

September 1996

FUTURES MARKETS

Heightened Audit Trail Standards Not Met But Progress Continues



General Government Division

B-261761

September 25, 1996

The Honorable Richard G. Lugar
Chairman
The Honorable Patrick J. Leahy
Ranking Minority Member
Committee on Agriculture, Nutrition,
and Forestry
United States Senate

The Honorable Pat Roberts
Chairman
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Ranking Minority Member
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House of Representatives

In August 1989, the Department of Justice, in cooperation with the Commodity Futures Trading Commission (CFTC), conducted an undercover investigation at the Chicago Board of Trade (CBT) and the Chicago Mercantile Exchange (CME). The investigation disclosed illegal trading practices designed to enrich participants. In a September 1989 report to Congress,¹ we concluded that most of the types of illegal practices disclosed could have been detected with improved audit trails—the physical records of the price and time of each trade.² We recommended that CFTC heighten audit trail standards by requiring a more accurate and comprehensive record of trades. Congress incorporated the then existing audit trail standards, as well as heightened standards, in the Futures Trading Practices Act (FTPA) of 1992 (P.L. 102-546). The FTPA required that, not later than 2 years after its enactment, CFTC report to Congress on the progress of U.S. futures exchanges in meeting the audit trail standards and include recommendations on the appropriateness of extending the October 28, 1995, deadline for meeting the standards or for modifying them. CFTC addressed two issues in its November 1994 report to Congress: (1) exchange compliance with the existing trade timing standards and (2) exchange progress toward complying with the heightened standards.³ CFTC did not recommend any extension of time or modification to the standards. The FTPA further required that we report our views on the issues CFTC addressed in its report. As agreed with your committees, our

¹Futures Markets: Strengthening Trade Practice Oversight (GAO/GGD-89-120, Sept. 7, 1989).

²An audit trail generally consists of customer order tickets and timestamps, trading cards, trade execution times, and exchange records of price changes.

³Report to Congress on Futures Exchange Audit Trails (CFTC, Nov. 1994).

objectives were to report on the status of exchange compliance with the existing and heightened standards as well as CFTC actions to enforce the FTPA audit trail provisions.

Background

Futures contracts obligate the holder to buy or sell a specific amount or value of an underlying asset, reference rate, or index (called the underlying)⁴ at a specified price on a specified future date. This obligation can be met through delivery of the underlying or by cash settlement. Futures contracts are designed to manage the risk of changes in the value of underlying assets, rates, and indexes by allowing market users to economically replicate investments in them. By buying and selling futures, users can either assume or transfer the risk of price fluctuations. The futures markets also serve a price discovery function by establishing a price at which a buyer and seller will complete a transaction. These prices are often used in setting the terms of other contracts.

Futures contracts are bought and sold at centralized auction markets called exchanges. In the United States, futures contracts are usually traded through a competitive system, called “open-outcry,” in which floor participants verbally make bids and offers to each other at centralized exchange locations, called “trading pits or rings.”⁵ Two types of floor participants execute trades in these pits—floor brokers and floor traders. Floor brokers execute trades for customers and may also execute trades for their personal or employer accounts. In contrast, floor traders execute trades only for their personal accounts.

According to industry officials, U.S. futures markets are largely used by institutions rather than individual “retail” investors. These institutions include banks, insurance companies, mutual funds, corporate pension plans, large corporations, and various federal, state, and local governmental entities. Institutional users expect near instantaneous execution of their orders to secure targeted prices, especially when price movements in the futures markets become rapid. Delays in order execution can increase the risk of a user not obtaining a targeted price (“price slippage”) and can thereby affect the success of the user’s market strategy.

⁴The underlyings include agricultural and other physical commodities, bonds, interest rates, currency exchange rates, and stock indexes.

⁵Some exchanges also use computerized trading systems that operate during and/or outside regular exchange hours.

The U.S. futures markets are self-regulated by the 11 active futures exchanges,⁶ with CFTC providing federal oversight. Weaknesses in controls over futures trading can provide dishonest floor participants with the opportunity to cheat customers and to conceal this cheating by manipulating the recorded price and time of trades. The FTPA requires that each exchange maintain and use controls to monitor trading in order to deter and detect such illegal activities. These controls must include audit trail systems that capture essential data on trade participants, terms, times, and sequencing.

CFTC audit trail standards in effect prior to the enactment of the FTPA required that exchange audit trail systems (1) assign trade times accurate to within 1 minute of trade execution—referred to as the 1-minute trade timing standard and (2) sequence trades for each floor broker and floor trader. All U.S. futures exchanges were required to comply with these standards. They were subsequently written into the FTPA along with the heightened standards, which required that audit trail data be continually provided to the exchange in an unalterable manner and that it be precise, complete, and independent.⁷ The FTPA made compliance with most of the heightened requirements subject to a CFTC determination on the practicability of implementation. Also, exchanges having a minimum average daily trading volume of less than 8,000 contracts in each of its contract markets could qualify for an exemption from the heightened standards if they could demonstrate substantial compliance with the act's audit trail standards and trade monitoring requirements.

In November 1994, five exchanges were covered by the heightened standards because of their trading volume: (1) CBT; (2) CME; (3) the Coffee, Sugar & Cocoa Exchange (CSCE); (4) the Commodity Exchange, Inc. (COMEX); and (5) the New York Mercantile Exchange (NYMEX). As of the quarter ended on September 30, 1995, a sixth exchange—the New York Cotton Exchange (NYCE)—exceeded the minimum volume criteria and became subject to these standards. Because it had just recently become subject to the standards, in October 1995, CFTC gave the exchange additional time to demonstrate good faith progress towards compliance

⁶A twelfth U.S. futures exchange, the AMEX Commodities Corporation, is inactive.

⁷See page 9 for further details on the heightened standards.

with them.⁸ CFTC plans to test NYCE's audit trail system beginning in October 1996. As a result, this report does not discuss NYCE compliance with the heightened standards.

Futures exchanges use one of four types of systems to meet audit trail standards—manual, imputed timing, pit card timestamping, and computer trade matching. Five of the 11 active U.S. futures exchanges use manual systems to record trade times—COMEX, the Kansas City Board of Trade, the Minneapolis Grain Exchange, NYCE, and the New York Futures Exchange. Under these systems, floor traders and brokers manually record the time of all trades in sequence on trading cards. Four active exchanges—CBT, CME, CSCE, and the MidAmerica Commodity Exchange—use imputed timing systems. These systems use computer-based algorithms to assign times to trades after they have occurred. They use information from audit trail documentation, including data recorded by floor traders and brokers and data generated independently of them.⁹ NYMEX is the only exchange using the pit card system. Under this system, the exchange assigns a time to each trade by timestamping a card that the seller is required to submit within 1 minute of trade execution. Finally, one active U.S. exchange, the Philadelphia Board of Trade, uses computers to match and execute trades.¹⁰

Electronic systems for meeting audit trail requirements are currently under development—including an electronic hand-held trading terminal and electronic order routing systems. Although the FTFA does not mandate the use of any particular system to meet the heightened standards, Congress knew that three exchanges—CBT, CME, and COMEX—had voluntarily committed to developing electronic hand-held trading terminals when it considered the legislation. The exchanges expected that these electronic terminals would help meet the FTFA audit trail standards and also reduce costs by, among other things, reducing trading errors and administrative expenses. The FTFA legislative history indicates that Congress encouraged CFTC not to require fundamental changes to existing audit trail systems if doing so would cause disproportionate expense or

⁸At this time, CFTC also addressed the status of the four active low-volume exchanges that were eligible for exemption from the heightened audit trail standards. It exempted three exchanges from the standards—the Kansas City Board of Trade, the New York Futures Exchange, and the Philadelphia Board of Trade—and deferred a decision on the Minneapolis Grain Exchange until its trade monitoring system was improved.

⁹Although exchange systems differ, data used to impute times include exchange records of price changes, preprinted trading card and line-sequence numbers, manually-recorded execution times for certain trades, time bracket designations, and order ticket timestamps.

¹⁰If active, the AMEX Commodities Corporation would also use computers to match and execute trades.

might delay implementation of electronic systems.¹¹ Under the FTPA, an exchange ultimately must demonstrate compliance with the act's audit trail standards to continue acting as a market in futures contracts. The act provides CFTC with the authority to issue a deficiency order should an exchange fail to comply with its audit trail standards. The act also sets forth conditions under which dual trading¹² will be banned in high-volume markets. However, it allows CFTC to grant an exemption from the ban to an exchange that can show, among meeting other requirements, that it complies with the act's audit trail standards. All exchanges covered by the ban have filed petitions for an exemption, and these petitions are still pending. Because the ban on dual trading takes effect when CFTC acts to deny an exchange exemption petition, the ban has yet to take effect on any covered exchange.¹³

Results in Brief

Regarding the status of exchange compliance with the existing standards, CFTC stated in its November 1994 report to Congress that 7 of 11 U.S. futures exchanges¹⁴ were in compliance with the existing 1-minute trade timing and sequencing standards. CFTC stated that it could not determine the status of the remaining four exchanges—CBT, CME, CSCE, and NYMEX—until it reviewed the results of audit trail tests that it directed the exchanges to conduct. CFTC reported in June 1995¹⁵ that, of the trade times assigned by the audit trail systems of the four exchanges tested, CBT and CME test results were not precise enough to verify compliance with the existing standards. CFTC reported in August 1996 that the results of March 1996 retests, although improved, were still not precise enough to verify compliance with the existing standards.¹⁶

Regarding the status of exchange compliance with the heightened standards, CFTC did not find that any exchange fully complied with the heightened audit trail standards as of the October 28, 1995, statutory deadline. Consistent with congressional intent, CFTC had delayed requiring some audit trail enhancements to existing systems based on exchange

¹¹See 138 Cong. Rec. S17,868 (daily ed. Oct. 8, 1992) (statement of Sen. Leahy).

¹²Dual trading allows floor brokers to trade for their own and customer accounts in the same trading session.

¹³CME, however, voluntarily banned dual trading in all of its high-volume contract months about 1-1/2 years before the enactment of the FTPA.

¹⁴CFTC included the AMEX Commodities Corporation, the inactive exchange, in its report. CFTC excluded the MidAmerica Commodity Exchange—a subsidiary of CBT—because this exchange uses the same audit trail system as CBT.

¹⁵Report on Audit Trail Accuracy and Sequencing Tests (CFTC, June 1995).

¹⁶Report on Audit Trail Status and Re-Tests (CFTC, Aug. 1996).

assurances that electronic trading terminals would be in place by the statutory deadline. However, these systems were not operational as of October 28, 1995, and exchange officials raised concerns about when they would be fully functional. In the absence of electronic trading terminals and considering audit trail test results, in June 1995, CFTC required CBT, CME, CSCE, and NYMEX to make additional improvements to their existing systems. CFTC subsequently concluded, based on exchange implementation of these improvements, that CSCE and NYMEX had made good faith efforts to comply with the heightened standards. As provided for by the FTPA, CFTC determined that these exchanges, as well as COMEX, had qualified for a safe harbor and thus for temporary relief from the act's statutory deadline. CFTC did not indicate when this relief would expire. It notified the remaining two exchanges—CBT and CME—that further tests of their compliance with the 1-minute trade timing and heightened standards were required. In August 1996, CFTC reported that although the March 1996 retest results showed further improvements in their audit trails, CBT and CME were not in compliance with the heightened standards. CFTC did not address whether the exchanges had made a good faith effort to comply with the act and thereby qualified for a safe harbor. Instead, it gave them until January 1, 1997, to make further improvements. In addition, CFTC acknowledged that it has not yet determined the practicability of certain provisions of the act, including the requirement to capture the broker receipt time for customer orders. CFTC also reported that it plans to act on exchange petitions for exemption from the dual trading ban, beginning with COMEX in September 1996.

CFTC is responsible for ensuring exchange compliance with the audit trail provisions of the FTPA and has taken steps to do so. CFTC tested exchange audit trail systems to assess compliance and, where they were found to be deficient, required the exchanges to implement improvements. In the absence of full compliance, CFTC identified the exchanges that had made good faith efforts to comply, as provided for in the act. Also, the exchanges we reviewed agreed to implement almost all of the improvements that CFTC recommended in June 1995. Finally, in August 1996, CFTC reported on its additional plans for enforcing compliance with the heightened standards. Thus far, however, CFTC has not found any covered exchange to be in full compliance with the FTPA heightened audit trail standards. In addition, full implementation of electronic trading terminals is uncertain, questions about the practicability of certain of the heightened standards remain, and the dual trading provisions of the act have not been fully implemented. Congress has been kept informed of the status of compliance with the act's audit trail

provisions, at least in part, as a result of the reporting requirement and statutory deadline established by the act. However, these have now expired. Ensuring that Congress continues to be kept informed of exchange progress and CFTC actions to facilitate that progress could be pivotal to securing eventual compliance with the act's audit trail standards.

Objectives, Scope, and Methodology

To report on the status of exchange compliance with the existing and heightened standards and CFTC actions to enforce the FTPA audit trail provisions, we reviewed CFTC's (1) November 1994 report to Congress on audit trails; (2) June 1995 report on the results of exchange audit trail testing; (3) November 3, 1995, letters to four exchanges with agency conclusions related to their good faith efforts to comply with the FTPA; (4) August 1996 report on the status of exchange audit trail compliance and the results of further exchange audit trail testing; (5) other relevant CFTC studies and reports; and (6) the legislative history of the FTPA. We interviewed officials at CFTC headquarters in Washington, D.C., and at CFTC's Central Regional Office to discuss the FTPA audit trail standards and CFTC efforts to evaluate exchange compliance with them. We also interviewed CBT, CME, CSCE, and NYMEX officials to discuss their views on the standards and their efforts to comply with FTPA and CFTC requirements. We chose these four exchanges because CFTC selected them for initial audit trail testing. We also reviewed documents from these exchanges that described their audit trail systems and the results of exchange audit trail testing.

We conducted our audit work between March 1995 and August 1996, primarily in Washington, D.C., and Chicago, in accordance with generally accepted government auditing standards. We obtained written comments on a draft of this report from CFTC, CBT, CME, and CSCE. These comments are discussed at the end of this letter and are reprinted in appendixes II through V. CFTC, CBT, CME, CSCE, and NYMEX provided additional technical comments on the draft report, which were incorporated as appropriate.

CFTC Could Not Determine CBT or CME Compliance With the 1-Minute Trade Timing Standard

CFTC could not determine whether CBT or CME—the two largest futures exchanges—complied with the 1-minute trade timing standard before issuing its November 1994 report to Congress or after subsequent testing of their audit trail systems. Before issuing its November 1994 report, CFTC required the exchanges to submit documentation of their audit trail systems' compliance with the FTPA audit trail standards. On the basis of this and other evidence, CFTC found that 7 of 11 exchanges were in compliance with the 1-minute trade timing and sequencing standards. CFTC concluded that the remaining four exchanges—CBT, CME, CSCE, and NYMEX¹⁷—had not yet proven their audit trail systems met the standards. CFTC also required these exchanges to conduct two tests in 1994 to measure the capabilities of their audit trail systems. The first test addressed compliance with the 1-minute trade timing and sequencing standards and required that at least 90 percent of sampled trade execution times be consistent with the timing information and sequence recorded on supporting trade documents.¹⁸ CFTC conducted another round of comparable tests at CBT and CME in March 1996.

CFTC reported in June 1995 that CBT and CME test one results were too imprecise to verify compliance with the 1-minute trade timing standard. These two exchanges use computer-based algorithms to impute or estimate trade execution times after the fact. The computer, based on timing information recorded on trade documentation, calculates a span of time, or timing window, during which a trade probably took place and then selects a likely execution time within that window. For exchanges with imputed timing systems, CFTC required, as part of the test, that the average length of the timing windows be 2 minutes or less to approximate the 1-minute trade timing standard.¹⁹ Although 90 percent of imputed trade times of sampled trades at CBT and CME were found to be accurate (i.e., consistent with the supporting documentation), the length of many timing windows was in excess of 2 minutes. At CBT, 41 percent of the accurate trade times had timing windows of 2 minutes or less. At CME, 72 percent of the accurate trade times had timing windows of 2 minutes or less. CFTC concluded that these results were too imprecise to verify compliance with the 1-minute trade timing standard and later, as discussed on page 12, recommended that CBT and CME implement numerous audit trail

¹⁷These were four of the five exchanges covered by the heightened standards at that time. CFTC did not require the fifth exchange—COMEX—to test its audit trail system, because it provided documentation of its compliance with the 1-minute trade timing standard.

¹⁸The second test is discussed in the next section of this report.

¹⁹A trade time selected from within a 2-minute or shorter window was considered likely to be within 1 minute of the actual time of execution as required by the 1-minute trade timing standard.

improvements. The March 1996 retests at CBT and CME showed that these numbers had improved to 69 percent and 80 percent, respectively, but were still short of the 90-percent precision level CFTC sought.

Test one results at both CSCE and NYMEX exceeded the 90-percent accuracy requirement. Further, at CSCE, which also uses an imputed trade timing system, 91 percent of these accurately timed trades had timing windows of less than 2 minutes, thus meeting the accuracy requirement. At NYMEX, however, the sequence of trades determined by times stamped on pit cards by exchange employees was often different from the sequence recorded by traders and brokers on trading cards.²⁰ NYMEX is addressing this problem with a new integrated trading/pit card. (See app. I for details.)

CFTC Has Not Found Any Exchange in Full Compliance With the Heightened Standards, but Found That Progress Continued to Be Made

The heightened standards required additional improvements to exchange audit trails. As of October 28, 1995, when the standards took effect, the electronic trading terminals that exchanges had begun to develop that might bring some exchanges into compliance with them were not fully operational, and significant delays were envisioned. In the absence of the terminals, CFTC did not find any of the exchanges covered by the heightened standards to be in full compliance with them.²¹ Given this situation, the statute required that CFTC consider any circumstances that prevented compliance despite an exchange's good faith effort—thus qualifying an exchange for a statutory safe harbor. COMEX received a de facto determination that it had made a good faith effort in November 1994, when CFTC determined its manual audit trail system did not require testing. In November 1995, based on exchange audit trail test results and implementation of recommended audit trail improvements, CFTC notified CSCE and NYMEX that they had qualified for a safe harbor but deferred a decision on CBT and CME until further testing. CFTC reported in August 1996 that, although the results of further testing showed considerable improvements, CBT and CME did not demonstrate compliance with the heightened standards. CFTC gave the exchanges until January 1, 1997, to make further improvements. In addition, CFTC has yet to address the practicability of certain of the audit trail provisions of the act, including the broker receipt timing requirement, but agency officials told us that CFTC plans to do so. It also plans to act on exchange petitions for exemption from the dual trading ban beginning in September 1996.

²⁰NYMEX does not use an imputed timing system, so timing windows do not apply.

²¹As discussed in the background section of this report, six exchanges were covered by the heightened standards as of the statutory deadline. Only five of these exchanges are discussed below because CFTC does not plan to assess NYCE's compliance with the heightened standards until October 1996.

The Heightened Standards Require Improved Audit Trails

In addition to meeting the requirements of the existing 1-minute trade timing and sequencing standards, including capturing the essential data on the participants, terms, times, and sequencing of all trades, the heightened standards require that this information be continually provided to the exchange in an unalterable manner and that it be precise, complete, and independent. Continually providing data to an exchange could reduce the opportunity for floor brokers and traders to illegally alter the trading record.²² The requirement that the data be unalterable is to prevent floor brokers or traders from changing a trading record without detection.

Also, while existing CFTC regulations required exchanges to sequence trades, the act requires exchange audit trail systems to be sufficiently precise to determine, to the extent practicable, the sequence of all trades by each floor trader and floor broker. Exact trade sequencing would help detect trading abuses, such as trading ahead of customer orders.²³ In addition, the FTPA now requires the exchanges to obtain, to the extent practicable, more complete timing information for customer orders, including the time an order is received on the exchange floor, received by the floor broker for execution, and reported from the floor as executed. More complete times could also improve an exchange's ability to accurately sequence trades.

Finally, the act requires that the execution time for each trade be recorded independently of the person making the trade or derived through automatic or other similarly reliable means. Independent or automatic trade recording could increase the reliability of the data collected by preventing the broker or trader from falsifying the record. The FTPA made compliance with this and most of its other audit trail requirements subject to a CFTC determination on the practicability of implementation. The FTPA authorized CFTC to defer the deadline for compliance with the heightened standards if it determined that circumstances beyond the control of an exchange prevented compliance, despite affirmative good faith efforts to comply. Also, the act required CFTC to exempt an exchange from the heightened standards if the average daily trading volume in each of its contract markets was less than 8,000 contracts and if it could demonstrate

²²CFTC officials told us that the word "continual" implies periodic, not continuous data provision, and that the current CFTC requirement that exchanges collect trading cards and customer order tickets within 15 minutes of the end of each exchange-designated trading period (which lasts either 15 or 30 minutes, depending on the exchange) plus multiple intraday trade matching are forms of continual provision of trade data to the contract market.

²³Trading 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) for others in the same contract month at the market or at the same price.

substantial compliance with the act's audit trail standards and trade monitoring requirements.

Electronic Trading Terminals Were Not Fully Operational and Have Been Significantly Delayed

Three of the exchanges covered by the heightened standards have worked on electronic trading terminals for recording and processing trades, but none of these terminals is fully operational. The terminals were intended to provide the exchanges with continual and unalterable audit trail data that would be more precise, complete, and independent. However, they are limited in their ability to create a "perfect" audit trail. For example, CFTC officials told us that data could be altered before being entered into the terminals. CME officials also indicated that, while the terminals can record the precise time that a floor trader or broker begins to record a trade, the floor trader or broker may be forced to delay entering trade information in order to execute other customer or personal trades. CFTC officials told us that, consistent with the FTPA, the agency has never taken the position that electronic trading terminals are the only way to meet the heightened standards. These officials also said that the agency will determine the extent to which the terminals satisfy the statutory standards based on the particulars of their individual design and operation.

COMEX began developing a hand-held terminal in 1986 for recording and timing trades. NYMEX acquired the rights to this project when it merged with COMEX in 1994, making COMEX an operating division. NYMEX subsequently decided not to pursue the project because of developmental problems and because it believed that its manual audit trail system met the requirements of the FTPA. After the initial results of the CFTC/Department of Justice undercover investigation were announced, CBT and CME began a joint venture to automate trade recording and timing by developing a hand-held automated data input terminal, called AUDIT. According to CBT and CME, as of June 30, 1996, they had incurred expenditures of \$14.2 million and \$9.1 million, respectively, in external and internal costs to develop AUDIT.²⁴ The exchanges initially told CFTC that AUDIT would be operational by the October 28, 1995, statutory deadline for implementing the FTPA heightened audit trail standards. However, CBT and CME informed CFTC before the issuance of its 1994 report that AUDIT would not be operational by October 1995. The exchanges have since indicated that further delays in implementation would occur and that the planned capability of AUDIT to handle customer trades would be delayed, perhaps significantly. CBT officials told us that they expect delays in implementing the customer trade processing capability of AUDIT because of the need to

²⁴In contrast to CBT, CME's internal costs include only direct project costs.

develop an order routing system for a new trading floor that is under construction. CME officials also told us that, although the exchange is continuing with its efforts to implement AUDIT, it is now considering the use of off-the-shelf technology for customer trade processing because of AUDIT software development problems.

In addition to AUDIT, CBT and CME are developing other electronic systems that could enhance audit trails and contribute to compliance with the act's provisions. CBT and CME have jointly developed an automated trade order processing system, called TOPS Route. Both exchanges have also developed and continue to enhance universal broker work stations, called Electronic Clerk at CBT and CUBS at CME. CBT is also developing a booth work station called Computer Order Management, Entry, and Timing, or COMET. TOPS Route rapidly transmits orders from a firm's office to its booth on the trading floor and records the time that an order is received at the booth and the time it is filled. CUBS and Electronic Clerk organize orders received on the floor and provide the time that the broker receives an order, the time the order is filled, and the time the broker confirms the order fill to the firm's booth on the trading floor. COMET provides a mechanism for delivering and receiving order information and other messages into and out of the trading pit. According to CME, TOPS Route is expected to be implemented for most clearing firms,²⁵ while the extent of CUBS implementation will depend on space constraints and the differing needs of brokers. In June 1996, CME began a 6-month pilot program in one of its markets under which TOPS Route and CUBS are integrated to form a continuous order routing system. CBT expects TOPS Route and COMET/Electronic Clerk to be substantially implemented when its new trading floor opens in February 1997.

These automated order routing systems could enhance audit trails by meeting the FTPA requirements for recording the time an order reaches the exchange floor, the time the broker receives an order, and the time the order fill is recorded. According to CFTC officials, these systems should result in better timing data for orders by augmenting existing sequencing information.

CFTC Gave CBT and CME Additional Time to Improve Their Audit Trails

CFTC determined that CSCE and NYMEX had made good faith efforts to comply with the heightened standards, thus qualifying them for a statutory safe harbor. COMEX was in effect granted a safe harbor in November 1994

²⁵Clearing firms are members of an exchange clearing house. All trades of nonclearing members must eventually be settled through a clearing member.

when it was not required to test its audit trail system. CFTC reported that COMEX had produced evidence that its manual system met the 1-minute trade timing standard. CFTC initially deferred a decision on whether CBT and CME had made a good faith effort to comply with the heightened standards until after a retest of their audit trail systems. After its March 1996 retests, CFTC gave the exchanges additional time to improve their audit trails without determining whether they had qualified for a safe harbor.

To assess progress towards compliance with the heightened standards in the absence of electronic systems, in 1994, CFTC required four exchanges—CBT, CME, CSCE, and NYMEX—to perform a second test of trade sequencing capabilities, using more exacting criteria than were used for the first test. According to CFTC officials, these criteria were designed to approximate the precision or enhanced sequencing requirements of the heightened standards. As with the first test, CFTC required that 90 percent of sampled trades be accurately sequenced. The test results showed that only CSCE met the 90-percent accuracy requirement for all samples tested. CFTC recommended that NYMEX implement 9, CBT implement 17, and CME implement 18 additional improvements to their audit trail systems to increase timing precision and show progress towards compliance with the heightened standards. Although CSCE passed the test, CFTC recommended that CSCE implement six improvements to its audit trail system. At the same time it made these recommendations, CFTC urged the exchanges to continue efforts to implement electronic systems.²⁶ (See app. I for a list of CFTC's recommendations.)

According to CFTC, prompt implementation of the recommended audit trail improvements would demonstrate a good faith effort toward meeting the heightened standards. A finding of good faith would mean that an exchange had satisfied the statutory requirement for progress and, therefore, was entitled to a safe harbor. CFTC found that both CSCE and NYMEX had made good faith efforts to comply with the standards by the statutory deadline. CSCE agreed to implement all but one recommendation. However, CFTC concluded that this recommendation did not relate to trade timing accuracy and, therefore, was not material to a good faith finding. NYMEX agreed to implement all but one audit trail recommendation but offered CFTC an acceptable alternative. Both CBT and CME agreed to implement almost all of CFTC's audit trail recommendations or offered alternatives. CBT declined to implement two of CFTC's recommendations

²⁶Exchange officials told us that they had either implemented or planned to implement and/or test some of the improvements prior to CFTC's issuance of the test results and its recommendations in June 1995.

based on tests it conducted. CBT said these tests indicated that the recommendations disrupted trading, would increase trade processing costs, or would not improve audit trail accuracy. CBT also offered CFTC an acceptable alternative for one recommendation. CME declined to implement one recommendation but informed CFTC that it would continue to evaluate the recommendation. The exchange said it based its decision on tests it conducted that indicated the recommendation disrupted trading and would increase trade processing costs. CME also offered CFTC an acceptable alternative for one recommendation. (See app. I for details on the exchanges' responses to CFTC's recommendations.)

The CFTC recommendation that both CBT and CME declined to implement, based on their tests, was the requirement that floor traders manually record the execution time for the first and either sixth or last trade on every trading card. As discussed on page 4, these two exchanges use computer-based algorithms to impute trade times after the fact, rather than requiring floor traders or brokers to record the times that personal or customer trades are executed.²⁷ CBT reported that its own separate tests showed that adding manual times to trading cards disrupted trading, increased clearing firms' trade processing costs, and resulted in less accurate computer-imputed times because traders were unable to record accurate times during hectic trading. CME reported that traders involved in its separate test had indicated that recording these times disrupted trading. However, CME's tests did not show a reduction in audit trail accuracy. Nonetheless, the exchange expressed concern that this requirement would increase trade processing costs for clearing firms and could result in delays in execution of customer orders or degrade overall market efficiency.

In November 3, 1995, correspondence, CFTC notified CSCE and NYMEX that they had qualified for the statutory safe harbor. Although CFTC did not indicate when the safe harbor would end, CFTC told the exchanges that it would retest them to evaluate whether the changes they made brought them into compliance with the FTPA audit trail standards. CFTC reported in August 1996 that it plans to assess CSCE and NYMEX audit trail improvements during rule enforcement reviews in 1997.

CFTC also notified CBT and CME on November 3, 1995, that a decision on whether they qualified for the statutory safe harbor would be deferred until the results of another round of tests were obtained. CFTC tested these

²⁷CFTC regulations require that trade execution times be captured, but do not require floor traders or brokers to manually record them.

exchanges in March 1996 to evaluate the effect of the agreed-to improvements on their audit trails. The agency reported in August 1996 that the test results showed improvements in the precision of the exchanges' audit trails but that neither exchange met the heightened standards. CFTC did not determine that CBT and CME had demonstrated the good faith effort required to be granted a safe harbor under the act. Instead, CFTC gave each exchange until October 28, 1996, to report on how they intended to improve their audit trails and until January 1997 to implement the improvements.

Implementation of all CFTC recommendations will not necessarily result in full compliance with the heightened standards. CFTC reported in June 1995 that the exchanges may need to implement additional improvements to their systems to achieve compliance. According to CFTC officials, full compliance with the heightened standards is an objective against which the exchanges must continually be tested as the quality of audit trail data also depends on other factors, such as the accuracy of data entry, the integrity of pricing data, and the handling of trade errors. Ultimately, all of the exchanges covered by the FTPA heightened standards must comply with them or be subject to CFTC disciplinary action unless, as discussed next, CFTC finds compliance with a standard impracticable.

CFTC Has Not Fully Addressed the Practicability of All of the Act's Provisions

Several exchanges have raised concerns about CFTC's obligations under the FTPA for determining the practicability of the heightened audit trail requirements, including the need to assess the cost of compliance as well as to address differences between the exchanges. As previously discussed, the act requires CFTC to address the practicability of most of the heightened standards and authorizes the agency to promulgate standards, in some cases by either rule or order. To date, CFTC has issued guidance on how orders "flashed" into a trading pit can satisfy the broker receipt timing requirement of the act,²⁸ but has not addressed the practicability of capturing broker receipt times for nonflashed orders. According to CFTC, its June 1995 recommendations to the four exchanges represent guidance on how to demonstrate the good faith effort required by the FTPA in the absence of full compliance.

²⁸CFTC has ruled that flashed orders (that is, orders rapidly transmitted to and reported from the trading pit verbally or by hand signal) can satisfy the broker receipt time requirement provided that certain recordkeeping and enforcement provisions are met. Flashed orders account for anywhere from 60 to nearly 100 percent of CBT and CME customer orders in financial contracts.

In June 1996, the exchanges testified that the FTPA requirement to capture broker receipt time was not currently practicable.²⁹ Separately, CBT and CSCE also expressed concern that due to differences in trading volume and in the way customer orders are routed, trades recorded, and execution times derived, audit trail features that are practicable at one exchange may be impracticable at another exchange without significantly disrupting trading. CBT told us that the act contemplates that CFTC's practicability determination would result from testing its proposed enhancements to audit trails and conducting cost-benefit analyses of them. Both CBT and CME said the act contemplates that CFTC would consider the cost of enhancements and the effectiveness of reasonable alternatives to proposed enhancements. CSCE was concerned that CFTC make its practicability determination on an exchange-by-exchange basis and that those determinations consider the financial capability of the exchange.

CFTC officials told us that the agency intends to provide further guidance on the practicability of the broker receipt time requirement. They said that determining the practicability of this requirement is a dynamic process that will be affected by ongoing exchange initiatives to develop automated order routing systems. They also said that further dialogue with the exchanges and the floor broker community needs to occur before the agency can reach a conclusion on the practicability of capturing broker receipt times for nonflashed orders and that CFTC has scheduled an industry roundtable discussion for October 1996 where this topic will be addressed. CFTC also reported that it plans to address the practicability of further integrating customer and personal trades at CBT and CME.

According to CFTC, the FTPA does not require it to conduct a cost-benefit analysis of audit trail enhancements. CFTC reported, however, that the cost of achieving a perfect audit trail may be prohibitive and that the costs of complying with the heightened standards must be taken into account. Further, the agency reported that the act does not specify the method of achieving compliance but rather sets forth a performance standard that can be satisfied by any means. CFTC has used testing to determine if exchange enhancements bring them into compliance with the act's audit trail standards. As part of this process, CFTC has let the exchanges decide whether to implement electronic systems or lower-cost manual measures to meet the standards. CFTC has also accepted certain lower-cost exchange alternatives for demonstrating a good faith effort to comply with the

²⁹Consolidated Testimony Of The Futures Exchanges Of The United States Before The Senate Committee On Agriculture, Nutrition, And Forestry," June 5, 1996. In addition to the four exchanges covered by this report, the Kansas City Board of Trade, the Minneapolis Grain Exchange, the NYCE, and the subsidiaries of these seven exchanges submitted this testimony.

heightened audit trail standards. CFTC reported that the agency accounted for exchange differences during audit trail testing at the four exchanges. Our review of CFTC recommendations indicated that CFTC generally tailored its recommended improvements to each exchange.

Dual Trading Ban Exemption Petitions Are Still Pending

The FTPA set forth conditions under which dual trading in contract markets in which the average daily trading volume equals or exceeds 8,000 contracts would be banned. The statute also requires that dual trading at an exchange be exempted from the ban if the exchange can show that it has an effective trade monitoring system that includes compliance with the act's audit trail standards. The FTPA included the ban to limit the opportunity for trading abuses to occur.³⁰ It linked an exemption from the ban to compliance with the act's audit trail standards because an effective audit trail facilitates the detection of trading abuses and, therefore, acts as a deterrent to them.

The dual trading ban was to take effect 30 days after the effective date of the dual trading regulations or whenever CFTC acted to deny an exchange's exemption petition. On July 28, 1993, CFTC issued the dual trading regulations, which required that a petition for exemption from the dual trading ban be supported by evidence that, among other things, at least 90 percent of the trade times assigned by an exchange audit trail meet the 1-minute trade timing standard.³¹ The regulations, as required by the FTPA, also suspended enforcement of the ban for all exchanges that filed timely exemption petitions. According to the act and regulations, the suspension would remain in effect until the agency ruled on the petitions. The FTPA required CFTC to act on an exemption petition within 75 days of receipt, or as soon as practicable. The exchanges covered by the ban all filed petitions, but these petitions are still awaiting CFTC action.³² As a result, the exchanges are authorized to continue dual trading.³³ CFTC officials told us the agency determined that given the relationship between the dual trading ban and compliance with the audit trail standards, it was essential to address the status of the exchanges' audit trails first. According to CFTC, it plans to act on the exemption petitions, which may be updated to reflect

³⁰While dual trading can provide benefits, including increasing market liquidity, the practice makes it easier for a floor broker to take advantage of knowledge about customer trades by trading ahead of these orders.

³¹An exemption petition must also include evidence that the exchange's trade monitoring system is sufficient to deter and detect trading abuses attributable to dual trading.

³²The exchanges covered by the ban are CBT, CME, COMEX, CSCE, NYCE, and NYMEX.

³³CME is the only exchange to voluntarily ban dual trading. See footnote 13.

audit trail enhancements, beginning with COMEX in September 1996, CBT and CME in January 1997, and the remaining exchanges to follow.

Conclusions

CFTC has taken actions to enforce exchange compliance with the FTPA audit trail standards. Also, the exchanges we reviewed have continued to make progress toward compliance with them. Nonetheless, we are concerned that the momentum toward achieving compliance could be lost now that the legislatively mandated deadline has passed without any covered exchange being found in full compliance. The audit trails of CBT and CME—the two largest futures exchanges—do not yet meet the heightened standards. CFTC also concluded that they were insufficiently precise to verify compliance with the 1-minute trade timing standard that predates the FTPA. In addition, implementation of electronic trading terminals that have the potential to bring these exchanges into compliance with the standards is uncertain. Also, it is not clear when the exchanges currently qualifying for the statutory safe harbor will achieve compliance with the heightened standards through continued good faith efforts. Further, CFTC has not yet fully addressed the practicability of all the act's requirements as part of its ongoing effort to enforce the heightened standards. Finally, the dual trading provisions of FTPA have not yet been fully implemented. Thus, it is particularly important that Congress be informed of exchange progress toward meeting the heightened audit trail standards and other requirements of the act as well as steps CFTC is taking to facilitate such progress. The FTPA reporting requirement achieved this result, but CFTC issued its report in 1994 and no further reporting requirements exist.

Recommendation

We recommend that the Chairperson, CFTC, inform Congress periodically on exchange progress towards compliance with the FTPA heightened audit trail standards and on implementation of the dual trading ban—including any mitigating factors delaying compliance or implementation and the steps CFTC is taking to encourage continued progress. Such information could be provided annually in a report on or about October 28, the anniversary of the statutory deadline for compliance with the heightened standards, or through periodic testimonies before congressional committees.

Agency Comments and Our Evaluation

We requested comments on a draft of this report from CFTC, CBT, CME, CSCE, and NYMEX. CFTC supported our recommendation; the exchanges did not address it in their written comments. Written comments from CFTC, CBT,

CME, and CSCE and our additional responses are contained in appendixes II through V; NYMEX provided oral technical comments. These technical comments as well as those provided by CFTC and the other exchanges were incorporated into the report as appropriate.

We reported that the exchanges included in our review have continued to make progress towards compliance with the heightened FTPA audit trail standards, but no exchange has been found in full compliance with them. CME indicated that, contrary to our report conclusions, the exchange is in substantial compliance with the FTPA audit trail requirements, either through direct compliance or because some requirements of the act are impracticable. First, CME infers that we made an assessment of its compliance with the act, reflecting a misunderstanding of our review objectives and resulting conclusions. Congress delegated responsibility for ensuring compliance with the act's audit trail provisions to CFTC. We were responsible for reporting on the status of compliance with the act, including CFTC actions to enforce exchange compliance with it. Second, as stated in our report, CFTC plans to work with the exchanges to address the practicability of the act's provisions related to broker receipt time and with CBT and CME to address the practicability of further integrating customer and personal trades.

In addition to CME, the other three exchanges indicated varying degrees of disagreement with CFTC's conclusions that their audit trail systems were not yet in compliance with the act's requirements. CFTC reached its initial conclusions about compliance with the act based on testing of exchange audit trails and exchange implementation of its subsequent recommendations. CFTC has done additional testing and evaluation of CBT and CME audit trails and has reported that, although improvements were made, the test results did not show compliance with the heightened standards.

CME commented that we and CFTC have focused exclusively on statistical measurement without reference to the underlying purpose of an audit trail—deterring trade practice violations. We agree that the ultimate measure of the effectiveness of an audit trail is its ability to deter as well as detect such violations. However, the effectiveness of an audit trail in these areas can be difficult to verify. The use of statistical measures along with other relevant information, provides a baseline against which progress toward compliance with the audit trail standards can be measured. It also provides a basis, given the differing exchange audit trail systems, of comparing the progress of the exchanges to each other. The

latter provides some assurance that the standards are consistently and, therefore, fairly applied.

We are sending copies of this report to the Chairperson, CFTC, and other interested parties. We will also make copies available to others upon request.

Please contact me at (202) 512-8678 or Cecile O. Trop, Assistant Director, at (312) 220-7705 if you or your staff have any questions. Major contributors to this report are listed in appendix VI.



James L. Bothwell
Director, Financial Institutions
and Markets Issues

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Abbreviations

CBT	Chicago Board of Trade
CFTC	Commodity Futures Trading Commission
CME	Chicago Mercantile Exchange
COMEX	Commodity Exchange, Inc.
CSCE	Coffee, Sugar & Cocoa Exchange
FTPA	Futures Trading Practices Act of 1992
NYCE	New York Cotton Exchange
NYMEX	New York Mercantile Exchange

CFTC Recommendations to Futures Exchanges for Improving Their Audit Trails and Exchange Responses

The following are the audit trail improvements that CFTC recommended in June 1995 to the Chicago Board of Trade (CBT), Chicago Mercantile Exchange (CME), Coffee, Sugar & Cocoa Exchange (CSCE), and New York Mercantile Exchange (NYMEX) and the exchanges' individual responses. The exchanges indicated that they had either implemented or planned to implement and/or test some of the improvements prior to CFTC's issuance of the audit trail test results and its June 1995 recommendations.

Recommendations to CBT and CME

CFTC recommended that CBT and CME implement 17 and 18 improvements, respectively, to their audit trail systems. The following 11 recommendations were common to both exchanges:

- (1) Limit the number of trades recorded on each trading card to six.
- (2) Record and use manual execution times for at least the first and sixth trades on each trading card,³⁴ and use more manual times in the lower volume markets.
- (3) Use one-sided trading cards to record personal buys and sells in sequence.
- (4) Use a new trading card with the change of each bracket period.
- (5) Use a special indicator to designate customer orders "flashed" into the trading pit.
- (6) Use seconds in the imputed timing system where available, including seconds from customer order ticket timestamps.
- (7) Add the time a customer trade is stamped as executed to the imputed timing system.
- (8) Promptly supply members with information on audit trail data inconsistencies and require corrections that reflect actual events.
- (9) Aggressively enforce audit trail data recordation and submission requirements, especially for spread trades,³⁵ and ensure that timing data are entered correctly.
- (10) Aggressively enforce order ticket timestamping procedures for orders flashed into the trading pit.
- (11) Reprogram the imputed timing system to use all additional data obtained as a result of CFTC's recommendations when assigning execution times to trades.

³⁴CFTC's recommendation to CME differed in that CME was to record and use manual execution times for at least the first and either the last or sixth trade on each trading card.

³⁵Spread trades involve the simultaneous buying and selling of two related contracts in the expectation that a profit will be made based on changes in the price relationship when the position is offset.

CFTC recommended that CBT implement the following additional improvements:

- (12) Complete efforts to capture real-time quotes in the time and sales register³⁶ for trades executed during the opening of the trading session.
- (13) Include the identity of trade participants in the time and sales register for spread trades.
- (14) Aggressively enforce requirements to record the correct customer-type indicator codes.
- (15) Upgrade timestamp clocks to record times to the second.

CBT was also required to implement two refinements to the computer-based algorithm used by its imputed timing system to assign times to trades.

CFTC recommended that CME implement the following additional improvements:

- (12) Use order-type information to derive times for trades.
- (13) Use clearing receipt time in the imputed timing system.
- (14) Synchronize timestamp clocks across the floor and upgrade timestamp clocks to record times to the second.

CME was also required to implement four refinements to the computer-based algorithm used by its imputed timing system to assign times to trades.

Exchange Responses

CBT agreed to implement 14 of the 17 recommendations and offered an acceptable alternative for one recommendation. CME agreed to implement 16 of the 18 recommendations and offered an acceptable alternative for one recommendation. Both exchanges had planned to test the recordation of manual execution times for certain trades on each trading card (recommendation 2) and one-sided trading cards (recommendation 3) prior to June 1995. CBT had also planned to test recommendations 1, 4, 7, and 8 prior to this time.

Both CBT and CME declined to implement CFTC's recommendation to record and use manual execution times for certain trades on each trading card

³⁶The time and sales register is a record maintained by the exchange of price changes during trading and the time they occur. The register is required as part of an exchange's audit trail by CFTC regulation 1.35(h).

and use more manual times in the lower-volume markets (recommendation 2) based on tests conducted separately at both exchanges. CBT said that its own separate test results indicated that requiring manual execution times decreased the accuracy level of its imputed timing system because traders were unable to record accurate execution times during hectic trading. According to CBT, some traders commented that this requirement disrupted their trade recordation efficiency, and that due to being focused on executing trades, they frequently were unable to record execution times until several minutes after the actual time of execution. CBT clearing firms also indicated that this requirement would increase trade processing costs.

CME declined to implement this recommendation but informed CFTC that it would continue to evaluate the recommendation. The exchange's separate tests indicated that the requirement impaired trading. According to CME, some higher-volume floor traders complained that they could not continue to trade at their accustomed pace while having to manually record execution times during busy periods in the market. The exchange was also concerned that this requirement would increase trade processing costs for clearing firms and could result in delays in execution of customer orders or degrade overall market efficiency.

CBT also declined to include the identity of trade participants in the time and sales register for spread trades (CBT recommendation 13) based on tests conducted in two of its markets. These tests indicated that this recommendation did not substantially improve audit trail accuracy. According to CBT, reporting this information to exchange price reporters also significantly reduced price reporting efficiency and disrupted trading. The exchange is integrating synchronized timestamp clocks that record times to the nearest second (CBT recommendation 15) as clocks are replaced. CBT indicated that it plans to use the upgraded devices on its new trading floor, which is currently under construction. CBT also offered an alternative to one of the recommended refinements to its computer-based algorithm, which CFTC accepted.

CME offered an alternative to synchronizing timestamp clocks across the exchange floor and upgrading timestamp clocks to record times to the second (CME recommendation 14), which CFTC accepted. CME's alternative was to conduct more frequent audits of timeclock accuracy, apply more pressure on firms to ensure that timeclocks are accurately set, and require firms to upgrade timeclocks as they are replaced. The exchange believed

that this approach satisfied CFTC's recommendation without incurring excessive costs.

Recommendations to CSCE

CFTC recommended that CSCE implement the following six improvements to its audit trail system:

- (1) Complete upgrades to its price reporting system to include entry of the selling floor trader's or floor broker's identity in the time and sales register.
- (2) Manually record execution times for every fifth trade on each trading card.
- (3) Aggressively enforce order ticket recordkeeping requirements.
- (4) Place customer account numbers on the trade register.³⁷
- (5) Use timestamp clocks that record times to the second at such time as the exchange moves to a new facility.
- (6) Ensure that the imputed timing system derives only one possible execution time for each trade.

Exchange Response

CSCE agreed to implement five of the six recommendations. CSCE announced its plans to upgrade its price reporting system to include the selling party's identity in the time and sales register (recommendation 1) and began testing of recording manual times for every fifth trade on a card (recommendation 2) prior to June 1995. CSCE declined to implement the recommendation to place customer account numbers on the trade register (recommendation 4) because it would interfere with the exchange's ability to quickly process and match trades. CFTC said that including account numbers on the trade register provides a useful surveillance tool; however, it indicated that because customer account numbers are not related to trade timing accuracy, CSCE could come within the safe harbor without implementing the recommendation.

According to CSCE, the recommendations related to enforcing order ticket recordkeeping requirements (recommendation 3) and upgrading timestamp clocks to record times to the second (recommendation 5) will not impact trade timing and sequencing at the exchange because its imputed timing system does not use order ticket timestamps to derive trade execution times.

³⁷The trade register is a comprehensive exchange record of cleared or matched trades and is required as part of an exchange audit trail by CFTC regulation 1.35(e). Among the entries on the register are, for each transaction: the date and time; quantity; underlying commodity; price; delivery month; and identity of the floor broker, trader, and clearing member.

Recommendations to NYMEX

CFTC recommended that NYMEX implement the following nine improvements to its audit trail system:

- (1) Integrate pit card system times with trade sequence data on trading cards through manual or electronic means.
- (2) Manually record execution times for the first and every fifth trade thereafter on each trading card.³⁸
- (3) Limit the number of trades recorded on each trading card.
- (4) Collect trading cards within 15 minutes after the end of each 30-minute bracket period.
- (5) Develop a time and sales register for spread trades.
- (6) Enhance the timeliness of data entry for the pit card system.
- (7) Aggressively enforce timeliness of pit card submissions and trading card sequencing requirements.
- (8) Place customer account numbers on the trade register.
- (9) Use timestamp clocks that record times to the second at such time as the exchange moves to a new facility.

Exchange Response

NYMEX agreed to implement eight of the nine recommendations. The exchange offered an alternative to collecting trading cards within 15 minutes after the end of each bracket period (recommendation 4), which CFTC accepted. Specifically, NYMEX agreed to introduce a new integrated trading card that provides for concurrently recording trade information on both a trading card and a pit card. The exchange began developing the new card prior to June 1995. In addition to recording trade information on trading cards, the selling participant to each trade must record trade information on a separate card called a pit card. The pit card is required to be thrown into a net in the center of the trading pit within 1 minute of trade execution where it is collected by an exchange employee. The employee then timestamps the card, which establishes the official trade execution time. Tests required by CFTC disclosed that the sequence of trades as determined by this time stamp was frequently different than the sequence as recorded on trading cards by brokers and traders. According to CFTC, the new integrated card should also address the sequencing inconsistencies between pit cards and trading cards disclosed by testing.

³⁸It is voluntary for floor traders and brokers to manually record execution times for every fifth trade. CFTC approved this alternative.

Comments From the Commodity Futures Trading Commission



U.S. COMMODITY FUTURES TRADING COMMISSION
Three Lafayette Centre, 1155 21st Street, NW, Washington, DC 20581

John E. Tull, Jr.
Acting Chairman

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July 15, 1996

Mr. James L. Bothwell
Director, Financial Institutions and Market Issues
General Government Division
United States General Accounting Office
Washington, D.C. 20548

Re: Report to Congressional Requesters, GAO/GGD-96-XX
Futures Markets: Exchanges Have Not Fully Complied With
Heightened Audit Trail Standards, But Progress Continues

Dear Mr. Bothwell:

The Commission appreciates the opportunity to respond to your draft report on compliance with audit trail standards by U.S. futures exchanges. As the document reports, although the exchanges have made substantial progress toward securing unalterable, independent, and fully sequenced audit trails, they have not yet met the heightened audit trail standards mandated by Congress in the Futures Trading Practices Act ("FTP") of 1992 (P.L. 102-546). Since the passage of the heightened standards, the Commission has worked continuously with the exchanges to achieve compliance with the FTP and has taken several significant actions toward that mandate.

The CFTC would like to thank GAO for helping us to ensure the exchanges' continued progress toward reaching the statutory standards by conducting this audit and issuing this report. The Commission continues to believe that the exchanges can and should do better and that they must remain vigilant in enforcing improvements made to date, just as the Commission must remain vigilant in its oversight.

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**INITIAL EXCHANGE PLANS TO DEVELOP HAND-HELD TECHNOLOGY
TO COMPLY WITH NEW AUDIT TRAIL REQUIREMENTS**

As your draft report states, the Chicago exchanges initially represented to the CFTC and to Congress that they would meet the statutory mandate with the timely implementation of hand-held electronic terminals and that they would make the electronic technology available to the other exchanges. As directed by Congress, the CFTC permitted the exchanges the opportunity to develop hand-held electronic systems, without having to alter their existing systems, based on the Chicago exchanges' representations that hand-held terminals would be in place to meet the October 28, 1995 statutory deadline. Despite the Chicago exchanges' business decision to proceed with electronic means to meet the higher standards, the CFTC, consistent with the FTFA, has never taken the position that hand-held technology is the only way to meet the statute's audit trail mandate, although the CFTC has encouraged the development of electronic systems.

By letter dated June 22, 1994, the Commission was informed that the electronic system being developed by the Chicago exchanges would not be in place for the October 1995 deadline and the Chicago Board of Trade sought a four-year extension to comply with the statutory requirements.

**IN LIEU OF HAND-HELD TECHNOLOGY, NONELECTRONIC
IMPROVEMENTS WERE RECOMMENDED BY THE CFTC**

In response, the Commission recommended and the four largest exchanges adopted several nonelectronic changes to improve audit trails. Among other recommendations made by the CFTC, the exchanges have adopted the following: (1) single-sided trading cards, which sequence buys and sells together; (2) fewer trades per card; (3) recordation of additional trade timing information; (4) use of more order timing information; (5) improved spread timing and sequencing; (6) system algorithm changes; and (7) improved trade timing verification. The Commission is pleased that almost all of the nonelectronic changes recommended were adopted by the exchanges. Notably, CFTC-regulated exchanges are the only exchanges in the world which produce an audit trail that can reconstruct trading by the beneficial account owner.

OTHER PROGRESS IN AUTOMATION OF FUTURES TRADING

In addition to requiring immediate manual audit trail improvements, the Commission has continued to urge the exchanges to implement increased automation of pit trading. In that regard, the Commission held a series of five successive technology briefings this past February and March by the New York Mercantile Exchange, the Chicago Mercantile Exchange, the Coffee, Sugar & Cocoa Exchange, the Chicago Board of Trade and the Futures Industry Association. The Commission's report resulting

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from these briefings called for further dialogue on the best means to automate the order entry and clearing process. Automated order routing technology should augment existing sequencing information and, thus, result in better timing data for orders. This, in turn, should enhance the performance of trade timing systems currently in place.

Additionally, the Commission has encouraged further development of automated order entry and routing systems in other ways. The Commission has required improved processes for capturing time and sales records and for handling outrades and error accounts. Currently, the Commission is finalizing a requirement intended to prevent obliteration of trade data recorded on orders. Also, we have developed a fully automated and more precise mechanism for testing audit trail accuracy and for isolating trades for further analysis.

THE RELATIONSHIP OF AUDIT TRAIL TO DUAL TRADING

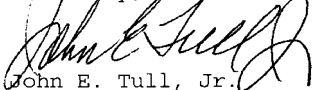
Since an adequate audit trail is a major component of an exchange trade monitoring system which can detect and deter trade practice violations, the Commission has tolled its decision on exchange dual trading petitions pending the evaluation of their audit trail systems. However, the CFTC is prepared to act aggressively to limit dual trading, as appropriate, in order to address any failure to improve audit trail performance or other trade monitoring deficiencies that may be identified.

**THE CFTC FULLY SUPPORTS GAO'S RECOMMENDATION FOR CONTINUED
REPORTING TO CONGRESS ON THE STATUS OF AUDIT TRAIL**

The Commission welcomes your recommendation that we continue to provide an annual report to Congress on the exchanges' progress toward compliance with the FTFA's heightened audit trail standards and the status of the dual trading petitions. Such reporting will update Congress on the status of exchange audit trails and on the Commission's efforts to implement the Congressional mandate of heightened audit trail standards.

The Commission believes that maintaining and overseeing market integrity is an ongoing obligation of the exchanges and the CFTC. As part of that responsibility, we are committed to continuing our diligent oversight of exchange audit trail development.

Sincerely,


John E. Tull, Jr.
Acting Chairman

Comments From the Chicago Board of Trade



Thomas R. Donovan
President and
Chief Executive Officer

July 17, 1996

Mr. James L. Bothwell
Director of Financial Institutions
and Markets Issues
General Government Division
United States General Accounting Office
441 G Street N.W.
Washington, DC 20548

Dear Mr. Bothwell:

The Chicago Board of Trade ("CBOT") or ("Exchange") wishes to thank the General Accounting Office ("GAO") for the opportunity to comment on the GAO's draft report on the status of exchange compliance with the existing and heightened audit trail standards contained in the Futures Trading Practices Act of 1992 ("FTPA" or "1992 Act") and the Commodity Futures Trading Commission's ("CFTC") actions to implement the FTPA audit trail provisions. The intent of this letter is to underscore the CBOT's commitment to maintaining an accurate audit trail which, according to the CFTC's Report on Audit Trail Accuracy and Sequencing Tests issued in June 1995, reflected that the CBOT's audit trail system ranked number one in the U.S. in comparison to exchanges with remotely comparable volume.

Even when the 1992 Act was passed, U.S. futures exchanges' audit trails were far superior to those of any OTC or foreign competitor whose products are also being offered to U.S. customers. Since the passage of the 1992 Act, U.S. exchanges have devoted extensive human and technological resources to further audit trail enhancements. Attachment 1 to this letter describes the CBOT's audit trail and lists an extensive catalogue of modifications that the Exchange has made to its existing, computer-supported audit trail and surveillance systems since the 1992 Act was passed.

In the name of audit trail enhancement, the CBOT and its members have willingly adopted an unprecedented number of adjustments to its audit trail. However, there have been costs in terms of dollars, market efficiency, and competition which have been incurred by the Exchange in order to facilitate these changes. These costs are real and have a significant impact on our ability to compete.

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In reviewing our comment letter, the GAO is asked to consider the following points when reporting on exchange compliance with the FTPA:

1. In testifying before the Senate Agricultural Committee on June 5, 1996, U.S. futures exchanges demonstrated an unprecedented unanimity in pressing for seven fundamental changes in which futures transactions and futures markets are regulated. Among the most important points urged by the U.S. exchanges is the need, generally, to subject regulatory proposals to a stringent cost/benefit proposal and, particularly, to make all aspects of the audit trail requirements of the 1992 Act subject to a practicability standard.
2. There is a clear and increasing imbalance between the regulation of U.S. futures markets and their OTC and foreign competitors which unquestionably places U.S. exchanges at a competitive disadvantage. The 1992 Act authorizes the CFTC to exempt futures contracts from any or all of the Commodity Exchange Act's provisions including the exchange trading requirement. Both exchange-traded instruments and over-the-counter instruments are purportedly eligible for exemptive treatment. To date, in wielding its exemptive powers, the CFTC has broadly exempted OTC markets from virtually all Commodity Exchange Act requirements, including, notably, all of the audit trail requirements with which U.S. exchanges must contend. The competitive ramifications of this unfair situation cannot be overstated.
3. As described below, U.S. futures exchanges and, in particular, the CBOT recently adopted additional audit trail enhancements which are currently being tested by the CFTC. The CFTC is in the process of finalizing its audit trail test analysis which we believe will confirm dramatic improvements in the CBOT's audit trail. The final GAO report should reflect that impending development.

CBOT COMPLIES WITH THE FTPA

The FTPA imposes on all exchanges a general duty to maintain an effective audit trail. The 1992 Act also imposed on exchanges two specific statutory standards for meeting this audit trail requirement -- one which was made effective upon enactment ("the 1992 Standard") and one which was made effective on October 28, 1995 ("the 1995 Standard"). The 1992 Standard requires an exchange's audit trail, consistent with Commission regulations, to record accurately the time of trade execution in one minute increments and the sequence of trades for each floor trader and floor broker. The 1995 Standard imposed higher audit trail standards by requiring exchanges to capture trade execution times, in an unalterable, continuous and independent

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manner, to sequence trades for all floor traders and floor brokers and to obtain additional order ticket timing information. According to the FTPA, if an exchange has made "good faith efforts" to comply with the 1995 Standard, but does not yet comply in the CFTC's opinion, the Commission may exempt an exchange from the requirements of the 1995 Standard.

During the past six years, the CBOT has expended over \$23 million to develop and implement a complex audit trail system which is capable of detecting and deterring fraudulent trade practices.

Our system which is demonstrably superior to other futures exchanges includes (1) the Advanced Computerized Trade Reconstruction ("Advanced CTR") system and its Centralized Data Repository, (2) trade data submission and clearing requirements, (3) corresponding regulatory, surveillance and enforcement procedures, and (4) "state of the art" time clocks which are synchronized to the nearest 1/6 of 1 minute (the Exchange is currently integrating newly developed time clocks which are synchronized to the nearest second).

The CBOT's existing trade reconstruction system, Advanced CTR, utilizes a computer-based algorithm which accurately captures the time of execution in over 90 percent of the trades that have been tested thus far by the CFTC which is the very numerical standard set by the CFTC. CFTC test results have also confirmed that the CBOT's Advanced CTR system also accurately captures the sequence of each member's trades.

Section 5a(b)(3) subparagraph (A)(iii) of the Commodity Exchange Act requires audit trail systems to identify the trade execution time "to the extent practicable" in one of three ways: automatically, independently, or in a similarly reliable manner. The Advanced CTR system exceeds this requirement by identifying trade execution times independent of the person making the trade, and in a manner similarly reliable to a mechanism that records the time automatically.

It is currently not practicable to identify execution time "through a mechanism that records the time automatically when entered by the person making the trade". Therefore, the Exchange has devoted extensive resources to developing and enhancing our Advanced CTR trade timing system.

Advanced CTR is a product of the CFTC's 1993 Follow-up Audit Trail Rule Enforcement Review. According to this review, the CFTC implied that the CBOT's trade timing system in effect at that time, would not fully satisfy Section 5a(b)(3) because: 1) the imputed execution times were not sufficiently aligned with all available trade timing data, 2) the system strictly applied arbitrary conflict resolution rules when addressing timing inconsistencies, 3) spread trades executed at a differential were processed as outright trades rather than as spreads, and 4) the system lacked an automated method for verifying the accuracy of imputed execution times.

During this time period, the CFTC did not adopt rules interpreting the FTPA. Therefore, the

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CBOT relied on the foregoing criteria as well as continuous communication and guidance from the CFTC in developing the new trade timing system (Advanced CTR). The CBOT hired Andersen Consulting, the world's largest information systems consulting firm, to design and prototype Advanced CTR which remedied the perceived deficiencies in the then existing CTR system at a cost in excess of \$450,000.

Advanced CTR incorporates all of the CFTC's recommendations from the 1993 Review because it imputes trade execution times based solely on the essential trade data; timing inconsistencies are resolved by relying solely upon the underlying data of the particular and surrounding trades and not by the application of arbitrary conflict resolution rules; and Advanced CTR is designed to accept and process intra-and inter-commodity spread trades as spreads rather than as outright trades.

Advanced CTR measures the reliability of its imputed trade times by classifying each time as either Precise, Valid, or Uncertain, depending on the existence of timing inconsistencies and the reconciliation of these inconsistencies. Notably, according to our statistics, 91% of the times have been consistently classified as Precise, meaning they are exceedingly reliable, 7% of times have been classified as Valid, meaning they are highly reliable and statistically sound; and only 2% of the trade times have been classified as Uncertain. Advanced CTR's superior trade timing ability is attributable to its highly sophisticated algorithms and the enhanced reliability of trade data input which has been aggressively enforced by the Exchange.

As the GAO has noted, the Exchange and the CFTC have conducted several manual tests of the Advanced CTR's ability to accurately impute trade execution times, based on the underlying data. We believe that these tests have consistently confirmed that the Exchange has met and in some cases exceeded the CFTC's 90% standard.

**CONGRESSIONAL INTENT OF SECTION 5a(b)(3) AND CFTC'S OBLIGATIONS
UNDER THE ACT**

Congress intended that Section 5a(b)(3) be both flexible and attainable. This intent is clearly articulated in the statutory language which authorizes, and we believe obligates, the CFTC to consider the imposition of these requirements only "to the extent practicable". The legislative history indicates that practicability should be gauged by performing a cost-benefit analysis which encompasses the following:

1. The cost of complying with the literal terms of the statute,
2. The need to avoid disruptions in trading,
3. Any harm to the public interest in hedging and price-basing,

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4. The effect on the competitive position of an exchange in the international marketplace, and
5. The compatibility of the requirement with the system of open outcry.¹

Congress further indicated that the CFTC should be flexible when assessing whether a system complies with the FTPA requirements and should consider the effectiveness of reasonable alternatives. The CBOT strongly believes that Congress wisely incorporated the above criteria in drafting this legislation in order to safeguard market efficiency and the viability of U.S. futures exchanges and to minimize costly and impracticable regulatory requirements. Therefore the GAO is requested to consider the following:

- 1) No U.S. business should face new agency-created regulatory requirements until a cost-benefit analysis has been conducted and made available for public review.
- 2) The 1992 Act contemplates an ongoing "practicability" determination by the CFTC to set guidelines for what is required under the October 1995 standards.
- 3) Therefore, the CFTC's "practicability" determination should result from carefully testing any proposed enhancements and conducting a cost-benefit analysis.
- 4) However, to our knowledge, the CFTC has not conducted a cost-benefit analysis to assess the impact of any proposed audit trail recommendations to determine their impact on U.S. futures exchanges and their respective markets.

CFTC RECOMMENDATIONS ADOPTED BY THE CBOT

As noted in the GAO's report, in addressing the FTPA's heightened standards which took effect on October 28, 1995, the CFTC proposed 16 recommendations which, if adopted, would ostensibly confirm our "good faith" compliance with these more stringent audit trail standards. Several of the CFTC's recommendations were either part of the Exchange's existing audit trail program, implicit in contemporaneous undertakings to the Commission, or were subject to pilot testing to assess whether material benefits would be derived from adopting such enhancements and whether they were capable of being incorporated into the CBOT's overall program without significant costs in terms of dollars or market disruption. The Exchange wishes to clarify that as a result of our assessment and pilot testing, we have adopted and implemented all of the CFTC's

¹ See Futures Trading Practices Act of 1992, S. Rep. No. 22, 102nd Cong., 1st Sess. (1991) reprinted in Comm. Fut. L. Rep. (CCH) No. 401 at 29-30 (Supp. March 22, 1991) (emphasis added).

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recommendations with the exception of the following two recommendations:

1. Recording and using manual execution times for at least the first and sixth trades on trading cards, and using more manual times in lower volume markets; and
2. Including the identity of traders in spread time and sales.

In contrast to the GAO's report, the Exchange has adopted using seconds in the imputed timing system, where available, including seconds from order ticket time stamps, and as previously noted, we are integrating synchronized time clocks to record times to the nearest second.

BASIS FOR NOT ADOPTING MANUAL EXECUTION TIMES

The Exchange conducted two extensive pilot tests to assess the impact of manually recording execution times for the first trade on each trading card. These tests were conducted in our 5-Year Treasury Note and Corn futures contracts which are moderate-sized contracts. Our results revealed that manual recordation of execution times drastically reduced Advanced CTR's accuracy level from 94% to 73% in 5-Year T-Notes and from 87% to 47% in Corn. Given the dramatic decrease in Advanced CTR's accuracy levels when utilizing this information and the increase in errors, outtrades and significant disruption to trading, the Exchange could not endorse the adoption of this recommendation.

The GAO noted that the CSCE has successfully integrated manual execution times into its audit trail. However, the Exchange feels that it is inappropriate to compare the CBOT which executes an average of 100,000 transactions per day to the CSCE which executes an average of 10,000 transactions per day. This is a primary illustration of the practicability issue and the impact of adopting recommendations on an individual exchange basis considering the extreme disparity in the volume of transactions between exchanges and the fact that each exchange has vastly different floor environments.

BASIS FOR NOT ADOPTING USING SPREAD ACRONYMS IN TIME AND SALES

The Exchange conducted extensive pilot tests for several months in Soybeans and 5-Year Treasury Notes which revealed no substantive improvement in audit trail accuracy levels or window lengths. Reporting this information to Exchange Market Reporters also significantly reduced price reporting efficiency and was disruptive to trading.

Differential Spread Matching

The Exchange in cooperation with the Board of Trade Clearing Corporation ("BOTCC") has developed a program which matches and clears all intra commodity simple two legged futures

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spreads at a differential as opposed to the existing process which matches and clears each leg of a spread separately.

This pilot test which began in January 1996 is currently being conducted in the Exchange's Wheat and 10-Year T-Note contracts. Preliminary results have indicated that our spread timing accuracy window lengths have improved utilizing this process; however, the efficacy of this initiative continues to be under evaluation.

CFTC FOCUS ON NARROWING TIMING WINDOWS

As noted in the GAO's report, one of the CFTC's primary focuses in conducting their most current audit trail test is the window length for categorizing trades as accurately timed and also the sequencing of trades. In a report dated September 15, 1995, the Exchange reported to the CFTC that as a result of adopting the above recommendations and other enhancements, the Exchange made significant progress in narrowing its time windows from 4.3 minutes to 2.9 minutes. We are confident that as a result of fully integrating single-sided trading cards, the CFTC's current test results will reveal that our timing windows have been narrowed to an average of 2 minutes. It must be noted that these improvements required unprecedented adjustments to the manner in which trades are recorded and processed for clearing purposes.

ACHIEVING FAIR COMPETITION

The 1992 Act authorized the CFTC to exempt futures contracts from any or almost all of the Act's provisions based on certain circumstances consistent with the public interest [CEA Section 4(c)]. Both exchange-traded instruments and over-the-counter instruments, i.e., swaps and other derivatives, were intended to be eligible for CFTC exemptive treatment. Congress instructed the CFTC to apply its exemptive powers in a "fair and evenhanded manner" to OTC and exchange-traded instruments alike. In early 1993, the CFTC broadly exempted professionally-traded swaps and other OTC derivatives from virtually all regulatory requirements under the Commodity Exchange Act which means that these non-exchange traded instruments have virtually no audit trail requirements. It is apparent from the Commission's recent studies that U.S. futures exchanges maintain highly sophisticated and accurate audit trail systems which have not been matched by our international competitors or by the OTC derivatives markets.

In a letter to the Commission dated July 20, 1995, the CBOT strongly urged that a comprehensive, comparative review of audit trail standards associated with international markets be conducted to confirm our belief that U.S. exchanges are held to much higher audit trail standards than their foreign and OTC competitors. We firmly believe that such a comparative analysis is critical to assessing whether additional audit trail measures and the associated costs are warranted for U.S. futures exchanges. We also understand the GAO is currently studying the manner in which the exemptive process is exercised by the CFTC, and we urge the GAO to

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consider these concerns in the context of its review.

CONCLUSION

The CBOT remains committed to maintaining an audit trail system which is highly accurate and effective in identifying patterns of potentially illegal behavior by market participants. We believe that we have been successful in reaching both objectives. The Exchange recognizes the Commission's responsibility to ensure exchange compliance with the FTPA. The enormous level of financial and human resources expended during the last several years confirms our continued commitment to exploring, testing, and adopting meaningful and cost effective enhancements to our audit trail in order to confirm our compliance with the Act.

The Exchange has urged the CFTC to utilize the flexibility provided in the Act which requires the Commission to approach audit trail requirements from a practicability standard. The Act does not contemplate holding any marketplace to standards which are impracticable. However, it does contemplate that the Commission make a costs/benefit determination prior to mandating any additional requirements. We also believe that a study of international audit trail requirements would confirm that U.S. exchanges are held to much higher standards than this competitors which endangers the viability of the U.S. markets.

The CBOT commends the GAO for conducting this review and providing the Exchange with a forum for commenting on the GAO's findings.

Sincerely,



Thomas R. Donovan

Attachment

CHANGES IN PROCESS AND PROCEDURES

The Exchange has addressed the additional CFTC audit trail requirements since 1989 through numerous changes in procedures.

- Increasing the accuracy of information input to the trade timing system through feedback to members and increased surveillance. (1987-current)
- Using the spread indicator during intra-day matching (December 1989)
- Synchronizing the floor booth time stamp machines (1990)
- Increasing trade submission frequency (1990)
- Adopting 15 minute time brackets (January 1990)
- Adopting separate brackets for the open and close (May 1990)
- Mandating complete accountability of trading cards (May 1990)
- Requiring the use of non-erasable ink in recording trade information (May 1990)
- Increasing card collection by firms (May 1990)
- Requiring the time stamping of trading documents upon collection by firms (May 1990)
- Providing daily trade data and sequence feedback to members via information on the Daily Broker Listing (July 1991)
- Producing and distributing CTR requirements handbook (October 1991)
- Using Edit Reports to increase the accuracy of CTR data (1992)
- Adopting defined closing range time period (March 1993)
- Using the spread indicator as part of the final match criteria (August 1993)
- Conducting multiple manual reconstructions in order to assess accuracy of one minute trade times (1991-current)
- Requiring the submission to BOTCC of order type information (July 1, 1994)
- Appointment of Special Committee to Investigative Non-Electronic Audit Trail Alternatives (July 1994)
- Convened several focus groups of members, and member firms to discuss the impact of potential audit trail enhancements on their operations (Fall 1994)
- Reduced threshold percentages and tightened corrective action time periods for recordkeeping infractions (April 1995)
- Conducted pilot testing of 6 audit trail enhancements in Corn and 5 Year Treasury Notes (time of execution for first trade on a trading card, no more than 6 trades per card, only one bracket per card, single sided trading cards, providing exit time for all customer orders, and requiring firms to correct time stamping inconsistencies June 1995)
- Established trade timing data edit reports for all commodities to aid firms in correcting timing inconsistencies no later than "Trade Date +1" (July 1995)
- Required exit time for all customer orders be submitted with the trade data (July 1995)
- Phasing in synchronized floor booth time stamps which record time to the nearest second (Fall 1995)
- Required all floor traders to record personal trades on single sided trading cards (January 1, 1996)
- Required floor traders to start a new trading card at the beginning of each time bracket (January 1, 1996)

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- Required that floor traders record a maximum of 6 trades on a trading card (January 1, 1996)
- Conducting pilot testing in Wheat and Ten Year Treasury Notes futures of matching and clearing spreads at differentials (January 1996)
- Conducting pilot test in Soybean and Five Year Treasury Notes futures of quoting and capturing member acronyms along with the price for spreads. (January 1996)
- Implementing real time opening quotes whereby quotes are disseminated immediately upon the market open prior to the open range being established (June 1996)

APPLICATION OF TECHNOLOGY

In addition to changes in procedures, the OIA has instituted a number of technical projects directed towards enhancing the accuracy of the audit trail. The projects are listed below:

- Designing and prototyping a new trade time determination process (1989,1990)
- Making miscellaneous logic modifications to the CTR trade timing system (1990)
- Exploring the adoption of the CME's CTR system (1991,1992)
- Designing, prototyping, programming and implementing spread trade timing system for simple spreads (1993)
- Designing, prototyping, programming and implementing confidence factors for all non-spread pit trades (1993)
- Incorporating Automated Data Input Terminal ("AUDIT") times into the CTR system (1993)
- Contracting with Andersen Consulting for the design and production of a new trade timing system ("Advanced CTR") that incorporates spread trades and makes optimal use of all available timing indicia (June 1, 1994)
- Preliminarily explored the use of portable time stamping technology (Spring 1995)
- Modifying Advanced CTR to reflect that trades made on the market close are timed no later than the market close (July 1995)
- Modifying Advanced CTR to process single-sided trading cards, no more than six trades on a trading card and one time bracket per card (January 1996)
- Modifying Advanced CTR to process spread pilot initiatives in Wheat (differentials), Ten Year Treasury Notes (differentials), 5 Year Treasury Notes (acronyms) and Soybeans (acronyms)

TRADE PRACTICE SURVEILLANCE

- Made continual technological and procedural enhancements for computerized trade practice surveillance.
- Extensively revised computerized surveillance system to aid in aberration detection and pattern recognition ("DETECT"). Scheduled to implement phase 1 in September 1996

As-of July 1996

The following are GAO's comments on the Chicago Board of Trade's letter dated July 17, 1996.

GAO Comments

1. CBT commented that in wielding its exemptive powers under the FTPA, CFTC broadly exempted the over-the-counter markets from virtually all Commodity Exchange Act requirements, including those related to audit trails. We are preparing a separate report on the differences in regulatory oversight of the over-the-counter derivatives and futures markets and possible challenges to regulatory policy raised by these differences.
2. CBT commented that the FTPA requires CFTC to conduct cost-benefit analyses to determine the practicability of the heightened audit trail standards. CFTC has reported that the costs of complying with the heightened standards must be taken into account, but the agency has concluded, as reported on page 16 of our report, that the FTPA does not require a formal cost-benefit analysis.
3. CBT noted that, in contrast to our draft report, the exchange has adopted using seconds in its imputed timing system where available, and it is integrating synchronized timeclocks to record times to the nearest second. We corrected the report.

Comments From the Chicago Mercantile Exchange

CHICAGO MERCANTILE EXCHANGE

Craig S. Donohue
Vice President and
Associate General Counsel
312/930-8275
312/930-3323 Facsimile

July 19, 1996

United States General Accounting Office
200 West Adams Street, Suite 700
Chicago, IL 60606

Re: Report on Compliance with Heightened Audit Trail Standards ("Report")

Ladies and Gentlemen:

The Chicago Mercantile Exchange ("CME") appreciates the opportunity to comment on the Report of the United States General Accounting Office ("GAO") entitled: *Futures Markets: Exchanges Have Not Fully Complied with Heightened Audit Trail Standards, But Progress Continues* ("Report"). The GAO and the Commodity Futures Trading Commission ("CFTC") have focused exclusively on statistical measurement without reference to whether the audit trail is accomplishing its purpose—deterring violations and permitting successful prosecutions when violations occur. This narrow view loses sight of the underlying purpose of the audit trail.

The CME believes that it is in substantial compliance with nearly all of the audit trail requirements set forth in the Futures Trading Practices Act of 1992 ("Act"). With respect to capturing broker receipt time on non-flashed orders, the CME has not found a practicable method to secure such confirmation without degrading the trading process and customer expectations.

The CME has long been recognized as a futures industry leader in product innovation, use of technology and customer safeguards. As a result, the CME's audit trail systems and enforcement programs are among the most effective of any exchange in the world. The efficacy of these systems and programs is borne out by the fact that the CME's systems have been provided to and adopted by other exchanges, both domestically and internationally. In addition, the CME has been at the forefront in continually enhancing its audit trail systems, customer protection mechanisms and enforcement programs. For example, the CME voluntarily adopted dual trading restrictions two and one-half years prior to adoption of the Act. The purpose of this letter is to supplement the GAO Report with information that the CME believes is extremely important to any meaningful discussion of the role of audit trails in today's futures markets and the extent to which the CME is already in compliance with the heightened audit trail standards.

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THE ROLE OF AUDIT TRAIL REQUIREMENTS IN TODAY'S FUTURES MARKETS

In order to understand the role of audit trail requirements in today's futures markets, one must understand what our markets are used for, who the end-users of our products are and the current transaction efficiencies enjoyed by futures market participants. Futures markets offer products designed to allow market users to hedge against the risk of commodity price changes, fluctuating currency exchange rates and interest rates and stock market price movements. In addition, these markets can be used to prudently and economically manage portfolio risk and to replicate investments in underlying instruments (e.g., a basket of stocks, foreign currencies or cash commodities). Futures markets in the United States are largely used by institutional market participants rather than individual "retail" investors. The vast majority of end-users of CME products, and the futures and options products offered by other domestic futures exchanges, are large institutions such as banks, insurance companies, mutual funds, hedge funds, corporate pension plans, public employee retirement systems, large corporations and various federal, state and local governmental entities. This information is extremely pertinent to any discussion of audit trail requirements insofar as audit trail requirements are essentially customer protection devices.

While the CME vigorously supports customer protection mechanisms, we believe the audit trail requirements imposed on domestic futures exchanges should take account of the class of end-users such requirements are designed to protect. The CME and other domestic futures exchanges have already implemented highly effective audit trail systems. We believe that large institutional end-users of our markets do not desire to sacrifice transaction and price efficiencies in our markets merely to achieve the next increment of audit trail accuracy. Most end-users of CME markets, and markets offered by other domestic futures exchanges, regularly transact business in the over-the-counter markets ("OTC markets"), which are exempt from the audit trail requirements imposed on designated contract markets. The OTC markets have functioned extremely well and participants in those markets have significantly increased their use of over-the-counter products in recent years, despite the lack of government-imposed audit trail requirements in those markets. The fact that our end-users also utilize the OTC markets is further evidence that a large segment of our end-users places a higher degree of emphasis on transaction and pricing efficiencies than on incrementally improved audit trail systems.

Transaction efficiencies and market transparency in the futures markets are unparalleled by any other market. Trading is conducted by open outcry in trading pits and price movements in futures and options markets are rapid. The manner of executing customer orders placed by large institutions has evolved to the point where fund managers and institutional investment professionals obtain near instantaneous execution of orders in the pits. Institutional customers today routinely talk to member firm personnel on the trading floor, place orders over the phone, listen while their orders are executed, then make other market decisions. The entire process, from start to finish, can take a matter of seconds. The rapidity of the trade execution process in futures markets results in a high

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degree of market transparency that does not exist in any other market. Market or price transparency is itself a form of customer protection. Large institutions executing orders in our markets know whether they have received a fair price on their orders. Large firms utilizing hedging and risk management strategies engage in significant quantitative analysis in order to construct a hedge or implement a strategy that will reduce the risk of loss to a given portfolio. The success of the hedge or the risk management strategy is dependent upon the ability of the end-user to obtain pricing consistent with planned expectations. Audit trail requirements, perhaps more than most other regulatory requirements imposed on the futures industry, have a tremendous and direct impact on the end-users of our markets. Additional recording requirements, such as the requirement to record the time of receipt of an order by a floor broker, or the requirement that each member record manually the time of execution, could result in delays in execution of customer orders or degrade overall market efficiency. Imagine the consequences to customers if floor brokers and floor traders were required to pause after each transaction during a fast market to write the exact time of receipt of each order. Delays of seconds can mean significant risk of price slippage for end-users. The CME believes that the reality of today's business environment and the transaction efficiencies expected by users of our markets must be considered and given great weight when discussing the practicability of adopting some of the existing audit trail requirements under the Act.

CME HAS SUBSTANTIALLY COMPLIED WITH THE REQUIREMENTS

The CME and other domestic futures exchanges are justifiably proud of their audit trail capabilities, which have earned them the highest level of customer confidence. While the CME agrees with the factual presentation of information in the GAO Report, we disagree with the conclusions of the CFTC and the GAO that the CME has not fully complied with the audit trail requirements in the Act. The CME has either strictly complied with requirements or it has reasonably determined, and the CFTC should agree (as expressly permitted by the Act), that certain requirements are not practicable at this time. These practicability determinations by the CME have been explained to the CFTC.

CME's Recent Audit Trail Enhancements

Upon adoption of the Act, the CME began its own analysis of what changes or enhancements would be necessary for CME to establish compliance with the heightened audit trail standards. The CME decided to make substantial revisions to its already effective trade timing system and identified additional data collection and data accuracy enforcement measures. By December 1994, the CME had either implemented or created an implementation timetable for these changes and enhancements. Also in December 1994, at the direction of the CFTC, the CME and other exchanges undertook a test of their audit trail accuracy. In June 1995, the CFTC issued its report regarding those tests and provided the CME with a list of eighteen recommendations for enhancing the CME audit trail. The CFTC informed the CME that each of the recommendations should be implemented promptly in order

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to establish that CME had made “good faith” efforts toward meeting the 1995 standards. Most of the eighteen recommendations were already contained in the CME’s own list of changes and enhancements. With respect to those that were not, the CME agreed to implement all but one and has now completed such implementations.

There is only one CFTC recommendation about which the CFTC and the CME differ—manual recordation of execution times. The CME believes the CFTC failed, in terms of this recommendation, to consider the statutory mandate that the heightened audit trail requirements be implemented “to the extent practicable”. The Act acknowledged that the CFTC should consider the effectiveness of reasonable alternatives and the cost of other enhancements. Yet, the CFTC’s “good faith” safe harbor was established without performing such an analysis. The CME, therefore, performed its own analysis to test proposed enhancements in an effort to determine the cost of the enhancement versus the benefit achieved. Based on the results, the CME cited several grounds for not adopting recordation of manual execution times, including concerns about the impact of the recommendation on the efficiency of the markets, as well as the costs to customers of implementing the recommendation. Given that this requirement is not practicable, and given that the CME has implemented the remainder of the CFTC’s recommendations, the CME believes that the CFTC should have found, and may still find, that the CME has, at a minimum, made “good faith efforts” to comply with the Act.

Compliance with the 1-Minute Trade Timing Standard

The GAO Report indicates that the CFTC has deferred making a determination as to whether the CME has made good faith efforts to comply with the 1-minute trade timing standard. The CME believes that it has repeatedly demonstrated compliance with the 1-minute trade timing standard. The CFTC’s *Report on Audit Trail Accuracy and Sequencing Tests* (June 1995) stated, however, that “[a]lthough 90 percent of CME’s trade times satisfied the standards for Test I, available data do not permit sufficiently precise verification of the accuracy of all of these trade times”. The CFTC determined that 72% of trades deemed accurate in testing at the CME had timing windows of two minutes or less, that the test results on the remaining 28% of trades were too imprecise to verify compliance with the 1-minute trade timing standard and that the CME needed to improve its system in order to narrow its timing windows. The CFTC’s imposition of a 2-minute window standard has no basis in the statutory language of the Act and in the CME’s opinion, is not an accurate measurement of our audit trail systems’ ability to correctly time and sequence each member’s trades. We would also like to point out that the final results of the most recent round of testing at the CME have not been issued and we have every expectation, given our adoption of seventeen of the eighteen recommendations made by the CFTC (see discussion below), that we will again establish a 1-minute trade timing accuracy level exceeding the 90% requirement.

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Compliance with the Requirement for Broker Receipt Time

The Act also requires exchanges to obtain more complete timing information for customer orders, including the time an order is received on the exchange floor, received by the floor broker for execution, and reported from the floor as executed. With respect to the broker receipt time requirement for orders physically delivered to the pit, the CME does not yet have electronic delivery of orders to the pit; therefore, to require that a broker receipt time be recorded would delay execution of orders and would not be in the public interest or the best interests of our customers. Therefore, the CFTC should determine that imposing this requirement on these types of orders is impracticable. However, most orders on the CME trading floors are communicated to the pit broker by hand signals. For these orders, through the CME's recently implemented flashed order indicator requirement, the CME is in compliance with the broker receipt time requirement. The CME has complied with this requirement to the extent practicable.

Potential Effectiveness of Electronic Trading Terminals

The GAO states in the "Conclusions" section of the Report that full implementation of electronic trading terminals could bring exchanges into full compliance with the heightened audit trail standards but that such implementation is uncertain. As stated above, the CME believes that it is already in compliance with substantially all of the heightened standards. As such, we disagree with the GAO's conclusion. Furthermore, while the CME continues to make progress in the development of electronic trading terminals that could theoretically improve an already effective system, it must be emphasized that these devices have limitations on their ability to create a "perfect" audit trail. While electronic devices can record the precise time that a floor broker or floor trader begins to manually record a trade, the fact remains that a floor broker or floor trader will often be forced to delay entering trade information into the device in order to serve customers and meet market exigencies. Therefore, we believe that too much emphasis has been placed on the capabilities of electronic trading terminals. Use of such technology is potentially a long-term solution and the CME is committed to pursuing the development of trading technology that improves the business environment and, at the same time, offers enhancements to our existing audit trail systems.

THE NEED TO RECONSIDER EXISTING AUDIT TRAIL REQUIREMENTS

While the CME and other domestic futures exchanges have worked diligently towards compliance with the heightened standards, these additional audit trail requirements result in additional costs and impair the ability of domestic futures exchanges to compete with foreign exchanges and OTC markets. U.S. futures exchanges no longer enjoy a dominant position in the worldwide risk management industry. Additional costs are passed on to end users in the form of higher clearing fees and higher commissions. In the case of the AUDIT™ System—the CME's prototype handheld

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trading device—the CME's costs to date have exceeded \$7 million. The CME's co-developer of this system, the Chicago Board of Trade, has also spent at least that amount. Additionally, the CME has incurred costs exceeding \$2 million in implementing the above-referenced enhancements. Further, all CME members and clearing members have spent substantial sums of money in complying with the additional requirements.

As transaction costs for risk management activities increase, the ability to economically use our products and markets to engage in traditional portfolio risk management and hedging strategies decreases. In addition, higher transaction costs in our markets causes market participants to consider alternative markets such as those offered by foreign nations and the OTC markets. Literally dozens of foreign futures exchanges have emerged in the last decade—many of them offering products that compete directly with products offered by U.S. exchanges. In addition, the OTC markets have grown very rapidly in the last several years. The CME believes large institutional market participants attach great significance to low transaction costs and therefore value stringent audit trail requirements less than their attendant costs. For these reasons, audit trail requirements imposed on domestic futures exchanges should be considered with extreme caution.

The CME has always demonstrated a superior commitment to maintaining the most efficient marketplace possible, as well as the most effective audit trail systems and enforcement programs. The CME has consistently sought to strike the most appropriate balance between these two objectives. The growth in our business over the last two decades, the institutionalization of our markets and the fact that many of the world's largest and most successful financial institutions have become clearing members of the CME, are all evidence of the fact that we have provided a marketplace that is widely perceived as fair and open by its customers. The CME believes that the discussion regarding the appropriate role of exchange audit trails in today's futures markets should be returned to a more rational discussion and that this discussion should start with the following two points. First, the CME has met substantially all of the heightened audit trail requirements and, at a minimum, has most certainly made good faith efforts to comply. Second, the majority of the CME's end-users obviously have confidence in the CME's audit trail systems and are not themselves calling for heightened audit trail standards. Therefore, the CFTC and the GAO should have concluded that the CME is in compliance with the Act. To the extent that the CFTC determines that the CME may not be in full compliance, the CME believes that the CFTC and Congress will need to reconsider these requirements.

Sincerely,


Craig S. Donohue

CSD/4019.B

**Appendix IV
Comments From the Chicago Mercantile
Exchange**

CHRONOLOGY OF CME AUDIT TRAIL ENHANCEMENTS 1989 TO PRESENT

February 1989	First deployment of the Trade Order Processing System (TOPS)
July 1989	Random auditing of time-stamp machines on trading floor to test for accuracy
August 1989	Increase in the number of Compliance Department floor surveillance staff
August 1989	Authorization to use video taping (camera surveillance) on the trading floor for specific investigations
October 1989	Implementation of fine schedule for late submission of trade data by members
January 1990	Regular on-sight back-office audits of clearing members to ensure accurate recordation and transmission of audit trail data (CTR back-office audits)
February 1990	The reduction of time brackets from 30-minute to 15-minute intervals
February 1990	Unique bracket symbols for opening and closing ranges
February 1990	Hourly pick-up and time-stamping of trading cards by clearing members
February 1990	Recording of spread indicator on trading cards and order tickets and the submission thereof of clearing data
February 1990	Uniform time-stamping requirements for both the front and the back of all orders
April 1990	Compliance floor surveillance staff granted the authority to inspect cards and orders on the trading floor during the trading session
May 1990	Requirement that any unused lines on a member's trading card be crossed out
May 1990	Requirement that all members' personal trades be recorded in chronological order without skipping any lines
May 1990	Mandatory use of nonerasable ink on all cards and orders; prohibition against erasing or obliterating information on cards and orders
May 1990	Requirement for using a new trading card for each half-hour period
May 1990	Thirty-minute card and order pick-up by clearing firms
June 1990	Pre-numbered, sequential trading cards for all members' personal trades

**Appendix IV
Comments From the Chicago Mercantile
Exchange**

June 1990	Enhanced record keeping requirements for members' orders executed by other members
June 1990	Requirement to maintain all trading cards: used, unused, or voided
August 1990	Capture and dissemination of quotes for 28 varieties of spread and combination trades
February 1991	Implementation of additional restrictions on intra-association trading by members of broker associations
May 1991	Requirement for documentation of error trades in dual trading restricted markets
May 1991	Implementation of Dual Trading Restrictions
August 1991	Commencement of quarterly audits of all time clocks on the trading floor to test for accuracy with warnings issued to firms whose clocks are not synchronized with the Exchange clock
September 1991	Implementation of fine schedule for late submission of trade data by clearing firms
April 1992	Pilot of the CME Universal Broker Station (CUBS)
August 1992	Shortening of card and order pick-up schedule from hourly to half-hourly
May 1993	Begin Regulatory 1995, a comprehensive development effort designed to completely update the automated regulatory systems used by the CME's Compliance and Market Surveillance Departments
November 1993	Begin CTR spread processing module
May 1994	Hourly trade reconciliations
July 1994	New time bracket accuracy enforcement program
August 1994	Begin CTR 2.0 (reprogramming of CTR)
September 1994	Parallel testing of CTR spread processing module
November 1994	Planned implementation of a pilot program to record execution time on all members' personal trades in the LIBOR pit

**Appendix IV
Comments From the Chicago Mercantile
Exchange**

December 1994	Pilot implementation of Booth/CUBS
January 1995	Full implementation of CTR spread processing module
March 1995	Implementation of expanded trade record format (TRES)
June 1995	Deadline for clearing firms to provide additional time stamps on trade submissions
July 1995	Planned implementation of CTR 2.0

CSD/fj/4065.TXT

Comments From the Coffee, Sugar & Cocoa Exchange



Coffee, Sugar & Cocoa Exchange, Inc.

July 19, 1996

Mr. James L. Bothwell
Director, Financial Institutions and
Markets Issues
General Government Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Bothwell:

The Coffee, Sugar & Cocoa Exchange, Inc. ("CSCE") is pleased to be afforded the opportunity to comment on the General Accounting Office report concerning U.S. exchange compliance with the heightened audit trail standards under the Commodity Exchange Act (the "Act").

As the Report notes, the 1992 audit trail amendments to the Act made compliance with the enhanced requirements dependent upon a CFTC determination (by rule or order) of the practicability of implementing those requirements. Because of the different ways in which orders are routed, trades recorded, and execution times derived by the various futures exchanges, what is practicable for one exchange may be impossible for another without significantly disrupting its current business practices and trading environment. For that reason, it is critical that the determination of practicability be made on an exchange-by-exchange basis, and that no component of an audit trail system be required of an exchange unless it is practicable for that exchange to implement the component.

For example, some exchanges have made proposals to develop automatic order routing systems as a means of addressing the order timing provisions which were added to the Act. And, it may be possible to do so in the Chicago markets, where all orders are entered to the trading floor by a finite universe of some 100 clearing member firms. However, it would not be practicable for CSCE to develop an electronic system to route orders to and from the trading floor. At CSCE the great majority of orders are telephoned directly to the executing floor brokers' booths on the trading floor by the brokers' customers. To construct an electronic system that would time and route orders to the appropriate broker, every potential customer, wherever located throughout the world, would have to be electronically connected to the system. Clearly that would not be possible. Likewise, it should not be deemed practicable for CSCE to alter its environment by eliminating the broker-customer relationship that characterizes our order entry system, to accommodate an electronic order routing system.

Four World Trade Center New York, New York 10048 (212) 742-6000 Fax: (212) 748-4321

Appendix V
Comments From the Coffee, Sugar & Cocoa
Exchange

Mr. James L. Bothwell
July 19, 1996
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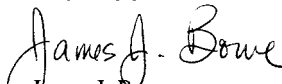
The determination of what is practicable for an exchange must, of course, also take into consideration the financial capability of the exchange. The goal of protecting the public interest can be achieved without excessive cost burdens. This is demonstrated by the results of the CFTC's tests on audit trail accuracy and sequencing.

As the GAO Report notes, CSCE was the only tested exchange to meet (indeed exceed) the 90% accuracy rate for both trade timing and sequencing. CSCE relied on its unique methods for recording trades, inputting trade data and capturing time and sales price information to develop a system which accurately imputes the execution time of each trade. CSCE believes that its current system satisfies the heightened trade timing and sequencing requirements of the Act¹. Nonetheless, CSCE has proposed cost effective upgrades to its current systems rather than attempted to develop new and untested technology such as the hand-held terminals for broker trade input that have been proposed by some exchanges. The positive results attained by CSCE demonstrate that it would be counterproductive to require exchanges to implement new, untested, and costly technology when incremental enhancements to current systems can achieve the goals underlying the enhanced audit trail standards.

It should also be recognized that certain audit trail components reflected in the 1992 amendments to the Act simply may not be practicable for any exchange at present. In this regard the consolidated testimony submitted by all U.S. futures exchanges on June 5, 1995 to the Senate Committee on Agriculture, Nutrition and Forestry points out that the time at which a broker receives an order in the ring or pit for execution cannot be captured as part of the audit trail, no matter what system an exchange may be using.

CSCE appreciates the opportunity to share its views and would be happy to answer any questions which you or your staff may have.

Very truly yours,


James J. Bowe
President

JJB/dp
:24472

¹ The GAO Report states that the CFTC sequencing test used "criteria designed to approximate the precision or enhanced sequencing requirements of the heightened standards" and that "only CSCE met the 90 percent accuracy requirement for all samples tested."

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