BY THE COMPTROLLER GENERAL

Report To The Chairman, Committee On Appropriations House Of Representatives OF THE UNITED STATES

Controls Over Export Sales Reporting And Futures Trading Help Ensure Fairness, Integrity, And Pricing Efficiency In The U.S. Grain Marketing System

The U.S. grain marketing system provides a means by which large quantities of grain valued in the billions of dollars are moved from America's farmland to domestic and foreign users. As the size, scope, and dominance of this system have grown in recent years, so has the question of whether additional regulation is needed to ensure that system participants are treated fairly and that the financial and economic soundness of the marketplace is protected.

GAO found that, at present, controls established by the U.S. Department of Agriculture, the Commodity Futures Trading Commission, and private industry over export sales reporting and certain aspects of futures trading help ensure fairness and soundness in the U.S. grain marketing system. GAO believes, however, that continued rapid expansion in grain marketing and related futures markets needs watching to ensure that regulatory staffs keep up with the workload.

GAO's examination of the relationship between grain futures prices and export sales information found little to suggest that the grain markets are not efficient in transforming reported sales information into price changes.

GAO/RCED-85-20
APRIL 9, 1985

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-207522

The Honorable Jamie L. Whitten
Chairman, Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

Your October 1, 1982, letter expressed concern that some grain traders, principally those that are large and/or foreign-based, systematically profit from knowledge of pending export sales before such information is available to other market participants. To actually prove this, however, is a formidable task. As an alternative, we agreed with your office to (1) examine--in much the same fashion as we reported on in 1982--the efficiency with which the U.S. grain marketing system transforms information about reported grain export sales by U.S. exporters into changes in grain futures prices, and (2) examine certain controls designed to ensure that grain trading is done fairly and that the financial and economic integrity of the marketplace is protected.

As arranged with your office, unless you announce its contents earlier, we plan to distribute this report to other interested committees; the Director, Office of Management and Budget; the Secretary of Agriculture; and the Chairman, Commodity Futures Trading Commission, 2 days after the date of the report. Copies will also be made available to other interested parties.

Sincerely yours,

Charles A. Bowsher

Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CHAIRMAN,
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

CONTROLS OVER EXPORT SALES REPORTING AND FUTURES TRADING HELP ENSURE FAIRNESS, INTEGRITY, AND PRICING EFFICIENCY IN THE U.S. GRAIN MARKETING SYSTEM

D I G E S T

Large quantities of grain valued in the billions of dollars are moved from America's farmland to users in this country and overseas through the U.S. grain marketing system--a system that has evolved from one used primarily for domestic grain trading into the dominant system affecting world grain trade. An important facet of the overall U.S. grain marketing system is the grain futures markets, where contracts for the future delivery of specified grades and amounts of grain are bought and sold. Such trading establishes grain prices that are used as standards throughout the world and provides an opportunity for grain owners to shift the risks associated with adverse price changes to others willing to carry these risks in return for a possible profit ("hedging"). (See pp. 3-5 and 85.)

Concerns exist in the United States over whether additional regulation is needed to ensure fairness and integrity (or soundness) in the U.S. grain marketing system and, more specifically, in related futures markets. These concerns frequently apply to all futures markets--not just those for grain--and often relate to the potential for some participants in the futures markets to gain an advantage over other participants by trading on the basis of material, nonpublic information.

The Chairman, House Committee on Appropriations, asked GAO to expand on its earlier study of the Market Structure and Pricing Efficiency of U.S. Grain Export System (GAO/CED-82-61; June 15, 1982), which stated that competition exists in the system and that the system translates information about reported grain export sales into price changes with reasonable efficiency. GAO agreed to examine certain controls designed to help ensure that grain trading is done fairly and that the financial and economic integrity of the marketplace is protected, and

to further investigate how efficiently information about grain export sales by U.S. exporters is transformed into changes in grain prices. (See pp. 9-10.)

GAO found that control mechanisms are in place at the U.S. Department of Agriculture (USDA), the Commodity Futures Trading Commission (CFTC), commodity exchanges such as the Chicago Board of Trade (the oldest and largest exchange, handling 93 percent of the grain trade), and the National Futures Association (a recently established self-regulatory association) that help ensure fairness and soundness in grain marketing. GAO believes, however, that continued rapid expansion in grain marketing and related futures markets needs watching to ensure that regulatory staffs keep up with the workload.

GAO's examination of the relationship between grain futures prices and export sales information found little to suggest that the grain markets are not efficient in transforming sales information into price changes once such information is reported.

GAO's review was not all-encompassing. There are aspects of grain marketing that were either not a part of its review or were not covered in detail. Some of these aspects--such as insider trading, price volatility, and commodity pooling--have been the focus of studies recently conducted by others. (See pp. 11-13.)

USDA's EXPORT SALES REPORTING SYSTEM KEEPS MARKET PARTICIPANTS INFORMED

USDA's export sales reporting system provides grain market participants with information about grain exports and is one means by which the federal government seeks to ensure fairness and soundness in grain marketing. The system requires that agricultural exports be reported to the Secretary of Agriculture on a daily or weekly basis (depending on the size of the export) so that the government can make rational, reliable export policy decisions and prevent market disruptions. USDA, in turn, reports this information to the public so that all market participants can be aware of such exports and can anticipate their effects on supply and demand. (See pp. 15-17 and 27.)

USDA's Export Sales Reporting Division administers the system with a staff of about 14 employees. The size of this staff has remained fairly constant over the past several years, even though its workload has grown recently in numbers of reportable commodities and in firms reporting export sales. The division has generally been able to absorb these workload increases, but if its workload continues to grow, it may want to consider seeking the help of USDA's Office of Inspector General in verifying the timeliness and accuracy of export sales reporting and in determining the sufficiency with which the division is documenting the nature of problems it encounters with individual exporters. (See pp. 18 and 28.)

GRAIN FUTURES MARKETS ARE MONITORED PUBLICLY AND PRIVATELY

The oversight of the CFTC is another means by which the federal government helps ensure fairness, integrity, and efficiency in the U.S. grain marketing system and, more specifically, in grain futures markets. Created by the Congress in 1974, CFTC oversees futures contracts trading and attempts to ensure that commodity prices accurately reflect actual supply and demand and that opportunities exist for hedging through competitive, manipulation-free markets. (See p. 31.)

CFTC's market surveillance efforts forewarn the agency of possible problems within the futures markets. For example, if prices are manipulated by one or more traders who have gained sufficient control of the market, prices no longer reflect true supply and demand, market efficiency is lost, and other traders may be harmed. These situations are generally resolved quickly by CFTC through contacts with involved traders, making stronger actions unnecessary. Since CFTC began operating in 1975, it has taken stronger action (through use of authorized emergency powers) twice with respect to the grain trade. Wheat trading was suspended at the Chicago Board of Trade for one day in 1979 because CFTC was concerned that market prices would be unduly affected by transportation and warehouse facility shortages and by the combined futures holdings of a small

number of traders. The other emergency action involved a brief suspension of trading of grain futures contracts at all commodity exchanges following the U.S. embargo of grain sales to the Soviet Union in 1980. (See pp. 42-43.)

Futures markets have grown phenomenally over the past 15 years; the number of futures contracts traded has increased from 9.3 million in 1968 to 139.9 million in 1983. This expansion has occurred without a similar increase in CFTC's resources, highlighting (1) the continued need for CFTC to identify and explore new ways to increase the productivity and effectiveness of its overall market surveillance and (2) the importance of self-regulation on the part of the industry itself. (See pp. 44-46.)

Futures markets have a tradition of self-regulation. In this respect, the commodity exchanges, where futures trading takes place, and the National Futures Association have developed self-regulatory programs to oversee the futures markets. (See p. 46.)

MORE STRINGENT CONTROLS OVER GRAIN MARKETING: IS THERE A NEED?

Concerns about fairness and integrity in the U.S. grain marketing system were touched off initially by the large grain sales to the Soviet Union in the early 1970's, but they persist even today largely because of the financial dilemma faced by many U.S. farmers. These concerns have stimulated demands for more stringent grain marketing controls in such areas as export sales reporting. (See p. 71.)

Although possible, it seems unlikely that the circumstances of the early 1970's--huge, unanticipated grain sales causing a supply/demand imbalance that elevated prices--will repeat themselves. The export sales reporting system now serves as an early warning mechanism for government policymakers; more and better information about worldwide supply and demand conditions exists today than ever before. In addition, grain sales to countries such as the Soviet Union and China have become more commonplace and no longer excite the marketplace as they once did. (See pp. 54-57.)

It also seems unlikely that a given grain export sale (or set of sales) would have a dramatic impact on today's market and enable the sale's participants to reap substantial profits from their exclusive knowledge of that sale. To have such an effect, a sale would generally have to be large and unanticipated by other market participants and much would depend on the volume and nature of other trading activity at the time of the sale. Most sales, in fact, are small in relation to total market activity. From April 1977 through September 1982, for instance, total export sales volume for wheat, corn, and soybeans was 620 million metric tons. Of this total, GAO found that 22 percent represented individual sales of 100,000 metric tons or more--which, because of their size, must be reported on a daily basis to USDA. Only 5.2 percent of all sales were 500,000 metric tons or more. (See pp. 57-59.)

Several large and medium-sized grain exporters with whom GAO spoke opposed stricter reporting requirements, fearing that such demands might impede U.S. agricultural exports or foreign participation in U.S. futures markets. Exporters said they believed that because of legal questions and other problems having to do with the distance and differences between the United States and other countries, such additional requirements would be difficult, if not impossible, to enforce. Exporters did not express concern over foreign entities having an undue advantage in U.S. futures markets. (See pp. 64-66.)

Those advocating stronger controls have often worried about the farmer who, they say, must make marketing decisions on the basis of information that does not always reflect true demand. There is suspicion that some grain traders, principally those that are large and/or foreign-based, have the opportunity to routinely delay reporting information about pending export sales so that they can position themselves advantageously in the futures markets. GAO learned, however, that just because an export sale is made, but not immediately reported, does not necessarily mean that the sale is hidden from the market until it is

eventually reported. If the sale is covered by its participants in the futures market, as would typically be expected, the market would assimilate and reflect this information in the form of its prices. By observing the activity in the futures markets, farmers have information available to help guide their marketing decisions. USDA and the Chicago Board of Trade recognize the importance of the futures markets to farmers and have developed educational programs to help farmers determine marketing strategies and how to best manage risk. (See pp. 67-71.)

Government and industry regulatory programs have generally been able to keep up with the recent growth in the U.S. grain marketing system. GAO believes that such controls are important in promoting confidence in the system by helping to ensure fairness, integrity, and efficiency. Further, as the size, scope, and importance of grain marketing in general and futures markets in particular have increased, so have the consequences of a breakdown in the system as a result of possible market manipulation or other deliberate financial practices. Such a failure could cause substantial injury to the industry and its participants. GAO believes it is therefore important that the regulatory programs of both government and industry keep pace with the challenges of the expanding grain marketing system. (See pp. 85-86.)

GAO has previously made recommendations for improving CFTC's monitoring of the futures industry. CFTC also has made recommendations for improvements in the Chicago Board of Trade's monitoring activities. In October 1984, CFTC reported that the Board of Trade had substantially complied with its recommendations. CFTC has taken, or is in the process of taking, actions in response to GAO's recommendations. (See pp. 35, 50-51, and 53.)

PRICING EFFICIENCY IN GRAIN MARKETING

U.S. grain prices serve as economic signals to the world. It is therefore important to all market participants that information affecting these prices be reflected in the prices as

quickly and accurately (as efficiently) as possible. Some market participants and analysts believe that large exporters and perhaps foreign traders reap profits from advance information about export sales--information that they claim the market as a whole does not learn about until later. This claim runs counter to the views of other participants and analysts who believe that export sales are not necessarily hidden from the market until they are reported (see p. vi). To prove either scenario on an individual export sales basis, however, is a formidable task because of the difficulties involved in trying to identify exactly when a specific export sale took place and then in attempting to match such a sale with specific transactions in the futures markets. (See pp. 10 and 73.)

As an alternative, GAO tested the relationship between grain prices established in the futures markets and export sales information reported by USDA between April 1977 and December 1982. This was done for large export sales of corn, wheat, and soybeans reported daily by USDA and for total export sales activity of these same commodities reported on a weekly basis. GAO found little or no evidence to suggest that these markets are not fairly efficient in transforming reported export sales information into price changes. In general, prices adjusted quickly to information contained in sales reports once those reports were released. GAO's analysis suggests that the sales reports may contain some information not previously available to market participants. Prices respond in part to reportable export sales as they are made and then respond further following report release as traders appear to reevaluate their positions. (See pp. 79-85.)

In June 1980 USDA made alterations in its export sales reporting system, including shortening the time lag between the dates of export sales that are reportable and USDA's release of the export sales report. GAO's analysis suggests that because the full adjustment of prices to export sales information does not occur until the sales report is released, it appears that these changes have had the desired effect of speeding the transformation of export sales information into price changes. (See pp. 84-85.)

Contents

ABBREVIATIONS

CBT	Chicago Board of Trade
CFTC	Commodity Futures Trading Commission
GAO	General Accounting Office
NFA	National Futures Association
OIG	Office of Inspector General
USDA	U.S. Department of Agriculture

ILLUSTRATIONS

Futures contract	A firm commitment to deliver or receive a specified quantity and grade of a commodity during a designated month, with price being determined by public auction among exchange members.
Hedging	Taking a position in a futures market opposite to a position held in the cash market to minimize the risk of financial loss from an adverse price change.
Liquidation	The process of offsetting one outstanding futures position (long/short) with another (short/long). As a futures contract enters its final days of trading, the amount of unliquidated contracts--open interest--will decline as traders liquidate their positions or take delivery.
Long	(1) One who has bought a futures contract to establish a market position, (2) a market position that obligates the holder to take delivery, or (3) one who owns an inventory of commodities.
Margin	Earnest money deposited with a brokerage firm or clearinghouse. When a position is taken in the market, the margin provides a guarantee of performance on the purchase or sale of a futures contract. Initial margins generally run less than 10 percent of contract value and must be maintained at a specified minimum level while the position remains open.
Margin call	A call for additional margin when funds in a spread, or in a speculative or hedging account, fall below levels required by a given brokerage firm or clearinghouse. Margin minimums for customers are set by the exchanges. Firms can, however, set their customer minimums above that set by the exchanges.
National Futures Association	A self-regulatory organization within the commodity futures industry whose purposes are to maintain industry integrity and protect market participants. It was authorized in 1981 by

GLOSSARY

Agricultural commodity option	A contract that gives the right, but not the obligation, to buy (a call option) or sell (a put option) a specified quantity of a commodity at a specific price within a specified period of time, regardless of the market price.
Cash (spot) market	The market for immediate delivery of and payment for actual, physical commodities.
Clearinghouse	An adjunct to a commodity exchange through which transactions executed on the floor of the exchange are settled.
Commodity Futures Trading Commission	An agency created by the Congress in 1974 to regulate and oversee the trading of commodity futures contracts on U.S. futures exchanges.
Corner	Securing such relative control of a commodity that its price can be manipulated. In an extreme situation, cornering involves obtaining futures contracts requiring delivery of more commodities than are actually available.
Deliverable supply	The quantity of a commodity that conforms to, or can be made to conform to, the delivery requirement of the futures contract and is available to the sellers at a cost no greater than the commodity's actual commercial value.
Expiration of a futures contract	The final trading day in a futures contract; in grains, about the third week of the delivery month. Grain contracts last about 18 months.
Forward contracting	A cash transaction common in many industries, including commodity merchandising, in which the buyer and seller agree on delivery of a specified quality and quantity of goods at a specified future date. A price may be agreed on in advance or there may be agreement that the price will be determined at the time of delivery.

	the Commodity Futures Trading Commission, which oversees its regulatory activities.
Position	An interest in the market, either long or short, in the form of one or more open contracts.
Price basing	Using prices discovered through futures trading to estimate cash prices for commodities in localized markets as well as in related services such as storage, transportation, and processing.
Price manipulation	A planned operation, transaction, or practice calculated to cause or maintain a price at a level artificially high or low--a price not reflective of supply and demand conditions.
Short	(1) The selling side of an open futures contract or (2) a trader whose net position in the futures market shows an excess of open sales over open purchases. In options, the short side of the market includes written or granted calls and purchased puts.
Speculative position limits	Limits that set a maximum on the futures positions a speculator can hold. Speculative position limits do not apply to futures positions that represent hedges for cash market positions.
USDA Advisory Committee on Export Sales Reporting	A committee established by the Secretary of Agriculture in 1978 to review export sales reporting requirements and make recommendations to strengthen and improve the effectiveness of the monitoring capability. A report to the Secretary from the committee was issued February 27, 1979.

U.S. Grain Exports and their Relationship to Worldwide Grain Exports

Selected years-commodities	Worldwide exports	U.S. exports	U.S. exports as percentage of worldwide exports
	(million metric tons)		
1960—Wheat	43.9	17.9	41
Coarse grains[a]	26.1	11.2	43
Soybeans	n/a[b]	n/a	n/a
1970—Wheat	56.4	19.8	35
Coarse grains	53.4	18.6	35
Soybeans	n/a	n/a	n/a
1980-81—Wheat	94.1	41.9	45
Coarse grains	108.8	69.5	64
Soybeans	25.3	19.7	78
1981-82—Wheat	101.3	48.8	48
Coarse grains	97.8	58.4	60
Soybeans	29.3	25.3	86
1982-83—Wheat	98.6	39.9	40
Coarse grains	91.1	54.0	59
Soybeans	28.6	24.6	86
1983-84—Wheat	103.2	38.9	38
Coarse grains	90.7	55.8	62
Soybeans	26.1	20.1	77
1984-85 -- Wheat	107.3	41.5	39
(estimate) Coarse grains	99.4	60.0	60
Soybeans	25.9	20.5	79

[a]Corn, barley, oats, sorghum, and rye.

[b]Not available.

Source: Data for 1960 and 1970 from U.S. Foreign Agricultural Service records as published in Grain Export Cartels by Schmitz, McCalla, Mitchell, and Carter (Ballinger Publishing Co., 1981). Data for 1980-85 from the Foreign Agricultural Service, USDA.

According to a U.S. Department of Agriculture (USDA) economist, U.S. exports of wheat, corn, and soybeans in fiscal years 1982 and 1983 were valued at $19.9 billion and $17.5 billion, respectively. These exports in 1983 comprised 54 percent of the U.S. wheat production, 22 percent of the corn production, and 41 percent of the soybean production. By comparison, the value of grain, soybean, cotton, and other agricultural commodity exports

CHAPTER 1

INTRODUCTION

For thousands of years grain has been a staple of human existence. From flour used to bake bread, to corn and soybean meal used to feed beef and dairy cattle and other livestock, the basic grains (wheat, corn, sorghum, oats, barley, rice, and rye) and oilseeds (soybeans) sustain the world's food system. Grain has an important impact on our nutritional and caloric well-being. Governments throughout the world understand this basic fact and there is an international understanding that producing countries have an unspecified but real responsibility for those countries whose resources are more limited.

The United States is a surplus producer of grain and, in fact, is a major respondent to the worldwide need for grain. Grain exports are important to world economies, including that of the United States. For the American farmer exports have represented a growth market, although exports have recently leveled off. In 1960, for example, the output of one in ten harvested acres moved abroad. In 1984, the produce from one in every three harvested acres was consumed abroad, which is about the same level expected in 1985. The following table shows how the volume of U.S. grain exports has increased over the past several decades and the significance of U.S. grain exports compared with grain exports worldwide.

Cash markets

Immediate delivery markets, cash markets represent transactions that simultaneously price and convey ownership of commodities. The most common of these transactions takes place at the point where grain is first marketed, that is, from the farmer to the local elevator. A farmer, deciding to sell grain today, delivers it to the local elevator. It is weighed and graded immediately and a check may be issued to the farmer on the same day. The price is a cash or "spot" market price, which generally relates to current prices in the futures markets. Cash prices depend also on the location and quality of the grain and the current demand for grain within the delivery area of the country elevator.

Forward markets

Forward contracts in the market add a time dimension to cash markets. Forward contracts between local elevators and farmers are known as cash forward contracts--contracts that are specific regarding location, quality, and amount. The difference, however, is that grain ownership is not transferred on the date the contract is made. In practice, a farmer may enter into a cash forward contract with a country elevator before harvest to deliver a portion or all of his crop. The parties involved may specify a delivery time within a given month. The contract may specify a fixed price when the grain is delivered or it may provide for a deferred pricing arrangement--in which case the seller has an extended period of time beyond the delivery date to select a price for the grain. The grain must, however, be delivered during the specified delivery period.

Forward contracts are used extensively in the export of grains. They are also used domestically by processors of agricultural commodities to ensure a continuous supply of the commodity to their processing facilities, which typically do not have the capacity for large, on-site storage.

Forward contracts are not very liquid: they cannot be readily traded. Although contract provisions may have been attractive to the original buyers and sellers, it is usually very difficult to trade a forward contract, particularly if market conditions change.

Futures markets

It is within the third set of markets--futures markets--that commodity futures trading takes place. Commodity futures trading is the buying and selling of standardized contracts for the future delivery of specified grades and amounts of commodities. A futures contract is an agreement between two parties (a buyer and a seller) to conduct a cash transaction in the physical commodity or to settle the contract in cash at an agreed-upon price at some future time. It is a legal contract in every way and, unless it is

in 1969 was about $4 billion and these exports represented only 20 percent of the U.S. output of these commodities. Also by way of comparison, the United States' major competitors[1] in 1983 held 56 percent of the world trade in wheat, 17 percent of the corn trade, and 9 percent of the soybean trade.

The international grain market is complex. It is a system in which millions of producers and consumers, along with hundreds of firms, participate in the production, transportation, handling, processing, trading, and consumption of grain. The grain trade is characterized by a greater number of importers than exporters. More than 50 countries import grain. Of the countries exporting grain, the United States alone makes up significant portions of the yearly wheat, coarse grain, and soybean exports, as shown in the preceding table.

The stability of the grain market in terms of supply and demand is affected by the weather and by government policy. Weather variations affect production conditions and thereby cause fluctuations in export supply and import demand. Government policy affects international supply via embargoes, acreage controls, price supports, and changes in tax laws. Regarding demand, policies maintaining fixed internal prices (regardless of domestic supply and demand conditions), accompanied by trade restrictions, produce substantial fluctuations in import demand. This instability, of supply or demand, directly affects grain prices.

GRAIN MARKETING IN THE UNITED STATES AND ITS RELEVANCE WORLDWIDE

Grain marketing in the United States is accomplished through three interrelated marketing systems: cash markets, forward markets, and futures markets. The grain futures markets, particularly, have relevance worldwide because the prices "discovered" in these markets are used in international grain trading and because of the risk-shifting opportunities that these markets provide to domestic as well as worldwide traders.

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[1]Major competitors to the United States in each of the three commodities are as follows:

Wheat: Argentina, Australia, Canada, and the European Economic Community.

Corn: Argentina, South Africa, and Thailand.

Soybeans: Argentina and Brazil.

with the clearinghouse, not with each other. The impersonalization of futures contracts through the third-party role of the clearinghouse serves to enhance market liquidity. For example, to fulfill contractual obligations, a buyer must either accept delivery of the actual commodity in the designated month or he or she must sell a like amount of contracts before the expiration of the contract. The latter transaction, called offset, gives the individual an even balance in the records of the exchange (having bought from and sold to the same "person"--the exchange--in equal amounts); that trader is then out of the market. The buyer does not have to find the individual with whom he or she originally dealt since the contract is with the clearinghouse, not with that person. Thus, a futures contract is much more liquid than a forward contract.

Finally, in order to trade futures contracts, both buyer and seller must deposit a sum of money with the clearinghouse (or with their broker who, in turn, is obligated to the clearinghouse either directly or through another party who is a member of the clearinghouse) to guarantee performance on their contractual obligations. These deposits of money are called margins, and although initial margins are small relative to the value of the contracts, the daily accounting of positions by the clearinghouse means that an individual with a losing position may be required to deposit additional margin monies. Further, margin levels are set by the commodity exchanges and clearinghouses and can be adjusted upward or downward, as market conditions dictate.

Futures trading is far from new, with the basic idea--trade now, settle up later--in evidence as early as 2000 B.C. Regarding grain, the first attempt to cope with price risks involved in growing, distributing, and processing evolved in the mid-19th century as a solution to both the liquidity and default problems that were sometimes experienced with forward contracts. The first organized commodity exchange in the United States was the Chicago Board of Trade (CBT), founded there in 1848. Originally intended as a central market for the conduct of cash grain business, it was not until 1865 that its first futures transaction took place.

The CBT was soon followed by exchanges in other cities. In the early 1980's, there were 11 futures exchanges in the United States, which housed futures markets in some 50 different commodities. In addition, there are a number of foreign exchanges.

The exchanges in the United States that trade grain futures are the CBT (wheat, corn, oats, soybeans, and soybean products), Kansas City Board of Trade (wheat), Minneapolis Grain Exchange (wheat), and MidAmerica Commodity Exchange (wheat, corn, oats, soybeans, and rice). The following table shows the numbers of wheat, corn, and soybean contracts traded at each of these four exchanges during 1982. As can be seen, the CBT handled just over 93 percent of these contracts.

a contract based on cash settlement, can be fulfilled by delivery and acceptance of the physical commodity. The existence of the clearinghouse, however, makes the contract transferable; most futures contracts are closed out with an offsetting futures transaction rather than actual delivery of the commodity.

Futures contracts are traded only for specific delivery months, which are established by the exchange. Most futures contracts start trading more than one year before their maturity, with some having lives longer than 24 months. Futures markets and cash markets are closely related and enable cash market participants (producers, middlemen, and commercial users or processors of a commodity) to protect themselves from future adverse price movements for the commodity in which they deal. Futures contracts are traded by competitive, open outcry bidding on organized commodity exchanges (also referred to as boards of trade) that are licensed and regulated by the Commodity Futures Trading Commission (CFTC). Futures trading has two primary theoretical justifications:

> Price discovery. This is the process through which traders buying and selling futures contracts in the exchange arena (or pit) "discover" the competitive prices that best represent the consensus of what traders think commodity prices ought to be in the future based on information available today. Broad dissemination and publication of exchange-generated prices can foster competition in establishing cash prices for commodities in localized markets as well as in related services such as storage, transportation, and processing.
>
> Risk shifting. This function, also called hedging, provides an opportunity for shifting the risks associated with commodity ownership from individuals and entities who are unwilling to bear such risks to those who are willing to carry these risks in return for a possible profit. Those who seek to shift risk are known as hedgers, and those willing to assume risk in return for potential profit are known as speculators. Unlike hedgers, speculators generally have no interest in the physical commodity itself; they are interested solely in speculating on the extent and direction of future price changes.

Two additional features--the clearinghouse and margins--help to further distinguish futures from forward markets. All commodity exchanges have a clearinghouse, which checks all recorded trades to make sure that the buyer and seller agree on the price and on the number of contracts traded. If there is disagreement, the clearinghouse ensures that disputed items are resolved before the opening of trading on the following day.

Assuming that a trade "clears," the clearinghouse steps in to take the other side of each contract. That is, the individual buyer and seller now have obligations to take or make delivery

contracts for either hedging or speculative purposes. This process of "price discovery" aids the marketplace as a whole. Not only are U.S. grains priced in relation to U.S. futures market values; so, too, are grains from other exporting countries. U.S. futures markets have become the price reference points for world grain marketing.

While no individual or firm can be expected to stay on top of all worldwide supply/demand conditions affecting grain prices, the individual buyer or seller of grain in the local market can rely on the futures price as one piece of information that summarizes current supply and demand situations.

PREVIOUS STUDIES

The U.S. grain marketing system has received considerable attention since grain sales were made to the Soviet Union beginning in 1972, touching off a period of short supply, higher domestic prices, and the appearance that the United States had been taken advantage of by the Soviet Union and some of the large, multinational grain traders. Since then, a wide range of parties have expressed concern over the degree of fairness and integrity in the system. This concern has prompted, at least in part, numerous studies and several books and articles[2] regarding the situation surrounding the grain sales to the Soviet Union and the systems of control at USDA and the CFTC--systems that were designed to prevent such a situation from repeating itself and/or to ensure fairness and integrity in commodity markets. We, for example, have issued a number of such studies, including

--Russian Wheat Sales and Weaknesses in Agriculture's Management of Wheat Export Subsidy Program (B-176943; July 9, 1973),

--Exporters' Profits on Sales of U.S. Wheat to Russia (B-176943; February 12, 1974),

--Issues Surrounding the Management of Agricultural Exports (ID-76-87; May 2, 1977),

--Regulation of the Commodity Futures Markets--What Needs to Be Done (GAO/CED-78-110; May 17, 1978),

--Market Structure and Pricing Efficiency of U.S. Grain Export System (GAO/CED-82-61; June 15, 1982), and

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[2]Four such books or articles are: (1) James Trager's Amber Waves of Grain, New York: Arthur Fields Books, Inc., 1973; (2) Roger Burbach's "The Great Grain Robbery," The Progressive, July 1976, p. 25; (3) Dan Morgan's Merchants of Grain, New York: Viking Press, 1979; and (4) Richard Gilmore's A Poor Harvest, New York: Longman, Inc., 1982.

Wheat, Corn, and Soybeans Futures Contracts Traded January-December 1982

Commodity	Chicago Board of Trade	MidAmerica Commodity Exchange	Kansas City Board of Trade	Minneapolis Grain Exchange	Total
	(millions)				
Wheat	4.03	0.05[a]	0.96	0.35	5.39
Corn	7.95	0.05[a]	-	-	8.00
Soybeans	9.17	0.11[a]	-	-	9.28
Total	21.15	0.21	0.96	0.35	22.67
Percentage of Contracts Traded	93.3	0.9	4.2	1.6	100.0

[a]Contract volume on the MidAmerica Commodity Exchange for wheat was actually 243,640 contracts at 1,000 bushels each, for corn it was 274,324 contracts at 1,000 bushels each, and for soybeans it was 527,411 contracts at 1,000 bushels each. Grain futures contracts generally represent 5,000 bushels each. For consistency, we have converted the 1,000-bushel wheat, corn, and soybean contracts on the MidAmerica exchange to 5,000-bushel contracts as used by the other exchanges.

Source: Futures Industry Association, Inc., Monthly Volume Report dated December 1982 (FIA Bulletin No. 2-83).

Cash, forward, and futures markets are important links in the grain marketing system. Cash and forward markets are widely used to move grain from producers to users. Futures markets are centralized, visible, public markets that instantaneously reflect the changing judgments of buyers and sellers about the current value of grain to be delivered in the future. Historically, the pricing reference points for grain were often the major cash grain markets such as Kansas City, Minneapolis, and Chicago. The importance of these markets as reference-point pricing centers has declined considerably in the last two decades. Changes in transportation and communications systems have encouraged grain shipments directly from production regions to domestic consumption points or to port facilities for export. With these changes, grain futures markets have evolved, among other reasons, to fulfill the need for more up-to-date reference points. They provide a snapshot that shows at any given time the value that participants here and abroad attach to various grains. Futures prices reflect the combined knowledge, expectations, and opinions of a large number of traders (many of whom are firms in the grain industry) that trade futures

alleged, allows these participants to take positions in the futures markets that move in their favor once the knowledge becomes available to the public. To prove that this is actually happening, however, is a formidable task because of the difficulties involved in identifying exactly when specific export sales take place and then attempting to match such sales with specific futures market transactions.

As an alternative to attempting this, it was agreed that our work would involve (1) examining, in much the same fashion as we did in 1982, the efficiency with which the U.S. grain marketing system transforms information about grain export sales by U.S. exporters into changes in grain futures prices and (2) examining certain systems of control at USDA, CFTC, and the grain exchanges that are designed to help ensure that trading is done fairly and that the rights of customers and the financial and economic integrity of the marketplace are protected.

We conducted our work primarily in Washington, D.C., and Chicago, Illinois. We learned from, and used in preparing this report, many publications covering different aspects of grain marketing. We held discussions with and obtained documentation from officials of a number of organizations within USDA, including the Foreign Agricultural Service, Economic Research Service, World Agricultural Outlook Board, Extension Service, and Office of Inspector General. The export sales reporting system was the focal point of our work at USDA.

Market surveillance was the area we were most interested in at both CFTC and CBT. We interviewed CFTC officials in both Washington and Chicago from the Divisions of Economic Analysis and Trading and Markets. We met with officials at the CBT responsible for market surveillance and education. The CBT was the only commodity exchange we dealt with on this assignment primarily because in 1982 it handled 93 percent of all wheat, corn, and soybeans futures trading. In Chicago, we also interviewed an official of the recently established National Futures Association (NFA)--an industry-sponsored organization, the purpose of which is to assure, though self-regulation, high standards of professional conduct and financial responsibility on the part of individuals, firms, and organizations that are its members.

We discussed the subject of grain marketing and the efficacy of various controls over such marketing with officials of four grain exporting firms. In Chicago we talked with officials of Cargill, Inc. We talked by telephone with officials of Louis Dreyfus Corp., The Andersons, and Mid-States Terminals, Inc. These four firms represent both large and medium-size firms. They were among a list of grain exporters furnished us by a CFTC official in Chicago. Officials of one other large grain exporting firm declined to talk with us. To obtain the views of farmers toward the U.S. grain marketing system, we contacted officials of

--Commodity Futures Regulation--Current Status and Unresolved Problems (GAO/CED-82-100; July 15, 1982).

USDA has likewise performed studies primarily looking at its export sales reporting system, instituted in 1973 as a direct result of the supply and demand imbalances occurring at that time. USDA's Office of Audit, for example, issued a report on January 19, 1977, regarding the export sales reporting system and whether it was meeting stated objectives. On February 27, 1979, a USDA Advisory Committee on Export Sales Reporting issued a report on, among other things, (1) the purpose of the reporting system, (2) its usefulness in agricultural commodities forecasting, (3) reporting requirement differences between domestic and foreign firms, and (4) the possible effects of imposing additional requirements on foreign firms. Also in 1979, three USDA economists attempted to directly estimate exporter profits from futures market transactions that could be attributed to advance information about export sales. This study lent some support to the idea that exporters were able to take profitable positions in the futures markets before export sales were reported. But because of the variation among cases and degree of approximation required in the analysis, and in view of the cash market losses experienced by some exporters, it was not clear that the futures profits were greater than justified.

Each of the above studies proved relevant to this review and provided us with valuable information. A number of them will be referred to later in this report as we describe certain of the systems of control over grain marketing at USDA and CFTC and as we attempt to address the question of whether certain exporters systematically profit in the futures markets, at the expense of others, based on information that they alone hold.

OBJECTIVES, SCOPE, AND METHODOLOGY

In a letter dated October 1, 1982, the Chairman, House Committee on Appropriations, stated that GAO's study of the Market Structure and Pricing Efficiency of U.S. Grain Export System (GAO/CED-82-61; June 15, 1982) had been reviewed with great interest by the Committee and that he would like us to expand that inquiry by looking further at the efficiency of and certain controls over the grain marketing system.

This request stems, in part, from concerns (1) that large and/or foreign traders may be systematically profiting in the U.S. grain market to the detriment of other traders, producers, and consumers, and (2) that the U.S.-supported grain marketing system may favor, through less stringent reporting requirements, foreign governments and multinational traders, as compared with domestic-market participants. A concern has been raised that large and/or foreign traders systematically profit from the knowledge they have of pending grain export sales before such information becomes known to other market participants. Such knowledge, it is

volatile in recent years because smaller, nonprofessional speculators are now using professional managers who are able to pool these accounts into large trading blocs that influence the markets.[5] Concern was expressed about the reaction of the markets to these large buy and sell orders and the competitive disadvantage in which it places the individual market participant, including the farmer. Other market professionals argued, however, that while big orders can change the prices of futures contracts a couple of cents temporarily, the futures markets are so big and heavily traded that no one, not even a large professional manager, can manipulate prices for long. One agricultural economist, for example, testified that the underlying supply and demand conditions will quickly bring prices back into line. A Cargill, Inc., official similarly testified that "The sheer number of active, informed participants quickly draws the market back to true values, reflecting the consensus of market participants. But, at virtually all moments there will be market participants who believe that market values do not currently reflect [supply and demand] 'fundamentals.' That conflict of opinions is what gives markets their viability." The overall conflict of opinions as to the degree, impact, and cause(s) of price volatility in futures markets suggests the need for analysis in this area. Such analysis, however, was outside the scope of this review.

There are aspects of insider trading in futures markets that we did not examine closely, but which have recently been the focus of a study mandated by the Congress and conducted by CFTC. Resulting from its work in this area, CFTC announced in October 1984 its plans to crack down on insider trading in futures markets (all markets, not just those for grain). CFTC said that although the nature of potential insider trading and the laws that determine what constitutes it are considerably different from those relating to securities transactions, its study showed that "several types of material, nonpublic information may exist in futures markets." CFTC suggested as possible insider-trading abuses the potential for commodity exchange executives to make trades before the exchange's announcement of a decision to alter its trading rules or for grain or other commodity-trading firms to buy in futures markets based on their inside knowledge of a major government action boosting international commodity sales. The CFTC

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[5]USDA, in commenting on this report (see p. 100), said that our discussion of the increasing price volatility in futures trading is a bit weak; we do not claim that it was in any way comprehensive. As discussed above, this is an area that we did not look at in any detail, but which was the subject of 1984 congressional hearings. In its comments, USDA pointed out that price volatility in the late 1970's and early 1980's could have been caused by the shifts in farm program emphasis, the floating of the dollar, changing economic conditions, and the increasing interdependence of U.S. agriculture to the world market that occurred in the early 1970's.

the American Soybean Association and the Colorado Association of Wheat Growers.

For the purpose of analyzing further the efficiency with which the U.S. grain marketing system transforms grain export sales information into changes in grain futures prices, we obtained from USDA both daily (large sales over 100,000 metric tons) and weekly (all sales) export sales information covering wheat, corn, and soybeans[3] from the period January 1977 through December 1982. Futures prices for these commodities over the same period were obtained from publications of the CBT. The specific methodology we used in this analysis, which varied slightly from the analysis we discussed in our June 1982 study, is described in detail in chapter 5 and appendix I.

To help us with the assignment overall and the pricing efficiency analysis[4] in particular, we retained the services of Dr. Neilson C. Conklin, who had worked for us previously from October 1980 through September 1981 and who was largely responsible for the earlier grain marketing study. Because of the complexities of the assignment, we also assembled a three-member advisory panel, which helped in shaping and reviewing our work. This panel included Dr. Paul L. Farris, Purdue University; Dr. William G. Tomek, Cornell University; and Dr. Wayne L. Olson, formerly of CFTC. Each of these individuals is known, among other things, for his work in grain marketing.

Our work was preformed in accordance with generally accepted government auditing standards.

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Our study of the U.S. grain marketing system was somewhat general in nature and certainly not all-encompassing. There are aspects of grain marketing and futures trading that were either not a part of our study or representative of some things that were included, but not examined in detail. Some of these aspects have been the focus of studies or investigations recently conducted by others. For example, one area that was receiving attention last year had to do with increasing price volatility of futures market trading. It was pointed out in testimony before the Joint Economic Committee in April 1984 that price changes in futures trading (all futures trading, not just in grains) have become increasingly

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[3]These three commodities are the major U.S. field crops and represent the bulk of agricultural exports. They are the same three commodities we dealt with in our earlier study (GAO/CED-82-61; June 15, 1982).

[4]The methodological approach we used in our pricing efficiency analysis was devised by Dr. Conklin and is explained in some detail in app. I.

AGENCY COMMENTS

We asked for and obtained written comments on a draft of this report from CFTC, USDA, and NFA (see apps. II, III, and IV). CFTC stated that the report is a thorough and accurate description of the cash and futures grain markets and how they work. CFTC recognized that this is a complex area and stated that the report goes far in explaining export marketing, pricing, and distribution of U.S. grains and grain products. USDA found the report to be generally well done and to contain an excellent review of the export sales reporting system. USDA agreed with the conclusion reached in chapter 5 pertaining to pricing efficiency of the U.S. grain marketing system, stating that its own studies and those of others had shown the system to be efficient. NFA called the report well written and said that it reaches sound conclusions. CFTC, USDA, and NFA also made several comments of a technical or clarifying nature; these were considered and incorporated into the report as appropriate.

We also asked for written comments from CBT. Aside from a comment that the size of the market surveillance staff at CBT had recently grown from five to ten, the head of this staff told us that CBT had no comment on the report.

observed that "the greatest potential for public customers to be harmed directly by trading on material, nonpublic information arises from the current practice of dual trading under which floor brokers who execute transactions for public customers are permitted simultaneously to trade for their own accounts." Although CFTC already has a rule prohibiting brokers from executing orders for their own accounts ahead of customers' orders, because the broker would then profit from the customer, its system for tracking transactions is not now precise enough to detect such activity.

CFTC did not detect significant evidence of insider futures trading by employees of grain companies, meat packers, banks, or other firms operating in cash or futures markets and, thus, saw no need to recommend any change in the law. CFTC did, though, announce plans aimed at curbing the potential for insider trading by futures-exchange officials or employees or by commodity floor brokers. A CFTC commission also stated that the agency's plans for tightening surveillance procedures would make it easier for regulators to detect other infractions, such as cross-trading and "wash" trading.[6]

Futures market regulation was the focus of a study conducted in 1984 by the Center for the Study of Futures Markets, Graduate School of Business, Columbia University. This study was not intended to be a comprehensive analysis of government regulation of futures markets. Rather, it was issue-oriented and directed toward specific concerns expressed by the Congress during 1984 CFTC reauthorization hearings--concerns that grew out of the dramatic growth of interest rate and equity futures markets. The Congress was fearful that the development of these new markets might somehow interfere with other financial markets or undermine the protections afforded by existing government regulations. Seven topics were examined by various researchers representing a cross-section of economists, all of whom were said to be highly knowledgeable about futures and securities markets and the operations of financial institutions.

The results of the overall study were generally taken to mean that more government regulation of futures is not needed. Current self-regulation by industry, coupled with government oversight by the CFTC, was viewed as doing a good job of protecting customers and governing futures markets. While self-regulation, like any other kind of regulation, can never be perfect, the study suggested that additional government regulation would probably not be cost-effective.

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[6]In cross-trading, two traders cut private deals between themselves rather than through "public outcry" on the trading pit floor. "Wash" trading is a device brokers use to make it seem as if there is more trading volume in a futures contract than there is. In "wash" trades neither broker involved gains or loses, but the volume of contracts traded rises.

report export sales pursuant to the requirements of this section shall be fined not more than $25,000 or imprisoned not more than one year, or both."

The export sales reporting system was instituted following the unanticipated large grain sales to the Soviet Union beginning in 1972. These sales, as well as unprecedented import demand from around the world and the sharp decline in U.S. grain and soybean stocks, were said to contribute to (1) a period of rising domestic prices and inflation, (2) market uncertainties, (3) an embargo of soybean exports, and (4) more generally a time when many farmers' marketing strategies were confused because of a lack of timely information relative to export sales.

The export sales reporting system is regarded primarily as a device to provide agricultural export data necessary to make rational, reliable export policy decisions and to help prevent market disruptions similar to those occurring in the early 1970's. Over the years some have viewed the system as a tool to be used in various agricultural forecasting information systems, although sole reliance on the system for forecasting has been criticized because changes in export sales frequently occur after the sales are reported, and there are many other sources of raw information useful in the process. During the past several years it has been generally recognized that the objectives of the system are to:

(1) Provide information to the government for development of export policies and programs.

(2) Provide information to producers to help in their marketing decisions.

(3) Improve performance of U.S. commodity markets by making public, timely information on export sales transactions.

With respect to the last objective, USDA's Advisory Committee on Export Sales Reporting stated in its report that:

"It is widely recognized that effective functioning of a private enterprise system requires pertinent and timely information. . . . In a general sense, the export sales reporting system exists to provide a part of the body of factual data required for effective functioning of the market economy for those commodities covered by the system."

A number of changes have been made to the reporting system since its establishment in 1973. One such change, which took effect in September 1974, requires significant export activity to be reported daily to USDA. This is in addition to the weekly export reporting requirement. Under this system, for all reportable commodities except soybean oil, quantities of export sales of 100,000 metric tons or more in any one calendar day are to be

CHAPTER 2

USDA'S EXPORT SALES REPORTING SYSTEM PROVIDES USEFUL INFORMATION TO GOVERNMENT POLICYMAKERS AND MARKET PARTICIPANTS

USDA's export sales reporting system is one means by which the federal government seeks to ensure fairness and integrity in the U.S. grain marketing system. Although the system's primary purpose is to provide USDA policymakers with timely information on export sales of agricultural commodities, such information is also considered useful to other market participants, including traders, producers, and consumers. The system was established in 1973 in the aftermath of the large, unforeseen grain export sales to the Soviet Union. Although the system was shifted organizationally within USDA several times during its early years, for the past 4 years it has been administered within USDA by the Export Sales Reporting Division under the overall direction of the Administrator, Foreign Agricultural Service. There have been some changes to the system over the years and perceptions regarding the system's purpose and objectives have become more clearly focused. On the whole, the Export Sales Reporting Division appears to be doing an effective job of administering the system in spite of an increasing workload and little corresponding increase in staff or other resources. In addition, there are independent sources that closely corroborate export sales data generated by the division.

HISTORY AND OBJECTIVES OF THE EXPORT SALES REPORTING SYSTEM

The export sales reporting system was authorized by the Agriculture and Consumer Protection Act of 1973, which added section 812 to the Agriculture Act of 1970. The system, which became operational in November 1973, requires in part that:

> "All exporters of wheat and wheat flour, feed grains, oil seeds, cotton and products thereof, and other commodities the Secretary may designate produced in the United States shall report to the Secretary of Agriculture, on a weekly basis, the following information regarding any contract for export sales entered into or subsequently modified in any manner during the reporting period: (a) type, class, and quantity of the commodity sought to be exported, (b) the marketing year of shipment, (c) destination, if known. Individual reports shall remain confidential but shall be compiled by the Secretary and published in compilation form each week following the week of reporting. . . . When the Secretary requires that such information be reported by exporters on a daily basis, the information compiled from individual reports shall be made available to the public daily. Any person (or corporation) who knowingly fails to

provided accurate and timely information on export sales of U.S.-based firms, it did not require foreign entities to report sales of U.S. commodities. To do so, the report stated, could result in loss of export markets for the United States[2] or prompt foreign firms to circumvent the reporting requirements. Among the report's recommendations was one that stated that wheat, feed grains, oilseeds, rice, cotton, and products thereof should continue to be included in the reporting system, and that USDA should study the structure of the hides and skins industry to determine whether these commodities should also be included.

Two significant changes occurred in concert with the conclusions and recommendations of the advisory committee's report. In June 1980 a change was made regarding the reporting system's weekly report of export sales which, in effect, allowed for an earlier release of the report. Secondly, during 1980, hides and skins were added as commodities to be reported under the export sales reporting system. This addition has increased the workload of the Export Sales Reporting Division, as is discussed later in this chapter.

ADMINISTRATION OF THE REPORTING SYSTEM

The export sales reporting system is currently being administered by the Foreign Agricultural Service's Export Sales Reporting Division. The division is a relatively small one, with approximately 14 employees. Except for two secretaries, half of the division's personnel are marketing specialists, with the other half being statistical clerks. The division's operating budget in fiscal year 1983 was $731,500--up slightly from $711,000 in fiscal year 1982.

The director of the Export Sales Reporting Division called it an isolated but exceptionally self-reliant division. He saw the functions of the division as

--gathering, compiling, and disseminating information about agricultural export sales, and

--maintaining a liaison with agricultural exporters to ensure their compliance with export sales reporting requirements.

He considered the division unique in that it is the only USDA division that has contact with agricultural exporters and receives information from them about their export sales activities.

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[2]There was speculation by exporters and others that foreign buyers might choose to purchase grain from countries other than the United States if U.S. reporting requirements became much stricter.

reported to USDA by the following business day. Initially this information was held within USDA until its compilation with other export sales and then released as part of the weekly export sales report. In early 1977, however, USDA was criticized for holding for 6 days news that the People's Republic of China had purchased almost 400,000 metric tons of soybeans. The charge was that knowledgeable traders knew of the trade and took advantage of the market-sensitive export news, while less well-informed traders were stuck with rumors only. Although USDA officials initially argued that the Chinese purchase was not large enough to have an effect on the world supply/demand soybean situation, on April 13, 1977, the Secretary of Agriculture announced that USDA would begin reporting grain export sales over 100,000 metric tons on a daily basis as press releases. The Secretary indicated his belief that ". . . this system will assist farmers in their marketing decisions, as well as provide a means of protection to grain exporters."

As indicated in chapter 1, the reporting system has been the focus of several USDA and GAO studies; changes to the system have resulted. In January 1977, for example, USDA's Office of Audit reported that the primary objective of the export sales reporting program was being met in that the general public and U.S. government officials were being provided with reasonably valid and timely information on contract quantities for anticipated exports of U.S. agricultural products.

In May 1977 we issued a report[1] stating that although USDA officials were administering the system in an efficient manner, data reported by exporters were not suitable for evaluating foreign demand on which to base timely agricultural policy decisions because the export contracts behind such data were frequently cancelled or extensively modified. Our report contained a number of recommendations designed to improve the quality of information provided by exporters.

In February 1979 the Secretary of Agriculture's Advisory Committee on Export Sales Reporting issued a report concluding that the system was functioning adequately and that USDA should continue it. The report argued that there was some confusion about the function of export sales reporting and that some people tend to mistakenly confuse export sales reports with export forecasts. It pointed out that export sales reports alone are not a reliable basis for forecasting levels of exports or prices of U.S. agricultural commodities. The report stated that the system could be improved if the time from the date that export sales are reported to USDA to the date that they are released in summary form to the public were reduced. The report noted that although the system

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[1]Issues Surrounding the Management of Agricultural Exports (ID-76-87; May 2, 1977).

Numbers of Companies Exporting Agricultural Products, 1973-83

Marketing year	Number of active exporting firms by Commodity: Grain[a]	Rice	Cotton	Hides and skins[b]	Other[c]	Total[d]	Number of firms on USDA list of active and inactive exporters
1973-74	[e]						286
1974-75		41	74				314
1975-76		42	66				331
1976-77		41	61				343
1977-78		41	64				355
1978-79	95	50	72		83	263	374
1979-80	107	51	79	81	89	356	371
1980-81	102	49	70	78	88	336	423
1981-82	115	57	76	94	96	376	476
1982-83	108	55	78	123	89	395	545

[a]Wheat, corn, soybeans, grain sorghum, barley, rye, and oats.

[b]Reporting of hides and skins began in May 1980.

[c]Wheat products; flaxseed; linseed, soybean, and cottonseed oil; cottonseed; and soybean and cottonseed cake and meal.

[d]Total number of firms with reportable export sales during each marketing year. It cannot be derived by adding the number of firms under each commodity because some firms export more than one commodity.

[e]Blank spaces represent instances where data was either not available or, as in the case of hides and skins before 1980, not applicable.

Source: Compiled at GAO's request by the Export Sales Reporting Division, Foreign Agricultural Service, USDA.

As the table reflects, the number of active grain exporting firms has increased during the past 5 years from 95 to 108. Similar increases have been experienced in the numbers of firms exporting rice, cotton, and other agricultural products. The inclusion of hides and skins in the reporting system in May 1980 occasioned a substantial rise in the total of active exporting firms.

The Export Sales Reporting Division has handled this increase in workload without corresponding increases in staff size; the size of the division's staff has remained fairly constant over the past several years. As a result, the division's time for monitoring increased numbers of exporting firms and commodities has

The work of the Export Sales Reporting Division is rather routine, with specific tasks to be done within certain timeframes each day and week. For example, with regard to the weekly reporting of export sales, the reporting week runs from each Friday through the following Thursday. Reports from the exporters are due by the following Monday, after which time the Export Sales Reporting Division compiles the information and publicly releases it in report form after the futures markets close that Thursday. Large export sales involving more than 100,000 metric tons must be reported to the Export Sales Reporting Division by 3 p.m. the following business day. The division, on that same day, compiles this information and makes it publicly available through a press release.

Personnel within the Export Sales Reporting Division were protective of the export sales information that is reported to them, carefully guarding it so as not to violate the confidentiality requirements of section 812 of the Agricultural Act of 1970, as amended (7 U.S.C. 612c-3). This provision requires that contracts for export sales be reported to the Secretary of Agriculture and that "individual reports shall remain confidential." Division personnel appeared dedicated to the task of releasing this information in compiled form to the public in a timely, impartial fashion.

Export sales reporting workload has been increasing

The 1980 addition of hides and skins as commodities to be reported under the export sales reporting system and a corresponding increase in the number of firms reporting agricultural export sales have increased the Export Sales Reporting Division's workload. For at least the past 3-4 years the division has assumed this increase without a corresponding gain in its staff level. Although there is some assurance that most of what should be reported is being reported (discussed beginning on p. 21), the division is limited in its ability to verify that export sales are being reported in a timely and accurate manner.

The following table demonstrates the increased workload of those responsible for administering the export sales reporting system. It shows the growing number of exporting firms that have had reportable export sales over the years and the impact of the addition of hides and skins as reportable commodities.

commodities covered by the system. Such records are to include export sales contracts or other agreements, bills of lading or delivery documents, and inspection and weight certificates. These records are to be made available for inspection and audit by authorized USDA employees.

Export Sales Reporting Division personnel told us that the division makes approximately 26 field reviews each year, taking up about 13 percent of the division's total time. A given field review generally lasts a week and involves a division representative visiting up to 10 different exporters during that week. The purpose of these visits, as specified in the division's field review guidelines, is to (1) assure proper reporting by exporters, (2) provide a basis for updating or modifying reporting requirements, (3) provide access to records that substantiate what has been reported, and (4) identify problem areas for possible official audit.

The division informed us by letter that it visits annually (at least every 10 to 15 months) all of the larger exporting firms. Other firms are picked for a staff visit based on past reporting infractions including errors or lateness in reporting, changes in exporter personnel, or because a substantial amount of time has elapsed since the last visit. Low-volume exporters are often scheduled as time permits and as "fill-ins" during trips of one-week's duration. The goal of the division is to visit, over a given period, firms representing a combined total of 80 percent of exports for each of the major commodities. The division claimed that most exporters are visited at least once in 2-3 years unless their location and volume of activity renders such a visit cost-ineffective.

The following table shows the number of visits by Export Sales Reporting Division personnel to agricultural exporters for the past three marketing years. Although not broken down specifically in the table, during the 1982-83 marketing year, about 50 percent of the active grain (as contrasted with agricultural) exporters were visited.

Export Sales Reporting Division's
Staff Visits to Agricultural Exporters, 1980-83

Marketing year	Number of active agricultural exporters	Number of staff visits	Percentage of agricultural exporters visited
1980-81	336	210	62
1981-82	376	205	54
1982-83	395	236	60

Source: Compiled by GAO from information provided by the Export Sales Reporting Division.

generally been spread thinner per firm and commodity. In this regard, we were told that such increases have detracted from the time that can be spent monitoring grain export sales, which currently represents about 30 percent of the division's total time. The division's deputy director, for example, told us that monitoring hides and skins has required a disproportionate amount of time since they were added as reportable commodities. He stated that it has required a real effort to educate hides and skins exporters as to the various export sales reporting requirements. Along this same line, division personnel told us that the emergence of foreign firms in the U.S. grain trade has had an impact on their workload; it was explained that just when it is thought that personnel in a given U.S.-based foreign firm are familiar with export sales reporting requirements, the personnel are shifted within the firm and the Export Sales Reporting Division is faced with educating and dealing with a different set of people, many of whom are new to the United States and not entirely fluent in the English language.

Verification of timeliness and accuracy of export sales reporting

The Export Sales Reporting Division must ensure the timely and accurate reporting of agricultural export sales. It does this in a number of different ways, several of which are discussed below.

Reports are checked for accuracy and completeness upon receipt

Whether received by mail or by telephone, reports of export sales are checked for accuracy and completeness by division personnel. Weekly reports received from exporters, for example, are logged in so that the division can track who has reported and who has not. Usually 250-300 weekly reports are received from active exporters. Upon receipt, a clerk manually checks each report for completeness and accuracy and then prepares it for computer entry; the computer then checks its mathematical accuracy and consistency with the previous week's report. Division personnel working with these reports rely on their experience to detect missing or inaccurate reports. The staff becomes familiar to some extent with many of the exporting firms; they learn which ones need more of their attention. This kind of monitoring takes place day to day. When questions or discrepancies arise, the staff attempts to resolve them through telephone calls to the applicable exporters.

Field reviews of exporter records are made

Another means of checking the timeliness and accuracy of export sales reports is through field visits to the various agricultural exporters. USDA regulations require each exporter to establish and maintain accurate records of all export sales of

Comparison of Exports as Reported by the Export Sales Reporting Division with Census Bureau Shipment Records and Federal Grain Inspection Service Inspection Records, 1978-83

Commodity	Marketing year	Exports	Census Bureau shipments	Percentage difference (3)-(4) / (3)	Inspections	Percentage difference (3)-(6) / (3)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		(million metric tons)			(million metric tons)	
Wheat	1978-79	30.7	30.7	0	30.8	(0.3)[a]
	1979-80	35.5	35.6	(0.3)	35.4	0.3
	1980-81	39.2	38.6	1.5	38.8	1.0
	1981-82	47.1	46.5	1.3	46.2	1.9
	1982-83	38.2	39.1	(2.4)	39.0	(2.1)
Corn	1978-79	54.4	53.9	0.9	54.2	0.4
	1979-80	62.7	59.7	4.8	60.9	2.9
	1980-81	60.1	59.2	1.5	59.2	1.5
	1981-82	51.4	49.6	3.5	50.0	2.7
	1982-83	48.0	47.1	1.9	46.2	3.7
Soybeans	1978-79	20.8	20.1	3.4	20.5	1.4
	1979-80	24.5	23.8	2.9	23.4	4.5
	1980-81	20.6	19.7	4.4	19.1	7.3
	1981-82	26.2	25.3	3.4	25.0	4.6
	1982-83	25.2	24.6	2.4	24.1	4.4

[a]Percentages in parentheses indicate situations where shipment or inspection records reflected greater quantities than export records. Percentages without parentheses indicate situations where export records reflected the greater quantities.

As can be seen, there has been relatively close correlation between the three sources of information. The fact that there are some differences is not surprising in that there is not necessarily a one-to-one relationship between exports and inspections or shipments. Export Sales Reporting Division personnel told us, however, that they do attempt to reconcile differences among the sources of information. We were told of one instance where the U.S. agricultural attaché to Nigeria complained that the division's records were quite different from his shipping records. It was discovered through a check of Census Bureau shipping records that there had been a sale that had not been reported to the export sales reporting system. Apparently there had been some confusion between two involved grain traders as to who should report the sale and, as a result, neither reported it.

The fact that there is a high degree of correlation among the various sources of information provides some assurance that export sales are being properly reported.

Although internal guidelines have been developed for conducting field reviews, division personnel were quick to point out that these guidelines are not used comprehensively during each visit to every exporter. We were informed that the scope of review at a given exporter is dependent to a large degree on whether there have been problems with the exporter in the past. If not, the visit to the exporter was characterized for us as rather brief and routine, with time made available to discuss specific concerns.

Comparisons made between export records and records of the Federal Grain Inspection Service and the Census Bureau

Periodically the Export Sales Reporting Division attempts to match records of exports with inspection data accumulated by USDA's Federal Grain Inspection Service or with records of export shipments accumulated by the Bureau of the Census. The following table shows that since the 1978-79 marketing year, the division's records of exports of grain have closely matched inspection and shipment records of these other government agencies.

difficulties in those instances where the division may later want to establish that an exporter's reporting violations have shown a consistent, deliberate pattern of disregard for the division and its export sales reporting requirements.

Responsibilities of USDA's Office of Inspector General in verifying timeliness and accuracy of reporting

USDA's Office of Inspector General (OIG) has certain responsibilities with regard to ensuring compliance with export sales reporting requirements. As stipulated in a memorandum of agreement between the OIG and the Foreign Agricultural Service, the OIG is to be notified of all cases of reporting violations as defined within the guidelines for referral to the Department of Justice. The Foreign Agricultural Service may also refer to the OIG other cases where it has questions as to the significance of the violation or those requiring audit and/or investigative assistance as a basis for a formal disposition decision.

We learned of two instances in which the export sales reporting system was the subject of audits by USDA's OIG (formerly Office of Audit). One such case, mentioned on page 17, was done at the request of the Foreign Agricultural Service, and culminated in a report dated January 19, 1977. The purpose of this audit was to determine whether exports and/or commitments of agricultural commodities under the export sales reporting system were being reported in accordance with program objectives, applicable laws, policies, and regulations.

The second case took place a year later, again at the request of the Foreign Agricultural Service. In this instance, the OIG performed a limited review of seven U.S. exporting firms to determine whether the firms were properly reporting all of their export sales transactions. This audit disclosed that each of the exporters had export sales transactions that were either not reported or reported late. Officials of each exporting firm attributed their reporting violations to the low priority they had placed on the reporting system. The officials stated that reports were not always prepared and submitted because of other work priorities and changes in personnel. Transactions that were not reported were also attributed to new employees' not being familiar with reporting requirements and/or oversights by responsible employees.

The seven cases were subsequently referred to USDA's Office of the General Counsel to determine if the penalty provision under the law should be imposed. Two of the seven were referred to the Department of Justice for possible criminal prosecution. Both cases were later dismissed, however, due to the relative insignificance of the violations and the fact that the exporters subsequently began complying with the reporting requirements.

Few incidences of significant reporting violations

Since establishment of the export sales reporting system, there have been only a few incidences of reporting violations that were deemed to be of any significance. Reporting division personnel expressed the belief that the $25,000 fine or possible jail term for failure to report export sales as required by the act are effective deterrents. They told us that there had been only two instances in which reporting violations were referred by USDA to the Department of Justice for prosecution. The two cases, however, were returned without prosecution due to the relative insignificance of the violations and the fact that the reporting requirements were subsequently complied with. Subsequent to these dismissals, the Justice Department in April 1980 provided USDA with guidelines for determining which cases should be referred to it for criminal prosecution under export sales reporting law. Violations that should be referred were specified as follows: (1) all cases involving affirmative misrepresentations of export sales, (2) all cases in which the pattern of violation evidences a deliberate attempt to withhold or conceal information concerning export sales, and (3) cases in which written notification by USDA to the exporter of the violation does not result in full compliance.

We asked division officials to provide us with any review findings resulting from their recent visits to various grain exporting firms. The division's director informed us by letter that it is not possible to provide this information for each firm as requested because of the large number of firms the division visits each year and the large number of potential problem areas. However, he responded further that

> "Throughout the year, virtually all concerns highlighted during field reviews are resolved quickly and efficiently by simply providing company officials with the help and advice needed to comply with reporting requirements. Many of the problem areas relate to a misunderstanding of the reporting procedures and to new employees handling the reporting responsibilities. We have received exceptional cooperation in the past from the trade on export reporting and fully expect this cooperation to continue."

We also asked division officials about their procedures for documenting the reporting problems of a given exporter. We were told that, although a file is maintained on each exporter, problems that come up from time to time that are quickly resolved may not result in any documentation being added to the files. We were told that reporting division personnel keep "mental tabs" on the firms that they have problems with. The fact that the division's files do not always include a record of all the problems the division may have encountered with a given firm could present

knowledge about market activity that they can relate to their own situations.

Larger grain firms are not as dependent on the export sales information published by USDA as are the smaller ones. These larger firms typically have rather sophisticated information systems. We were told by division personnel and by officials of several grain exporting firms that the value of the information the larger firms get from the reporting system is not so much that it is new information, but rather that it is information that confirms much of what they already know. Officials of a couple of the exporting firms said that the export sales reports provide them with a snapshot of what is going on at a particular point in time, but that this picture changes quite rapidly. We were told that in today's grain markets there are very few surprises and that the only time that information such as that published about export sales causes a stir is when it includes something that generally has not been anticipated.

CONCLUSIONS

Since its establishment in 1973, USDA's export sales reporting system has proven to be a useful tool. It serves primarily as an early-warning mechanism providing policymakers with information about export sales. Export sales information is helpful to others such as those responsible for monitoring, evaluating, and forecasting worldwide supply/demand conditions. It is also one of many pieces of information that can affect futures market activities and prices. Market participants look forward to and use this information, although the value of the information is not as important to the market as some may believe it to be. Large exporting firms, for example, with their own relatively sophisticated information networks, are not as dependent on information generated by the export sales reporting system as are some of the smaller exporting firms and other market participants. Further, export sales information causes a stir in the marketplace only to the extent that what is reported differs from general market expectations.

Despite its small size, the Export Sales Reporting Division appears to be effectively compiling information it receives about agricultural export sales, protecting the confidentiality of this information, and disseminating the information later in a timely manner in compiled form. The increased workload faced by the division in the past 3-4 years without corresponding increases in staff size or other resources has unavoidably reduced the attention given to a particular exporter or commodity; this has been the case with grain export sales.

The results of the division's oversight indicate that most sales are being reported; the division's small staff remains limited, however, especially in relation to an expanding number of exporting firms and commodities. This raises a question as to

The OIG can program some work of its own in the area of export sales reporting. It has not done so, however, nor does it have any plans to do such work in the near future. An OIG official told us that the office has never targeted the export sales reporting system as an area for audit and, additionally, that its foreign operations staff was abolished in a 1981 reorganization that focused more attention on food stamps. The official also told us that the office was not planning to do any work in this area unless requested to do so or unless there were indications of reporting inaccuracies.

USEFULNESS OF EXPORT SALES INFORMATION

Opinions vary on the usefulness of the information generated by the export sales reporting system. Certainly, as an early-warning mechanism, data is provided by the system to USDA policymakers that should help warn them of situations that could result in short supplies and market disruptions similar to those that occurred in the early 1970's. Necessary adjustments can then be made in export policies or strategies to prevent the situation from worsening. Procedures have been established specifically setting forth who in USDA should be notified in the event of export sales that are unusual in terms of size and/or destination.

Export sales information is of value to others in USDA responsible for monitoring, evaluating, and forecasting worldwide supply/demand conditions. The chairman of USDA's World Agricultural Outlook Board, for example, told us that such information aids the board in making its worldwide agricultural supply/demand forecasts. He also uses the information in preparation for a weekly briefing of the Secretary of Agriculture. Of particular interest are the export sales to the Soviet Union and China. The chairman stated that although the export sales reports are very helpful, they represent only one of many sources of supply/demand information useful to him and his organization.

An official of USDA's Agricultural Stabilization and Conservation Service informed us that the export sales report is important to his office for use in forecasting and analyzing the agricultural supply/demand situation. He said that the reports were helpful because of their regularity and reliability. He stated that export sales data were much harder to obtain before the reports began to be published.

Export sales information is relevant to the futures markets. It is one of many pieces of information that influences market activity and prices, as is discussed and demonstrated in detail in chapter 5. For this reason, the Export Sales Reporting Division appeared to us to take seriously its responsibility for the timely dissemination of this information. We were told that the dissemination of this information is important to many exporters (particularly the smaller ones) because it provides them with

The above comments reflect a high level of confidence on the part of USDA in terms of its desire and ability to adequately administer the export sales reporting system. The comments also echo our findings and conclusions in this chapter that the Export Sales Reporting Division appears to have been doing an effective job of administering the system in spite of an increasing workload with little corresponding increases in staff or other resources. We have few arguments with the processes by which the division verifies the timeliness and accuracy of export sales reports and documents its contacts and problems with agricultural exporters, as discussed in the comments above. However, the division's small size in relation to what recently has been an expanding workload is a situation we believe needs watching in the future. The usefulness of the export sales reporting system relies heavily on the accuracy and timeliness of the export sales reports and it is important that there be proper oversight over these sales and any related problems. If the division's workload continues to grow, USDA's OIG might, indeed, be called upon to provide some assistance in this regard.

With respect to this latter point, USDA commented that the Foreign Agricultural Service (of which the Export Sales Reporting Division is a part) has always recognized that accurate and timely information is necessary to enable futures markets to generate prices that reflect realistic underlying supply and demand conditions. Consequently, the Foreign Agricultural Service would have no objection to a review by the OIG if it is deemed necessary and prudent to verify the accuracy and timeliness of export sales data and to determine the sufficiency of the division's documentation activities.

whether the division's verification methods are in all cases adequate. We also fear that the division may not be documenting sufficiently the problems it has with all exporters, particularly those problems that are resolved quickly. We believe that unless the division's files on a given firm are sufficiently documented, later attempts to discipline or prosecute a firm that is not complying with all reporting requirements may be hampered by lack of evidence.

USDA's OIG might be able to help the division carry out the above responsibilities. While the OIG is to be notified of all cases of reporting violations and of other instances requiring audit and/or investigative assistance, the OIG currently has no plans for work in this area. Because it was outside the scope of this assignment, we did not explore the possibility of the OIG lending some assistance in this regard. However, if the division's workload continues to grow, the division may want to consider seeking such help periodically as a supplemental means of verifying the timeliness and accuracy of export sales reporting. As a part of any such involvement, the OIG may also wish to consider determining whether the reporting division is sufficiently documenting the nature of the problems it encounters with individual exporters.

AGENCY COMMENTS

USDA commented that the report raises a question as to whether the Export Sales Reporting Division's verification methods are in all cases adequate, in view of the greatly expanding number of exporting firms and commodities. USDA said that the division performs field reviews and telephone interviews in a manner that best accomplishes the objectives of these contacts, namely to (1) assure that exporters understand and uniformly interpret reporting regulations, (2) provide a basis for updating the regulations to conform with trade practices, (3) provide information not otherwise available, (4) allow for better analysis and evaluation of the data reported, and (5) identify problem areas needing audit or investigation. USDA stated its belief that although the final outcome of each contact is limited by the knowledge and experience of the interviewer and the amount of time available for such reviews, the interviews have been of sufficient depth to accomplish the stated objectives.

With respect to its documentation procedures, USDA commented that the practice in the Export Sales Reporting Division has always been to document all exporter phone calls, office visits, correspondence, and noncompliance with program regulations. However, only those problems deemed significant are recorded. USDA stated that the division must have the flexibility to judge which points are to be documented and which are not. USDA believes it is better to have excessive rather than insufficient documentation, and thinks that its records bear this out.

--The commodity is standardized so that all know the product being traded;

--Buyers and sellers can enter the market and participate readily; and

--All participants have full knowledge concerning supply and demand for the product.

Organized futures markets emerged in the United States in the mid-1800's as a result of the inherent price risks faced by both producers and consumers in agricultural cash markets. In recent years, futures trading has expanded rapidly into new markets, including financial instruments, currencies, and stock indices. According to a September 1983 article written by a vice president and chief economist for Conti Commodity Services, Inc., this expansion can be viewed as a reaction to the risks posed by increased price, interest-rate, and exchange-rate volatility throughout the world. As touched on in chapter 1, futures markets fulfill two primary economic functions in that they facilitate price discovery and provide a method for allocating risk. These functions are described more fully below.

Price discovery function

Price discovery occurs when traders buy and sell futures contracts in the various commodity exchanges. The prices agreed to represent the consensus of what traders believe commodity prices will be in the future, based on information today. With respect to grain, prices are determined by the basic forces of supply and demand, but the actual "discovery" of the specific price of a commodity at any given point in time results when buyers and sellers of grain futures agree on a price in the "pits" or "rings" of the commodity exchange. These prices reflect the changing consensus of opinion among buyers and sellers around the world about the current value of grain to be delivered in the future. Changes in supply and demand are reflected and changing market conditions become readily apparent through activity in the market. We have been told by commodity experts that traders anticipate when changes are occurring in market conditions and export demand simply by observing what is happening on the floor--such as noting who is trading with whom. We were told that if an export sale is made and a trader hedges this sale by buying a similar amount of the commodity in the futures market, this new demand will be immediately assimilated by the market and reflected in the prices that are rapidly dispersed throughout the world. Prices established in U.S. grain futures markets are recognized as worldwide price references for grains. These competitively discovered prices enable buyers to decide when to buy their future grain needs and allow sellers to consummate that business simply and efficiently.

CHAPTER 3

U.S. FUTURES MARKETS ARE MONITORED PUBLICLY AND PRIVATELY

Another means by which the federal government ensures fairness and integrity in the U.S. grain marketing system is through the activities of the Commodity Futures Trading Commission (CFTC). Created by the Congress in 1974, CFTC has regulatory responsibility over the activities of all futures markets and oversight responsibility over the self-regulatory activities of the markets themselves. Through these actions the CFTC attempts to assure participants and the public that the markets are being used appropriately for discovering prices and hedging the risks associated with commodity ownership. CFTC also attempts to protect the markets from manipulation and fraud through an extensive market surveillance program. To do this, CFTC economists constantly analyze active futures markets for supply/demand price imbalances, which can signal pending market disruptions. Although such surveillance frequently detects situations that forewarn of possible market problems, such situations are generally resolved quickly before any apparent price distortion occurs and without the need for strong levels of CFTC action.

The futures industry has experienced phenomenal growth over the past 15 years. Many more contracts are being traded now than just a short time ago (see graph, p. 45), many new types of contracts are being traded, and the number of participants involved in the markets has increased dramatically. This rapid industry expansion has occurred with little increase in CFTC's resources to handle the added workload. Futures markets, however, are also monitored or regulated from within. Such self-regulation is carried out by the 11 commodity exchanges themselves and most recently by the newly created National Futures Association (NFA). There are some similarities in the regulatory activities of the CFTC, CBT, and NFA--and also some philosophical differences. However, although each organization has distinct mandated responsibilities, they do share a common purpose and commitment to protect the integrity of the commodity markets. To this end, coordination can and frequently does occur.

ROLE OF FUTURES MARKETS

The basic economic purpose of futures markets is to help cash markets work better. They do this, in part, by removing some of the future uncertainties about prices that would otherwise exist. Additionally, futures markets exhibit to varying degrees the following factors, which economists agree characterize a competitive market:

--Many buyers and sellers meet openly, and none control the market;

accurate price discovery and opportunities for efficient hedging through competitive, manipulation-free markets."

CFTC's oversight and regulatory process includes (1) reviewing and approving standardized contracts[1] tailored to the trading of particular commodities, (2) conducting market surveillance programs to identify adverse market situations and prevent them from disrupting futures markets, (3) screening and registering individuals who deal in commodities, (4) conducting audit and financial surveillance of commodity exchange activities and records to detect and deter practices that could result in loss of customer funds, (5) overseeing commodity exchange self-regulation and the exchange's enforcement of its own rules, and (6) instituting legal proceedings as appropriate when possible violations of the Commodity Exchange Act are detected. Each of these activities is essential. Market surveillance, however, was the one with which we spent the most time because it seemed to tie more closely with the issues of fairness and integrity and the overall situation we had been asked to examine.

The futures industry has been growing at a rapid rate, as has CFTC's oversight and regulatory workload. CFTC resources, however, have remained relatively constant.

Futures markets frequently require intense monitoring by CFTC to ensure fairness and integrity; however, the actual incidence of any serious market problems has been low.

History and objectives

Spurred by an expanding futures industry, CFTC was established by the Commodity Futures Trading Commission Act of 1974, Public Law 93-463 (88 Stat. 1389). This act substantially revised the Commodity Exchange Act, under which the Secretary of Agriculture had been authorized to regulate futures trading only in certain specified agricultural commodities. The 1974 act provided for comprehensive regulation of all commodities, goods, and services traded in the futures markets. As of April 1975, the act specified CFTC as its sole administrator.

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[1]The standardized contract a commodity exchange submits to CFTC for approval specifies, among other things, the quantity and quality of the commodity to be delivered and the future time and place of delivery. CFTC guidelines stipulate that exchanges wishing to receive approval to trade contracts in particular commodities must (1) demonstrate that a proposed contract meets the test of economic purpose (i.e., it facilitates price basing and risk shifting), (2) establish that contract terms and conditions are written so that the contract is likely to be useful to market participants and is not conducive to price manipulation or distortion, and (3) affirm that trading in the contract will not be contrary to the public interest.

Transferring risk (hedging)

Futures markets are used for protection against both increases and decreases in cash prices. This function of transferring risk, or hedging, allows individuals or firms who are unwilling to bear the risks associated with commodity ownership (hedgers) to shift the risk to others who are willing to accept these risks in return for possible profits (speculators). Market participants are therefore able to lock in a price in advance for grain they will buy or sell later. This process minimizes the risk of adverse price movements over time. Conversely, through this process, hedgers give up the opportunity for significant gains from favorable price changes.

With specific regard to grain, the basic principle of hedging is as follows: grain owners can offset the risk they face from downward shifts in prices by selling equivalent amounts of grain in the futures markets. Because cash grain and futures prices tend to move in parallel fashion, the potential for loss from one position is offset by the potential for gain from the opposite position. Those who use this risk protection mechanism tend to be merchants or exporters, processors, grain elevators, and to a lesser extent, farmers. They all share the need to minimize the risks inherent in agriculture, which are due to such factors as adverse weather, unforeseen government actions, strikes, and transportation problems.

Speculators assume the risks of price changes that hedgers are unwilling to take in the hopes of making profits. Speculators attempt to predict price changes and then buy or sell futures contracts that will make them profit from the expected changes in prices. In contrast to hedgers, speculators generally do not deal in the physical commodity itself and are in the market purely for the opportunity to profit from price change.

Speculation is an indispensable part of all futures market activity. By standing ready to purchase or sell futures contracts based on price alone, speculators increase the liquidity, efficiency, and competitiveness of futures markets. Their facilitation of the hedging process provides greater price certainty and enables hedged firms to operate at lower costs and to theoretically, at least, pass those lower costs on to consumers in lower prices.

CFTC REGULATION OF FUTURES TRADING

CFTC is a small, independent federal regulatory body established by the Congress to oversee the workings of a rapidly expanding futures industry. It has jurisdiction over all futures trading, market professionals, self-regulatory bodies, and enforcement, and has extensive emergency powers. CFTC has summarized its responsibility by saying that "its purpose is to ensure fair practice and honest dealing in futures trading, permitting

analyzing data on supply and demand conditions and on the size and dominance of traders' market positions. We concluded that CFTC, faced with a growing futures industry and a static surveillance staffing level, needed to identify and explore approaches that will increase the productivity and effectiveness of its surveillance staff. We recommended a number of actions designed to improve CFTC's data-collection and processing systems.

CFTC has since taken some actions. For example, the head of CFTC market surveillance told us that progress has been made in procuring automatic data-processing equipment that will assist the agency in its market surveillance. The planned automatic data-processing hardware conversion was completed ahead of schedule in August 1984, and much of the data used in surveillance has since been put in the system. We were advised that the agency was developing automatic data-processing software packages to allow it to perform more sophisticated and timely analyses of the data. No timetable was given for when such packages would be available, although CFTC, in commenting on this report in December 1984, said that software developments to enhance the total automatic data-processing were underway.

We were also told that new positions were created for two auditors subsequent to our 1982 report. The two auditors are responsible for verifying some of the data CFTC receives and uses in its market surveillance activities. This action was taken in response to one of our recommendations concerning the accuracy of data CFTC was receiving. These two auditors, working out of CFTC's Chicago and New York City offices, audit two to three brokerage houses per week. In the year and a half that they have been working, dozens of warning letters have been sent to brokerage firms where problems were detected. Most such problems have been resolved quickly. In one instance, a firm was fined $20,000 because of a reporting violation; in a second instance, a firm was fined $30,000.

CFTC organization

Three main divisions carry out CFTC's objectives of futures industry oversight, regulation, and enforcement. They are the divisions of enforcement, trading and markets, and economic analysis.

The Enforcement Division is very centralized and investigates alleged violations of the Commodity Exchange Act and CFTC regulations. Cases may be referred to the Justice Department for criminal prosecution. The enforcement staff is comprised of investigators and prosecutors.

The Trading and Markets Division (1) registers industry professionals, (2) performs audits of commodity futures brokerage houses and clearing associations, (3) conducts rule-enforcement reviews to ensure that the exchanges fulfill their self-regulatory responsibilities to enforce rules and regulations, (4) reviews the

CFTC was established to ensure that futures trading is fair, customers' rights are protected, and financial and economic integrity in the marketplace are maintained. To meet these objectives CFTC structures its regulatory program around three areas:

--oversight of commodity or futures exchanges to prevent manipulation and ensure that they effectively carry out their self-regulatory responsibilities;

--regulation of commodity professionals to ensure the integrity and financial stability of those selling futures to the public; and

--enforcement, to ensure that those who commit fraud or market abuse are prosecuted.

CFTC has specific guidelines and regulations in place to carry out these functions.

Congress has twice reauthorized CFTC--once in 1978 and again in 1982.[2] To assist the Congress in these reauthorizations, we conducted extensive reviews of CFTC's activities and operations.

In 1978 we reported (GAO/CED-78-110; May 17, 1978) a number of weaknesses in the way CFTC was carrying out its responsibilities. Related to market surveillance, we found problems with the (1) timeliness, accuracy, and completeness in futures and cash positions data collected from individual traders, (2) unreliability of cash price data, (3) unavailability of information on deliverable supplies, (4) unavailability of quantitative indicators for detecting market manipulation, and (5) extent to which manual techniques were being relied upon for analyzing market data. It was noted that CFTC had experienced some difficulties with foreign traders. For example, postal delays had rendered some data untimely for market surveillance, and some foreign brokers had refused to supply information on specific traders. These problems were exacerbated by a lack of enforcement capability over foreign traders. It was also noted that the market surveillance efforts of both the CFTC and the exchanges could be more effective with improved coordination, mutual understanding, clear delineation of responsibility, and a sharing of market data. We recommended several steps to improve the efficiency and effectiveness of market surveillance.

Our 1982 report (GAO/CED-82-100; July 15, 1982) recognized a number of the changes made by CFTC in response to recommendations contained in the earlier report. Regarding market surveillance, we reported that weaknesses in CFTC's overall automatic data processing system prevented it from effectively collecting and

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[2]CFTC's reauthorizations are for 4-year periods; CFTC will be due for reauthorization again in 1986.

causing that market to no longer accurately reflect true supply and demand conditions. Consequently, a surveillance program needs to collect, analyze, and compare--on a daily basis--data concerning overall supply and demand conditions in the cash market, supplies that are deliverable against the futures contract, cash and futures prices and price relationships, and the size of hedgers' and speculators' positions in the futures markets. The market surveillance activities of CFTC's Division of Economic Analysis involve, among other things, monitoring large trader positions, maintaining speculative limits for grains (see discussion on p. 39), and analyzing supply/demand data.

CFTC large-trader reporting system

A main goal of market surveillance is to prevent an individual or group of traders from controlling or manipulating the futures markets and thereby causing prices to inaccurately reflect supply and demand. To do this, a market surveillance system must be able to track the relative cash and futures positions of the various traders and identify when the dominance of one or more traders is capable of creating distortions.

At the heart of CFTC's market surveillance system is its large-trader reporting system. Under this system, CFTC receives daily reports from two sources: commodity exchanges and futures commission merchants or foreign brokers who handle futures trading accounts. Exchanges must report to CFTC, by commodity, by future, and by clearingmember, the aggregate proprietary and customer positions, trading, and delivery information. They do this on what are called '00 reports, or clearinghouse sheets. Futures commission merchants and foreign brokers report the positions of individual traders on a series '01 report but only for traders who show an aggregate futures position of 500,000 bushels or more for all grains except oats, where 200,000 bushels or more are reportable. Positions under these reporting levels are not required to be routinely reported. Futures commission merchants and foreign brokers must also report information on who owns and controls the accounts once a reportable position is reached (form 102). CFTC uses several methods of cross-checking these accounts and aggregating a given trader's position, which may be spread across several brokers. Biographical, account ownership, and control information is provided by each new trader on a form 40 and is updated annually. A check can be made to see if a newly identified trader is already in CFTC's system. CFTC also has on record whether the trader is a declared hedger or speculator with a listing of all brokers used by that trader. Future reported positions are checked against this data for consistency.

It is possible for traders to evade some of these reporting controls. For example, traders who wish to evade the '01 reporting requirements may carry accounts at several futures commission merchants or brokers in the same commodity. If the positions in each account were below the 500,000 bushel reporting level

terms and conditions of proposed futures contracts, and (5) drafts and revises CFTC regulations. The division is staffed with attorneys and auditors. CFTC recently authorized NFA to process the registration applications of most industry professionals. In addition, NFA has assumed responsibility for direct financial audits of its members.

The Economic Analysis Division must approve the standardized contract for each commodity to be traded in futures markets by ensuring that it facilitates price basing or risk shifting and that it is not contrary to the public interest. Additionally, this is the division most involved in market surveillance. Within the division the market surveillance section routinely monitors trading on all exchanges to detect actual or potential manipulation or price distortion. The efficiency of the market in converting all kinds of information into price changes is decreased when futures prices become distorted for whatever reason and do not reflect true supply and demand conditions. Large price changes can occur as a result of such things as strikes and political changes, or actions by traders attempting to control the available supply. Regardless, CFTC oversees the market to monitor deliverable supplies and large trader positions, so that the market and its participants are not exploited under any conditions. When supply/demand price relationships become unbalanced, all traders and ultimately the entire industry may be harmed. CFTC has authority to impose stiff penalties for price manipulation. In addition, manipulation is a felony punishable by up to 5 years in jail and fines of up to $500,000 for firms and $100,000 for individuals per violation. Each Friday the director of market surveillance presents a briefing to the CFTC commissioners and senior staff to discuss the status of expiring contracts, the situation in specific markets of particular interest, and the course of action for dealing with any potential market problems.

The functions of the Division of Economic Analysis are carried out by research, market analysis, and market surveillance staff located in Washington, D.C., and by market surveillance staffs located in Chicago, New York City, Kansas City, and Minneapolis. Our review focused primarily on market surveillance activities in Chicago, where most grain futures trading takes place.

Market surveillance at CFTC

To serve their economic purposes of facilitating price basing and providing a means for shifting risk, futures markets for each individual commodity must function competitively, free from artificial prices or distortions. The goals of market surveillance, then, are to spot adverse situations in futures markets--primarily price manipulations--as they develop and to prevent disruption of these markets. To accomplish these objectives, a market surveillance program must determine when a trader's position in a futures market becomes so dominant that it is capable of

trader's cash position to his futures position. A trader's futures position is allowed to exceed his cash position, but by no more than 3 million bushels.

Some critics of the U.S. grain marketing system have suggested that large grain traders engage in speculative behavior in futures trading. In this regard, the market surveillance director in Chicago told us that there is little incentive for large commercial traders to speculate; it is not consistent with their business interests. Speculative behavior on the part of large traders, he said, would involve a far greater financial risk than any well managed large corporation would be willing to contemplate. Grain traders we spoke with generally confirmed this statement. We were told that grain traders make their money buying and selling grain, that they do not make it speculating in the futures markets. A Cargill, Inc., representative told us that they try to be as perfectly hedged as possible, but that this is difficult, given their size. He indicated that a grain trader is constantly faced with making decisions regarding how to best minimize his risks, as opposed to how to best make money in the futures markets through speculation.

CFTC analyzes supply/demand data

In addition to the information gathered through the large-trader reporting system, CFTC gathers supply and demand information from USDA and various trade publications. Seasonal reports on planting intentions, actual plantings, and potential yields are gathered and analyzed. Aggregate export information and, in particular, export shipment information from Chicago is considered. To determine the extent of supplies at delivery points, reports are received by CFTC from grain elevators, showing their current stocks. Surveillance economists also contact traders who may not necessarily have excess futures positions, but who have "deliverable supplies." CFTC contacts them to see whether these supplies may be released into the market. Although CFTC also receives USDA's weekly export sales reports, we were told that little use is made of this data for surveillance purposes except as a general indicator of aggregate export demand.

As discussed in chapter 1, futures contracts are traded only for specific delivery months, which are established by the exchanges.[3] CFTC and the exchanges concentrate their market surveillance analysis on contracts that are expiring because it is at these times that the markets are most vulnerable to various forms of manipulation. Such manipulation causes artificial price movements that are not supported by actual supply/demand conditions

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[3]In the case of corn, for example, futures trading at the CBT is conducted in five separate delivery months: December, March, May, July, and September.

(200,000 bushels for oats), CFTC might be unaware that the trader was holding an overall reportable position above the required reporting levels. However, according to CFTC's director of market surveillance in Chicago, the reporting levels were purposely set at a position level much lower than would be alarming to surveillance economists in order to compensate for this possibility. Furthermore, spreading large positions out among many brokers at such a low reporting level can be costly and impractical for the trader.

An additional monitoring mechanism allows surveillance economists to further investigate the positions of large traders. CFTC surveillance economists may issue a "special call," which requires a trader to report his positions with all brokerage firms relative to each exchange where the particular commodity is traded. The trader is required to give information on his trading and delivery activity and classify his open positions as hedging or speculating. This mechanism is used

--when a trader is using too many brokers to be easily monitored through the '01 reports,

--if part of a trader's position is being carried through a foreign broker and the '01 report is not received from the broker in a timely fashion, or

--if CFTC needs to determine the status of a trader as a speculator or hedger.

According to the market surveillance director in Washington, approximately 15 "special calls" have been issued since Janaury 1, 1982. Of the five or six that were outstanding at the time of our work in October 1983, none involved grain traders. The market surveillance director also told us that they have had few compliance problems with the "special calls" process.

Speculative limit controls

Another means by which CFTC oversees and controls grain trading is by preventing speculators from accumulating concentrations of contracts of a size sufficient to squeeze (or corner) a market. CFTC limits each speculator's trading position to 3 million bushels in any one grain future, or net (all futures combined). To enforce this limit, the market surveillance staff reviews daily large trader reports for potential violations. Although bona fide hedgers are exempt from speculative limits, to monitor that exemption CFTC requires grain traders with futures positions in excess of 3 million bushels (2 million bushels in the case of oats) to submit a weekly statement of cash positions in grain (CFTC-204). These statements show the total cash position of each trader, which reflects the amount of his actual physical ownership of each commodity and the amount of his fixed price purchases and sales for which he has a legitimate cash risk. CFTC compares each

> "It shall be a felony punishable by a fine of not more than $500,000 or imprisonment for not more than five years, or both, together with the costs of prosecution, for any person to manipulate or attempt to manipulate the price of any commodity in interstate commerce . . . or to corner or attempt to corner any such commodity, or knowingly to deliver or cause to be delivered for transmission . . . false or misleading or knowingly inaccurate reports concerning crop or market information or conditions that affect or tend to affect the price of any commodity in interstate commerce. . . ."

In this latter regard, CFTC officials told us that felony cases must be pursued by the Department of Justice.

The first line of defense to a potential market manipulation or abuse is through the self-regulatory powers of the commodity exchange itself. This approach generally has proven successful because in a competitive environment, an exchange's reputation and the financial health of its members are critical to the exchange's existence and success. There is considerable incentive for an exchange to prevent any activity by its members that may threaten its integrity.

Secondly, CFTC has an arsenal of its own to use against market manipulation or abuse. CFTC's options include using its emergency powers to suspend trading, increasing margins, or forcing a contract's liquidation, to more subtle means of persuading traders to act responsibly. Often the CFTC and the exchanges work together to diffuse a potential market problem. The CFTC will avoid actual government intervention in an active market as long as the exchange is addressing the situation effectively and responsibly.

Incidence of market manipulation or abuse

CFTC's market surveillance frequently detects market situations that forewarn the agency of possible market problems. These situations are observed and, if necessary, verbal contacts are made with the brokers or traders whose futures positions seem out of balance. These contacts may be for the purpose of asking questions, confirming reported positions, alerting the brokers or traders as to CFTC's concern for the situation, or warning them to conduct their trading responsibly. According to Chicago's market surveillance director, these verbal contacts are quite effective in resolving many potential problems at an early stage.

The incidence of stronger levels of action taken by CFTC is small relative to the numbers of futures contracts traded. Chicago's market surveillance director told us that warning letters have been sent to traders with respect to only about four or five of the over 200 different commodity contracts expiring in Chicago each year. In addition, CFTC has taken emergency actions only

and may result in a trader or traders benefitting from the situation at the expense of other participants. CFTC is alerted to possible manipulation through its day-to-day analysis of prices, positions, and supply/demand data. A sudden movement in prices in a given contract (e.g., the July corn contract) could be a signal of something gone awry. Similarly, if a trader or group of traders hold, for example, excessively long (buying) positions during the final weeks or days of an expiring futures contract and at a time when there are only limited supplies, this could be a signal of an attempted squeeze by a certain trader or traders, which would then be followed closely. The July 1983 corn contract is an example of a market that was potentially vulnerable to manipulation. Corn supplies were in short supply at that time because it was the end of a crop year, the harvest from the new crop year was hurt by drought, and some otherwise available surplus supplies were obligated through the federal government's payment-in-kind program.[4] CFTC closely monitored the situation through analysis of the information as outlined, was in very close contact with a number of large traders, and--working closely with CBT surveillance staff--helped ensure the contract's successful completion without any major disruptions.

CFTC authority and procedures to prevent market abuse

CFTC is authorized under the Commodity Exchange Act to take actions to prevent individuals or groups of traders from controlling prices or otherwise manipulating the futures markets. Section 6(b) of the act, for example, specifies that

> "Upon evidence received, the Commission may prohibit such person from trading on or subject to the rules of any contract market and require all contract markets to refuse such person all trading privileges thereon for such period as may be specified . . . and, if such person is registered with the Commission in any capacity, may suspend, for a period not to exceed six months, or revoke, the registration of such person, and may assess such person a civil penalty of not more than $100,000 for each such violation."

Section 9(b) of the act additionally stipulates that

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[4]The payment-in-kind program was announced by USDA in January 1983. Under this program, producers who take portions of their acreage out of production receive as payment a certain percentage of the commodity they otherwise would have planted and harvested. The program's overall objectives are to (1) reduce production of certain commodities, (2) reduce surplus commodity stocks, (3) increase commodity prices, and (4) avoid increased budget outlays that would otherwise be necessary under existing farm programs.

CFTC controls over foreign traders

One of the things we looked for during this assignment was whether foreign traders were enjoying any special trading privileges or whether they represented a particular threat or problem to U.S. grain marketing. We were told by CFTC that although its reporting requirements and regulations are the same for foreign traders as they are for domestic traders, the verification of data, resolution of problems, and enforcement of violations are all more difficult with regard to foreign traders. In the past, legal questions have been raised regarding CFTC's ability to examine the records of foreign entities; a subpoena must be secured or a special call issued. We were told of only one case in which CFTC pursued legal access to the records of a foreign firm; this was not, however, a firm that dealt in grains.

Chicago's market surveillance director told us that in Chicago, where the majority of grain futures are traded, they have not had any problem in the past few years with foreign traders failing to comply with applicable reporting requirements and regulations. Part of this success may be attributed to

--market-wide surveys that CFTC periodically conducts to identify reporting evaders;

--the issuance of "special calls" to which traders must reply by telex within 24 hours;

--a regulation, effective June 1980, that requires each foreign trader to have an agent in the United States to receive official communication from CFTC or to have a U.S. broker as its agent; and

--a regulation, effective January 1982, that allows CFTC to contact and inform applicable brokers that a certain trader is prohibited from increasing his position in a given commodity because the trader failed to respond to a CFTC call.

One CFTC official told us that the two regulations, particularly, have improved communications with foreign traders and have eased some of the logistical problems that had previously been experienced.

CFTC's resources have remained relatively constant in the midst of rapid industry expansion

The U.S. futures industry has grown tremendously in recent years. This growth is reflected in the following graph, which depicts the number of individual futures contracts traded from 1968 through 1983. As can be seen, the 139.9 million futures contracts traded in 1983 represented a level of trading activity

four times since it was established. Only two of these emergency actions involved grain trading. On March 15, 1979, CFTC suspended trading for one day in the March 1979 wheat futures contract being traded at CBT. CFTC believed an emergency existed as a consequence of significant transportation and warehouse facility shortages, and that the combined trading positions being maintained by a small number of speculative traders were a threat to the market. On March 16, 1979, CFTC ordered the termination of trading for the three remaining trading days of the contract because of the threatened price manipulation. During that weekend, however, CBT obtained a court injunction against the CFTC order.[5] Trading on the commodity contract was resumed on Monday, and the contract expired with only small price changes during the last three trading days.

The other emergency action involving grain resulted in a brief suspension of trading of all grain futures at all commodity exchanges following President Carter's embargo of grain sales to the Soviet Union on January 4, 1980. CFTC took this action because it believed that the embargo prevented the market from accurately reflecting the forces of supply and demand for grains. The action ordered the suspension of trading in all grain futures contracts for the trading days January 7 and 8, 1980. The purpose of the action was to help maintain orderly trading in grain contracts and to provide a reasonable period for impact of the President's action and the details of the expected remedial governmental action to become disseminated and assessed by the marketplace.

In terms of regulation and intervention in market activities, CFTC must walk a fine line. CFTC officials have emphasized that the market is quite sensitive to "over-regulation." Employed judiciously and effectively, CFTC's market surveillance activities provide assurance to market participants that the market is sound and fair. Too much involvement and action on CFTC's part, however, can create the opposite perception and work to discourage market participation.

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[5]The U.S. Court of Appeals for the Seventh Circuit later reversed the District Court's injunction decision, ruling that CFTC's emergency powers were not reviewable by the courts. Subsequent to this decision, however, the Congress in 1983 provided that CFTC's emergency powers were to be subject to "review only in the United States Court[s] of Appeals . . . based upon an examination of the information before the Commission at the time the determination was made." The standards for reviewing CFTC's actions are whether these actions are "arbitrary, capricious, an abusive discretion, or otherwise not in accordance with law."

widely recognized as a commodity, which set the stage for the creation of various new financial futures instruments, which are now being traded. In addition, there was increased commercial participation in the futures markets by many other interests--home builders, real estate developers, millers, livestock feeders, manufacturers, merchandisers, and farmers. This increased participation reflected a growing awareness and understanding of futures markets and a greater appreciation of the usefulness of futures as a marketing, pricing, and risk-management tool. To attend to this expanding market, the pool of industry professionals has also grown quickly. The number of brokers, sellers, and other professionals registered with CFTC rose from 36,000 in 1979 to over 56,000 in 1982. Also, recent congressional authorization for experimental programs for organized trading of options on agricultural futures is expected to increase futures market participation even more (see p. 69 for additional discussion of agricultural options).

Although the industry has expanded at a fast pace, CFTC's resources have remained relatively constant. Employment figures at CFTC, for example, have ranged from 444 to 469 during the period 1977 to 1982. At the time of our review, the market surveillance staff in CFTC's Chicago office was made up of 34 people. The Chicago and New York City offices are the two largest regional CFTC offices, and they are responsible for overseeing 9 of the 11 commodity exchanges. The Chicago surveillance staff is made up of a director, 15 reports processing personnel, an auditor, and 17 economists and statistical assistants.

The fact that CFTC's resources have remained relatively constant over the past several years in the face of a rapidly expanding industry emphasizes the need for CFTC to identify and explore approaches that will increase the productivity and effectiveness of its overall market surveillance. This was one of the conclusions we reached in 1982[6] regarding the CFTC; we consider it as relevant today as it was then. CFTC's constant resources in view of an expanding industry also highlights the importance of industry self-regulation. The subject of self-regulation, along with some of the self-regulatory activities of the CBT and NFA, are the focus of the remainder of this chapter.

SELF-REGULATION IN U.S. GRAIN FUTURES MARKETS

Futures markets have a strong tradition of self-regulation dating back to the mid 1800's. This self-regulation is carried out largely by the commodity exchanges having responsibility for the activity on their own floors and for the activities of their members. Self-regulation has apparently worked--as evidenced somewhat by the continued existence and success of the industry

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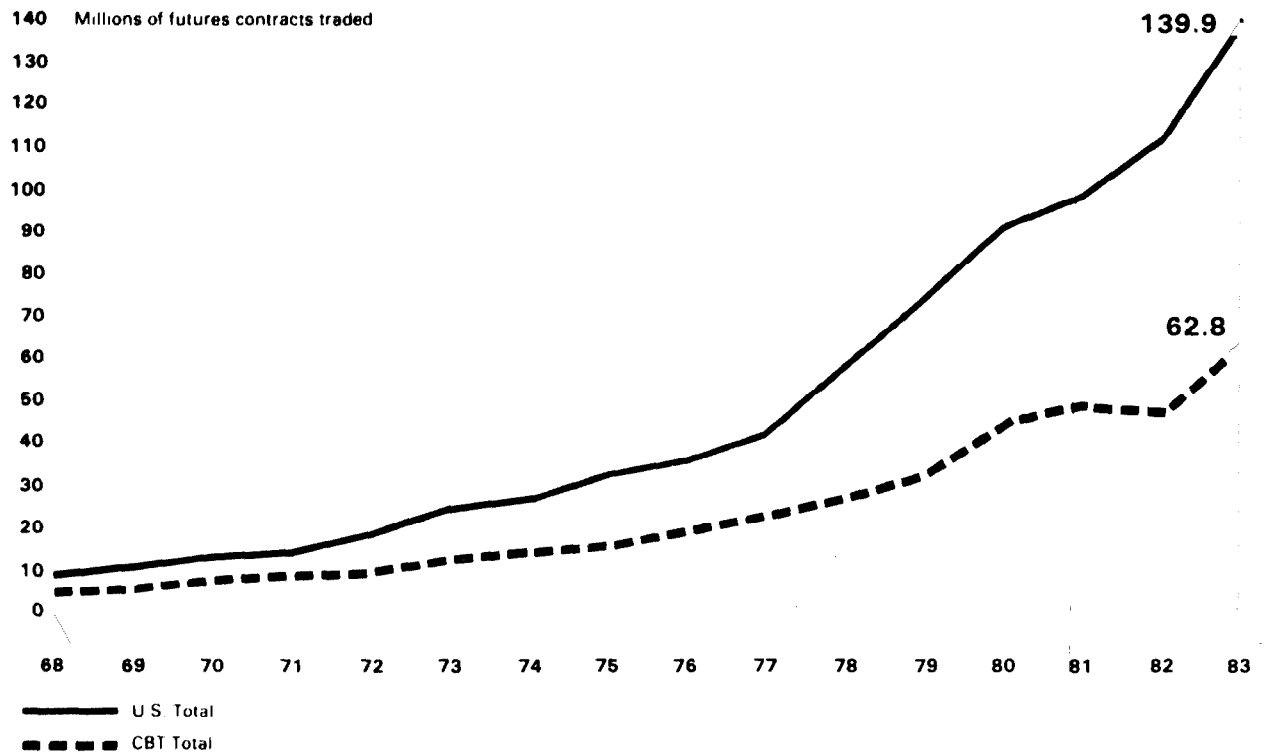
[6]GAO/CED-82-100; July 15, 1982.

approximately 15 times greater than the 9.3 million contracts traded in 1968. The graph also reflects the number of futures contracts traded at CBT over the same period.



Source: Prepared by GAO based on information obtained from CFTC and CBT. The original source of the information for at least the years 1979 through 1983 was the Futures Industry Association

The value of futures contracts traded each year is in the trillions of dollars. In 1982, for example, it was estimated that the annual value of contracts being traded was in excess of $5 trillion. Our 1982 CFTC report discussed some of the reasons for this tremendous increase in volume and importance of futures trading. Prominent factors included economic uncertainty, high inflation, and high interest rates, which caused a greater need for risk protection. These factors also resulted in money being

The organization we were most interested in at CBT was the Office of Investigations and Audits. This office, with a staff of 49, is organized into four major groups that conduct the following activities:

--Audits and examinations Examines books and records of member firms on a regular and impromptu basis for compliance with CBT requirements.

--Financial surveillance Reviews and analyzes financial reports submitted by members, and ensures that the financial conditions of new members, refiners, and shippers meet CBT requirements.

--Investigations Performs inquiries into complaints for possible rule violations and maintains surveillance of floor trading practices to detect and/or deter possible rule violations.

--Market surveillance Monitors positions of members and their customers to prevent market congestion and determines extent of compliance with rules and regulations.

Of these activities, the one we examined most closely was market surveillance, which corresponded to our work at CFTC. CBT's market surveillance activities are described briefly below.

Market surveillance at CBT

CFTC regulations require each commodity exchange to maintain a program for the surveillance of market activity for indications conducive to possible price distortion. Such a program is to provide the means of recognizing adverse situations in futures markets as they are developing and before the market has been disrupted. According to CFTC, such a program must also have a knowledgeable, aggressive, and independent staff that has the capacity to obtain the necessary data on which its judgment must be based.

CBT's market surveillance program and procedures are similar in some respects to those of CFTC. Like CFTC, the CBT market surveillance staff (made up of 10 people) gathers and analyzes information on traders' cash and futures positions, supply and demand, and prices, and attempts to detect imbalances in supply/demand price relationships. CBT uses some USDA data to project supply and demand conditions; CBT surveillance officials told us, however, that USDA's export sales reports are not among the data they routinely use. Like CFTC, the CBT surveillance staff gears its activities toward the "nearby" or expiring futures contract, as this is the most vulnerable point for attempted trader manipulation.

The CBT surveillance staff receives some data on various member firms through several computer-based systems. One such

for over 100 years. One futures market expert recently hypothesized that futures markets will not tolerate unfair market conditions, where one group can consistently and systematically take advantage of the others. Such a situation--were it flagrant enough--would drive away those who were being taken advantage of, the market's liquidity would diminish, and the market would fail. One congressional critic we talked with was skeptical of this theory, however. He questioned just how much of a self-policing mechanism there was in the futures markets. He suggested that inequities in trading are not always detected and corrected because many market losers quietly fade away, only to be quickly replaced by others from a large pool of prospective market participants.

There is movement toward greater self-regulation. In 1968 the Congress enacted legislation to require exchanges to enforce their own rules. In 1974 CFTC was authorized to approve or disapprove exchange rules and was given a strong oversight and enforcement role. CFTC conducts rule-enforcement reviews to gauge how well the exchanges are regulating themselves, and whether they are ready to take on additional self-regulatory responsibilities. As the industry has expanded and the federal budget increasingly tightened, the need for additional and more effective self-regulation has been recognized. In this regard, CFTC in 1981 approved NFA as the industry's first self-regulatory association. NFA began its operations October 1, 1982, mainly as a self-policing force over the professional conduct and financial responsibility of its members.

CBT: an example of how an exchange regulates itself

CBT is the oldest of the 11 commodity exchanges in the United States. It is also the largest, handling 45 percent of the 140 million futures contracts traded by all exchanges in 1983 and 93 percent of all wheat, corn, and soybeans contracts traded in 1982. Additionally, it handles the trading of futures contracts of a variety of other commodities, including plywood, gold, silver, heating oil, unleaded gasoline, and a host of financial instruments.

CBT is governed by a board of directors made up of an elected chairman, vice-chairman, 15 member directors, three public directors, and the president of the exchange. Policymaking for all phases of exchange activity is the responsibility of this board and a number of member committees. There are two major committees at CBT--the floor governor's committee, which monitors floor trading activities, and the business conduct committee, which monitors some 2,000 exchange members and their activities. Administration of the exchange at the top level is handled by an appointed president, an executive vice-president, and 11 vice-presidents. Approximately 460 staff members carry out the work of the exchange.

CFTC has criticized CBT's disciplinary program and the fact that the exchange has taken disciplinary action only very infrequently.

CBT and CFTC relationship regarding market surveillance

CBT and CFTC share the same objective of protecting the futures markets from manipulation and abuse. Both have a market surveillance system to help them achieve this objective. According to market surveillance officials at both CBT and CFTC, during the delivery month of each futures contract they are in frequent telephone contact with each other; supply/demand and trader position information is readily exchanged.

Although this relationship exists, which is certainly conducive to better market surveillance, over time CBT and CFTC have had differences of opinion as to what constitutes adequate market surveillance and proper regulatory actions. CFTC, for example, maintains that a large-trader reporting system that provides information on concentrations of positions of traders is critical to prompt, effective market surveillance. CBT has stated, however, that an effective market surveillance program is one that is sensitive to price distortions and is capable of discovering whether such distortions are due to natural or unnatural causes. CBT has claimed that large-trader data is needed only after it has been determined that price distortions are due to unnatural causes. CBT has maintained that a large-trader reporting system generates unnecessary statistics and paperwork. The CBT surveillance staff has expressed satisfaction with its ability to obtain information quickly and cooperatively from member firms when necessary.

CBT and CFTC have also disagreed on when a potential problem exists requiring regulatory action. For example, as discussed earlier, CFTC suspended trading with regard to the March 1979 Chicago wheat futures contract because of a situation in which price manipulation was perceived to be a real threat. According to a USDA report on this action, CFTC maintained that information about trader positions and deliverable supplies showed that a small number of traders were in a position to influence or "squeeze" the market, if they had chosen to do so. The disagreement between CFTC and CBT came in the amount and type of emergency action necessary to prevent the threatened manipulation and the degree of price distortion that is tolerable in a viable market. The CFTC wanted trading stopped, believing that there was a clear threat of manipulation. Finding little evidence of actual price distortion, CBT, on the other hand, wanted to take less drastic actions, such as obtaining verbal assurances from the involved traders that liquidation of the contract would be orderly or ordering trading for liquidation purposes only. The USDA report cited differences in regulatory philosophies between CBT and CFTC that were basic to the disagreement and concluded that equitable ways of dealing with such situations needed to be developed. In our discussions with CBT and CFTC market surveillance personnel,

system, which has been of only minimal value, is CBT's large-trader reporting system. Because of inadequacies in this system, CBT has been somewhat dependent on CFTC's large-trader reporting system when it was considered necessary to examine data of this kind. As discussed below, CFTC has criticized CBT for not having an adequate large-trader reporting system in place. In response to that criticism, CFTC officials informed us in December 1984 that CBT has instituted an improved large-trader reporting system.

Incidence of abuse as discovered by CBT

When the CBT surveillance staff notes a situation of concern, it attempts to resolve the problem by requiring applicable exchange members to put pressure on their specific customers who are the cause of the concern. This contrasts with CFTC, which directly contacts traders holding excessive long or short positions. The process is, however, similar. Like CFTC, CBT initiates verbal and written dialogue with the member firms having customers holding excess positions. If the situation remains unchanged, CBT has a variety of additional steps it may take. CBT is only authorized to extend sanctions to its member firms, however, and must depend on the firms to, in turn, monitor and control individual traders.

Exchange members may be called before CBT's business conduct committee to justify their customer's excessive short or long positions in the delivery month. The committee may require the member firm to submit information on individual customer accounts, including foreign trader accounts. CBT may threaten the member firms with charges of price manipulation if they do not fully comply, require the firms to force their customers to liquidate their positions, or liquidate the customer's position itself if the customer refuses to do so based on the member firm's urging.

The head of CBT's Office of Investigations and Audits told us that foreign traders pose few problems for CBT. First, foreign traders are connected to CBT by member firms through which CBT can exercise control. Second, foreign traders do not generally maintain futures positions late into the expiration period of a contract. We were told, however, of one exception involving the July 1983 corn contract. Traders from two foreign countries held positions late into the expiration period of the contract. They willingly complied, however, with CBT's requests to liquidate their positions.

The head of the Office of Investigations and Audits also told us that there have been only two instances in the past 2 years when CBT needed to employ the pressure techniques described above. In these instances member firms were threatened with charges of manipulation, with accompanying penalties. The member firms responded, however, and no such penalties were ever imposed. Only infrequently has CBT ordered liquidation of a given position at a certain price stipulated by CBT. As discussed beginning on page 51,

NFA: another means of self-regulation

Additional regulation in the commodity futures industry is provided by the NFA, the first industry-wide self-regulatory association. NFA was authorized in the fall of 1981 by CFTC and began its operations on October 1, 1982. Its purpose was to assume some of CFTC's regulatory responsibilities. Because the commodities industry had undergone tremendous growth in recent years, an NFA background paper stated that it was considered a natural decision to delegate some of CFTC's responsibilities to NFA as well as to grant the entity some new functions. It was believed that CFTC would thus be allowed to monitor the expansion of futures markets more efficiently.

NFA's primary responsibility has to do with the registration and financial surveillance/audits of futures commission merchants and various other industry professionals known as commodity pool operators, commodity trading advisers, and introducing brokers. It is also responsible for the enforcement of customer protection rules, uniform business standards, and arbitration of customer disputes. NFA is also responsible for administering proficiency tests to commodity professionals.

NFA's headquarters is in Chicago, with another smaller office located in New York City. As an association, NFA had 1,893 member firms on January 1, 1985, and expects this number to grow to 2,000 by the year's end. An August 1983 CFTC rule made NFA membership mandatory for all futures commission merchants. An NFA by-law prohibits NFA members from doing business with any nonmember or suspended member that is required to be registered with the CFTC as a futures commission merchant, introducing broker, commodity pool operator, or commodity trading adviser. Membership is voluntary for commodity exchanges (all of them have joined), commodity-related commercial firms, and commercial banks.

NFA and the concept of a self-regulatory association have the full endorsement and support of the futures industry, as is evidenced by the industry leaders who serve on NFA's board of directors. These directors represent top brokerage firms, commercial banks, commodity-related commercial firms, and commodity exchanges. NFA is run on a day-to-day basis by its president and chief executive officer and by a staff that in January 1985 numbered 225.

According to an NFA vice-president, NFA's functions are set up to complement those of CFTC; the two work closely together in certain circumstances. When disciplining a firm, for example, NFA maintains close contact with CFTC because of CFTC's oversight responsibilities. Since beginning operations in 1982, NFA has investigated customer complaints against member firms and has expelled three firms from its membership. In addition, NFA has issued what it calls "complaints" and "member responsibility

we sensed a more "laissez-faire" attitude on the part of CBT officials than with CFTC officials regarding market surveillance and the need for market intervention.

CFTC's Division of Trading and Markets conducts rule enforcement reviews to determine the effectiveness with which CBT and other exchanges carry out their oversight and regulatory responsibilities. From such a review, CFTC reported in April 1982 that CBT's market surveillance program was hampered by an apparently restrictive scope of review and by too much reliance upon information gathered by CFTC. The report stated that CBT's reliance solely upon CFTC for information concerning market positions of individual traders placed the exchange in a position where it was unable to enforce compliance with its rules establishing position limits. CFTC pushed for and got CBT to commit to designing and implementing a large-trader reporting system that would identify and permit the exchange to monitor individual traders. CBT also agreed to make substantial improvements in its ability to use computer-assisted techniques to monitor trading for potential trade-practice abuses.

In a follow-up review, CFTC reported in October 1983 that some actions had been taken in response to its preceding report. CFTC expressed concern, however, that although CBT had committed itself to developing a large-trader reporting system by April 1983, such a system had not yet been implemented. The report recognized a couple of reasons given by CBT for the delay in implementation; CFTC did not, however, consider either of them persuasive. CFTC, in the report, again pushed for quick implementation of the system.

In its October 1983 report, CFTC was also critical of CBT for not having an effective disciplinary program. The report stated that CBT does not have a program that results in the taking of prompt disciplinary action, as required by CFTC regulation, and that the lack of such a program compromises the effectiveness of CBT's investigative staff. CFTC pointed out the almost complete lack of substantive disciplinary action by CBT during the review period, even though there were situations where such action appeared to be warranted. CFTC recommended several changes for improving CBT's disciplinary program.

In May 1984 the news media reported that CBT was taking steps to increase its auditing and financial surveillance staffs in response to CFTC's latest report. It was stated that CBT was acting to comply with all of CFTC's recommendations, including those related to taking prompt, effective disciplinary action against members who violate trading rules. In October 1984, CFTC reported that CBT had either fully complied with or substantially complied with all of CFTC's recommendations regarding its trade practices and disciplinary programs.

CHAPTER 4

PROS AND CONS OF MORE STRINGENT GRAIN MARKETING CONTROLS

The impact of the 1972 grain sales to the Soviet Union was significant. Tighter supplies and higher commodity prices resulted from these sales. Particularly alarming was the belief by many U.S. farmers, consumers, and others that the Soviet Union had been allowed to purchase U.S. grain at too low a price and that several of the large, multinational grain trading firms had benefitted profitably from these sales. Determined that such a situation would not occur again, the Congress passed legislation in 1973 that established in USDA the export sales reporting system. Although this system is still in place and appears to be functioning well, many of the concerns and suspicions generated back in the early 1970's continue to persist, largely because of the financial dilemma faced by many of today's farmers; some have called for more stringent grain marketing controls, particularly in the area of export sales reporting.

As part of our examination of USDA's export sales reporting system and, to a lesser degree, CFTC's and CBT's controls to ensure fairness and integrity with respect to grain marketing, we attempted to determine whether such controls are sufficient as they now stand or whether they need to be strengthened. Suggestions have been made by different parties that more needs to be done if a recurrence of the early 1970's grain situation is to be avoided and if there is to be fairness and integrity in the marketplace. An underlying concern of the request behind this assignment was that the larger grain traders have the capability of using the market to their advantage at the expense of others, including farmers. This chapter discusses these issues and the feasibility of some of the suggestions that have been made for change. It recognizes the findings of USDA's Advisory Committee on Export Sales Reporting, which dealt in detail in 1979 with this overall subject, and advances some additional considerations uncovered by our review. Those advocating the need for additional controls have often alleged that the farmer is the one who bears the brunt of any wrongdoing by large traders and/or foreign entities involved in grain trading. This chapter discusses some of the opportunities farmers have for protecting themselves against unfavorable movements in the marketplace.

RECURRENCE OF 1970's GRAIN SITUATION SEEMS UNLIKELY; POTENTIAL IMPACT OF MOST EXPORT SALES SEEMS LIMITED

The agricultural commodity situation has changed dramatically since the export sales reporting system was put into effect in 1973. Since then supplies have become abundant, and there are some who now have difficulty understanding the continued need for such a reporting system. The emphasis in recent years has not been on how to restrict the flow of grain out of the United

actions" in 66 instances in which it believed that an NFA requirement was being, or was about to be, violated. Such actions are directed toward ensuring each member firm's financial stability, thereby protecting each firm's customers.

CONCLUSIONS

U.S. futures markets fulfill important economic functions in that they facilitate price discovery and the allocation of risk. They exist because of limitations in cash and forward markets and because of uncertainties and volatility with regard to prices, interest rates, exchange rates, and other economic factors. These markets have grown tremendously in recent years in numbers, types, and dollar value of contracts traded, and in numbers of market participants. The rapid growth in futures trading and the increasingly important role of such trading in the nation's economy emphasize the continuing need for regulatory programs that promote confidence in the operation and integrity of futures markets.

The regulatory programs of CFTC, the commodity exchanges, and NFA help to ensure a higher degree of fairness and integrity in futures trading than might otherwise exist. Although each such entity has specific roles and responsibilities, collectively they share a common commitment to making the futures markets work. They do work together to achieve this objective.

Market surveillance is an important part of the regulatory programs at CFTC and CBT and involves the detection of adverse situations in futures markets capable of creating prices that do not reflect true supply and demand conditions. CFTC's and CBT's market surveillance responsibilities seem somewhat overwhelming, considering today's high level of futures trading activity and the relatively small staff devoted to this activity. We found little to suggest, however, that those responsible for monitoring the grain trade had thus far been unable to keep up with the increases in futures activity or were performing at levels less than adequate. Although we did not review either CFTC's or CBT's market surveillance activities in any depth, we did judge them to be routine, systematic, and--if followed--capable of disclosing problems in futures trading that can then be dealt with.

This report contains no new recommendations or suggestions for improving the market surveillance activities of CFTC or CBT. We have, however, made previous recommendations with respect to the various activities of CFTC; we believe that they remain valid. As noted beginning on page 35, CFTC has taken some action in response to several recommendations; other CFTC actions currently underway, and any being taken by CBT in response to the recommendations made to it by CFTC, should continue to be pursued to the end that both CFTC's and CBT's market surveillance activities are equal to the challenges of a changing and ever-expanding futures industry.

through the daily large export sales reporting system. Export sales of less than 100,000 metric tons are not included in these figures; they are, however, included in the discussion beginning on page 57.

Analysis of Destinations and Volumes of Daily Large Export Sales Activity of Wheat, Corn, and Soybeans, April 1977-September 1982

Destination	Number of instances of large export sales activity	Volume (millions of metric tons)	Percentage of volume to total large export volume
Soviet Union	281	71.1	51.8
China	117	20.6	14.9
Mexico	34	6.7	5.0
unknown[a]	371	5.7	4.2
India	5	3.6	2.6
Romania	23	2.7	2.0
Nigeria	20	2.6	1.9
Taiwan	20	2.6	1.9
Japan	23	2.5	1.8
Republic of Korea	14	2.3	1.7
East Germany	15	2.3	1.7
Iraq	6	1.4	1.0
Brazil	12	1.4	1.0
Spain	10	1.4	1.0
All others[b]	94	10.4	7.5
Total	1,045	137.3	100.0

[a]The destination of an export sale may be unspecified at the time the sale is made and reported to USDA. Once the destination is specified, it must be reported to USDA's Export Sales Reporting Division, which adjusts its records accordingly.

[b]This category involves 28 countries, each accounting for less than 1 percent of the total large export volume.

Source: Produced by GAO from USDA press releases of daily large export sales activity.

Grain export officials told us that the only time an export sale causes a real stir in the marketplace today is when it involves a quantity and/or destination that was not anticipated. We

States, but rather on how to develop new and increased grain markets. To this end, some point out that the system is important during a period of abundant supplies--just as it is when supplies are tight--because it provides useful information to a variety of parties involved in monitoring and analyzing the markets.

The fact that such a system does exist and is working is a primary reason why a recurrence of the "surprise" grain sales of the early 1970's is less likely than it used to be. Export sales information, along with more and better information about supply/demand conditions, weather patterns, and so forth have led to a more enlightened grain marketing system. Information-gathering and communications capabilities are now much more instantaneous and sophisticated than before. We were told by government and grain exporting firm officials that there are far fewer surprises in grain marketing than there used to be. We were cautioned, however, that there are differences in the information-gathering capabilities of various market participants and that larger traders have an advantage in this regard over smaller traders (including many farmers).

In addition to a greater abundance of supplies and the existence of more and better information, including that generated by the export sales reporting system, there are several other reasons why a recurrence of the early 1970's grain situation appears unlikely and why the potential impact of any given sale on market prices--and thus the opportunity for an exporter to systematically profit on such a sale at the expense of others--seems limited. Several of these reasons are discussed below.

Grain sales to countries such as the Soviet Union and China have become commonplace

Sales to the Soviet Union and China have become rather commonplace over the past 10 years. Such sales do not cause excitement in the marketplace as they once did. There is an element of calm expectation to them now, as compared with the surprise and intrigue of prior years. One of the reasons for this can be traced to long-term grain sales agreements, entered into beginning in 1975, between the United States and the Soviet Union and China. These agreements set minimum and maximum levels of grain purchases, which help to remove some of the uncertainties that might otherwise exist.

The following table shows the number of instances of large export sales activity (100,000 metric tons or more) that were reported on a daily basis from April 1977 through September 1982. As can be seen, the Soviet Union and China were at the top of the list with respect to reports of daily large export sales. Almost 52 percent of the volume of daily large export sales activity was attributed to the Soviet Union; 15 percent was attributed to China. The table reflects only export sales activity reported

Total Export Sales, 1977-82

Fiscal year	Volume (in million metric tons) Wheat	Corn	Soybeans	Total
April-Sept. 1977	14.6	22.6	10.1	47.3
1978	30.9	48.8	21.0	100.7
1979	35.6	70.9	22.3	128.8
1980	33.6	55.9	20.5	110.0
1981	43.9	50.4	21.1	115.4
1982	41.0	50.8	26.2	118.0
Total	199.6	299.4	121.2	620.2

Source: Produced by GAO from weekly export sales data provided by USDA's Export Sales Reporting Division.

As can be seen from the table, total export sales volume during the 5 1/2-year period was 620.2 million metric tons. Of this amount, 137.3 million metric tons, or 22 percent, represented large export sales of 100,000 metric tons or greater. This is shown in the following table, which breaks down the size of all large daily export sales and shows each size category's relationship to total large daily export sales volume and total export sales volume.

were also told that the Soviet Union and China are now buying less secretly and in smaller increments than they once were.[1]

Although grain sales to countries such as the Soviet Union and China have become more commonplace than they once were, USDA pointed out in its comments on this report that China substantially reduced its grain imports from the United States in 1983-84. USDA stated that there is some question whether U.S. grain sales to China will remain as commonplace in the near future as they have been. USDA further stated or implied that the Soviet Union and China are highly unstable customers, that substantial opportunity for these countries to shock export markets remains, and that such a situation supports the continued need for its export sales reporting system.

Most sales are small in relation to total market activity

It seems unlikely that a particular export sale or set of sales would have a dramatic impact in today's market because the volume of most sales is small in relation to total market activity. We attempted to determine how large a sale would have to be to have an impact in the market. In so doing, we accumulated the following total export sales data (including both small and large sales) from April 1977 through fiscal year 1982 for wheat, corn, and soybeans.

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[1]During the summer of 1984, Soviet Union purchases of U.S. grain were approaching record levels. Under a 5-year sales agreement negotiated in 1983, the Soviet Union purchased 13.7 million metric tons of grain--mostly wheat and corn--for 1983-84. This level equals the Soviet Union's first large-scale purchase level of 1972-73, which emptied grain bins and drove prices up. It falls short, however, of the 13.9 million tons of 1975-76 and the record 15.3 million tons purchased in 1979-80.

We asked government and grain exporting firm officials how large an export sale would have to be before it would be expected to cause a stir in the marketplace. We were told universally that most sales alone will not make much of a dent in the marketplace. There are times, however, when trading is slow where a given sale might have more of an impact than it might have at some other time.

Along these lines, an article written by an official of one of the leading grain exporting companies, Cargill, Inc., discussed what he considered to be several misconceptions regarding grain merchandising. One such misconception is that market prices are set by specified sales. The article states that this misconception is the main fallacy underlying the export sales reporting system, which focuses attention on specific sales rather than the whole supply/demand picture. The article points out that a large sale can have a noticeable price effect. But as long as that sale fits within the market's expectations for total demand from a particular country, the price effect will be temporary. By itself it can even be misleading. The timing and amount of individual sales are not good barometers of overall demand, and it is overall demand that drives market levels.

The article goes on to assert that the situation is similar for the individual exporter. A specific sale is seldom linked to specific cash purchases. The exporter is continuously buying and selling cash grain and selling and buying futures in hedging this cash business. Each purchase or sale becomes a part of his position--what exporters call their "book." The exporter's book is somewhat analogous to a river with grain continuously flowing in from many purchases and continuously flowing out from many sales. Exporters do not accumulate purchases, discharge them in a sale, and then start the filling-discharge cycle all over; rather, it is a continuous process.

Grain is merchandised in this manner because the exporter must be able to adjust his marketing strategy as transportation, interest rates, and other market factors change. Because exporters merchandise positions rather than specific sales and purchases, a cash sale does not automatically trigger immediate cash purchases. The exporter may have been long in cash grain and short in futures (i.e., hedged in sales of futures) prior to the sale. Or he may expect that cash grain will be more available next week. Or any other number of other past, present, and future factors may be shaping his book and how he trades. The article thus concludes that it is a mistake to attach too much significance to specific transactions or to link them together as if they were pieces of a single transaction.

Analysis of Large Export Sales Reports,

April 1977-September 1982

Volume (in metric tons)	Number of reports	Total net volume of large export sales (million metric tons)	Percentage of total large export sales volume	Percentage of total export sales volume (620.2 million metric tons)
1,000,000 or greater	16	14.4[a]	10.5	2.3
800,000 - 999,999	5	2.6	1.9	.4
500,000 - 799,999	67	15.3	11.2	2.5
100,000 - 499,999	855	100.7	73.3	16.2
Less than 100,000	102[b]	4.3	3.1	.7
Total	1,045	137.3	100.0	22.1

[a]The 16 reports of large export sales of over 1 million metric tons do not represent a total volume of at least 16 million metric tons because some of the reports are not new sales but, rather, modifications to old sales because of changes in quantities, destinations, etc. The same holds true for the other volume categories.

[b]Of the 1,045 large export sales reports, 102 involved quantities of less than 100,000 metric tons. These 102 reports did not represent large export sales themselves but, rather, adjustments in quantitites, destinations, and so forth of large export sales (100,000 metric tons or more) previously reported.

Source: Produced by GAO based on daily and weekly export sales data provided by USDA's Export Sales Reporting Division.

Most export sales are of insufficient size to have much of an impact on the marketplace. Over the above 5 1/2 years, for example, there were only 16 times when there was export sales activity of 1 million metric tons or greater. These 16 instances involved only 10.5 percent of all large export sales activity and only 2.3 percent of total export sales activity.

There were only 88 times when there were large export sales reports involving 500,000 metric tons or more. These 88 reports represented a net volume of 32.3 million metric tons, or 23.6 percent of all large export sales activity. In terms of total export sales, the volume of the 88 reports made up only 5.2 percent of total activity.

sales to the last possible moment, consistently profiting at the expense of other market participants. As was discussed earlier (p. 47), if one portion of the market had such an unfair advantage, the other market participants (and the liquidity in the market that they provide) would be driven away. This does not seem to be happening. There is now more futures trading than ever before. The U.S. grain marketing system handles millions of tons of grain valued in the billions of dollars. The system has enjoyed an enviable record of few serious disputes and even fewer defaults.

SHOULD THERE BE MORE STRINGENT REPORTING REQUIREMENTS?

For the past several years there has been concern about the fact that foreign entities are not required to report export sales of U.S. commodities. Although these sales are eventually reported by the U.S. exporter who supplies the commodity for delivery against the original sale, there is concern that foreign entities, along with the large, multinational exporters doing business with them, might be profiting from this disclosure delay and the corresponding positions they take in the cash and futures markets. It has been suggested that foreign entities and other traders be prohibited from participating in U.S. futures markets unless they are willing to comply with more demanding export sales reporting requirements. The Chairman of the House Subcommittee on SBA and SBIC Authority and General Small Business Problems, Committee on Small Business, in hearings on export grain sales in June 1979, characterized the problem as follows:

> "Under current export sales reporting requirements, only U.S. firms must report sales to USDA within a limited period. Others--which include foreign firms, foreign affiliates of U.S. firms, and foreign firms with U.S. affiliates--are not compelled to report sales."
>
> * * * * *
>
> "Over a period of years we have had examples where foreign-state trading companies have bought large amounts of grain and for weeks have delayed filing any reports. During this time, they have had the opportunity to run their purchases through our futures market and, with inside trading information, guaranteed a low fixed price prior to the time producers and processors in this country were aware of any worldwide change in demand. This results in our farmers selling their grain at prices which do not yet reflect the new increased demand."

The chairman's answer to this problem was to require reports of all trades, whether they be by domestic or foreign firms. He further suggested that, to make the system work, reports of sales

USDA study of exporters' profits was inconclusive

With respect to any given export sale, do foreign entities and/or large grain exporters profit from the advance knowledge that they alone hold about the sale? Can or do they profitably position themselves in the futures markets on the basis of this advance information to the corresponding detriment of other market participants, including consumers and farmers? Is there a relationship between a given export sale and futures market transaction?

In 1979, three USDA economists attempted to find answers to these kinds of questions. They wanted to know specifically if exporters were profiting from futures markets transactions that could be attributed to advance information about export sales. As was mentioned in chapter 1, they found that their study lent some support to the notion that exporters were able to take profitable positions in the futures markets before export sales were reported. It was not clear to them, however, whether the futures profits were greater than justified because of the (1) gain/loss variations among the cases they examined, (2) the degree of approximation involved in the study because there is not necessarily a one-to-one relationship between export sales and futures transactions, or (3) cash market losses experienced by some of the exporters.

Grain exporters have an interest in preserving the market's integrity

U.S. futures markets play a central role in all phases of grain merchandising. Their existence provides price reference points used throughout the world by buyers and sellers alike. They also allow merchants to shift unwanted price risks onto others who are willing to assume them and speculate that prices will move in their favor. In this latter regard, we were told that futures markets are vitally important to most grain exporters. In an industry where profit margins average less than two cents per bushel, even a nickel change in the price of a commodity--a price movement not at all uncommon today--could more than wipe out a transaction's potential profit. Given the large volumes exporters handle, small adverse price changes affecting an unhedged position could jeopardize an exporter's ability to stay in business. So, the exporter hedges--giving up the opportunity to gain from favorable price changes to reduce the risk of catastrophic losses from adverse price movements.

We were told in discussions at CFTC and with grain exporters themselves that exporters, because of their need to shift their risks arising from adverse price movements, have an interest in preserving the markets that allow them to do this. The implication of these discussions was that exporters would be hurting themselves if they were, through their attempts to conceal export

In deliberating matters such as these, the advisory committee considered a number of possible changes to the export sales reporting system, including whether its administration should be shifted to CFTC and whether foreign entities should be required to report their export sales activities. Along these lines, the committee concluded and/or recommended that

--The current system or some modification of it should be continued.

--USDA should continue to operate the system (as opposed to turning it over to CFTC) because export sales information is of the type of agricultural supply and demand information that USDA has responsibility for disseminating.

--USDA should retain present requirements with respect to domestic-based exporters and extend discretionary authority to the Secretary of Agriculture to require the reporting of export sales of U.S. grain by all foreign exporters under circumstances such as extremely tight U.S. or world supplies of designated commodities.

There had been some concern expressed about the legality of more stringent reporting requirements and the difficulties that might be encountered in enforcing them. There had also been concern that if foreign firms were required to promptly report sales of U.S. commodities, a possible loss of export sales might result. Exporters unanimously warned the committee that this would be the case. Farmer representatives expressed the opinion that additional information might be useful, but that they would not ask for it if total export sales were likely to be affected. The committee found little objective evidence that the current reporting system has hurt U.S. exports or to either support or refute the contention that U.S. exports might be hurt by more complete and timely export sales reporting.

The advisory committee's report did result in a June 1980 change to make the export sales reporting system more timely. The number of days from the date export sales are reported to USDA to the date they are released in summary form to the public was reduced. The impact that this change has had on the efficiency of the marketing system is discussed in chapter 5.

Grain exporting firms' views toward more grain marketing controls

We contacted officials of a small number of grain exporting firms and discussed with them, among other things, their views on the need for more stringent export sales reporting requirements. We were told that the export sales reporting system is working fine and that there is not much need for change. We were told that times have changed since the 1970's, that the market is now much more sophisticated and anticipatory than it once was. There

should be filed with the CFTC rather than USDA and that firms that fail to file should not be permitted to trade futures. The chairman had earlier proposed legislation along these lines. In 1978, with House of Representatives backing, he was able to include such a provision in the CFTC authorization bill. The provision was, however, later removed in conference with the Senate. The chairman subsequently reintroduced the legislation; neither it nor similar legislation that was introduced, however, has yet to be enacted.

Should USDA impose stricter reporting requirements that would stretch beyond domestic firms and include foreign firms as well? We examined this question by considering the findings of the Advisory Committee on Export Sales Reporting, which dealt extensively with the subject, and by discussing it with several grain exporting firms and farm groups.

Advisory committee findings regarding stricter reporting requirements

The Advisory Committee on Export Sales Reporting recognized in its February 1979 report that effective functioning of a private enterprise market system requires pertinent and timely information and that the export sales reporting system, in a general sense, exists to provide a part of the body of factual data required for effective functioning of the markets for those commodities covered by the system. In this regard, the report noted that although the system provided accurate and timely information on export sales of U.S.-based firms, it did not require foreign entities to report sales of U.S. commodities. The report pointed out that, to avoid immediate public disclosure of their transactions,[2] foreign buyers or sellers were increasingly trading with or through non-U.S. firms or foreign affiliates of U.S. firms.[3] The report stated, however, that it had not been objectively demonstrated that the lack of additional export sales reporting information caused any significant economic loss.

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[2]These sales are eventually reported when the foreign firm contracts with a U.S. firm to obtain supplies to fill the order.

[3]The report cited as an example the fact that in 1976-77, 65 percent of the wheat and corn sold to the Soviet Union by U.S. firms was through direct sale to Exportkhleb--the Soviet buying agency --and 35 percent was through foreign firms. In 1977-78 the pattern had shifted, however, with 92 percent of the total wheat and corn sales going through foreign firms and only 8 percent going directly to Exportkhleb. In 1978-79, it was reported that virtually all sales of U.S. wheat and corn to the Soviet Union were being made through foreign firms.

exchanges were considered more than adequate, with no drastic changes needed. There was no strong concern about foreign entities having undue advantage in the futures markets. There was a conviction that nothing should be done to deter the export of U.S. commodities or restrict foreign participation in U.S. futures markets.

Farmers' views toward
U.S. grain marketing system

We talked with officials of two farm groups about their views and concerns toward the U.S. grain marketing system. The president of the American Soybean Association told us that U.S. agriculture had suffered from the economic downturn of the past few years and that, while there are now signs of recovery in other economic sectors, agriculture continues to feel considerable economic stress. He told us that U.S. agriculture has become dependent on foreign markets and that the current strength of the U.S. dollar has generally placed U.S. exports in an uncompetitive position. Regarding the grain marketing system, the association president said that the system has been around a long time, has worked reasonably well, and there should be no changes to it that would hurt grain sales. He expressed no particular concerns about USDA's export sales reporting system. He did complain, however, that the release of some USDA reports on domestic and worldwide agricultural supply and demand seemed untimely from the standpoint that they frequently perpetuated a "bearish" market or they sometimes turned "bullish" markets into "bearish" ones. He also stated that supply and demand fundamentals are not the force in the marketplace that they once were, that other forces such as commodity pooling and the influence of large traders is greater now than it used to be.

One of the directors of the Colorado Association of Wheat Growers expressed similar concerns regarding the forces that now move the marketplace. He cited commodity pooling as such a force and stated that such trading should be restricted. He also attributed some of the volatility in today's markets to CFTC's current speculative trading limits, saying that there was less volatility in years past when these limits were lower.

The association director also stated that he was concerned about all the speculative short-selling that is currently going on in the marketplace. Such selling occurs when speculators sell something they do not own in anticipation that prices will fall. The director said that such trading helps establish prices that are distorted downward in terms of true supply and demand and that this affects the prices paid to commodity producers.

The association director said he believes there are fewer abuses in the grain markets than in the cattle market, although he did not elaborate. Further, he said that he has no problem with the way USDA's export sales reporting system is currently being

was no great concern on the parts of those we talked with that foreign entities and/or large exporters have an advantage because of advance information they may have about a pending export sale. Officials of one firm said that the identification of a specific sale is not that significant and that the "price discovery mechanism of the futures markets is a much better barometer of what is going on than is the export sales reporting system."

These same officials said that at the time a sale is made, the seller does not always know where he will get the grain. It could be obtained from the United States, of course, but it might also be obtained from a number of other grain exporting countries. Therefore it is somewhat premature to suggest that such a sale be reported to the export sales reporting system when, in fact, the sale might be filled outside the United States. We were also told that it is erroneous to think that parent companies in the United States necessarily know all activities going on with their foreign-based affiliates. A document published by Cargill, Inc., for example, states that

> "Cargill operates at arm's length from its related overseas companies. Marketing decisions are placed as much as possible in the hands of managers in each local market. They buy at the best price and sell to the buyers with the best offer, whether this is a related company, a cooperative, or an investor-owned competitor.
>
> "This is one of the most unusual attributes of grain marketing. Buyers can also be sellers. Competitors can also be suppliers or customers. Cargill and related companies trade freely with competitors as well as with each other, seeking the best market. This unique openness in grain marketing helps explain why it is such an intensely competitive business."

Those we talked with seemed to share the feeling that nothing should be done in the form of more stringent requirements that might impede or restrict U.S. agricultural exports or that might drive participants from U.S. futures markets. There was a belief that added reporting requirements would be difficult, if not impossible, to enforce because of questions of legality and problems associated with the distance and differences between the United States and other countries. One official told us that market abuses by a few should be discouraged through the enactment and enforcement of strong penalties, as opposed to levying additional controls and requirements on all participants.

We asked these same officials whether there were additional controls needed at CFTC or at the grain exchanges to better ensure integrity in the marketplace. The responses were similar to what we were told regarding the export sales reporting system. Generally, market surveillance activities at CFTC and the grain

In 1978 some of the USDA crop reporting questionnaires asked farmers about their use of futures trading.[4] Less than 7 percent said that they had actually traded futures contracts in recent years, and about half of those who did trade were evidently speculating rather than hedging. Although we were unable to find a more recent estimate, an economist with USDA's Economic Research Service told us that direct use by farmers of futures markets continues to be low. He listed a number of reasons why only a small proportion of farmers actively hedge in futures markets:

--Many consider their operations too small to need or effectively use a futures market hedge (the crop size of many farmers, for example, is below the 5,000 bushel contract size typically traded in the futures markets).

--Many want to hang onto their profit opportunities, and a hedge can limit profits from price increases in the same way that it helps protect against losses from price declines.

--Many prefer other kinds of forward contracts or cash marketing arrangements.

--Many fear that they don't know enough about the markets to use them effectively.

--Some dislike the capital outlay required in futures trading.

--Some simply do not trust the futures markets.[5]

Although the level of direct participation by farmers in futures markets is low, many farmers do use the price information generated by the markets in making production and marketing decisions. A good many of them go further, using forward contracts, for example, that are facilitated by futures markets. Forward contracting allows the farmer to deal exclusively with the local elevator operator, who is generally the buyer of his grain anyway.

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[4]Additional information pertaining to the relationship of farmers, futures markets, and grain prices may be found in "Grain Pricing," John W. Helmuth, Commodity Futures Trading Commission Economic Bulletin No. 1, September 1977.

[5]USDA, in commenting on this report (see p. 102), provided two additional reasons why futures markets have less applicability to grain farmers than they do to grain merchants. USDA pointed out that (1) it is not advisable for farmers to hedge 100 percent of their products because of production risk and quality uncertainty, and (2) grain merchants trade on margins while grain farmers are interested in price level because they have a cost of production to cover.

generated and that he sees no need for more stringent reporting requirements.

In September 1984 farmers representing several national farm groups protested at the CBT about low farm prices and how futures speculators help cause this problem. They charged that speculating was manipulative and improper and that "speculative short-selling of commodities should be a crime." In at least partial response to the farmers' charges, the chairman of the CBT stated that, while he was sympathetic to the farmers' complaints, the exchange was not the villain. He said that the CBT "does not set prices," but rather it acts "more as a barometer, registering the price changes for the rest of the world."

OPPORTUNITIES FOR FARMERS TO MANAGE THEIR RISKS

Those who suggest that more controls are needed in grain marketing to prohibit foreign entities and/or large traders from taking advantage of other market participants have often expressed a particular concern for the farmer. It has been hypothesized, at least, that at the time foreign entities and/or large exporters are profiting in the cash and futures markets on the basis of the information they alone hold about a pending sale, the farmer--without such information--is forced to make decisions as to whether to sell or hold onto his crops with information that does not reflect true demand. The farmer thus receives less for his crops than he might have otherwise, had he and the rest of the market also known of the pending sale. Whether such a hypothesis accurately reflects reality is open to debate. Certainly there are several factors that we have discussed suggesting that the identity or disclosure of a specific export sale is not that significant, that there are other barometers that provide market participants with a better idea of what is going on. The fact that an export sale is made but not reported for several weeks does not necessarily mean that the sale is hidden from the market until it is eventually reported. If, as has been suggested, the sale is covered by its participants in the futures market, the market would quickly assimilate and reflect this information in the form of its prices. Although market participants, including farmers, may not be aware of the specific sale, there is some certainty that the market is reflecting it almost instantaneously through its prices. Farmers thus have such information readily available to guide them in their daily sell/hold decisions.

Because of the concern that exists for the plight of the farmer and his vulnerability to adverse price changes, we examined the opportunities that exist for farmers to help them manage their risks. Although not used extensively by farmers, one obvious way is the futures markets. If grain exporters can manage their risks through the use of futures, as has been discussed, does not the farmer have the same opportunity?

resolution had been approved in January 1980 to encourage more effective marketing of agricultural commodities by farmers. The resolution requested that the Secretary of Agriculture

> ". . . (1) devote increased emphasis to teaching farmers how to better market their agricultural commodities; (2) emphasize the use of all agricultural marketing tools, including futures markets and forward contracting; and (3) in consultation with the Commodity Futures Trading Commission, establish a task force of individuals representing the futures industry, USDA, and land grant universities to educate farmers in marketing, and include futures markets and forward contracting to hedge against market risks."

Pursuant to this mandate, an ad hoc task force was established and questionnaires were developed to survey land grant colleges about their commitment to marketing education efforts, determine specific current marketing education programs, and request suggestions for future education needs. From responses to the questionnaires in early 1981, it was learned that there was considerable effort underway to educate producers on various marketing topics and concepts. The emphasis and interest in this area, however, centered on outlook-type programs rather than marketing alternatives such as futures trading and forward contracting. It was reported that

> "Most producers [farmers] want to know only tomorrow's prices and will attend an outlook meeting to hear price expectations. But these same producers are usually less interested in attending educational programs on marketing strategy and alternatives."

These findings confirmed an earlier USDA study, which found that producers regard short-term outlook information as more important than longer term, economic, base-building education. The latter requires more time, is more complex, and involves more of an educational process than a simple, short presentation. The report included several recommendations designed to bring about more of this kind of training at land grant institutions, through State Extension Services, and as a result of efforts of the CFTC, the Futures Industry Association, and the various commodity exchanges.

In Chicago we met with the CBT's agricultural curriculum coordinator, Education and Publication Services Department. We learned of the CBT's extensive educational efforts, directed primarily toward professors and other teachers who influence and affect the attitudes of thousands of students, producers, and users of commodities. CBT does periodically schedule seminars for county extension agents who, in turn, are expected to disseminate the information they have learned regarding accounting, contracts, and new marketing or risk management concepts. CBT also sponsors a number of seminars each year for different farm groups, grain

Additionally, it provides the farmer with an alternative means to futures trading for managing his risks.

Both forward contracting and the futures markets are imperfect in the sense that they overcompensate for risk. In both instances, farmers are protected from a downward shift in commodity prices. At the same time, however, they take themselves out of the running for large profits if prices jump dramatically upward. Farmers really only need insurance to guarantee a floor below which they cannot risk. That is where agricultural options come in as another means by which farmers are now able to manage risk.

An agricultural option is different from a futures or forward contract in that it confers the right, but not the obligation, to follow through on the contract. Thus if prices shoot up, the farmer is free to walk away from the contract and realize the gain. If prices fall, however, the farmer can exercise his option and at least receive the minimum price. More simply put, agricultural options protect farmers against downside risk of falling prices, while at the same time allowing them to profit if prices rise.

The option contract itself is also different. Under a "put" option, for example, farmers do not sell their crops--they buy the right to sell. The purchase price of this right is called a premium, its value dependent upon how much risk is assumed by the seller of the option.

Agricultural options were traded on commodity exchanges in the early decades of this century. Because of certain trading abuses, however, those options were banned in the United States by the Congress in 1936. In 1983 the Congress amended the Commodity Exchange Act to permit the CFTC to develop a pilot program for agricultural options. Accordingly, the CFTC recently approved a 3-year experiment in trading options on agricultural futures contracts beginning in late 1984.[6] Options trading will be regulated more than before. There are many who are optimistic and excited about this development and believe that these options will attract considerable farmer attention and participation. However, USDA--in commenting on this report--stated that many farmers will find the premiums associated with these options to be too great to give them the price protection they would like.

We were interested in whether there were any educational efforts ongoing to help farmers develop better marketing/risk management strategies. At both USDA's Extension Service and at the CBT we found such activities underway. We obtained a copy of an April 1982 Cooperative Extension Service (University of Georgia) report on this subject. The report indicated that a Senate

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[6]Trading in the first agricultural option contract began in October 1984.

and futures positions, and determine the profitability of his actions. Such a study was attempted within USDA; the results were considered inconclusive. Lastly, grain exporters have an interest in preserving the market's integrity. Exporters need the futures markets for their risk management. If, as has been suggested, they were systematically profiting from advance knowledge about pending export sales at the expense of others, this unfairness would be detected and would drive from the market the very participants the exporters need for their risk management purposes.

The systems of control we examined at USDA, CFTC, and CBT that help ensure fairness and integrity in grain marketing appear to be performing important functions and meeting stated objectives. More stringent reporting requirements regarding foreign entities would be difficult to enforce, might negatively affect this country's export sales, and might drive these entities away from our cash and futures markets. It should also be kept in mind that more stringent export sales requirements at either USDA or CFTC would tax even more strenuously the workloads of export sales reporting and market surveillance staffs, whose hands are already more than full. The benefits coming from any added requirements at either agency would certainly have to be weighed against the costs of those requirements.

U.S. agriculture has been, and is presently, under some economic stress. It finds itself increasingly dependent upon foreign markets at a time when a strong U.S. dollar inhibits the flow of goods and services (agricultural and otherwise) from this country. For these reasons, some farmers believe that there should be no changes to the U.S. grain marketing system that would jeopardize grain sales. This was a point raised in 1979 when USDA's export sales reporting system was examined in detail by the Advisory Committee on Export Sales Reporting; additionally it was related to us during this review.

Concern has been expressed that farmers are at the mercy of the marketplace and that they must often make decisions based on less than complete supply/demand information. We found, however, that information is available to them on a daily basis to help guide their decisionmaking. Market prices, which represent reflections of supply/demand conditions, are readily available to farmers. If a farmer chooses, he may also protect himself from adverse price changes by forward contracting his crops or by hedging them in the futures markets. Only a small percentage of farmers are known to be actively trading in futures contracts. Efforts are underway within USDA and CBT, however, to better educate farmers as to marketing strategies and ways in which risks might best be managed. Some farmers were expected to use agricultural options as another means of managing their risks as these options became available in late 1984.

elevator operators, and rural bankers. Although the ultimate objective of many of these programs is to increase the volume of activity in and number of participants using the CBT, more immediate objectives seemed to be directed toward increasing people's perceptions about the futures markets and educating them about how the markets work and how they might use them. We were told that futures markets are often blamed by farmers for low prices and by processors for high prices. Farmers are cautioned about the use of futures markets. They are told that they should not use them unless they fully understand what they are doing. It is emphasized to farmers how futures markets represent but one of a number of tools they might use in managing their grain marketing risks.

CONCLUSIONS

Grain sales to the Soviet Union in the early 1970's touched off a period of short supply, higher prices, and a series of concerns about who profited from these sales and how they profited. These concerns persist today largely because of the financial dilemma faced by many U.S. farmers and have stimulated demands for more and better grain marketing controls designed to prevent a recurrence of the earlier grain situation and to ensure fairness and integrity in the marketplace. There continues to be a concern that weaknesses in the export sales reporting system allow foreign entities and/or large traders to hide pending export sales until after they have profited in the cash and futures market from these sales at the expense of other market participants.

Our analysis of the current grain marketing situation found little evidence pointing to the need for dramatic changes in USDA's export sales reporting requirements or in the grain marketing surveillance activities we examined at CFTC and CBT. For example, it appears unlikely that there will be a recurrence of the early 1970's grain situation. Grain supplies have become abundant, the export sales reporting system exists as an early-warning mechanism for government policymakers, and there generally is more and better information now about worldwide supply/demand conditions than existed 10 years ago. Also, grain sales to countries such as the Soviet Union and China have become more commonplace and do not excite the marketplace the way they once did.

It also appears unlikely that a given grain sale or set of sales will have a dramatic impact on today's market, thus enabling the sale's participants to reap substantial profits because of their exclusive knowledge of that sale. To have an effect, a specific sale would generally have to be large and unanticipated by the market. Most grain sales, however, are small in relation to total market activity. Grain exporters generally do not trade on the basis of specific sales. Rather, they trade on the basis of overall positions that are often affected by many different transactions. For this reason, it is very difficult to look at an exporter's sales activity, tie such activity directly to his cash

we assumed that other variables that influence grain prices, such as worldwide crop conditions, real income at home and abroad, weather, fiscal and monetary policy, political events, and so forth, are uncorrelated with either the daily or weekly grain export sales reports. The question we raised is: How efficiently does the U.S. grain marketing system transform export sales information into changes in grain futures prices?

To answer this question, our analysis once again revolved around an economic concept of pricing efficiency known as the efficient markets hypothesis. Under this construct, the economist's concept of pricing efficiency is based on the perfectly competitive market. Such a market provides a theoretical benchmark for performance in "real-world" markets. The efficiency criteria for a perfectly competitive market require that prices for a commodity vary over time, space, and form by the costs of storage, transportation, and processing. These prices must also reflect current information about demand and supply for the commodity. To detect pricing inefficiencies in an actual market system, observed price behavior may be compared to these criteria.

"Real-world" markets can never be perfectly efficient because of uncertainties and errors in information. Variables affecting commodity supply and demand (export sales information is one such variable in grain markets) are constantly changing and information about them is less than perfect. Such uncertainties and/or lack of information necessitate the use of more dynamic pricing criteria. Prices, it has been suggested, are simply aggregates of information; this is the very essence of price discovery. The performance of a market in terms of price discovery, then, depends on its ability to quickly transform information into prices. Theoretically, a market in which prices fully reflect available information would be called "efficient."

Under the efficient markets hypothesis, three levels of efficiency are defined, each having its own set of price behaviors:

1. Weak-form efficiency--present prices accurately reflect information contained in past prices.

2. Semi-strong-form efficiency--present prices accurately reflect all publicly available information.

3. Strong-form efficiency--present prices accurately reflect all information, including that held by "insiders."

INFORMATION FLOW IN GRAIN MARKETING

Each day grain traders evaluate large amounts of information about grain production, inventories, exports, and a host of other world events. Traders make their decisions to buy or sell grain

CHAPTER 5

EFFICIENCY WITH WHICH GRAIN PRICES REFLECT INFORMATION ABOUT EXPORT SALES

Pricing inefficiency has been seen by some to exist in the U.S. grain marketing system from the standpoint that information about grain exports is not efficiently translated into grain prices. Some believe that large exporters (and perhaps foreign entities) reap profits from advance information about exports--information that other market participants do not receive until later. In response to this perception, we were asked to examine further the efficiency with which the U.S. grain marketing system transforms information about reported grain export sales into changes in grain futures prices. Although data limitations prevent an analysis of the extent to which traders profit from advance information, as we discussed on page 10, we did study how efficiently markets respond to publicly released information on export sales by U.S. grain exporters.

Such examination follows the work we described in our June 15, 1982, staff study on Market Structure and Pricing Efficiency of U.S. Grain Export System (GAO/CED-82-61; June 15, 1982). In that study we concluded that futures market prices of wheat, corn, and soybeans (1) responded to knowledge of grain export sales before release of the Export Sales Reporting Division's report and (2) responded more fully upon release of the report. The findings in this chapter are generally consistent with those conclusions. The results of both analyses suggest that grain prices do respond as export sales are made by U.S. grain exporters and as exporters buy futures contracts to hedge these transactions. The prices, however, do not fully adjust until after the export sales report is released. Once this occurs, traders in the futures markets appear to reevaluate their positions and buy and sell grain based on this reevaluation. In effect, a further adjustment of grain prices takes place on the basis of the new information. These adjustments usually occur quickly.

MEASURING PRICING EFFICIENCY IN GRAIN FUTURES MARKETS

As noted in our earlier staff study, grain futures prices serve as economic signals throughout the world and it is important to all market participants that information affecting grain prices be reflected in these prices as quickly and accurately as possible. Measuring how efficiently markets transform information into changes in prices is difficult because of the many kinds of information or variables affecting prices and the problems involved in quantitatively relating each variable to price. To provide some form of quantitative measurement, in this and our previous study we narrowed the field of variables to the point of looking at the impact that reported information about grain export sales has on grain futures prices. For purposes of our analysis,

ANALYTICAL METHODOLOGIES

Our 1982 study of pricing efficiency in the U.S. grain marketing system examined the relationship between information about all export sales, both large and small, and changes in the futures prices of wheat, corn, and soybeans during the period June 1975 to June 1980. Complete and accurate grain export sales data were not available before June 1975. Post-June 1980 data were not used in that analysis because the export sales reporting week and timeframes were changed in June 1980 and because the data subsequently generated were not, at that time, sufficient for the statistical analysis techniques used. These techniques included regression, spectral, and cross-spectral analysis.

Our current study[1] examines the relationship between information about export sales by U.S. grain exporters (large sales only and large and small sales together) and changes in prices of wheat, corn, and soybeans in the futures market. The period under examination was January 1977 through December 1982. This period encompassed the time (April 1977) that USDA began issuing daily press releases covering large export sales. This time period also allowed us to determine whether the June 1980 changes in the export sales reporting week and the shortening of the reporting timeframe had any impact on pricing efficiency. The data used in our analysis consisted of wheat, corn, and soybeans prices obtained from CBT and daily and weekly export sales reports that include these commodities obtained from USDA's Export Sales Reporting Division.

As in our earlier analysis, we assumed that

- --all export sales that required reporting were, in fact, being reported under USDA's export sales reporting system;
- --there was little delay between the time export sales were made by U.S. grain exporters and the time they were reported;
- --there was no leakage of export sales data from USDA before the export sales reports were released; and
- --other factors that influence grain futures prices--such as worldwide crop conditions, weather, and political events--may cause changes in export sales over time but are likely to be uncorrelated with daily and weekly changes in grain export sales.

With respect to the last assumption, neither our current study nor the previous one tests the overall efficiency of the grain futures markets. Rather, both studies partially test the efficiency of

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[1]See app. I for more detail concerning the methodological approach we used in this analysis.

on the basis of their own needs and expectations as to how different events will affect supply and demand. If information emerges at random and is freely available to all, price changes in an efficient market will occur randomly.

Information about newly reported export sales is only a small fraction of the total information affecting grain prices. When the reported volume of export sales is consistent with traders' expectations, the release of reports on new sales will have little effect on grain prices. However, when the volume of export sales differs from traders' expectations, new sales information may trigger large price movements.

In the U.S. grain marketing system, there is a complex relationship between public and private information. At the time an export sale is made, for example, the company making the sale may be the only one to know about it. This information may reach other traders in the market in two ways, by way of the "grapevine" or through USDA's export sales reporting system. In many cases, information about a new sale reaches traders before the official report of it is released. Although we have no way of knowing when the information about a particular sale becomes common knowledge in the marketplace, we can define the exact time that it officially becomes public.

Large sales by U.S. grain exporters involving more than 100,000 metric tons, for example, must be reported to USDA's Export Sales Reporting Division by 3 p.m. the following business day. A report of these sales is released on the same day (after the market closes) and this information is also included in the weekly report of export sales. Smaller sales by U.S. grain exporters, on the other hand, are reported weekly to the Export Sales Reporting Division. Before June 1980, exporting companies were required to submit each Thursday a report of sales made the preceding Monday through Sunday. The Export Sales Reporting Division's report of the week's activity, including both large and small sales, was released a week later, after the close of the commodity markets. Under this system, there was a lag of 11 to 18 days from the time a sale was made by a U.S. grain exporter to the time the weekly report was released.

In June 1980 the reporting week was changed and the reporting timeframe shortened. The reporting week was changed to Friday through Thursday and reports from exporters became due on the following Monday. The Export Sales Reporting Division now releases its report on Thursday, reducing the lag to 7 to 14 days from the time a sale is made by a U.S. grain exporter to the time it is publicly released.

is more easily understood and has, in fact, been used before in the analysis of pricing efficiency in grain markets.[3]

Cross-correlation analysis involves the calculation of correlation coefficients (measures of the relationship) between variables--in this case, reported grain export sales information and grain futures prices. The coefficient is actually a measurement of the strength of the relationship between the two variables. The coefficient has values ranging from 1 to -1. A value of 1 indicates a correspondence between two variables in that they move perfectly together in the same direction. A value of -1, on the other hand, means that two variables move in exactly opposite directions. Two variables having no relationship at all would have a correlation efficient of 0.

Once correlation coefficients are calculated from our sample data, a statistical test is performed to determine the probability with which the true value of the coefficient is different from 0. This test is important because a given sample coefficient may appear to be significantly different from 0 but may, in fact, not be.

Expectations also play an important role. Grain traders, for example, evaluate information from news sources, trade publications, government reports, and fellow traders. They use this information ("unorganized knowledge") to form their own estimates of what is happening in the grain markets. The release of an export sales report will cause little activity in the market or change in prices if its contents do not contradict the expectations of the traders. It is the difference between the traders' expectations and the contents of a report that causes prices to change. Because expectations have such an impact on grain markets, our analysis adjusted for this by using a simple model (called "adaptive expectations") for estimating expectations. This model assumes that grain traders will expect new export sales to follow the pattern of export sales in previous time periods; we believe

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[3]Garcia, P. "The Transmission of Market Information Among a Sample of Illinois Grain Elevators." Paper presented at the American Agricultural Economics Association's annual meeting (Logan, Utah, Aug. 1982).

the markets in terms of the effect on prices of only one particular piece of information (grain export sales). Such analysis, sometimes called an "event study," has been done by at least one other analyst, who recently examined the effect of inflation announcements on the future prices of certain financial instruments.[2]

According to the flow of information until June 1980, each U.S. grain exporter knew of its own export sales, both large and small, from day 1 of the reporting cycle. Each firm also obtained information about other large sales (more than 100,000 metric tons) the day after these sales were made. On day 18 of the reporting cycle, all firms received complete information about total sales by U.S. grain exporters during days 1 through 7. In many cases, of course, exporters may well have been able to deduce the sales of their competitors prior to the official releases of the daily and weekly export sales reports. The pattern of information flow after June 1980 is similar to the one just described, except that the lag between sales transactions and the weekly report of total activity was reduced from 11-18 days to 7-14 days.

To determine the efficiency with which the U.S. grain marketing system transforms information from grain export sales reports into grain futures prices, we analyzed (1) the relationships between price changes and large export sales reported daily and (2) the relationships between price changes and the weekly reports of total export sales activity. We tested each of these relationships in terms of the "semi-strong" level of pricing efficiency, which requires that any price adjustment resulting from release of sales reports occur quickly following report release. Markets can be efficient at the "semi-strong" level even if no price adjustments occurred following report release. Evidence that prices adjust only after a sizable lag after report release would suggest that markets are not efficient at the "semi-strong" level. We did not test for strong-form efficiency because of data limitations. Strong-form efficiency tests would require data on individual sales as they occur and, in practice, can rarely be successfully conducted.

We used cross-correlation analysis to test for pricing efficiency, believing that this technique offers several advantages over cross-spectral analysis, which we used in our 1982 study. It provides for stronger statistical tests of the analytical results,

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[2]Chance, D.M. "The Impact of Inflation Announcements in the Treasury Bond Futures Market: An Event Study of Market Efficiency." Virginia Polytechnic Institute, Department of Finance, working paper no. 25. (1983).

-----. "The Reaction of the Chicago Board of Trade GNMA Futures Contract to the Announcement of Inflation Rates: A Study of Market Efficiency." Paper presented at the Chicago Board of Trade international research seminar (May 1984).

basis, disclosed no statistically significant relationships. This is reflected in the following table, which shows the correlation coefficients between export sales information adjusted for expectations (today's report-yesterday's report) and price changes on each of the 10 days before and after release of the daily report.

Cross-Correlation Coefficients Between Daily Export Sales Information and Price Changes, 1977-1982

	Day	Corn	Wheat	Soybeans
	10	0.00000	0.00000	0.00000
	9	0.00075	-0.00037	0.00038
	8	0.00075	0.00037	0.00038
	7	-0.00376	0.00000	-0.00188
Before	6	0.00226	0.00000	0.00113
	5	0.00000	-0.00055	0.00000
	4	0.00000	0.00055	0.00000
	3	0.00050	0.00028	0.00025
	2	-0.00125	-0.00128	-0.00063
	1	0.00075	0.00000	0.00038
Release of daily report		0.00320	0.00432	0.00245
	1	0.00050	0.00346	0.00198
	2	0.00198	0.00401	0.00300
	3	0.00223	0.00346	0.00285
	4	0.00025	0.00255	0.00140
	5	0.00149	0.00255	0.00202
After	6	0.00050	0.00255	0.00153
	7	0.00000	0.00091	0.00046
	8	0.00050	0.00128	0.00089
	9	0.00099	0.00310	0.00205
	10	0.00124	0.00346	0.00235

As can be seen, all of the coefficients are very close to 0, indicating little or no relationship between the two variables. None are statistically different from 0 even at a confidence level as low as 80 percent. There are no noticeable lagged adjustments of prices to information contained in the reports and, therefore, no evidence suggesting that grain futures markets are not efficient. In fact, the results suggest that there is no significant response at all following report release.

This lack of correlation is not surprising. A number of grain traders and government officials told us that grain futures markets are more anticipatory now than they used to be and that prices will not shift on the basis of an anticipated export sale. In addition, export sales are only one of many variables affecting prices. The response of prices on a day-to-day basis to all kinds of "unorganized information" may impede the detection of price responses to daily reports of export sales. Large export sales occur sporadically, not every day. Further, during the period

that this model provides a reasonable explanation of traders' behavior.[4]

We analyzed the relationship between daily changes in grain futures prices and reports of both large export sales (which are reported daily) and total weekly export sales (which are reported weekly) for days both before and after release of the sales reports. We were particularly interested in observing whether and how prices changed immediately following release of the report. For the grain futures markets to be considered efficient at least at the "semi-strong" level, if there is an adjustment in prices due to new information contained in the report, it must occur very quickly following the report's release. Therefore, "semi-strong" efficiency would be implied by significant correlation between export sales data and price changes right after the report is released and insignificant correlation between export sales data and price changes occurring several days after the release.

A finding of no significant correlation between price changes and reported sales data following report release would also be consistent with a conclusion in favor of "semi-strong" efficiency and would suggest that the report contained no new information to which prices needed to adjust. That is, all adjustments to reported export sales would have occurred before the report was released. This finding would not be sufficient to imply that "strong-form" efficiency exists, but it would suggest that futures prices adjust fully to export sales before the data on such sales are publicly available.

RELATIONSHIPS BETWEEN PRICE CHANGES AND DAILY REPORTED LARGE EXPORT SALES

Our analysis of price responses to large export sales by U.S. grain exporters, which are required to be reported on a daily

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[4]There are other, more complex statistical models that could have been used; such models, however, would have required much more time, data, and other resources than we believed were warranted and would not have necessarily yielded better information. More realistic economic modeling of expectations is also difficult because the analyst, in this case ourselves, is generally not privy to the "unorganized knowledge" all grain traders use.

As a means of testing or substantiating the results we obtained from using the adaptive expectations model, we did substitute in our analysis an alternative model--a simple 4-week moving average--for export sales expectations. The results we obtained from the two models were consistent; however, we were less satisfied with the moving average model because of certain technical problems it presented in estimating correlation coefficients. Further, of the two models, the adaptive expectations model is more widely used and accepted. App. I contains additional discussion of how our model incorporates expectations.

Cross-Correlation Coefficients Between Weekly Export Sales Information and Daily Price Changes, January 1977-June 1980

Day of report cycle		Corn	Wheat	Soybeans
Sales begin	1	-0.00960	0.09402	-0.07880
....Tue....	2	-0.00522	-0.06089	-0.03367
....Wed....	3	-0.11231	0.08078	0.09270
....Thu....	4	0.12663[a]	0.03981	-0.04023
....Fri....	5	-0.01799	-0.05299	-0.01952
....Sat....	6	-	-	-
.Sales end.	7	-	-	-
....Mon....	8	0.20260[b]	-0.01310	0.04117
....Tue....	9	0.00139	-0.03159	0.00759
....Wed....	10	0.10147	-0.04097	-0.01475
Report due	11	0.06664	0.00586	-0.00870
....Fri....	12	0.14363[a]	0.07557	-0.04868
....Sat....	13	-	-	-
....Sun....	14	-	-	-
....Mon....	15	0.07782	-0.00694	-0.01948
....Tue....	16	0.14691[a]	-0.00633	0.04117
....Wed....	17	0.04816	0.00791	-0.00783
Report release	18	0.04492	0.02991	-0.00526
....Fri....	19	-0.11546	-0.24225[b]	-0.03114
....Sat....	20	-	-	-
....Sun....	21	-	-	-
....Mon....	22	0.03333	0.17234[b]	0.18100[b]
....Tue....	23	-0.00581	-0.02373	-0.17183[b]

[a]Significantly different from 0 with 90 percent confidence.

[b]Significantly different from 0 with 95 percent confidence.

Our results suggest that the total export sales reports in this period may contain new information to which prices responded. Price changes following report release were significantly correlated with the reported data for both wheat (on the first and second business days following report release) and for soybeans (on the second and third days). For corn, although we found no significant effect at the 90 percent confidence level or higher, the coefficient for the first day following report release was close to the level required for significance at 90 percent.

With the possible exception of soybeans, we found no evidence to suggest that grain futures markets are not fairly efficient at the "semi-strong" level in transforming export sales information into price changes. No measurable price adjustment appears to have occurred beyond the first day (if at all) for corn, or beyond the second day for wheat. Soybean prices showed measurable adjustments as late as three days following report release, which is a longer lag than would likely occur in an efficient market.

under review, large export sales of 100,000 metric tons or more represented just 22 percent of total reported export sales activity. Our results suggest, therefore, that the information contained in the sales report is either fully anticipated or not consequential enough to significantly affect prices that are subject to the simultaneous influence of many factors.

RELATIONSHIPS BETWEEN PRICE CHANGES AND WEEKLY REPORTED TOTAL EXPORT SALES

Because of our interest in whether the June 1980 changes in the reporting week and timeframe had an impact on the efficiency with which export sales information is transformed into price changes, we conducted separate analyses of the relationship between daily changes in grain futures prices and total export sales reported weekly before and after that date. The table below shows the relevant cross-correlation coefficients for the earlier period. We have not presented coefficients beyond day 23 because we found no significant coefficients beyond that day.

day following report release and for wheat on the second day following report release were close to the level required for significance.

We found no evidence in this period to suggest that grain futures markets are not fairly efficient at the "semi-strong" level in transforming reported export sales information into price changes. No measurable adjustment appears to have occurred beyond the first day for corn or soybeans or beyond the second day (if at all) for wheat.

In comparing data from the two time periods, we find that shortening the lag between the end of the sales period and the release of the sales report has speeded up the response of prices to export sales information. Although there appears to be some adjustment of prices to export sales information before the weekly reports are released, further adjustment occurs (quickly) when the reports are released. With the exception of soybeans in the earlier period, no significant correlations exist beyond the second day following report release. Therefore, since the end of the adjustment period occurs shortly after the sales report is released, narrowing the time between the end of the sales week and the release of the report would reduce the time in which prices respond to export sales information.

CONCLUSIONS

Our analysis of corn, wheat, and soybeans futures market price responses to large export sales information reported daily by U.S. grain exporters showed no statistically significant relationships during the almost 6-year period under examination. This lack of correlation is not surprising and may, in fact, be due to the ability of the grain markets to anticipate these sales, the sporadic nature of large sales, the small share of total export activity represented by large sales, and the influence of other factors. We found no noticeable lagged adjustments of prices to information contained in these reports and, therefore, no evidence suggesting that grain futures markets are not efficient.

Our examination of the relationship between daily changes in grain futures prices and total export sales information reported weekly by U.S. grain exporters presents no results that suggest that these markets are not fairly efficient at the "semi-strong" level in transforming export sales information into price changes. There are some differences among the crops and between the time periods, but the overall impression is that price adjustments to the information contained in the sales reports occur quickly when the reports are released, particularly in the later period. One exception was soybean prices, which in the earlier period showed measurable adjustments as late as three days following report release--a longer lag than would likely occur in an efficient market.

The correlation coefficients for all three commodities alternate between positive and negative signs. If changes in reported export sales and prices reflected only changes in demand, we would expect the correlation between such sales and price changes to be positive (i.e., price changes should move in the same direction as export sales changes). However, changes in reported export sales because of changes in the supply of grain (e.g., increased grain stocks result in increased sales) might well be negatively correlated with price changes. Since the models we used to test for efficiency (the speed of price response of information) do not identify changes in demand or supply, we have no theoretical basis for interpreting the positive or negative signs of the correlation coefficients.

The table below shows the relevant cross-correlation coefficients for the post-June 1980 period, when the time lag between the dates of reportable export sales and report release was shorter.

Cross-Correlation Coefficients Between Weekly Export Sales Information And Daily Price Changes, June 1980-December 1982

Day of report cycle		Corn	Wheat	Soybeans
Sales begin	1	0.08237	0.07219	-0.01253
....Sat....	2	-	-	-
....Sun....	3	-	-	-
....Mon....	4	-0.00604	-0.08584	-0.08961
....Tue....	5	-0.05628	-0.01239	0.01780
....Wed....	6	0.12677	0.02743	-0.12614
.Sales end.	7	0.05309	-0.01576	0.07121
....Fri....	8	-0.00773	0.04973	-0.16762[a]
....Sat....	9	-	-	-
....Sun....	10	-	-	-
Report due	11	-0.05291	-0.01892	-0.16497[a]
....Tue....	12	0.03812	-0.00097	0.04380
....Wed....	13	-0.01524	-0.03120	-0.06989
Report release	14	0.12044	0.14697[a]	0.17231[a]
....Fri....	15	-0.15679[a]	-0.00618	-0.12327
....Sat....	16	-	-	-
....Sun....	17	-	-	-
....Mon....	18	0.06689	-0.10585	0.04745
....Tue....	19	-0.03417	-0.02392	-0.09856

[a]Significantly different from 0 with 90 percent confidence.

The results from this period suggest, although perhaps less strongly, that weekly export sales reports may contain new information to which prices responded. Although only corn price changes following report release (on the first day) were significantly correlated with reported export sales data at the 90 percent confidence level, the coefficients for soybeans on the first

years. Futures contracts have recently been developed for a variety of new commodities and participants. Futures markets affect all major sectors of the economy, and events in these markets are felt widely throughout the economy--and the world.

Futures markets have always been vulnerable to threats of market manipulation and other irresponsible financial practices. As the size, scope, and importance of grain marketing in general and futures markets in particular have increased, however, so have the possible consequences of a market failure and so has the risk of some event that could substantially harm the industry, and its participants.

The federal government helps ensure fairness, integrity, and efficiency in the U.S. grain marketing system primarily through USDA's export sales reporting system and the market surveillance and other efforts of CFTC. It is important that these programs keep pace with the growth in grain marketing and the increased risks that go with a larger, more important system.

In addition, the sales reports may contain some information not previously available to market participants. In three of six instances, price changes following report release are significantly correlated with export sales at the 90 percent confidence level or higher. In each of the other three instances, although significance was not found, at least one correlation coefficient following report release was close to the level required for significance at the 90 percent confidence level. Taken together, these results suggest that prices generally do not fully adjust to export sales information until after the weekly export sales report is released. Traders respond in part to reportable export sales as they are made and as exporting firms hedge these sales. But once the sales reports are released they appear to reevaluate their positions and buy and sell grain on the basis of their reevaluation; in effect, an adjustment of grain prices takes place on the basis of the new information.

Because the full adjustment of prices to export sales information does not occur until the sales report is released, our results also suggest that reducing the time between the end of the sales period and the release of the report will speed the transformation of export sales information into price changes. Therefore, the June 1980 changes in the export sales reporting system have had the desired effect.

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To summarize and conclude overall, the U.S. grain marketing system is an important one. It provides a vehicle through which large quantities of grain valued in the billions of dollars are moved from America's farmland to users domestically and overseas. This system has evolved over the years from one used primarily for trading grain domestically to the dominant system affecting the grain trade throughout the world. U.S. grain futures markets--an important facet of the overall U.S. grain marketing system--have become the price reference points for world grain marketing.

There is considerable controversy in the United States today over whether additional regulation is needed to ensure fairness, integrity, and efficiency in the U.S. grain marketing system and the related futures markets. While this system and these markets have been operating with relatively little government supervision for some time, dramatic changes have occurred in the last 10 to 15 years that increase their size, scope, and importance. For example, world trade in grain has increased significantly in recent years. Much more of America's output is moving abroad today as contrasted with just a few years ago. Additionally, the world has become much more volatile in terms of such economic factors as prices, interest rates, and exchange rates. As such volatility has dramatically increased, so has the need for risk management, as evidenced by the tremendous growth experienced within the overall U.S. futures industry. Futures markets have increased in size during the last 10 years by more than they did in the previous 100

TOWARD A DYNAMIC MODEL OF PRICING EFFICIENCY

Econometric research generally involves the estimation of theoretical relationships specified a priori--untested but presupposed from experience. Economic theory seldom provides much guidance for the estimation of dynamic relationships, since the structure of leads and lags in the system is seldom explicitly defined (Bessler and Schrader, 1980). This is the case in modeling the dynamic pricing efficiency of the U.S. grain marketing system. The weak-, semi-strong-, and strong-form-efficiency models all suggest different lead and lag structures for market responses to information. Our methodological approach, therefore, is oriented toward the empirical estimation of leads and lags between price changes and export sales information.

Our study is not a test of overall market efficiency but is, instead, a test of market efficiency with respect to a particular piece of information, grain export sales. Chance (1983, 1984) points out that one can test for partial market efficiency by using an event study, which examines the effect on prices of a recurring event that relays relevant information to the market.

Our tests of market efficiency,[1] based on the event study methdology, seek to identify the pattern of price responses to export sales information. Because they are not tests of overall market efficiency, a complete econometric model of grain futures markets is not specified.

Our analysis is based on the following assumptions:

--all export sales that required reporting were, in fact, being reported under USDA's export sales reporting system;

--little delay occurred between the time these export sales were made and the time they were reported;

--there was no leakage of export-sales data from USDA before the export sales reports were released; and

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[1]USDA commented that tests of market efficiency using Fama's definitions (see p. 87) need to be interpreted with caution since they assume (1) perfect competition, (2) zero transaction costs, (3) risk neutrality, (4) constant returns to scale, and (5) the responsibility of corner optima. Some (Grossman and Stiglitz) argue that Fama's definitions are invalid because information is costly and thus prices cannot perfectly reflect the information available. USDA stated that the methods used in this study are acceptable, but need to be interpreted with the above caveats.

APPENDIX I

METHODOLOGY USED IN ANALYZING PRICING EFFICIENCY OF THE U.S. GRAIN MARKETING SYSTEM

Dr. Neilson C. Conklin served as a consultant to us during this review and formulated the methodological approach we used in this analysis. This appendix provides a technical explanation of the methodology.

* * *

Those who believe that pricing inefficiency is a problem in the U.S. grain marketing system (Gilmore, 1981; Burbach, 1976) are concerned about potential profits accruing from advance information about grain export sales. Such returns can exist only if prices respond to new export sales with some delay. Discovering how rapidly grain prices respond to export sales information requires a model capable of capturing the dynamic relationship between grain export sales and prices.

Economists use a perfectly competitive market as a theoretical benchmark for performance in "real world" markets. The static efficiency criteria for a perfectly competitive market require that prices for a commodity vary over time, space, and form by the costs of storage, transportation, and processing. The theory of dynamic pricing efficiency is not as well developed as the static, neoclassical criteria above. The efficient markets hypothesis, however, points the way toward a dynamic theory of pricing efficiency. This hypothesis states that prices in an efficient market must reflect all current information about demand and supply.

Fama (1970) originally defined three forms of efficiency under the efficient markets hypothesis:

1. Weak-form efficiency: present prices accurately reflect information contained in past prices.

2. Semi-strong-form efficiency: present prices accurately reflect all publicly available information.

3. Strong-form efficiency: present prices accurately reflect all information, including that held by "insiders."

this model is the simple moving average (Fisher and Tanner, 1980), in which the weights on past observations are all the same. We used the adaptive expectations models to adjust reported export sales data for expectations, and then also used a 4-week simple moving average to substantiate our results.

The adaptive expectations model is based on the concept that decisionmakers learn from their mistakes. Traders, in this model, forecast the current period's reported export sales, ES_m, by comparing the forecasted sales level for the previous period, ES^*_{m-1}, with actual reported sales in that period, ES_{m-1} (where m denotes time in weeks), and adjusting for the discrepancy between last period's forecasted and actual reported sales by some fraction d. Algebraically, the equation for adaptive expectations can be expressed as

$$ES^*_m = dES_{m-1} + (1-d)\, ES^*_{m-1} \qquad (1)$$

The adaptive expectations model can then be incorporated into the basic market efficiency model in which the current daily price changes, $P_t - P_{t-1}$ (where t denotes time in days) is a stochastic linear function of export sales information on day t, adjusted for expectations. This can be expressed as

$$P_t - P_{t-1} = B_0 + B_1\, (ES_m - ES^*_m) + e_m \qquad (2)$$

where e_m is the error term and B_0 and B_1 are coefficients. By substituting for ES^*_m in (2), we obtain

$$P_t - P_{t-1} = B_0 + B_1\, (ES_m - dES_{m-1} - (1-d)ES^*_{m-1}) + e_m \qquad (3)$$

The adaptive expectations model that yielded (2) can also be used to express the price change 7 days (one week) ago, $P_{t-7} - P_{t-8}$, as a function of export sales information on day t-7, again adjusted for expectations, as follows:

$$P_{t-7} - P_{t-8} = B_0 + B_1\, (ES_{m-1} - ES^*_{m-1}) + e_{m-1} \qquad (4)$$

By solving (4) for last period's forecast, ES^*_{m-1}, and substituting it into (3), we can express the current daily price change as a function of the price change that occurred one week (7 days) previously and the difference between current reported sales information and similar sales information one week ago:

$$P_t - P_{t-1} = dBo + (1-d)(P_{t-7} - P_{t-8}) + B_1(ES_m - ES_{m-1}) + v_t \qquad (5)$$

where v_t is an error term.

To evaluate the usefulness of a complex form of adaptive expectations, we used ordinary least squares to estimate equation (5) for wheat, corn, and soybeans both before and after June 1980.

--other factors that influence grain futures prices--such as worldwide crop conditions, weather, and political events--may cause changes in export sales over time but are likely to be uncorrelated with daily and weekly changes in grain export sales.

The statistical methods we used--including filtering, time-series analysis, and cross-correlation analysis--are not traditional econometric techniques. They do, however, provide insights into the dynamic structure of pricing efficiency that traditional static-efficiency and econometric models fail to capture.

The complex flow of export sales information makes it difficult to define a single test of the efficient markets hypothesis. Therefore, we analyzed separately the relationships between grain futures price changes and daily reports of large export sales and the relationships between these price changes and the weekly reports of total export sales. Our model tested for evidence that would suggest that grain futures markets do not efficiently transform new information on export sales into prices at the "semi-strong" level. That is, we analyzed how efficiently markets respond to publicly released information. Data limitations prevent an analysis of the extent to which traders profit from advance information and, therefore, of strong-form efficiency.

EXPECTATIONS OF EXPORT SALES

Official reports are not the only source of information about grain markets and grain export sales. Grain traders evaluate all kinds of information on a continuous basis by culling information from official government reports, newspapers, trade publications, and fellow traders. They use all of this information ("unorganized knowledge") to form their own estimates of export sales activity. The release of an export sales report will cause little market activity or change in prices if its contents do not contradict the expectations of grain traders. Rather, the difference between the traders' expectations and the contents of a report is what will cause prices to change. Because expectations are so important in the grain markets, we recognized the need to adjust our data on reported new export sales to account for expected sales.

Modeling traders' expectations realistically is difficult because the "unorganized knowledge" they use is often unavailable to the analyst. However, a simple expectations model based on past values of reported export sales is a feasible alternative. Many such models of expectations exist. "Adaptive expectations" (Nerlove, 1958) uses a geometrically weighted moving average of past values as a measure of expectations. A simpler version of

adjustment is significnt, the F-test for the equation suggests that the equation as a whole is insignificant. However, in the case of wheat after June 1980, the evidence suggests that values of export sales more than one period previous are also important for expectations. Therefore, we used an auto-regressive integrated moving average model (ARIMA) to adjust wheat export sales data for expectations in the post-June 1980 period. The ARIMA procedure is discussed in the statistical methods section below.

STATISTICAL METHODS

In this study, we used cross-correlation analysis to test for pricing efficiency. Cross-correlation analysis has been used previously in the analysis of pricing efficiency in grain and turkey markets (Garcia, 1981; Bessler and Schrader, 1980). This technique involves the calculation of correlation coefficients (measures of the relationship) between two variables, in this case export sales information and price changes, over a continuum of leads and lags.

Cross-correlation analysis requires that both variables (export sales information and price changes) be free of auto-correlation (Bessler and Schrader, 1980), since the significance tests (t-statistics) of correlation coefficients computed between two auto-correlated series may be overestimated. Thus the removal of time series properties (trend, cyclical, and seasonal) from the export sales and prices series is critical. The regular movement of a variable over time can be eliminated by prefiltering the data (Box and Jenkins, 1970). A variety of techniques can be used as a filter, including differencing, ARIMA, and polynomial trend models. Once the data have been filtered, the differences or residuals, depending on the type of filter, are used in the cross-correlation analysis.

Since the market efficiency model uses first differences between prices and reported export sales, auto-correlation problems were not expected. This was confirmed by the analysis of reported export sales data, using the Box-Pierce test (Greenberg and Webster, 1983, pp. 109-127), which revealed no auto-correlation, except in the case of wheat after June 1980. The presence of auto-correlation in the first-differenced series of reported wheat export sales in the later period was not surprising since wheat in that period was the only commodity that had both a significant equation and a statistically significant coefficient of adjustment in the regression analysis reported above. To properly adjust the wheat export sales after June 1980 for expectations, and to ensure that the series was free of auto-correlation, we fit an ARIMA model to the data (see table 2).

The estimated coefficient of adjustment, 1-d, is the fraction of the trader's previous error that he or she uses to form current expectations. If our estimate of 1-d is not significantly different from zero, then we cannot reject the hypothesis that the true value of 1-d is zero, or in other words, that d=1. A finding of d=1 implies that traders expect the current period's sales report to equal the sales report during the previous period (see equation (1)). In this case it would be appropriate to use the previous period's sales report, rather than a more complicated expression, as a proxy for traders' expectations for the current period.

Only two of the six equations we estimated (wheat and soybeans after June 1980) were statistically significant at the 95 percent confidence level, as shown in table 1, below.

Table 1

Regression Results for Adaptive Expectations Model of Reported Export Sales

	R squared	F	t (1-d)
Pre-June 1980:			
Corn	0.0295	2.4949	2.1102
Wheat	0.0019	0.1644	-0.4211
Soybeans	0.0013	0.1074	1.5115
Post-June 1980:			
Corn	0.0379	2.4259	0.3532
Wheat	0.0466	3.0093	2.6864
Soybeans	0.0476	3.0276	0.4584

F(df 3,120;c=.05) = 2.68
t(120,c=.05) = 1.972

None of the equations explained more than 5 percent of the total variation in the dependent variable, daily price change. The coefficient of adjustment was significantly different from zero only in two equations: corn in the earlier period and wheat in the later period. For the other commodities we cannot reject the hypothesis that 1-d=0 (or that d=1). In other words, we cannot reject the hypothesis that a model in which sales forecasted to be reported for the current period equals actual reported sales in the previous period is as suitable as a more complex adaptive expectations model.

Therefore, for these commodities, we use ES_{m-1} as a proxy for ES^*_m, with the result that the divergence of export sales from traders' expectations equals $ES_m - ES_{m-1}$. We also used this model for corn in the earlier period because although the coefficient of

Selected References

Bessler, D.A. and L.F. Schrader. "Measuring Leads and Lags Among Prices: Turkey Products." Agricultural Economics Research 32 (1980), pp. 1-7.

Box, G.E.P. and G.M. Jenkins. Time Series Analysis: Forecasting and Control. San Francisco: Holden Day, 1970.

Burbach, R. "The Great Grain Robbery." The Progressive (July 1976), pp. 24-27.

Chance, D.M. "The Impact of Inflation Announcements in the Treasury Bond Futures Market: An Event Study of Market Efficiency." Virginia Polytechnic Institute, Department of Finance, working paper no. 25 (1983).

- - - - -. "The Reaction of the Chicago Board of Trade GNMA Futures Contract to the Announcement of Inflation Rates: A Study of Market Efficiency." Paper presented at the Chicago Board of Trade international research seminar (May 1984).

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Garcia, P. "The Transmission of Market Information Among a Sample of Illinois Grain Elevators." Paper presented at the American Agriculture Economics Association annual meeting, Logan, Utah, August 1982.

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Hayek, F.A. "The Use of Knowledge in Society." American Economic Review (September 1945), pp. 519-530.

Heifner, R., K. Kahl, and L. Deaton. "A Study of Relationships Between Large Export Sales and Futures Trading." Export grain sales hearing before the Subcommittee on SBA and SBIC Authority,

The ARIMA model is identified by examining auto-correlation and partial auto-correlation functions for the variable in question. By examining the patterns in these functions, the analyst can determine the lag structure that should be included in the model. Once the lag structure has been determined, an iterative, non-linear, least-squares procedure (Box and Jenkins, 1970) that minimizes the sum of the squared residuals is used to obtain parameter estimates. Since the procedure must be non-linear because of the moving average terms, the estimation process begins with an initial estimate for the parameter values and iterates until it converges.

Table 2

ARIMA Equation for Reported Wheat Exports

Dependent variable is the first difference of reported weekly wheat export sales, post-June 1980
Convergence achieved after 4 iterations

	Coefficient	Standard error	T-statistic
MA (2)[a]	-0.4867983	0.0918856	-5.2978754
AR (1)[b]	-0.6671951	0.0821807	-8.1186341

R-squared	0.302806	Mean of dependent var.	7.391337
Adjusted R-squared	0.297228	S.D. of dependent var.	489.2286
S.E. of regression	410.1276	Sum of squared resid.	2.10D+07
Durbin-Watson statistic	1.972773	Log likelihood	-943.2887

[a]Moving average component, lagged two periods.
[b]Auto-regressive component, lagged one period.

The residuals, or the variation in reported wheat exports that could not be explained using past values of the variable, became our proxy for expectation-adjusted export sales.

Once the reported export sales and price change series were found to be random, the correlation coefficients (r) were computed and tested for significance using a t-test (where $t = r/n^{-.5}$) on the statistical analysis system of the Comnet timesharing network and time series processor on a Compaq microcomputer. Correlation coefficients were also computed for the reported export sales series, adjusted for expectations using the 4-week moving average to substantiate our results.

APPENDIX II

OFFICE OF
THE CHAIRMAN

COMMODITY FUTURES TRADING COMMISSION
WASHINGTON, D. C. 20581

December 7, 1984

Honorable Charles A. Bowsher
Comptroller General of the
United States
General Accounting Office
441 G Street, N. W.
Washington, D. C. 20548

Re: Proposed GAO Report: "Public and Private Controls Help Ensure Fairness, Integrity and Efficiency in the U.S. Grain Marketing System."

Dear Mr. Bowsher:

Thank you for the opportunity to review and comment on the draft report prepared by your staff and received by the CFTC on October 30, 1984. The draft report is a thorough and accurate description of the cash and futures grain markets and how they work. This is a complex area, and the report goes far in explaining export marketing, pricing, and distribution of U. S. grains and grain products.

The Commission, however, does offer some revisions and additions for your consideration in preparing the final document. The suggested minor changes fall into roughly three classifications--updating events since the draft was prepared, technical corrections, and expansion of passages for purposes of clarification. Enclosed please find an annotated copy of the draft along with an item-by-item list of those changes and some of the reasons for those changes.

Also enclosed for your review are copies of the Commission's follow-up rule enforcement review of the Chicago Board of Trade's compliance program, a copy and summary of the Commission's Insider Trading Study and a summary of the Commission's recent study of soybean trading from August through December 1983 on the Chicago Board of Trade.

My staff or I would be pleased to discuss any of these comments or the enclosed materials if further explanation would be helpful.

Sincerely,

Susan M. Phillips

SUSAN M. PHILLIPS
Chairman

Enclosures

GAO note: CFTC's suggested revisions and additions were incorporated in the report as appropriate.

Committee on Small Business, U.S. House of Representatives, 96th Congress (June 11, 1979).

Houthakker, H.S. "Systematic and Random Elements in Short Term Price Movements." American Economic Review 51 (May 1961), pp. 164-172.

Leuthold, R. and P. Hartmann. "A Semi-Strong-Form Evaluation of the Efficiency of the Hog Futures Market." American Journal of Agricultural Economics 61 (August 1979), pp. 482-488.

Morgan, D. Merchants of Grain. New York: Viking Press, 1979.

SAS Institute. SAS User's Guide. Raleigh, N.C.: SAS Institute Inc., 1983.

Stevenson, R.A. and R.M. Bear. "Commodity Futures: Trends or Random Walks." Journal of Finance (March 1970), pp. 65-81.

participation in farm commodity programs, use of farmer-owned reserves, private stock holdings, crop insurance, and diversification of the farm enterprise. Second, the report could make use of research results on grain farmers' marketing strategies (including price-later contracts, forward contracts, etc.) obtained from 1983 and 1984 ERS Cost of Production Surveys as indicated in our specific comments. Third, the discussion on limitations of forward contracting and futures trading (p. 69) needs to be expanded to better reflect what forward contracts and futures markets can offer and how can they be used. Fourth, the discussion of options trading needs to be expanded and be analogous with the treatment of forward contracts and futures markets. Finally, it is important to note that grain farmers normally do not have equal access to futures markets as grain merchants for various reasons as indicated in our specific comments which follow.

[GAO COMMENT: The above comments generally call for certain information beyond the scope of our review. Although we would agree that adding such information to the report might be useful, we do not believe that it is absolutely essential to the various points we make in the report. The comment regarding accessibility of futures markets to farmers is addressed later in the specific comments that follow.]

SPECIFIC COMMENTS

P. v
first paragraph

Although grain sales to countries such as the Soviet Union and China have become more commonplace, it should be noted that China substantially reduced its grain imports from the U.S. in 1983/84. For example, China was projected to import only 0.2 million metric tons of corn from the U.S. in 1983/84, down from more than 2 million in 1982/83. Given China's new policy of placing greater emphasis on the marketplace than on central planning for about one-half of its agricultural commodities, it is quite questionable whether U.S. grain sales to China will remain as common in the near future as they used to be. A related example may be China's imports of U.S. cotton. Several million bales were imported only a few years ago, while today, they are self-sufficient. We should be careful in linking the now commonplace sales to the USSR and China with a reduced need for export sales reporting. These countries are highly unstable customers and they provide us with only limited help in forecasting the size of their crops. Thus, there remain substantial chances for these countries to shock export markets.

[GAO COMMENT: We never intended to link the now commonplace sales to the USSR and China with a reduced need for export sales reporting. These comments are recognized on p. 57 of the report.]

Glossary
Expiration of a Contract

Change "Expiration of a Contract" to "Expiration of Futures Contract." In the definition, delete "Grain contracts last about 18 months."

United States Department of Agriculture | Foreign Agricultural Service | Washington, D.C. 20250

NOV 29 1984

Mr. J. Dexter Peach
Director
Resources, Community, and
Economic Development Division
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Peach:

Pursuant to your letter of Oct. 30, 1984, we are pleased to respond to your draft report entitled, "Public and Private Controls Help Ensure Fairness, Integrity, and Efficiency in the U.S. Grain Marketing System".

We found the report to be generally well done and contain an excellent review of the Export Sales Reporting system. We agree with the conclusion reached pertaining to pricing efficiency of the U.S. grain marketing system. The U.S. grain marketing system has been shown to be efficient over and over again by our own studies and by many others. However, to put things in perspective, the report should note that the "efficiency" addressed in this report is limited to market or pricing efficiency in transforming export sales information into price changes in the futures markets. The "efficiency" concept does not necessarily apply to other components of the U.S. grain marketing system, such as handling and storage, transportation, processing, and feed manufacturing, nor does it necessarily apply to market or pricing efficiency of the cash markets. This narrowness of scope raises a concern we have about the title of this report. The title implies too broad an analysis of the grain marketing system. We suggest that GAO adopt a more informative title in line with the material covered, such as "Are Tighter Public and Private Controls Over Export Sales Reporting and Futures Trading Needed to Ensure Fairness, Integrity, and Pricing Efficiency in the U.S. Grain Marketing System?"

GAO could also strengthen its arguments in Chapter 4 against additional controls over USDA's export sales reporting system, CFTC's regulation of futures trading, and the grain exchanges by beefing up the section entitled Opportunities For Farmers to Manage Their Risk. This section is significant because advocates for more controls often fear that foreign entities and/or large traders, under less stringent reporting requirements and regulation of futures trading, may unduly profit from hidden sales information at the expense of other market participants, especially farmers. First, this report could expand its discussion of farmers' risk-management opportunities beyond futures trading, forward contracts, and options trading to include

GAO note: Except as otherwise noted, changes were made to the final report based on the comments received from USDA. Also, the page numbers in USDA's comments were changed to reflect those in the final report.

P. 5 last paragraph	Besides the clearinghouse and margins that distinguish futures markets from forward contracts, lumpiness of the contract volume associated with futures trading (e.g., 5,000 bushels for each contract in most grain exchanges) is another important feature that distinguishes the two markets.
P. 6 last paragraph	Should include rice futures at the Mid-America Commodity Exchange.
P. 11 last paragraph	The explanation of the increasing price volatility in futures trading is a bit weak. Price volatility in the late 1970's and early 1980's could be caused by the shifts in Government farm program emphasis, the floating of the dollar, changing economic conditions, and the increasing interdependence of U.S. agriculture to the world market that occurred in the early 1970's.
P. 23 last sentence of first paragraph	Change last three words from "quick and superficial" to "brief and routine with time made available to discuss specific concerns".
P. 24 heading of table	Change heading of table to "Comparison of "Exports" as reported by Export Sales, Census Bureau and Federal Grain Inspections".
P. 24 table	Change heading of column (3) from "Export Sales" to "Exports-ESRD".
P. 24 table	Also, change figures in 1982-83 lines for corn and soybeans to: 1) Corn - 48.0, 47.1, 1.9, 46.2, 3.7 2) Soybeans - 25.2, 24.6, 2.4, 24.1, 4.4
P. 24 first paragraph	Delete third sentence "Export sales.....year".
P. 24 first paragraph	Change "Nigerian Attache" to "U.S. Agricultural Attache to Nigeria".
PP. 27-28	The discussion on "Usefulness of Export Sales Information" could be more persuasive if the report had compared the kinds of export information available from other sources, such as Grain Market News, a weekly AMS report, with the information in the export sales report. This comparison would show what data are available in the export sales system but not available in other widely used data sources such as the Grain Market News. This section may understate the importance of the export sales report to forecasting. Some exporters, as indicated, may not use it, but it is very important for many other private firms and for official USDA forecasts. Typically, analysts compute the ratio of the season's cumulative shipments plus outstanding sales to the season's export forecast. This ratio is then compared with previous years' ratios to help determine whether the forecast appears high or low. This technique is widely used in the private sector.

APPENDIX III

Glossary Option	Change definition to read: "An agricultural commodity option is a contract that gives the buyer the right but not the obligation to buy or sell a futures contract at a specified price within a specified time period."
P. 1 Tast paragraph	The statement that "by 1985, 40 percent of U.S. grain output will be used overseas" appears to be unrealistically high. If the produce from one in every three harvested acres is consumed abroad today, are we sure that the proportion will increase by 7 percentage points in a year?
P. 2 Illustration	This table includes all grain except rice. What about including rice data also? "Course" should be spelled as "coarse".

[GAO COMMENT: This report centers primarily on wheat, corn (coarse grains), and soybeans. Although rice is mentioned in the report in a few instances, it was not our intention to gather and include information relating to rice.]

P. 3 second paragraph	Government policy affects international grain supply via not only embargoes, acreage controls, price supports, but also changes in tax laws.
P. 4 first paragraph	Reword the sentence "It is weighed.....and a check is issued to the farmer on the same day" to "It is weighed.....and a check may be issued to.....".
P. 4 first paragraph	add: "Cash prices depend also on the location and quality of the grain and the current demand for grain within the delivery area of the country elevator."
P. 4 second paragraph	The following is proposed in lieu of the present first paragraph: "Forward contracts in the market add a time dimension to cash markets. Forward contracts between local elevators and farmers are known as cash forward contracts. A cash forward contract is specific regarding location, quality, and amount. The difference, however, is that grain ownership is not transferred on the date the contract is made. In practice, a farmer may enter into a cash forward contract with a country elevator before harvest to deliver a portion or all of his crop. The parties involved may specify a [delivery time within a given month. The contract may specify a] fixed price when the grain is delivered or it may provide for a deferred pricing arrangement. If the contract contains a deferred pricing arrangement, the seller has an extended period of time beyond the delivery date to select a price for the grain. However, the grain must be delivered during the specified delivery period."
P. 5 second paragraph third sentence	Change to read: "Futures markets and cash markets are closely related and enable cash market participants (producers, middlemen, and commercial users or processors of a commodity) to protect themselves from future adverse price movements for the commodity in which they deal."

[GAO COMMENT: These comments are addressed, and our response to them given, beginning on p. 29 of the report.]

P. 32 last paragraph — Change word "know" to "anticipate".

P. 37 first paragraph — Change sentence beginning with "Price distortion....." to "Price distortion can occur as a result of strikes and political changes, or actions by traders attempting to control the available supply".

P. 37 — Reference to the Education and Economics unit of the CFTC could be changed to its new name.

P. 54 first paragraph — Price variability in recent years has made information more valuable, not less. When prices were stable in the 1960's, market information was not as valuable because price changes were slow and small in magnitude. This volatility in prices should have increased futures market participation by both hedgers and speculators.

[GAO COMMENT: We agree with the above comments. Although we do not see their relevance to p. 54, as cited, we believe they are applicable to and consistent with the discussions beginning on p. 27 concerning the usefulness of export sales information and beginning on p. 44 relating to the rapid growth in the futures industry.]

P. 55 first paragraph last sentence — Change sentence beginning with "Some point out.....", to "To this end, some point out that the system is important during a period of abundant supplies because it provides information useful in monitoring and market analysis by farmers and government."

P. 55 fourth paragraph — As pointed out earlier, it is questionable that U.S. grain sales to China will remain as commonplace in the near future as they used to be. The variability is, and will remain, great. Sales reports can provide information as to the size of the Soviet and Chinese crops. Such information is difficult to get directly.

[GAO COMMENT: This comment is recognized on p. 57 of the report.]

P. 68 first paragraph — Grain farmers do not have as equal access to futures market as grain merchants because (1) futures trading requires a minimum volume of trading (mostly 5,000 bushels each contract) with prespecified quality attributes, (2) it is not advisable for farmers to hedge 100 percent of their products due to production risk and quality uncertainity, and (3) grain merchants trade on margins while producers are interested in price level because they have a cost of production to cover.

[GAO COMMENT: Page 68 provides a number of reasons why futures markets are not as accessible to farmers as they are, perhaps, to grain merchants. The above comment was added to this discussion as a footnote on p. 68.]

[GAO COMMENT: We did not intend to downplay the usefulness of export sales information. The report, beginning on p. 27, points out that export sales information is useful--albeit in varying degrees--to a wide variety of parties including those responsible for forecasting worldwide supply/demand conditions.]

P. 28 third paragraph

The initial conclusion in the report raises a question as to whether the Export Sales Reporting (ESR) Division verification methods are in all cases adequate, in view of the greatly expanding number of exporting firms and commodities. The ESR Division performs field reviews and telephone interviews in a manner that best accomplishes the objectives of the contacts. The stated purpose of these contacts is to assure that exporters thoroughly understand and uniformly interpret reporting regulations, provide a basis for updating the regulations to conform with trade practices, provide information not otherwise available, better analyze and evaluate the data reported, and identify problem areas needing audit or investigation. Although the final outcome of each contact is limited by the knowledge and experience of the interviewer and the amount of time available for such reviews, we believe that the interviews are still of sufficient depth to accomplish the objectives stated above.

P. 28 third and fourth paragraphs

Another conclusion in the draft report contains a statement that suggests that ESR Division documentation may not be adequate and that OIG may consider verifying the sufficiency of such documentation. The practice in ESR has always been to document all exporter phone calls, office visits, correspondence, and noncompliance with program regulations. However, only those problems which are deemed significant are recorded. The problems that are not recorded are those that, in our opinion, are routine and have little relative significance to program operations. It would certainly be counter productive to record all problems or potential problems, no matter how trivial, with the expectation that the record may someday be found useful. The Division must have the flexibility to judge which points are to be documented and which are not. We have always thought that it is better to have excessive, rather than insufficient, documentation, and we think our records will bear this out. The OIG is certainly welcome to review our files to determine whether or not we are keeping sufficient documentation to properly record the nature of the problems encountered with individual exporters as suggested in the report.

P. 29 first paragraph

Finally, the draft report suggests that the ESR Division may seek OIG help as a supplemental means of verifying the timeliness and accuracy of export sales data. FAS has always recognized that accurate and timely factual information is necessary to enable the futures markets to generate prices which reflect underlying realistic demand and supply conditions and which respond promptly to changes in these conditions. Consequently, we have no objection to a review by OIG if they deem it necessary and prudent to verify the timeliness and accuracy of export sales data.

APPENDIX III

PP. 79-84 — This report could be further strengthened by showing the cumulative or multiplier effect of export sales reporting on prices. This may be informative especially in light of the evidence that the total weekly export sales reports between January 1977 and June 1980 may contain information to which prices responded. Also, are there any cross effects of export sales reporting on prices? For example, is there any effect of soybean sales reporting on corn price changes?

[GAO COMMENT: We are in general agreement with these comments. What is suggested here, however, was outside the scope of our review.]

P. 88 third paragraph — Test of market efficiency using Fama's definitions need to be interpreted with caution since they assume (1) perfect competition, (2) zero transaction costs, (3) risk neutrality, (4) constant returns to scale, and (5) the impossibility of corner optima. Grossman and Stiglitz argue that Fama's definition is invalid because information is costly and thus prices cannot perfectly reflect the information available. The methods used in this study are acceptable, but need to be interpreted with the above caveats.

[GAO COMMENT: This comment was included in a footnote on p. 88 of app. I to the report.]

We appreciate the opportunity to review this draft report.

Sincerely,

Melvin E Sims

PP. 68-71

GAO should present more recent survey data on grain farmers' marketing methods including cash marketing, price-later contracts, forward contracts, etc.

A recent ERS study on marketing methods used by soybean farmers to establish the price received for their 1982 soybean crop shows the following breakdown in selected Southern States:

State	Forward contract	Cash market	Price-later contract
	Percent of sale		
Alabama	--	100.0	--
Arkansas	17.2	56.7	26.1
Georgia	12.8	81.5	5.7
Louisiana	25.9	74.1	--
Mississippi	14.5	85.3	.2
North Carolina	--	100.0	--
South Carolina	--	100.0	--
Tennessee	33.0	33.0	34.0
Virginia	50.0	50.0	--

Source: M. Leath and D. Hacklander. "Marketing Methods, Pricing Arrangements, and Marketing Channels Used by Southern Soybean Producers in 1982/83". Oil Crops Outlook and Situation Report. OCS-6, ERS-USDA. October 1984. pp. 17-21

In addition, Southeast soybean farmers hedged only 5.4 percent of their 1982 crop on the futures market, 8.1 percent in the Delta, and 6.6 percent in the Appalachian region. Also, there could be more discussion on other risk-management strategies not covered in the present draft report.

[GAO COMMENT: The above comments call for certain information that goes beyond the scope of our review. Although we would agree that adding such information to the report might be useful, we do not believe that it is absolutely essential to the points we make on pp. 68-71 of the report. The above data from the Economic Research Service's study on marketing methods used by soybean farmers are generally consistent with the discussion in our report.]

The report probably overstates the extent to which options will be an important risk management tool for farmers. If they do not use futures, why (as indicated on p. 72) will they use options more? Options become attractive when risks of low prices are great, however, when price risks are great, premiums rise. Many farmers are going to find that the premiums are too great to give them the price protection they would like.

[GAO COMMENT: Changes were made to pp. 69 and 72 of the report to recognize the above comments.]

APPENDIX IV

NFA NATIONAL FUTURES ASSOCIATION
200 W. MADISON ST•CHICAGO, IL•60606•(312) 781-1300

January 14, 1985

Mr. William J. Anderson
Director
United States General Accounting Office
General Government Division
Washington, D.C. 20548

Dear Mr. Anderson:

Thank you for allowing National Futures Association ("NFA") the opportunity to respond to the United States General Accounting Office ("GAO") draft report which you furnished for our review and comment. We believe that the report is well-written and reaches sound conclusions, but, there are certain points which require updating since some time has passed since you first spoke with us.

Attached is our revision of the section entitled "NFA: another means of self-regulation" (Pages 52 and 53). If you have any questions or require further information, please call me at (312)781-1320.

Sincerely,

Daniel A. Driscoll
Vice President of Compliance

cc: Joseph H. Harrison, Jr. - NFA

Attachment

GAO note: NFA's suggested revisions were incorporated in the report as appropriate. Also, the page numbers referred to above were changed to relect those in the final report.

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