FINANCIAL CONSEQUENCES OF TRADING COMMODITY FUTURES CONTRACTS

By Ray L. Ross

ABSTRACT: Records of two groups of customers of a large commodity-trading house were analyzed to determine profits, losses, traders' capital contributions, length of trading, and the like. Many accounts were small with limited amounts of initial paid-in capital, although some traders added appreciably to their capital in later years. After payment of commissions the majority of both groups of traders incurred losses. Losses were heaviest in the first two years of trading, but evidence of improvement in performance as traders gained experience was inconclusive. In general, clients of solicitors who traded at a profit were more successful than clients of solicitors who had losses. Apparently, many clients lack the background needed to trade successfully and rely heavily on their brokers. This emphasizes the importance of choosing a good broker.

STOCK-MARKET BEHAVIOR HAS DISENCHANTED MANY INvestors. Some may be looking for alternative investment opportunities. One such alternative is commodity futures markets. Before taking this alternative, however, the investor should understand the probable financial consequences. This study deals with some basic concepts of the commodity futures market and reports the investment results of two groups of traders.

Basic Concepts

The Instrument

The instrument traded on the commodity exchanges is a contract, final and enforceable, for purchase or sale of a commodity for cash at a later time. Price, quality, quantity, delivery point, and delivery date are specified in the contract. The last four factors are standard for all contracts of any given commodity. Price is the only factor which is permitted unlimited fluctuation over the length of the contract. However, there is a limit to the amount of fluctuation allowed on any one trading day. This limit is a range which centers upon the previous day's closing price.

Quality of the delivered commodity may be varied within a narrow range by the party making delivery. A price differential for quality variance is written into the contract. Each contract sets forth a par delivery point, although arrangements permitting delivery at other points are written into many contracts. Delivery at nonpar, but acceptable, delivery points calls for a predetermined standard price adjustment depending upon the actual delivery point.

A few commodity futures contracts — about 2 percent — are satisfied by supplying or taking the commodity itself. Most traders satisfy their contractual obligations before the required delivery date by reversing their initial contract positions on the futures market. For example, if a trader's initial position was long (i.e., he bought a contract) and he then sold the contract back at a later date, he would not have to take delivery because no one is obligated to deliver the commodity itself to him.

Margin and Interest

A small amount of money is required in each trader's account for each contract he holds. This is known as margin. The purpose of the margin is to serve as a guarantee of performance. It is not a down payment as some people believe, but is more directly comparable to an amount of money held in escrow by a realtor on the sale of a tract of real estate.

The margin requirements are a range. The high end of the range, called the minimum initial margin, is the amount required to be in the trader's account before a position can be taken. The low end of the range, called minimum maintenance margin, is the smallest balance which can be in an account. If the balance drops below the maintenance margin it must be replenished up to the level of the initial margin. The range in the margin generally is between 5 and 10 percent of the current market price of the futures contract.

Contrary to the practice of the securities industry, no interest is charged on the unmargined amount of any account. The nature of the items traded explains the difference. A tangible item is traded in the securities markets. The seller must be paid in full for delivering his property. Money is borrowed for the amount above the margin. Interest must be paid thereon. A commodity futures contract, however, is a promise to do something sometime in the future. Neither party to the contract has performed, hence neither party gives nor receives any money. Because the seller has not received any payment the buyer does not have to borrow.

R. L. Ross obtained a Ph.D. in finance in 1973. This article is based on his thesis research which was supported by the Chicago Mercantile Exchange.

Nature of Trading

Trading a commodity futures contract is a zero-sum transaction before commissions, but is a losing situation after commissions are considered. That is, the profits one trader earns, before commissions, must exactly equal the loss incurred by the trader holding the other side of the same contract (a zero-sum transaction to this point). Both traders must pay the brokerage house commissions, thus producing a net loss exactly equal to the commissions they pay. The net loss of all commodity futures contract traders, taken as a whole, is the cost of operating the commodity futures contract markets.

The loss sustained in the futures contract market, hopefully, is justified by the economic gain attained by the producers and processors of the commodities who trade futures contracts in an effort to shift to someone else the financial risk of holding the cash commodities. In addition, some students contend that commodity markets (both cash and futures) also assist in price determination, rationing supply, and other financing functions of considerable worth to the economy.

The Problem and Objective of the Study

Because of the nature of the commodity futures market, an overall loss inevitably will be sustained in trading futures contracts after considering commissions. Major questions arise however. Some of these questions are: Who profits? Who loses? How much? Why?

Some students of the subject believe the speculator (noncommercial trader) of commodity futures contracts will eventually lose his entire investment. The only question, they believe, is how long it will take. The objective of this study is to provide more information about who really does win and lose money by trading commodity futures contracts. Special emphasis was placed upon the question of how the noncommercial trader fared, although information concerning the financial success of the other parties in the trading process (commercial, professional, brokerage house) was obtained when feasible.

The hypothesis of the study was: Trading of commodity futures contracts provides an excellent long-run medium through which the speculator can increase his wealth, provided a good set of trading rules is followed.

The Data

The basis of the following analysis is the customer records of a large Chicago-based commodity house which has branch offices throughout the country. This house is of relatively recent origin and deals in commodity futures contracts only.

The data which serve as the foundation for the information in Tables 1 through 4 were gathered from all of the new accounts established during 1967 plus some additional accounts opened in 1968, selected on a random basis. The combined total number of accounts surveyed was 558. These accounts were followed until the records could be traced no longer, or until the end of five years, whichever came first. All of the trading details were available for the first three years, but, due to a change in the style of the vouchers, only profits and losses, after deducting commissions, were available for the fourth and fifth years.

During the process of gathering the data for this study it became apparent that one of five things happened to the traders.

1. Thirty-five percent of the 558 customers surveyed traded for a period of less than one year.
2. As could be anticipated in a young, growing firm, operations were expanded by opening new branch offices and employing new solicitors (often called registered representatives or commission men). As this happened the accounts under study were reassigned even while contracts were open. Because the reassigned accounts could not be followed to a conclusion, they were discarded from the analysis. There were 178 such accounts, all of which traded in excess of one year. With these eliminated, there were 380 accounts which could be followed.
3. Some solicitors quit trading through this commission house, resulting in their customers' accounts being closed. These customers may have continued to trade through the same solicitor with a different commission house, but their further trading activities, if any, could not be followed. Even though their accounts were closed in this manner, the results of their trading were included in the analysis up to the point of termination. At least 19 accounts were so affected — four who traded for two years, three who traded three years, and twelve who traded four years.
4. Fifty-seven percent of the customers traded for more than one year but less than four years.
5. Two customers were still trading the fifth year.

The factors mentioned above affect the findings only to the extent that there is no certainty the customers surveyed were not concurrently trading through another brokerage house, or that they actually quit trading when their activity could no longer be followed.

The commission house accepted rather small accounts — many had an equity balance just large enough to trade one contract. Over 41 percent of all the traders contributed $1,000 or less to their first-year trading equity (Table 1). The $1,000 included not only the initial trading capital, but all out-of-pocket capital subsequently added during the year. Only 24 percent of all traders had a first-year equity in excess of $3,000. Al-

Table 1. — Amount of First Year Capital Contribution of 380 Traders

Dollars	Number of traders	Percent of total
0– 1,000	156	41.1
1,001– 2,000	74	19.6
2,001– 3,000	47	12.3
3,001– 5,000	38	9.9
5,001–10,000	36	9.4
10,001–25,000	23	6.0
Over 25,000	6	1.7

Table 7. — Percentages of 2,637 Accounts, by Ranges of Net Trading Results, 1970 and 1971

Dollars of profit or loss	Total	Speculating public		Commercial		Solicitors	
		Profit	Loss	Profit	Loss	Profit	Loss
				Percent			
1– 500.....	23.54	8.41	13.13	.72	1.28		
501– 1,000.....	16.04	3.72	10.53	.26	1.47	.03	.03
1,001– 2,000.....	19.34	3.61	13.21	.30	2.04	.07	.11
2,001– 3,000.....	10.08	1.97	6.72	.26	.91	.07	.15
3,001– 5,000.....	11.26	2.69	7.26	.34	.94	.03	
5,001– 10,000.....	9.85	1.93	6.28	.37	.94	.11	.22
10,001– 25,000.....	6.37	1.25	3.77	.11	.68		.56
25,001– 50,000.....	1.97	.49	.77	.22	.31	.03	.15
50,001–100,000.....	.98	.15	.51	.03	.19	.03	.07
100,001–150,000.....	.26		.20			.03	.03
Over 150,000.....	.26		.12			.11	.03
	99.95[a]	24.22	62.50	2.61	8.76	.51	1.35

[a] Total differs from 100 as a result of rounding.

Table 8. — Length of Time Positions Were Held by 54 Randomly Chosen Traders From the Speculating Public, 1970 and 1971

Days	Number of trades	Percent of total trades
1.....	110	14.3
2.....	69	9.0
3–7.....	221	28.9
8–14.....	139	18.1
15–30.....	121	15.8
31–60.....	70	9.1
61–90.....	26	3.4
91–180.....	11	1.4
Totals....	767	100.0

length of holdings were 16.4 days for profitable contracts and 15.4 days for losing contracts. On the average, the profit-earning clients held their profit-making contracts 16.5 days but held their losing contracts 18.6 days, while those who lost money held their profitable accounts 16.1 days and terminated their losing positions in 13.9 days. This conflicts with the belief that good traders cut losing trades short while letting profitable contracts run. It does suggest, however, that by far the most crucial factor in profitable trading is being able to ascertain what position to initiate and not how long to hold it.

Another factor, aside from commissions, which seemed to have a direct effect upon the profit made by the individual trader was his solicitor. There was a direct correlation between the gain and loss of a solicitor's personal trading and that of his customers. Trading results of customers of 44 of the 52 solicitors who traded for personal gain ended the two-year time period on the same side of the ledger as did the solicitors' own trading. In the case of three, results were on the opposite side by totals of less than $1,500. For only five, or roughly 10 percent, were results on the opposite side by amounts in excess of $1,500.

Although no statistical evidence was gathered to determine the method solicitors used to attract new customers, general observations made in the new account office of the commission house gave a very likely clue. Activity of the new account office increased markedly when the recommendations of the house were proving to be correct. When the house recommendations were incorrect the number of new account openings was considerably smaller. Communication with several of the solicitors confirmed this observation.

If this observation is indicative of the source of new clients, one may rationally conclude that a commodity trader who is making a profit tends to tell his friends and neighbors that he has found an easy way to make money quickly. When he is not winning he keeps the knowledge of his losses to himself. This conclusion assumes the commodity trader, in general, follows the recommendations of the house and sends those to whom he talks to his solicitor.

Conclusions

As a whole, traders of commodity futures contracts lose money. Most — 57 percent — of the traders surveyed who lost money lost less than $1,000 each. The overall loss in the futures market should be expected because of the nature of the market — a zero-sum game before commissions but a losing game after paying them. The overall loss in the futures market is the cost of operating the market. Hopefully, it is justified by the economic gains of those who use futures contracts to protect their production and processing operations and by other economic functions the market performs.

Apparently, many traders are attracted to the market through the exuberance of an acquaintance who recently earned a profit. Many trade only for a short time.

Evidently most traders rely very heavily upon the advice given to them by their brokers. The clients of solicitors who personally traded at a profit consistently had better trading records than the clients of solicitors whose own trading was unprofitable.

Evidence about possible improvement in performance as traders gain experience is inconsistent. Both the aggregate profit:loss ratio and the ratio of profit-makers to losers suggested improved performance among those trading three years or more. However, except for an appreciable percentage of continuous losers, year-by-year analysis of traders' profits provided little evidence of consistent performance even after two years' experience.

Many individuals do earn substantial sums of money trading commodity futures contracts. However, to do so they must either be able to analyze the commodity information correctly (apparently few can do so) or be able to trade through a solicitor who can. In short, an individual should not trade commodity futures contracts unless he knows a good broker or has an extremely good knowledge of the contract he wishes to trade.

Table 2. — Capital Contributions After the First Year, 186 Traders Active More Than One Year

Added out-of-pocket capital in percent of first year's	Profit-makers	Losers	Total
		Percent	
Over 99	49	39	44
50-99	5	14	10
1-49	12	22	17
None	34	25	29

though most of the accounts were rather small, two traders contributed between $50,000 and $100,000 to their accounts while two others contributed over $100,000 to their first-year trading equity.

Of the 380 accounts which could be followed, 186 were active more than one year. The winners (those who over the entire life of the account earned a profit after deducting commissions) numbered 77 while the losers numbered 109 (Table 2). Only 54, or 29 percent, of these 186 traders did not add out-of-pocket capital to their accounts after the first year of trading. In subsequent years of trading, 80, or 44 percent of them, added to their trading equity an amount of out-of-pocket capital equal to or exceeding the first year's capital input. The winners largely tended either to add capital in amounts equal to or exceeding their first year's contribution, or else to add no capital at all. Evidently, they either decided their one-shot investment should pay for itself and make money, or else they considered it worthwhile at least to double their investments.

The losers also tended to go to extremes, but not quite to the extent the winners did. The writer assumes, without verification from the data, that the losing traders who did not add capital in subsequent years of trading determined that if they did not get a profit from their first contributions, additional capital should not be invested. On the other hand, observations of the activity in other traders' accounts suggested that those traders became addicted to speculation and continued to put additional money into the market even though they continued, in total, to lose. Such behavior may help explain why some of the losing traders at least doubled their first year's capital input.

The sizes of the net profits and net losses after commissions (computed for the entire life of the accounts) are shown in Table 3 for the groups which in total had profits or losses, respectively. Except for traders with first-year capital inputs of $2,001-$3,000, the average loss was greater than the average profit — in most cases substantially more.

The size of net profits and losses tended to increase with the amount of the first year's capital input. This relationship held without regard to the length of the trading period nor to the amount of outside capital the trader added to his account after the first year of trading. One reason it was valid was that 66 percent of the traders contributed all their outside capital to their accounts during their first year of trading.

The average amounts of profit and loss by length of

Table 3. — Average Profits and Losses by Amount of First-Year Capital Input for 380 Traders

Capital input	Average net profit	Average net loss
	Dollars	
0- 1,000	280	385
1,001- 2,000	690	986
2,001- 3,000	1,641	1,620
3,001- 5,000	1,460	2,848
5,001-10,000	2,903	4 881
10,000-25,000	6,988	10,757
Over 25,000	44,674	45,985

trading time also were calculated. These amounts increased substantially over time, suggesting that commodity futures traders go for bigger and bigger stakes as they stay in the market longer (Table 4). It is conceivable that, over time, those making profits may reinforce their ability to do so and capitalize on that ability with more confidence and more trading capital. The losers on the other hand may lose more as time passes because one of two things happens to them. Either they gain too much confidence, risk too much at one time and lose big, or else they just continue to trade, suffering loss after loss and constantly adding out-of-pocket capital, thus accumulating a larger and larger total loss. The author found evidence to support both hypotheses.

The amount of combined net loss of both winners and losers did decrease substantially after the second year of trading (right column, Table 4). This finding suggests that there may be a learning experience which traders need two years to master. After that their performance may improve during the next two years, though their average will show a loss.

The ratios of the number of cumulative profit-makers to cumulative losers were 1:1.8, 1:2.3, 1:1.3, and 1:1, respectively, as the period of trading increased from one to four years (with only two traders, the ratio for the fifth year was not significant). These ratios also support the hypothesis that a learning experience may be involved, with performance improving in the third year.

On the other hand, a year-by-year analysis of profits and losses did not support that hypothesis. The percentages both of cumulative profit-makers and of all traders who made profits were higher in the third year than in the second, but performance in the fourth year dropped back to the levels of the first two years (Table 5). In all years there were more losers than profit-makers, with 75 to 80 percent of the losers adding to their losses in each of the second, third, and fourth years.

Offhand, the $670,878 net loss after commissions for 380 customers over a five-year trading period seems large. It is the more surprising because the firm under study enjoyed a very fine reputation.

Extended Survey

Because of the dramatic results from the sample of the 380 traders, their validity was checked by surveying 2,637 accounts over a two-year period. The 2,637 accounts included all customer accounts active sometime

Table 4. — Amounts of Profits and Losses of 380 Traders by Length of Time They Had Been Trading

Years of trading	Profit-makers			Losers			Net loss of all traders
	Number	Total	Average profit	Number	Total	Average loss	
			Dollars				
One	70	40,153	574	124	252,135	2,033	211,982
Two	35	49,161	1,405	80	473,363	5,917	424,202
Three	19	147,693	7,772	24	163,768	6,828	16,075
Four	13	317,041	24,388	13	328,678	25,283	11,637
Five	1	2,399	2,399	1	9,381	9,381	6,982
Total	138	556,447		242	1,227,325		670,878
Average			4,032			5,030	

Table 5. — Percentages of Cumulative Profit-Makers and Losers and of All Traders Making Profits and Losses in the First Through Fourth Years

Year	Cumulative profit-makers		Cumulative losers		All traders	
	Making profits	Making losses	Making profits	Making losses	Making profits	Making losses
			Percent			
One	..	..	..	..	36.1	63.9
Two	68.5	31.5	25.0	75.0	38.3	61.7
Three	78.9	21.1	20.9	79.1	46.5	53.5
Four	53.9	46.1	23.1	76.9	38.5	61.5

Table 6. — Summary of the Results of Trading, After Commissions, by 2,585 Customers and 52 Solicitors for 1970 and 1971

	Number of traders		Gains or losses in dollars[a]	
Speculating public				
Winners	639		2,303,273	
Losers	1,644		(7,524,225)	
Total		2,283		(5,220,952)
Commercial[b]				
Winners	70		487,108	
Losers	232		(1,281,511)	
Total		302		(794,403)
All nonprofessional		2,585		(6,015,355)
Solicitors				
Winners	15		1,837,969	
Losers	37		(1,221,881)	
Total professional		52		616,088
Total for all traders		2,637		(5,399,267)

[a] Losses shown in parentheses.
[b] The commercial traders were small. The activity in their accounts was speculative in nature. For example, the average holding period of their contracts was shorter than that of the speculating public traders and their average gains and losses were almost identical to those of the speculating public.

during 1970 and carried either to termination of trading or to December 31, 1971, whichever came first. (Twenty-eight of these accounts were the four- and five-year traders included in the survey already discussed.)

A summary of the net trading results of the 2,637 accounts appears in Table 6. The 2,585 nonprofessional traders lost $6,015,355, while the 52 solicitors earned $616,088, for an overall trading loss of $5,399,267. Ten of the 52 solicitors who traded for personal profit held membership on organized exchanges. Half of these 10 solicitors were actively engaged in "on the floor" trading while the other five traded from their offices. Four of the five "on the floor" traders but only two of the five "office" traders made profits by speculating. Nine of the 42 solicitors not holding exchange memberships ended two years of personal trading with profits.

About 40 percent of all traders surveyed earned or lost $1,000 or less, 19 percent earned or lost between $1,000 and $2,000, and only 3.5 percent earned or lost more than $25,000 during the two years (Table 7). Approximately one-third of the profit-making nonprofessional (speculating public and commercial) traders earned $500 or less. Among others, the profit:loss ratio was 1:3.1 for nonprofessionals. These data support the findings for the 380 traders presented earlier.

The reader may have concluded the commission house under study is a poor one if 2,637 customers lost $5,399,267 in two years. However, it should be remembered, as noted previously, that trading commodity contracts is a losing process after paying commissions. The records of the commission house show commission income of approximately $8,000,000 from these customers. The customers of this house had a gross trading profit of nearly $2,600,000 ($2,600,000 gross trading profit minus $8,000,000 commissions equals $5,400,000 net trading loss). Since these traders had a gross trading profit, it means the holders of the offsetting contracts lost $2,600,000 in trading besides paying $8,000,000 commissions to their brokers, a total of $10,600,000.

The foregoing information indicates that these traders paid out relatively large amounts as commissions. To determine why commissions were so large, the trading detail of 54 randomly chosen accounts of the speculating public was analyzed. The findings indicate the members of the public held 52 percent of their contracts for seven days or less (Table 8). Also, 14.3 percent of the contracts were terminated in one day and an additional 9.0 percent were terminated during the second day.

Evidence of such short-term holdings is surprising as the firm under study recommends trading only on so-called fundamental factors. Its philosophy is that the professional floor trader can readily outmaneuver all others in day trading due to his experience and first-hand, constant contact with the trading floor.

Many solicitors debate whether profitable positions are held longer than losing positions. The accounts surveyed indicate there is little difference. The average