A Class Exercise In Futures Market Trading

Carl O’Conner
Iowa State University

Charles Winkler
Iowa State University

Follow this and additional works at: http://lib.dr.iastate.edu/econ_las_staffpapers

Part of the Business Administration, Management, and Operations Commons, Business Intelligence Commons, Growth and Development Commons, and the Operations and Supply Chain Management Commons

Recommended Citation
A Class Exercise In Futures Market Trading

Abstract
The futures market as we know it today originated around 1850 when a canal linking the Illinois River with Chicago was constructed. This canal enabled country merchants to purchase grain from farmers and ship the grain to Chicago via barges. However, corn could only improve from farms to country merchants during the winter, when country roads were passable. These country merchants were then forced to hold the corn until spring when the canal opened. From the time the country merchants received and paid for the corn from the farmers and the canal opened in the spring, considerable price changes could occur.

Disciplines
Business Administration, Management, and Operations | Business Intelligence | Growth and Development | Operations and Supply Chain Management
A CLASS EXERCISE IN FUTURES MARKET TRADING
(Student's Handbook)

by

Carl O'Connor and Charles Winkler

No. 13
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Trading in the Futures Market</td>
<td>2</td>
</tr>
<tr>
<td>Contracts Available for Trading</td>
<td>5</td>
</tr>
<tr>
<td>Pricing Units and Contract Size</td>
<td>7</td>
</tr>
<tr>
<td>Brokerage Fees</td>
<td>7</td>
</tr>
<tr>
<td>Procedures for Trading</td>
<td>8</td>
</tr>
<tr>
<td>Margin Requirements</td>
<td>10</td>
</tr>
<tr>
<td> Initial Margin</td>
<td>10</td>
</tr>
<tr>
<td> Maintenance Margin</td>
<td>10</td>
</tr>
<tr>
<td>Trading Suspension</td>
<td>12</td>
</tr>
<tr>
<td>Stop-Loss Order</td>
<td>13</td>
</tr>
<tr>
<td>Market-If-Touched Order</td>
<td>15</td>
</tr>
<tr>
<td>Important Points to Remember</td>
<td>17</td>
</tr>
</tbody>
</table>
INTRODUCTION

This handbook is to be used in conjunction with a computer class exercise FMP-II, written by Doyle A. Eiler and Dana C. Goodrich, Jr., Department of Agricultural Economics, Cornell University, Ithaca, New York. The authors present a detailed explanation of the program logic and each program variable in their bulletin, A.E. Res. 74-18, FMP-II, A Class Exercise in Futures Market Speculation, Cornell University, December 1974.

The objective of this handbook is simply to facilitate the participant in using the Futures trading exercise as adapted at Iowa State University.
Trading in the Futures Market

The futures market as we know it today originated around 1850 when a canal linking the Illinois River with Chicago was constructed. This canal enabled country merchants to purchase grain from farmers and ship the grain to Chicago via barges. However, corn could only move from farms to country merchants during the winter, when country roads were passable. These country merchants were then forced to hold the corn until spring when the canal opened. From the time the country merchants received and paid for the corn from the farmers and the canal opened in the spring, considerable price changes could occur. To avoid the risk of price changes, the country merchants began selling corn to Chicago buyers for delivery in the spring. These transactions were "to arrive" contracts, or futures contracts as we know them today. The country merchants were forwarding the risk of price changes to those in Chicago who were willing to take the risk. As time passed, the volume of trade in these forward contracts increased and many of them changed hands several times before delivery was made. During this time period the general public also became involved and by the late 1860's the contracts were standardized, the time and place of trading were specified, and a set of trading rules was adopted. 1/

Trading in the futures market is accomplished by entering into an agreement to sell or buy a certain commodity in the future. These arrangements—called futures contracts—represent obligations either to receive delivery or to make delivery of a specific quantity and quality of a commodity at a specific price, date and place in the future. The seller of a contract promises to deliver the commodity, the buyer promises to pay for and accept delivery of the commodity.

Note that the sale or purchase of a futures contract is not the same as the sale or purchase of the actual commodity which it represents. Rather, it is the acceptance of an obligation to perform one or the other of those acts in the future.

Once a party has entered into one of these contracts, he has a choice of two methods for fulfilling his contractual obligation. He may actually take part in the delivery of the physical commodity. Many people, especially producers, think of this as the only method of satisfying the contract. But there is another, and it is this second alternative which makes the futures market unique. He may satisfy his obligation by making an offsetting trade before the contract expiration date. For example, once an individual has purchased a promise to deliver, which is all that a commodity futures contract is, he may sell this promise to someone else. This removes his obligation and takes him out of the market before actual delivery time. If the individual had originally sold a promise to deliver, he could buy it back at any time before the contract expiration date.

Fewer than one percent of all future contracts are settled by delivery. More than 99 percent are settled by making an offsetting trade.

If you assume the role of a speculator, then your interest will be buying and selling contracts, not in delivery of commodities. Your objective is to profit from changes in the price of a contract by correctly predicting the direction in which the price will move. The difference between the prices at which you sell a contract and buy a contract is your gain or loss, or trading profit.

For example, a local businessman, who does not own any corn, wants to speculate in the corn market. The businessman has reason to predict a decrease in the price of the commodity represented by a contract of December corn.
The contract is named for the month in which the delivery of corn is to occur. The businessman calls a broker and requests that he sell a contract of December corn, in expectation of a price decline. What has this businessman actually done?

By selling one contract, he has accepted an obligation to make delivery of 5,000 bushels of corn next December. The businessman is not paid for the corn now since he has not delivered any corn, he simply has an obligation to deliver corn in December at a specific price.

Once the transaction is made in the market place, the businessman's broker will call and inform him that he is "short" one December corn at $2.80. Short or bear are common terms in the futures trade for first entering the market by selling. If this businessman had first bought, he would have anticipated a price rise, so he could sell it back for more than he bought it for and thus make a profit. In this case he would be long or bull by first entering the futures by buying.

Rather than paying or collecting money for the commodity when trading in the futures market, the businessman must post "margin". Margin is a specific number of dollars per contract which a trader must place on deposit as evidence of his readiness to abide by the provisions of the futures contract. The margin is a reserve against default and serves the same purpose as earnest money in a real estate deal.

In this example, if the businessman were to do nothing more until the December delivery date for the contract, he must deliver 5,000 bushels of corn. The contract decrees this. Upon delivery, the initial margin he posted is returned and he is paid the price specified in the futures contract.
But as a speculator he has little interest in actually delivering the corn. His objective is to make a profit from his price predictions without the bother of the actual physical commodity. Therefore, he voids the original obligation by buying a December contract prior to the delivery date. Since a "buy" obligates him to accept delivery of 5,000 bushels of corn in December, it offsets his previous "sell." He has no further commitment to the market.

Looking at it another way, he has on the one hand the first obligation to deliver corn, and, on the other, the most recent obligation to receive the very same quantity and quality of corn. He has nullified his "short" position in the market by taking the opposite position. His two positions cancel one another. Therefore, he no longer need be concerned with delivery or acceptance of actual corn.

At the completion of this sell-buy cycle, the margin he posted is returned to his account, along with any realized profit (or less any realized loss).

This brief summary of the futures market and a businessman's role as a speculator is simply an illustration of the role you may take in this futures market trading exercise. You will want to predict the movement of market prices for the futures contracts listed below. If your prediction is for a decline in price, sell futures contracts and later buy back at a lower price. If your prediction is for an increase in price, buy futures contracts and later sell back at a higher price. Correct predictions yield profits; incorrect ones yield losses.

Contracts Available for Trading

The futures market is often spoken of as one organization, but actually is made up of 16 organized exchanges in the United States which trade approximately 50 different commodities. From a practical standpoint, it makes very little
difference to a trader which exchange supervises trading in his particular commodity, as long as trading is active. The exchanges do not buy or sell commodities, but simply provide a supervisory role under the guidelines of the Commodity Exchange Authority.

In this exercise you may trade in the following four contracts:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Delivery Month*</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Corn</td>
<td></td>
<td>Board of Trade of Chicago</td>
</tr>
<tr>
<td>2. Soybeans</td>
<td></td>
<td>Board of Trade of Chicago</td>
</tr>
<tr>
<td>3. Hogs</td>
<td></td>
<td>Chicago Merchantile Exchange</td>
</tr>
<tr>
<td>4. Cattle</td>
<td></td>
<td>Chicago Merchantile Exchange</td>
</tr>
</tbody>
</table>

*Contracts for different delivery months will be specified by the instructor, depending on the time of year this exercise is being implemented.
Pricing Units and Contract Size

In an effort to facilitate orderly trading, the governing bodies of each commodity exchange establish rules and procedures for all participants. They set uniform pricing units to be used in quotations, maximum price fluctuations allowed in any one trading day, and suspension of trading when prices reach these limits, which will be examined later. They also establish the provisions of contracts traded. The following table lists the information which you will need.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Trading units (contract size)</th>
<th>Fluctuations</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>5,000 bushels</td>
<td>.0025c/bu.</td>
<td>.0025c/bu.</td>
<td>10c/bu.</td>
</tr>
<tr>
<td>Soybeans</td>
<td>5,000 bushels</td>
<td>.0025c/bu.</td>
<td>20c/bu.</td>
<td></td>
</tr>
<tr>
<td>Hogs</td>
<td>30,000 pounds (300 cwt.)</td>
<td>.00025c/lb.</td>
<td>.00025c/lb.</td>
<td>1.5c/lb.</td>
</tr>
<tr>
<td>Cattle</td>
<td>40,000 pounds (400 cwt.)</td>
<td>.00025c/lb.</td>
<td>1.5c/lb.</td>
<td></td>
</tr>
</tbody>
</table>

Brokerage Fees

Your transactions as a trader are executed by a brokerage firm. The commission rates that a broker can charge is set by the commodity exchanges. The fee covers both the opening and subsequent closing of a contract. The established fees for opening and closing a contract which will be charged to your account by the brokerage firm are:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>$35.00</td>
</tr>
<tr>
<td>Soybeans</td>
<td>$33.00</td>
</tr>
<tr>
<td>Hogs</td>
<td>$40.00</td>
</tr>
<tr>
<td>Cattle</td>
<td>$45.00</td>
</tr>
</tbody>
</table>
Procedures for Trading

You will be assigned an account number with the brokerage firm which will execute your orders. Your account carries an initial balance of $15,000 which you will use for margin. Your objective will be to make as much money in futures trading as you can through intelligent use of these funds.

The brokerage firm receives actual market price quotations from the commodity exchanges three times a day. These are the prices which will be used in the trading exercise.  

<table>
<thead>
<tr>
<th>Price quote 1</th>
<th>Opening price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price quote 2</td>
<td>11 a.m. price</td>
</tr>
<tr>
<td>Price quote 3</td>
<td>closing price</td>
</tr>
</tbody>
</table>

You must trade in person. Fill out one of the specially printed order cards for each contract you want to sell or buy, or for each stop-loss order.

<table>
<thead>
<tr>
<th>ORDER CARD</th>
<th>Account No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Last Digit of year</th>
<th>Month</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commodity</th>
<th>(Punch in Column 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corn</td>
</tr>
<tr>
<td>2</td>
<td>Soybeans</td>
</tr>
<tr>
<td>3</td>
<td>Hogs</td>
</tr>
<tr>
<td>4</td>
<td>Cattle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action</th>
<th>(Punch in Column 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(M Buy) Buy at market</td>
</tr>
<tr>
<td>2</td>
<td>(M Sell) Sell at market</td>
</tr>
<tr>
<td>3</td>
<td>Set Stop</td>
</tr>
<tr>
<td>4</td>
<td>(T Buy) Market-if-touched Buy</td>
</tr>
<tr>
<td>5</td>
<td>(T Sell) Market-if-touched Sell</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price Quote</th>
<th>(Punch in Column 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If action is to be taken on open</td>
</tr>
<tr>
<td>2</td>
<td>If action is to be taken at 11a.m.</td>
</tr>
<tr>
<td>3</td>
<td>If action is to be taken on close.</td>
</tr>
</tbody>
</table>

Signature of Trader

2/ The instructor may choose alternative times for trading.
Note the required information:

A. Account number (Your assigned account number, such as 0123)
B. Last digit of the current year (197X)
C. Month (Number of the month)
D. Day (Date)
E. Price quote (Quote number of the next price to be posted; 1, 2, 3)
F. Commodity (Check the appropriate one)
G. Action (Check the appropriate one)
H. Action price (Indicate price if Action 3, 4, or 5 was checked in G)
I. Signature (Each card must be signed by the student)

The price at which your order is executed depends on when it is submitted. In general, your order will be executed at the next price posted after it is submitted. Specifically:

a) An order submitted before the posting of the opening price gets the opening price (price quote 1).

b) An order submitted after the posting of the opening price gets the next posted price.

c) An order submitted after the posting of the closing price of that day gets the opening price of the next market day (Price quote 1, next day).

Each week you will receive a Transaction Record which provides a statement of your current market position and a summary of your activity to date. Ask your instructor if you need help in interpreting your Record.

You should keep a list of the orders you have given the brokerage firm. This will allow you to check for clerical mistakes. Furthermore, it will allow you to maintain better control of your account in the event prices move against you.
Margin Required to Open a Contract

As explained earlier, all trading in the commodity market is done on margin. Margin accounts are closely supervised by the Commodity Exchange and all margin monies collected by brokers must be placed in segregated accounts and cannot be used for other purposes by the brokerage house. The first type of margin, the initial margin or margin requirements for opening a contract (either buying or selling) are specified for each commodity by the brokerage houses, with minimum requirements set by the governing bodies of the exchanges. The amount of the required margin per contract is only a fraction of the market value of the commodity represented by that contract. The margin requirements for each contract used in this exercise are:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Initial Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>$2500.00</td>
</tr>
<tr>
<td>Soybeans</td>
<td>$6250.00</td>
</tr>
<tr>
<td>Hogs</td>
<td>$1000.00</td>
</tr>
<tr>
<td>Cattle</td>
<td>$1200.00</td>
</tr>
</tbody>
</table>

Your order card which opens a contract authorizes your broker to set aside the margin from your account. When a contract is closed, the margin along with your gain or loss is returned to your account.

Margin Required to Maintain an Open Contract

The second type of margin is a maintenance margin. Since the margin account functions as a reserve against loss, the account cannot be allowed to decline to zero before action is taken. If a loss larger than the initial margin is allowed to accumulate, the trader could default and leave an uncollectable debt. The Exchange prevents this from happening by setting minimum maintenance margin requirements. Each brokerage house is allowed to set higher maintenance margins than the minimum set by the Exchange. The maintenance margin is a stated dollar amount which must remain in the account after all losses are deducted from the initial margin. Should the account reach the maintenance level, the broker is required to contact the customer and ask him to bring his account back to its initial level. This is known as a margin call.

To be more precise, after a contract is opened, an unfavorable price change causes a trader to suffer a "paper" loss. That is, no real loss is
realized until the contract is closed. However, a paper loss reduces the trader's effective initial margin. When a trader's effective margin drops below the maintenance level or the "call point", he will be "called" to provide additional money to restore his effective margin. The call points and the paper losses, or unfavorable price moves which will trigger those calls are listed below.

<table>
<thead>
<tr>
<th>Contract</th>
<th>&quot;Call Point&quot;</th>
<th>Paper loss to reach &quot;call point&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per contract</td>
<td>Per unit</td>
</tr>
<tr>
<td>Corn</td>
<td>$1875.00</td>
<td>$625.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.4¢/bu.</td>
</tr>
<tr>
<td>Soybeans</td>
<td>$4687.50</td>
<td>$1562.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31.25¢/bu.</td>
</tr>
<tr>
<td>Hogs</td>
<td>$750.00</td>
<td>$250.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83.33¢/cwt.</td>
</tr>
<tr>
<td>Cattle</td>
<td>$900.00</td>
<td>$300.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75¢/cwt.</td>
</tr>
</tbody>
</table>

To illustrate how margin calls are handled in this exercise, suppose you sold a corn contract for $2.80. This would require your broker to set aside from your account $2500.00 (the initial margin needed to open a corn contract). If the market price increases to $2.95, what is your paper (but unrealized) loss?

\[
\text{Paper Trading result} = (\text{Value of contract sold}) - (\text{Value of contract which later must be bought})
\]

\[
= (5,000 \text{ bu.} \times 2.80) - (5,000 \text{ bu.} \times 2.95)
\]

\[
= 14,000 - 14,750
\]

\[
= -750
\]

Subtracting this paper loss from your original margin, ($2500) the effective margin becomes only $1,750.
Since the effective margin ($1,750) is less than the call point ($1,875) for corn, more margin is required. Your broker will set aside from your account an additional $750 to restore your effective margin to its original level.

In our exercise, margins will be checked after each price change. If a call point is reached, the necessary additional margin is taken from your account. (Your Transaction Record then will show the total margin posted, or $3,250.00 in the example above.) If your account is inadequate to cover the margin call, and no "limit" suspension is in effect, the contract will be closed automatically. When this occurs, the word CALL will appear in the "Reason" column of your Transaction Record.

Trading Suspension

As stated earlier, trading in futures contracts takes place only within certain prescribed daily price ranges. These maximum daily price fluctuations are set and altered by the governing boards of exchanges. Since they seek to maintain orderliness in their markets, trading at prices outside of the stipulated limits is disallowed, regardless of market forces. When transaction prices reach these limits, often called "limit price moves" or simply "limit moves," trading is automatically suspended. No subsequent trades may take place during the day except at prices within the limits. Limit moves which lead to suspension of trading effectively bar further transactions until the following day. Then new price maximums, based on the level of closing prices the previous day, again are in effect.

In our exercise, buy and sell orders which you submit on "limit moves" are voided. Active stops are not executed.
Limit moves are encountered in the market when very strong buy or very strong sell sentiment prevails. Of course, suspension prevents traders who hold open positions from closing them, just as it prevents those holding no positions from opening some. Both situations can be uncomfortable for traders. But the former often is the cause of very substantial market losses.

Consider the case of a trader, for example, who has sold corn at $2.80, expecting after an anticipated price decline to buy at a profitably low price. After his initial sale, he encounters three consecutive days of unfavorable "limit" price moves (10¢ per bushel per day) in which the "limit" is reached at each day's opening. Pitifully few of the thousands of orders which traders wished to have executed are handled. Our trader would have suffered a paper loss of 30¢ per bushel (or $1,500 per contract) before being able to liquidate his position.

Thus, successive price moves "at the limit" can result in large losses to those holding open positions. There is no way of avoiding such disasters, but awareness of the possibility may help you develop a sounder trading strategy.

A Stop-Loss Order

A "stop-loss" order is a special type of order for protection against rapid unfavorable price moves. A "stop" serves to minimize loss or preserve a gain. For example, suppose you sell a contract of December corn at $2.80 per bushel in the belief that the price will decline. (Your plan, of course, is to buy a contract of December corn later at a lower price for a financial gain.)
But to protect against a large loss if your prediction does not come true, you place a "stop" order at, say $2.90. If the price then moves against you, your existing contract is automatically closed (bought) by your broker when the market moves through the stop price of $2.90. Thus your loss is limited to about ten cents per bushel. Without the "stop" order and with a continuation of an unfavorable price move, you could accumulate much more damaging losses.

On the other hand, suppose you are correct in your original prediction and the price drops to $2.71 yielding a paper gain of nine cents per bushel. If you are convinced of a further price decline, you may want to wait until later to buy at an even lower price. However, in order to preserve some of the favorable move that already has occurred, you place a "stop" order at, say $2.75. Then in the event of a price increase, your existing contract will be automatically closed when the price moves through $2.75. Thus, you have preserved and realized a large portion of the original paper gain. Without the use of a "stop" order, a continuation of the unfavorable price move could wipe out earlier paper gains.

In the real world, market forces often are such that your broker is unable to execute your stop order at exactly the stop price. In that case he will get the best price possible under the circumstances. Stop orders in this exercise are executed at the first posted price after a stop price is passed. All open contracts of a commodity are covered by a single stop order. The word STOP will appear in the reason column of the Transaction Record for all contracts closed this way. Prices of your active but unexecuted stop orders appear on your Transaction Record.
"Market-If-Touched" Orders*

*(Caution, M.I.T. orders should only be submitted when the instructor has indicated they can be used. The instructor controls when and how many M.I.T. orders can be submitted.)

Advanced students of futures markets may choose to speculate in a more sophisticated manner than that allowed by the three types of orders discussed so far. For these students there are market-if-touched orders.

These orders can be used to establish or liquidate positions if and when the market price reaches a level prescribed in the order. "Market-if-touched" sell orders (TSEL) and "market-if-touched" buy orders (TBUY) direct your broker to execute a sell or buy if the market price moves to a level which you consider to be especially favorable. Such orders once accepted by your broker will be executed whenever the price you earlier deemed desirable is reached or passed.

To illustrate, suppose you expect a run-down in the price of corn but the decrease, in your opinion, is not likely to set in until the market reaches yet a higher price. You have no open position now, but want to make certain that if and when the price of corn, now at $2.08 per bushel, achieves that higher point before starting down, your short position will be established. Therefore, you submit a TSEL order at $3.10. This tells your broker that when corn reaches $3.10 you want him to sell one contract. In this way you have used the market-if-touched order to establish a position at what you consider a "good" price.

"Touch"-orders may also be used to liquidate a position at a desirable price. Suppose you sell corn at $2.80 in expectation of about a 50-cent decline in price. You submit a market-if-touched order to buy corn at $2.30. This notifies your broker that if the market price reaches $2.30 you will be pleased with the gain and wish to liquidate your position. You thus will have "locked in" a gain by use of the "market-if-touched" order.
Since "market-if-touched" orders can open new positions, margin considerations are important. A trader should have enough uncommitted capital to cover margin which would be required if his T-orders to open positions were executed. In this exercise, your T-orders which will close established positions always will be accepted. They will be executed at or beyond your T-price. If you submit T-orders which potentially will open positions, they will be accepted only if you have sufficient capital to cover the required margin if executed. If you don't have enough capital, your T-orders will be voided. Furthermore, once accepted, a T-order to open a position will be executed only if enough margin capital is available when the T-price is reached. Otherwise it will be voided.

Since T-orders are planned market actions under given circumstances, events which subsequently alter these circumstances likewise alter the wisdom of the original plan. Therefore, accepted T-orders are voided as any of several events occur.

An "at-market" order (MBUY or MSEL) cancels all TBuYS or TSELS in that commodity. Execution of a stop-loss order cancels all T-orders in that commodity. Liquidation of a position because of an unmet margin call also cancels all T-orders in that commodity. Entry of a TBuY order with a zero action price cancels all TBuY orders in that commodity. Entry of a TSEL order with a zero action price cancels all TSEL orders in that commodity.
IMPORTANT POINTS TO REMEMBER!

1. For every contract a separate order card must be used.
   Example: If one wants to buy (or sell) two contracts of July soybeans,
   two order cards must be used.

2. A separate order card must be used when placing a stop.
   Example: One order card must be used to buy (or sell) a contract of July
   soybeans and another order card must be used to place a stop
   by checking "set stop" in column 12 and inserting the appropriate
   price in columns 13 through 19.

3. Columns 1 through 12 on the order cards must always have something in them.
   Columns 13 through 19 are only to be used if the Set Stop, TBUY, or TSELL
   actions are checked in column 12.

4. A stop price will be in effect for all contracts of a commodity that the
   trader owns.
   Example: If a trader is long four contracts of July soybeans and places
   a stop, then the stop is in effect for all four contracts.

5. If a trader desires to remove a stop, he enters another order card and checks
   "set stop" in Column 12 and enters all zeros in columns 13 through 19. To
   change a stop, one should submit another order with the new stop price in
   columns 13 through 19.

6. A trader can initiate one of the five actions only at three times throughout
   a trading day. These times are on the open, 11:00 or at the close. (This
   is at the instructor's discretion).

7. Once the market has reached the stop price, you will automatically be out
   of the market at the next price given to the computer. Therefore, you do
   not always get out of the market at the stop price you entered on your order
   since the computer only "sees" three prices a day for each commodity.

8. If a limit price move occurs at one of the three trading times, trading
   automatically stops and if a trader enters an at market buy or sell at that
   time, the orders will be discarded forever. However, stop price, TBUY, and
   TSELL orders are entered into memory by the computer and will be executed
   at the stated prices during non limit price moves.

9. Since students do not receive a Transaction Record after every trade, it is
   advised that the students keep track of their trades themselves. This limits
   the confusion that can exist before the students receive their next
   Transaction Record.

10. Students should know their account balance at all times, thereby eliminating
    the possibility of voided orders due to lack of funds.
APPENDIX A

Student Printouts

Each time the instructor decides to submit the program, each student that has submitted orders cards will receive a printout. The following section illustrates some of the results that a student may receive with a brief discussion of how to interpret the printout.
Example 1

ACCOUNT NUMBER 1045  
JACK BLOCK  
ACCOUNT BALANCE $14,777.50

TRANSACTIONS TO OPEN

<table>
<thead>
<tr>
<th>COMMODITY</th>
<th>DATE</th>
<th>ACTION</th>
<th>PRICE</th>
<th>TRADE VALUE</th>
<th>MARGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY CORN</td>
<td>4/15/1</td>
<td>MBuy</td>
<td>$2.84</td>
<td>14,200.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

TRANSACTIONS TO CLOSE

<table>
<thead>
<tr>
<th>DATE</th>
<th>PRICE</th>
<th>REASON</th>
<th>TRADE VALUE</th>
<th>COMMISSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/15/1</td>
<td>$2.80250</td>
<td>PSel</td>
<td>14,012.50</td>
<td>$35.00</td>
</tr>
</tbody>
</table>

This example illustrates a simple at market buy to open a position (left side of the printout) and an at market sell to close the position (right side of the printout). On April 15, the first price quote, July corn was bought at $2.84. It was then sold the same day at the third price quote for $2.80 1/4. This resulted in a loss of 3 3/4¢ per bushel on 5,000 bu. plus $35.00 commission for a total loss of $222.50. Subtracting this loss from the beginning account balance of $15,000 results in a new account balance of $14,777.50.

The order cards used for this example, given in column notation, beginning with column 1 are as follows:

100550415111 and 100550415312

There were two order cards used, as indicated above. Columns 1-4 give the student ID number. Column 5 is the last digit of the year the order was submitted. Columns 6 and 7 indicate the month the order was submitted. Columns 8 and 9 indicate the day of the month. Column 10 is the price quote and Column 11 indicates the commodity traded. Column 12 represents the action taken.

For further information see the section dealing with order cards on page 8. For the remaining student printout examples, the authors will only list the order cards corresponding to each example.
On April 15, the first price quote, July corn was bought at $2.84. A stop order was entered at the same time at $2.80. On April 16, the first price quote, the contract was stopped out at $2.79. Notice that the price was $2.79, not $2.80, which was entered as a stop price. $2.79 was the first price after the market went through $2.80.

Order Cards:

100550415111 (MBuy) and 1005504151132.80 (Stop)
On April 3, the second price quote, two contracts of August hogs were sold. A stop price of $45.75 was entered to protect the trader from a significant loss. On April 8, the third price quote, both contracts were stopped out at $45.92, the first price after $45.75.

Notice that only one stop price was entered, but both contracts were stopped out.

Order Cards:

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Action</th>
<th>Price</th>
<th>Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>100550403232</td>
<td>(M Sell)</td>
<td>45.75</td>
<td>0.00</td>
</tr>
<tr>
<td>10055040322</td>
<td>(M Sell)</td>
<td>45.92</td>
<td>0.00</td>
</tr>
<tr>
<td>100550403345.75</td>
<td>(Stop)</td>
<td>45.92</td>
<td>0.00</td>
</tr>
</tbody>
</table>
On May 15, the third price quote, an order was placed to buy three contracts of July soybeans. However, each trader has only $15,000 to trade with. Since the initial margin for soybeans is $6250 per contract, only two contracts can be bought. When this happens, the trader will receive a statement below his account number indicating why an order was not executed. For this example, "MBuy Order July Soybeans 5/14/3 Void Due To Insufficient Capital $2,500.00" indicates only $2,500.00 was left in the account balance after two contracts of July soybeans were bought. Therefore, the third buy order was voided.

Order Cards:

100550410121 100550410121 100550410121
(MBuy) (MBuy) (MBuy)
When the market moves the permissible daily limit, trading is suspended in that commodity until nonlimit prices exist at a price quote. On April 22, the third price quote, a buy order for July soybeans was not executed due to a limit price move. A buy order for July corn at the same time was executed since trading was within the daily price limit.

Order Cards:

100550422311  
100550422321

(MBuy July Corn) (MBuy July Soybeans)
Six contracts of July corn were bought at various price quotes on April 2 and April 3. This turned out to be an undesirable move from a monetary standpoint and resulted in margin calls. In buying the six contracts all of the account was used. Therefore, when the first margin call occurred, no money was available, so the oldest contract was closed out to get enough money for the other margin calls. Note that in the first margin call the statement "Insufficient Capital—Limit Price All Positions—Contract Closed" occurs. This statement tells a trader that when the margin call occurred, the market was trading at the daily limit price for all contracts. Therefore, the oldest open contract was closed to get enough money to meet margin calls of other open contracts. The statement "Margin Call $687.50 July Corn 4/10/3" tells the trader that $687.50 was subtracted from his account balance for a margin call that occurred on the third price quote of April 10 at a price of 2.85 3/4. This margin call was for the contract of July order which was bought at 2.99%, which resulted in a loss of 13 3/4¢ per bushel, or a total loss of $687.50 for 5,000 bushels, which is below the maintenance margin of $1875.00.
An MIT order to buy August cattle was placed on April 17 at the first price quote at $41.00. The price of August cattle at this time was $40.20. Therefore, the order was executed at $40.20, since MIT buy orders are executed if the market price is equal to or less than the price specified on the MIT buy order.

The MIT sell order placed at the first price quote on May 14 was not executed since all market prices after that price quote are not equal to or greater than the price specified on the accepted MIT sell order. Whenever a market price of $43.00 or greater is reached (and the price is not a limit price move) the MIT sell will be executed and will close out the August cattle position.

Order Cards:

10055041714441.00 and 10055051414543.00

(TBuy) (TSell)
Appendix B

Computer Deck System

The computer deck should be arranged in the following manner when the object deck for the main program (FMII) is used. If a binary or any other system is used, the cards will need to be arranged accordingly.

**System Cards (3 Cards)**

```
5105
```

**Price Cards**

See Page 17 (Eiler and Goodrich) The last card must be (99) in Col. 1-2

**Commodity Information Cards**

See Page 16 (Eiler and Goodrich) Cards are provided if the instructor wishes to use the commodity information as described in this manual

**Student Name Cards**

See Page 15 (Eiler and Goodrich)

**Control Card**

See Page 15 (Eiler and Goodrich)

**$ Entry Card**

See Page 15 (Eiler and Goodrich)

**Main Program (FM II)**

**$ Job Card**

**System Cards (5 Cards)**

```
/52 EXEC WATFIV, REGION, G=192K, TIME, GO=3
/PE. EP=01 DD UNIT=SCRATCH, DISP=(NEW,KEEP), DSN=LEOAT, SPACE=(CYL,(1,1)),
/ UCB=(REFM=FE, LRECL=121, BLKSIZE=960)
/PE. EP=01 DD UNIT=LSRT, DISP=(OLD,DELETE)
/GO. SYSTN DD *
```

**Student Order Cards** See Page 18 (Eiler and Goodrich)

See Page 7 (O'Connor and Winkler)

The last order card must be (999) in Col. 2-4

**Sort Routine (6 Cards)**

```
/51 EXEC SYMSRT
/SORT inject SYSTIN DD *
/SORT FIELDS=(2,3,4,5,6,7,10,11,12,13,14), FORMAT=CH, SIZE=E7000
/SORT SORTOUT DD UNIT=SCRATCH, DISP=(NEW,PASS), DSN=SRT1, SPACE=(CYL,(5)),
/ UCE=(RECFM=FB, LRECL=80, BLKSIZE=80)
/SORT SORTIN DD *
```

**Job Card**