Mercantile Exchange (CME)); two additional futures exchanges (the Cantor Financial Futures Exchange (CFFE) and FutureCom); a third SRO (NFA); four electronic trading systems (Altra Energy Technologies; Derivatives Net, Inc.; E-Foreign Exchange.com; and Interactive Brokers); and three industry associations (the Foreign Exchange Committee, Futures Industry Association (FIA), and International Swaps and Derivatives Association). In addition, we reviewed the November 1999 Working Group report, Federal Register notices, comment letters on CFTC concept releases and rule proposals, transcripts of congressional hearings and CFTC roundtable discussions, as well as journal articles and studies by industry experts. We also attended Senate and House hearings, a CFTC roundtable discussion, two futures industry conferences, and congressional briefings by market participants in which electronic trading systems for derivatives were discussed.

In addition, to learn how technology is being used in the exchange-traded futures and OTC derivatives markets, we reviewed documentation of the electronic trade-matching systems of four futures exchanges (the New York Mercantile Exchange's (NYMEX) Access, CFFE, CME's Globex, and CBT's Project A) and observed demonstrations of the electronic trading systems operated by three companies (Derivatives Net, Inc.; E-Pit; and Interactive Brokers). We also interviewed two users of the Interactive Brokers electronic trading system.

We requested comments on a draft of this report from the heads, or their designees, of CFTC, SEC, the Federal Reserve Board, the Department of the Treasury, and OCC. We also requested comments from CBT, CME, FIA, the International Swaps and Derivatives Association, and NFA. In discussions held in April 2000, the Director of the Office of Legislative and Intergovernmental Affairs, CFTC; the Chief Counsel of the Division of Market Regulation, SEC; an Associate Director of the Division of Research and Statistics, Federal Reserve Board; the Director of the Office of Federal Finance Policy Analysis, Department of the Treasury; and the Deputy Comptroller, Risk Evaluation, Bank Supervision Policy, OCC, provided us with oral comments. Similarly, in discussions held in April 2000, officials of CBT, FIA, and NFA provided us with oral comments. We did not receive comments from CME and the International Swaps and Derivatives Association. The technical comments that we received were incorporated in the report as appropriate. The substantive comments that we received are discussed near the end of this report. We did our work in Chicago, IL; New York, NY; and Washington, D.C., between October 1999 and April 2000 in accordance with generally accepted government auditing standards.

Technology Can Automate Futures Trading and Further Some Regulatory Objectives

The application of technology to the exchange-traded futures market has led to the development of electronic systems that automate some manual processes. We have categorized these systems as AORS and electronic trade-matching systems.[36] The use of both types of systems can further regulatory objectives associated with the futures market as well as raise some regulatory concerns.

Use of AORS Can Further Regulatory Objectives

Although AORS have been used for over 10 years to route orders from FCMs to and within futures exchanges, FCMs have extended the use of AORS to customers, enabling them to use their computers instead of telephones to place orders. Although a very limited number of such AORS are in use, the number is expected to increase significantly in the near future. When linked to customers, AORS can replace predominantly manual processes for communicating a customer order to an FCM. Once a customer order is received by an FCM's computer, it can then be directed to the exchange for execution. With proper controls, AORS used to transmit customer orders can further regulatory objectives by enhancing customer protection, market integrity, and financial integrity, as well as

[36] Although other forms of technology are being used on futures exchanges, such as handheld trading devices that can replace written floor order tickets and sophisticated computer programs that serve as surveillance tools to deter and detect trade practice abuses, we have focused on AORS and electronic trade-matching systems because they have had and are expected to continue having a more significant role in changing the way futures are traded.

provide other benefits to futures market participants. However, without proper controls, such AORS can raise customer protection and other regulatory concerns related to inadequate system capacity and security and increased opportunities for unauthorized trading. NFA and FII are developing best practices for order routing systems that will, according to NFA officials, address concerns related to AORS use.

AORS Change the Way Orders Are Transmitted

Futures market customers have traditionally contacted an FCM by telephone to place an order. The FCM would then time-stamp the order, prepare an order ticket, and communicate the order to a firm's desk on the exchange floor, either electronically or by telephone. Once the order was received on the exchange floor, a floor order ticket would be prepared and either hand delivered or communicated through the use of hand signals to a floor broker[37] who would then execute the trade. Larger customers typically would communicate their orders directly to a firm's desk on the exchange floor. CFTC regulations require that floor order tickets contain a record of the time an order is received on the exchange floor and reported from the floor as executed.

Although AORS have been used for over 10 years to route orders from FCMs to futures exchanges, as well as within exchanges themselves, AORS have recently begun to be used by FCMs to allow customers to route futures orders from their computer systems to an FCM's computer system via dedicated telephone lines or the Internet. The FCM's system then electronically routes the customer's order to a firm's desk on an exchange floor or an electronic trade-matching system (discussed separately below) for execution. Such AORS can communicate trade execution information, such as price, quantity, and time of execution, back to customers.

Depending on the specific AORS and other systems with which it interfaces, the extent of human involvement in handling and executing a customer order can vary. For example, with some systems, the order may be transmitted through the FCM's computer system to a firm's desk on an exchange floor and then communicated via hand signals or through electronic means to a floor broker for execution. In other systems, the order flows through the FCM's computer system directly to a floor broker or an electronic trade-matching system for immediate execution. In addition, these systems vary in the quantity and quality of information they provide to customers based on several factors, including a customer's relationship with the FCM, technology restrictions, and cost constraints.

[37] A floor broker executes trades on the floor of a futures exchange for customers and may also execute trades for personal or employer accounts.

For example, while some systems may provide customers with real-time bid and offer quotations, others may not provide current price quotations. These systems also differ with regard to the markets that can be accessed through them. For example, while some systems provide customers with access to only U.S. futures exchanges, others provide access to both U.S. and foreign exchanges.

Although a very limited number of FCMs provide their customers with access to AORS, the number is expected to increase significantly in the near future. In October 1999, one industry expert stated that within 1 year most FCMs would offer AORS to their customers. In addition, preliminary results of a 1999 survey of U.S. FCMs indicate that over 60 percent of the technology plans of FCMs included provisions for developing or enhancing order routing and management systems.[38]

Use of AORS Can Further Regulatory Objectives and Provide Other Benefits

With proper controls, the use of AORS can further regulatory objectives by changing how intermediaries route customer orders, providing for more accurate recording of details related to customer orders, and improving monitoring and control of customer activities. In addition, they can provide other benefits to futures market participants.

AORS use can enhance customer protection by reducing or eliminating opportunities for FCMs to mishandle customer orders. As such, AORS use can reduce regulatory concerns about fraud in connection with the mishandling of such orders.[39] As discussed below, when an AORS is connected to an electronic trade-matching system, customer protection can be further improved. In addition, AORS use can benefit market participants by providing for faster order delivery and reduced transaction costs.

AORS use can also enhance customer protection and market integrity in both open-outcry and electronic trading environments by allowing for the creation of automated trade order records that detail precisely when, where, and by whom an order was placed as well as any subsequent changes to that order. Such automated records can enhance market integrity by providing greater assurance that transactions are accurately recorded and error free. According to FIA officials, the use of AORS has

[38] TowerGroup conducted the survey, which was sponsored by FIA. As of April 6, 1999, FCMs representing over 50 percent of total U.S. futures customers' equity had responded to the survey.

[39] For example, an SEC official told us that concern exists in the securities market that electronic trading systems can be programmed to frontrun customer orders and that this concern is relevant to futures market AORS. To frontrun is to take a futures or options position based on nonpublic information regarding an impending transaction by another person in the same or a related market.

significantly benefited FCMs by reducing trade processing errors caused by human error. In addition, their use can deter and/or facilitate detection of trading abuses. That is, by recording the details of a customer order, as well as any changes made to that order, AORS use can make it more difficult for intermediaries to abuse customer orders and make it easier to detect such abuses.

In addition, AORS use can help protect the financial integrity of FCMs, thereby reducing systemic risk, and can enhance customer protection by providing improved monitoring and control of customer activities. Because AORS can record customer trades automatically, FCMs can build into AORS the capacity to monitor customer open positions as trades occur, or in real time. When a customer's total market exposure on open positions reaches or exceeds a predetermined level, the AORS can alert the FCM. One AORS we reviewed allowed the FCM to halt a customer's trading activity in such a situation and inform the customer that continuing to trade would require additional margin,[40] referred to as a margin call. FIA officials told us that only one FCM currently operates an AORS with this capability, but that other FCMs are working to develop it.[41] AORS can also provide automated trading filters that prevent customers from entering orders for certain types of instruments or placing orders beyond a certain amount. Enhanced monitoring and control of customer activities can also benefit FCMs and reduce systemic risk. That is, because FCMs are ultimately financially responsible for trades they execute on behalf of their customers, they can benefit from, and systemic risk can be reduced by, a system that prevents customers from entering into transactions that they may not be able to honor and that could, thus, jeopardize the financial position of the FCM. In addition, alerting customers more quickly of their losses can enhance customer protection by providing them with a more timely opportunity to consider the potential financial impact of continued trading.

Without Controls, the Use of AORS Could Raise Customer Protection and Other Concerns

Without proper controls, the use AORS could raise customer protection and other concerns under the CEA. One futures market participant said that AORS use could increase risks to customers if systems do not have the capacity to handle large trading volume. System failure due to lack of capacity could result in customers not knowing whether their orders were

[40] Margin is cash or collateral deposited by customers as a performance bond with their FCMs for the purpose of protecting the FCMs and, ultimately, clearinghouses against loss on exchange-traded futures contracts.

[41] An FIA official also said that this capability would be most relevant to FCMs with retail customers. FCMs would be unwilling to halt institutional customers' trading without assessing their exposures across markets—a capability that is currently not available.

executed, thus preventing them from taking further action that could decrease losses or increase profits. Some market participants also expressed concern that an AORS with inadequate security could increase the risk of unauthorized access to that system. CFTC and NFA officials said that the primary risks associated with AORS use are unauthorized access and trading beyond customer credit limits. According to the 1999 survey of FCMs, concerns about system capacity and security have limited FCM use of electronic systems. However, FIA officials stated that AORS use currently does not raise significant concerns, and that issues related to AORS security and capacity are more appropriately addressed by FCMs and exchanges than by regulatory efforts. The officials also said that market competition will be sufficient to motivate FCMs and exchanges to provide adequate security and capacity because customers will not continue to use AORS that experience problems in these areas.

In March 1999, CFTC proposed rules regarding access to automated boards of trade.[42] The proposed rules included minimum standards for, among other things, system security, controls over customer activities, and recordkeeping. According to CFTC, the comment letters responding to these proposed rules indicated that futures market participants have overwhelmingly negative views on the need for minimum standards for AORS. For example, FIA commented that the association has serious reservations about CFTC prescribing minimum standards for AORS, and that a better approach would be for CFTC to articulate its regulatory objectives for AORS and allow AORS operators flexibility in achieving those objectives. CME commented that the proposed rules are unnecessary because existing internal control requirements for FCMs are sufficient. NYMEX commented that specific requirements for AORS would limit the ability of AORS operators to respond to changing technology and market conditions. In contrast to these views, Interactive Brokers, the operator of an AORS, expressed agreement with CFTC's view that mandating specific, minimum controls for AORS is appropriate because such controls can enhance customer confidence, thereby increasing market participation and, ultimately, market liquidity. According to CFTC, the proposed rules were withdrawn in June 1999[43] in response to the negative comments from futures market participants.

NFA and FII Are Developing Best Practices for AORS

According to CFTC officials, no specific regulatory regime exists for AORS. However, NFA and FII, in consultation with exchange and industry

[42] Access to Automated Boards of Trade, 64 Fed. Reg. 14159 (1999).

[43] Access to Automated Boards of Trade, 64 Fed. Reg. 32829 (1999).

representatives, are developing best practices for AORS as part of a study related to order routing. The study is being funded primarily by $1 million provided by CFTC and is to be completed by September 1, 2000.[44] NFA officials told us that the NFA and FII approach is to develop general principles, in the form of best practices, to which AORS should adhere and to give system operators flexibility in following those principles. The principles would address, among other things, AORS security and capacity, and controls over customer trading activity. NFA officials noted that they are already conducting reviews of AORS, as part of their oversight of NFA-member FCMs, using the principles being developed as part of the study.

Use of Electronic Trade-Matching Systems for Exchange-Traded Futures Can Further Regulatory Objectives

Introduced in the United States in the early 1990s, electronic trade-matching systems for exchange-traded futures can replace predominantly manual processes for executing trades. Although representing a small percentage of U.S. futures trading volume, the use of electronic trade-matching systems is growing. Use of these systems can further regulatory objectives and provide other benefits to futures market participants. Although their use can raise regulatory concerns if the systems are not properly designed, CFTC officials told us that they review electronic matching systems for compliance with minimum standards developed by the International Organization of Securities Commissions (IOSCO),[45] which generally address these concerns. Nonetheless, the development of fully electronic futures exchanges may present additional regulatory challenges.

Electronic Systems Change the Way Exchange-Traded Futures Are Executed

Execution of transactions on futures exchanges has traditionally taken place by open outcry. As described above, a floor broker standing in a central location, called a trading pit, would receive an order communicated by hand signals, a floor order ticket, or an AORS to either buy or sell a certain quantity of futures contracts. The floor broker would then, orally and using hand signals, present the order to other traders, who would communicate their response to the order. When the order was filled, the buyer and seller would manually record, among other things, the price and quantity of the contracts traded. The trade details would typically be communicated back to the FCM and its customer, and from the FCM to the clearinghouse. The clearinghouse would then clear and settle the trade, substituting itself as counterparty. Clearinghouses may clear trades continuously and settle trades one or more times a day.

[44] The $1 million in funding is part of a $7 million settlement with Refco, Inc., of an administrative proceeding brought by CFTC alleging that Refco violated provisions of the CEA and CFTC regulations related to the handling of customer orders.

[45] See Principles for the Oversight of Screen-Based Trading Systems for Derivatives Products, IOSCO (June 1990). IOSCO includes securities administrators from over 60 countries and facilitates efforts to coordinate international securities regulation.

Electronic trade-matching systems were introduced in the United States in the early 1990s as adjuncts to open-outcry trading. These systems can replace open-outcry trading by automatically matching bids and offers, thereby eliminating the need for a physical trading floor. With electronic trade-matching, orders are electronically routed to the trade-matching system, where a trade-matching algorithm is used to match bids and offers submitted for execution. However, within the systems we reviewed, some variation exists in how trade-matching systems operate. For example, on one system, bids and offers are matched and executed automatically, while on another system, bids and offers that match are not executed unless actively accepted by a participant. Bids and offers entered into these systems are displayed anonymously to the market—that is, participants do not know who made a particular bid or offer. In addition, while the trade-matching systems we reviewed match trades based on timing and price, at least one system gives participants making bids or offers that improve prices—that is, bids that are higher than the current best bid or offers that are lower than the current best offer—certain priority rights in responding to subsequent counterbids or offers. Another system also gives similar priority rights to bids or offers that are of sufficient volume to match all current best bids or offers. For the systems that we reviewed, once trades are executed, the trade-matching systems automatically send the trade details to the counterparties and, in most cases, to the clearinghouse.

Use of Electronic Trade-Matching Systems Has Generally Increased

Use of electronic trade-matching systems for exchange-traded futures has generally increased. CBT, CME, and NYMEX principally rely on open-outcry systems to trade futures; however, each exchange operates an electronic trade-matching system. CME's automated trade-matching system, Globex, has been in operation since 1992; NYMEX's Access system has been in operation since 1993; and CBT's Project A has been in operation since 1994. At CME and NYMEX, electronic trading volume in 1999 was 16.1 and 2.4 million contracts, representing increases of nearly 81 and 30 percent, respectively, over the prior year. In addition, the CME's E-mini Standard & Poor's 500 stock index futures contract, which is electronically traded, was the third-highest volume futures contract at the exchange in 1999. Although electronic trading volume at CBT decreased by approximately 10 percent between 1998 and 1999, its 1999 volume of 11.2 million contracts was still approximately 88 percent greater than in 1997. Electronic trading volume at CBT, CME, and NYMEX represented approximately 4, 8, and 2 percent of total exchange trading volume, respectively, in 1999.

Use of trade-matching systems for exchange-traded futures in Europe is also increasing, as major European exchanges have been moving from

open-outcry trading to fully electronic trade-matching systems. For example, in 1998, a French futures and options exchange, the Marche a Terme International de France, moved from a predominately open-outcry trading system to a fully electronic trading system. Also in 1998, the London International Financial Futures and Options Exchange began trading products on its electronic trade-matching system, and plans call for all financial contracts to be traded on this system by May 2000. Additionally, in 1999, Eurex, a fully electronic exchange created by the 1998 merger of the Deutsche Terminborse and Swiss Options and Financial Futures Exchange,[46] became the world's largest futures exchange in terms of trading volume, with an annual trading volume of 378.8 million contracts.

Finally, U.S. futures exchanges are increasingly seeking electronic linkages with foreign exchanges that will provide participants at each exchange with access to the other exchanges' products. For example, in October 1999, Eurex and CBT signed an agreement to create a joint venture company to operate a single electronic trading platform to allow access to both exchanges through a single computer screen. Similarly, CME formed the Globex Alliance in February 1999 to develop a common electronic trading system to connect the trade-matching systems of its members.[47] In addition, U.S. customers can access some foreign futures exchanges through computer terminals placed in the United States by those exchanges.

Use of Electronic Trade-Matching Systems Can Further Regulatory Objectives and Provide Other Benefits

Several characteristics of well–designed electronic trade-matching systems for exchange-traded futures can enhance the regulatory objectives of market integrity, financial integrity, and customer protection, as well as provide other benefits to futures market participants. These characteristics include consistent, anonymous, low-error trade matching; automated trade execution and allocation, with faster clearing; precise audit trails that enhance trade monitoring capabilities; and lower costs.

Electronic trade-matching systems can enhance regulatory objectives because, according to CFTC and market participants, they can provide consistent, anonymous, low-error trade matching. First, trade-matching engines with fixed, transparent trade-matching algorithms can ensure that trades are matched or filled in a fair and consistent manner, thereby

[46] The Deutsche Terminborse and Swiss Options and Financial Futures Exchange were both fully electronic exchanges before the merger.

[47] In addition to CME, the Globex Alliance includes the Montreal Exchange (Canada), Paris Bourse SBFSA, Singapore International Monetary Exchange, and Bolsa de Mercadorias & Futuros (Brazil).

enhancing market integrity and customer protection. Second, electronic trade-matching systems can eliminate out-trades.[48] Eliminating out-trades can reduce the potential for financial loss associated with price movements between the time of the original trade and resolution of the out-trade or from unfavorable trade resolution, such as the cancellation of a profitable trade.

Properly designed electronic trade-matching systems can also enhance customer protection by minimizing the role of brokers in handling and allocating customer trades. As mentioned above, customer protection can be enhanced by an electronic trade-matching system that receives orders from an AORS because such a linkage can limit or eliminate the opportunity for brokers to mishandle customer orders. For example, little or no opportunity would exist for frontrunning or trading ahead[49] of a customer's order because an FCM might not see a customer's order before it was transmitted to the trade-matching system, and the system, not a broker, would execute the trade. In addition, little or no opportunity would exist for bucketing[50] a customer's order because the trade-matching system, not a broker, would match the order. Also, if customer account identification numbers are required at the time of order entry, electronic trade-matching systems can prevent inappropriate trade allocation, such as allocating only profitable trades to certain accounts, although additional time may be required to enter account information. Also, according to CFTC and market participants, by automatically sending trade details to the clearinghouse once a trade is executed, trades matched by electronic systems can be cleared faster than by traditional systems in which trade details are manually recorded and later communicated to the clearinghouse. Faster trade clearing can benefit all market participants by allowing them to more quickly update their market positions and more readily identify positions that might increase financial risk.

According to CFTC and market participants, electronic trade-matching systems, as in the case of AORS, can provide precise audit trails that enhance trade monitoring capabilities. By electronically recording trading

[48] An out-trade is a trade that cannot be cleared by a clearinghouse because the trade data submitted by the buyer and seller differ in some respect. For example, the price and/or quantity may not agree. In such a case, the discrepancy must be resolved before the trade can be cleared.

[49] Trading ahead occurs when brokers buy (or sell) for their personal accounts or an account in which they have an interest, while having in hand any executable customer order to buy (or sell) in the same contract month at the market or at the same price.

[50] Bucketing involves directly or indirectly taking the opposite side of a customer's order into a broker's own account or into an account in which a broker has an interest, without open and competitive execution of the order on an exchange.

activities, these systems can make it faster and easier for CFTC and SROs to review and analyze trading activities. As mentioned above, to the extent that FCMs can use AORS to halt trading, these capabilities can reduce systemic risk and enhance customer protection by facilitating the early detection of trading activities that could put an FCM at financial risk, as well as deterring and/or detecting trading abuses that disadvantage customers.

According to some futures market participants, electronic trade-matching systems can also lower trading costs. First, they said that because trade matching occurs electronically, these systems can eliminate the costs associated with maintaining a physical trading facility. According to these market participants, although facilities to house computer systems must be maintained, these costs are less than those of maintaining a trading floor. However, CBT officials disagreed based on the exchange's experience offering both open-outcry and electronic markets. They told us that the costs to provide an electronic trading system include the initial cost to develop or otherwise acquire the system software (which may include recurring license fees), hardware costs, facilities to house the computer systems, ongoing maintenance, costs for periodic system upgrades, help desk support, and network costs. They said that, as a result, the costs for electronic systems are not necessarily lower, but rather appear in different ways.

Second, some futures market participants said that because trade matching is automated, these systems can eliminate the costs associated with using a floor broker to execute trades on behalf of a customer. However, according to CBT officials, these savings may be offset by other fees FCMs charge for their role in the execution process. In addition, they said that in exchange for immediate execution on an automated system, a customer gives up a price edge and loses the benefit of a floor broker's skill in obtaining an average fill price between the prevailing bid/ask spread.

According to a market observer, lower costs associated with the development of electronic trade-matching systems should foster competition by increasing the number of futures exchanges. However, according to FIA officials, the lack of either a single clearinghouse for all exchange-traded futures or coordinated clearing among futures exchanges will impede competition, even with increased use of electronic trade-matching systems.

Without Adequate Controls, Use of Electronic Trade-Matching Systems Could Raise Concerns

Some market participants have expressed concerns that, without adequate controls, the use of electronic trading systems for exchange-traded futures could raise or increase the risks associated with (1) preferential trade-matching and (2) offsetting or noncompetitive matching of the buy and sell orders of two customers, called cross-trading. Concerns were also expressed about insufficient system capacity, inadequate system security, and unauthorized customer trading. These are similar to the concerns expressed about AORS and are not repeated here. CFTC officials told us that their review of electronic trade-matching systems includes the application of minimum standards that were developed by IOSCO. These standards generally address the concerns expressed by market participants.

Ensuring that electronic trade-matching systems provide fair trade execution to all participants has been an industry and regulatory concern. According to CFTC officials, in reviewing trade-matching systems that seek designation as a CFTC-approved contract market,[51] CFTC analyzes the trade-matching system to ensure that trades will be executed fairly. Nonetheless, an AORS official objected to the CFFE trade-matching engine, approved by CFTC, which gives preference to higher volume traders whose bids improve prices or bring liquidity to the market. The official said that such a preference allows noncompetitive execution of trades, thereby reducing market integrity. CFTC officials told us that the same trading matching engine was used successfully in the cash Treasury market, and that the engine's preferences were designed to increase market liquidity,[52] which enhances market integrity. An SEC official said that CFFE's trade-matching system simply rewards those who are first to provide the best price to the market. That is, those who bring a new price to the market are actually communicating information to others in the market, and should be rewarded for it. In addition, a futures exchange official stated that as long as any preferences are disclosed to users of a trade-matching system, the preferences themselves are irrelevant. That is, if potential users object to the preferences, they will not use the system.

A CFTC official said that some concern exists that the use of AORS in conjunction with electronic trade-matching engines could allow for improper cross-trading in thinly traded markets. That is, one person could simultaneously enter matching buy and sell orders on the same terminal,

[51] Contract markets are boards of trade or exchanges designated by CFTC, under the CEA, to trade specified futures or options.

[52] Liquidity is the extent to which market participants can buy and sell contracts in a timely manner without changing the market price.

virtually guaranteeing the trade would be matched noncompetitively, thereby violating CFTC regulations. However, the CFTC official also said that this problem could be mitigated by requiring a minimum time gap between such orders placed at the same terminal, thereby ensuring that all bids and offers would be exposed to the market for a minimum period of time. However, requiring a time gap would subject orders to price risk as prices could move against customers during the required time gap. Similarly, FIA officials stated that impermissible cross-trading could be detected by the audit trails provided by well-designed systems.

CFTC officials told us that they review electronic matching systems for compliance with minimum standards developed by IOSCO as part of their exchange-designation process. These standards generally address the concerns expressed above. For example, the standards state that systems should be reviewed to identify vulnerabilities, such as the risk of unauthorized access and system failure. In addition, the standards state that the system should be designed to operate in a manner that is equitable to all market participants and that any differences in treatment among classes of participants should be identified. CFTC officials also told us that IOSCO is considering whether to update these standards.[53]

Use of Fully Electronic Futures Exchanges May Present Additional Challenges

The development and use of fully electronic futures exchanges that are not affiliated with an existing futures exchange and that are organized as for-profit organizations may present additional regulatory challenges under the CEA. While one such exchange, FutureCom,[54] was approved by CFTC on March 13, 2000, as an Internet-based contract market in cash-settled live cattle futures, and another such exchange, BrokerTec,[55] is currently under development, concern exists that current regulations are either inappropriate or inapplicable for regulating electronic systems and impose obstacles to setting them up. Accordingly, some market participants suggested that CFTC could do more to clarify the requirements that a system must meet to receive CFTC approval as an exchange. As discussed below, CFTC expects to address these concerns as part of its revised approach to futures market regulation.

[53] According to CBT officials, a number of exchanges around the world have already completed surveys about their electronic trading systems in connection with this project.

[54] The FutureCom exchange is operated by FutureCom, a limited partnership and an affiliate of the Texas Beef Group.

[55] The BrokerTec system is to be operated through subsidiaries of BrokerTec Global, LLC, a consortium of securities dealers that includes ABN Amro, Banco Santander, Barclays Capital, Credit Suisse First Boston, Deutsche Bank Securities, Dresdner Bank, Goldman Sachs, Lehman Brothers, Merrill Lynch, Morgan Stanley Dean Witter, Salomon Smith Barney, and Warburg Dillon Read.

A former CFTC chairman said that his review of the CEA revealed 122 requirements—of which 55 percent did not apply to electronic trading systems likely to be developed in the near future. For example, he believes that regulations applicable to FCMs, floor brokers, and other intermediaries, such as registration requirements and antifraud provisions, would be irrelevant in systems where customers bypass such intermediaries, route orders directly to a trade-matching system, and deal with each other on a principal-to-principal basis. Confusion over whether and how to meet such requirements could impede the development of new electronic trading systems. However, officials of one futures exchange disagreed, noting that even if market users could bypass FCMs for trade execution, the FCMs would continue to provide clearing services and related account opening, margin collection, and credit monitoring functions. These officials further expressed the view that the intermediation role of FCMs could increase as they expand their customer bases, especially in the retail area, by offering customers Internet access and other AORS access to markets.

The former CFTC chairman also stated that unlike existing exchanges, for-profit exchanges in the future would not necessarily be membership organizations and, thus, might not have the resources to operate a clearinghouse or to establish an independent self-regulatory program. Some market participants agreed with the former CFTC chairman and expressed concern that because the current regulatory structure does not contemplate a clearing organization that is separate from an exchange, it may be difficult for new electronic trading systems to establish a clearing function. Officials of one futures exchange disagreed with this interpretation of current regulatory requirements and noted that many exchanges use separately owned and governed clearing organizations to clear and settle transactions on their markets.[56] Although FutureCom is a fully electronic, for-profit futures exchange, it did not raise these concerns because it will operate a clearinghouse that is funded by its members and affiliated with the exchange.

Officials of one futures exchange disagreed with the former CFTC chairman that for-profit exchanges would have inadequate financial resources to support self-regulatory programs. They said that the for-profit structure could provide new opportunities to raise funds through the capital markets. They further noted that an exchange, under any structure, will be motivated by competitive forces to devote appropriate resources to

[56] As discussed below, the regulatory framework proposed by a CFTC staff task force would clarify that clearinghouses could be separate from an exchange or trading facility.

compliance programs since the fairness and efficiency of its markets is one basis on which it competes to attract participants. NFA officials said that as exchanges move to a for-profit structure, they could contract with NFA to provide self-regulatory services.

A CFTC official said that a move toward for-profit exchanges would not necessarily change the agency's regulatory goals, only the methods for accomplishing those goals. That is, all futures exchanges, regardless of their ownership structure, would be required to meet the same self-regulatory requirements. He said that self-regulatory services that are contracted out would be reviewed in basically the same way as those that are provided through a traditional futures exchange. CFTC has already approved two arrangements where the operator of an electronic trade-matching system does not provide its own self-regulatory services. Specifically, the New York Cotton Exchange provides all of CFFE's self-regulatory services, and NFA is to perform financial and recordkeeping surveillance over FutureCom members that are registered with CFTC.

Technology Can Automate OTC Derivatives Trading and Reduce Systemic Risk

Electronic trading systems for OTC derivatives bring together buyers and sellers that previously interacted through telephones and faxes. These systems can reduce systemic risk and provide other benefits to market participants. However, uncertainty over whether electronically traded OTC derivatives fall under the CEA may create uncertainty about the enforceability of such derivatives and, in turn, inhibit the use of electronic trading systems for OTC derivatives.

Electronic Trading Systems for OTC Derivatives Replace Telephones and Faxes

OTC derivatives dealers, which are primarily banks and affiliates of broker-dealers or FCMs, have traditionally conducted their transactions through direct telephone contacts with counterparties, supplemented by using faxes and/or the services of an intermediary, called a voice broker. To search for a counterparty to an OTC derivatives transaction, a dealer would contact a voice broker by telephone and provide the details of the transaction. The voice broker would communicate the transaction details to other market participants by telephone or fax. Another dealer wishing to accept the offer would contact the voice broker, who would then contact the dealer making the offer. At this point, the voice broker would disclose the identity of the dealers to each other so that each could determine, based on the credit rating of and/or credit limits established for the other, whether they would be willing to enter into the transaction. If the dealers reached agreement, the voice broker would send the details of the transaction to each dealer. The dealers would then complete all further administrative tasks through direct communication with each other.

Operating in the United States since at least 1994, electronic trading systems for OTC derivatives can facilitate direct communications among potential counterparties and, in doing so, can eliminate the need for a voice broker's traditional services. That is, the systems that we reviewed allow OTC derivatives dealers to post their own bids and offers and electronically view, negotiate, and accept the bids and offers of other participants (bids and offers are not matched automatically, as in some electronic trade-matching systems for exchange-traded derivatives). When transactions are agreed to, the systems send the details of the completed transactions to the participants involved. In addition, bids and offers posted on the system are anonymous until either a transaction is agreed to or agreement is reached to negotiate the terms of the transaction. Systems currently in operation allow for transactions in several types of instruments. For example, Derivatives Net, Inc., allows for transactions in interest rate swaps, and Altra Energy Technologies allows for transactions in natural gas swaps. While trading volume on the Derivatives Net, Inc., is limited because it began operation in August 1999, operators of the Altra Energy Technologies system, which began operation in 1994, indicated that volume has been increasing.

Technology Automates OTC Derivatives Trading and Can Reduce Systemic Risk

To the extent that electronic trading systems for OTC derivatives can provide for enhanced trader monitoring and control and an interface with risk management software, they can reduce firm-specific financial risk and systemic risk. In addition, to the extent that these systems link together multiple participants and transmit contract execution detail electronically, they can increase market liquidity, improve price transparency, and make trading faster and cheaper. As with other electronic trading systems, a lack of adequate capacity and security could raise concerns.

According to market participants, electronic trading systems for OTC derivatives can reduce systemic risk by enhancing the ability of trading managers to monitor and control the activities of their traders. For example, one system enables trading managers to quickly view all transactions being proposed and executed by their traders. Moreover, the system enables trading managers to electronically restrict with whom their traders may transact and the types of transactions they may enter. That is, the system enables users to program in minimum credit requirements for their counterparties and to automate the credit screening process. These monitoring and control capabilities can reduce systemic risk by helping deter and/or detect the accumulation of market positions by traders that could place the firm and, therefore, counterparties at unacceptable financial risk.

Electronic trading systems for OTC derivatives can also help reduce systemic risk by providing participants with real-time data on the risk exposure of their overall market positions. For example, one system operator offers customers risk management software that can be linked to its trading system and used to update a customer's market position following an executed transaction. Such a system can help reduce systemic risk by allowing participants to monitor their overall risk exposure from OTC derivatives transactions in real time.

According to OCC officials, electronic trading systems for OTC derivatives can help increase market liquidity. The officials said that as it currently operates, the OTC derivatives market is fragmented, with transactions done on a principal-to-principal basis and dealers making markets. As a result, the use of electronic trading systems that provide for multilateral execution of OTC derivatives would create a more centralized and consolidated market, making it more liquid.

In addition, according to market participants, electronic trading systems for OTC derivatives can improve price transparency and make trading faster and cheaper. These systems can improve price transparency by providing simultaneous access to multiple bids and offers, which can provide better assurance of receiving the best available price. In addition, allowing participants to simultaneously view bids and offers can also make trading faster by instantly providing information that was previously obtainable only through multiple telephone calls or through voice brokers. To the extent that such systems reduce the use of intermediaries, they can also reduce associated costs.

Finally, market participants said that electronic trading systems for OTC derivatives can make trading more efficient for participants by electronically capturing and transmitting contract execution information to them. This capacity can reduce errors that may occur when information is communicated via telephone or fax and, as a result, eliminate the risk of loss associated with the time required to correct such errors.

Legal Uncertainty May Inhibit the Use of Electronic Trading Systems for OTC Derivatives

Although electronic trading systems have the potential to enhance market performance and protections, uncertainty exists over whether their use may cause OTC derivatives that are otherwise excluded or exempted from the CEA to fall under its provisions. According to the Working Group, uncertainty exists over whether CFTC might change the conditions of the swaps exemption in such a way that otherwise excluded or exempted transactions traded on electronic systems would fall under the CEA. Under the CEA, all futures contracts must be traded on a CFTC-designated

exchange, unless otherwise excluded or exempted from this requirement. If a derivatives transaction fails to meet the conditions of an exclusion or exemption and was not conducted on a CFTC-designated exchange, it could be deemed an illegal and, therefore, unenforceable futures contract. Consequently, users of electronic trading systems for OTC derivatives face the risk that transactions traded on these systems may not be legally enforceable to the extent that such transactions are determined to be futures. This legal uncertainty can inhibit the development and use of such systems.

Uncertainty Exists Over Whether Electronically Traded OTC Derivatives Fall Under the CEA

Some market participants expressed concern that even though CFTC has not directly regulated most OTC derivatives, some OTC transactions may fall under the CEA because they are transacted on an electronic trading system. Uncertainty regarding their coverage under the CEA is based primarily on four concerns. First, concern exists that an electronic trading system for OTC derivatives could be classified as a board of trade under the CEA. Such a classification would prevent transactions on the system from qualifying for exclusion under the Treasury Amendment because the amendment excludes from the CEA certain foreign currency and government securities transactions unless traded on a board of trade. Concern arises because the CEA broadly defines a board of trade to mean any exchange or association of persons who are engaged in the business of buying or selling any commodity, a definition which, according to the Working Group, could be interpreted to include electronic trading systems for OTC derivatives.

Second, concern exists among some market participants that an electronic trading system for OTC derivatives could be classified as an MTEF, preventing OTC derivatives traded through the system from qualifying for the swaps exemption. Under the swaps exemption, certain OTC derivatives transactions are exempt from the CEA provided that, among other things, they are not entered into and traded on or through an MTEF. Concern arises because the applicability of CFTC's definition of an MTEF to electronic trading systems for OTC derivatives is not clear. For example, although an electronic system used only to communicate information may not be an MTEF, a system used to execute transactions may be. Some market participants have said that using an electronic trading system to enter into an OTC derivatives agreement instead of using a telephone changes only the mode of communication and should not alter the regulatory status of that agreement. However, futures exchange officials have said that electronic systems that allow for automatic execution of agreements operate in a manner similar to CFTC-regulated exchanges and should thus be regulated in a similar manner. The CFTC Chairman has said

that the definition of an MTEF for exemptive purposes needs to be addressed.

Third, concern exists among some market participants that while electronic trading systems may facilitate the use of clearinghouses in OTC markets, which can reduce systemic risk, the use of a clearinghouse by an OTC trading system could prevent it from meeting another condition of the swaps exemption. That is, the swaps exemption does not extend to transactions that are subject to a clearing system. However, as previously discussed, CFTC has said that it would consider the terms and conditions of an exemption for a swaps clearinghouse in the context of a specific proposal and has done so.

Fourth, concern exists among some market participants that CFTC might change the conditions of the swaps exemption in such a way that otherwise exempted OTC transactions traded on electronic systems would fall under the CEA. This concern exists because CFTC is authorized to change the conditions of the swaps exemption. In 1998, two actions by CFTC raised concerns that CFTC might modify the swaps exemption to impose new regulations on the OTC derivatives market. In the first action, CFTC stated in a February 26, 1998, comment letter addressing SEC's proposal for an alternative regulatory scheme for derivatives dealers affiliated with broker-dealers[57] that the proposal could conflict with the CEA to the extent that certain OTC derivatives fall under the CEA and are subject to CFTC's exclusive jurisdiction. Some OTC derivatives market participants expressed concern that CFTC's letter suggested that some swap agreements might be viewed as futures and thus subject to regulation. In the second action, CFTC issued a concept release on May 12, 1998, requesting comment on whether the swaps and hybrid exemptions continued to be appropriate in light of market changes.[58] CFTC indicated that it was receptive to broadening its exemptions or imposing additional safeguards, if warranted. On November 23, 1999, CFTC withdrew the release.[59]

Uncertainty May Inhibit the Use of Electronic Trading Systems

Uncertainty over whether use of electronic trading systems for OTC derivatives may cause transactions conducted on such systems to violate one or more conditions of the swaps exemption means users of such systems face the risk that CFTC or a court could find them to be illegal

[57] OTC Derivatives Dealers, 63 Fed. Reg. 59362 (1998).

[58] Over-the-Counter Derivatives, 63 Fed. Reg. 26114 (1998).

[59] Concept Release Concerning Over-the-Counter Derivatives, 64 Fed. Reg. 65669 (1999).

and, thus, unenforceable futures. According to the Working Group report, uncertainty over the enforceability of derivatives contracts, if not addressed, could discourage innovation and growth in the U.S. OTC derivatives market and damage U.S. leadership in this market by driving the business off-shore. The Working Group report also states that uncertainty involving OTC derivatives has hampered efforts to utilize electronic trading systems and clearing facilities in the OTC market and thus prevented the enhancement of market efficiency and transparency and the reduction of systemic risk.

Approaches to Revising the Regulatory Structure Have Been Suggested

General agreement exists among industry officials that the current approach to regulation needs to be revised to better accommodate electronic trading systems for exchange-traded futures and OTC derivatives. At least three approaches have been suggested for revising the regulatory structure for exchange-traded futures to more effectively accommodate electronic trading systems. Also, the Working Group has made several recommendations designed to enhance legal certainty concerning the use of electronic trading systems in the OTC derivatives market. However, it has recognized that the recommendations, if implemented, would eliminate significant criteria used to differentiate between exchange-traded futures that are regulated and those OTC derivatives that are not directly regulated, if regulated at all. The Working Group has explained its rationale for recommending exclusions for electronic trading systems for OTC derivatives from the CEA and has supported CFTC efforts to provide appropriate relief for the exchange-traded futures market. CFTC has proposed actions and taken others that, in aggregate, could provide significant regulatory relief to this market. In addition, House and Senate committees are considering actions that would address issues related to electronic trading systems in the OTC derivatives and/or exchange-traded futures markets.

Three Approaches Have Been Suggested for Revising the Regulatory Structure for Exchange-Traded Futures

Various market participants have suggested at least three approaches for revising the current regulatory structure for exchange-traded futures to accommodate electronic trading systems. These approaches are drafting a separate section of the CEA to address electronic trading, developing core principles and guidelines to which all electronic systems must adhere, and developing a flexible regulatory structure where electronic systems are only regulated to the extent that they raise public policy concerns. These approaches are not mutually exclusive, and a successful approach may contain elements of each.

Drafting a Separate Section of the CEA

Some market participants have suggested drafting a separate section of the CEA to address electronic trading systems for exchange-traded futures. In

support of this suggestion, a former CFTC chairman commented that the CEA currently focuses on open-outcry trading and the relationship between customers and intermediaries, two features of the market that may be less significant to the extent that electronic trading systems for exchange-traded futures are introduced and used. In addition, as noted earlier, some futures market participants have also observed that the development of fully electronic futures exchanges that are not affiliated with an existing futures exchange and are organized as for-profit organizations may present regulatory challenges under the CEA. As such, they have said that revising the CEA to accommodate both electronic and open-outcry trading together would be more difficult than drafting a separate section dedicated to electronic trading systems.

One potential challenge under this approach would be determining whether a system or exchange would be covered under a new electronic trading section, the current CEA, or some combination of both. For example, the major futures exchanges use both open-outcry and electronic trading systems to trade futures. In some cases, trading on these systems is linked because the same contracts are traded simultaneously on both systems. In addition, both systems use the same clearing facilities and utilize elements of the same order routing system. Given that the open-outcry and electronic trading systems are not wholly separate, it might be difficult to determine which sections of the CEA would apply to the shared portions of the systems. In addition, futures exchange officials stated that drafting a separate CEA section to address electronic trading systems for exchange-traded futures could subject such systems to less regulation than open-outcry exchanges, putting open-outcry exchanges at a competitive disadvantage. These futures exchange officials also disagreed with the assumption that the relationship between customers and intermediaries will be less significant features of electronic futures exchanges in the near future.

Developing Core Principles and Guidelines

Some market participants have suggested developing core principles and guidelines to which all exchanges and trading systems would be required to adhere. Under this approach, exchanges and system operators would be allowed to determine the best means for complying with such principles and guidelines. These market participants have said that current regulations can inhibit the use of technology because they are very specific and in many cases require CFTC approval of new systems, contracts, and rules. They have also said that core principles and guidelines could accommodate the development of any new technology better than specific regulations. According to a United Kingdom regulatory official, this approach has been adopted in the United Kingdom, and it will facilitate the

international coordination that will be increasingly needed as electronic systems effectively eliminate national borders.

One potential challenge under this approach would be developing principles and guidelines that are sufficiently flexible and, at the same time, specific enough to provide a framework that supports appropriate enforcement action. That is, the less specific a guideline, the more difficult it can be to determine compliance and, thus, whether and what enforcement action might be necessary. As discussed below, the regulatory framework proposed by a CFTC staff task force would replace prescriptive rules with flexible regulatory principles.

Establishing a Flexible Regulatory Structure

Some market participants have suggested establishing a flexible regulatory structure under which various types of electronic systems would be regulated based on the extent to which they raise specific regulatory concerns. That is, types of systems that raise greater regulatory concerns would be subject to greater regulation. Such an approach could subject systems to only the minimum amount of regulation necessary to ensure that regulatory objectives are met. One potential challenge to this approach would be developing criteria that distinguish between types of systems based on the risks they present. The regulatory framework developed by a CFTC staff task force (discussed further below) proposes some criteria for making such distinctions. In addition, monitoring individual systems to the extent necessary to determine if changes in the system or its operation might warrant a change in regulation could be difficult for regulators, because a new determination would be required every time a change was made to the system. Periodic certification of a system's adequacy by a third party could provide a means for addressing this concern.

The Working Group Recommendations Address Legal Uncertainty but Eliminate Criteria for Differentiating Exchange and OTC Derivatives

At the request of the Senate and House Agriculture Committees, the Working Group completed a study of the OTC derivatives market and, as discussed above, issued a report in November 1999 that recommended, among other things, changes to the CEA to clarify the scope of the Treasury Amendment and to exclude OTC derivatives not involving nonfinancial commodities with finite supplies. According to the Working Group, these recommendations, if implemented, would enhance legal certainty for Treasury Amendment products and other OTC derivatives, including those traded through certain electronic trading systems. In addition, the recommendations would eliminate, in effect, most of the criteria traditionally used to differentiate exchange-traded futures from OTC derivatives for regulatory purposes.

Clarifying the Scope of the Treasury Amendment

To enhance legal certainty for Treasury Amendment products, including those products traded through electronic systems, the Working Group has recommended clarifying the amendment's scope by replacing the term "board of trade" with the term "organized exchange." An organized exchange would be defined as an exchange that is open to retail or agency transactions[60] and that serves a self-regulatory function with respect to its members or participants (or enters into arrangements with another entity to serve such a function on its behalf). This change would enhance legal certainty for OTC derivatives covered by the Treasury Amendment, including those traded through certain electronic trading systems. For example, an electronic trading system for Treasury Amendment products that allowed for the execution of transactions through agents would be excluded from the CEA, provided it did not serve (or arrange for another entity to serve) a self-regulatory function.

According to Treasury officials, the Working Group recommendation serves to protect retail customers transacting in Treasury Amendment products without unnecessarily disturbing the OTC foreign currency derivatives market. These officials said that OTC derivatives transactions in government securities that involve retail customers would be excluded from the CEA. However, they said that such transactions would be covered under the Government Securities Act and other provisions of the federal securities laws, which include antifraud and antimanipulation provisions. Similarly, the Treasury officials said that OTC derivatives transactions in foreign currency would be subject to the CEA, if they are entered between retail customers and entities (or affiliates thereof) that are not regulated by SEC or a federal banking regulator. According to the Treasury officials, all other OTC foreign currency transactions would be excluded from the CEA as long as they are not subject to a self-regulatory regime. These officials said that the OTC foreign currency market has operated successfully without any regulation, thus presenting no reason to regulate it. According to SEC and Treasury officials, the rationale for regulating a SRO is to ensure that it effectively performs its self-regulatory function and does not use its authority to the detriment of market participants. Officials of one futures exchange emphasized that SROs will continue to perform their self-regulatory functions responsibly in the absence of government oversight, citing the incentive that exchanges have to protect their reputations. They said that regulators should provide incentives to encourage OTC market evolution toward self-regulation—the benefits of which are well established. In addition, they said that it is illogical to regulate systems that have proven self-regulatory functions but not to

[60] An agency transaction occurs when an intermediary executes a transaction on behalf of a customer.

regulate those lacking such functions, because doing so could create an undesirable incentive for exchanges to discontinue their self-regulatory functions.

Removing Three of the Four Conditions of the Swaps Exemption

As discussed above, CFTC exempted most swaps from the CEA without determining whether they were futures. CFTC specified four conditions that swaps had to meet to qualify for an exemption. According to CFTC, these conditions were intended to reflect the way that swaps transactions occurred when the exemption was granted and to distinguish exempted swaps from exchange-traded futures for regulatory—not legal—purposes. If implemented, the Working Group recommendations would, in effect, remove three of these four conditions under specified circumstances. Accordingly, they would remove most of the traditional distinctions between exchange-traded futures and OTC derivatives not involving nonfinancial commodities with finite supplies. As a result, the recommendations raise questions about the rationale for the regulatory differences between exchange-traded futures and such OTC derivatives—recognizing that each market may raise similar regulatory concerns and, thus, warrant comparable regulation.

First, the Working Group has recommended removing from the swaps exemption the requirement that swaps not involving nonfinancial commodities with finite supplies not be standardized as to their material economic terms. If implemented, this recommendation would remove one of the criteria traditionally used to differentiate between exchange-traded futures and OTC derivatives, namely that exchange-traded futures traditionally have had standardized terms, except for price, while OTC derivatives traditionally have had negotiated, nonstandardized terms. The Working Group made this recommendation because the current requirement creates legal uncertainty, insofar as the material economic terms of many swap agreements are similar. According to the Working Group report, eliminating this requirement is also necessary to allow for the development of clearing systems for OTC derivatives, which have the potential to lessen systemic risk.

Second, the Working Group has recommended that clearing of swaps be permitted, subject to appropriate regulatory oversight of the clearing function. Furthermore, the Working Group reported that this exclusion should not prohibit excluded swaps from being fungible or require that the creditworthiness of the swaps counterparties be a material consideration, insofar as transactions are subject to regulated clearing. This recommendation would remove another of the traditional criteria differentiating exchange-traded futures and OTC derivatives—namely that

exchange-traded futures are cleared and settled through clearing organizations, and OTC derivatives are entered into on a principal-to-principal basis where each counterparty is exposed to credit risk. The Working Group made this recommendation because clearing systems can lessen systemic risk and, therefore, should be encouraged.

Third, the Working Group has recommended excluding from the CEA electronic trading systems, including MTEFs, used to enter or trade swaps not involving nonfinancial commodities with finite supplies, provided that participants in the system act solely for their own accounts. The Working Group made this recommendation to encourage innovation, competition, efficiency, liquidity, and transparency in the OTC derivatives market. Because the recommended change would be in the form of a statutory exclusion, it would eliminate CFTC's ability to modify the exclusion in the future, thereby addressing concerns about such potential action. If implemented, the recommendation would remove another of the criteria traditionally used to differentiate futures and OTC derivatives. That is, it would remove the criteria that futures are traded through the interaction of multiple buyers and sellers on an organized exchange. In contrast, OTC derivatives traditionally have been privately negotiated between two parties outside an organized exchange. In addition, the Working Group recommended that Congress establish that clearing systems are not, and do not by themselves imply the presence of, MTEFs, and that an electronic trading system that is excluded from the CEA does not become subject to the CEA because transactions entered through the trading system are also cleared.

The Working Group recommendations, if implemented, would remove most of the traditional distinctions between exchange-traded futures and OTC derivatives not involving nonfinancial commodities with finite supplies. Nonetheless, some distinctions would remain. Specifically, electronic trading systems for exchange-traded futures might allow for participation by retail customers and transactions on those systems might serve a price discovery function. In contrast, electronic trading systems for OTC derivatives that qualify for an exclusion from the CEA generally could not allow participation by retail customers, and transactions on those systems would be presumed not to serve a price discovery function. According to Treasury officials, the Working Group viewed the OTC derivatives it recommended for exclusion from the CEA as not serving a significant price discovery function and, thus, not warranting regulation. Table 1 summarizes the effects of the Working Group recommendations on the swaps exemption and the traditional distinctions between exchange-

traded futures and OTC derivatives not involving nonfinancial commodities with finite supplies.

Table 1: Effects of the Working Group Recommendations on the Conditions of the Swaps Exemption and the Distinction Between Exchange-Traded Futures and OTC Derivatives Not Involving Nonfinancial Commodities With Finite Supplies

Current swaps exemptive condition	Recommended revision	Effect on distinctions between exchange-traded futures and OTC derivatives not involving nonfinancial commodities with finite supplies
The swap agreement must be entered into by eligible swap participants.	Consider raising minimum discretionary investment capital for natural persons to $25 million.	No change.
The swap agreement may not be part of a fungible class of agreements that are standardized as to their material economic terms.	Remove requirement that swap agreements cannot be fungible insofar as transactions are subject to regulated clearing. Remove requirement that swap agreements cannot be standardized.	OTC swaps could be part of a fungible class of agreements, provided they are subject to regulated clearing, and standardized as to their material economic terms. Traditionally, exchange-traded derivatives have been fungible and standardized, while OTC swaps have been unique, negotiated instruments.
The creditworthiness of the parties to the swap agreement must be a material consideration in entering into and determining the terms of a swap agreement.	Remove requirement that creditworthiness be a material consideration insofar as transactions are subject to regulated clearing.	OTC swaps could be cleared by a clearinghouse, provided the clearinghouse is regulated. Traditionally, exchange-traded derivatives have used clearinghouses, while parties to OTC swaps transactions have faced counterparty credit risk.
The swap agreement may not be entered into and traded on or through an MTEF.	Amend the CEA to exclude any form of electronic trading system, provided it allows only eligible swap participants to act solely for their own accounts, even if multiple bids and offers are open to all participants. Establish that a clearing system is not, and does not by itself imply the presence of, an MTEF.	OTC swaps could be traded through the interaction and execution of multiple bids and offers. Traditionally, exchange-traded derivatives have been traded through the interaction of multiple buyers and sellers, while OTC swaps have been privately negotiated.

Source: GAO analysis of the swaps exemption and Working Group recommendations.

The Working Group Has Explained Its Rationale for CEA Exclusions and Supports Relief for Futures Exchanges

In its November 1999 report, the Working Group explained its rationale for recommending an exclusion from the CEA for electronic systems for OTC derivatives that meet certain conditions. In doing so, the Working Group attempted to draw distinctions between the OTC and exchange-traded derivatives markets for regulatory purposes. These distinctions were based on the sophistication of system participants, including the existence of retail customers and an agency function; the susceptibility of contracts to manipulation; and the existence of a price discovery function. However, some futures exchange officials have expressed concerns about the rationale for some of these distinctions. The Working Group acknowledged that its recommendations, if implemented, would blur the distinctions between exchange-traded futures and OTC derivatives not

involving nonfinancial commodities with finite supplies. The Working Group has supported CFTC efforts to provide "appropriate regulatory relief" to the exchange-traded futures markets.

Concerns Have Been Raised About Drawing Distinctions Based on the Sophistication of Participants

The Working Group has recommended that OTC electronic trading systems that limit participation to eligible swaps participants trading for their own accounts be excluded by statute from the CEA. That is, no retail customers and no agency function would be permitted in excluded systems. Futures industry officials have expressed concern about the rationale and potential effect of this recommendation. First, officials from one futures exchange disagreed that mostly institutional markets—that is, markets with few retail participants, such as the futures market—should be subject to the CEA while exclusively institutional markets—that is, markets with no retail participants—would not be subject to the CEA. They said that 95 percent or more of the trades in its markets are for parties who would be considered institutional participants and who would qualify as eligible swaps participants under the Working Group's exclusion. They added that the remaining 5 percent can only access the futures market through a regulated intermediary, which is responsible for ensuring that the customer understands the risks of trading and complies with financial integrity requirements. Officials of two futures exchanges have agreed with the Working Group that the relationship between a customer and an intermediary should be subject to some level of regulation. They have asserted, however, that this relationship can be regulated separately from trade execution and, therefore, the presence of retail customers does not provide a sufficient basis for regulating an execution facility.

Second, officials of one futures exchange have said that users of certain electronic systems for OTC derivatives are also performing an agency function. For example, they said that when a bank executes a swap agreement with a customer, then attempts to offset that agreement by executing a swap agreement with another customer or dealer, the bank is effectively acting as an agent for the original customer. However, OCC and Federal Reserve officials said that in such a situation, a bank is not executing the transaction on behalf of the customer—that is, acting as an agent for the customer. Rather, the bank is negotiating the contract with the customer on a principal-to-principal basis, and the customer, as a principal, is responsible for protecting its own interests.

Third, a futures exchange official said that an exclusion that limits participation in a trading system to eligible swaps participants trading for their own accounts would encourage the creation of exclusively

institutional markets to the disadvantage of retail customers. That is, while the exclusion would not prevent institutional participants from transacting in retail markets, it would prevent retail customers from transacting in institutional markets. According to the futures exchange official, the latter would be larger and, therefore, more liquid than the comparable markets available to retail customers. As a result, they would offer better prices. The Chairman of the Federal Reserve testified that the effect of creating two markets with different prices could be mitigated to the extent that traders employ arbitrage strategies to take advantage of price imbalances between the markets.

Concerns Have Been Raised About Drawing Distinctions Based on the Susceptibility of Contracts to Manipulation

The Working Group has also reported that most OTC derivatives are not susceptible to manipulation because the vast majority are settled in cash, based on a rate or price determined by a separate, highly liquid market with a very large or virtually unlimited deliverable supply. The Working Group contrasted the OTC market with the exchange-traded futures market for nonfinancial commodities that are in limited supply and, as a result, are more susceptible to price distortions and manipulation. A futures exchange official agreed with the Working Group that less regulation is necessary for contracts that are less susceptible to manipulation, but they have also said that this principle should be applied equally to all types of publicly traded derivatives. That is, if a publicly traded derivative is not susceptible to manipulation, it should be subject to less regulation, regardless of where it is traded or whether it is a financial or nonfinancial derivative. In addition, an OTC derivatives market official said that certain energy-based swaps should receive the same regulatory treatment as financial derivatives based on their large supply and lack of susceptibility to manipulation. The CFTC Chairman has said that establishing criteria for use in determining whether contracts are readily susceptible to manipulation is a difficult issue that needs to be further addressed.

Concerns Have Been Raised About Drawing Distinctions Based on a Price Discovery Function

The Working Group has also noted that prices established in OTC derivatives transactions do not currently serve a significant price discovery function, unlike exchange-traded derivatives for many nonfinancial commodities. In addition, the Working Group noted that if OTC derivatives transactions executed on an electronic trading system come to serve a significant price discovery function, a limited regulatory regime may become necessary to enhance market transparency and efficiency. Finally, the Working Group also noted that its members would continue to monitor and consider the desirability of regulatory or legislative action to address issues that may arise in the future. Officials of a futures exchange said they objected to basing an exclusion from the CEA on whether a price

discovery function exists because of the difficulty in determining when price discovery occurs, either for exchange-traded or OTC derivatives.

In addition, we have expressed concerns in previous reports[61] about the potential risks associated with regulatory gaps in the OTC derivatives market and the reliance on voluntary industry measures to fill these gaps. Except for its recommendations related to clearing systems, the Working Group recommendations, if implemented, would generally continue this reliance, unless electronic trading systems for OTC derivatives came to serve a significant price discovery function. Specifically, our ongoing concern has been that the lack of SEC and CFTC authority to supervise unregistered affiliates of broker-dealers and FCMs that function as dealers in the OTC derivatives markets creates a regulatory gap that impedes SEC's and CFTC's ability to identify and mitigate problems that may threaten markets or the entire financial system. This lack of authority, or regulatory gap, has become more significant as the percentage of assets held outside regulated broker-dealers and FCMs has grown.

In a 1998 report on hedge funds,[62] the Working Group recognized the existence of this regulatory gap and recommended that Congress provide SEC and CFTC with expanded authority to obtain and verify information from unregistered affiliates of broker-dealers and FCMs. However, as we reported earlier, this recommendation may not go far enough in enabling SEC and CFTC to identify and respond more quickly to the next potential systemic crisis. The Working Group recommendation would still leave important providers of credit and leverage in the financial system without firmwide risk management oversight by financial regulators. Without additional authority to regulate the affiliates, SEC and CFTC do not have the authority needed to identify and address potential weaknesses in securities and futures firms' risk management practices that might lead to another systemic crisis. Such authority could be similar to that already available to the Federal Reserve over bank holding companies.

[61] See Securities Firms: Assessing the Need to Regulate Additional Financial Activities (GAO/GGD-92-70, Apr. 21, 1992); Financial Derivatives: Actions Needed to Protect the Financial System (GAO/GGD-94-133, May 18, 1994); Financial Derivatives: Actions Taken or Proposed Since May 1994 (GAO/GGD/AIMD-97-8, Nov. 1, 1996); Risk-Based Capital: Regulatory and Industry Approaches to Capital and Risk (GAO/GGD-98-153, July 20, 1998); and Long-Term Capital Management: Regulators Need to Focus Greater Attention on Systemic Risk (GAO/GGD-00-3, Oct. 29, 1999).

[62] Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management, Report of the President's Working Group on Financial Markets, April 28, 1998.

The Working Group Supports CFTC Efforts to Provide Regulatory Relief to Futures Exchanges

The Working Group acknowledged that its recommendations, if implemented, would blur the distinctions between exchange-traded futures and OTC derivatives not involving nonfinancial commodities with finite supplies. Moreover, it stated that the recommended exclusions would create differences in the level of regulation between electronically traded and cleared OTC derivatives and exchange-traded products with similar characteristics. Nonetheless, the Working Group stated that its recommended exclusions are consistent with the public policy goals of protecting retail customers from unfair practices, protecting price discovery, and guarding against manipulation. In that regard, it noted that to the extent that exchange-traded futures markets are accessible to retail customers, serve a price discovery function, or are susceptible to manipulation, regulation of these markets may be warranted. Conversely, to the extent that these factors are less relevant to certain futures markets, regulatory adjustments may be necessary.

Recognizing that exchange-traded futures should not be subject to regulations that do not have a public policy justification, the Working Group has supported CFTC efforts to provide appropriate regulatory relief to the U.S. exchange-traded futures market. First, the Working Group has recommended that exchanges that have been designated as regulated contract markets by CFTC be permitted to establish electronic trading systems for qualified swaps that would not be regulated. Such electronic trading systems would be limited to eligible participants trading for their own accounts. Second, the Working Group has recommended that Congress explicitly authorize CFTC to use its exemptive authority to provide regulatory relief for exchange-traded financial futures. As a result of this second recommendation, the Senate and House Agriculture Committees, in a November 1999 letter, encouraged CFTC to use its exemptive authority to lessen the regulatory burdens on the U.S. futures market.

CFTC Has Undertaken Actions to Provide Regulatory Relief to the Exchange-Traded Futures Market

In response to the November 1999 letter, a CFTC staff task force has proposed to the Commission a regulatory framework designed to move CFTC from a direct regulator to an oversight regulator. The proposed framework would establish three types of trading facilities and make no distinction between electronic and open-outcry systems. According to the task force, each type of facility would be subject to a different level of CFTC oversight based on the nature of the commodities traded on the system as well as the sophistication of the participants allowed to trade on the system. Facility operators could choose to operate as any one or a combination of the three types of facilities. In addition, the framework would permit clearinghouses to be separate from an exchange or trading

facility. The proposed framework would also replace prescriptive rules with flexible core principles, including rules for intermediaries and clearinghouses. According to the task force report, in addition to providing facility operators with greater flexibility, the proposed framework would provide OTC trading facilities with greater certainty that their contracts would be legally enforceable. The framework would, among other things, clarify that certain otherwise excluded or exempted OTC derivative transactions could be cleared and that certain transactions entered into in reliance on the swaps exemption would not become illegal due to a violation of that same exemption. CFTC anticipates using the proposed framework as the basis for a notice-and-comment rulemaking to be issued in the near future. In addition, the agency plans to hold at least one public hearing to discuss issues related to the proposed framework.

CFTC has undertaken other actions designed to provide regulatory relief to U.S. futures exchanges. First, in November 1999, CFTC proposed a revision to its contract market rule filing and review procedures that would allow exchanges to place new rules and rule amendments into effect 1 business day after submission to and receipt by CFTC, subject to certain conditions.[63] Second, in a November 1999 companion release, CFTC revised the required procedures for listing new types of contracts to allow exchanges to list such contracts for trading without first receiving CFTC approval.[64]

Congressional Action Is Being Considered

House and Senate committees are considering actions that would address issues related to electronic trading systems in the OTC derivatives and/or exchange-traded futures markets. On April 6, 2000, Representative Leach, Chairman of the House Committee on Banking and Financial Services, introduced a bill that would implement the Working Group's recommendations, including those related to electronic trading of OTC derivatives. On April 11, 2000, Representative Leach held a hearing to address legislative issues stemming from the Working Group recommendations. In addition, Senator Lugar, Chairman of the Senate Agriculture Committee, and Representative Ewing, Chairman of the Subcommittee on Risk Management, Research, and Specialty Crops, House Agriculture Committee, are separately developing legislation that would implement the Working Group's recommendations, as well as elements of the CFTC staff task force's proposed regulatory framework.

[63] Proposed Revision of the Commission's Procedure for the Review of Contract Market Rules, 64 Fed. Reg. 66428 (1999). In March 2000, CFTC stated that this proposed revision would be addressed as part of the proposed regulatory framework discussed above.

[64] Revised Procedures for Listing New Contracts, 64 Fed. Reg. 66373-01 (1999).

Conclusions

Although technology is being used in the derivatives markets to increase efficiency, thereby making trading faster and cheaper, its use can also further regulatory objectives. Specifically, the use of technology has the potential to (1) enhance market integrity; (2) promote financial integrity by, among other things, reducing systemic risk; and (3) improve customer protection. Despite these potential benefits, the use of technology in the derivatives markets can raise concerns that may warrant a shift in the current regulatory focus. For example, the development of AORS that allow customers to enter orders directly from their computers has raised concerns among some futures market participants about the need for best practices that address, among other things, the adequacy of system security and controls over customer trading. In addition, the use of technology in the exchange-traded and OTC derivatives markets has raised concerns about the potential for the current regulatory structure to hinder the continued development and use of electronic trading systems and, in turn, the ability of the U.S. markets to remain globally competitive.

U.S. regulators and policymakers have recognized these concerns about the use of technology in the derivatives markets and are attempting to address them. To address concerns related to AORS, NFA officials told us that NFA and FII are developing best practices for order routing that will cover AORS. Also, actions have been taken to address concerns about the potential for the current regulatory structure to hinder the use of technology in the derivatives markets. In November 1999, the Working Group made several recommendations designed, in part, to reduce legal uncertainty concerning the use of electronic trading systems for OTC derivatives that do not involve nonfinancial commodities with finite supplies. Additionally, in February 2000, a CFTC staff task force proposed to the Commission a regulatory structure designed to provide futures exchanges with greater flexibility in meeting regulatory requirements and to enhance legal certainty for electronically traded OTC derivatives. Finally, congressional committees are considering actions that would implement the Working Group's recommendations and/or elements of the CFTC staff task force proposal.

Although the Working Group recommendations, if implemented, would remove legal impediments facing electronically traded OTC derivatives not involving nonfinancial commodities with finite supplies, they present some challenges. First, by potentially removing most of the traditional distinctions between such OTC derivatives and exchange-traded futures, these recommendations raise a question about the rationale for the regulatory differences between these products when traded on electronic trading systems. Second, the recommendation to exclude such

electronically traded OTC derivatives from regulation as long as they do not serve a significant price discovery function raises a question about how and by whom this determination would be made. Third, the Working Group recommendations, with one exception, would continue the reliance on voluntary industry measures to fill the regulatory gap involving unregistered affiliates of broker-dealers and FCMs that function as dealers in the OTC derivatives market. As discussed in other reports, we are concerned about the potential risks that this regulatory gap presents to the markets and the financial system and continue to believe it should be closed.

While recognizing that some actions are being taken to address the regulatory concerns raised by the development and use of electronic systems in the exchange-traded and OTC derivatives markets, we believe that continued progress in these and related areas could be critical to ensuring that the U.S. derivatives futures markets remain innovative and globally competitive. Such progress requires that the federal financial market regulators remain aware of how rapidly changing technology is affecting the derivatives markets. In particular, regulators need to know whether existing regulations are impeding the development and use of electronic trading systems and whether additional regulations or different regulatory approaches are needed to protect the markets and their users.

Recommendations

Recognizing the difficulty of ensuring that regulations appropriately address market risks in stable periods and the additional challenges that are likely to be presented by ongoing and rapid advances in technology:

- We recommend that the Secretary of the Treasury; the Chairman, CFTC; the Chairman, Board of Governors of the Federal Reserve System; and the Chairman, SEC, as members of the President's Working Group on Financial Markets, monitor and report to Congress, as appropriate, on regulatory concerns related to the application of technology in the derivatives markets. Such efforts should address (1) the implementation status and market impact of the Working Group's 1999 recommendations related to electronic trading in the OTC derivatives and exchange-traded futures markets, (2) the need to impose a regulatory regime on OTC derivatives that are electronically traded to enhance market transparency and efficiency, and (3) the desirability of regulatory or legislative action to address concerns associated with electronic trading.

- Similarly, we recommend that the Chairman, CFTC, monitor and report to Congress, as appropriate, on (1) the status of NFA and FII efforts to

develop best practices for order routing that address AORS and the adequacy of industry efforts to implement these practices and (2) the status and market impact of efforts to implement the regulatory framework proposed by the CFTC task force in its February 2000 report.

Agency and Industry Comments and Our Evaluation

With the exception of our recommendation to the Chairman, CFTC, related to AORS, the federal financial regulators, CBT, FIA, and NFA generally agreed with the conclusions and recommendations in our draft report. Regarding a draft recommendation that the Chairman, CFTC, monitor and report to Congress, as appropriate, on the implementation status and market impact of efforts to develop minimum standards for AORS, CFTC commented that, based on industry feedback, the agency no longer plans to issue such standards. We revised the report to reflect this information. As discussed above, CFTC has provided NFA and FII with $1 million to develop best practices for order routing systems, including AORS. Our revised recommendation to CFTC focuses on our concern that NFA and FII efforts to develop best practices adequately address AORS and that the futures industry takes appropriate steps to implement the best practices. Regarding a draft recommendation to the Secretary of the Treasury, as Chairman of the President's Working Group on Financial Markets, officials from the Federal Reserve and Treasury stated that it would be more appropriate to address the recommendation to each of the members of the Working Group. We revised our recommendation accordingly.

Technical comments provided by CFTC, the Federal Reserve Board, OCC, SEC, Treasury, CBT, FIA, and NFA were incorporated into this report, as appropriate.

We are sending a copy of this report to Representative Larry Combest, Chairman, House Committee on Agriculture; Senator Tom Harkin, Ranking Minority Member, Senate Committee on Agriculture, Nutrition and Forestry; Representative Charles Stenholm, Ranking Minority Member, House Committee on Agriculture; Representative Gary A. Condit, Ranking Minority Member, Subcommittee on Risk Management, Research, and Specialty Crops, House Committee on Agriculture; the Honorable Lawrence H. Summers, Secretary of the Treasury; the Honorable Alan Greenspan, Chairman of the Board of Governors of the Federal Reserve; the Honorable William J. Rainer, Chairman, CFTC; the Honorable Arthur Levitt, Chairman, SEC; and other interested parties. We will also make copies available to others upon request.

If you or your staff have any questions regarding this report, please call me at (202) 512-8678 or Cecile O. Trop at (312) 220-7600. Key contributors to this report are acknowledged in appendix I.

Thomas J. McCool
Director, Financial Institutions
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