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AN ANALYSIS OF SPECULATIVE TRADING IN GRAIN FUTURES

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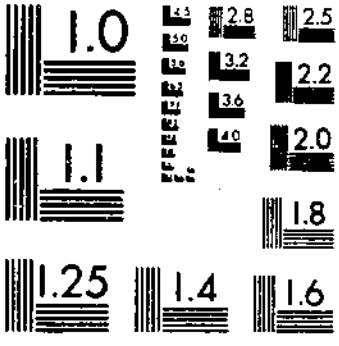

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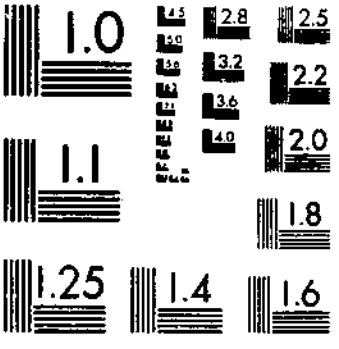

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TECHNICAL BULLETIN No. 1001, October 1949

An Analysis of Speculative Trading in Grain Futures

By
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Consulting Economist
Commodity Exchange Authority

UNITED STATES DEPARTMENT OF AGRICULTURE
COMMODITY EXCHANGE AUTHORITY
WASHINGTON, D. C.

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FOREWORD

The Commodity Exchange Authority takes special pride in presenting this study. It represents the partial salvage of a research project undertaken before the war and laid aside. It constitutes pioneering factual research on the operations primarily of small traders drawn from the actual trading records of nearly 9,000 traders over a 9-year period.

From the beginning of Federal regulation of futures markets in 1922, the Commodity Exchange Authority and its predecessor agencies have been concerned with the structure and method of trading operations on commodity exchanges. In earlier years, research studies brought to light the ways in which futures markets were utilized by hedgers to reduce price risks. Intensive research studies were also made of the operations and price effects of large speculators, or "market leaders." The Commodity Exchange Act amendments of 1936 provided further curbs on price manipulation and market corners and for the fixing of limits on the trading of large speculators.

It has become increasingly apparent, however, that the selective study and regulation of the activities of large traders does not answer questions nor solve problems arising from the trading by the mass of small traders. Because of curtailment of funds in the war and postwar years, it has not been possible for the Commodity Exchange Authority to collect and analyze the vast body of factual information necessary for thorough analysis of the operations of small traders and their effects upon the market. Current research is necessary in connection with the "special calls" made from time to time by the Commodity Exchange Authority for detailed information on the trading of all persons in the market. These special calls cover only brief periods, usually a single day, and do not provide the continuous record of trading by small traders necessary for conclusive appraisal of their operations.

Opportunity for obtaining a large body of continuous trading records on the operations of small traders was afforded in the thirties when one of the largest brokerage firms in Chicago retired from business. By arrangement with the firm, basic trading data were abstracted from its records and transferred to punch cards for machine tabulation. An unused stock of a million cards for which the Agricultural Adjustment Administration had no use were utilized in the initial punch-card operations.

A comprehensive research project to utilize the data was outlined in 1939 under the direction of Dr. Blair Stewart, at that time in charge of the analytical work of the Commodity Exchange Administration, and now dean of the College of Arts and Sciences at Oberlin College. Many basic tabulations were prepared and important progress made in classifying the data for the study before Dr. Stewart left the service

of the Department of Agriculture in 1940. Because of the war and reduction in funds, it has not been possible to follow the original plan of analysis and publication. A more limited objective was adopted, however, and the continuing personal interest of Dr. Stewart after he returned to Reed College, Portland, Oreg., made it possible to resume the study and prepare this bulletin. The Bonneville Power Administration was of great assistance in preparing numerous summary tabulations utilized in the study.

To gain knowledge of the trading characteristics of small traders, the study approaches the problems through analysis of individual trades. For the 9-year period as a whole, aggregates drawn from the individual trades or cycles provide important factual information on the relative number of long and short trades, average length or duration of trades, and profits and losses. Other aggregates give the results of trading by occupational groups and scale of operations. For a part of the trading covered in the general study, i. e., wheat cycles having a duration of two days, the initiation and liquidation of trades are analyzed in relation to price changes. Summarization of the data affords information for relatively long periods of years on price-level as compared with price-movement trading. Further analysis of the original data could be made to provide comprehensive information also on short-run accumulations and liquidations in relation to price movements. It is hoped that this may be done at some future time.

J. M. Mehl,
Administrator.

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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An Analysis of Speculative Trading in Grain Futures

By BLAIR STEWART, *consulting economist, Commodity Exchange Authority* [1]

INTRODUCTION

THE NATURE OF TRADING IN GRAIN FUTURES

The process of marketing commodities is normally carried on by persons who specialize in such activities. In one phase of marketing, however, people from all walks of life participate. This is in futures trading. Through the facilities of organized commodity exchanges, businessmen, professional men, farmers, and laborers buy and sell futures contracts for wheat, corn, oats, rye, cotton, butter, eggs, potatoes, and many other commodities.

Trading in futures takes place on the floors of organized commodity exchanges. Trades are made only between members of an exchange in accordance with exchange rules and regulations, and only its members are recognized by the exchange as parties to the contracts. The member may trade exclusively for his own account; he may act as a futures commission merchant and trade for the accounts of others—either members or nonmembers—or he may trade both for his own account and for customers. The futures commission merchant usually requires his customer to deposit a margin and he charges a fee, or commission, for his services.

Futures contracts are standardized, with the quantity unit, quality characteristics, and other features the same for all such contracts maturing in a specific calendar month. In selling a grain future a trader enters into a contract, at a price agreed upon, to deliver a specified quantity, in units (or multiples) of either 5,000 bushels or 1,000 bushels, of grain during a specified month. The buyer of the future enters into a contract to buy a specified quantity of the grain during a specified month at the price stated.

Hedgers of stocks of cash grain and speculators who expect a decline in prices sell and become "short" the amount of these sales contracts. Those who hedge against forward sales of cash grain or speculators who anticipate a rise in prices buy grain futures and become "long"

[1] Many persons collaborated in making this study possible, so many that it is not possible to list them all by name. Special mention, however, should be made of W. Edwards Beach, William T. Buster, Louise Freeman, Robert B. Jory, Anna Sullivan, Donald V. Weaver, and Holbrook Working.

the amounts of their purchase contracts. A short is one who sells first and buys later, while a long is one who buys first and sells later.

A short may complete his contract by delivering the actual grain, and a long may complete his commitments by taking delivery. The delivery process is not described here, however, because more commonly, futures contracts are not completed by delivery. It is unlikely that deliveries on futures contracts would provide merchants and processors with the particular grades and qualities required for their cash business. Generally, speculators do not have the means or knowledge necessary to obtain or store the cash commodity, and it is not surprising that their transactions do not ordinarily involve the transfer of the actual commodity. These speculators do not sell and deliver wheat; they sell wheat futures. They do not buy and accept delivery of wheat; they buy wheat futures.

Instead of settlement by delivery, most futures contracts are completed by entering into other contracts which are the reverse of the earlier commitments. In using this means to complete a round-lot contract of 5,000 bushels in the May future, for example, a person who has been short must buy a round-lot unit in the same future, and one who has been long must sell the same amount of the same future. The exchange provides a clearing mechanism by which these opposite transactions offset each other and the original contracts are liquidated. When the short buys he is said to have "covered," and when the long sells he is said to have "liquidated."

Profits or losses result from the differences between the buying and selling prices. If prices go down, the short, who has sold at the higher price and covered at a lower price, makes a profit. The long, however, who has bought at the higher price, suffers a loss from liquidating at a lower price. If prices rise, the profit and loss situations are reversed.

The futures market offers an extremely easy and effective means of trading in such a manner as to gain (or lose) from fluctuations in price. If a speculator expects futures prices to rise, he simply gives his broker an order to buy. He does not have to find supplies of the commodity, test for quality, or provide for financing and storage while waiting for prices to rise.

If one expects prices to fall he orders his broker to sell. He does not have to look for a trader who is willing to enter into a contract to buy the commodity at some future time at present prices (or the equivalent when storage costs and other similar factors are considered).

At the time the contract is entered into he does not have to specify the exact quality of the commodity to be delivered, and if in the maturity month he undertakes to deliver he can elect any one of the various options as to grade and quality provided by the contract. For some commodities the futures contract permits delivery to be made at any one of a number of different geographical locations. Standardization of the time contract is perhaps the most significant contribution of the futures market to the techniques of commerce, and its facilitation of the process of short selling is its most unique feature.

The futures markets perform many functions, only a few of which need to be considered here. They provide central markets on which the forces of supply and demand can concentrate, and from which

information on prices can be readily and widely disseminated. They make it possible for commodity merchants and processors to reduce the price risks of their businesses, by offering a method whereby the price risks inherent in the ownership of the physical commodity may be counterbalanced by price risks of an opposite nature on the futures market. They provide a means by which the opinions of experts as to future supply and demand situations, and as to differences in conditions between different markets and different points in time, can be implemented by actual transactions and thus reflected in prices. Finally they provide a means by which speculators, whether expert or inept, may register their opinions as to future conditions through the price-making process, and thus act as forces of adjustment or maladjustment, depending on the validity of their opinions.

Classification of Traders on Futures Markets

It is not surprising that the facilities and opportunities of futures markets should have attracted thousands of participants and resulted in widespread trading in futures. These traders are usually classified under a number of different headings. A broad classification of traders as either hedgers or speculators will serve most of the purposes of this discussion. Hedgers in grain futures are grain merchants or processors who seek to reduce price risks by entering into futures contracts to counterbalance their inventory stocks and purchase contracts or their forward sales of cash grain.

All traders on futures markets, other than hedgers, are speculators. Their purpose in trading in futures is not to offset cash grain transactions, but to make a profit from the futures trading. Frequently these speculators know little or nothing about the commodity in which they deal, and have little knowledge of the methods of producing, grading, shipping, storing, and using the product. There is, however, a pronounced tendency for speculators to trade in commodities produced in the region in which they live.

Among speculators three broad groups may be distinguished: scalpers, spreaders, and other speculators. *Scalpers* are traders who, for the most part, trade for themselves in the pit, buying and selling on small fluctuations in prices, and ordinarily closing the day with even, or nearly even positions. *Spreaders* are traders who assume opposing long and short positions of the same amount in different markets or different futures in the attempt to obtain a profit from changes in the relative prices in the different markets or futures. *Other speculators* are all remaining traders, who buy and sell speculatively in the market—large or small, long-term or short-term, professional or amateur.

The present study is not at all concerned with scalpers, and very few of the traders involved engaged in extensive spreading operations. Hedging operations can be fully analyzed only when information is available for both futures and cash grain transactions, and in this study no data were collected on the cash grain operations of hedgers in the sample. For this reason analysis of the futures operations of hedgers will be a minor feature of this study. Attention for the most part will be directed to the futures operations of the group that has been classified above as "other speculators."

Nature of This Study

There has been much conjecture as to the effect of different classes of traders on futures markets, and judgments as to these effects have been embodied in numerous proposals designed to encourage or discourage different types of trading. A number of studies have been made, notably by the Federal Trade Commission and the Commodity Exchange Authority and its predecessor organizations, in the effort to determine as accurately as possible the effects on the market, and on the marketing process, of various kinds of trading. For the most part these studies have been concerned with the effects of the operations of large-scale traders, particularly large-scale speculators.

The role of the small speculative trader in the futures market has been the subject of much discussion. On the one hand it has been held that such traders are a disturbing influence in the market, accentuating price swings, and on occasions contributing to wild and disastrous price fluctuations. On the other hand it has been maintained that such traders are a necessary element in the market since their presence makes it possible for the expert trader—who is presumed to exercise a beneficent influence on prices—to find traders to take the opposite side of his trades, and supply through their losses the income which is necessary to support the continued trading activity of the professional. No thorough-going empirical investigation has ever been made of the trading of speculative traders, large or small, and the opinions held reflect much larger proportions of prejudice and special pleading than of objective analysis and careful investigation.

The purpose of this study is to examine the actual market operations of a number of traders to see whether valid generalizations can be drawn as to characteristic behavior patterns and the relation of such patterns to the functioning of grain futures markets. It is an analysis of the trading of 8,922 customers of a large Chicago futures commission firm over the 9-year period from January 1, 1924, to December 31, 1932. Two types of analysis are used. The first involves case studies of two exceptional traders, both of whom traded on a large scale. One, however, suffered the largest losses of any trader in the sample, while the other made the greatest profits. These case studies are followed by a statistical analysis of the futures market activities of all traders in the sample. In this analysis an attempt is made to discover meaningful classifications of traders and of types of trading and to relate trading activities to price movements and profit or loss situations.

CASE STUDY OF AN UNSUCCESSFUL TRADER

The first case study is an examination of the operations of Trader No. 7830, a businessman, and evidently a person of considerable means, residing in California. He was not a typical trader, but a most unusual one. Altogether his trades in wheat futures through the firm which supplied the information for this study amounted to 14,425,000 bushels, his trades in corn futures to 505,000 bushels, in oat futures to 245,000 bushels, and in rye futures to 155,000 bushels. This trading extended from November 17, 1924, to October 29, 1932, and resulted (after commissions) in losses of $100,089 in wheat futures, profits of $1,694 in corn futures, and losses of $13,996 and $821, respectively, in oats and rye. The net outcome of 7830's grain futures transactions

through this firm, therefore, was a loss of $413,212. Because of the variety and scope of his activities as well as their striking outcome, the trading of 7830 provides a good introduction to many aspects of futures trading.

Initial Trades

Trader 7830's initial trade in wheat futures through the firm was on November 19, 1924, when he made a short sale of 10,000 bushels in the 1925 May wheat future at a price of $1.60⅜ per bushel. On the next day he bought 10,000 bushels of the same future at $1.57½ per bushel. When these two contracts were set against each other it was found that Trader 7830 was in the following position:

Contract to sell 10,000 bushels at $1.60⅜	$16,037.50
Contract to buy 10,000 bushels at $1.57½	15,750.00
Profit	287.50

From this profit of $287.50 Trader 7830, who was not a member of the Chicago Board of Trade, had to pay the minimum commission for nonmembers, which was $25. This left him a net gain of $262.50.

The price of the 1925 May future had risen from a low of approximately $1.20 per bushel early in July 1924 to the $1.60 level by the middle of November. The increase had not been steady, but had occurred in three waves. The first two waves had each been followed by a recession. The third wave, in the early part of November, had exhibited the sharpest rise of the three, prices having risen from a low of $1.44½ on November 3 to a high of $1.63⅜ on November 13, just seven trading days later. Then for several days there was relatively little change in price. Perhaps 7830 thought that a third recession was about to set in. Or it may be that he was a "chart trader," and the price had gone through a short-run "resistance point." In any event he sold short, and the next day the market sagged sharply—to the profit of Trader 7830.

On this second day, November 20, 1924, Trader 7830 made his second short sale. Turning to the corn futures market, he sold 5,000 bushels of 1925 May corn short at $1.22⅜ per bushel. Corn prices had also been rising. The 1925 May corn future had risen in three waves from a low of about 85 cents per bushel in early July. The third wave had been followed by a recession, and a fourth price rise was under way. A slight dip in this movement came after November 19, and during this dip 7830 made his short sale. He covered his short position by purchasing the future on November 21 at $1.19⅞, and made a profit of $125 minus the commission of $12.50 on the 5,000-bushel transaction.

After this auspicious beginning Trader 7830 entered the market again on the following day, November 22, and again sold short. This time he sold 5,000 bushels of the 1925 May wheat future at $1.58¾. But the expected decline in the market did not occur. Prices rose and remained fairly steady. Trader 7830 did not cover his position, but on November 26 he purchased 5,000 bushels of 1925 July wheat at $1.41¾ per bushel. Since he was short the May future, the purchase of the July established a "spread." He was long the July future and short the May future by equal amounts.

In a spreading operation, if prices of both futures were to rise to the same extent, the losses on the May future would exactly balance the profits on the July. Similarly if prices declined, his profits on the

May would be offset by losses on the July. The May was an old-crop future, and the price reflected the estimates of demand for the existing supply during the remainder of the crop year, and the costs of storing wheat until May. The July future was a new-crop future. Wheat would not be harvested in 1925 early enough to be delivered on the May future, but newly harvested wheat might be delivered on the July future. Consequently the price of the 1925 July future reflected current expectations in November 1924 as to the relation between supply and demand at the beginning of the 1925–26 crop year. The expectations were that wheat would be relatively more plentiful in 1925–26, a situation which would be conducive to a small carry-over of stocks of wheat into the new crop year, and consequently the July future sold for considerably less than the May future.

On November 26, when Trader 7830 established the "spread" position, the difference in price between the May and July futures was 20 cents per bushel. If this difference were to decrease as a result of the price of the July future rising more rapidly than the price of the May future—or falling less rapidly—7830 would have gained. The profit on his long position in July would have been greater than the loss on his short position in May. If, on the other hand, the price differences were to widen, 7830 would lose.

This trader, however, does not seem to have looked at his position as a regular spreading operation, for in a few days (on December 1) he liquidated his long position in the July future. A week later, on December 8, Trader 7830 again bought 5,000 bushels of 1925 July wheat, but he held this long position only a week. As a result of these two sets of transactions in the July future, he had a total profit of $200 minus $25 in commissions. In the meantime prices had resumed their upward trend, and the short position in the May future, which he had been holding all this time, accumulated larger and larger losses. Finally, on December 19, Trader 7830 covered his short position at a price of $1.75½. Since he had sold the future at $1.58¾, he suffered a loss of $837.50 plus $12.50 in commission.

Cycle and Duration Defined

In this study the combination of trades by which a trader assumes a position, long or short, and then liquidates the position, is termed a "cycle." The initial trades in wheat and corn futures made by 7830 through the firm, therefore, may be summarized by saying that he traded through two short cycles and two long cycles in wheat and one short cycle in corn. Four of the cycles resulted in profits and one resulted in a loss. The amount of the loss on the one unprofitable cycle more than counterbalanced the profits on the four other cycles, so that the net result of his trading in futures up to this point was a loss of $225 plus $75 in commissions.

If we give the term "duration" to the number of trading days which elapse after the beginning of a cycle before the cycle is completed, 7830's first five cycles in wheat and corn futures may be described as follows:

1. Short 10,000 bushels of wheat, duration 1 day, profit $287.50.
2. Short 5,000 bushels of corn, duration 1 day, profit $125.00.
3. Short 5,000 bushels of wheat, duration 22 days, loss $837.50.
4. Long 5,000 bushels of wheat, duration 3 days, profit $87.50.
5. Long 5,000 bushels of wheat, duration 6 days, profit $112.50.

Traditional Behavior of Inexperienced Traders

There is a common belief that inexperienced traders cut their profits short but let their losses run, whereas experienced traders cut their losses short and let their profits run. In his early trades, 7830 acted according to the traditional pattern for the inexperienced trader.

There can be little doubt that in the above sample of his trading activity 7830 tended to cut his profits and let his loss run. The total duration of the four profitable cycles was only half the duration of the single unprofitable cycle. If 7830 had cut his loss and let the profits run, his profit on the first cycle might have become a loss, since the profit on his short sale arose out of a short dip in an upward price movement. This was also true of the short sale in corn futures. His loss on the third cycle would have been greatly reduced, and his profits on cycles four and five would have been increased. The net result is in doubt, and it should not be inferred that all 7830 needed to do to become a successful trader was to adopt a simple maxim with respect to the proper time to close out positions. If success could be achieved so easily, there would be few unsuccessful traders on futures markets. The early experience of 7830 illustrates how a trader who takes a position counter to the trend of the market and holds that position for some time must necessarily suffer serious losses. His later experience provides additional illustrations of this fact.

The earliest cycles of 7830 in the grain futures market have been described in considerable detail. The later history of his trading will be described in more general terms. Although there were periods of several months during which 7830 made no trades through the firm, he continued to trade in grain futures until October 29, 1932. The scale of his trading grew until he became one of the largest accounts held by the firm.

Table 1 lists 7830's trading cycles in each grain by date of completion. The first four cycles of trading in wheat futures have already been described. The fifth cycle in wheat futures consisted of a purchase and sale of 10,000 bushels of the 1925 July wheat future all on one day, March 5, 1925. In this case the maximum position is shown as zero, since the definition of position used here is the open commitment in a future at the close of a trading day.

In-and-Out Cycles

Where a cycle begins with a purchase or a sale and ends with a sale or purchase made on the same day, no commitment remains open at the end of the day. In these cases the cycles have not been classified as long or short, but are termed "in-and-out." Actually the trader did take a position long or short within the day, depending on whether the purchase preceded the sale or vice versa. The customer ledgers of the firm, however, do not disclose the order in which the trades were made, and consequently it is impossible to distinguish between long and short cycles which were initiated and concluded on the same day.

Fourteen of 7830's wheat futures cycles were in-and-out cycles. Twelve of these resulted in profits. He also traded in one profitable in-and-out cycle in corn and one in rye. His experience in these cycles is summarized in table 2.

TABLE 1.—*Trader 7830: Principal characteristics of individual trading cycles, listed by date of completion*

Grain and cycle number	Future	First trade	Last trade	Duration	Maximum position	Total amount bought		Long or short	Profit or loss	Cumulative profit or loss
						Quantity	Relation to maximum position			
WHEAT										
		Date	*Date*	*Days*	*1,000 bu.*	*1,000 bu.*	*Ratio*		*Dollars*	*Dollars*
1	1925 May	Nov. 19, 1924	Nov. 20, 1924	1	10	10	1.00	Short	+288	+288
2	1925 July	Nov. 26, 1924	Dec. 1, 1924	3	5	5	1.00	Long	+87	+375
3	do	Dec. 8, 1924	Dec. 15, 1924	6	5	5	1.00	do	+112	+487
4	1925 May	Nov. 22, 1924	Dec. 19, 1924	22	5	5	1.00	Short	−837	−350
5	1925 July	Mar. 5, 1925	Mar. 5, 1925	0	0	10		In and out	+287	−63
6	do	Mar. 6, 1925	Mar. 7, 1925	1	10	10	1.00	Long	−675	−738
7	do	Mar. 11, 1925	Mar. 12, 1925	1	5	5	1.00	Short	+69	−669
8	1925 May	Mar. 13, 1925	Mar. 14, 1925	1	10	20	2.00	Long	−850	−1,519
9	1926 May	Oct. 15, 1925	Oct. 26, 1925	9	10	10	1.00	Short	−62	−1,581
10	do	Nov. 13, 1925	Nov. 14, 1925	1	10	10	1.00	do	−200	−1,781
11	do	Nov. 27, 1925	Nov. 28, 1925	1	10	10	1.00	do	+250	−1,531
12	do	Dec. 1, 1925	Dec. 3, 1925	2	10	20	2.00	do	−675	−2,206
13	do	Dec. 5, 1925	Dec. 5, 1925	0	0	10		In and out	+113	−2,093
14	do	Dec. 7, 1925	Dec. 8, 1925	1	10	20	2.00	Long	−225	−2,318
15	do	Dec. 9, 1925	Dec. 9, 1925	0	0	10		In and out	−200	−2,518
16	1926 July	Dec. 12, 1925	Dec. 12, 1925	0	0	20		do	−175	−2,693
17	1926 May	Dec. 10, 1925	Dec. 16, 1925	5	20	40	2.00	Long	−1,350	−4,043
18	1926 July	Dec. 14, 1925	do	2	20	20	1.00	Short	−425	−4,468
19	1926 May	Dec. 19, 1925	Dec. 22, 1925	3	10	20	2.00	Long	+174	−4,294
20	do	Dec. 23, 1925	Dec. 29, 1925	4	30	30	1.00	do	+1,300	−2,994
21	do	Feb. 26, 1926	Feb. 26, 1926	0	0	20		In and out	+49	−2,945
22	do	Mar. 4, 1926	Mar. 5, 1926	1	10	10	1.00	Long	+125	−2,820

23	ditto	Mar. 6, 1926	Mar. 11, 1926	5	20	30	1.50	ditto	+700	−2,120
24	1926 July	Mar. 19, 1926	Apr. 12, 1926	19	5	5	1.00	Short	+113	−2,007
25	1926 May	Mar. 12, 1926	May 29, 1926	66	60	60	1.00	Long	+1,201	−806
26	1926 July	June 3, 1926	June 5, 1926	2	10	20	2.00	ditto	+375	−431
27	ditto	June 10, 1926	July 13, 1926	26	20	20	1.00	ditto	+475	+44
28	1926 December	July 13, 1926	Aug. 3, 1926	18	20	40	2.00	Short	+612	+656
29	ditto	Aug. 27, 1926	Sept. 14, 1926	14	10	10	1.00	Long	+125	+781
30	ditto	Sept. 15, 1926	Sept. 15, 1926	0	0	10	------	In and out	+100	+881
31	ditto	Sept. 17, 1926	Sept. 21, 1926	3	10	10	1.00	Long	+125	+1,006
32	1927 July	May 4, 1927	May 7, 1927	3	10	10	1.00	ditto	+200	+1,206
33	ditto	May 11, 1927	May 21, 1927	9	20	20	1.00	ditto	+906	+2,112
34	ditto	May 25, 1927	June 4, 1927	8	10	10	1.00	Short	+390	+2,502
35	ditto	June 4, 1927	July 30, 1927	47	5	5	1.00	Long	−302	+2,200
36	1927 September	June 23, 1927	Aug. 10, 1927	40	10	10	1.00	ditto	+356	+2,556
37	1927 December	Aug. 6, 1927	Dec. 1, 1927	96	50	50	1.00	ditto	−7,194	−4,638
38	1928 May	Oct. 21, 1927	Mar. 29, 1928	114	90	110	1.22	ditto	+8,862	+4,224
39	ditto	Mar. 30, 1928	Mar. 31, 1928	1	30	30	1.00	ditto	+413	+4,637
40	ditto	Apr. 2, 1928	Apr. 12, 1928	8	30	80	2.67	ditto	+1,612	+6,249
41	1928 July	Apr. 4, 1928	ditto	6	50	50	1.00	ditto	+1,990	+8,239
42	1928 May	Apr. 12, 1928	Apr. 13, 1928	1	10	30	3.00	Short	+475	+8,714
43	1928 July	ditto	Apr. 25, 1928	11	70	220	3.14	ditto	−3,893	+4,821
44	1928 May	Apr. 17, 1928	May 18, 1928	27	70	150	2.14	Long	−4,988	−167
45	1928 July	May 18, 1928	July 5, 1928	39	70	70	1.00	ditto	−8,563	−8,730
46	1928 September	June 5, 1928	Sept. 22, 1928	92	40	40	1.00	ditto	−11,550	−20,280
47	1928 December	June 14, 1928	Dec. 29, 1928	162	255	430	1.69	ditto	−60,902	−81,182
48	1929 May	Sept. 25, 1928	May 1, 1929	177	415	650	1.57	ditto	−40,043	−121,225
49	1930 May	Aug. 12, 1929	Aug. 13, 1929	1	30	50	1.67	ditto	+575	−120,650
50	ditto	Aug. 14, 1929	Aug. 14, 1929	0	0	50	------	In and out	+625	−120,025
51	1930 March	Nov. 4, 1929	Nov. 5, 1929	1	100	100	1.00	Short	+1,418	−118,607
52	1929 December	May 1, 1929	Nov. 16, 1929	165	600	2,440	4.07	Long	−32,949	−151,556
53	ditto	Nov. 19, 1929	Nov. 20, 1929	1	50	50	1.00	Short	+438	−151,118
54	1930 May	Aug. 19, 1929	Jan. 30, 1930	135	600	1,050	1.75	Long	−81,101	−232,219
55	ditto	Feb. 19, 1930	Feb. 28, 1930	7	75	75	1.00	ditto	+749	−231,470
56	ditto	Mar. 1, 1930	Mar. 1, 1930	0	0	50	------	In and out	+250	−231,220
57	ditto	Mar. 3, 1930	Apr. 7, 1930	31	50	50	1.00	Long	+687	−230,533
58	1930 December	May 5, 1930	May 13, 1930	7	25	25	1.00	ditto	+687	−229,846
59	ditto	May 14, 1930	May 16, 1930	2	25	50	2.00	ditto	+656	−229,190
60	1930 July	Apr. 14, 1930	June 24, 1930	67	75	75	1.00	ditto	−15,938	−245,128
61	1930 December	May 19, 1930	Sept. 4, 1930	88	400	2,050	5.12	ditto	−51,108	−296,236
62	1931 May	Aug. 5, 1930	ditto	24	250	250	1.00	ditto	−25,464	−321,700

TABLE 1.—*Trader 7820: Principal characteristics of individual trading cycles, listed by date of completion*—Continued

Grain and cycle number	Future	First trade	Last trade	Duration	Maximum position	Total amount bought		Long or short	Profit or loss	Cumulative profit or loss
						Quantity	Relation to maximum position			
Wheat—Con.										
		Date	*Date*	*Days*	*1,000 bu.*	*1,000 bu.*	*Ratio*		*Dollars*	*Dollars*
63	1931 May	Sept. 6, 1930	Sept. 15, 1930	7	100	100	1.00	Long	−4,687	−326,387
64	do	Sept. 22, 1930	Nov. 18, 1930	46	60	220	3.67	do	−3,627	−330,014
65	do	Nov. 20, 1930	Nov. 20, 1930	0	0	25		In and out	+63	−329,951
66	do	Nov. 22, 1930	Dec. 19, 1930	22	25	35	1.40	Long	+257	−329,694
67	1931 July	Dec. 19, 1930	Jan. 3, 1931	11	15	15	1.00	do	−322	−330,016
68	do	Jan. 3, 1931	Jan. 5, 1931	1	15	15	1.00	Short	+168	−329,848
69	do	Jan. 5, 1931	June 5, 1931	126	50	100	2.00	Long	−1,946	−331,794
70	1931 December	June 3, 1931	Nov. 25, 1931	145	250	1,285	5.14	do	+14,368	−346,162
71	1932 May	Sept. 16, 1931	Nov. 27, 1931	59	875	2,545	2.91	do	−7,013	−353,175
72	do	Nov. 30, 1931	Nov. 30, 1931	0	0	15		In and out	+37	−353,138
73	do	Dec. 1, 1931	Dec. 1, 1931	0	0	20		do	+138	−353,000
74	do	Jan. 19, 1932	Jan. 20, 1932	1	25	25	1.00	Long	+49	−352,951
75	1932 December	July 27, 1932	July 28, 1932	1	25	25	1.00	do	+656	−352,295
76	do	July 29, 1932	July 29, 1932	0	0	25		In and out	+45	−352,250
77	do	July 30, 1932	July 30, 1932	0	0	25		do	+63	−352,187
78	do	Aug. 1, 1932	Aug. 4, 1932	3	25	90	3.60	Long	+598	−351,589
79	do	Aug. 5, 1932	Aug. 9, 1932	3	75	100	1.33	do	+1,088	−350,501
80	do	Aug. 10, 1932	Sept. 19, 1932	33	175	525	3.00	do	−7,718	−358,219
81	do	Sept. 21, 1932	Sept. 21, 1932	0	0	50		In and out	+263	−357,956
82	do	Sept. 22, 1932	Oct. 24, 1932	29	100	275	2.75	Long	−5,039	−362,995
83	1933 May	do	Oct. 29, 1932	34	20	55	2.75	do	−1,032	−364,027

CORN										
1	1925 May	Nov. 20, 1924	Nov. 21, 1924	1	5	5	1.00	Short	+125	+125
2	do	Dec. 29, 1924	Jan. 5, 1925	5	5	5	1.00	Long	−207	−82
3	1926 May	Nov. 10, 1925	Dec. 3, 1925	18	20	30	1.50	Short	−400	−482
4	1929 December	July 22, 1929	July 26, 1929	4	25	25	1.00	Long	+500	+18
5	do	July 30, 1929	July 31, 1929	1	50	50	1.00	do	+469	+487
6	do	Aug. 3, 1929	Aug. 24, 1929	18	100	125	1.25	do	+2,437	+2,924
7	1930 December	Sept. 3, 1930	Sept. 6, 1930	3	100	100	1.00	do	−219	+2,705
8	1931 May	Nov. 21, 1930	Dec. 20, 1930	24	25	50	2.00	Short	+388	+3,093
9	1931 July	Dec. 5, 1930	Jan. 3, 1931	23	10	10	1.00	Long	−932	+2,161
10	1931 September	July 16, 1931	July 17, 1931	1	5	5	1.00	Short	+25	+2,136
11	1931 December	July 27, 1931	July 27, 1931	0	0	25		In and out	+157	+2,343
12	1932 May	Oct. 24, 1931	Oct. 27, 1931	2	5	10	2.00	Short	+37	+2,380
13	do	Oct. 29, 1931	Nov. 25, 1931	22	5	15	3.00	do	+31	+2,411
14	do	Aug. 30, 1932	Aug. 31, 1932	1	50	50	1.00	do	+545	+2,956
OATS										
1	1925 May	Nov. 17, 1924	Nov. 19, 1924	2	20	20	1.00	Long	+37	+37
2	1929 December	Aug. 26, 1929	Aug. 28, 1929	2	50	50	1.00	do	+312	+349
3	do	Sept. 11, 1929	Nov. 6, 1929	47	175	175	1.00	do	−13,733	−13,384
RYE										
1	1926 May	Dec. 12, 1925	Dec. 14, 1925	1	20	20	1.00	Short	−101	−101
2	1928 July	Apr. 3, 1928	Apr. 11, 1928	6	20	20	1.00	Long	+650	+549
3	1931 September	June 22, 1931	June 22, 1931	0	0	5		In and out	+62	+611
4	do	June 23, 1931	June 24, 1931	1	5	5	1.00	Long	+25	+636
5	do	June 30, 1931	Sept. 3, 1931	55	10	15	1.50	do	−312	+324
6	1931 December	Sept. 3, 1931	Sept. 14, 1931	7	5	5	1.00	do	+156	+480
7	do	Sept. 21, 1931	Sept. 23, 1931	2	5	5	1.00	do	+31	+511
8	do	Sept. 24, 1931	Oct. 15, 1931	17	5	5	1.00	do	+25	+536
9	1932 May	Oct. 8, 1931	Oct. 20, 1931	9	25	25	1.00	do	+719	+1,255
10	1933 May	Aug. 30, 1932	Sept. 19, 1932	16	50	50	1.00	do	−1,688	−433

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TABLE 2.—*Trader 7830: Summary of in-and-out cycles*

Type of cycle and outcome	Cycles	Total profits or losses	Average profit or loss per cycle	Average quantity bought	Profit or loss per bushel
	Number	*Dollars*	*Dollars*	*1,000 bu.*	*Cents*
Profitable wheat futures cycles	12	2,033	169	25.8	0.66
Unprofitable wheat futures cycles	2	−375	188	15.0	−1.25
Profitable corn futures cycles	1	157	157	25.0	.63
Profitable rye futures cycles	1	62	62	5.0	1.24
Net profit		1,877			
Less commissions		925			
Net outcome		952			

It may be seen that 7830 was moderately successful in his trading in in-and-out cycles, although the commissions paid amounted to almost half of the net profits from this type of trading.

SIMPLE AND COMPLEX TRADING CYCLES

In addition to the in-and-out cycles it is possible to draw a distinction between simple cycles and complex cycles. In a simple cycle the trader builds up a position, long or short, and then liquidates or covers that position. In such cases the total amount of the future bought is equal to the maximum position attained.

Sometimes a trader will buy and sell various quantities of the future during the cycle without completely liquidating or covering the position. This gives rise to complex cycles. In such cases the total amount bought will exceed the maximum position. An illustration may be found in cycle 28. Trader 7830 sold 10,000 bushels of the 1926 December future on July 13, 1926, and another 10,000 bushels on July 16. On the 23d he bought 5,000 bushels and thus reduced his short position from 20,000 bushels to 15,000. On the next day he bought 25,000 and sold 20,000, leaving him short 10,000 bushels. This position he finally liquidated on August 3. The maximum position was 20,000 bushels short, but the quantity bought was 40,000 bushels. The additional 20,000 arose from the sale of 20,000 bushels on July 24 after the trader had started to cover his position.

A complex cycle may result from buying and selling on the same day, or it may arise from buying and selling on different days. An illustration of the latter situation may be found in wheat futures cycle 38. This cycle was made up of the trades and positions in the 1928 May wheat future shown below for the days on which trading occurred:

Trading and resultant position

Date of trade	*Trade*	*Position*
Oct. 21, 1927	Bought 20,000 bushels	Long 20,000 bushels.
Nov. 14, 1927	do	Long 40,000 bushels.
Nov. 15, 1927	Sold 20,000 bushels	Long 20,000 bushels.
Nov. 16, 1927	Bought 10,000 bushels	Long 30,000 bushels.
Nov. 18, 1927	do	Long 40,000 bushels.
Dec. 1, 1927	Bought 50,000 bushels	Long 90,000 bushels.
Mar. 29, 1928	Sold 90,000 bushels	Zero.

In this case the total amount bought was 110,000 bushels, while the maximum position attained was 90,000 long. The difference arises from the sale of 20,000 bushels on November 15.

A simple long cycle is one in which a position is acquired by a series of purchases uninterrupted by a sale, and is then liquidated by a series of sales with no intervening purchases. In the simple short cycle a series of short sales is followed by a series of purchases. Whenever either the process of acquiring the maximum position or liquidating it is interrupted by transactions of the opposite nature, a complex cycle arises.[1] The complexity of the cycle is indicated by the relative quantity of the maximum position and the total quantity bought. In the simple cycle the total quantity bought is equal to the maximum position. In the complex cycle the total quantity bought is greater than the maximum position.

The column in table 1 which shows the ratio of the amount bought to the maximum position indicates the complexity of the different cycles. For almost 3½ years, from November 1924 to April 1928, Trader 7830 confined himself largely to simple cycles. Beginning with wheat futures cycle 43 in April 1928, Trader 7830 began to trade on a larger scale and to introduce a greater degree of complexity into his trading. Ignoring the in-and-out cycles, the average of the maximum positions for cycles through cycle 42 was 18,300 bushels, and the average quantity traded was 23,600. For cycles 43 through 83 the averages were 152,600 bushels and 401,100 bushels, respectively. The ratio of quantity traded to maximum position was 1.29 for the earlier cycles and 2.63 for the later cycles. The later cycles also extended over a longer period. Including the in-and-out cycles, the average duration of 7830's first 42 cycles was 13 trading days, while the average duration of the last 41 cycles was 38 trading days.

Profits and Losses in Complex and Simple Cycles

It is of interest to note the chief characteristics of the more complex cycles, which for present purposes may be taken as those cycles in which the total quantity traded is more than three times the maximum position. Table 3 shows these characteristics.

Most of these were important cycles in the trading experience of 7830. With the exception of cycle 78, they resulted in losses. The most complex cycles were predominantly unprofitable, but heavy losses were also sustained on less complex cycles.

Further evidence on the relation between the complexity of trading and the profit situation of 7830 is presented in table 4. This table gives the number of profitable cycles and the number of unprofitable cycles classified as simple, complex, or in-and-out. The in-and-out classification and the simple cycles show a predominance of profit situations, while the complex cycles were more frequently

[1] By these definitions a simple cycle could involve in-and-out trading on the day the maximum position was reached if the trades increasing the position were made before those reducing it. Other possibilities are that an in-and-out cycle is followed by a simple cycle starting on the same day, or a simple cycle is followed by an in-and-out cycle on the final day of liquidation of the simple cycle. In these cases a simple cycle plus an in-and-out cycle looks like a single complex cycle. Since it is impossible from the records to distinguish these situations from true complex cycles, all cases of cycles with duration of one day or more with in-and-out trading are classified as complex cycles.

TABLE 3.—*Trader 7830: Characteristics of complex cycles*

Cycle No.	Duration	Maximum position	Total quantity bought	Quantity bought to maximum position	Loss	Loss per bushel traded
	Days	*1,000 bu.*	*1,000 bu.*	*Ratio*	*Dollars*	*Cents*
43	11	70	220	3. 14	3, 893	1. 77
52	166	600	2, 440	4. 07	32, 949	1. 35
61	88	400	2, 050	5. 12	51, 108	2. 49
64	46	60	220	3. 67	3, 627	1. 65
70	145	250	1, 285	5. 14	14, 368	1. 12
78	3	25	90	3. 60	* 598	*. 66

* Profit.

unprofitable than not.[2] This raises the question whether these cycles were unprofitable because they were complex, or whether the reversals of direction and the in-and-out trading which tended to create the complex cycles were used by 7830 in the attempt to improve his position when faced with losses.

TABLE 4.—*Trader 7830: Number of wheat futures cycles classified by type and profitability*

Type	Profitable	Unprofitable	Total
Simple	26	13	39
Complex	12	18	30
In-and-out	12	2	14
Total	50	33	83

It is possible to reach some conclusion on this question insofar as the complexity of 7830's trading arose from in-and-out trading—and this was the chief source of complex cycles. This speculator traded in wheat futures on 430 days. On 152 of these he engaged in in-and-out trading; that is, he both bought and sold the same wheat future. Since on some days he traded in-and-out in more than one wheat future, there are 156 instances of in-and-out trading in wheat futures. In 14 cases the in-and-out trading constituted a distinct cycle. In the other instances the in-and-out trading contributed to the complexity of the current cycle of trading. The results of 7830's in-and-out cycles have been discussed above. We may now consider the results of his in-and-out trading in the 142 instances in which it did not constitute a distinct cycle but was part of a complex cycle.

[2] Judged by the Chi-square test of independence, results differing as much as these from a proportional distribution of profitable and unprofitable cycles between the different types of cycle would arise by chance less than once in a hundred times.

In in-and-out trading the amount purchased may or may not be equal to the amount sold. An illustration has already been given in cycle 28 of a case in which the amounts bought and sold were not equal. In this case 7830 bought 25,000 bushels and sold 20,000 bushels of the 1926 December wheat future on July 24, 1926. In such a case he may be said to have traded in-and-out 20,000 bushels. On the other hand the amounts bought and sold may be equal. Indeed this was 7830's favorite method of in-and-out trading. In addition to the 14 in-and-out cycles in which the amount purchased was necessarily equal to the amount sold, there were 83 instances in which the amounts bought and sold were equal. This may be compared with the 59 cases of within-cycle in-and-out trading where the amounts bought and sold were not equal.

Another point with respect to 7830's within-cycle in-and-out trading may be noted. This type of trading was relatively uncommon during the early part of his trading career. As time went on and his trading increased in size and frequency, in-and-out trading became more prominent. During the first year of his trading (November 19, 1924, to November 14, 1925) 7830 engaged in in-and-out trading on only 2 days of the 20 on which he traded. In a similar period 6 years later (November 1, 1930, to October 31, 1931) he traded in-and-out on 47 days out of 75.

Is this increasing resort to in-and-out trading due to the fact that 7830 had found here a successful method of trading? It is not possible to give a categorical answer to this question, but it is possible to summarize the major features of his within-cycle in-and-out trading. This is done in table 5. It may be seen that in 104 cases out of 142 the selling price was higher than the buying price, and 7830 may be looked upon as having made a profit as a result of the in-and-out trading. The total amount of this profit was $30,978, against which must be set the $9,118 of losses incurred in the 32 cases where the buying price was higher than the selling price. In addition it was necessary for 7830 to pay $14,988 in commissions, so the net outcome of this type of trading was an improvement in his position which may be valued at $6,872.

These profits, although small compared with the volume of trading done, were not inconsiderable, and this suggests the possibility that 7830 had hit upon a method of trading which could be counted on to give him small but reasonably consistent profits. These in-and-out transactions could have been the result of trading in privileges, a special type of trading that has been carried on at various times on grain futures markets. The following brief description of privilege trading and its possible bearing upon the trading methods and patterns analyzed in the study is presented, in view of the importance of such trading in some of the years covered by the survey.

Privilege Trading

The "privilege" may be characterized as a second-degree future. The future is a contract to buy or sell the commodity at a future time. The privilege is an option to buy or sell a future at a future time. Privilege trading was prohibited by the Commodity Exchange Act amendments of 1936, but during most of the period studied, i. e., from January 13, 1926, through December 31, 1932, there was trading in privileges on the Chicago Board of Trade.

TABLE 5.—*Trader 7830: Summary of within-cycle in-and-out trading in wheat futures*

Classification	Purchases and sales		
	Equal	Not equal	Total
Instances when selling price was—	*Number*	*Number*	*Number*
Higher than buying price	64	40	104
Equal to buying price	4	2	6
Lower than buying price	15	17	32
Total number	83	59	142
Quantity purchased when selling price was—	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
Higher than buying price	2, 415	1, 950	4, 365
Equal to buying price	125	75	200
Lower than buying price	715	715	1, 430
Total quantity	3, 255	2, 740	5, 995
Profit or loss per bushel when selling price was—	*Cents*	*Cents*	*Cents*
Higher than buying price (profit)	0. 64	0. 80	0. 71
Equal to buying price	. 00	. 00	. 00
Lower than buying price (loss)	. 49	. 78	. 64
Aggregate profits or losses when selling price was—	*Dollars*	*Dollars*	*Dollars*
Higher than buying price (profits)	15, 367	15, 611	30, 978
Equal to buying price (even)	0	0	0
Lower than buying price (losses)	3, 515	5, 603	9, 118
Net profits	11, 852	10, 008	21, 860
Commissions	8, 138	6, 850	14, 988
Net outcome	3, 714	3, 158	6, 872

If a trader believed that the price of a particular future would be higher the next day, or the next week, he would buy an "offer." This would mean that the seller of the offer would agree to sell the future to the buyer at a specified price, usually from 1 to 2 cents above the closing price of the future if the offer was good only next day, and at a somewhat higher price if the offer was good all next week. If the price actualy rose above the price stipulated during the specified period of time, the buyer could make an immediate profit by selling the future at the market price and then exercising his option of buying the future from the seller of the offer at a price below the market. If the trader expected a decline in price, he would buy a "bid," or an option to sell the future at a specified price, usually 1 to 2 cents below the closing price of the future. If prices declined below the specified price he could make a profit by buying the future in the market and exercising the option of selling to the seller of the bid. Privilege trading was an inexpensive method of speculating, since no more than $5.50 was required to purchase a privilege, and only this amount would be lost if the expected price movement did not materialize.

When the purchaser of a privilege exercised the privilege and took the profit immediately, the result was an in-and-out cycle. This was a common practice. On the other hand he could continue to hold the position obtained by exercising the privilege. The act of making good on the privilege would also affect the position of the seller in one of two ways. He might enter into an opposite transaction immediately and take a loss, or he might permit the transaction to add to or reduce a line already held.

The books of account available for this study did not provide direct information on privilege trading, but an employee of the futures commission firm who had first-hand knowledge of customers' trading states that 7830 was a large trader in privileges. In instances in which he sold privileges which were not made good, he would profit by the transaction, but it would have no effect on his futures position, and the result would not be shown in any of the records used in this study. If his in-and-out trading was the result of exercising privileges purchased, it should have been profitable. To the extent that it was the result of privileges sold it would have been unprofitable, unless he had been holding a position which showed a profit at the time he sold the privilege.

With these considerations in mind, 7830's trading may be examined in terms of the date on which it occurred, since such trading before January 13, 1926, could not have been connected with privileges. Such an examination does not yield very conclusive results. Of the 14 distinct in-and-out cycles in wheat futures, 3 occurred before January 13, 1926, and 2 of them were unprofitable. These were the only unprofitable in-and-out cycles in 7830's wheat futures trading. On 5 other days in the preprivilege period he had in-and-out trades which were parts of complex cycles. In 2 instances he had profits, totaling $462, and in 3 instances losses, totaling $162. Thirty-one percent of his total trading before January 13, 1926, and 42 percent of his trading after that date, was in-and-out. Consequently, no clear inference with respect to the relation between 7830's in-and-out trading and privilege trading is possible.

It is conceivable that 7830's in-and-out trading not related to privileges resulted in fairly consistent profits. It is not possible to be certain on this point, since no information is available as to the orders given by 7830, nor as to his methods of trading. All that we have is the record of his actual trades. This shows when he did trade on both sides of the market. It does not show when he expected to trade on both sides, but was able to complete only one side of the transaction. This could have occurred in a number of ways, but a single illustration will make the point clear. Suppose that 7830, on a given day, expected prices to fluctuate up and down between values of approximately $1 and $1.01. He might, for example, order his broker to buy 25,000 bushels of a given wheat future at $1 and sell it at $1.01. If on the day on which the orders were to be executed, both of the prices were recorded in the appropriate sequence, it would be possible for his broker to execute both trades and the trader would have a profit of 1 cent per bushel minus his commission of one-quarter of a cent. If prices broke, however, the purchase could be made but not the sale, and the trader would find himself with a long position in a declining market. If it were possible to discover the extent of the losses 7830

suffered because of positions acquired in this fashion, it is highly likely that it would be found that on balance his attempts at in-and-out trading were unprofitable.

It may be recalled that 7830's complex cycles were predominantly unprofitable. In a number of cases the complexity arose from in-and-out trading. The above discussion indicates, however, that in-and-out trading as such was clearly not so unprofitable as to be an important cause of the losses sustained in complex cycles. The more appropriate inference is that in-and-out trading was resorted to in the effort to improve the trader's position in unprofitable cycles.

Tendency of 7830 to Cut Profits and Let Losses Run

During much of his trading 7830 was faced with substantial losses on positions currently held. This is evident from table 6, which shows the duration of his positions in all commodities and in different types of cycles. In every commodity the number of profitable cycles exceeded the number of unprofitable ones. But in each case except corn the total duration was longer for the unprofitable cycles. Even in the case of corn futures 7830 tended on the average to hold his unsuc-

Table 6.—*Trader 7830: Duration of cycles, by grain and type of cycle*

Grain and type of cycle	Successful			Unsuccessful		
	Cycles	Total duration	Average duration	Cycles	Total duration	Average duration
Wheat:	*Number*	*Days*	*Days*	*Number*	*Days*	*Days*
Long	28	392	14.0	25	1,618	64.7
Short	10	52	5.2	6	47	7.8
In-and-out	12	0	0	2	0	0
Total	50	444	8.9	33	1,665	50.5
Corn:						
Long	3	23	7.7	3	31	10.3
Short	6	51	8.5	1	18	18.0
In-and-out	1	0	0			
Total	10	74	7.4	4	49	12.2
Oats:						
Long	2	4	2.0	1	47	47.0
Total	2	4	2.0	1	47	47.0
Rye:						
Long	6	42	7.0	2	71	35.5
Short				1	1	1.0
In-and-out	1	0	0			
Total	7	42	6.0	3	72	24.0

cessful cycles open longer than the successful ones, the longer total duration for the successful corn cycles being explained by the relatively greater number of successful cycles in this commodity. This table demonstrates that for his entire trading experience 7830 had a tendency to cut his profits, but to let his losses run.

This feature of 7830's activities in the grain futures market is even more clearly shown by the other characteristics of his trading activity summarized in table 7. The average profit per cycle realized in his wheat futures trading was $628, as compared with an average loss per cycle of $11,982. His trading in other commodities was on a very minor scale compared with wheat, and in corn his profits exceeded his losses. For both oat and rye futures, however, losses were greater than profits both in amount, and per cycle of trading. In his long cycles in wheat futures—which constituted the bulk of his trading—he tended to build up much larger positions during his unsuccessful cycles than in those which resulted in profits. The average maximum position for the unsuccessful long wheat cycles was 181,000 bushels, which may be compared with an average of 28,900 bushels for the profitable cycles. Furthermore, he resorted to more in-and-out trading and to interruption of the accumulation and liquidation process by contrary trades. As a result the index of complexity for the unsuccessful long wheat futures cycles was 2.76, and for the successful cycles was 1.30. For the short wheat futures cycles the ratios were 2.28 and 1.17 for unsuccessful and successful cycles, respectively. Trading in corn and oat futures was mostly in simple cycles.

The over-all outcome of 7830's trading is presented in table 8. His trading, on the whole, was extremely unprofitable. He made a small profit in corn and a slight loss in rye. His loss in oat futures was considerable, and the outcome of his wheat futures trading was a loss of $400,000. Altogether his losses on his trading through this firm amounted to $413,212, including commissions. These are the largest losses sustained by any trader in the sample.

Relation of Trading to Price Movements

To understand how the losses of 7830 arose it is necessary to relate his trading to futures price movements. Since the trading in wheat futures was so much more significant than trading in the other commodity futures, this analysis will be confined to wheat futures.

A crucial feature in speculative trading, of course, is the relation of purchases and sales to prices. The speculator always hopes to buy at low prices and sell at higher prices, whether the position he assumes is long or short. Each speculator initiates a cycle of trading and assumes a position in the market long or short, at a time which seems propitious for his endeavor to buy cheap and sell dear. Expansion of his position should logically occur under conditions which seem even more propitious. An illustration is the situation in which a trader is convinced that the general trend of the market is upward, and declining prices do not shake this conviction, but rather offer opportunities for increasing a long line at even more favorable prices. This practice "averages down" the cost of the position and provides greater profits if the expected price movement does occur. In a similar manner a short seller may make additional sales as prices rise.

TABLE 7.—*Trader 7830: Trading experience, by grain and type of cycle*

Grain and type of cycle	Successful cycles						Unsuccessful cycles					
	Cycles	Total profits	Average profit per cycle	Average maximum position	Average quantity bought	Quantity bought to maximum position	Cycles	Total losses	Average loss per cycle	Average maximum position	Average quantity bought	Quantity bought to maximum position
	Number	*Dollars*	*Dollars*	*1,000 bu.*	*1,000 bu.*	*Ratio*	*Number*	*Dollars*	*Dollars*	*1,000 bu.*	*1,000 bu.*	*Ratio*
Wheat:												
Long	28	25, 140	898	28. 9	37. 7	1. 30	25	388, 954	15, 558	181. 0	498. 8	2. 76
Short	10	4, 221	422	23. 5	27. 5	1. 17	6	6, 092	1, 015	20. 8	47. 5	2. 28
In-and-out	12	2, 033	169	0	25. 8		2	375	188	0	15. 0	
Total	50	31, 394	628	20. 9	32. 8		33	395, 421	11, 982	140. 9	387. 4	
Corn:												
Long	3	3, 406	1, 135	58. 3	66. 7	1. 14	3	1, 358	453	38. 3	38. 3	1. 00
Short	6	1, 151	192	15. 8	22. 5	1. 42	1	400	400	20. 0	30. 0	1. 50
In-and-out	1	157	157	0	25. 0							
Total	10	4, 714	471	27. 0	36. 0		4	1, 758	440	33. 8	36. 2	
Oats:												
Long	2	349	174	35. 0	35. 0	1. 00	1	13, 733	13, 733	175. 0	175. 0	1. 00
Total	2	349	174	35. 0	35. 0		1	13, 733	13, 733	175. 0	175. 0	
Rye:												
Long	6	1, 606	268	10. 8	10. 8	1. 00	2	2, 000	1, 000	30. 0	32. 5	1. 08
Short							1	101	101	20. 0	20. 0	1. 00
In-and-out	1	62	62	0	5. 0							
Total	7	1, 668	238	9. 3	10. 0		3	2, 101	700	26. 7	28. 3	

TABLE 8.—*Trader 7830: Over-all summary of trading operations*

Item	Wheat	Corn	Oats	Rye	All grains
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Profits on successful cycles	31, 394	4, 714	349	1, 668	38, 125
Losses on unsuccessful cycles	395, 421	1, 758	13, 733	2, 101	413, 013
Net profit (+) or loss (−)	−364, 027	+2, 956	−13, 384	−433	−374, 888
Commissions	36, 062	1, 262	612	388	38, 324
Net outcome	−400, 089	+1, 694	−13, 996	−821	−413, 212

In other instances expansion through averaging down the cost of a position occurs when a trader has come to realize that his original expectations with respect to price movements were in error, but shrinks from the finality of the action of closing out his position at a loss. Under these circumstances he expands his position at lower prices if he is long, or at higher prices if he is short, in the hope that a reversal of the market trend will offer opportunity for profit, or will at least reduce the size of his loss.

The contrast between action along the lines originally expected and action dictated by failure to realize such expectations is even more clearly shown in the liquidation of positions. It might appear that if the anticipated price movement does occur the trader has no problem; he proceeds according to his original plan, and liquidates his position when the expected price level is reached. But his original plan may not have been so definite as to include a particular price at which the line would be liquidated. Furthermore, the actual price movements may have altered his appraisal of the market situation, and he may now look for another, even more profitable, price level to appear.

The decision when to take a profit is a difficult one. Some traders quickly become apprehensive lest the profit disappear on a reversal of the market, and, heeding the maxim that "no one ever went broke taking a profit," realize the profit almost at the first opportunity. Others may have their appetites for gain whetted by the appearance of a small profit, and revise their estimates of market action in an optimistic direction. Convinced of the validity of their anticipations they may permit substantial profits to accrue before they act. Sometimes they realize these higher profits, and sometimes they see them fade away as a result of adverse price movements. Still another method of liquidation is that of the trader who hopes to liquidate, not at the peak of the current price movement, but as soon as a definite reversal of trend is evident. The crucial point for such traders is to determine when a contrary movement is merely a temporary interruption of the prevailing movement and when it signals the beginning of a new, and contrary, tendency.

The trader faced with the necessity of deciding whether or not to liquidate a loss position is in a less happy if no less puzzling situation. If the existence of the loss does not convince him that his original expectations were in error, he is constrained to hold his position if possible until coming events prove that he was right. The time may

eventually come when such a trader is forced to liquidate his position as a result of margin calls or the expiration of the future. If the trader whose position shows a loss is convinced that his original expectations were in error, he still must decide the time and method of liquidation which will leave him with the least loss possible under the circumstances.

Full understanding of the relation of any given trader's operations to prices would require information as to the reasons for each trade he makes. These reasons would in many cases be so diverse that no clear pattern of trading would emerge. The information available in this study is merely a record of the actual transactions. Analysis of it does not reveal all the causes of any individual's trading, but it may indicate the existence of certain of the more easily recognizable trading patterns. The discovery of such patterns, if they exist, has significance because of the effects which different trading patterns have on the functioning of the market.

Types of Trading Patterns

The number of possible trading patterns is, of course, very large, but the description of a few possible methods of trading and the associated relationships between prices and transactions will provide a background for the examination of these relationships in the operations of Trader 7830.

Many traders are concerned almost entirely with very short-run price fluctuations. The scalper, who stands in the pit trading in and out during the day but closes the day with no open commitments, is one example. Another is the in-and-out "board-room" trader who watches the quotations during the day and makes trades of short duration designed to obtain profits from short swings in prices. If a trader of either of these two kinds has a definite price level around which he believes the short-term fluctuations will oscillate, he will sell when prices rise above the expected level and cover if and when they return to the presumed norm. If prices fall below the expected level, he will buy and liquidate the position when the anticipated readjustment has been made. If the expected level is one about which the market tends to fluctuate, such trading is not only profitable but tends to narrow the range of short-term fluctuations in prices.

The short-term trader, on the other hand, may have no definite notion of a price level which he conceives of as normal under the existing conditions. He may, however, feel that he can detect short swings in the market at their inception. Consequently, if he thinks that prices are falling, he will sell the future with the intention of purchasing at the lower level. If he thinks prices are on the way up, he will buy the future and thus be in a position to profit from the opportunity to sell at a higher price. Traders of this type are sometimes referred to as "movement traders." If they are correct in their forecasts, their trading tends to accentuate the short-term swings in prices.

If minute-by-minute price quotations and trades were available these two patterns of short-term trading could be identified. Traders who operate with a definite price level in mind as a norm would sell on upswings and buy on downswings in prices. Movement traders would buy on upswings and sell on downswings.

The data available in this study do not make it possible to distinguish these extremely short-term trading patterns. But some speculators who operate for the longer term may also trade on the assumption that a norm exists around which prices may be expected to fluctuate and consequently buy as prices fall below this level and sell as prices rise above it. Another possibility is the norm trader who believes that a certain price above the present general level is the norm which the market should reach. Such a trader will buy futures, and if the rise occurs will sell when his norm is reached. Frequently, of course, he will have revised his opinion by the time the expected price change has occurred. To the extent that such a revision is the result of the movement of prices, or the rapidity or slowness of price changes, he is behaving as a movement trader rather than as a norm trader.

Movement traders who speculate on fairly long-term price swings decide on trading policy by examining the price behavior of the market. Some of them are influenced by the rate of change in prices, others examine price swings to discover "resistance points" or other indices by which they attempt to forecast future price movements. The effects of their trading practices on prices will depend, of course, on the considerations which lead them to buy or sell—and these are different for different traders. It is probable, however, that most movement traders who are trading on fairly long swings in prices tend to buy on rising prices and sell on falling prices. This is the pattern of movement trading which is assumed in the following discussion. Norm traders, on the other hand, are presumed typically to buy on falling prices and sell on rising prices.

Trading Patterns of 7830: Short-Term Cycles

Trader 7830 traded through 83 wheat futures cycles. If a pattern with respect to price movements is to be found in his trading, it is necessary to consider the relationship of trading to prices in each significant classification of cycles.

The in-and-out cycles have already been described. There were 14 such cycles in wheat futures, 12 of which were profitable. Since no information is available on the timing of purchases and sales within the trading session, it is not possible to discover trading patterns in the in-and-out cycles. Previous discussion has indicated that some of these cycles were related to privilege trading.

Slightly more extended than the in-and-out cycles were the cycles of 1-day duration. These were cycles of trading initiated on 1 day and terminated on the next trading day. An effort was made to appraise the price situations under which these cycles were initiated by comparing prices on the day of the original transaction with prices on the previous day. Where prices were generally lower on the day the trade was made it was assumed that the transaction was made on declining prices. Where prices were generally higher it was assumed that the transaction was made on a rise in price. These characterizations may not always be correct, since price movements within the day are not considered, and a trade might actually be made during a period of rising prices on a day when prices generally were lower than on the previous day. It is believed, however, that such situations were the exception, and that the characterizations given were generally appropriate.

The results of this analysis of 7830's wheat cycles of 1-day duration are given in table 9. The table indicates that in these short-term cycles 7830 did have a recognizable pattern of trading. Five of his eight short sales were made on rising prices, and seven of his eight long cycles were initiated on price declines. With respect to these short-term trades, therefore, it appears that 7830 was not a movement trader. It appears rather that he had a definite idea as to the price level which should currently prevail, and sold when prices rose above this level and bought when they fell below it. The fact that 12 of these 16 cycles were profitable should not lead to the inference that this trader was usually right as to the level of prices. It is possible that he tended to take profits when the market movement confirmed his beliefs and to hold positions open longer if the expected reversal of the price movement did not appear.

TABLE 9.—*Trader 7830: Trading pattern of wheat futures cycles of 1-day duration*

Direction of price change on day of initiating sale or purchase	Completed at—				Total	
	Profit		Loss			
	Cycles	Quantity bought	Cycles	Quantity bought	Cycles	Quantity bought
	Number	*1,000 bu.*	*Number*	*1,000 bu.*	*Number*	*1,000 bu.*
Short cycles:						
Increase	4	105	1	10	5	115
No significant change	1	10	------	------	1	10
Decrease	2	105	------	------	2	105
Total	7	220	1	10	8	230
Long cycles:						
Increase	------	------	1	20	1	20
Decrease	5	140	2	30	7	170
Total	5	140	3	50	8	190

An attempt was made to discover whether a pattern is to be found in the wheat cycles of 7830 with a duration of 2 to 9 days. Some of the results are summarized in table 10. There were 22 cycles in this classification, of which 4 were short and 18 were long. It was impossible to distinguish any pattern in the small number of short cycles. Of the 18 long cycles, 8 were initiated on a decline in prices, 5 started on a rise in prices, and in 5 cases the initial buying occurred when there was no significant price change.

The differences in these frequencies are not statistically significant, and there is consequently no reason to conclude that 7830's trading in this class of cycle conformed to any one type. The cycles which are classified as having started without any significant change in price may in fact have been initiated as a result of a price stimulus, but the

price changes which provided the stimulus do not appear in the data used in this analysis.

Further analysis of the 13 cases where trading in wheat futures was associated with a significant price change indicates that at times 7830 traded as though he had a definite price level in mind as the norm, and at other times he traded in the manner expected of a movement trader. We should expect the movement trader in his long cycles to buy on a rise in prices. Trader 7830 did this in five of the wheat cycles of 2 to 9 days' duration. In two of the four profitable cycles he traded only on the initial and final days of the cycle. In two of these four cycles he traded on 3 days. He made his initial purchase on a price rise, bought more on a further rise, and liquidated his position on a still further rise in prices. In the loss cycle he had bought on a rise in prices. But prices fell. He liquidated part of his line on this decline in prices and liquidated the remainder on a still further drop in prices. These are the trading patterns of the movement trader.

TABLE 10.—*Trader 7830: Trading pattern of wheat futures cycles of 2 to 9 days' duration*

Direction of price change on day of initiating sale or purchase	Completed at—				Total	
	Profit		Loss			
	Cycles	Quantity bought	Cycles	Quantity bought	Cycles	Quantity bought
	Number	*1,000 bu.*	*Number*	*1,000 bu.*	*Number*	*1,000 bu.*
Short cycles:						
Increase	1	10	1	20	2	30
No significant change	------	------	1	10	1	10
Decrease	------	------	1	20	1	20
Total	1	10	3	50	4	60
Long cycles:						
Increase	4	145	1	100	5	245
No significant change	4	105	1	40	5	145
Decrease	8	370	------	------	8	370
Total	16	620	2	140	18	760

In the eight wheat cycles in which 7830 bought on a decline in prices there were two cycles where trading took place only on the first and last days of the cycle. In three other cycles the trading on days other than the first and last consisted only of in-and-out trading, the amount bought being equal to the amount sold. In one of the remaining cycles there was trading on 3 days, the trading on the middle day consisting of in-and-out trading in which the sales exceeded the purchases. The effect was to liquidate part of the line at a price level above the original purchase. The remaining two cycles were 4-day cycles which

conformed in their pattern to trading carried on with a presumed norm in mind. The initial purchase was made on a decline in price. A further purchase was made as prices declined further. Prices then rose and part of the line was liquidated. The rest of the position was liquidated on a still further rise in prices.

The analysis of the trading patterns of 7830 up to this point has dealt with 52 of his 83 wheat futures cycles. Of these 52 cycles, 41 were profitable and 11 were unprofitable. The total profits, ignoring commissions, were $18,706 and the losses were $9,524.

Trading Patterns of 7830: Long-Term Cycles

The results of 7830's trading in cycles with durations of 10 days or more are in sharp contrast with the predominantly profitable character of his short-term cycles. There were 31 long-term cycles in wheat futures, only 9 of which were profitable. The total losses, not counting commissions, on the 22 unprofitable cycles were $385,897, as compared with profits of $12,688 on the remaining 9 cycles.

The contrast between the profitability of the short-term cycles and the unprofitability of the long-term cycles is in part a reflection of 7830's tendency to close out trades showing profits and to hold loss positions open. Profitable cycles consequently tended to be of short duration, while unprofitable cycles on the average were of longer duration. Furthermore, 7830 tended to take the long side of the market and to maintain long positions tenaciously in the face of declining prices.

Only four of 7830's long-term cycles were on the short side of the market. Two of these were profitable, yielding profits totaling $725 less commissions, and two were unprofitable, resulting in losses of $4,730 plus commissions. His tendency in his trading was to sell on rising prices, which seems to indicate that at times he thought the level of prices was too high and took the short side of the market.

For the most part, however, his position in the market was long, and the 27 long cycles of from 10 to 177 days' duration constitute the most characteristic, as well as the most important, part of his trading. Seven of these cycles were profitable, and the relation of 7830's trading to price movements in these cycles may be summarized as follows:

	Thousand Bushels
Accumulation:	
Bought on a declining market	170
Bought on a rising market	115
Bought on no significant change in prices	10
Total	295
Liquidation:	
Sold on a rising market	210
Sold on no significant change in prices	25
Sold at the end of the future	60
Total	295

The predominant pattern here was to buy on a declining market and to sell on a rising market. Trader 7830 seemed to have definite ideas as to what prices should be, and he tended to buy if they fell below the level he considered normal for the time. Apparently this

normal was usually not very much above prevailing prices, for he tended to close out his position as soon as a moderate profit appeared.

Most of 7830's unprofitable long-term cycles on the long side of the market were complex, involving much buying and selling during the life of the cycle. In one case trading in a single cycle occurred on 52 days. In the larger and more complex cycles the accumulation ordinarily took place gradually. There was then considerable buying and selling, and frequently the position was liquidated abruptly. For this reason it has seemed useful to distinguish those trades which were clearly the final liquidation of a position from the sales which were made at an earlier stage in the cycles. Using this distinction the following summary describes the characteristics of 7830's trading in the 20 unprofitable long cycles which had durations of from 10 to 177 trading days:

	Thousand Bushels
Accumulation:	
Bought on a declining market	2,965
Bought on a rising market	2,065
Bought on no significant change in prices	890
Switch from earlier futures [1]	765
Total	6,685
Intermediate selling:	
Sold on a declining market	1,070
Sold on a rising market	1,615
Sold on no significant change in prices	280
Liquidation:	
Sold on a declining market	2,540
Sold on a rising market	410
Switch to later future [1]	765
Sold at the end of future	5
Total	6,685

[1] A switch is a trading operation in which a trader disposes of a position in one future—frequently a future which is about to expire—and at the same time acquires a position of the same size in another future.

The tendency to make long purchases on a declining market is not quite as strong in these cycles as in the long cycles previously considered. This may be due to the admixture of buying and selling within the cycle in the effort to capture advantage from short-term market swings. The characteristics of this intermediate trading are even more clearly shown by the contrast between the price situations which stimulated intermediate selling, and those which were associated with liquidation. More of the intermediate selling occurred on a rising than on a falling market. The liquidation, on the other hand, came for the most part on a declining market. Trader 7830's sales on a rising market in these cycles could hardly be attributed to the belief that prices were rising above the current norm. If this had been his belief, he would surely have liquidated his long position, the holding of which presumed the expectation of rising prices. His sales may, perhaps, best be characterized as paper profit-taking on short-term cycles within the longer cycle. The heavy predominance of liquidating sales on a declining market should be related to the fact that these were unprofitable cycles, and most of them were liquidated at a time when the losses were increasing. These trades were made when 7830—or his broker—felt constrained to stop his losses.

Multicycle Operations on Long Side of Market

The most important relations between 7830's trading and prices in these large loss cycles are not to be found in the comparison of short-term price movements with trading, but in the relation of his position in the market to longer sweeps in prices. In fact, for a very significant portion of his large-scale trading the cycle is not a meaningful unit for consideration. For considerable periods 7830 was continuously in the market on the long side, and on a number of occasions he switched a long position from an expiring future to a later future. Five cycles were tied together in a multifuture cycle by this device, and the result was the most important, and disastrous, part of 7830's experience in the wheat futures market. For this reason it will be described briefly.

Between April 17 and 20, 1928, Trader 7830 acquired a long line of 70,000 bushels in the 1928 May future at an average price of 155.40 cents per bushel. Prices fell but then recovered, and at the end of the month reached a peak of 171.50 cents. Trader 7830 did not take the profit of 12 to 16 cents per bushel available at this time, but watched prices fall below his original buying price. On May 18, when the end of the May future was approaching, he switched this position to the July future by selling 70,000 bushels of the May future at 148.28 cents, and buying 70,000 bushels of the July future at 149.98 cents. On that day prices rose, and shortly thereafter a profit of about 4 cents per bushel was available on the July position. Prices later resumed their decline, and after the delivery month arrived, 7830 decided to switch to a more distant future. Consequently on July 5 he sold the 70,000 bushels in the 1928 July future at 137.75 cents and bought the same amount of the 1928 December future at 144.38 cents. He had already acquired a line of 90,000 bushels in the December future. The cycles in the two earlier futures had been simple cycles, but in this future 7830 made intermediate purchases and sales and on one day traded in-and-out to the amount of 100,000 bushels. In this future also a profit of about 4 cents was at one time available, but 7830 did not liquidate at this point. His position in the December future reached a maximum of 255,000 bushels and amounted to 210,000 bushels all during the early part of December.

Beginning on December 22 he liquidated the position of 210,000 bushels in the December future. As he sold this future he bought the 1929 May, the amount of the later future purchased each day being equal to the amount of the December future sold. He sold the December at an average price of 114.44 cents per bushel, almost exactly 30 cents less than the price of his first purchase in the future, and bought the May at an average of 120.82 cents. He already had a position long 90,000 bushels in the May future, and his position was now long 300,000 bushels. Again he bought and sold the future, achieving a maximum long position of 415,000 bushels by March 22, 1929. At one time in February he might have liquidated at a profit of about 11 cents per bushel on his transactions in this future. He failed to do so and prices resumed their downward course. He carried the long position of 415,000 bushels without change until the first day of the delivery month, when he transferred the entire position to the 1929 December future. He sold the May future at an average price of 113.59 cents per bushel,

a loss of about 10 cents per bushel, and purchased the December at an average price of 127.02 cents.

The cycle in the 1929 December future initiated by a purchase of 415,000 bushels was one of the most interesting in his trading experience. The cycle lasted for 166 trading days, from May 1 to November 16, 1929. During this period prices ranged from a low of 105 cents per bushel to a high of 158. Trader 7830 was active in the market on 52 days in this cycle, trading in-and-out on 17 days and making intermediate purchases or sales on 34 days. On July 18 he sold 115,000 bushels at an average price of 154.66 cents. If he had sold an additional 225,000 bushels at the same price, he would have closed out his line at a profit of $125,722 minus commissions. It does not appear that such a sale would have been impossible, since the future reached a high of 157 cents on that day. Again on July 29 he sold 50,000 bushels at a price of 156.50 cents. Had he sold 275,000 bushels more and liquidated his long line entirely, he would have had a profit of $127,081. On this day prices reached 158 cents per bushel. Trader 7830 did not liquidate in July, but continued to carry his long position and to trade actively in the future. When he finally closed it out in November, his loss was $32,949 plus commissions.

It is apparent from the consideration of this group of related cycles that 7830 did not lose so heavily on his long positions because prices were always falling when he was long. In each of the constituent cycles there were times when profits could have been realized. In the final cycle there were prices at which 7830 could have liquidated his line, recouped all losses of the four previous cycles, paid the commissions, and reaped substantial profits.

In most of the cycles in which 7830 experienced heavy losses, there were times when profit situations developed. Three heavy loss cycles, however, were in a loss position almost continuously from their inception. These cycles and the final losses sustained (without commissions) were:

Cycle 46	Loss	$11,550
Cycle 54	Loss	81,101
Cycle 60	Loss	15,938

Summary of 7830's Trading Patterns

The following conclusions emerge from the consideration of the relations between 7830's wheat futures operations and prices:

1. Trader 7830 at times traded as though he had a "normal price" in mind, and at times as a movement trader. The movement trading pattern, however, was greatly overshadowed by the other type of trading.

2. Trader 7830 engaged in extensive in-and-out trading, generally selling at a price higher than the price paid.

3. Trader 7830's position in the market was predominantly long, and his most important trading operations measured by volume traded, maximum position, duration, and financial outcome, were in long cycles during declining price movements. The result was very heavy losses.

4. Trader 7830's experience in his short-term cycles and the contrast in profitability between his short-term and long-term cycles sug-

gest that he had a tendency to cut his profits and let his losses run. In several of his most important cycles, however, he permitted substantial profits to accumulate, but also permitted them to disappear and be replaced by substantial losses. It is impossible to characterize this behavior by any simple formula.

5. Trader 7830's tendency to buy on declining prices should have contributed toward greater price stability, and this should also be true of the substantial number of occasions when he sold on rising prices. In liquidating several very large long lines on declining prices, however, he probably accentuated the drop in price.

CASE STUDY OF A SUCCESSFUL TRADER

In almost every characteristic except the scale of his trading activities and the fact that he also was a businessman residing in California, Trader 7732 is in sharp contrast to Trader 7830. The losses of Trader 7830 were greater than for any other trader in the sample; Trader 7732 had the largest profits. Trader 7830 traded through a large number of complex cycles, with much in-and-out trading. Trader 7732's cycles were predominantly simple, and in-and-out trading was quite rare. Trader 7830's activities were largely confined to wheat futures; 7732's major trades were in corn futures. Trader 7830 was a customer of the firm from November 1924 to October 1932, a period of almost 8 years, but he did relatively little trading in 1924, and his heaviest trading was from 1928 to 1932. Trader 7732 was on the books on the first day covered by this study, January 1, 1924, and practically all of his trading through this firm in the sample period took place in the first three-quarters of 1924. On October 17, 1924, 9½ months after the beginning date for this analysis, he transferred his account to another futures commission merchant, and the records available for this study do not reflect his trading experience after that date.

The principal characteristics of the individual cycles in the trading experience of 7732 in the period analyzed are presented in table 11. His major speculative activity was in corn futures, in which he traded through 21 cycles, 17 of which were long, 3 short, and 1 in-and-out. Only 3 of the cycles were unprofitable, and the total losses amounted to only $2,413. The 18 profitable cycles turned out so successfully that 7732 had a profit of $373.897 in his corn futures trading. Since he was not a member of the Chicago Board of Trade he paid commissions at the full rate. His total purchases of corn futures amounted to 7,330,000 bushels, and his commissions aggregated $18,325. As a consequence the net outcome of his trading in corn futures was a profit in excess of $355,000.

Trader 7732 engaged in 10 wheat futures cycles, of which 7 were long and 3 were short. Eight of the ten wheat futures cycles were profitable, and two were unprofitable. The total outcome of his wheat futures trading during this period was profits of $33,182. His purchases of wheat futures amounted to 2,085,000 bushels, and his commissions therefore totaled $5,212.50. As a result the net outcome of his trading in wheat futures during this period was a profit of almost $28,000.

Trading in rye futures was a very minor part of 7732's futures market activities. He traded through three cycles, two long and one short, with total profits of $12,676 minus $500 in commissions.

TABLE 11.—*Trader 7732: Principal characteristics of individual trading cycles, listed by date of completion*

Grain and cycle number	Future	First trade	Last trade	Duration	Maximum position	Total amount bought		Long or short	Profit or loss	Cumulative profit or loss
						Quantity	Relation to maximum position			
CORN		*Date*	*Date*	*Days*	*1,000 bu.*	*1,000 bu.*	*Ratio*		*Dollars*	*Dollars*
1	1924 July	Oct. 2, 1923	Jan. 9, 1924	83	100	100	1.00	Long	+2,582	+2,582
2	1924 September	Jan. 2, 1924	Jan. 10, 1924	7	50	50	1.00	do	+1,625	+4,207
3	1924 May	Oct. 18, 1923	Jan. 11, 1924	70	100	100	1.00	do	+3,687	+7,894
4	1924 September	Jan. 10, 1924	Jan. 14, 1924	3	50	50	1.00	Short	−438	+7,456
5	1924 May	Jan. 14, 1924	Jan. 18, 1924	4	25	25	1.00	Long	+312	+7,768
6	do	Jan. 29, 1924	Mar. 12, 1924	35	200	250	1.25	Short	−875	+6,893
7	do	Mar. 13, 1924	May 31, 1924	66	925	925	1.00	Long	+9,008	+15,901
8	1924 June	June 13, 1924	June 17, 1924	3	5	50	10.00	do	+75	+15,976
9	1924 September	Apr. 15, 1924	June 18, 1924	53	200	200	1.00	do	+8,854	+24,830
10	1924 December	June 12, 1924	June 26, 1924	12	400	500	1.25	do	+23,883	+48,713
11	1925 May	July 1, 1924	July 23, 1924	17	200	200	1.00	do	+5,863	+54,576
12	1924 December	June 27, 1924	July 26, 1924	23	915	1,315	1.44	do	+56,151	+110,727
13	do	July 29, 1924	July 30, 1924	1	50	50	1.00	Short	+1,407	+112,134
14	1924 July	Apr. 15, 1924	July 31, 1924	88	635	935	1.47	Long	+105,867	+218,001
15	1924 December	July 30, 1924	Aug. 1, 1924	2	100	100	1.00	do	+1,500	+219,501
16	1924 September	June 24, 1924	Aug. 2, 1924	32	550	780	1.42	do	+65,124	+284,625
17	do	Aug. 4, 1924	Aug. 4, 1924	0	0	100	------	In and out	−1,100	+283,525
18	do	Aug. 5, 1924	Aug. 15, 1924	9	350	350	1.00	Long	+15,437	+298,962
19	1925 May	Aug. 1, 1924	Aug. 27, 1924	22	200	400	2.00	do	+25,237	+324,199
20	1924 December	Aug. 4, 1924	Sept. 11, 1924	32	480	730	1.52	do	+49,698	+373,897
21	1924 October	Aug. 13, 1924	Oct. 17, 1924	54	120	120	1.00	do	0	+373,897

TABLE 11.—*Trader 7732: Principal characteristics of individual trading cycles, listed by date of completion*—Continued

Grain and cycle number	Future	First trade	Last trade	Duration	Maximum position	Total amount bought		Long or short	Proct or loss	Cumulative profit or loss
						Quantity	Relation to maximum position			
WHEAT		*Date*	*Date*	*days*	*1,000 bu.*	*1,000 bu.*	*Ratio*		*Dollars*	*Dollars*
1	1924 May	Jan. 14, 1924	Jan. 19, 1924	5	50	50	1.00	Short	+1,000	+1,000
2	1924 September	Mar. 4, 1924	Mar. 10, 1924	5	50	50	1.00	do	+675	+1,675
3	1924 May	Feb. 1, 1924	Mar. 11, 1924	31	50	50	1.00	do	+1,250	+2,925
4	do	Mar. 11, 1924	Apr. 16, 1924	31	300	300	1.00	Long	−15,900	−12,975
5	1924 December	June 19, 1924	June 26, 1924	6	200	200	1.00	do	+5,250	−7,725
6	1924 September	do	July 23, 1924	27	300	300	1.00	do	+16,549	+8,824
7	do	Aug. 8, 1924	Sept. 23, 1924	38	160	210	1.31	do	−524	+8,300
8	1924 December	July 18, 1924	Sept. 26, 1924	59	600	700	1.17	do	+15,757	+24,057
9	1925 May	Aug. 5, 1924	Sept. 30, 1924	47	200	200	1.00	do	+7,437	+31,494
10	1925 July	Aug. 6, 1924	Oct. 1, 1924	47	25	25	1.00	do	+1,688	+33,182
RYE										
1	1924 December	July 10, 1924	July 26, 1924	14	75	75	1.00	do	+5,350	+5,350
2	1924 September	do	July 30, 1924	17	115	115	1.00	do	+7,326	+12,676
3	1924 December	July 26, 1924	Aug. 11, 1924	13	10	10	1.00	Short	0	+12,676

Because 7732 traded largely in simple cycles with little in-and-out trading it is possible to obtain a good picture of his operations by a study of his positions in grain futures. Figure 1 therefore presents the positions of 7732 in corn and wheat futures during the period for which information on his trading is available. His trading in rye futures, which was of relatively small importance, is not shown.

It may be seen from figure 1 that early in January 1924, Trader 7732 was long in corn futures. On the first of the year he held a long position of 200,000 bushels which he had started to accumulate during the previous October. His total position in three corn futures reached a maximum of 250,000 bushels, which he liquidated on January 9, 10, and 11, assuming on January 10 a short position of 50,000 bushels in the 1924 September corn future.

The contracts he had at the beginning of the year had cost him between 73 and 74 cents per bushel. The market had remained extremely steady from the first of October to the first of January. The price of the July future, for example, did not fall below 71 cents per bushel during this 3-month period, nor did it rise above 76⅝. On January 2 the high for this future was 75½–⅝. On January 4 the price went above 77 cents, and on the 9th the price rose to a high of 78⅛. This was the day 7732 started to liquidate. He disposed of his long position at an average price of about 77½ cents per bushel, which gave him a profit of approximately $14,000, after commissions. Trader 7732 seemed to think that prices had gone too high, for he sold short in both wheat and corn. He made a gross profit of $1,000 on his short sale in wheat, but lost money on his short position in corn. After a minor long trade in May corn he stayed out of the market for 10 days.

In late January, 7732 again went short in corn futures, and in February he also went short in wheat futures. The average selling price on his short position in May corn was 80¼ cents per bushel, and all during February and early March the price of the future hovered between 79¼ and 82¼. Finally he covered at prices ranging from 80¼ to 80⅜ cents per bushel. His short sales in wheat (wheat cycles 2 and 3) which he covered at approximately the same time were mildly profitable. Starting on March 11, Trader 7732 reversed these short positions and went long in both wheat and corn futures. From this time until the end of the period studied, 7732 was continuously long in the corn market. He was also long for considerable periods in wheat futures, but was out of the wheat market from the middle of April to the middle of June.

Three Major Corn Futures Operations

Trader 7732 engaged in three major long operations in corn futures. The first began in the middle of March 1924, and ended on June 26. The second began on June 27, and extended to August 2. The third began on August 4, the next trading day, and was terminated by the final liquidation of the account with the firm on October 17, 1924. These three operations will be considered in order.

On March 13, Trader 7732 began to acquire his first major long line of corn futures at prices in the neighborhood of 77 and 78 cents per bushel. By April 23 his total long line had reached 1,125,000

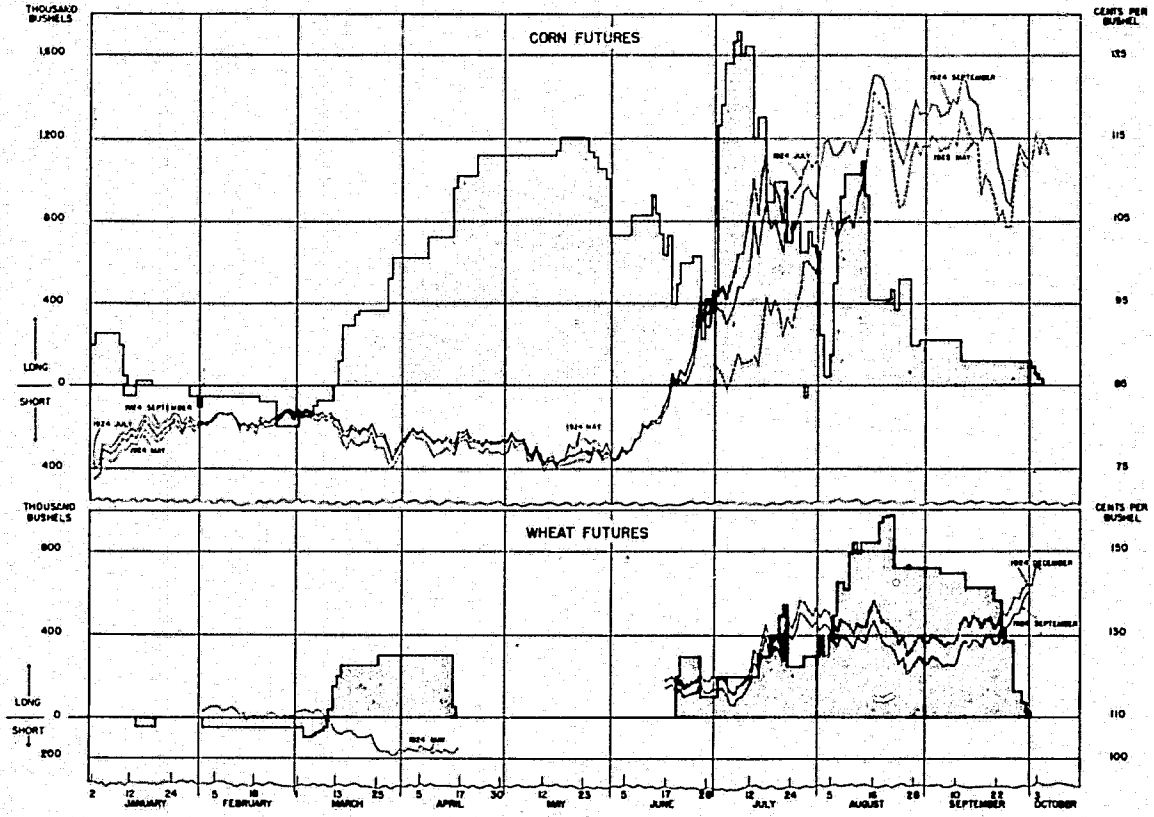

FIGURE 1.—Positions of Trader 7732 in wheat and corn futures, January 1 to October 17, 1924.

bushels, and had been acquired at an average price of just over 77½ cents per bushel. Most of the line, 925,000 bushels, was in the May future, which closed at 77⅛–¼ on April 23, not far from the acquisition cost of the position. Thereafter prices sagged, and by May 15, the next date on which 7732 made a change in the size of his total line, he had a paper loss of approximately $28,500 at the closing prices for that day. On May 15 and 16 he built his line up to 1,210,000 bushels, the additional purchases being made at around 75½ cents per bushel. From this point prices recovered, and 7732 was able to liquidate his position in the May future between May 20 and May 31 at prices between 78 and 79⅛ cents per bushel. This cycle in the May future (No. 7) resulted in a profit of $9,008. Although he liquidated the May, he built up his position in the July future on May 31 and June 6 by 315,000 bushels at an average price just under 77 cents per bushel. Starting on June 6 a strong upward price movement developed. Beginning on June 13, Trader 7732 reduced his line from the 935,000 bushels to 230,000 bushels on June 26, which completed the first major long operation in corn futures.

The principal cycles involved in this first major corn futures operation were Nos. 7, 9, 10, and part of 14, in which, however, a position of 200,000 still remained open on June 26. The important characteristics of these cycles are summarized in table 12.

TABLE 12.—*Trader 7732: First major corn futures operation*

Cycle No.	Future	First trade	Last trade	Duration	Maximum position	Amount bought	Profit
		Date	*Date*	*Days*	*1,000 bu.*	*1,000 bu.*	*Dollars*
7	May	Mar. 13, 1924	May 31, 1924	66	925	925	9,008
9	September	Apr. 15, 1924	June 18, 1924	53	200	200	8,854
10	December	June 12, 1924	June 26, 1924	12	400	500	23,883
14	July	Apr. 15, 1924	do	[1] 60	[1] 635	[1] 635	[1] 57,049
Total							98,794

[1] These figures apply to that part of the cycle from April 15 through June 26. The profit is computed on the assumption that the 200,000-bushel position held on June 26 could have been liquidated at the average of the high and low prices for that date. The total line of 230,000 bushels held by 7732 on June 26 also included a small position in the September future reflected in cycle 16.

In cycles 7, 9, and 14, Trader 7732 was at one time faced with substantial losses. He held his positions, however, until he was able to liquidate them at a profit. The most profitable cycles in the operation were the last to be liquidated. In these cycles 7732 benefited from the price advance toward the end of the operation.

Up to this point the trading behavior of 7732 was that of a norm trader. He bought at one price level, and increased his position as prices declined. He held the position even when prices sagged and liquidated when prices rose. But immediately thereafter his opera-

tions were those of the movement trader. He had liquidated his December future position on June 26 at slightly more than 81 cents per bushel. The next day in a rising market he began his second major operation by accumulating another long line in the same (December) future at a price 1 cent a bushel higher. He continued to build up this position to a maximum of 915,000 bushels, at an average cost of 84 cents per bushel.

As prices advanced he bought other futures until on July 9 his total line reached 1,715,000 bushels. He began to liquidate on further rises in prices, and by July 17, when a peak in prices was reached, he had reduced his total long line to 895,000 bushels. He held this position, and even increased his total line to 995,000 bushels as prices sagged between the 17th and the 22d. When a sharp rise occurred on July 23 he sold 295,000 bushels. Practically all his long position was liquidated on the rising market which followed. By August 2 his long position was reduced to 50,000 bushels and his second large-scale operation in corn futures was completed.

There were five cycles, numbered 11, 12, 14, 15, and 16, involved in this operation. Their chief characteristics are shown in table 13.

TABLE 13.—*Trader 7732: Second major corn futures operation*

Cycle No.	Future	First trade	Last trade	Duration	Maximum position	Amount bought	Profit
		Date	*Date*	*Days*	*1,000 bu.*	*1,000 bu.*	*Dollars*
11	1925 May	July 1, 1924	July 23, 1924	17	200	200	5, 863
12	1924 December	June 27, 1924	July 26, 1924	23	915	1, 315	56, 151
14	1924 July	June 27, 1924	July 31, 1924	[1] 28	[1] 400	[1] 300	[1] 48, 818
15	1924 December	July 30, 1924	Aug. 1, 1924	2	100	100	1, 500
16	1924 September	June 24, 1924	Aug. 2, 1924	32	550	780	65, 124
Total							177, 456

[1] These figures apply to that part of the cycle beginning on June 27. Cycle 14 was a complex cycle extending over both the first and second major operations. The position which had been reduced to 200,000 bushels on June 26 was subsequently increased to a maximum of 400,000 in the second operation.

In this second major long operation 7732's actions were predominantly those of a movement trader. He acquired a long line in the middle of a price rise. Most of it was liquidated on rising prices after a slump, some of it at prices below those prevailing before the slump. This suggests that the interruption of the upward price movement was looked upon as a signal to liquidate. The reduction of the long line to 50,000 bushels could hardly have been due to a conviction that prices had risen above a norm, for on the next trading day after the completion of the second major corn futures operation, 7732 began to build up his long position again at prices above those at which he had liquidated just a few days previously.

The third long corn futures operation began on August 4, and ended on October 17, 1924, the day on which he closed out his account with the firm. As indicated above, the accumulation of this long line began with a continuation of the price advance. It proceeded rapidly during a slight dip in prices, and the maximum long position of 1,095,000 was reached on rising prices on August 13. Prices continued sharply upward and in 2 days 7732 liquidated 675,000 bushels. Shortly thereafter a price decline set in which reached over 10 cents per bushel. Trader 7732 increased his line somewhat near the end of this decline, and reduced it considerably when a strong recovery began. His final liquidation was on strengthening prices after another substantial decline.

There were four cycles in the final long futures operation, the principal features of which are shown in table 14.

TABLE 14.—*Trader 7732: Third major corn futures operation*

Cycle No.	Future	First trade	Last trade	Duration	Maximum position	Amount bought	Profit
		Date	*Date*	*Days*	*1,000 bu.*	*1,000 bu.*	*Dollars*
18	1924 September	Aug. 5, 1924	Aug. 15, 1924	9	350	350	15,437
19	1925 May	Aug. 1, 1924	Aug. 27, 1924	22	200	400	25,237
20	1924 December	Aug. 4, 1924	Sept. 11, 1924	32	480	730	49,698
21	1924 October	Aug. 13, 1924	Oct. 17, 1924	54	120	120	0
Total							90,372

Cycle 21 is an unusual case. The bulk of the position in this cycle was acquired just at the peak of the operation, and immediately before 7732 began to liquidate on a large scale. Shortly thereafter a substantial decline in prices occurred, and subsequent recoveries did not carry prices of the October future much above the level at which this position had been acquired. The purchases had been made on August 13 and 29. The position was liquidated by sales on four different days, October 14 to 17, and the average price at which the sales were made exactly equalled the average price of the purchases.

TRADING PATTERNS OF 7732

The difficulties encountered in analyzing the behavior of 7732 in this third operation illustrate the problems which arise in attempting to infer trading motivation from a study of trading behavior taken by itself. There is the possibility that two different types of motivation are consistent with a given pattern of behavior. There is the even more obvious fact that in situations of this sort most people act not in a direct and simple fashion according to a clear pattern but in a vacillating manner and as a result of complex and diverse influences. Consequently, in classifying behavior as that of a norm trader or of

a movement trader, there is certainty of an oversimplified picture of the factors which determine trading behavior, and also the danger that mistakes may be made in inferring the principal type of motivation.

In the third major long operation in corn futures, 7732 made his principal acquisitions on August 5 and 6, when prices were declining. At first glance it might appear that these purchases were the actions of a norm trader who was convinced that prices had sagged below their normal level. But only a few days earlier 7732 had been liquidating heavily at considerably lower prices, and his reentry into the market at higher prices suggests the action of a movement trader. Of course, if the trader had changed his mind as to the appropriate level of prices, he could have been buying because prices were still below this new level. If he did have a new level in mind, however, it seems highly probable that it was the upward price movement of the previous few days which changed his mind. To the extent that price movement itself was the determining factor, his action was that of a movement trader.

Turning to the pattern of liquidation in the third operation, the fact that 7732 began to liquidate a long position while prices were rising rapidly suggests the action of a norm trader. However, it is possible that 7732 began the liquidation because he interpreted within-the-day price fluctuations as signaling the end of a price movement. Moreover, if he was not a movement trader, why did he liquidate a part of his position on rising prices on August 14 and 15 but stop liquidating on August 16 when prices rose still higher? While the remainder of his line was liquidated on price upswings following price declines, the liquidating prices in all instances were lower than prices which had previously prevailed but had not stimulated liquidation. This has the appearance of movement trading.

In wheat futures also there are difficulties in interpreting the trading operations of 7732. Because his trading during this period was generally so profitable, special interest attaches to wheat futures cycle No. 4, his most unprofitable cycle. On March 11, 1924, he began to acquire a long position in the May wheat future. Prices were declining, and as they continued to decline he built up his long line to 250,000 bushels. When an interruption of the decline occurred he stopped buying. But the price decline was resumed, and 7732 "averaged down" the cost of his position by buying 50,000 bushels on March 25 at $1.02⅛ per bushel. His line had cost him $1.07⅞, and this trade reduced the average cost to just under $1.07. For three weeks prices fluctuated between $1.00¼ and $1.03½, and on April 15 and 16, Trader 7732 liquidated his line at an average price just over $1.01⅝. His loss on this cycle was $15,900 plus commissions of $750.

On this loss cycle 7732 conformed exactly to the pattern of the norm trader. He brought on declining prices, and increased his purchases on still further declines. He eventually came to the conclusion that his estimate of the normal price level was in error, and liquidated his position at a loss.

The picture is not so clear in his major long operation in wheat futures which extended from June 19 to September 30. A very evident pattern was followed in acquiring the long positions in this operation. With the single exception of the purchase of 100,000 bushels of the 1924 December future on June 19, every increase in total long commit-

ments was made on a day on which prices declined. In this manner a total long position of 550,000 bushels was built up by July 22. This line was partially liquidated on a sharp price rise following a pronounced downward dip in prices. A second peak in long wheat futures holdings of 975,000 was reached on August 21. A continuation of the price decline on which the last part of this line was accumulated, however, resulted in the liquidation of 250,000 bushels on August 22. The position was finally liquidated on the strong upward price swing which developed late in September.

The purchasing on price dips would seem to connote the norm trader. However, the fact that the line of 550,000 bushels was partially liquidated on a price decline, and not further liquidated on an upswing which carried prices well above the level at which partial liquidation occurred, does not fit well into the pattern of the trader who has a normal price in mind. But the final liquidation on a strong price rise seems to fit the mold of the norm trader.

Summary of 7732's Operations

The trading of 7732 during the period covered was very profitable, even though it does not fit closely into preconceived or stereotyped patterns of trading behavior. It may be that 7732 was less successful at other times during the 9-year period covered in this study, but he did demonstrate an ability to trade profitably during the first three-quarters of 1924. From the general summary of the trading experience of 7732 presented in table 15, it is apparent that he favored the long side of the market. He engaged in trading through 26 long cycles and only 7 short cycles. The striking price movement of the 1924 period, of course, was the rise that started in early June, but his trading prior to that time also seemed to favor long positions.

Table 15.—*Trader 7732: Trading experience, by type of cycle*

Grain and type of cycle	Cycles	Average duration	Average maximum position	Average quantity bought	Total profits or losses	Average profit or loss per bushel traded
			1,000	*1,000*		
Corn futures:	*Number*	*Days*	*bu.*	*bu.*	*Dollars*	*Dollars*
Profitable cycles:						
Long	16	32. 7	327. 2	422. 5	374, 903	0. 055
Short	1	1. 0	50. 0	50. 0	1, 407	. 028
Profitless long cycle	1	54. 0	120. 0	120. 0	0	. 000
Unprofitable cycles:						
Short	2	19. 0	125. 0	150. 0	1, 313	. 004
In-and-out	1	0	0	100. 0	1, 100	. 011
Wheat futures:						
Profitable cycles:						
Long	5	37. 2	265. 0	285. 0	46, 681	. 033
Short	3	13. 7	50. 0	50. 0	2, 925	. 020
Unprofitable cycles:						
Long	2	34. 5	230. 0	255. 0	16, 424	. 032
Rye futures:						
Profitable long cycles	2	15. 5	95. 0	95. 0	12, 676	. 067
Profitless short cycle	1	13. 0	10. 0	10. 0	0	. 000

In general the profitable cycles of 7732 were of longer duration than his unprofitable cycles. He let his profits run until they reached substantial proportions in a number of cases, and although on occasions he let his losses run, he demonstrated much more capacity than 7830 for recognizing errors and for dropping untenable positions. Perhaps the most striking feature of his trading was his tendency to build up large positions when trading was profitable and hold his commitments to smaller figures when the market movement was against him. This is clearly seen from the comparison of both the average maximum positions and the average quantity bought in profitable cycles as compared with unprofitable cycles. This characteristic and the ability to terminate unprofitable cycles before substantial losses had been suffered [3] account for the clear tendency for average profits per cycle to exceed average losses.

What was the influence of Trader 7732's trading on prices? Because of the variety of his trading activities it is not possible to give a categorical reply to this question. Dominant in his trading, however, was a tendency to buy on reversals in price movement during upward price swings. Another frequently encountered action was to sell on upswings that followed declines in prices. Both of these types of trading behavior tended to reduce price fluctuations rather than to accentuate them. This, of course, was not true of the less frequent occasions when he liquidated on a declining market, or made purchases when prices were rising.

STATISTICAL ANALYSIS: NATURE OF THE SAMPLE

The examination of the market activities of two large traders provides a background against which the trading of the other customers in the sample may be presented. The transactions to be analyzed occurred in the period of 9 years extending from January 1, 1924, to December 31, 1932, and included the trades made by 8,922 different persons through the firm which supplied the information. These traders were mostly small speculators. There were some speculators who may properly be classified in an intermediate group with respect to scale of operations, and a few speculators like Traders 7830 and 7732 who traded on a large scale. The sample also included a few hedgers.

Problems for Analysis

The statistical analysis was designed to obtain answers to a number of questions. The most important of these are:

1. What were the occupations of persons engaged in speculation on grain futures markets?
2. What relation was there between occupation and success or failure in grain futures speculation?
3. What relation was there between the magnitude of the trading operations and profits or losses?
4. Was there any relation between the length of time persons held commitments in the futures markets and the profitability of their trading?

[3] The one exception to this was wheat cycle No. 4, in which a loss of $15,900 was sustained.

5. What was the relation between the typical position taken, long or short, and the results of trading?
6. What relation existed between the period during which traders were active in the market and the outcome of their trading operations?
7. How did different classes of traders react to price swings? Did their trading accentuate or reduce price fluctuations? Did they enter the market early or late in a given price movement? Was there evidence that their trading was primarily reaction to price levels or to the rate of change of prices?
8. What conclusions can be drawn as to the profitability of trading by speculators in the futures markets?

General Features of Sample

In a study of this kind the validity of any generalizations drawn from the data depends on the representativeness of the sample used. For this reason it is worth while to consider in some detail the characteristics of the sample on which this study is based.

The data relate to trading on the Chicago Board of Trade, the largest grain futures market in the world. The commodities considered here are wheat, corn, oats, and rye, the principal grains traded on that market in the survey period. The characteristics of trading in futures undoubtedly differ from commodity to commodity and from market to market, but it seems likely that futures trading in other commodities and on other markets has many characteristics in common with the subject of this study, i. e., trading in grain futures on the Chicago Board of Trade.

The commission merchant from whose records the information was taken was one of the largest brokerage firms on the Chicago market. This firm had leased-wire connections with branch offices in various parts of the United States and Canada. During the period covered, however, branch offices were opened and closed, and leased-wire services were inaugurated and discontinued. The firm maintained customer ledgers in two principal offices, Chicago and New York. The accounts of persons trading through eastern branches were maintained in New York, and the Chicago office maintained only an omnibus account for trading done by these customers on the Chicago Board of Trade. This study was confined to the accounts maintained in the Chicago office, and therefore did not consider the trading of customers in the eastern part of the country whose accounts were kept in the New York office. Furthermore, the firm did business both through branch offices and correspondents, and did not ordinarily establish branch offices in areas actively cultivated by correspondents. Omnibus accounts were maintained in the names of correspondents, and therefore information was not available in the Chicago office on the trading of the individual customers served in this manner.

The result is that the sample contains a large number of traders who lived in certain cities or towns, and few or none in other localities. Seattle, Wash., where the firm maintained a branch office, is an illustration of a city in which there was a large number of traders, while Portland, Oreg., where a correspondent maintained an office, contributed very few traders to the sample.

Geographical Location of Traders

The accompanying dot map (fig. 2) shows the geographical distribution of the traders in the sample. It is at once apparent that, with respect to geographical distribution, the sample is quite different from that which would have been obtained by a sampling technique designed in advance to give a representative geographical coverage. Most of the customers were residents of a few large cities located in a small number of States.

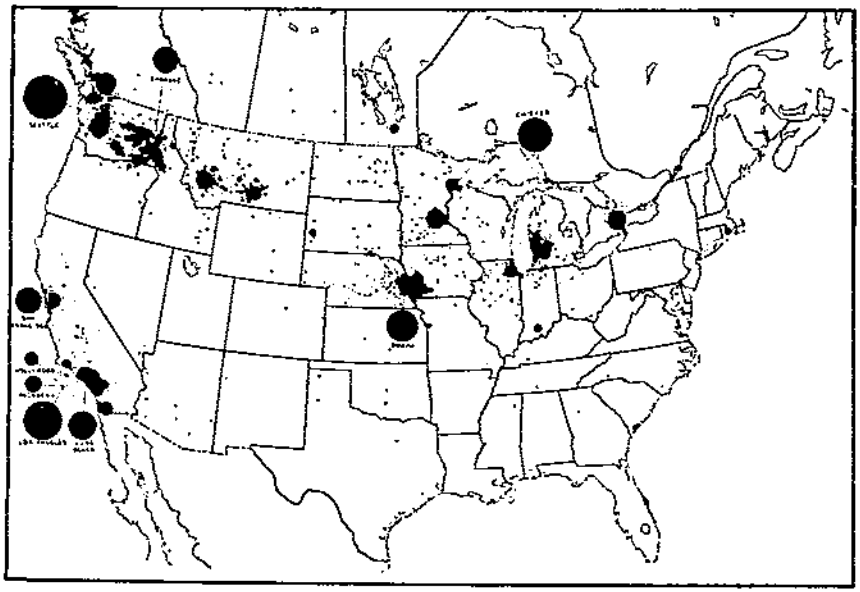

Figure 2.—Geographical distribution of traders in sample.

Table 16 lists all the cities in which there were more than 50 customers and shows the percentage of the customers in each city who traded in each of the four grains. In all, 21 communities are listed, and these communities contained 6,194, or almost 70 percent, of the 8,922 customers in the sample. These 21 cities were located in only 7 States and 2 Canadian Provinces. Seven of the communities were in California and 5 were in the State of Washington. In some of the States almost all the traders resided in the communities listed in table 16, or in closely adjacent communities. The major exceptions are to be found in the large numbers of traders residing in southwestern Iowa, and the wide scatter of traders—particularly when related to population distribution—in Montana and Washington.

By far the greatest geographical distortion in the sample arises out of the disproportionate representation of the State of Washington. Not only did the city of Seattle include more traders than any other city, but the total number of traders in Washington, 2,522, constituted over 28 percent of the entire sample. California, which had a total of 2,457 traders, was only slightly behind Washington in total number of traders, but because of the marked difference in population the

Washington sample was proportionately much larger. Washington and California contributed over 55 percent of the traders in the sample.

TABLE 16.—*Number of traders living in cities with over 50 customers and percent trading in different grains*

City	Traders	Proportion trading in—			
		Wheat	Corn	Oats	Rye
	Number	*Percent*	*Percent*	*Percent*	*Percent*
Seattle, Wash	1,107	91.8	45.2	16.6	17.3
Los Angeles, Calif	811	84.5	44.9	17.6	11.7
Chicago, Ill	642	78.7	51.2	21.3	17.0
Omaha, Nebr	560	74.3	64.6	31.8	23.2
Spokane, Wash	519	94.6	39.4	9.2	11.6
Long Beach, Calif	441	85.7	45.1	19.0	10.9
San Francisco, Calif	336	87.8	46.4	16.7	18.2
Vancouver, British Columbia	219	84.0	48.9	12.3	11.0
Grand Rapids, Mich	185	84.9	48.1	27.0	23.2
Minneapolis, Minn	182	76.9	61.0	14.8	18.7
Toronto, Ontario	173	87.9	32.4	20.8	15.0
Butte, Mont	166	92.2	33.1	10.8	5.4
Pasadena, Calif	137	89.8	35.8	18.2	11.7
Tacoma, Wash	135	91.1	31.1	9.6	11.9
San Diego, Calif	106	81.1	50.0	17.0	16.0
Billings, Mont	100	92.0	33.0	14.0	18.0
Duluth, Minn	93	82.8	41.9	24.7	16.1
Hollywood, Calif	83	91.6	45.8	13.3	12.0
Walla Walla, Wash	73	100.0	16.4	4.1	4.1
Yakima, Wash	65	96.9	18.5	10.8	10.8
Santa Ana, Calif	61	88.5	32.8	11.5	23.0
Total or average	6,194	86.2	44.9	17.9	15.3

Because of the geographical distortion in the sample, little significance can be attached to the proportions of the traders in the total sample trading in different grain futures. There is a definite relation between geographical location and the commodity, or commodities, most preferred by traders in the area. This is shown by table 16 which gives the percentage of traders in each community who traded in the different grains. In all the communities in Washington, which is a wheat-growing State, more than 90 percent of the traders in the sample traded in wheat futures. This is also true of the two communities in Montana. The only other community which showed so high a proportion of wheat futures traders was Hollywood. In corn futures, on the other hand, the only cities with more than 50 percent of the accounts trading in this commodity were Omaha, Minneapolis, and Chicago, all located in heavy corn-producing areas. These contrasts are undoubtedly related to the different importance of the two grains in the economies of the different parts of the country, but for present purposes they are particularly important in indicating that the present sample contains a disproportionate number of wheat traders. This is the result of the undue weighting of Washington

and Montana in the sample, and the very high proportions of wheat futures traders found in these two States.

Relative Size of the Sample

A total of 8,922 traders are included in the sample. A number of customers who are believed to have traded through other firms were excluded from the sample. It was not possible to determine from the available records whether particular customers of the sample firm had previously traded through other firms, whether they traded simultaneously through other firms, or whether they continued to trade through other firms after disappearing from the books of the sample firm. However, in the opinion of a former member of the sample firm, a number of customers did trade through other firms at the same time, and the accounts of these traders were eliminated. It is possible that some of the more expert traders were thus excluded, but this deficiency is less serious than to include only a part of the trading in which a customer was engaged. It is likely that some of the traders during the period carried accounts with other futures commission firms before and after they traded through the sample firm, and that this resulted in an inadequate representation of the larger traders, since such traders are more likely than small traders to change their accounts from one futures commission merchant to another.

It is impossible to determine what proportion of the total number of persons who engaged in grain futures trading on the Chicago Board of Trade during the period covered is included in the sample. Other measures, however, give some idea of the relative importance of the trading carried on by the group studied. In table 17 data are presented showing for each grain the number of traders in the sample, the number of transactions, the volume of trading in bushels, and the average total open position both long and short. A total of 417,906 transactions were studied, of which over two-thirds were in wheat futures. The traders in the sample bought a total of almost 931,000,000 bushels of wheat futures, and a total of 1,320,000,000 bushels when the figures for all four grains are combined. Throughout the period studied, the total open positions (long plus short) averaged 2,900,000 bushels of wheat futures, 1,055,000 bushels of corn futures, 464,000 bushels of oat futures, and 213,000 bushels of rye futures.

Table 17.—*Number of traders, number of transactions, total volume of trading, and average total position for traders in sample*

Item	Wheat	Corn	Oats	Rye	All grains
Number of traders	7,663	3,989	1,623	1,340	[1] 8,922
Number of transactions	289,136	96,784	18,084	13,902	417,906
Volume of trading [2] 1,000 bu	930,613	273,650	69,283	46,814	1,320,390
Average open position [3] 1,000 bu	2,900	1,055	464	213	.....

[1] The number of traders in "All grains" is less than the sum of the figures for the individual grains because many traders traded in more than 1 grain.
[2] 1 side only.
[3] Both sides.

Data are not available to show the total number of transactions in grain futures on the Chicago Board of Trade during the period covered. Data on the total volume of trading in bushels are available, however, and may be compared with the volume of trading of the persons in the sample. When this is done it is found that the sample traders accounted for somewhat less than 1 percent of all trading in wheat and corn futures. The percentages are 0.91 and 0.64 for wheat and corn, respectively. A comparison of average open positions with the total of open commitments (on both sides) gives somewhat higher figures, the percentages being 1.24 and 0.91 for wheat and corn, respectively. The higher proportion for open positions presumably reflects the fact that no scalpers were included in the study, and therefore positions held were relatively more substantial than the volume of trading done.

From the figures given above it may be concluded that the sample studied was approximately 1 percent of the total activity in grain futures on the Chicago Board of Trade.

Hedgers in the Sample

The traders in the sample included grain firms and grain-processing companies such as flour millers and corn-products producers, as well as individuals from many walks of life. Many of the larger grain firms carry on their futures trading operations through a number of different commission merchants, and consequently the trading of such concerns with the firm from which this sample is drawn was not necessarily representative of their trading operations generally. For this reason the trades of such hedging accounts were excluded from the sample, and only those accounts were included which in the opinion of a partner of the futures commission house constituted all of the trades of the hedger in question for the period during which the account appeared on the books. Since the futures operations of some of the largest hedgers are thus excluded, the sample cannot be looked upon as representative of all hedging operations. It is possible, however, that it represents with reasonable accuracy the trading of medium-sized and smaller hedging concerns.

The hedgers in the sample were distributed between members and nonmembers of the Chicago Board of Trade, and the different segments of the grain trade as shown in table 18.

Table 18.—*Occupational distribution of hedgers in sample*

Hedgers	Wheat		Corn		Oats		Rye		All grains[1]	
	Members	Total	Members	Total	Members	Total	Members	Total	Members	Total
Processors	4	44	2	15	2	7	1	5	4	47
Terminal grain merchants	20	45	9	22	11	17	9	13	23	49
Subterminal grain merchants	----	10	1	8	----	3	----	3	1	12
Country grain merchants	----	23	----	16	----	10	----	6	0	32
Total	24	122	12	61	13	37	10	27	28	140

[1] The "All grains" figure is less than the sum of the figures for the individual grains because many of the firms traded in more than 1 grain.

The sample includes 140 hedging firms, which is a considerable number. One-third of these were processors and two-thirds were engaged in the grain business. Twenty-eight were substantial enough to be members of the Chicago Board of Trade. Members trading through other members pay only one-half the regular commission rate. The trading of these members was presumably in sufficient volume so that the 50-percent saving in commissions justified the expense of maintaining membership on the exchange.

It is not certain that all of the transactions recorded for the firms classified as hedgers were hedging in the strict meaning of the term. We can be reasonably sure, on the other hand, that the trading of the other groups included in the sample were speculative in nature. They did not include all types of speculators, since scalpers were not included, and it is doubtful whether spreading operations were adequately represented. (In any event the nature of the study precluded any examination of spreading between markets.) The bulk of the traders in the sample, therefore, consists of nonprofessional speculators.

Occupational Distribution of Other Traders

A detailed presentation of the occupational distribution of traders in the sample is given in table 19. Businessmen were the largest occupational group included in the sample. More than 3,000 traders were engaged in business in the capacity of proprietors or managers, and more than one-third of these were engaged in retail trade. Persons engaged in the real estate, insurance, or securities businesses were also numerous, as were business managers and proprietors of a large variety of nontrade types of business activities—mostly manufacturing. There were 316 persons engaged in the grain business who carried personal, speculative accounts with the firm from which the sample was obtained. There were also 134 men who were engaged in business directly related to agriculture, such as farm machinery, the seed business, the livestock commission business, or meat packing.

Farmers were an important segment of the sample, but manual workers, mostly foremen and skilled workers, also appear in considerable numbers. A surprisingly large number of retired persons, 954 in all, were found in the sample. Professional occupations accounted for 768 traders, and there were 554 persons who were engaged in clerical work. Semiprofessional occupations such as commercial artists and designers, laboratory technicians, aviators, and radio operators, were relatively unimportant.

The significance of the occupational classification is impaired by the relatively large number of persons whose occupational status could not be determined from the records kept by the firm. There were 971 such persons altogether, and they constituted almost 11 percent of the entire sample.

TABLE 19.—*Occupational distribution of all traders in sample*

Occupation	Wheat	Corn	Oats	Rye	All grains[1]
	Number	*Number*	*Number*	*Number*	*Number*
Business managers, grain business:					
Country grain business	114	65	33	21	133
Terminal and subterminal grain business	158	107	44	38	183
Total	272	172	77	59	316
Business managers, other:					
Wholesalers	112	44	16	18	131
Retailers	937	452	201	179	1, 044
Bankers	16	5	4	3	19
Miscellaneous other than trade	733	364	161	143	824
Real estate, insurance, securities	749	427	178	130	885
Capitalists and financiers	44	19	5	4	50
Business re agriculture	105	73	33	27	134
Total	2, 696	1, 384	598	504	3, 087
Professional:					
Accountants and auditors	80	35	15	10	91
Artists, actors, and musicians	24	11	1	1	26
Clergymen	10	7	4	3	12
Educators	53	30	9	9	58
Dentists	73	26	12	11	77
Engineers and architects	105	55	17	20	120
Lawyers and judges	111	56	20	17	129
Physicians and surgeons	133	82	24	27	152
Professional occupations, n. o. c.	88	52	17	16	103
Total	677	354	119	114	768
Semiprofessional:					
Semiprofessional occupations	74	30	12	11	83
Students	15	4	2	3	19
Total	89	34	14	14	102
Clerical:					
Clerical and kindred occupations	225	114	38	41	262
Sales persons and kindred occupations	146	66	25	18	168
Inspectors, estimators, etc.	102	50	22	23	119
Municipal and State employees	3	2	------	------	3
Federal employees	2	2	1	------	2
Total	478	234	86	82	554
Farmers:					
Farmers, general	779	365	150	121	900
Farmers, specialty	118	47	19	16	128
Total	897	412	169	137	1, 028

[1] The numbers of traders in the "All grains" column generally are not the sums of the figures for the individual grains because many traders traded in more than 1 grain.

TABLE 19.—*Occupational distribution of all traders in sample*—Con.

Occupation	Wheat	Corn	Oats	Rye	All grains[1]
	Number	*Number*	*Number*	*Number*	*Number*
Manual workers:					
Skilled and semiskilled	680	377	134	115	777
Laborers and unskilled	155	75	27	25	171
Total	835	452	161	140	948
Retired:					
Professional	28	13	5	4	32
Semiprofessional	1	------	------	------	1
Clerical	10	7	4	------	12
Business	292	144	48	37	329
Connected with grain business	44	28	13	11	50
Manual	35	17	4	7	38
Farmers	175	112	43	33	218
Previous connection unknown	222	143	62	46	265
Government employees	8	4	1	3	9
Total	815	468	180	141	954
Unknown:					
Status unascertainable	735	396	176	112	971
Unemployed, former occupation unknown	47	22	6	10	54
Total	782	418	182	122	1, 025
Total, nonhedgers	7, 541	3, 928	1, 586	1, 313	8, 782
Hedgers:					
Processor hedgers	44	15	7	5	47
Grain merchants, terminal	45	22	17	13	49
Grain merchants, subterminal	10	8	3	3	12
Grain merchants, country	23	16	10	6	32
Total	122	61	37	27	140
Total, all traders	7, 663	3, 989	1, 623	1, 340	8, 922

COMPARATIVE OCCUPATIONAL DISTRIBUTION

One test of the representativeness of the sample is the extent to which the occupational distribution of traders is similar to those found in other studies. There have been several other compilations of futures traders by occupations, but most of them are not closely comparable with the list shown in table 19, because of differences in commodities and dates covered and in the nature of the occupational classifications used. The most nearly comparable tabulation is that given in a study by D. B. Bagnell entitled, "*Analysis of Open Commitments in Wheat and Corn Futures on the Chicago Board of Trade, September 29, 1934.*"[4] This analysis applied to a date 21 months after the final date of the present study, and was a cross

[4] United States Department of Agriculture, *Circular No. 397.*

section of the traders in the market at a point in time, in contrast to the present study which relates to the customers of a given futures commission firm who traded in grain futures at any time during a 9-year period. Furthermore, a different classification of occupations was used.

In the present study the *Dictionary of Occupational Titles* published by the United States Department of Labor and the United States Employment Service was used as a guide, and an effort was made to adhere as closely as possible to the occupational classifications presented in this dictionary. The definitions used, and the groupings made, differ from those in the Bagnell study which was made prior to the publication of the *Dictionary of Occupational Titles*. As a result, these two studies are comparable only on the broadest basis.

The sample obtained by Bagnell gave the following occupational distribution of accounts.[5]

Class:	Accounts Wheat	Corn
Farmers	1,492	1,047
Housewives	802	496
Clerks, small merchants, etc	6,237	3,730
Executives, financiers, etc	3,068	1,876
Speculative corporations	39	27
Total speculative	11,638	7,176
Elevator hedgers	738	572
Processor hedgers	309	122
Total hedging	1,047	694
Foreign and miscellaneous	509	219
Total	13,194	8,089

The most important differences between the above distribution and the distribution presented in this analysis are: (*a*) the former included housewives; (*b*) listed speculative corporations; and (*c*) merged all occupations other than farmers and housewives in two categories, "Clerks, small merchants, etc.," and "Executives, financiers, etc." These three differences will be considered in order.

Most traders on futures exchanges are men, but a considerable number of women do participate in futures trading. In this respect the present sample is not representative, since the sample firm, as a matter of policy, did not accept the accounts of women. Employees of the firm occasionally accepted orders from women, customarily concealing the sex by giving initials only for the first names. When these were discovered by the head office, the accounts were closed, and the trading experience shown on the books is consequently in no sense representative of women's trading generally.

The classification "speculative corporations" was not used in the present analysis, but it is believed that few, if any, corporations which might be so classified were included in the sample. In Bagnell's study they represented about one-third of 1 percent in number of traders, and it is unlikely that they are included in much larger proportions in this study.

[5] Op. cit., p. 17.

Bagnell attempted to classify the bulk of the speculative traders in his study so as to distinguish between traders of small means and traders in the "executive professional class." There does not seem to be any combination of the subclasses used in this study which would come reasonably close to Bagnell's classification. Consequently, for purposes of comparison, it seemed best to merge all speculators other than farmers in a single group.

Another adjustment which was unfortunate but necessary was the subtraction of the group whose occupational status was unascertainable in this study. This was the situation for 735 traders in wheat futures and 396 traders in corn futures. A number of these traders in all likelihood were farmers, but since there was no way to determine their number the entire "Status unascertainable" classification was excluded from the comparison. Bagnell's study did not contain the "Retired" classification, but it has been assumed that in his study retired farmers were classified as farmers. Therefore, the data from this study for farmers and retired farmers have been merged, thus placing the data from the two studies on a more comparable basis. A further step which was designed to improve the comparability of the two studies was to subtract the housewives and speculative corporations from Bagnell's figures. The results are shown in table 20.

TABLE 20.—*Comparison of classes of traders in wheat and corn futures in analysis of Sept. 29, 1934, and in present study*

Class of trader	Analysis of Sept. 29, 1934				Present study			
	Wheat		Corn		Wheat		Corn	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Farmers and retired farmers	1, 492	12. 6	1, 047	14. 2	1, 072	15. 5	524	14. 6
Other speculators	9, 305	78. 6	5, 606	76. 3	5, 734	82. 8	3, 008	83. 7
Elevator hedgers	738	6. 2	572	7. 8	78	1. 1	46	1. 3
Processor hedgers	309	2. 6	122	1. 7	44	. 6	15	. 4
Total	11, 844	100. 0	7, 347	100. 0	6, 928	100. 0	3, 593	100. 0

It is apparent from this table that the proportion of hedgers in the present sample is significantly less than in the Bagnell study. Almost 9 percent of the wheat traders, and over 9 percent of the corn traders in his analysis were hedgers. In the sample on which the present study is based hedgers constituted less than 2 percent of the total number of traders in both wheat and corn futures. This contrast would be even more striking if the traders whose occupational status was unascertainable were included in this study. These traders were almost certainly not hedgers, and consequently the proportion of hedgers in the entire sample was even smaller than indicated above.

Two considerations may be cited to explain the smaller number of hedgers in the present study. The first is the exclusion from this study of larger hedgers who put their trades through two or more different futures commission merchants. The second is the fact that some large hedgers are clearing members of the Board of Trade but do not

solicit or accept orders from the public and consequently are not commission merchants. As clearing members they carry positions for themselves, which would not be shown on the books of a future commission merchant. Bagnell's study, which was based on reports from all clearing members of the Board of Trade, covered all positions in the market on the day studied.

It may be concluded from the above comparison that hedgers as a general group are underrepresented in the present study. There remains, however, the question of the distribution of the larger classification of hedgers between processors and grain merchants (or elevators). To test whether these two components of the hedging group were present in similar proportions in the Bagnell sample and in this study, the proportions of the two types of hedgers in the two studies are shown for wheat and corn in table 21.

TABLE 21.—*Number and proportion of different types of hedgers in analysis of Sept. 29, 1934, and in present study*

Grain and type of hedger	Analysis of Sept. 29, 1934		Present study	
	Number	*Percent*	*Number*	*Percent*
Wheat:				
Processors	309	29.5	44	36.1
Grain merchants	738	70.5	78	63.9
Total	1,047	100.0	122	100.0
Corn:				
Processors	122	17.6	15	24.6
Grain merchants	572	82.4	46	75.4
Total	694	100.0	61	100.0

At first glance it might seem that processor hedgers are significantly more numerous in the present sample, since almost 25 percent of the corn hedgers and 36 percent of the wheat hedgers were processors. Bagnell's figures were 18 percent and 30 percent, respectively. These differences, however, are not significant.[6]

[6] This conclusion was reached after applying the Chi-square test of independence. In this test the number of traders in each classification for each study was compared with the number which would have been in the classification if the traders had been distributed in the proportions shown when the data for both studies are combined. By use of the Chi-square technique it is possible to discover the probability that discrepancies as great or greater than those observed would arise by chance.

This probability is related to the number of observations involved; the larger the number of observations the more significant a given difference in proportions. For example, the probabilities of differences in the proportions of the 2 categories of hedgers as great as the difference between 24.6 percent and 17.6 percent for the corn processing hedgers, and the difference between 36.1 percent and 29.5 percent for wheat processing hedgers, in both cases fall between 1 in 10 and 1 in 5. The number of traders involved was 61 and 694 for the 2 studies of corn hedgers, and 122 and 1,047 for wheat hedgers. In contrast, the difference between 15.8 percent and 13.8 percent, the proportions of farmers trading in wheat futures, as shown in table 22, seems at first glance to be small, but such a difference would arise by chance less than once in a thousand times. In this case it will be noted that the number of traders is much larger, amounting to 6,806 for the present study, and 10,707 for the Bagnell study.

One further comparison may be made between the Bagnell sample and the present sample. This is a comparison of the relative numbers of farmers in the two samples. The data are shown in table 22.

TABLE 22.—*Number and proportion of farmers and other speculators in analysis of Sept. 29, 1934, and in present study*

Class	Analysis of Sept. 29, 1934		Present study	
	Number	*Percent*	*Number*	*Percent*
Wheat:				
Farmers and retired farmers	1,492	13.8	1,072	15.8
Other speculators	9,305	86.2	5,734	84.2
Total	10,797	100.0	6,806	100.0
Corn:				
Farmers and retired farmers	1,047	15.7	524	14.8
Other speculators	5,606	84.3	3,008	85.2
Total	6,653	100.0	3,532	100.0

In corn futures trading there is no significant difference between the proportions of farmers in the two samples, but the present study contains a significantly larger proportion of farmers trading in wheat futures than did the Bagnell study.[1] The distorted geographical distribution of the present sample may be the explanation for this difference. The sample included considerable numbers of persons whose addresses were small towns in the wheat-growing areas of Washington and Montana, and relatively fewer persons with small-town addresses in the corn belt.

The Federal Trade Commission also made a study of the occupational distribution of grain futures traders based on the customers of eight Chicago futures commission merchants about 1916–18. The results are published in the *Report of the Federal Trade Commission on the Grain Trade, Vol. VII, Effects of Future Trading* (p. 196). The occupational classification applies to all traders in the sample and does not distinguish between traders in the different grains. The study was confined to wheat, corn, and oats. The present study covers wheat, corn, oats, and rye. Since it was not feasible to determine the occupational distribution of a sample which would correspond fully with the sample of the Federal Trade Commission in terms of commodities, the next best solution was adopted. The data of the Federal Trade Commission were compared with the data on occupational distribution of all traders in the present sample, regardless of the grain or grains traded. Such a comparison, for farmers and for other traders, is given in table 23. Since the Federal Trade Commission data, like Bagnell's study, did not distinguish between farmers and retired farmers, the combined classification is used here also.

[1] The probability of discrepancies as great as those shown for corn futures arising by chance is about 1 in 4, but for wheat the corresponding probability is less than 1 in 1,000.

TABLE 23.—*Number and proportion of farmers and other traders in Federal Trade Commission study and present study*

Class	Federal Trade Commission study		Present study	
	Number	*Percent*	*Number*	*Percent*
Farmers and retired farmers	807	16.6	1,246	15.7
Other traders	4,064	83.4	6,705	84.3
Total	4,871	100.0	7,951	100.0

Table 23 shows that farmers constituted 16.6 percent of the Federal Trade Commission sample and 15.7 percent of the present sample. This difference is not significant.[8]

It is difficult to interpret this result in conjunction with the results from the comparison with Bagnell's study. The three studies differ in so many features that little would be gained from conjecture as to the reasons for the higher proportion of farmers trading in wheat futures in this study than in Bagnell's study, while the proportion of farmers in the total sample is not significantly different from that shown by the Federal Trade Commission. It is perhaps safe to conclude that in general farmers are included in this sample in roughly the same proportions as in the other studies, except that there is an unduly large proportion of farmers who traded in wheat futures.

A summary of the numbers of traders in the major occupational groups for all four grains and for the total sample is given in table 24. The percentages found in the different occupational groups are also shown. If the proportion in the different occupations in the entire sample is taken as the standard, significant differences in the occupational distributions for the different grain futures are found. While these differences are statistically significant,[9] they do not appear to be of great importance. They consist primarily of fewer traders than would be expected in the "Unknown" group for wheat and rye futures, and more than would be expected of businessmen engaged in the grain trade who traded in corn, oat, and rye futures. There are also more retired persons trading in corn futures than would be expected, and more oats hedgers.

The conclusion from the analysis of the occupational distribution of traders covered by this study may be summarized as follows: Housewives and other women are not represented at all; hedgers are underrepresented, but there is no evidence that the proportion of the different types of hedgers is distorted; farmers seem to be overrepresented among traders in wheat futures, but the analysis does not show this to be the case for farmers in the total sample. These conclusions emphasize the necessity of distinguishing between hedgers and speculators

[8] Application of the Chi-square test of independence to the data in table 23 indicates that the probability of obtaining by chance differences as great as those shown is about 1 in 5½.

[9] Results for the entire table differing as much as those shown from the expected results would appear by chance under the hypothesis used less than once in a thousand times.

TABLE 24.—*Number and percent of traders in each grain and in all grains,*[1] *by major occupational groups*

Occupational group	Wheat		Corn		Oats		Rye		All grains	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Business managers:										
Grain business	272	3. 5	172	4. 3	77	4. 7	59	4. 4	316	3. 5
Other	2, 696	35. 2	1, 384	34. 7	598	36. 9	504	37. 6	3, 087	34. 6
Professional	677	8. 8	354	8. 9	119	7. 3	114	8. 5	768	8. 6
Semiprofessional	89	1. 2	34	. 9	14	. 9	14	1. 1	102	1. 2
Clerical	478	6. 3	234	5. 9	86	5. 3	82	6. 1	554	6. 2
Farmers	897	11. 7	412	10. 3	169	10. 4	137	10. 2	1, 028	11. 5
Manual workers	835	10. 9	452	11. 3	161	9. 9	140	10. 5	948	10. 6
Retired	815	10. 6	468	11. 7	180	11. 1	141	10. 5	954	10. 7
Unknown	782	10. 2	418	10. 5	182	11. 2	122	9. 1	1, 025	11. 5
Hedgers	122	1. 6	61	1. 5	37	2. 3	27	2. 0	140	1. 6
Total	7, 663	100. 0	3, 989	100. 0	1, 623	100. 0	1, 340	100. 0	8, 922	100. 0

[1] The figures on number of traders in the "All grains" column are not the sums of the figures for the different grains because many traders traded in more than 1 grain.

in the following analysis, and the desirability of examining the differences between farmers and other speculative traders to see whether overrepresentation of farmers in wheat futures trading might seriously affect the conclusions that would otherwise be drawn.

Characteristics of the Period Studied

A final problem to be considered with respect to the possibility of generalizing from the present study is the period of time to which the study refers. It extended from January 1, 1924, to December 31, 1932. The most striking feature of this period for a study appearing at the present time is that it was terminated more than 15 years ago. This delay was occasioned by a number of factors and was largely unavoidable.[10] Undoubtedly a study of this type would be of greater value if it applied to a more recent period. Changes must be continually taking place in the number and nature of the traders in the markets, and in their reactions to prices and other market situations. On the other hand it is highly probable that there are characteristics of the speculative trading situation which, while not invariant, are sufficiently stable to provide the basis for generalizations which are not entirely inapplicable to the current scene.

Another important question with respect to the time period to which this study applies is its representativeness with respect to price and market conditions. In terms of general economic conditions the period does not seem to be a bad choice. It included the relatively prosperous years of the late 1920's and the decline to the depths of the depression of the early 1930's. But agriculture did not share fully in the prosperity of the 1920's and 1924 was much the best year in the period covered in terms of prices received for the principal grain crops.

The price situation for the period covered may be seen from figure 3 which presents the average monthly closing prices of the dominant grain futures on the Chicago Board of Trade for the four grains studied. In each case there was a bull market in the last half of 1924 which culminated early in 1925 and carried prices to the highest levels recorded during the 9-year period. After the price decline that followed, the four futures markets exhibited some diversity, but in every case prices some time in 1930 reached levels as low as those at the beginning of the period and then continued to decline to new lows. In terms of price level the period may be looked upon as fairly representative up to the end of 1929, but the inclusion of the last 3 years clearly overweights the period in the direction of low prices.

In total price movement during the period covered, declining prices outweighed rising prices. A rough indication of the direction of price changes, as distinct from the amount of such changes, is found in the number of increases or decreases in the monthly average closing prices of the dominant futures. Table 25 shows the number of such changes

[10] At the time the basic data were obtained over 7 years had elapsed since the last date to which they referred. The process of tabulating and analyzing the data was extremely time-consuming. The Second World War caused a complete cessation of work on the project for several years. Extra time and effort were required to pick up work which had been abandoned for such a long period.

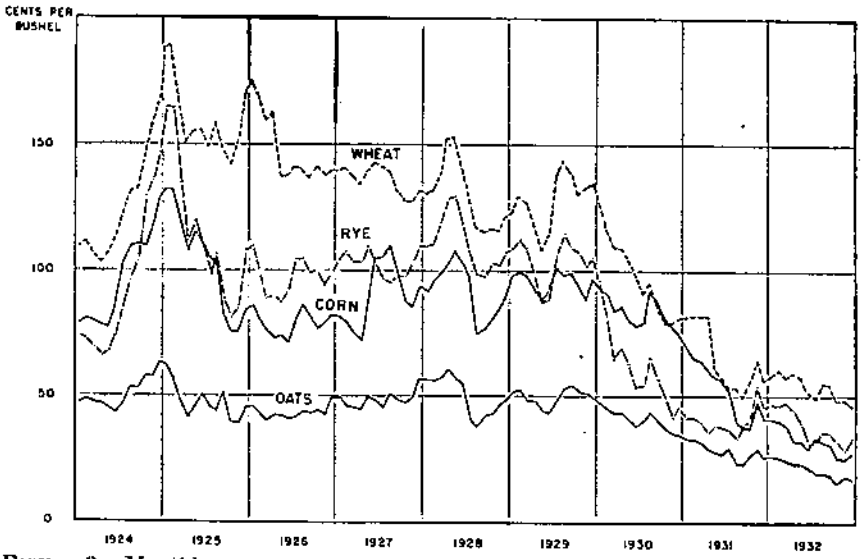

FIGURE 3.—Monthly average closing prices of the dominant futures in wheat, corn, oats, and rye, Chicago Board of Trade, 1924–32.

in each third of the period studied. It may be seen that, with the exception of oat futures, price increases were more frequent than price decreases in the first 3 years. The middle 3 years has a surprisingly even balance of increases and decreases. The last 3 years show a predominance of decreases.

The representativeness of the sample period in terms of price levels and movements is obviously of great importance when attention is turned to the outcome of trading activities. In the discussion that follows a description of trading results will first be given in general terms. Later an attempt will be made to relate these results to price movements.

TABLE 25.—*Number of increases and decreases in the monthly average closing price of the dominant grain futures, January 1924 to December 1932, by 3-year periods*

Period	Wheat		Corn		Oats			Rye		
	Number with—		Number with—		Number with—			Number with—		
	Increases	Decreases	Increases	Decreases	Increases	Decreases	No change	Increases	Decreases	No change
1924–26	22	14	19	17	12	23	1	21	15	----
1927–29	18	18	19	17	17	19	----	19	16	1
1930–32	13	23	8	28	6	29	1	12	23	1
Total	53	55	46	62	35	71	2	52	54	2

PROFITS AND LOSSES BY CLASSES OF TRADERS

The over-all results of the futures operations of traders in the sample are shown in table 26. The most striking feature of the table is the great preponderance of speculative traders whose operations resulted in losses, and the great excess in amount of losses over profits. In wheat, loss traders were 2.7 times as numerous as profit traders, and their losses were 6.2 times the profits realized by the more fortunate speculators. Losses exceeded profits for all four grains, but the contrast was most striking for wheat. The ratios were as follows:

	Traders in—				
	Wheat	*Corn*	*Oats*	*Rye*	*All grains*[1]
Ratio of numbers of loss traders to profit traders	2.7	1.6	1.7	1.6	3.0
Ratio of net losses incurred to profits realized	6.2	1.9	6.2	2.8	5.8

[1] See note to table 26.

The contrast between profits and losses was so clear-cut and consistent that it must be concluded that the classes of speculative traders represented in the sample were on balance unsuccessful in their trading activities. For all grains there were three times as many loss traders as profit traders, and the net losses—not counting commissions—were almost six times the net profits. The average loss per trader, amounting to $1,812, was almost twice the average profit—$945 per trader. In later sections the distribution of these profits and losses will be considered, and an attempt will be made to discover their relation to trading patterns and the time the futures trading was done.

TABLE 26.—*General results of futures trading*

Type of trader and commodity	Profit traders			Loss traders		
	Number	Total net profits	Average profit per trader	Number	Total net losses	Average loss per trader
Speculators:		*Dollars*	*Dollars*		*Dollars*	*Dollars*
Wheat	2,045	1,508,407	738	5,496	9,411,620	1,712
Corn	1,525	1,183,993	776	2,403	2,222,602	925
Oats	589	124,038	211	997	772,132	774
Rye	497	293,042	590	816	825,838	1,012
All grains[1]	2,184	2,064,800	945	6,598	11,958,200	1,812
Hedgers:						
Wheat	49	773,057	15,777	73	1,253,209	17,167
Corn	34	235,239	6,919	27	59,789	2,214
Oats	14	79,817	5,701	23	45,799	1,991
Rye	14	118,838	8,488	13	250,520	19,963
All grains[1]	59	970,100	16,442	81	1,380,000	17,037

[1] The "All grains" figures are not equal to the totals of the figures for the individual grains because some traders made profits in one or more grains but lost on their futures transactions in one or more of the other grains.

Profits and Losses of Hedgers

An examination of the data for traders in the sample classified as hedgers leads to different conclusions for the various grains. In wheat futures, for example, 73 hedgers sustained losses, while only 49 had profits. This preponderance of hedgers with losses is statistically significant. For the other grains, however, there is no significance in the differences between the number of profit traders and the number of loss traders.[11]

If a grain merchant or processor follows the practice of hedging all his cash grain operations, his purchases and sales of futures should bear no direct relation to expected changes in futures prices.[12] An adequate sample of such traders, therefore, would presumably contain approximately equal numbers of profit and loss traders. In the present instance only the hedgers in wheat futures fail to meet this test. Two possible explanations of the discrepancy for wheat futures may be considered: (1) Upswings and downswings in prices were not well enough balanced during the period covered to give a representative sample of price situations, and (2) the futures operations of traders classified as hedgers were not all hedging transactions, but included some speculative operations.

It is true that upswings and downswings in wheat futures prices were not equally represented in the period covered. Prices at the end of the period were considerably lower than at the beginning, and the proportion of the sample period during which prices were declining was greater than that in which prices were rising. In declining markets, if hedging operations are chiefly long purchases, the losses of hedgers might be expected to exceed profits. In the sample here considered, however, hedgers were predominantly grain merchants, for whom the normal hedge is the short sale. The importance of grain merchants as contrasted with processors is shown in table 27. In wheat futures the sample contained 78 grain merchants as compared with 44 processors. Furthermore, the volume of trading done by grain merchants was more than twice the volume of wheat futures trading by processors. The predominance of loss traders, therefore, cannot be explained in terms of price movements inimical to profits on the futures operations of the majority of the hedgers.

The second possibility is that traders classified as hedgers actually engaged in a considerable amount of speculation. Some grain merchants may carry on normal hedging operations in certain situations, but in other situations they may speculate by carrying inventories unhedged. Thus, they would hedge only when they expect adverse price movements, or when they are uncertain as to the direction of prices for cash grain. When they are confident that prices are going up they would not make hedging sales in futures. As a consequence,

[11] These conclusions are based on the hypothesis that the probability of success in trading for hedgers is 0.5. The probabilities of a proportion of loss traders in excess of profit traders as much or more than that shown for wheat and oats under this hypothesis are 0.015 and 0.084, respectively. The probabilities for the number of profit traders in excess of loss traders in the proportions shown for corn and rye are 0.184 and 0.425, respectively. The hypothesis is seriously challenged only in the case of wheat futures.

[12] They may, however, be related to expectations of changes in discounts and premiums between cash grain and futures.

TABLE 27.—*Number and summary of operations of different types of hedgers in wheat futures*

Item	Grain merchants			Processors
	Terminal	Sub-terminal	Country	
Number:				
Profit traders	25	3	3	18
Loss traders	20	7	20	26
Total	45	10	23	44
Volume:	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
Profit traders	21, 434	590	69	10, 246
Loss traders	54, 620	6, 670	2, 326	23, 161
Total	76, 054	7, 260	2, 395	33, 407
Outcome:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Profits	582, 196	6, 525	4, 082	180, 254
Losses	756, 233	209, 673	51, 694	235, 609

their futures operations are not independent of the expectations as to price movements. If the grain dealer is successful in his predictions, his over-all futures operations should show a preponderance of profits. Loss balances on intermittent hedging operations would indicate a tendency to misjudge future price movements. Furthermore, it is possible that some grain merchants, although systematically hedging their cash operations, may also have some futures transactions which are wholly speculative in character. If such trades are classified as hedges—as would be the case for such activities in this study—speculative trading by grain merchants would be partially responsible for the outcome of trading which is reported as hedging. Here again the predominance of losses does not speak well for the forecasting ability of the grain dealer in the futures market.

Of the two possibilities here considered, preponderantly adverse price movements and speculation by persons classified as hedgers, the latter seems to accord more closely with the facts. Apparently, the operations of those assumed to be hedgers in wheat futures included some speculative transactions. Since a similar problem does not arise with repect to hedgers in the other grains, it seems desirable to retain the division of traders in the two major classes, i. e., hedgers and speculators. It should be borne in mind, however, that this distinction is of doubtful validity with respect to wheat futures operations.

SIZE DISTRIBUTION OF PROFITS AND LOSSES

The distribution of individual traders according to the size of their profits or losses is shown in tables 28 and 29, the former for speculative traders, the latter for hedgers. The smallest size group is for traders

having profits or losses of less than $100, and the largest is for those having profits or losses of $300,000 or more. The only trader whose activities resulted in profits in excess of $300,000 was Trader 7732. His operations have already been discussed. Trader 7830 was one of the two traders in the sample who had losses in excess of $300,000.

TABLE 28.—*Frequency distribution of speculative traders, by amount of profit or loss, and by grain*

Amount (1,000 dollars)	Number of traders									
	Wheat		Corn		Oats		Rye		All grains [1]	
	Profits	Losses	Profits	Losses	Profits	Losses	Profits	Losses	Profits	Losses
0–0.09	805	976	679	640	347	277	238	195	856	1,080
0.10–0.19	325	728	239	396	102	154	67	130	331	849
0.20–0.29	186	490	133	257	27	108	57	91	194	568
0.30–0.39	127	379	88	199	35	71	27	59	126	481
0.40–0.49	75	351	66	131	18	69	19	52	87	403
0.50–0.59	78	241	46	97	12	49	10	31	84	296
0.60–0.69	72	217	25	81	13	33	10	29	60	267
0.70–0.79	33	165	20	63	8	27	11	31	28	224
0.80–0.89	33	159	22	55	2	23	4	19	42	182
0.90–0.99	28	122	24	59	6	15	4	22	27	158
1–1.9	134	726	97	224	14	91	23	72	168	912
2–2.9	55	331	30	57	2	28	11	37	61	385
3–3.9	32	157	18	42	----	21	5	21	33	200
4–4.9	17	102	10	26	1	9	1	5	24	136
5–5.9	7	67	6	14	1	8	2	5	11	93
6–6.9	9	49	3	17	1	1	1	3	6	63
7–7.9	8	42	3	8	----	----	1	5	13	47
8–8.9	1	20	3	11	----	2	----	2	3	40
9–9.9	----	28	1	3	----	3	2	1	4	32
10–19	11	94	9	12	----	5	2	1	14	109
20–29	3	32	1	3	----	2	1	2	8	39
30–39	4	6	1	3	----	----	1	2	1	11
40–49	----	3	----	2	----	1	----	----	----	8
50–59	1	3	----	2	----	----	----	----	1	5
60–69	1	----	----	1	----	----	----	----	1	2
70–79	----	1	----	----	----	----	----	----	----	----
80–89	----	----	----	----	----	----	----	----	----	----
90–99	----	1	----	----	----	----	----	----	----	1
100–199	----	4	----	----	----	----	----	1	----	2
200–299	----	1	----	----	----	----	----	----	----	3
300 and over	----	1	1	----	----	----	----	----	1	2
Total	2,045	5,496	1,525	2,403	589	997	497	816	2,184	6,598

[1] The figures in the "All grains" column were derived from the combined outcome of trading in all grains. Since many traders had transactions in more than one grain, the "All grains" figures are not the sums or figures for the individual grains. For example, a trader with profits of $60 in wheat and $60 in corn would appear in the smallest size class under each grain, but for all grains his combined profits of $120 would place him in the second size class. A trader with a profit of $150 in wheat and a loss of $500 in corn would appear in one size class in wheat, another in corn, and in still a third size class in "All grains."

TABLE 29.—*Frequency distribution of hedgers, by amount of profit or loss, and by grain*

Amount (1,000 dollars)	Number of hedgers									
	Wheat		Corn		Oats		Rye		All grains [1]	
	Profits	Losses	Profits	Losses	Profits	Losses	Profits	Losses	Profits	Losses
0–0.09	8	4	4	5	3	3	----	1	8	7
0.10–0.19	3	4	4	4	----	2	----	1	2	3
0.20–0.29	3	2	----	----	----	2	2	----	3	3
0.30–0.39	1	2	2	2	----	1	----	1	1	1
0.40–0.49	----	----	3	1	2	----	1	----	1	1
0.50–0.59	----	1	1	1	2	1	----	----	----	2
0.60–0.69	1	2	----	1	----	----	----	----	3	1
0.70–0.79	2	2	2	1	----	----	----	----	4	1
0.80–0.89	----	1	----	1	----	1	2	1	----	3
0.90–0.99	----	1	1	1	----	----	----	----	1	1
1–1.9	8	11	5	3	1	7	2	2	7	12
2–2.9	2	9	1	1	----	1	3	2	4	9
3–3.9	4	3	----	1	----	2	1	1	4	2
4–4.9	3	4	2	1	1	----	----	----	4	4
5–5.9	1	5	2	1	----	1	1	1	3	7
6–6.9	1	2	1	1	----	----	----	----	1	3
7–7.9	----	2	1	----	----	----	----	----	1	1
8–8.9	----	----	----	1	----	2	----	----	----	----
9–9.9	1	----	----	----	----	----	----	----	----	----
10–19	2	6	2	1	4	----	----	1	2	7
20–29	----	2	----	----	1	----	----	----	----	3
30–39	2	1	----	----	----	----	----	----	2	1
40–49	4	----	1	----	----	----	1	----	3	----
50–59	----	1	1	----	----	----	1	----	1	2
60–69	----	1	1	----	----	----	----	1	----	1
70–79	1	----	----	----	----	----	----	----	----	----
80–89	1	2	----	----	----	----	----	----	1	1
90–99	----	----	----	----	----	----	----	----	----	1
100–199	----	5	----	----	----	----	----	1	2	3
200–299	1	----	----	----	----	----	----	----	1	1
Total	49	73	34	27	14	23	14	13	59	81

[1] See footnote, table 28.

The most striking feature of table 28, which presents the data for speculators, is that the great majority of traders had relatively small profits or losses. The column "All grains" shows a total of 2,184 profit traders. Of this number, 856, or 39 percent, had profits of less than $100 each, and 1,835, or 84 percent, had profits of less than $1,000 each. Although the average loss was considerably larger than the average profit, there were 1,080 loss traders, or 16 percent of the total loss traders, whose losses were less than $100 each, and 4,508, or 68 percent, with losses of less than $1,000 each. It is apparent that a very large percentage of traders in the sample operated on a small scale, and also that many of them discontinued trading before either large profits or losses had been accumulated.

Trading Results and Occupation

It is of interest to discover whether there is any relation between traders' occupations and results of trading. Are traders in some occupations notably successful, and those in other occupations unsuccessful? Evidence on this point for the various grains is found in table 30, which shows by major occupational groups the number of speculative traders making profits and the number suffering losses. In figures 4, 5, 6, 7, and 8, the number of profit traders is plotted against the number of loss traders in each occupational group, the data being presented for each grain and for all grains combined. On these charts the broken lines represent equal numbers of profit and loss traders. The lower sloping lines represent the relation between the number of profit and of loss traders in the particular grain for the speculative group as a whole.

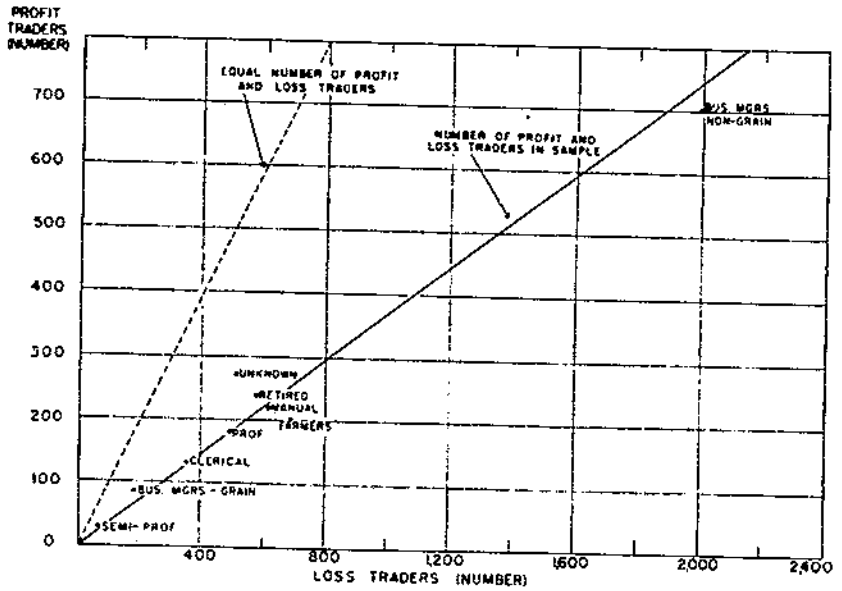

FIGURE 4.—Wheat futures: Distribution of traders with profits and with losses, by major occupational groups.

The first point that stands out from the data presented in table 30 and the charts is that in no major occupational group were there as many profit traders as loss traders. In terms of the number of traders making profits or losses there was no occupation that was able to break even. Even more striking is the surprising uniformity in the proportion of profits and losses among the various occupational groups in each grain, and in all grains combined. There is one interesting difference between wheat and the other grains. Twenty-seven out of every 100 traders in wheat futures made profits. In corn futures, however, the profit traders were 38.8 percent of the total, in oats, 37.1 percent, and in rye, 37.9 percent. Wheat seems definitely less profitable than the other three grains, but among the latter there seems to be little difference in the prospects of successful trading results. For all grains

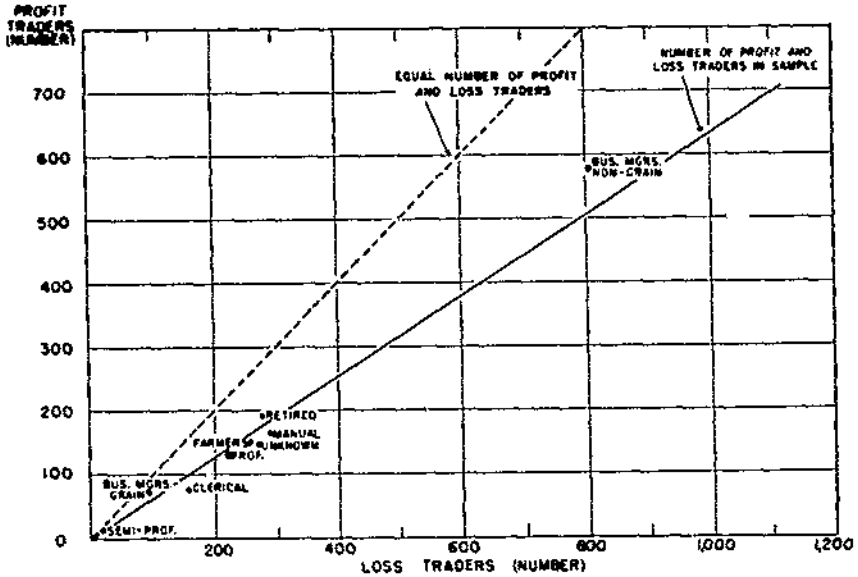

FIGURE 5.—Corn futures: Distribution of traders with profits and with losses, by major occupational groups.

combined, 24.9 percent of the traders, or only one in four, made a profit. It appears that when trading in all grains is taken into consideration, the combination of profits in one grain with losses in another resulted in net losses more frequently than in net profits.

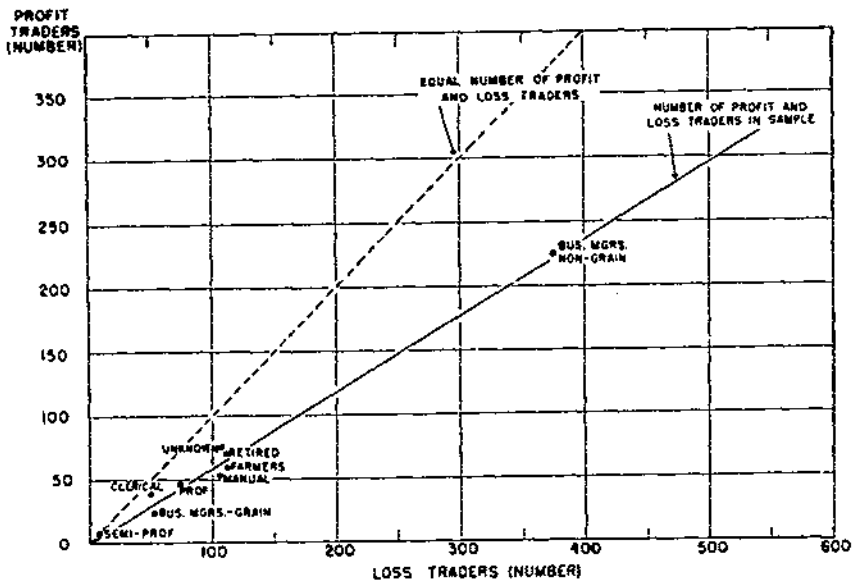

FIGURE 6.—Oat futures: Distribution of traders with profits and with losses, by major occupational groups.

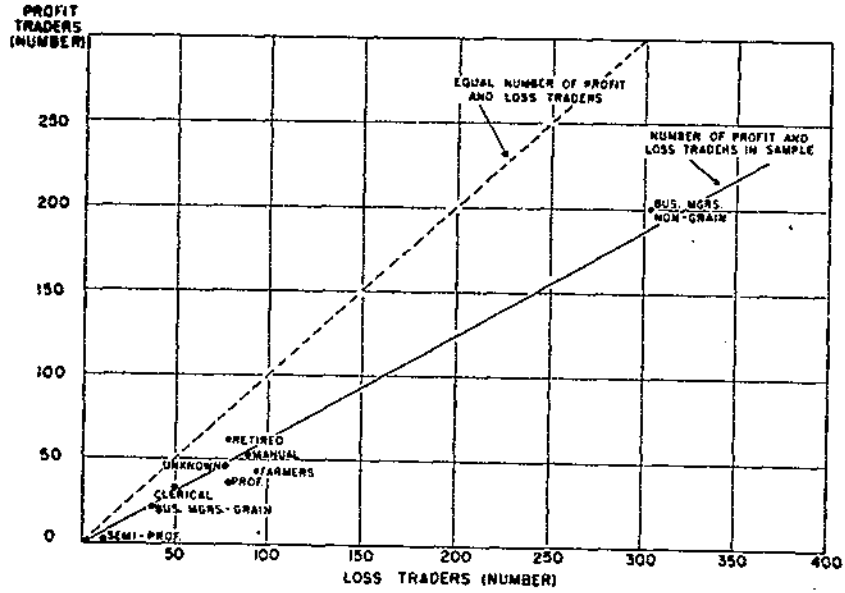

FIGURE 7.—Rye futures: Distribution of traders with profits and with losses, by major occupational groups.

For all grains combined only those persons whose occupations were "unknown" showed a significantly higher than average proportion of traders with profits. This group was not unusually successful, however, in corn and rye futures. Farmers seemed to be somewhat less

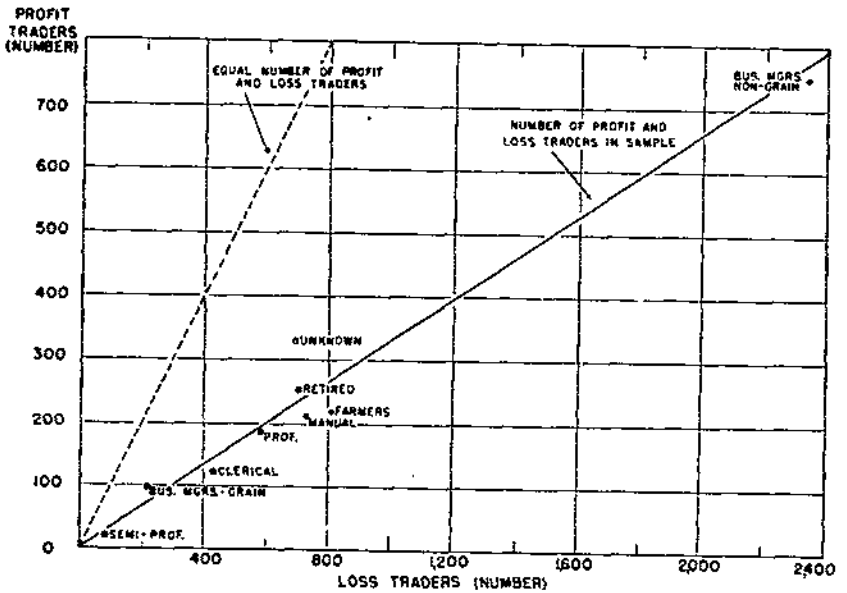

FIGURE 8.—All grain futures: Distribution of traders with profits and with losses, by major occupational groups.

TABLE 30.—*Number of speculative traders with profits and with losses, and percent with profits, by grain and major occupational group*

Commodity and occupational group	Traders with—		Total	Percentage with profits
	Profits	Losses		
WHEAT				
	Number	*Number*	*Number*	*Percent*
Business managers:				
Grain business	83	189	272	30.5
Other	702	1,993	2,695	26.0
Professional	179	498	677	26.4
Semiprofessional	27	64	91	29.7
Clerical	130	340	470	27.1
Farmers	200	697	897	22.3
Manual workers	214	621	835	25.6
Retired	240	576	816	29.4
Unknown	270	509	779	34.7
Total	2,045	5,496	7,541	27.1
CORN				
Business managers:				
Grain business	76	96	172	44.2
Other	577	806	1,383	41.7
Professional	133	221	354	37.6
Semiprofessional	16	20	36	44.4
Clerical	76	159	235	32.3
Farmers	151	261	412	36.7
Manual workers	163	289	452	36.1
Retired	189	280	469	40.3
Unknown	144	271	415	34.7
Total	1,525	2,403	3,928	38.8
OATS				
Business managers:				
Grain business	23	54	77	29.9
Other	223	374	597	37.4
Professional	45	74	119	37.8
Semiprofessional	7	7	14	50.0
Clerical	37	50	87	42.5
Farmers	57	112	169	33.7
Manual workers	53	108	161	32.9
Retired	69	111	180	38.3
Unknown	75	107	182	41.2
Total	589	997	1,586	37.1
RYE				
Business managers:				
Grain business	22	37	59	37.3
Other	201	303	504	39.9
Professional	36	78	114	31.6
Semiprofessional	2	12	14	14.3
Clerical	33	49	82	40.2
Farmers	43	94	137	31.4
Manual workers	52	88	140	37.1

TABLE 30.—*Number of speculative traders with profits and with losses, and percent with profits, by grain and major occupational group*—Continued

Commodity and occupational group	Traders with—		Total	Percentage with profits
	Profits	Losses		
RYE—continued				
	Number	*Number*	*Number*	*Percent*
Retired	62	79	141	44.0
Unknown	46	76	122	37.7
Total	497	816	1,313	37.9
ALL GRAINS				
Business managers:				
Grain business	92	224	316	29.1
Other	748	2,339	3,087	24.2
Professional	185	583	768	24.1
Semiprofessional	23	79	102	22.5
Clerical	121	433	554	21.8
Farmers	218	810	1,028	21.2
Manual workers	212	736	948	22.4
Retired	254	700	954	26.6
Unknown	331	694	1,025	32.3
Total	2,184	6,598	8,782	24.9

successful than other persons in their futures market operations. This was especially true in wheat and rye futures. The only group containing a consistently higher than average proportion of profit traders in every grain was that consisting of retired persons. It may be concluded that the chances for success in the futures market were not very much greater for members of one occupation than for members of another, but the chances in all occupations were significantly lower in wheat futures than in any other grain.

The investigation to this point has been in terms of the number of traders making profits or losses. It may be, however, that there were certain occupational groups which did not differ significantly from others in terms of the proportion of successful traders, but in which the scale of trading by those who did make profits differed so greatly from the scale of operations of loss traders that the total trading of the occupational group was exceptionally profitable or unprofitable. Evidence on this point is presented in table 31, which gives the total profits and total losses of traders in each of the major occupational groups, for each grain and for all grains combined. The data in table 31 are also presented in graphic form in figures 9, 10, 11, 12, and 13.

The most important point demonstrated by table 31 and the accompanying charts is that losses exceeded profits in every occupational group. No consistent pattern among the various occupational groups

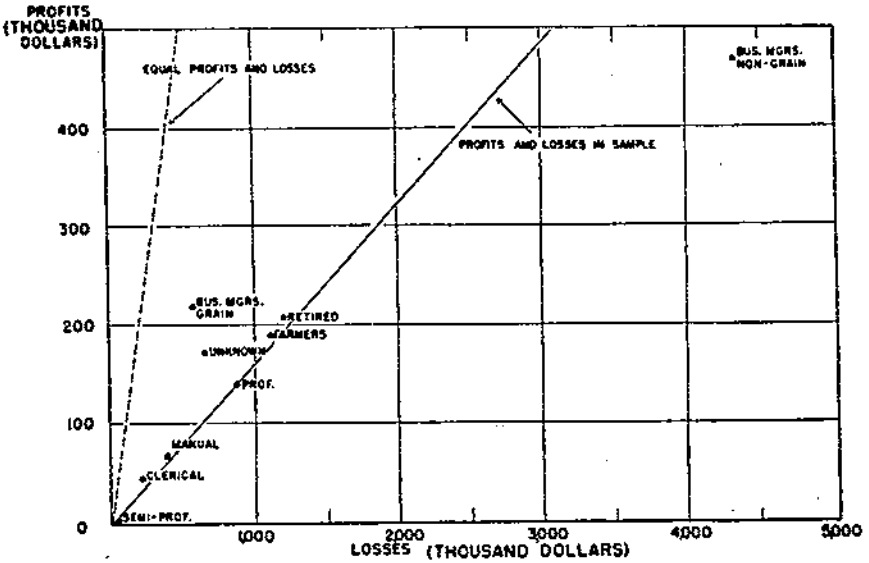

FIGURE 9.—Wheat futures: Profits and losses, by major occupational groups.

is apparent for the individual grains. For all grains the ratios of profits to losses ranged from a low of 0.11 for semiprofessional persons to a high of 0.28 for proprietors and managers in the grain business. Over-all, persons in the grain trade were more successful in speculative trading than speculators in other occupations, but even for them losses were almost four times profits. The other group which

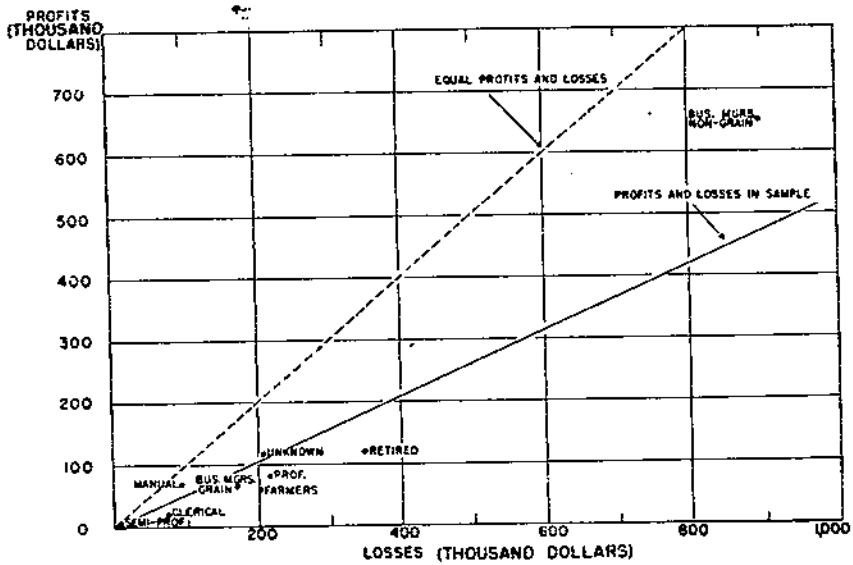

FIGURE 10.—Corn futures: Profits and losses, by major occupational groups.

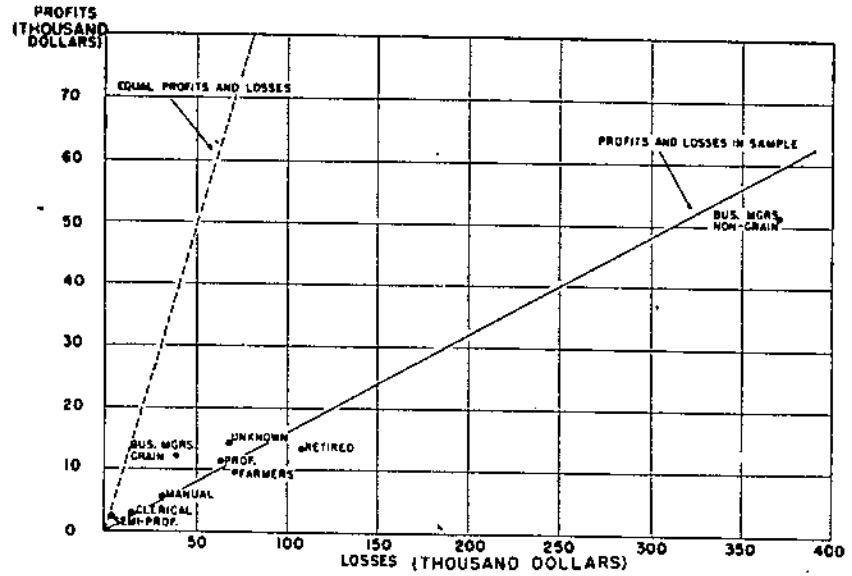

FIGURE 11.—Oat futures: Profits and losses, by major occupational groups.

might be expected to have direct and intimate knowledge of grain is that composed of farmers, but as a group they were among the less successful traders. Neither special knowledge of the commodity traded, nor lack of such knowledge, seemed to have much effect on the outcome of futures trading during the period studied.

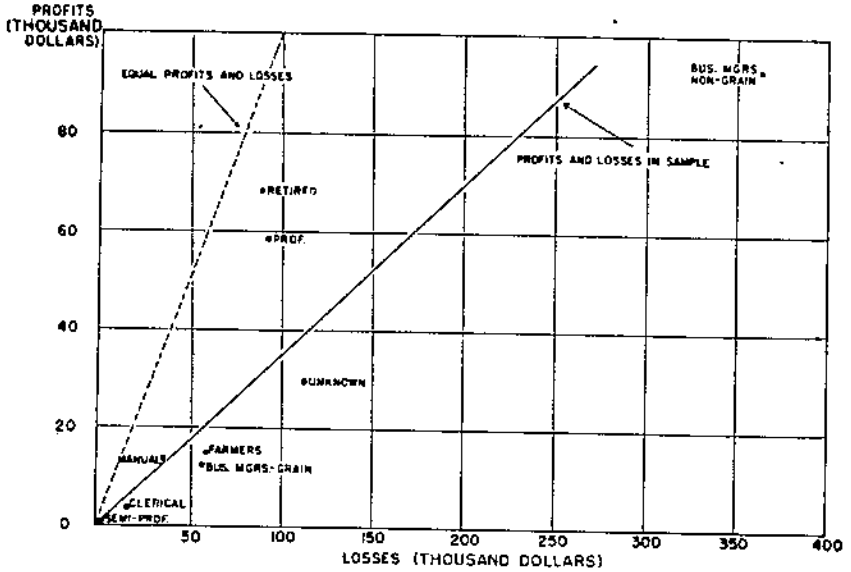

FIGURE 12.—Rye futures: Profits and losses, by major occupational groups.

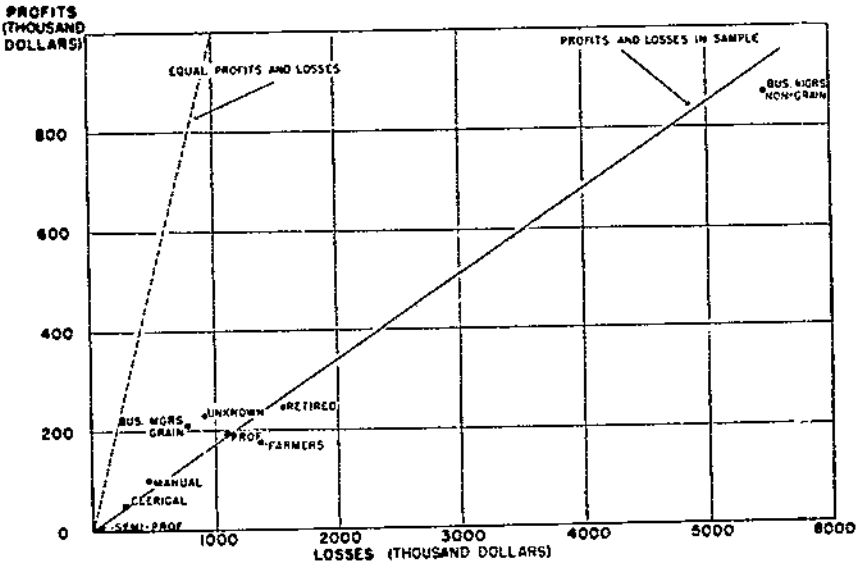

FIGURE 13.—All grain futures: Profits and losses, by major occupational groups.

It has been pointed out, in comparing the number of profit traders with the total number of traders, that the proportion for wheat was much lower than for the other grains. This difference is not so clear when the total amount of profits is contrasted with the total amount of losses. The ratio of total speculative profits to losses was 0.16 for wheat and the same ratio also held for oats. The corresponding ratios were 0.35 for rye and 0.53 for corn. It is possible that these variations are largely due to differences in the price movements of the respective grains, but it has not been feasible to explore this possibility.

TRADING RESULTS AND SCALE OF TRADING

In discussions of the outcome of futures trading, reference is frequently made to the relative success of large and small traders. It is widely believed that speculative markets are dominated by large-scale traders, and that the small traders' prospects of success are relatively slight. An attempt has been made in this study to check the validity of these general impressions by examining the relation between profits and losses and the scale of trading, as measured by the average position in grain futures.

The average position for each trader is a weighted average of his positions in each cycle, long or short. Consequently it is an average of the positions held in individual futures, and does not add together positions held simultaneously in different futures. It will be recalled that large traders like 7830 and 7732 generally have positions in two or more futures at the same time. In such cases the total "line" is the sum of the positions on the same side of the market. The average position figure used in this study is not the average of such lines, but is the average position held in the individual futures

TABLE 31.—*Aggregate profits and losses of speculators and ratio of profits to losses, by grain and occupational group*

Occupational group	All grains			Wheat			Corn		
	Profits	Losses	Ratio	Profits	Losses	Ratio	Profits	Losses	Ratio
	Dollars	*Dollars*		*Dollars*	*Dollars*		*Dollars*	*Dollars*	
Business managers:									
Grain business	210, 200	743, 600	0. 28	219, 665	587, 135	0. 37	67, 959	169, 668	0. 40
Other	866, 100	5, 466, 600	. 16	469, 786	4, 323, 944	. 11	651, 926	894, 542	. 73
Professional	190, 200	1, 094, 700	. 17	140, 425	836, 440	. 17	78, 694	219, 192	. 36
Semiprofessional	6, 500	61, 300	. 11	4, 711	53, 972	. 09	2, 964	9, 505	. 31
Clerical	44, 100	277, 800	. 16	45, 421	214, 101	. 21	17, 810	74, 849	. 24
Farmers	180, 500	1, 372, 100	. 13	187, 886	1, 162, 210	. 16	63, 232	204, 164	. 31
Manual workers	97, 400	460, 900	. 21	64, 714	382, 299	. 17	66, 188	92, 455	. 72
Retired	241, 300	1, 566, 800	. 15	205, 151	1, 203, 813	. 17	120, 059	351, 317	. 34
Unknown	228, 500	914, 400	. 25	170, 648	647, 706	. 26	115, 161	206, 910	. 56
All speculators	2, 064, 800	11, 958, 200	. 17	1, 508, 407	9, 411, 620	. 16	1, 183, 993	2, 222, 602	. 53

Occupational group	Oats			Rye		
	Profits	Losses	Ratio	Profits	Losses	Ratio
	Dollars	*Dollars*		*Dollars*	*Dollars*	
Business managers:						
Grain business	12, 273	39, 885	0. 31	12, 918	56, 756	0. 23
Other	51, 512	365, 990	. 14	93, 095	362, 868	. 26
Professional	11, 520	65, 115	. 18	58, 534	92, 306	. 63
Semiprofessional	2, 843	4, 068	. 70	383	4, 366	. 09
Clerical	2, 933	15, 075	. 19	3, 669	15, 556	. 24
Farmers	9, 824	72, 611	. 14	14, 370	58, 234	. 25
Manual workers	5, 528	31, 969	. 17	13, 476	34, 470	. 39
Retired	13, 187	108, 195	. 12	67, 131	88, 341	. 76
Unknown	14, 418	69, 224	. 21	29, 466	112, 941	. 26
All speculators	124, 038	772, 132	. 16	293, 042	825, 838	. 35

comprising the line. Whether the position was long or short was ignored in these calculations. Consequently the average position of a trader who had bought 10,000 bushels in one future and sold 10,000 bushels in another, would be 10,000 bushels, although he might describe his position in the market as "even."

Because of the units in which futures trading is carried on there is a tendency for average-position figures to cluster around certain values. The position assigned an in-and-out cycle was zero. Consequently traders who operated exclusively in in-and-out cycles had average positions of zero. There were enough of these to justify a separate category. Job-lot traders who bought and sold only 1,000 bushels in any cycle would have average positions of 1,000 bushels. They also constitute a special group. A number of traders had average positions of exactly 5,000 bushels—representing a cycle in which one round lot was bought and sold, and there was also a considerable group with average positions of exactly 10,000 bushels. The classification adopted for average positions established separate classes for each of the above groups. Additional classes consisted of traders whose average positions fell within certain ranges. The distribution of traders in these size classes for each grain, and the total profits and losses of traders in each class, are shown in table 32.

TABLE 32.—*Number of speculative traders and aggregate profits and losses, by grain and size of average position*

Commodity and average position (1,000 bu.)	Profits		Losses	
	Traders	Total amount	Traders	Total amount
WHEAT	*Number*	*Dollars*	*Number*	*Dollars*
0.0	123	8, 782	56	3, 860
1.0	287	17, 184	724	97, 743
1.1–4.9	685	266, 215	2, 261	1, 572, 103
5.0	340	81, 047	737	404, 421
5.1–9.9	326	327, 166	897	1, 766, 462
10.0	73	36, 503	163	188, 295
10.1–24.9	161	429, 205	492	2, 423, 358
25.0–49.9	38	223, 950	120	1, 258, 164
50.0–99.8	7	67, 272	36	644, 926
99.9 and over	5	51, 083	10	1, 052, 288
Total	2, 045	1, 508, 407	5, 496	9, 411, 620
CORN				
0.0	111	12, 701	37	1, 999
1.0	187	7, 646	314	25, 141
1.1–4.9	492	117, 062	879	320, 366
5.0	292	58, 617	446	165, 483
5.1–9.9	211	205, 541	389	530, 306
10.0	82	33, 262	85	58, 188
10.1–24.9	115	281, 106	187	479, 303
25.0–49.9	24	76, 777	39	239, 422
50.0–99.8	6	12, 686	21	143, 737
99.9 and over	5	378, 595	6	258, 657
Total	1, 525	1, 183, 993	2, 403	2, 222, 602

TABLE 32.—*Number of speculative traders and aggregate profits and losses, by grain and size of average position*—Continued

Commodity and average position (1,000 bu.)	Profits		Losses	
	Traders	Total amount	Traders	Total amount
OATS	*Number*	*Dollars*	*Number*	*Dollars*
0.0	22	1, 177	16	1, 147
1.0	54	1, 016	60	2, 934
1.1–4.9	136	11, 137	229	47, 038
5.0	183	21, 480	251	67, 972
5.1–9.9	80	27, 683	184	131, 188
10.0	42	8, 040	81	54, 598
10.1–24.9	57	34, 089	124	203, 229
25.0–49.9	11	11, 587	34	95, 093
50.0–99.8	4	7, 829	12	73, 297
99.9 and over			6	95, 636
Total	589	124, 038	997	772, 132
RYE				
0.0	19	987	17	1, 553
1.0	71	2, 790	140	15, 114
1.1–4.9	124	29, 824	225	96, 233
5.0	133	25, 827	190	91, 726
5.1–9.9	70	36, 411	117	143, 891
10.0	30	10, 284	40	29, 553
10.1–24.9	41	103, 587	68	186, 667
25.0–49.9	5	41, 949	11	39, 052
50.0–99.8	4	41, 383	7	112, 077
99.9 and over			1	109, 972
Total	497	293, 042	816	825, 838

Examination of this table will reveal only one class of positions in which the number of profit traders consistently exceeds the number of traders with losses, and in which profits are generally greater than losses. This is the size class with an average position of 0.0. This group consists exclusively of traders who never carried a position overnight. The trading of the members of this group was made up entirely of in-and-out cycles. For the four grains the results for in-and-out speculators were as follows:

	In-and-out traders			
	Profit traders Number	*Loss traders Number*	*Profits Dollars*	*Losses Dollars*
Wheat	123	56	8, 782	3, 860
Corn	111	37	12, 701	1, 999
Oats	22	16	1, 177	1, 147
Rye	19	17	987	1, 553

These results are in decided contrast to the outcome for other average-position groups. In all the other categories loss traders consistently exceed profit traders in numbers, and the amount of losses greatly exceeds profits. It should be noted, however, that the average profit per trader of the zero position traders is not large. It amounted to $70 in wheat and $114 in corn. Some special circumstance must have been present to explain the generally favorable outcome of in-and-out trading in contrast to the predominance of losses by traders in other groups. The most likely hypothesis is that the in-and-out traders were mostly purchasers of privileges who had them made good at a profit. Privilege trading was described in the discussion of the activities of Trader 7830. Direct evidence on privilege trading by customers in the sample is not available, but the fact that privilege trading was not permitted in the sample period prior to January 13, 1926, suggests that an analysis of the trading activities of zero-position traders before and after that date may indicate whether privilege trading contributed to the exceptional results which such traders achieved. This analysis will be limited to traders in wheat futures.

The great majority of zero-position traders in wheat futures traded in one cycle only. There were 138 of these traders in wheat futures, 94 of whom made profits while 44 sustained losses. Before privilege trading was permitted profit and loss traders were approximately the same in number. After privilege trading was resumed the number of these traders making profits was three times the number of loss traders. A direct comparison of the results of such traders' activities before and after January 13, 1926, is shown below:

Zero-position wheat traders with one cycle only

Period:	*Profit traders*	*Loss traders*	*Total*
Before Jan. 13, 1926	16	18	34
After Jan. 13, 1926	78	26	104
Total	94	44	138

Another comparison relates the results of trading by zero-position traders in wheat futures to the date January 13, 1926. In the comparison below a distinction is drawn between traders whose first trades were made before privilege trading was resumed, and those whose first trades were made thereafter:

All zero-position wheat traders

	Profit traders	*Loss traders*	*Total*
First trade before Jan. 13, 1926, and—			
Last trade before Jan 13, 1926	18	24	42
Last trade after Jan. 13, 1926	1	3	4
First trade after Jan. 13, 1926	104	29	133
Total	123	56	179

It may be seen from the above data that 18 out of the 42 traders, or 43 percent, who confined their activities to the period prior to January 13, 1926, made profits, whereas 104 out of 133, or 78 percent, of those trading only after that date were successful. These results support the hypothesis that privilege trading contributed to the unusual proportion of profits for the in-and-out traders.

It should be remembered in this connection that the hypothesis with respect to privilege trading involved the assumption that these traders had purchased privileges which they required the seller to make good. If the assumption is correct the figures given for profits are an overstatement. Not only are commissions and the cost of the privileges not considered, but many of these traders undoubtedly bought privileges which were not made good. The cost of these privileges should also be subtracted from their profits to determine the net outcome of their trading.

The numbers of persons with profits and with losses in wheat futures are shown in figure 14. In addition to the zero-position traders already discussed, the groups with average positions of exactly 5,000 bushels, 1,000 bushels, and 10,000 bushels had a higher-than-average proportion of profitable traders. All the other size classes had relatively fewer than the average proportion of successful traders. The most populous group consisted of persons with average positions of from 1,000 to 5,000 bushels. This group contained distinctly less than the average proportion of traders with profits.

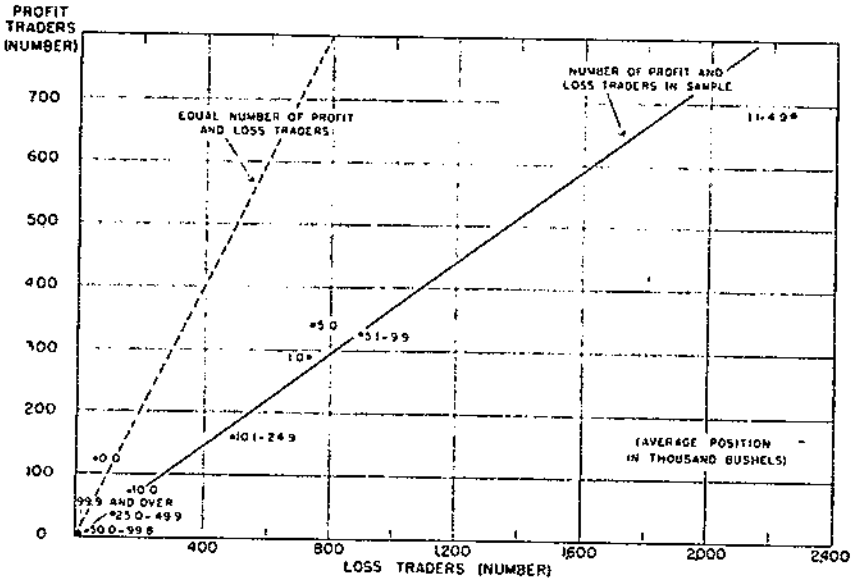

FIGURE 14.—Wheat futures: Distribution of traders with profits and with losses, by size of average position.

Figures 15, 16, and 17 present comparisons in number of profit and loss traders in corn, oats, and rye, respectively. Although the 1,000-to-5,000 size class generally has an undue proportion of loss traders, other small trader groups, such as those whose average positions averaged exactly 1,000 and 5,000 bushels, do not fare badly. There is no evidence that the largest size classes include a higher proportion of successful traders than the groups with smaller average positions.

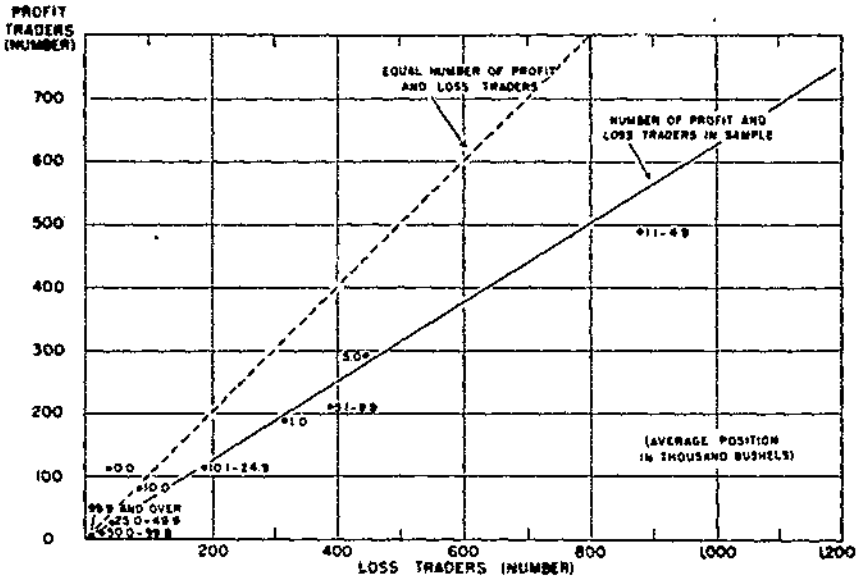

FIGURE 15.—Corn futures: Distribution of traders with profits and with losses, by size of average position.

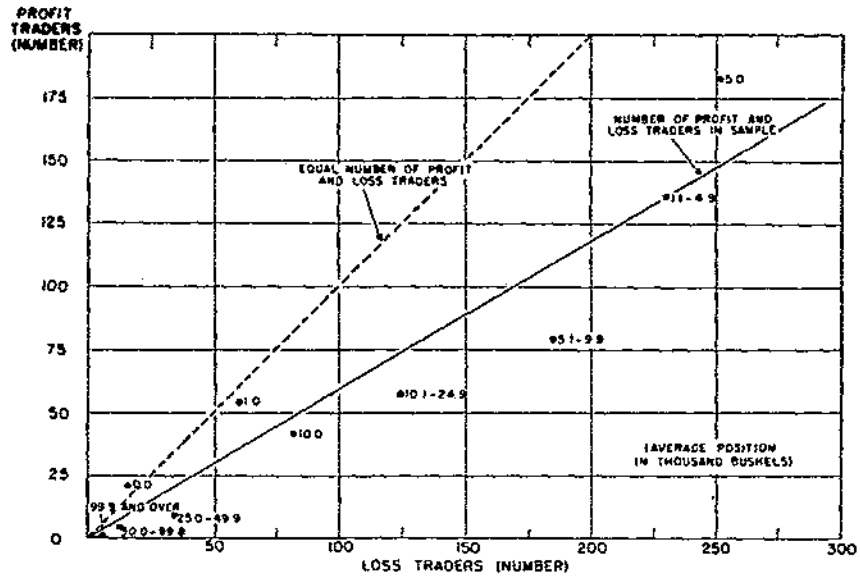

FIGURE 16.—Oat futures: Distribution of traders with profits and with losses, by size of average position.

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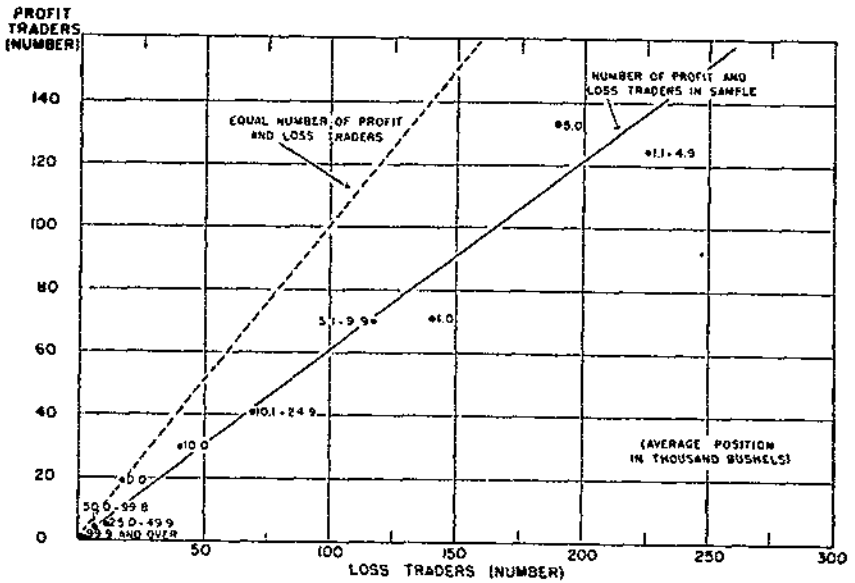

FIGURE 17.—Rye futures: Distribution of traders with profits and with losses, by size of average position.

When the relation between total profits and total losses is used as the basis for comparison, the picture is somewhat changed. Figures 18, 19, 20, and 21 show the total profits and total losses of traders in the different size classes for the four grains. Comparing the various size groups (other than the zero-position class) on all four figures, it will be found that the group with average positions between 10,000 and 25,000 bushels had a higher-than-average proportion of profits to losses for each grain. No other size group has a similarly consistent record. The variations in total profits and losses of the "Over 100,000 bushels" average position class are not significant, since this size class contained so few traders. Trader 7732, for example, is largely responsible for the high ratio of profits to losses of this size class for corn futures. His large profits also pull the line of average relationship up above the relation which is characteristic of most of the size classes. In a similar fashion the losses of Trader 7830 are largely responsible for the low ratio of profits to losses of the largest size class in wheat futures.

The evidence available here with respect to the relation between scale of trading and trading results is that small and large traders alike were generally unsuccessful in their trading. The sample contains too few traders in the largest size class, however, to warrant any generalization with respect to their relative success. There is some indication that more than the average proportion of traders with average positions of exactly 1,000, 5,000, and 10,000 bushels managed to obtain profits, and that the group with average positions of from 10,000 to 25,000 bushels must have contained some unusually successful traders, since the ratio of profits to losses for this group is distinctly favorable, although the relation between number of profit-and-loss traders is not.

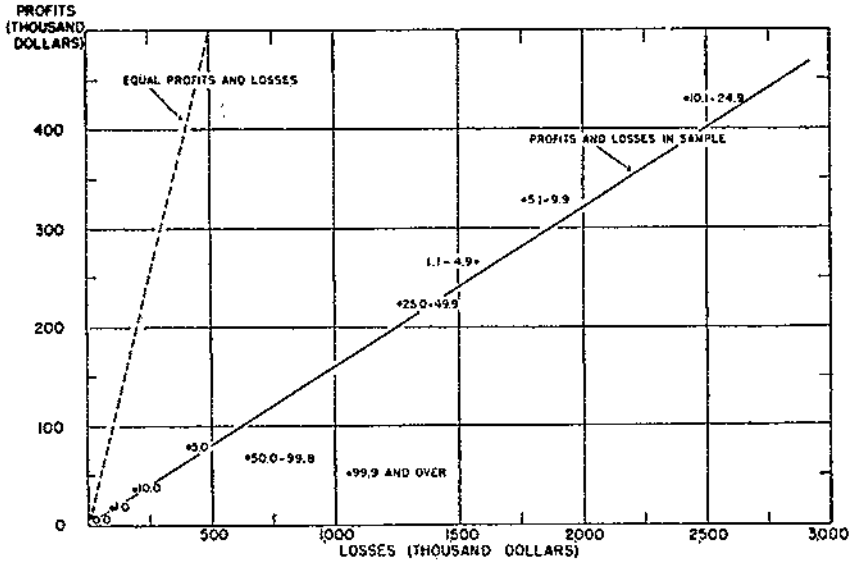

FIGURE 18.—Wheat futures: Profits and losses, by size of average position.

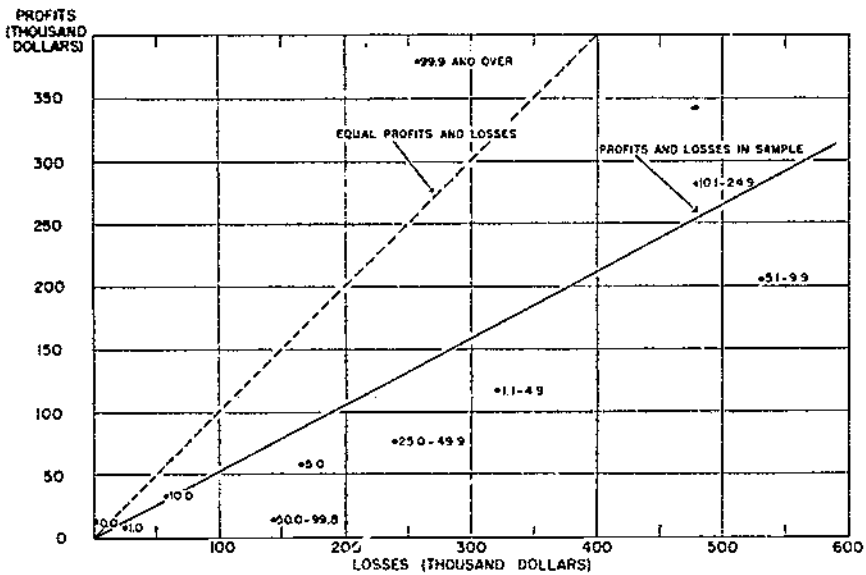

FIGURE 19.—Corn futures: Profits and losses, by size of average position.

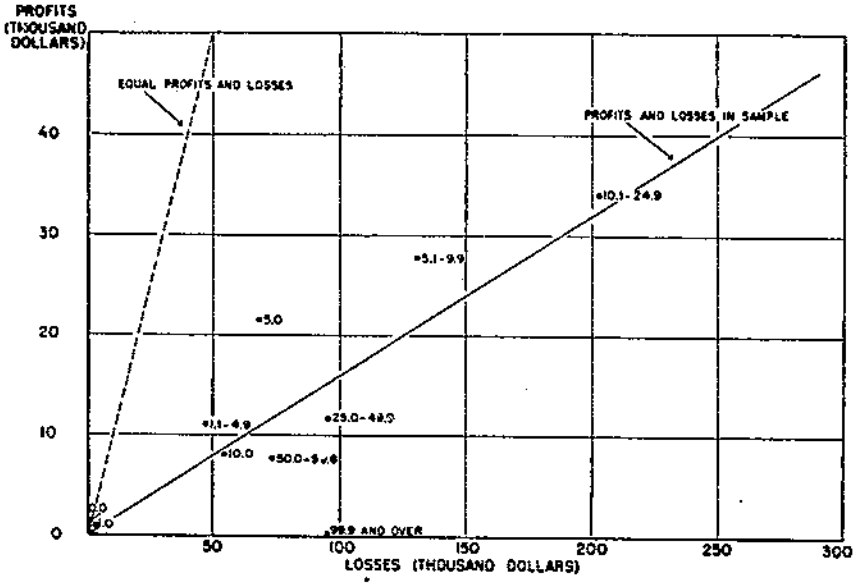

FIGURE 20.—Oat futures: Profits and losses, by size of average position.

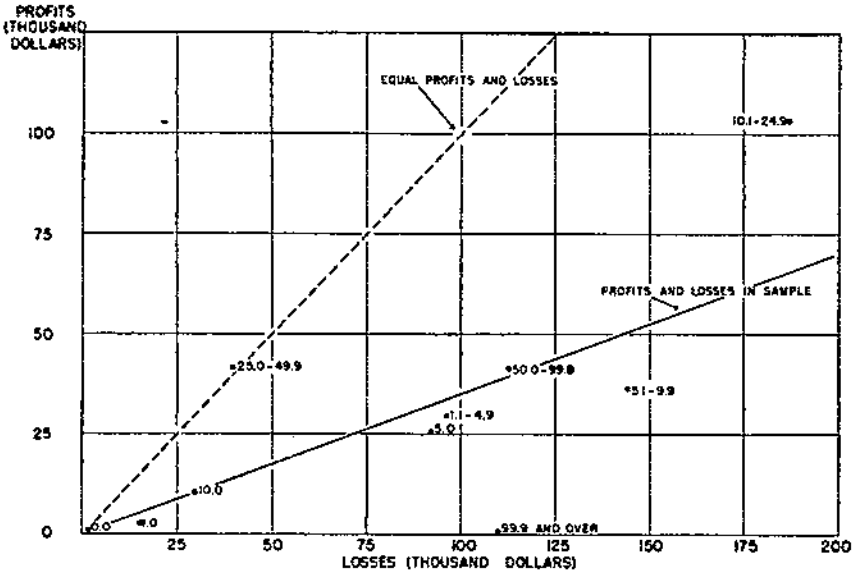

FIGURE 21.—Rye futures: Profits and losses, by size of average position.

TRADING CHARACTERISTICS, BY SIZE AND TYPE OF POSITION

The statistical analysis of trading and its outcome has thus far been concerned primarily with the relation between trading and the various types of traders in the sample and the scale of their operations. There follows a more detailed analysis of trading cycles of speculators, including duration and type of cycle, long or short.

The chief characteristics of trading in wheat futures by traders in the different size groups are shown in table 33. In this table the size groups are the same as those in the table of profits and losses immediately preceding. Duration, it will be recalled, is the length of time between the first and last day of a trading cycle. The total duration for a trader is the sum of the durations of all the cycles in the grain in which he traded. The figures shown in table 33 under "Duration per trader" give the average duration of traders in the indicated size group. The duration of in-and-out cycles is zero, and consequently the duration per trader of those engaged exclusively in in-and-out trading is zero.

Tendency for Longer Duration of Loss Cycles

For all but one of the size groups the duration per trader of the loss traders is greater than the duration per trader of the profit traders. It will also be noted that those groups in which traders held average positions of exactly 1,000, 5,000, and 10,000 bushels, generally had shorter durations per trader than the other size classes (with the exception, of course, of the zero-position traders). These were the size groups which contained relatively high proportions of profit to loss traders. If attention is turned to the columns in table 33 showing duration per cycle, it will be seen that the lower duration per trader for the groups with exactly 1,000, 5,000, and 10,000 bushels was not because they had shorter cycles than other traders. The explanation is to be found rather in the smaller number of cycles traded by persons in these size classes. It is interesting to note that the average number of cycles are the same for the profit traders and the loss traders in the 1,000 and 5,000 bushel groups. Profit traders with average positions of 10,000 bushels engaged in more cycles than loss traders in the same category. The higher proportion of profit traders in these groups, therefore, cannot be attributed to the smaller number of cycles per trader, although this is the trading characteristic in which these groups are most sharply differentiated from the others. Although further investigation of this point has not been made, it may be surmised that privilege trading contributed to the special trading characterisites of these groups.

One of the most significant trading features revealed by table 33 is the consistently longer durations of the trading cycles of loss traders. These traders appear to have been inclined to "let their losses run." Perhaps it would be more accurate to say that they "let their cycles run" since the figures shown are the averages of all the cycles, both *profitable* and *unprofitable*, of the traders who ended with net losses

TABLE 33.—*Wheat futures: Trading characteristics for profit traders and loss traders, by size of average position*

Average position (1,000 bu.)	Duration per trader		Active days per trader		Cycles per trader		Duration per cycle		Active days per cycle	
	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss
	Days	*Days*	*Days*	*Days*	*Number*	*Number*	*Days*	*Days*	*Days*	*Days*
0.0	0.0	0.0	1.5	1.5	1.5	1.5	0.0	0.0	1.0	1.0
1.0	115.9	85.2	7.2	8.1	4.1	4.1	12.1	20.6	1.8	1.9
1.1–4.9	154.6	222.7	21.7	22.5	14.6	13.7	10.6	16.2	1.5	1.6
5.0	39.3	61.9	6.4	6.3	3.6	3.6	10.8	17.1	1.8	1.7
5.1–9.9	175.0	228.0	27.9	25.6	18.5	15.3	9.5	14.9	1.5	1.7
10.0	42.2	69.7	5.6	4.2	3.7	2.1	11.5	32.9	1.5	2.0
10.1–24.9	199.6	275.6	27.1	28.1	16.8	16.1	11.9	17.1	1.6	1.7
25.0–49.9	190.6	218.1	28.1	24.3	15.3	14.7	12.5	14.8	1.8	1.7
50.0–99.8	167.4	268.7	31.7	30.8	15.9	20.4	10.6	13.1	2.0	1.5
99.9 and over	95.0	486.1	26.0	31.9	4.0	21.2	23.8	22.9	6.5	1.5
Total	114.8	182.5	16.9	18.8	10.9	11.2	10.5	16.3	1.6	1.6

in the one case, or with net profits in the other. The tendency toward shorter cycles on the part of the traders with net profits is clear. There is no evidence at this point, however, to indicate which way the causal connection runs, i. e., whether traders made profits because they cut their cycles short, or whether their cycles were short because they were profitable.

The number of active days per trader is the average number of days on which traders in a given size classification made trades. The special situation of the zero-position traders is evident in these figures. For in-and-out traders the number of active days is necessarily equal to the number of cycles. In simple cycles (other than in-and-out cycles) there are always at least two active days per cycle. It is surprising to find, therefore, that there is no size group for which the number of active days per cycle of loss traders is more than two, and only one group in which profit traders exceed this ratio. This means that in every size group there must have been traders who included a number of in-and-out cycles in their trading. It happens also that in the case of wheat futures the number of active days per cycle for the entire group was the same for profit traders as for loss traders.

Table 34 presents the trading characteristics of traders in corn futures. Many of the generalizations made with respect to wheat futures apply here also. One exception is that the number of active days per cycle averages distinctly higher for profit traders than for loss traders. There are also two groups, the 25,000-to-50,000-bushel group, and the group with 100,000 bushels and over, in which the duration per cycle of traders with profits is distinctly longer than for the traders with losses. The long duration for the largest group is largely due to Trader 7732, but no explanation is available for the longer duration of cycles of profit traders in the 25,000-to-50,000-bushel size group.

The trading characteristics for oat and rye futures are shown in tables 35 and 36. The chief differences shown for these grains are the longer cycles and more active days per cycle. Presumably both of these differences arise from the less active nature of the oat and rye futures markets, and the less frequent occurrence of the in-and-out cycle. The larger the relative number of in-and-out cycles the lower the average duration per cycle, and the lower also is the number of active days per cycle.

Analysis of Trading by Type of Position

Speculators are frequently referred to as longs and shorts (or as "bulls" and "bears"), not only with reference to their short-term trading activities, but with the implication that certain speculators characteristically assume long positions, while others habitually take the short side of the market.

It is possible to classify the speculators in the sample according to the type of trading in which they engaged, as follows: (1) In-and-out trading only, (2) always long, (3) always short, and (4) sometimes long and sometimes short. The results of this classification for the four grains are shown in table 37.

TABLE 34.—*Corn futures: Trading characteristics for profit traders and loss traders, by size of average position*

Average position (1,000 bu.)	Duration per trader		Active days per trader		Cycles per trader		Duration per cycle		Active days per cycle	
	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss
	Days	*Days*	*Days*	*Days*	*Number*	*Number*	*Days*	*Days*	*Days*	*Days*
0.0	0.0	0.0	1.8	1.1	1.8	1.1	0.0	0.0	1.0	1.0
1.0	37.4	62.0	6.4	6.6	3.3	3.6	11.3	17.4	2.0	1.9
1.1–4.9	120.3	172.4	17.6	7.4	9.8	10.1	12.3	17.1	1.8	.7
5.0	27.7	58.5	5.5	5.9	2.9	3.0	9.3	19.0	1.8	1.9
5.1–9.9	114.7	209.9	22.8	23.2	12.1	12.9	9.5	16.3	1.9	1.8
10.0	26.2	47.0	3.9	4.2	2.0	1.9	12.8	24.1	1.9	2.2
10.1–24.9	160.5	197.5	26.3	21.4	11.1	10.9	14.5	18.1	2.4	2.0
25.0–49.9	158.3	176.8	22.8	19.3	6.5	12.5	24.2	14.1	3.5	1.5
50.0–99.8	108.7	83.7	12.8	16.5	11.7	6.0	9.3	13.9	1.1	2.7
99.9 and over	136.4	263.3	16.4	30.0	5.6	21.8	24.4	12.1	2.9	1.4
Total	81.4	137.3	13.5	10.8	7.2	8.1	11.4	17.0	1.9	1.3

TABLE 35.—*Oat futures: Trading characteristics for profit traders and loss traders, by size of average position*

Average position (1,000 bu.)	Duration per trader		Active days per trader		Cycles per trader		Duration per cycle		Active days per cycle	
	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss
	Days	*Days*	*Days*	*Days*	*Number*	*Number*	*Days*	*Days*	*Days*	*Days*
0.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	1.0
1.0	33.2	47.7	3.7	4.4	1.9	2.1	17.4	23.1	2.0	2.0
1.1–4.9	62.2	122.1	7.5	10.8	3.4	4.5	18.4	26.9	2.2	2.4
5.0	26.8	63.5	4.1	4.4	2.2	2.3	12.3	28.1	1.9	1.9
5.1–9.9	109.2	167.6	16.0	13.2	7.3	6.0	15.1	28.0	2.2	2.2
10.0	34.1	57.4	2.6	3.0	1.4	1.5	25.1	37.8	1.9	2.0
10.1–24.9	71.4	151.5	9.6	13.3	3.6	4.3	20.1	35.3	2.7	3.1
25.0–49.9	87.2	13[illegible]	11.7	14.3	3.3	3.9	26.6	33.5	3.6	3.6
50.0–99.8	65.6	15[illegible]	21.0	14.2	6.8	3.6	9.7	42.2	3.1	3.9
99.9 and over	---	51.[illegible]	---	10.0	---	3.5	---	14.6	---	2.9
Total	52.0	108.0	7.1	8.7	3.2	3.7	16.2	29.1	2.2	2.4

TABLE 36.—*Rye futures: Trading characteristics for profit traders and loss traders, by size of average position*

Average position (1,000 bu.)	Duration per trader		Active days per trader		Cycles per trader		Duration per cycle		Active days per cycle	
	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss	Profit	Loss
	Days	*Days*	*Days*	*Days*	*Number*	*Number*	*Days*	*Days*	*Days*	*Days*
0.0	0.0	0.0	1.1	1.1	1.1	1.1	0.0	0.0	1.0	1.0
1.0	17.6	58.6	2.7	4.1	1.4	2.1	12.7	28.4	1.9	2.0
1.1–4.9	59.6	108.0	10.2	10.1	4.3	4.1	14.0	26.2	2.4	2.4
5.0	22.0	40.3	3.8	3.9	1.9	1.9	11.2	21.0	1.9	2.0
5.1–9.9	57.6	112.8	11.4	15.1	4.6	6.4	12.6	17.7	2.5	2.4
10.0	10.6	28.2	2.9	3.9	1.5	1.8	6.8	15.7	1.8	2.1
10.1–24.9	79.2	147.8	17.3	18.1	5.1	5.8	15.6	25.6	3.4	3.1
25.0–49.9	139.4	95.4	24.2	13.5	8.4	4.1	16.6	23.3	2.9	3.3
50.9–99.8	134.3	248.6	12.3	33.3	3.5	9.0	38.4	27.6	3.5	3.7
99.9 and over	----	83.0	----	18.0	----	2.0	----	41.5	----	9.0
Total	41.0	82.6	7.5	8.8	3.1	3.6	13.3	23.1	2.4	2.5

Traders who confined themselves exclusively to in-and-out trading were of minor importance, amounting to only 2.4 percent of the speculators in wheat, 3.8 percent in corn, 2.4 percent in oats, and 2.8 percent in rye. In number of cycles and volume of trading, they are still less important. Since in-and-out traders were discussed separately in an earlier section in connection with the scale of trading, they are excluded from further consideration here. The remainder of this discussion is devoted only to the other classifications.

TABLE 37.—*Number and percent of speculators, by grain and type of cycle*

Type of cycle	Wheat		Corn		Oats		Rye	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
In-and-out only	179	2.4	148	3.8	38	2.4	36	2.8
Long only	3,423	45.4	1,529	38.9	1,023	64.5	901	68.6
Short only	343	4.5	413	10.5	128	8.1	91	6.9
Both long and short	3,596	47.7	1,838	46.8	397	25.0	285	21.7
Total	7,541	100.0	3,928	100.0	1,586	100.0	1,313	100.0

There clearly were traders who confined their activities to one side of the market. But there were significant differences in the proportions of such traders in the different grains. Consistent "bulls" in wheat constituted 45.4 percent of the traders in that grain. In corn only 38.9 percent were always long, while the percentages for oats and rye were 64.5 and 68.6, respectively.

The common impression that the amateur speculator is more likely to be long than short is confirmed by the contrast between these figures and the proportion who held short positions only. Only 4.5 percent of the speculators in wheat confined themselves to short sales. The largest proportion of consistent short sellers was found in corn futures, in which 10.5 percent of the traders held short positions only. About half the traders in wheat and corn futures had both long and short trades at some time during the survey period, but in oats and rye the number of speculators trading on both sides amounted to only about a quarter of the total. The situation in oats and rye coincides more closely with the general impression that small speculators are predominantly bulls than does the situation in wheat and corn in which short selling accounted for a substantial proportion of the total trading by speculators in the sample.

The comparison in terms of number of traders overemphasizes the importance in the market of speculators who were consistently on one side of the market. The more active traders, and those who assumed larger positions, made both long and short trades. This is shown in table 38, which, in addition to the number of traders, shows the number of cycles and the volume of trading of persons with different trading patterns. It may be seen at once that the relative importance of the "long only" and the "short only" trader is much less when the number of cycles and the volume of trading are considered rather than the

TABLE 38.—*Number of traders,[1] number of cycles, and quantity traded, by grain and type of position*

Type	Wheat						Corn					
	Traders		Cycles		Volume of trading		Traders		Cycles		Volume of trading	
	Number	*Percent*	*Number*	*Percent*	*1,000 bu.*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*1,000 bu.*	*Percent*
Long only	3,423	46.5	8,960	11.6	76,056	9.4	1,529	40.5	3,212	11.8	29,265	11.3
Short only	343	4.7	569	.8	4,326	.5	413	10.9	769	2.8	6,465	2.5
Long and short	3,596	48.8	67,512	87.6	730,451	90.1	1,838	48.6	23,305	85.4	222,771	86.2
Total	7,362	100.0	77,041	100.0	810,833	100.0	3,780	100.0	27,286	100.0	258,501	100.0

Type	Oats						Rye					
	Traders		Cycles		Volume of trading		Traders		Cycles		Volume of trading	
	Number	*Percent*	*Number*	*Percent*	*1,000 bu.*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*1,000 bu.*	*Percent*
Long only	1,023	66.1	2,129	40.6	25,575	47.1	901	70.6	1,902	46.7	16,915	41.3
Short only	128	8.3	179	3.4	1,386	2.5	91	7.1	118	2.9	837	2.1
Long and short	397	25.6	2,936	56.0	27,395	50.4	285	22.3	2,056	50.4	23,178	56.6
Total	1,548	100.0	5,244	100.0	54,356	100.0	1,277	100.0	4,076	100.0	40,930	100.0

[1] Does not include speculators with in-and-out trading only.

number of traders. Although the "long only" category included 46.5 percent of the total number of wheat traders and 40.5 percent of the corn traders, it included only 11.6 percent of the wheat cycles and 11.8 percent of the corn cycles, and accounted for only 9.4 percent and 11.3 percent, respectively, of the volume of trading in these grains.

The contrast between wheat and corn on the one hand, and oats and rye on the other, is even more striking for number of cycles and volume of trading than for number of traders. Although "long only" traders accounted for less than 12 percent of the total cycles in both wheat and corn, they were responsible for 40.6 percent and 46.7 percent, respectively, of the oat and rye cycles. A similar contrast is found when the comparison is made in terms of the volume of trading. Here the percentages are 9.4 and 11.3 for wheat and corn, but are 47.1 and 41.3 for oats and rye. The "long only" traders are of minor significance in the wheat and corn futures markets, but account for an important part of the trading by small speculators in oats and rye. In all markets the bear trader who was consistently short was of negligible importance, accounting for less than one percent of all wheat cycles and only 3.4 percent of all oat cycles. In volume, the "short only" traders in no case accounted for more than 2.5 percent of the total.

Although the speculators who confined themselves to long trades only were not predominant in the sample studied, long cycles were much more common than short cycles in the total trading pattern. This may readily be seen from table 39 which gives the number of long and short cycles traded in the different grains. Speculators in the sample did exhibit a preference for the long side of the market, but this preference was not so great as many observers would have expected. There were also significant differences among the four grains. The preference for long positions was least pronounced in corn futures where long cycles constituted 58.1 percent of the total. For the other grains the percentages of long cycles were 63.3 for wheat, 75.9 for oats, and 80.6 for rye. In no case was short selling as popular as long buying, although it was substantial in corn and wheat futures. The great predominance of long cycles in oat and rye futures indicates that for these grains there is validity in the general view that the small speculator is typically a bull.

TABLE 39.—*Number and percent of long and short cycles, by grain*

Grain	Long cycles		Short cycles		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Wheat	48, 780	63. 3	28, 261	36. 7	77, 041	100. 0
Corn	15, 844	58. 1	11, 442	41. 9	27, 286	100. 0
Oats	3, 980	75. 9	1, 264	24. 1	5, 244	100. 0
Rye	3, 284	80. 6	792	19. 4	4, 076	100. 0

PROFITS AND LOSSES, LONG AND SHORT CYCLES

The outcome of trading activities may be related to the trading pattern. It has already been shown that the number of traders suffering net losses was considerably greater than the number whose trading was profitable, and that total losses greatly exceeded total profits.

In table 40, further information is given which relates the number of profitable and unprofitable cycles, and the profits or losses realized on such cycles, to the type of trading. Except for rye futures, speculators who confined themselves to the long side of the market had more loss cycles than profit cycles. Consistent shorts, on the other hand, had more profitable than unprofitable cycles. These results in part reflect the characteristics of the time interval studied, in which periods of falling prices exceeded in length periods of rising prices, and price declines were greater in amount than price increases.

In spite of the predominance of profitable cycles for traders with short cycles only, their profits exceeded losses only in the case of oat futures. Shorts in all the grains had more profitable than unprofitable cycles, which indicates that they were more frequently right than wrong in their forecasts of price movements. In spite of this, their trading was for the most part unprofitable. The situation of the traders who had both long and short cycles is similar. The number of profitable cycles exceeded the unprofitable cycles by from 29 to 42 percent for the different grain futures. But in every case total profits were considerably less than losses. This suggests that trading characteristics other than the preference for the long side must have contributed to the heavy losses incurred.

Before exploring this suggestion further the operations of traders with both long and short cycles should be examined in greater detail to determine more fully the relation between type of position and the outcome of trading. Table 41 gives the number and percent of profitable and unprofitable cycles of this group, classified by type of position, long or short. For every grain a majority of the short cycles were profitable, the percentage of profitable cycles ranging from 52.9 percent for rye to 64.8 percent for oats. Profitable cycles were in every case relatively more frequent for the short cycles than for the long cycles. But even the long cycles were more frequently profitable than unprofitable. Nevertheless, the profits realized were less than the losses for every classification shown in table 41 except the short wheat cycles, in which profits exceeded losses by approximately 5 per cent, and short oat cycles, in which profits were 25 percent greater than losses.

Since profitable cycles outnumber unprofitable cycles but losses exceed profits, the average loss per cycle must be greater than the average profit per cycle. This conclusion is confirmed by the figures on average profits and losses, as shown in table 42. In this table comparisons are made of average profits and losses for different trading cycles, with a classification of traders which makes detailed comparisons possible. For example, in wheat futures there were 586 long traders who had profit cycles only. Their average profit was $226 per cycle. There were 1,618 long traders who lost money on every cycle traded, with an average loss of $631. But there were 1,219 long traders who had both profit and loss cycles, with average profits of $278 on the profitable cycles, and average losses of $664 on the unprofitable cycles. Thus, the differences between average profits and average losses appear to be due both to differences between traders who had profits only and those who had losses only, and to differences between the profit and loss cycles of traders who had both profits and losses.

TABLE 40.—*Number and ratio of profit and loss cycles and amount and ratio of profits and losses, by grain and type of position*

Type	Wheat						Corn					
	Cycles		Ratio	Amount of—		Ratio	Cycles		Ratio	Amount of—		Ratio
	Profit	Loss		Profits	Losses		Profit	Loss		Profits	Losses	
	Number	*Number*		*Dollars*	*Dollars*		*Number*	*Number*		*Dollars*	*Dollars*	
Long only	3, 645	5, 315	0. 69	971, 973	3, 452, 816	0. 28	1, 589	1, 623	0. 98	443, 167	764, 798	0. 58
Short only	316	253	1. 25	55, 430	75, 108	. 74	444	325	1. 37	95, 064	131, 276	. 72
Long and short	38, 707	28, 805	1. 34	8,008,376	13, 694, 823	. 58	13, 663	9, 642	1. 42	2, 716, 023	3, 371, 547	. 81
Total	42, 668	34, 373	1. 24	9,035,779	17, 222, 747	. 52	15, 696	11, 590	1. 35	3, 254, 254	4, 267, 621	. 76

Type	Oats						Rye					
	Cycles		Ratio	Amount of—		Ratio	Cycles		Ratio	Amount of—		Ratio
	Profit	Loss		Profits	Losses		Profit	Loss		Profits	Losses	
	Number	*Number*		*Dollars*	*Dollars*		*Number*	*Number*		*Dollars*	*Dollars*	
Long only	955	1, 174	0. 81	161, 737	670, 846	0. 24	963	939	1. 03	337, 523	557, 460	0. 61
Short only	122	57	2. 14	14, 059	10, 664	1. 32	63	55	1. 15	11, 066	16, 778	. 66
Long and short	1, 654	1, 282	1. 29	205, 381	354, 451	. 58	1, 159	897	1. 29	382, 226	686, 277	. 56
Total	2, 731	2, 513	1. 09	381, 177	1, 035, 961	. 37	2, 185	1, 891	1. 16	730, 815	1, 260, 515	. 58

TABLE 41.—*Speculators having both long and short cycles: Number and percent of profitable and unprofitable cycles, and amount and ratio of profits and losses*

Grain and type of position	Cycles						Outcome		
	Profitable		Unprofitable		Total		Profits	Losses	Ratio
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Dollars*	*Dollars*	
WHEAT									
Long	21, 241	53. 3	18, 579	46. 7	39, 820	100. 0	4, 935, 577	10, 764, 974	0. 46
Short	17, 466	63. 1	10, 226	36. 9	27, 692	100. 0	3, 072, 799	2, 929, 849	1. 05
Total	38, 707	57. 3	28, 805	42. 7	67, 512	100. 0	8, 008, 376	13, 694, 823	. 58
CORN									
Long	7, 036	55. 7	5, 596	44. 3	12, 632	100. 0	1, 764, 499	2, 073, 697	. 85
Short	6, 627	62. 1	4, 046	37. 9	10, 673	100. 0	951, 524	1, 297, 850	. 73
Total	13, 663	58. 6	9, 642	41. 4	23, 305	100. 0	2, 716, 023	3, 371, 547	. 81
OATS									
Long	951	51. 4	900	48. 6	1, 851	100. 0	130, 227	294, 251	. 44
Short	703	64. 8	382	35. 2	1, 085	100. 0	75, 154	60, 200	1. 25
Total	1, 654	56. 3	1, 282	43. 7	2, 936	100. 0	205, 381	354, 451	. 58
RYE									
Long	755	54. 6	627	45. 4	1, 382	100. 0	325, 341	570, 218	. 57
Short	404	59. 9	270	40. 1	674	100. 0	56, 885	116, 059	. 49
Total	1, 159	56. 4	897	43. 6	2, 056	100. 0	382, 226	686, 277	. 56

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TABLE 42.—*Number of speculative traders, number of cycles, and average profit or loss per cycle, by grain and type of cycle*

Type	Traders				Cycles				Profit or loss per cycle			
	Wheat	Corn	Oats	Rye	Wheat	Corn	Oats	Rye	Wheat	Corn	Oats	Rye
Long cycles only:	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Profit cycles only	586	453	276	267	770	627	350	365	226	247	97	219
Loss cycles only	1, 618	641	443	369	2, 301	805	568	441	631	416	562	442
Both profit and loss cycles:												
Profit cycles	1, 219	435	304	265	2, 875	962	605	598	278	300	211	430
Loss cycles	1, 219	435	304	265	3, 014	818	606	498	664	526	581	728
Short cycles only:												
Profit cycles only	140	178	76	40	178	233	98	51	167	148	100	136
Loss cycles only	137	141	37	41	159	163	40	43	290	295	156	275
Both profit and loss cycles:												
Profit cycles	66	94	15	10	138	211	24	12	185	287	179	345
Loss cycles	66	94	15	10	94	162	17	12	305	513	261	414
Both long and short cycles:												
Long cycles of traders:												
Profit cycles only	87	93	26	15	166	164	37	29	170	143	75	532
Loss cycles only	128	94	22	27	196	131	30	42	426	283	432	329
Short cycles of traders:												
Profit cycles only	87	93	26	15	127	150	34	20	129	100	88	114
Loss cycles only	128	94	22	27	154	119	25	35	178	167	171	165
Both profit and loss cycles:												
Long profit cycles	3, 081	1, 420	268	205	21, 075	6, 872	914	726	233	253	139	427
Long loss cycles	3, 177	1, 444	311	215	18, 383	5, 465	870	585	581	373	323	951
Short profit cycles	2, 928	1, 389	282	197	17, 339	6, 477	669	384	176	145	108	142
Short loss cycles	2, 697	1, 284	205	145	10, 072	3, 927	357	235	288	325	157	469

Only one comparison in table 42 shows average profits greater than average losses. In rye, traders with both long and short cycles who made profits on every cycle had average profits of $532 per cycle on their long cycles. The entirely different group of traders who were both long and short, but lost on every cycle traded, had average losses of $329 on their long cycles. This single exception is not sufficient to invalidate the generalization that average losses per cycle tend to exceed average profits.

Table 42 was arranged to facilitate comparisons between profit and loss situations. It is possible also to make comparisons between long and short positions. For example, the average profit per cycle of wheat speculators who had long cycles only and profit cycles only was $226, while the average for traders who had short cycles only and profit cycles only was $167. If the other comparisons of this type are made from the data in table 42 it will be found that in all but two cases the average profit or the average loss for the short situation is smaller than for the long. The two exceptions are both found in oat futures, and may be summarized as follows:

	Average profit per cycle
Profit cycles:	*Dollars*
Long only	97
Short only	100
Both long and short:	
Long	75
Short	88

The great predominance of situations in which average profits (or average losses) for long cycles exceed the corresponding figures for short cycles indicates that there is a difference in trading behavior as between short and long trades which is similar to the difference found between profitable and unprofitable cycles. In broad terms the contrasts to be explained are set forth in table 43. For every type of trading, losses per cycle exceed profits; and in every grain both the profits and the losses for the long cycles exceed the corresponding figures for the short cycles.

Duration of Long and Short Cycles

Table 43 also gives the average duration in trading days of the cycles in the different categories. With the exception of the comparison between the long and short profitable cycles in corn futures, the variations in duration per cycle are similar to those for profits or losses per cycle. Unprofitable cycles in general covered more trading days than profitable cycles, and the duration of short cycles was less, on the average, than that of long cycles. Comparisons for different trading patterns are shown in table 44. Two exceptions to the finding just stated with respect to profit and loss cycles will be observed; these are the cases of the average duration in wheat and corn futures of the short cycles of traders with profit cycles only as compared with the short cycles of traders with loss cycles only. There are also two exceptions to the finding that short cycles have shorter duration than long cycles. They are found in corn and oat futures in the comparison of the average duration of the long and short cycles of traders with profitable cycles only who had both long and short cycles.

TABLE 43.—*Speculative traders: Outcome of trading, by grain and type of position*

Grain and type of position	Profitable cycles				Unprofitable cycles			
	Cycles	Total profits	Profits per cycle	Duration per cycle	Cycles	Total losses	Losses per cycle	Duration per cycle
WHEAT	*Number*	*Dollars*	*Dollars*	*Days*	*Number*	*Dollars*	*Dollars*	*Days*
Long	24, 886	5, 907, 550	237	11. 7	23, 894	14, 217, 790	595	28. 5
Short	17, 782	3, 128, 229	176	8. 6	10, 479	3, 004, 957	287	10. 7
CORN								
Long	8, 625	2, 207, 666	256	11. 6	7, 219	2, 838, 495	393	27. 2
Short	7, 071	1, 046, 588	148	14. 1	4, 371	1, 429, 126	327	16. 4
OATS								
Long	1, 906	291, 964	153	17. 7	2, 074	965, 097	465	41. 1
Short	825	89, 213	108	13. 4	439	70, 864	161	18. 7
RYE								
Long	1, 718	662, 864	386	14. 9	1, 566	1, 127, 678	720	32. 5
Short	467	67, 951	146	11. 0	325	132, 837	409	19. 1

The first conclusion drawn from these observations is that there was a clear tendency for speculators in the sample to "take their profits and let their losses run." The result was that profitable cycles were briefer than unprofitable cycles, and that average profits were smaller than average losses. The second conclusion is that the duration of the cycles of traders on the short side of the market tended to be briefer than the duration of the cycles of traders who were long. The reasons for this are not apparent. It is conceivable that speculators generally feel less assurance about short positions than about long positions, and consequently tend to terminate them more quickly. If this is the case there is little evidence to indicate that the reaction of large-scale speculators differs significantly from that of small speculators.

TABLE 44.—*Speculative traders: Duration per cycle, by grain and type of cycle*

Type	Duration per cycle			
	Wheat	Corn	Oats	Rye
	Days	*Days*	*Days*	*Days*
Long cycles only:				
Profit cycles only	20. 2	18. 4	19. 6	15. 9
Loss cycles only	45. 2	35. 6	46. 4	34. 0
Both profit and loss cycles:				
Profit cycles	18. 6	14. 8	19. 3	13. 6
Loss cycles	42. 7	33. 5	42. 4	27. 8
Short cycles only:				
Profit cycles only	10. 6	14. 0	15. 7	8. 5
Loss cycles only	11. 9	14. 6	20. 8	18. 4
Both profit and loss cycles:				
Profit cycles	11. 7	14. 0	16. 8	8. 8
Loss cycles	13. 8	16. 8	27. 5	17. 0
Both long and short cycles:				
Long cycles of traders:				
Profit cycles only	14. 9	10. 5	11. 7	13. 2
Loss cycles only	23. 6	29. 8	23. 1	36. 1
Short cycles of traders:				
Profit cycles only	9. 1	14. 8	11. 8	13. 0
Loss cycles only	9. 0	9. 5	14. 0	20. 3
Both profit and loss cycles:				
Long profit cycles	10. 4	11. 3	16. 0	15. 5
Long loss cycles	24. 2	24. 9	37. 5	35. 1
Short profit cycles	8. 6	14. 1	12. 8	11. 3
Short loss cycles	10. 7	16. 7	18. 4	19. 2

Figures 22, 23, 24, and 25 (and table 45) show the average duration of cycles (other than in-and-out cycles) traded in by the speculators in the sample, arranged in subgroups according to the nature of positions, whether long or short, and whether profitable or unprofitable. It can be seen immediately from these charts that in each grain and for traders in every size group the average duration of long cycles was generally greater than that of short cycles. There were a few exceptions—most notably in the profitable corn cycles of traders with average positions from 1.1 to 5.0, 25.0 to 49.9, and 50.0 to 99.9 thousand

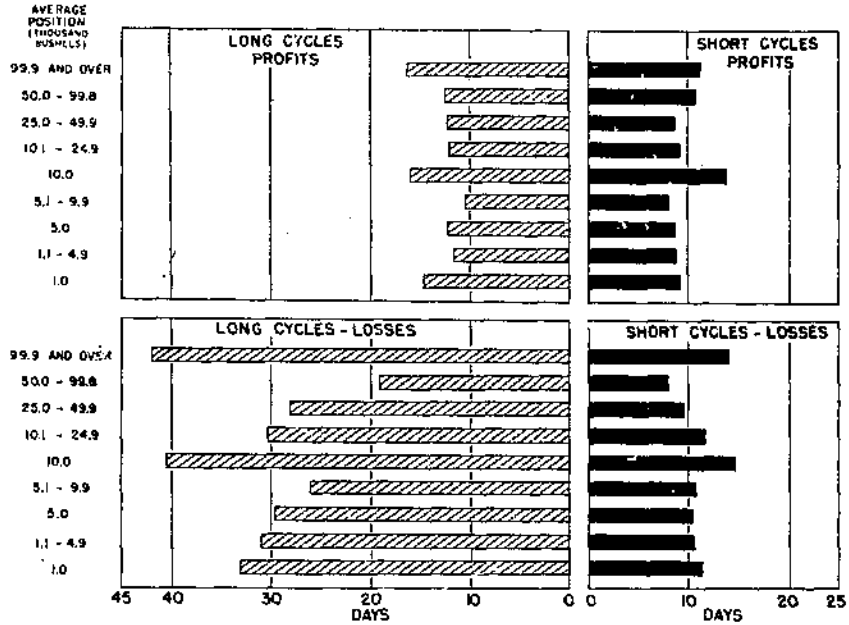

FIGURE 22.—Wheat futures: Average duration of cycles, by size of average position.

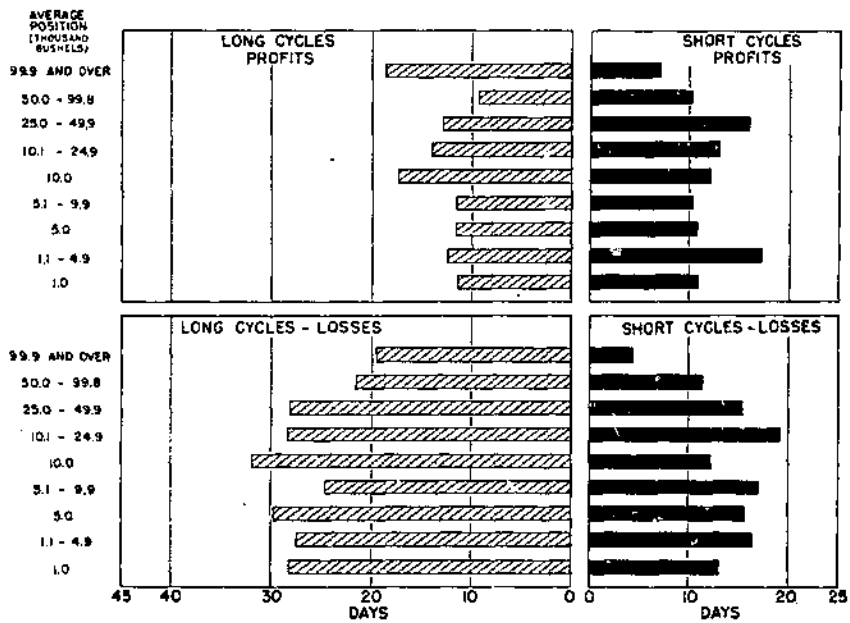

FIGURE 23.—Corn futures: Average duration of cycles, by size of average position.

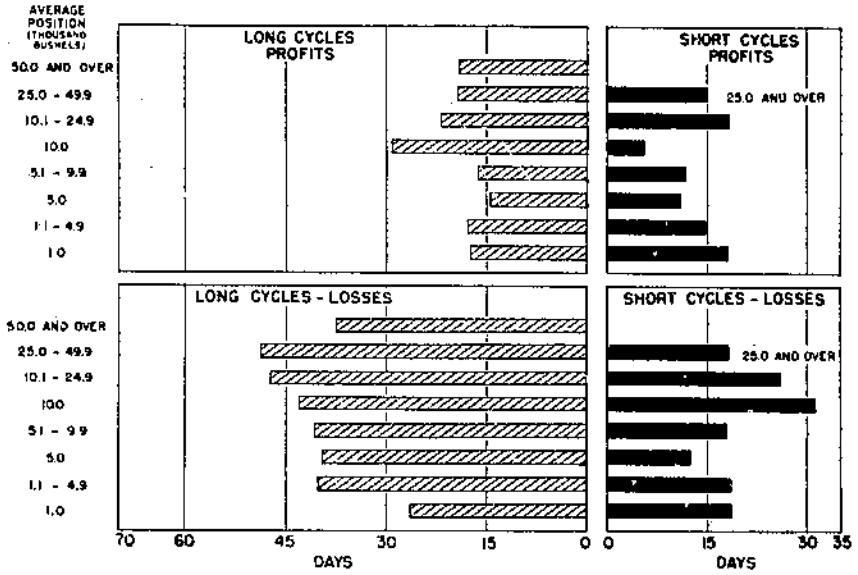

FIGURE 24.—Oat futures: Average duration of cycles, by size of average position.

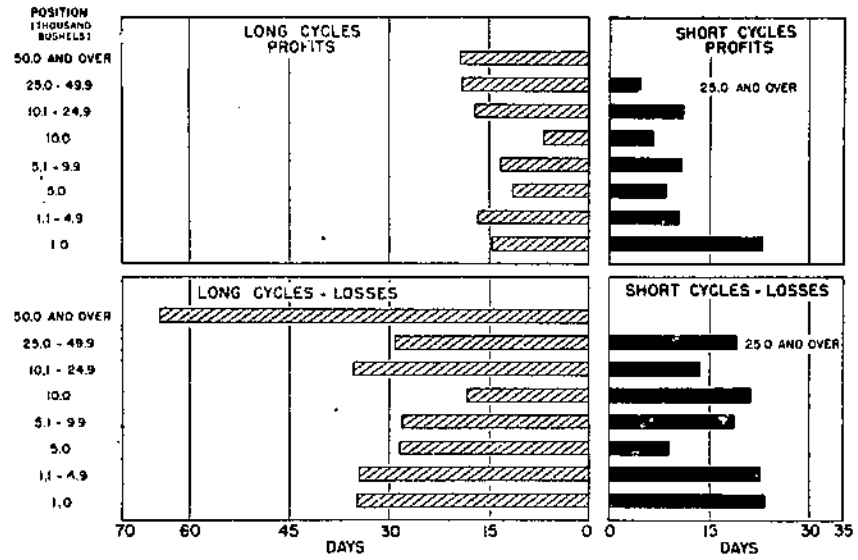

FIGURE 25.—Rye futures: Average duration of cycles, by size of average position.

bushels [13]—but the general picture was certainly one of more abrupt termination of short than of long positions. This is interesting in view of the fact that in grain futures the technical difficulties of short selling are no greater than those of long buying.[14] This is in contrast

[13] It may be recalled from table 39 that short selling was more nearly on a par with long buying in corn futures than in the futures of any of the other grains studied.

[14] With the possible exception of short positions held in the delivery month.

with the problem of short selling of securities. Nevertheless, speculators of every size class seemed more tentative about their trading when they were short than when they were long.

Equally striking in these charts is the contrast for all scales of trading between the lengths of profitable and unprofitable cycles. Both large and small traders tended to take their profits but to let their losses run.

TABLE 45.—*Average duration per cycle, by grain, size of average position, and type of cycle*

Grain and size of position (1,000 bu.)	Long cycles		Short cycles	
	Profit	Loss	Profit	Loss
WHEAT	*Days*	*Days*	*Days*	*Days*
1.0	14.7	33.2	9.1	11.3
1.1–4.9	11.6	31.0	8.7	10.5
5.0	12.3	29.7	8.6	10.3
5.1–9.9	10.5	26.1	8.0	10.8
10.0	16.0	40.6	13.8	14.8
10.1–24.9	12.1	30.5	9.1	11.6
25.0–49.9	12.4	28.1	8.6	9.5
50.0–99.8	12.5	19.3	10.6	7.9
99.9 and over	16.3	42.0	11.2	14.0
CORN				
1.0	11.4	28.3	10.7	13.0
1.1–4.9	12.4	27.6	17.2	16.4
5.0	11.5	29.8	10.6	15.6
5.1–9.9	11.5	24.7	10.2	17.0
10.0	17.4	31.9	12.1	12.3
10.1–24.9	14.0	28.4	13.0	19.2
25.0–49.9	12.9	28.2	16.0	15.3
50.0–99.8	9.4	21.7	10.1	11.3
99.9 and over	18.7	19.6	7.0	4.3
OATS				
1.0	17.2	26.5	18.0	18.4
1.1–4.9	17.6	40.2	14.7	18.6
5.0	14.4	39.7	10.8	12.4
5.1–9.9	16.6	40.7	11.5	17.9
10.0	20.1	42.9	5.3	31.3
10.1–24.9	21.7	47.3	18.1	25.9
25.0–49.9	19.2	48.8	[1] 14.8	[1] 18.0
50.0 and over	19.0	37.5	----	----
RYE				
1.0	14.7	35.0	22.9	23.4
1.1–4.9	16.7	34.9	10.0	22.7
5.0	11.5	28.5	8.2	8.9
5.1–9.9	13.3	28.1	10.3	18.5
10.0	6.7	18.4	6.3	21.1
10.1–24.9	17.2	35.5	10.8	13.3
25.0–49.9	19.1	29.2	[1] 4.4	[1] 18.9
50.0 and over	19.2	64.7	----	----

[1] 25.0 thousand bushels and over.

Profitability and Duration of Cycles, by Size Groups

The trading behavior of large and small traders may be compared in other respects. Further questions to be considered are:

What variations are there in the addiction to the long side among traders in the different size groups?

What differences are there among size classes in the proportion of profitable cycles, and in the relation between profits and losses?

The number of long and short cycles in each grain is shown by the size of the average positions of the traders in table 46. The proportions of long and short cycles for each size group are also shown. Although there were more long trades than short trades for every size group, there were marked differences among the various size groups. In wheat futures, for example, the largest proportion of long cycles (77.6 percent) was found among traders with average positions of exactly 10.0 thousand bushels. The next highest proportion (75.7 percent) was found in the largest size class—traders who had average positions of 99.9 thousand bushels and over. The smallest proportions of long cycles were found among traders with average positions of from 50.0 to 99.8 thousand bushels, 59.8 percent of whose cycles were long, and among those with average positions of from 1.1 to 4.9 thousand bushels, for whom the corresponding percentage was 61.4. Similar contrasts can be found between size classes in the other grains. There is no clear progression from large to small traders.

Nevertheless, there was evidence of a pattern. In wheat and corn futures, traders with average positions of 1.0, 5.0, and 10.0 thousand bushels had in each case a larger proportion of long cycles than traders in adjoining groups, or any of the other groups except the one of largest size. In wheat and corn futures also there seems to be a decline in the propensity for long trading as the scale of trading increases from the 10.0 thousand bushel class, up to and including the class of 50.0 to 99.8 thousand bushels. These tendencies are not so evident in oats and rye, but here there is some support at least for the conclusion that traders with average positions of 1.0, 5.0, and 10.0 thousand bushels are less inclined to make short sales than other traders whose operations are of comparable size.

The data on the number of profitable and unprofitable cycles showed that the excess of profitable cycles was quite general. In wheat and corn futures the size classes with the largest proportions of long cycles had the smallest proportions of profitable cycles. These were the groups with average positions of 1.0, 5.0, and 10.0, and over 99.9 thousand bushels. When all the grains are considered, however, there was no clear correlation between the proportions of long cycles and of unprofitable cycles.

A final comparison relating the outcome of trading to average positions is given in table 47. Here the profits and losses, and the ratios of profits to losses, on long and short cycles are shown for each size class. For all four grains the long cycles were predominantly unprofitable. This was most strikingly true of oat futures, where profits on long cycles were only 30 percent of the losses. For wheat futures the corresponding percentage was 42, and for rye futures, 59. Relatively the best record made on long cycles was by the speculators in

corn futures. For these traders profits equalled 78 percent of the losses on long cycles. In all grains, traders with average positions of 1.0, 5.0, and 10.0 thousand bushels had lower profit-loss ratios than the other most nearly comparable groups.

In two grains, wheat and oats, the profits of short sellers exceeded their losses. In wheat it was the large shorts—with average positions of 25 thousand bushels and over—who were responsible for this showing. This is the only situation of all those examined in which the large traders showed a clear superiority over smaller traders in trading results. In oat futures, traders with average positions of 5.0 and 5.1 to 9.9 thousand bushels, as well as larger traders, had profits in excess of losses. Except in the case of rye futures, the tendency for traders with average positions of 1.0, 5.0, and 10.0 thousand bushels to do poorly is not so clear when short cycles alone are considered. When profits are compared with losses on all cycles, however, these size classes in every case have lower ratios of profits to losses than adjacent size classes.

This analysis of trading patterns and outcome in relation to average position indicates that there is no marked contrast between small and large traders. There were three groups of traders, however, who seem to have trading characteristics which distinguish them from other traders. These were the groups with average positions of exactly 1.0, 5.0, and 10.0 thousand bushels. Traders in these groups typically made only a few trades, all of the same quantity, with the result that their average positions were exactly 1.0, 5.0, or 10.0 thousand bushels. Generally, they were even more likely than other traders to choose the long side of the market, and they were more conspicuously unsuccessful in their trading. They probably included a larger proportion of inexperienced and uninformed traders than the other size groups, and their stay in the market was of briefer duration. There were differences between other size classes, but these differences were not the same for trading in the different grains, and they do not present a simple pattern.

TWO-DAY WHEAT CYCLES AND PRICE MOVEMENTS

The period studied contained 2,705 business days. On the average there was trading each day in three futures in each of the four grains studied. A complete analysis of the relation of trading by speculators in each size class and in each future to every price movement would be a task of overwhelming magnitude. Some aspects of the 1-day cycles, i. e., in-and-out trading, have already been discussed. To relate such in-and-out trading to price movements would have required detailed information on the time during the trading sessions at which such trades were made and consequently was not feasible. With respect to cycles of more than 1 day's duration, it was necessary to limit the analysis to certain broad tendencies revealed by selected trading activities. The following analysis therefore is confined to trading and price changes in the dominant wheat futures and to trading in cycles having two active days.

The 2-day wheat cycles consisted of simple trades in which a position was accumulated on one day and liquidated on some other day.

TABLE 46.—*Number and percent of cycles, by grain, size of average position, and type of cycle*

Grain and size of average position (1,000 bu.)	Total [1]	Long		Short		Profitable		Unprofitable	
WHEAT	*Number*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1.0	3,749	2,558	68.2	1,191	31.8	1,855	49.5	1,894	50.5
1.1–4.9	38,499	23,655	61.4	14,844	38.6	21,298	55.3	17,201	44.7
5.0	3,267	2,294	70.2	973	29.8	1,640	50.2	1,627	49.8
5.1–9.9	18,011	11,444	63.5	6,567	36.5	10,323	57.3	7,688	42.7
10.0	535	415	77.6	120	22.4	235	43.9	300	56.1
10.1–24.9	9,852	6,439	65.4	3,413	34.6	5,606	56.9	4,246	43.1
25.0–49.9	2,109	1,333	63.2	776	36.8	1,173	55.6	936	44.4
50.0–99.8	813	486	59.8	327	40.2	436	53.6	377	46.4
99.9 and over	206	156	75.7	50	24.3	102	49.5	104	50.5
All cycles	77,041	48,780	63.3	28,261	36.7	42,668	55.4	34,373	44.6
CORN									
1.0	1,556	964	62.0	592	38.0	815	52.4	741	47.6
1.1–4.9	12,648	7,008	55.4	5,640	44.6	7,326	57.9	5,322	42.1
5.0	1,898	1,276	67.2	622	32.8	1,024	54.0	874	46.0
5.1–9.9	6,901	4,025	58.3	2,876	41.7	4,073	59.0	2,828	41.0
10.0	302	205	67.9	97	32.1	162	53.6	140	46.4
10.1–24.9	3,039	1,808	59.5	1,231	40.5	1,787	58.8	1,252	41.2
25.0–49.9	595	352	59.2	243	40.8	342	57.5	253	42.5
50.0–99.8	185	104	56.2	81	43.8	101	54.6	84	45.4
99.9 and over	162	102	63.0	60	37.0	66	40.7	96	59.3
All cycles	27,286	15,844	58.1	11,442	41.9	15,696	57.5	11,590	42.5
OATS									
1.0	221	153	69.2	68	30.8	111	50.2	110	49.8
1.1–4.9	1,432	1,042	72.8	390	27.2	755	52.7	677	47.3
5.0	879	677	77.0	202	23.0	474	53.9	405	46.1
5.1–9.9	1,575	1,198	76.1	377	23.9	851	54.0	724	46.0
10.0	179	154	86.0	25	14.0	72	40.2	107	59.8
10.1–24.9	707	539	76.2	168	23.8	357	50.5	350	49.5

25.0–49.9	165	133	80.6	32	19.4	68	41.2	97	58.8
50.0–99.8	69	68	98.6	1	1.4	34	49.3	35	50.7
99.9 and over	17	16	94.1	1	5.9	9	52.9	8	47.1
All cycles	5,244	3,980	75.9	1,264	24.1	2,731	52.1	2,513	47.9
RYE									
1.0	364	286	78.6	78	21.4	157	43.1	207	56.9
1.1–4.9	1,369	1,056	77.1	313	22.9	734	53.6	635	46.4
5.0	576	495	85.9	81	14.1	293	50.9	283	49.1
5.1–9.9	945	746	78.9	199	21.1	557	58.9	388	41.1
10.0	110	94	85.5	16	14.5	49	44.5	61	55.5
10.1–24.9	563	485	86.1	78	13.9	313	55.6	250	44.4
25.0–49.9	78	68	87.2	10	12.8	47	60.3	31	39.7
50.0–99.8	69	53	76.8	16	23.2	34	49.3	35	50.7
99.9 and over	2	1	50.0	1	50.0	1	50.0	1	50.0
All cycles	4,076	3,284	80.6	792	19.4	2,185	53.6	1,891	46.4

[1] For each size group the total is the sum of long plus short cycles; it is also the sum of profitable and unprofitable cycles. For each size group the percentage of long cycles plus the percentage of short cycles necessarily equals 100 and is not shown. The percentage of profitable plus unprofitable cycles also necessarily equals 100.

TABLE 47.—*Profits and losses and profit-loss ratios, by grain, size of average position, and type of cycle*

Grain and size of average position (1,000 bu.)	Long cycles			Short cycles			All cycles		
	Profits	Losses	Ratio [1]	Profits	Losses	Ratio [1]	Profits	Losses	Ratio [1]
WHEAT	*Dollars*	*Dollars*		*Dollars*	*Dollars*		*Dollars*	*Dollars*	
1.0	37, 105	116, 515	0. 32	18, 772	23, 149	0. 81	55, 877	139, 664	0. 40
1.1–4.9	996, 832	2, 379, 301	. 42	619, 862	628, 935	. 99	1, 616, 694	3, 008, 236	. 54
5.0	150, 518	478, 662	. 31	69, 455	79, 390	. 87	219, 973	558, 052	. 39
5.1–9.9	1, 325, 025	2, 772, 960	. 48	686, 164	735, 164	. 93	2, 011, 189	3, 508, 124	. 57
10.0	55, 759	209, 910	. 27	22, 932	23, 314	. 98	78, 691	233, 224	. 34
10.1–24.9	1, 732, 666	3, 802, 049	. 46	735, 417	760, 950	. 97	2, 468, 083	4, 562, 999	. 54
25.0–49.9	796, 095	1, 967, 813	. 40	530, 274	435, 861	1. 22	1, 326, 369	2, 403, 674	. 55
50.0–99.8	500, 802	1, 116, 562	. 45	322, 330	274, 370	1. 17	823, 132	1, 390, 932	. 59
99.9 and over	312, 748	1, 374, 018	. 23	123, 023	43, 824	2. 81	435, 711	1, 417, 842	. 31
Total	5, 907, 550	14, 217, 790	. 42	3, 128, 229	3, 004, 957	1. 04	9, 035, 779	17, 222, 747	. 52
CORN									
1.0	10, 497	29, 245	. 36	8, 599	7, 896	1. 09	19, 096	37, 141	. 51
1.1–4.9	267, 078	471, 457	. 57	216, 051	231, 499	. 93	483, 129	702, 956	. 69
5.0	78, 059	177, 922	. 44	43, 347	56, 479	. 77	121, 406	234, 401	. 52
5.1–9.9	402, 936	611, 310	. 66	278, 725	371, 809	. 75	681, 661	983, 119	. 69
10.0	35, 688	56, 673	. 63	12, 426	16, 842	. 74	48, 114	73, 515	. 65
10.1–24.9	507, 444	645, 194	. 79	276, 475	346, 687	. 80	783, 919	991, 881	. 79
25.0–49.9	178, 312	306, 426	. 58	119, 863	157, 796	. 76	298, 175	464, 216	. 64
50.0–99.8	99, 414	161, 866	. 61	58, 680	130, 735	. 45	158, 094	292, 601	. 54
99.9 and over	628, 238	378, 402	1. 66	32, 422	109, 389	. 30	660, 660	487, 791	1. 35
Total	2, 207, 666	2, 838, 495	. 78	1, 046, 588	1, 429, 126	. 73	3, 254, 254	4, 267, 621	. 76

OATS									
1.0	1,161	2,848	.41	655	797	.82	1,816	3,645	.50
1.1–4.9	26,270	62,546	.42	11,082	11,368	.97	37,352	73,914	.51
5.0	23,670	77,234	.31	11,474	5,743	2.00	35,144	82,977	.42
5.1–9.9	71,323	180,948	.39	23,924	20,115	1.19	95,247	201,063	.47
10.0	9,205	57,620	.16	2,325	3,287	.71	11,530	60,907	.19
10.1–24.9	75,891	257,585	.29	26,648	21,947	1.21	102,539	279,532	.37
25.0–49.9	26,663	116,861	.23	[2] 13,105	[2] 7,607	1.72	[2] 97,549	[2] 333,923	.29
50.0–99.8	45,247	111,020	.41						
99.9 and over	12,534	98,435	.13						
Total	291,964	965,097	.30	89,213	70,864	1.26	381,177	1,035,961	.37
RYE									
1.0	3,635	15,155	.24	1,379	2,559	.54	5,014	17,714	.28
1.1–4.9	68,273	133,150	.51	15,062	17,608	.86	83,335	150,758	.55
5.0	39,569	99,251	.40	5,025	10,215	.49	44,594	109,466	.41
5.1–9.9	106,874	204,417	.52	19,581	25,640	.76	126,455	230,057	.55
10.0	13,961	33,366	.42	345	2,082	.17	14,306	35,448	.40
10.1–24.9	254,147	325,104	.78	21,164	19,600	1.08	275,311	344,704	.80
25.0–49.9	64,651	55,631	1.16	451	22,095	.02	65,102	77,726	.84
50.0 and over	111,754	261,604	.43	4,944	33,038	.15	116,698	294,642	.40
Total	662,864	1,127,678	.59	67,951	132,837	.51	730,815	1,260,515	.58

[1] Ratio of profits to losses.
[2] 25.0 thousand bushels and over.

Excluding in-and-out cycles, speculators in the sample had 77,041 cycles in wheat futures. Of this number 58,135 were 2-day cycles.[15] Thus, the characteristics of a very considerable segment of the trading in wheat futures by speculators in the sample will be revealed by an examination of the 2-day cycles. Cycles in which trading occurred on more than 2 days, not covered in the following analysis, were generally more complex. The results set forth below, therefore, are not applicable to the more complex trading activities.

The first question to be considered is the relation between trading on a given day and the price change on the same day. Were persons in the sample primarly movement traders, buying on rising prices and selling on price declines, or were they price levels traders, i. e., "norm traders," who tended to buy when prices fell and sell when prices rose? To answer this question, the number of long and of short cycles initiated was related to the change in price on the day the cycles were initiated. The measure for price change was the difference between the price of the dominant future at the close of the day on which the cycle was initiated and the price at the previous day's close. A broad picture of the results is given in table 48.

TABLE 48.—*Two-day wheat cycles: Number and percent, by direction of initiating-day price change and type of cycle*

Price change	Long		Short		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Increase	13, 742	38. 4	12, 262	55. 0	26, 004	44. 8
Decrease	22, 004	61. 6	10, 021	45. 0	32, 025	55. 2
Total	35, 746	100. 0	22, 283	100. 0	58, 029	100. 0

CYCLES INITIATED ON DAYS OF PRICE INCREASE AND DECREASE

Of the 58,029 two-day cycles initiated during the period of the survey, 35,746 were long cycles and 22,283 represented short sales. The long cycles were initiated primarily on days of price declines. Almost 62 percent of the long cycles were initiated on days on which the price of the dominant future fell. A majority of the short sales, 55 percent to be exact, were made on days on which prices increased. These results indicate that there is a relation between the direction of initiating-day price changes and entry into the futures market of speculators in the sample. The tendency of longs to buy on price declines and for shorts to sell on price rises indicates that traders in the sample were predominantly price-level traders. Longs tended to buy when prices fell below levels which they considered proper, and shorts tended to sell when prices rose above levels which they thought appropriate.

[15] This total for 2-day cycles differs slightly from two totals which will be presented later. One of the latter is the total of 58,029 2-day cycles initiated during the sample period, but excluding cycles initiated prior to January 1, 1924, and liquidated after that date. The other is the total of 58,116 2-day cycles which were liquidated during the sample period. This total excluded cycles initiated during the sample period but liquidated on December 31, 1932, or later.

The purchases on price declines and the short sales on rising prices could have been the result of orders entered at specified prices, i. e., "resting" orders, which were executed later when the prices indicated were reached. Such trades also might have been made by speculators who were watching the market closely, and gave orders to buy or sell as a result of the price changes observed. In other cases the decision to buy or sell may have been reached as a result of deliberation over a period of time.

It is sometimes suggested that many speculators read financial pages of newspapers or listen to radio market reports in the evening and place orders the next day based on the market action reported. It is of interest, therefore, to see whether the trading studied here was noticeably affected by the price change on the day before the trading occurred. In table 49 the numbers of cycles initiated are shown classified by type of position and the direction of the price change on the previous day. No significant relation was found between price changes on the previous day and the initiation of 2-day cycles. It is true that the percentage of long cycles initiated on price declines, 52.3 percent, was slightly greater than the proportion of short sales made on price declines, 51.4 percent. This difference was hardly large enough to be statistically significant, and in any event, not large enough to suggest the existence of an important relationship.

TABLE 49.—*Two-day wheat cycles: Number and percent, by direction of previous-day price change and type of cycle*

Price change	Long		Short		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Increase	17,054	47.7	10,821	48.6	27,875	48.0
Decrease	18,692	52.3	11,462	51.4	30,154	52.0
Total	35,746	100.0	22,283	100.0	58,029	100.0

The relation which has been found between cycles initiated and the direction of price changes on the same day is worthy of further investigation. Although the period covered by the survey was one which included a large variety of price movements in wheat futures, prices at the end of the period were much lower than at the beginning. To determine the significance of the predominantly downward price movement, the survey period was divided into two sections. The first extended from January 1, 1924, to Saturday, May 25, 1929, and included 1,625 trading days, and the second from May 27, 1929, to December 31, 1932, a total of 1,080 trading days. The periods were divided at the end of a week in which prices approximated those at the beginning of the survey period. In the first two trading days of January 1924, the average of the high and low prices of the July wheat future was approximately $1.06 per bushel, and on the first two days of the trading week of May 20–25, 1929, the average for the July future was again approximately $1.06 per bushel. The second period (May 1929–December 1932) was marked generally by declining prices.

At the end of the survey period, the price of the July wheat future was about 45 cents per bushel.

In table 50 the number of two-day cycles started on days of declining and on days of rising prices are shown separately for the periods from January 1, 1925, to May 25, 1929, and from May 27, 1929, to December 31, 1932. Although there were substantial differences between the general movement of prices in the two periods, the proportions of long cycles initiated on days of declining prices and on days of rising prices were about the same in each period. The proportion of long cycles initiated on price declines was 61.5 percent in the first period and 61.7 percent in the second. A significantly smaller proportion of the short cycles, however, was initiated on price increases in the second period than in the first. The percentages were 52.0 and 57.0, respectively.

TABLE 50.—*Two-day wheat cycles: Number and percent for periods I and II* [1] *by direction of initiating-day price change and type of cycle*

Price change	Long				Short				Total	
	Period I		Period II		Period I		Period II			
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Increase	7, 783	38. 5	5, 959	38. 3	7, 700	57. 0	4, 562	52. 0	26, 004	44. 8
Decrease	12, 407	61. 5	9, 597	61. 7	5, 816	43. 0	4, 205	48. 0	32, 025	55. 2
Total	20, 190	100. 0	15, 556	100. 0	13, 516	100. 0	8, 767	100. 0	58, 029	100. 0

[1] Period I (Jan. 1, 1924–May 25, 1929). Period II (May 27, 1929–Dec. 31, 1932).

In view of the fact that price declines were relatively more frequent and extensive in the second period than in the first, it is of interest to examine the number of cycles initiated per day in the different price-change situations. This is done in table 51. An interesting point revealed by this table is that the longs were more active in the period of predominantly declining prices. They started cycles at an average rate of 12.4 per day in the first period, and at a rate of 14.4 per day in the second period. The average number of short cycles initiated, however, declined from 8.3 to 8.1 per day—a change of slight significance. It may seem perverse that a period of declining prices should stimulate buying, and possibly dampen slightly the activity of short sellers. A possible explanation is that these traders were predominantly price-level traders, and declining prices meant that price levels were frequently being reached which seemed too low to the longs, and that situations in which shorts considered prices too high were relatively infrequent.

Table 51 also presents ratios comparing the number of cycles initiated per day on price increases and on price declines. For ease in comparison, these ratios show for long and short cycles the ratio of the average number of cycles per day in the dominant situation to the average number in the less characteristic situation. These ratios

are called "dominance ratios." The stronger the tendency of traders to initiate long cycles on price declines, and to initiate short cycles on price increases, the larger the dominance ratio. In both periods the dominance ratio was higher for long cycles than for short cycles. However, the ratio for long cycles was lower in the second period than in the first, and this was also true for short cycles. For long cycles it declined from 1.55 to 1.42, and for short cycles from 1.37 to 1.25. These differences are large enough to be significant, but the reasons for the shifts shown are not apparent.

TABLE 51.—*Two-day wheat cycles: Number initiated per day for periods I and II, by direction of initiating-day price change and type of cycle*

Price change	Period I (Jan. 1, 1924, to May 25, 1929)			Period II (May 27, 1929, to Dec. 31, 1932)		
	Days	Cycles initiated per day		Days	Cycles initiated per day	
		Long	Short		Long	Short
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Increase	799	9.7	9.6	504	11.8	9.1
Decrease	826	15.0	7.0	576	16.7	7.3
All cycles	1,625	12.4	8.3	1,080	14.4	8.1
Dominance ratio [1]		1.55	1.37		1.42	1.25

[1] Ratio of average number of long cycles per day initiated on price decreases to number initiated on price increases, and the ratio of average number of short cycles per day initiated on price increases to number initiated on price decreases.

CYCLES INITIATED, BY SIZE OF POSITION AND EXTENT OF PRICE CHANGE

In the investigation of the relation of trading to price movements for traders with different scales of trading activity, it was necessary to group speculators in broader size classes than those used earlier in this study. The analysis in the previous section showed that there was a family resemblance in trading pattern and outcome for speculators with average positions of 1.0, 5.0, and 10.0 thousand bushels. In table 52 these traders were therefore grouped together in a single class called, "size class I." The other very small traders, with average positions of 1.1 to 4.9, and 5.1 to 9.9 thousand bushels, were included in a second group called "size class II." All the remaining speculators in the sample were included in a single category called "size class III." This class included all traders with average positions of 10.1 thousand bushels or more. It does not properly represent large-scale trading, but the differences between traders with average positions of 10.1 to 24.9 thousand bushels and those with smaller average positions seemed to be greater than the differences between traders with 10.1 to 24.9 thousand bushels and those with larger average positions. The fact that the lower limit of the size class representing the largest

traders in the sample is only 10.1 thousand bushels indicates that the statistical analysis in this study is an investigation primarily of the trading of small speculators.

In table 52, the number of cycles initiating under different price-change conditions are shown for the three size classes just described. In their long cycles traders in size class I exhibit the tendency to buy on price declines more clearly than traders in the other two price classes, and there is no significant alteration in this tendency between the two time periods. Traders in this size class also made a larger percentage of their short sales on rising prices than did the other groups, but for all three classes this percentage was appreciably

TABLE 52.—*Two-day wheat cycles: Number and percent for periods I and II, by major size class,*[1] *direction of initiating-day price change, and type of cycle*

Size class and price change	Long				Short			
	Period I		Period II		Period I		Period II	
	Cycles	Percent or ratio	Cycles	Percent or ratio	Cycles	Percent or ratio	Cycles	Percent or ratio
	Number		*Number*		*Number*		*Number*	
Size class I:								
Increase	841	34. 7	857	35. 1	787	60. 1	414	53. 4
Decrease	1, 585	65. 3	1, 586	64. 9	523	39. 9	361	46. 6
Total	2, 426	100. 0	2, 443	100. 0	1, 310	100. 0	775	100. 0
Dominance ratio[2]	------	1. 83	------	1. 62	------	1. 56	------	1. 30
Size class II:								
Increase	5, 736	39. 1	4, 376	39. 3	5, 678	56. 2	3, 554	51. 7
Decrease	8, 937	60. 9	6, 750	60. 7	4, 428	43. 8	3, 321	48. 3
Total	14, 673	100. 0	11, 126	100. 0	10, 106	100. 0	6, 875	100. 0
Dominance ratio[2]	------	1. 51	------	1. 35	------	1. 33	------	1. 22
Size class III:								
Increase	1, 206	39. 0	726	36. 5	1, 235	58. 8	594	53. 2
Decrease	1, 885	61. 0	1, 261	63. 5	865	41. 2	523	46. 8
Total	3, 091	100. 0	1, 987	100. 0	2, 100	100. 0	1, 117	100. 0
Dominance ratio[2]	------	1. 51	------	1. 52	------	1. 48	------	1. 30

[1] Size class I, average positions (in thousand bushels) of 1.0, 5.0, and 10.0. Size class II, average positions (in thousand bushels) of 1.1 to 4.9 and 5.1 to 9.9. Size class III, average positions (in thousand bushels) of 10.1 or more.

[2] Dominance ratio for long cycles is the number of cycles initiated per day on price decreases divided by the number of cycles initiated per day on price increases. For short cycles, the dominance ratio is the number of cycles initiated per day on price increases divided by the number of cycles initiated per day on price decreases. Number of cycles initiated per day is shown in table 53.

smaller from May 27, 1929, to December 31, 1932, the period of predominantly falling prices. There was no significant difference in the propensity of size classes II and III to buy long on declining prices in the earlier period, but this propensity strengthened appreciably in size class III during the second period. This size class had a slightly greater propensity to make short sales on rising prices than did size class II.

For all three size classes the contrast between the two periods is more striking for the shorts than for the longs. A majority of the short sales of traders in every group were made on days of rising prices, but this characteristic situation is much less strong in the second period than in the first. In the period of predominantly falling prices a considerably larger proportion of the short cycles was initiating on days of declining prices. Apparently price-movement trading as contrasted with price-level trading by shorts becomes relatively more important during prolonged bear markets.

The dominance ratios for the three size classes are also shown in table 52. These ratios were generally highest for the traders in size class I, and were low for size class II. All size classes shared the characteristic of higher ratios for long than for short cycles. The two size classes of small-scale traders (I and II) had higher ratios for the earlier than for the later period. The trading behavior of the larger traders, however, differed from that of the smaller traders primarily in the failure of the dominance ratio for long cycles to decline in the second period. The most striking feature shown by the dominance ratios is the strong tendency of the group of speculators with average positions of 1.0, 5.0, and 10.0 thousand bushels (size class I) to exhibit the price-level reaction, buying long on price declines and selling short on rising prices.

A further study of trading behavior in initiating trades may be made by relating the number of cycles initiated to the extent, as well as the direction, of price changes. This is done for the three size classes in table 53. To the extent that traders at a given time have in mind price levels which seem appropriate to them, we should expect the number of long cycles initiated on price declines, and the number of short cycles initiated on price rises, to increase with the size of the price movement.

In table 53 attention may first be turned to the long cycles. Here in the trading sample analyzed the characteristic behavior was to initiate long cycles on price declines. The figures for cycles initiated per day show that the greater the price decline the larger the average number of long cycles initiated per day. Only 2 exceptions to this rule are found in the 30 comparisons which may be made in table 53, i. e., comparisons between the average number of long cycles per day initiated on a smaller price decline and the average number initiated in the next class interval representing larger price declines. These 2 exceptions are in the price decrease interval of 4 to 4⅞ cents for size class I and size class III in the first period.

In short selling also, characteristic trading behavior was stimulated by more pronounced price movements. This tendency, however, was not nearly so consistent as for long cycles. In only 21 of the 30 comparisons between adjacent price-change categories in table 53 was the number of short cycles initiated per day more for a greater price rise than for a smaller one.

TABLE 53.—*Two-day wheat cycles: Total number and number initiated per day for periods I and II, by direction and amount of price change on initiating day, major size class, and type of cycle*

PRICE DECREASES

Date and price change (in cents)	Number of days	Size class I				Size class II				Size class III				All classes	
		Number of cycles		Cycles per day		Number of cycles		Cycles per day		Number of cycles		Cycles per day		Cycles per day	
		Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Jan. 1, 1924–May 25, 1929:															
0–⅞	402	583	231	1. 45	0. 57	3, 304	1, 791	8. 22	4. 46	635	330	1. 58	0. 82	11. 25	5. 85
1–1⅞	232	434	136	1. 87	. 59	2, 640	1, 380	11. 38	5. 95	563	265	2. 43	1. 14	15. 68	7. 68
2–2⅞	109	269	89	2. 47	. 82	1, 468	663	13. 47	6. 08	341	137	3. 13	1. 26	19. 07	8. 16
3–3⅞	35	127	24	3. 63	. 69	595	253	17. 00	7. 23	130	60	3. 71	1. 71	24. 34	9. 63
4–4⅞	27	79	29	2. 93	1. 07	490	204	18. 15	7. 56	94	42	3. 48	1. 56	24. 56	10. 19
5 and over	21	93	14	4. 43	. 67	440	137	20. 95	6. 52	122	31	5. 81	1. 48	31. 19	8. 67
Total	826	1, 585	523	1. 92	. 63	8, 937	4, 428	10. 82	5. 36	1, 885	865	2. 28	1. 05	15. 02	7. 04
May 27, 1929–Dec. 31, 1932:															
0–⅞	289	613	158	2. 12	. 55	2, 413	1, 287	8. 35	4. 45	410	196	1. 42	. 68	11. 89	5. 68
1–1⅞	194	575	131	2. 96	. 68	2, 415	1, 260	12. 45	6. 49	445	186	2. 29	. 96	17. 70	8. 13
2–2⅞	63	247	44	3. 92	. 70	1, 156	470	18. 35	7. 46	243	75	3. 86	1. 19	26. 13	9. 35
3–3⅞	19	84	16	4. 42	. 84	429	192	22. 58	10. 11	94	45	4. 95	2. 37	31. 95	13. 32
4–4⅞	7	39	7	5. 57	1. 00	175	70	25. 00	10. 00	38	16	5. 43	2. 29	36. 00	13. 29
5 and over	4	28	5	7. 00	1. 25	162	42	40. 50	10. 50	31	5	7. 75	1. 25	55. 25	13. 00
Total	576	1, 586	361	2. 75	. 63	6, 750	3, 321	11. 72	5. 77	1, 261	523	2. 19	. 91	16. 66	7. 31

PRICE INCREASES

Jan. 1, 1924–May 25, 1929:														
0–1⅞	373	339	240	0.91	0.64	2,261	1,791	6.06	4.80	439	378	1.18	1.01	8.15	6.45
1–1⅞	230	266	260	1.16	1.13	1,659	1,862	7.21	8.10	374	412	1.63	1.79	10.00	11.02
2–2⅞	92	106	135	1.15	1.47	839	937	9.12	10.18	167	207	1.82	2.25	12.09	13.90
3–3⅞	50	62	66	1.24	1.32	456	512	9.12	10.24	108	96	2.16	1.92	12.52	13.48
4–4⅞	34	35	56	1.03	1.65	283	331	8.32	9.74	64	75	1.88	2.21	11.23	13.60
5 and over	20	33	30	1.65	1.50	238	245	11.90	12.25	54	67	2.70	3.35	16.25	17.10
Total	799	841	787	1.05	.98	5,736	5,678	7.18	7.11	1,206	1,235	1.51	1.55	9.74	9.64
May 27, 1929–Dec. 31, 1932:														
0–1⅞	275	428	178	1.56	.65	2,063	1,515	7.50	5.51	327	242	1.19	.88	10.25	7.04
1–1⅞	143	258	132	1.80	.92	1,330	1,115	9.30	7.80	206	166	1.44	1.16	12.54	9.88
2–2⅞	60	108	76	1.80	1.27	641	615	10.68	10.25	132	123	2.20	2.05	14.68	13.57
3–3⅞	12	32	16	2.67	1.33	141	129	11.75	10.75	27	23	2.25	1.92	16.67	14.00
4–4⅞	7	14	8	2.00	1.14	71	107	10.14	15.29	8	22	1.14	3.14	13.28	19.57
5 and over	7	17	4	2.43	.57	130	73	18.57	10.43	26	18	3.71	2.57	24.71	13.57
Total	504	857	414	1.70	.82	4,376	3,554	8.68	7.05	726	594	1.44	1.18	11.82	9.05

A similar distinction between long and short cycles is found if the dominance ratios are computed. Computations for "All classes" [10] show that in both periods as price declines became more pronounced the dominance ratios for long cycles increased, except for the comparison between price changes of 4 to 4⅞ cents and changes of 5 cents and over. For short cycles, however, as price movements become more pronounced, the dominance ratios decreased just as frequently as they increased. Trading against the current movement of prices was the predominant trading pattern on both sides of the market, but was not nearly so definite for shorts as for longs.

The most reasonable interpretation of the tendency to trade against the market—to buy on price declines and sell on price rises—is that the speculators exhibiting this behavior were price-level traders. Trading with the market trend, on the other hand, is not susceptible of a similarly unambiguous interpretation. Movement traders will tend to buy on days of rising prices, and to sell on days of falling prices. But it cannot be assumed that all, or even most, of those trading in this manner are movement traders. Real or imaginary changes in crop conditions, in demand, or in other factors affecting the market, may lead individual traders to revise their opinions as to the probable course of the market. A considerable number of the traders in the market may revise their opinions about prices at the same time. They may ignore the price movements of the day on which their trades are executed, or find in them nothing more than confirmation of the validity of opinions already reached. Such trading cannot properly be called movement trading. While it is possible that persons trading in this manner may make new purchases in larger volume the greater the price increase, and more extensive short sales when price drops are more pronounced, this is certainly the type of behavior we should expect from movement traders.

These tendencies consistent with movement trading are found in the data shown in table 53, but they are not as pronounced as the tendency to expand the scale of trading against the market as price changes increase in magnitude. This is graphically shown in figure 26, which presents the number of 2-day wheat cycles initiated per day by all traders for the entire period studied. The progressive nature of the average number of cycles initiated as the price change increases is more definite for long cycles with price decreases than with price increases. For short cycles this situation is reversed, the expansion of trading is more pronounced for price increases than for price decreases. But the fact that trading with the market movement also shows signs of expansion with more pronounced price changes suggests that movement trading may be of some importance.

Outcome of Trading: Price Level and Movement Trading Patterns

Another question of considerable interest concerns the outcome of trading with the market as compared with trading against the market. Because of necessary limitations on the tabulating process, it was not

[10] The dominance ratios (computed from table 53) arranged from small to large price changes for long cycles were, in the first period, 1.38, 1.57, 1.58, 1.94, 2.19 and 1.92, and in the second period, 1.16, 1.41, 1.78, 1.92, 2.71 and 2.24. For short cycles they were, in the first period, 1.10, 1.43, 1.70, 1.40, 1.33 and 1.97, and in the second period, 1.24, 1.22, 1.45, 1.05, 1.17 and 1.04.

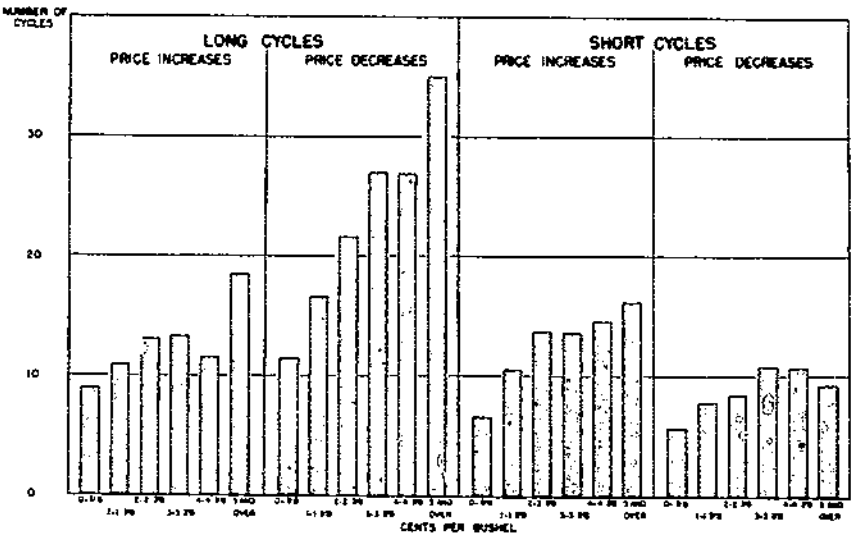

FIGURE 26.—Relation of number of 2-day cycles initiated per day to direction and extent of price change.

possible to explore this question fully. Some suggestive information, however, was obtained. The total profits and the total losses for each category considered here were not ascertained, but the net profits or losses on all the 2-day cycles in the given classification were computed. These net profit or loss figures can be made comparable between categories by expressing them in terms of net profit or loss per bushel traded. The profit and loss figures per bushel are shown in table 54 classified by the price-movement situation on the day on which the cycle was initiated. It is at once apparent from this table that the cycles started under the circumstances which have been assumed to be typical of price-level trading were more unprofitable than the cycles which were started with trades in the same direction as the current market movement. This is true of every comparison between these two situations shown in table 54.

Is it legitimate to conclude that movement trading is normally more profitable—or less unprofitable—than price-level trading? Such a conclusion cannot properly be drawn from the data presented here. In the first place it should be remembered that much of the trading which conforms to what has here been called the movement trading pattern was undoubtedly induced by considerations other than the price movement of the day on which the trades were initiated, and in many cases was the result of orders placed in advance or in ignorance of such price movement. Furthermore, the price change was measured by the differences between closing prices. This would ordinarily mean for price increases that the price at the close was higher than the price at which many of the long purchases were made, without regard in either case to whether the trades were made according to the price-movement or price-level pattern. And for price decreases it would mean that the closing price would be below the price at which

TABLE 54.—*Two-day wheat cycles: Profit or loss per bushel for price-level and price-movement trading patterns in periods I and II, by type of cycle and direction of initiating-day price change, and major size class*

[In cents per bushel]

Trading pattern	Period I				Period II			
	Size class			Total	Size class			Total
	I	II	III		I	II	III	
Price level:								
Long cycle initiated on price decrease	−2.11	−0.77	−0.62	−0.81	−4.84	−2.79	−3.22	−3.21
Short cycle initiated on price increase	−1.04	−.76	−.83	−.80	+.20	−.07	+.09	+.01
Price movement:								
Long cycle initiated on price increase	−.63	+.07	−.13	−.06	−4.43	−1.73	−1.19	−1.78
Short cycle initiated on price decrease	−.90	+.43	+.40	+.39	+.81	+.94	+1.54	+1.19

many of the short sales were executed during the day. In such situations the traders would have an accrued profit at the close of the day on which the position was first assumed. When it is recalled that there was a strong tendency to take profits, it does not seem surprising that these cycles were on the average less unprofitable than those initiated against the current price movement.

To the extent that the better showing of the price-movement pattern was due to price movements on the day trades were initiated it might be expected that the showing for such cycles would improve with increases in the amount of the initiating-day price change. Similarly it would be expected that for the price-level cycles the showing would be more unfavorable the greater the amount of the current-day change in price. Figure 27 was designed to present evidence on this point. For the period from January 1, 1924, to May 25, 1929, it does appear that the cycles initiated against the market on the days with the largest price changes were more unprofitable. For the later period this seems to be true of short cycles but not of long cycles.

In the second part of figure 27 the net profit or loss per bushel is shown for the cycles initiated in accordance with the price-movement pattern. In this case on the initiating day price movements subsequent to the execution of trades would be more likely to be favorable the greater the amount of the price change. Consequently we should expect net losses per bushel to decline and net profits per bushel to increase with increasing net changes in prices. There is no clear evidence that this is the case, although the long cycles show some tendency in the direction of the expected pattern (with the striking exception of the large net loss on price increases of 4 to 4⅞ cents per bushel in the period from May 27, 1929, to December 31, 1932).

Another contrast shown by the data presented in table 54 and figure 27 reflects the differences between the price situations in the earlier and the later periods of the study. In the earlier period there was no significant difference in the results on the long and short cycles initiated according to the price-level trading pattern, and only a slight advantage for short cycles initiated in accordance with the movement trading pattern. In the period of predominantly falling prices, however, short cycles gave much more favorable outcomes than long cycles. Even under such auspicious circumstances for the short seller, the short cycles initiated on days of increasing prices only broke even on balance.

Liquidation of Two-Day Wheat Cycles

Speculators have difficulty deciding when to enter the market. The question of when a speculative cycle should be liquidated is still more difficult. The trader not only has to hazard a judgment as to the future course of prices, but also must make his decision while faced with an accrued profit or loss at current prices. Evidence has already been submitted which shows that the accrued profit or loss situation has an important effect on the decision. If a profit is available there is a tendency to liquidate. The speculator faced with a loss is disposed to postpone liquidation, with the result that the average duration of unprofitable cycles is longer than the average duration of profitable cycles. Eventually, however, all cycles are liquidated, and it is of

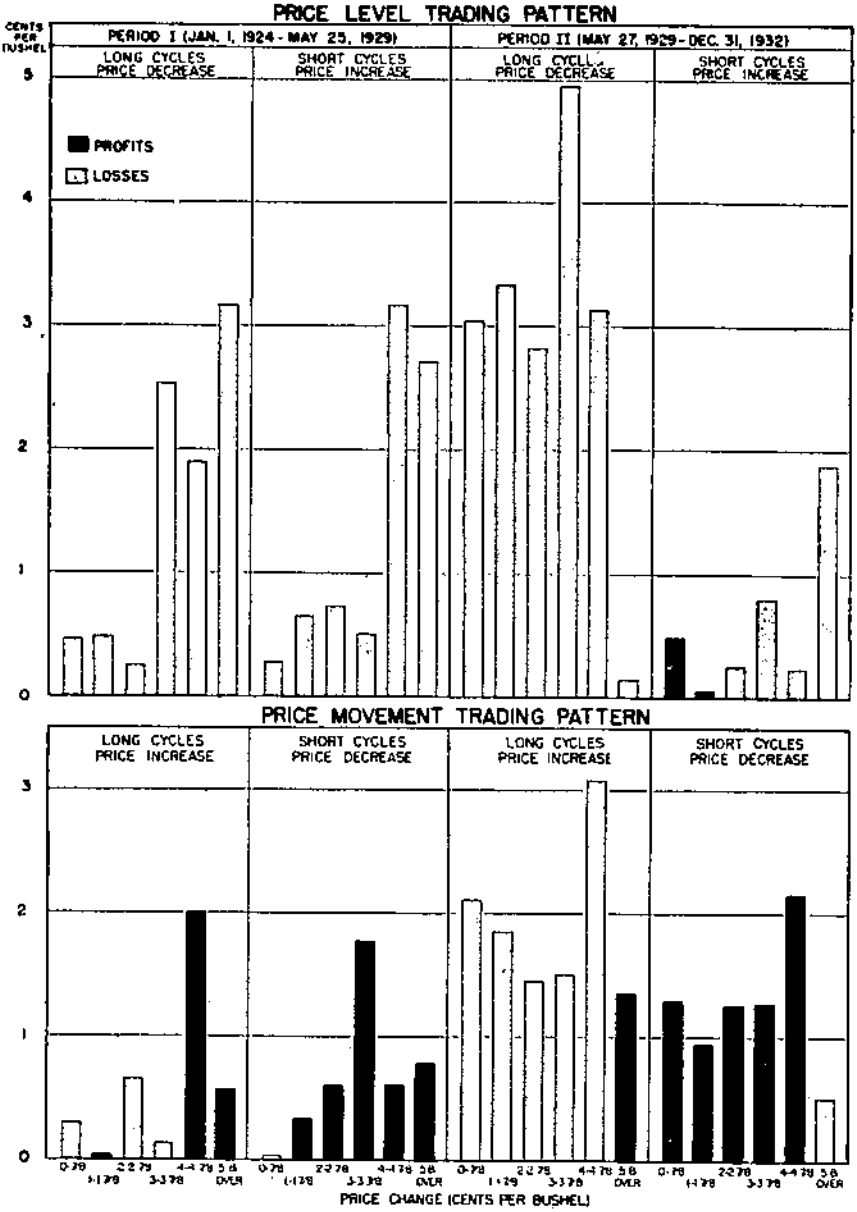

FIGURE 27.—Net profits or losses per bushel on 2-day wheat cycles for different trading patterns and amount of initiating-day price change.

interest to see what the price situations are under which liquidation takes place.

In table 55 the number of the 2-day wheat cycles liquidated is related to the direction of price movement on the day of liquidation. A majority of the long cycles were liquidated on days of rising prices, and a considerably larger majority of the short cycles were liquidated on days of falling prices. There was a tendency for traders to close out their trades on days on which the net price movement was favorable for the position held. For a majority of the cycles, market conditions were improving on the days the cycles were liquidated; profitable cycles were showing larger accrued profits, and accrued losses on unprofitable cycles were declining.

It is not easy to associate these results with a simple pattern of trading behavior. If their expectations remained the same, price-level traders would be expected to terminate their profitable cycles when prices reached the levels anticipated. This would accord with the tendencies shown in table 55. Such traders would presumably close out unprofitable positions when they became convinced that their earlier estimates were wrong. This conviction might be reached with little or no reference to the current price change, but generally a day of adverse price movement seems to be the likeliest time for such a change of mind. Movement traders, on the other hand, might be expected to liquidate their profitable trades on adverse price movements. They would presumably close out their unprofitable cycles as soon as they are willing to concede that they have misjudged the market. Here again such a decision is most likely to be made on a day when the price movement is in the opposite direction to that expected. These *a priori* assumptions as to trading behavior do not fit well into the observed pattern with its emphasis on liquidation on days of favorable price movements.

TABLE 55.—*Two-day wheat cycles liquidated: Number and percent, by direction of liquidating-day price change and type of cycle*

Price change	Long		Short		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Increase	18, 567	52. 4	9, 438	42. 4	28, 005	48. 5
Decrease	16, 878	47. 6	12, 813	57. 6	29, 691	51. 5
Total	35, 445	100. 0	22, 251	100. 0	57, 696	100. 0

Further analysis of the liquidation pattern is presented in table 56, in which a distinction is drawn between cycles liquidated before and after May 26, 1929. The tendency to liquidate on days of favorable price movements was still present for short cycles, but for long cycles was found only in the period prior to May 26, 1929. After that date there was no significant relationship between the number of long cycles liquidated and the direction of price change. This indicates that there are market conditions under which the generally prevailing pattern does not hold. The period from May 26, 1929, to Decem-

ber 31, 1932, was one of predominantly falling prices. Possibly the departure from the general pattern shown for this period was due to the generally unfavorable conditions for longs. Favorable price movements did not disturb the pattern for liquidation of short positions, for the differences in the proportions of short cycles liquidated in the two price change situations were not significant.

TABLE 56.—*Two-day wheat cycles liquidated: Number and percent for periods I and II, by direction of liquidating-day price change and type of cycle*

Price change	Long				Short				Total	
	Period I		Period II		Period I		Period II			
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Increase	10, 972	54. 5	7, 505	49. 6	5, 776	42. 8	3, 662	41. 8	28, 005	48. 5
Decrease	9, 148	45. 5	7, 730	50. 4	7, 713	57. 2	5, 100	58. 2	29, 691	51. 5
Total	20, 120	100. 0	15, 325	100. 0	13, 489	100. 0	8, 762	100. 0	57, 696	100. 0

LIQUIDATION OF PROFITABLE AND UNPROFITABLE CYCLES

Further analysis of the situation with respect to long cycles calls for an examination of the liquidation pattern for profitable and unprofitable trades. Such an examination is made possible by table 57. In this table the liquidation pattern is shown separately for profitable and unprofitable cycles, and it is discovered that there is a remarkable uniformity in the proportitons of long cycles liquidated under the different price conditions, both for size classes and for the two different time periods. It is true that in the second period, a slightly smaller proportion of the profitable long cycles were liquidated on days of increasing prices, but this difference does not alter the general picture. The difference found in table 57 is clearly due primarily to the difference in the number of profitable long cycles in the two periods. Prior to May 26, 1929, there were 11,999 profitable long cycles and 8,121 unprofitable long cycles. In this period, then, 59.6 percent of the long cycles were profitable. In the later period only 7,285 of the long cycles were profitable, while 8,040 resulted in losses. The percentage of profitable cycles declined to 47.5. Since profitable long cycles were liquidated on days of rising prices in a ratio of better than 2 to 1, and loss cycles were liquidated on days of falling prices in approximately the same ratio, this decline in the proportion of profitable cycles resulted in the disappearance of the balance in the direction of liquidation of long cycles on days of rising prices.

The favorable conditions for shorts during the second period did not lead to a similarly striking change in the number of profitable as compared with unprofitable cycles. The proportion of profitable short cycles increased from 61.5 percent to 68.0 percent, a shift which did not result in an important change in the general liquidation pattern for short cycles.

TABLE 57.—*Two-day wheat cycles liquidated: Number and percent of profitable and unprofitable cycles for periods I and II, by type of cycle, direction of liquidating-day price change, and major size class*

Type of cycle and price change	Period I: Jan. 1, 1924, to May 25, 1929								Period II: May 27, 1929, to Dec. 31, 1932							
	Size class I		Size class II		Size class III		Total		Size class I		Size class II		Size class III		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Profitable:																
Long:																
Increase	916	71.0	6,096	69.3	1,414	74.1	8,426	70.2	584	66.2	3,647	67.3	703	71.7	4,934	67.7
Decrease	374	29.0	2,706	30.7	493	25.9	3,573	29.8	298	33.8	1,775	32.7	278	28.3	2,351	32.3
Total	1,290	100.0	8,802	100.0	1,907	100.0	11,999	100.0	882	100.0	5,422	100.0	981	100.0	7,285	100.0
Short:																
Increase	211	28.2	1,854	29.8	340	25.4	2,405	29.0	162	31.5	1,412	30.2	208	27.2	1,782	29.9
Decrease	537	71.8	4,364	70.2	996	74.6	5,897	71.0	353	68.5	3,268	69.8	556	72.8	4,177	70.1
Total	748	100.0	6,218	100.0	1,336	100.0	8,302	100.0	515	100.0	4,680	100.0	764	100.0	5,959	100.0
Unprofitable:																
Long:																
Increase	373	32.4	1,813	31.4	360	30.4	2,546	31.4	514	34.8	1,828	32.7	319	32.8	2,661	33.1
Decrease	779	67.6	3,970	68.6	826	69.6	5,575	68.6	963	65.2	3,762	67.3	654	67.2	5,379	66.9
Total	1,152	100.0	5,783	100.0	1,186	100.0	8,121	100.0	1,477	100.0	5,590	100.0	973	100.0	8,040	100.0
Short:																
Increase	364	65.2	2,498	64.6	509	66.5	3,371	65.0	166	63.4	1,488	67.9	226	64.4	1,880	67.1
Decrease	194	34.8	1,366	35.4	256	33.5	1,816	35.0	96	36.6	702	32.1	125	35.6	923	32.9
Total	558	100.0	3,864	100.0	765	100.0	5,187	100.0	262	100.0	2,190	100.0	351	100.0	2,803	100.0

Table 57 reveals that when the liquidation pattern is analyzed in terms of the outcome of trading, it is remarkably uniform for the major size classes, and for the two time periods. The percentage of profitable long cycles liquidated on days of price increases ranged from 66.2 to 74.1; while the percentages of unprofitable cycles liquidated under the same type of price change varied from 30.4 to 34.8. From 68.5 to 74.6 percent of the profitable short cycles, and from 32.1 to 36.6 percent of the unprofitable short cycles, were covered on days when prices declined.

It may be recalled that no significant relation was found between the number of cycles initiated and the direction of the price change on the previous day.[17] An examination of the relation between the number of cycles liquidated and the direction of the price change on the previous day indicates that there was a significant relation of the same type as that found for changes in liquidating-day prices. Longs tended to liquidate their unprofitable cycles on days following declines in the market, and their profitable cycles on days following price rises. For shorts the situation was reversed. Confirmation of these statements is found in table 58, in which the number of 2-day wheat cycles liquidated is related to the direction of price changes on the previous business day. The results are quite similar to those shown in table 57 for the relation of liquidation to the price change for the liquidating day. Table 58 shows a uniformity of reaction for traders of different size classes, and for the time periods before and after May 26, 1929.

The tendency for liquidation to occur according to the pattern described above, however, was somewhat less strong in the comparisons shown in table 58 than in those shown in the previous table. This was particularly true of profitable cycles. If the two periods shown in table 57 are combined it will be found that 69.3 percent of the profitable long cycles were liquidated on days of rising prices. Combining the two periods in table 58 shows that 62.4 percent of the profitable long cycles were liquidated when the price had increased on the previous day. Of the profitable short cycles in the two periods combined, 70.6 percent were liquidated on days of falling prices, and 63.9 percent on days following price declines. The differences are not as great for the unprofitable cycles. The percentages were 67.8 and 66.7, respectively, for the long cycles liquidated on days when prices declined, and on days after price declines. The corresponding figures for short cycles relate to covering when prices were rising, and were 65.7 percent for liquidating-day price changes and 63.4 for previous-day price changes.

One of the difficulties in interpreting the results described above is that they reflect not only the trading behavior of speculators in the sample, but also the effects of price movements on the profitability of positions held. If traders liquidated a constant number of cycles each day we should expect that more than half of the profitable long trades would be closed out on days of rising prices, because with rising prices a larger and larger proportion of the long positions held show profits. In a similar manner during price declines it becomes less

[17] It is possible that significant relations would have been found if profitable and unprofitable cycles had been studied separately, as was done for liquidation. Limitations on the tabulating process precluded such a study with respect to the initiation of 2-day cycles.

TABLE 58.—*Two-day wheat cycles liquidated: Number and percent of profitable and unprofitable cycles for periods I and II, by type of cycle, direction of previous-day price change, and major size class*

Type of cycle and price change	Period I Jan. 1, 1924, to May 25, 1929								Period II May 27, 1929, to Dec. 31, 1932							
	Size class I		Size class II		Size class III		Total		Size class I		Size class II		Size class III		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
PROFITABLE																
Long:																
Increase	809	62. 7	5, 391	61. 2	1, 153	60. 5	7 353	61. 3	528	59. 9	3, 526	65. 0	617	62. 9	4, 671	64. 1
Decrease	481	37. 3	3, 411	38. 8	754	39. 5	4, 646	38. 7	354	40. 1	1, 896	35. 0	364	37. 1	2, 614	35. 9
Total	1, 290	100. 0	8, 802	100. 0	1, 907	100. 0	11, 999	100. 0	882	100. 0	5, 422	100. 0	981	100. 0	7, 285	100. 0
Short:																
Increase	261	34. 9	2, 218	35. 7	573	42. 9	3, 052	36. 8	186	36. 1	1, 636	35. 0	281	36. 8	2, 103	35. 3
Decrease	487	65. 1	4, 000	64. 3	763	57. 1	5, 250	63. 2	329	63. 9	3, 044	65. 0	483	63. 2	3, 856	64. 7
Total	748	100. 0	6, 218	100. 0	1, 336	100. 0	8, 302	100. 0	515	100. 0	4, 680	100. 0	764	100. 0	5, 959	100. 0
UNPROFITABLE																
Long:																
Increase	354	30. 7	1, 914	33. 1	403	34. 0	2, 671	32. 9	483	32. 7	1, 876	33. 6	347	35. 7	2, 706	33. 7
Decrease	798	69. 3	3, 869	66. 9	783	66. 0	5, 450	67. 1	994	67. 3	3, 714	66. 4	626	64. 3	5, 334	66. 3
Total	1, 152	100. 0	5, 783	100. 0	1, 186	100. 0	8, 121	100. 0	1, 477	100. 0	5, 590	100. 0	973	100. 0	8, 040	100. 0
Short:																
Increase	367	65. 8	2, 442	63. 2	481	62. 9	3, 290	63. 4	175	66. 8	1, 377	62. 9	224	63. 8	1, 776	63. 4
Decrease	191	34. 2	1, 422	36. 8	284	37. 1	1, 897	36. 6	87	33. 2	813	37. 1	127	36. 2	1, 027	36. 6
Total	558	100. 0	3, 864	100. 0	765	100. 0	5, 187	100. 0	262	100. 0	2, 190	100. 0	351	100. 0	2, 803	100. 0

and less likely that long cycles will be liquidated at a profit, and consequently we should expect that most unprofitable long cycles would be liquidated under such conditions. A similar situation exists with respect to the short positions. A complete solution of this difficulty would require more elaborate analysis than is possible here.

Some further insight may be gained, however, from a more detailed examination of the conditions under which liquidation takes place. Since this analysis continues to distinguish between profitable and unprofitable cycles it should be kept in mind that with rising prices an increasing proportion of the long cycles in the market show accrued profits, and more and more of the short cycles have accrued losses. With declining prices the situations for the longs and the shorts are, of course, reversed. The data to be presented reflect these facts very clearly, but it is also certain that the liquidation of positions does not occur in a chance manner, and consequently imbedded in the data are the effects of the trading behavior of the individual speculators. There are in all probability common patterns of trading behavior, and it is possible that some traces of such patterns can be discerned.

Cycles Liquidated in Relation to the Extent of Price Change

Futures markets typically are markets in which price changes are frequent, but usually relatively small. With respect to the sample period, this is indicated in table 59, in which the trading days are classified according to the extent of the change in price of the dominant wheat future. There were 648 days on which prices increased by less than 1 cent a bushel, and only 27 days on which there were price increases of 5 cents or more. Decreasing prices of less than 1

Table 59.—*Two-day wheat cycles liquidated: Total number and number per day, by direction and amount of liquidating-day price change, and type of cycle*

Price change in cents	Number of days	Long				Short			
		Profitable		Unprofitable		Profitable		Unprofitable	
		Number	Per day	Number	Per day	Number	Per day	Number	Per day
Increase:									
0–⅞	648	3, 851	5. 94	2, 567	3. 96	2, 182	3. 37	1, 529	2. 36
1–1⅞	373	4, 093	10. 97	1, 577	4. 23	1, 213	3. 25	1, 524	4. 09
2–2⅞	152	2, 654	17. 46	667	4. 39	507	3. 34	1, 048	6. 89
3–3⅞	62	1, 148	18. 52	206	3. 32	170	2. 74	491	7. 92
4–4⅞	41	906	22. 10	127	3. 10	69	1. 68	350	8. 54
5 and over	27	708	26. 22	63	2. 33	46	1. 70	309	11. 44
Decrease:									
0–⅞	691	2, 912	4. 21	3, 512	5. 08	3, 033	4. 39	1, 270	1. 84
1–1⅞	426	1, 999	4. 69	3, 341	7. 84	3, 351	7. 87	874	2. 05
2–2⅞	172	529	3. 08	2, 186	12. 71	2, 075	12. 06	310	1. 80
3–3⅞	54	253	4. 69	773	14. 31	691	12. 80	156	2. 89
4–4⅞	34	159	4. 68	543	15. 97	463	13. 62	74	2. 18
5 and over	25	72	2. 88	599	23. 96	461	18. 44	55	2. 20

cent occurred on 691 days in the sample period, but price declines of 5 cents or more in a single day occurred only 25 times.

Although net price changes in a single day are typically small, futures trading exists only because of price movements; is stimulated by large price changes; and is dampened by price stability. Consequently, it is to be expected that the number of cycles liquidated per day would increase with increases in the extent of the price movement. In table 59 the number of 2-day wheat cycles liquidated is related to the direction and amount of price change in the dominant wheat future on the day the cycle was closed.

Examination of the table indicates that in certain situations the number of cycles liquidated per day increased consistently with each increase in the size of the price movement. This is clearest in the situations which may be termed "regular": Profitable long cycles associated with rising prices, profitable short cycles with falling prices, unprofitable long cycles with falling prices, and unprofitable short cycles with rising prices. In each of these situations a larger price change is associated with a larger number of cycles liquidated per day. For long cycles the progression is from 5.94 profitable cycles per day for price increases of less than 1 cent to 26.22 cycles per day when price changes amounted to 5 cents or more. For unprofitable long cycles and declining prices the range was from 5.08 cycles to 23.96 cycles per day. Profitable short cycles liquidated progressed from 4.39 per day for the smallest price-drop category to 18.44 for the largest. Unprofitable short cycles were liquidated at a rate of 2.36 per day when price increases were less than 1 cent per day, but at a rate of 11.44 when price increases amounted to 5 cents or more on a single day. These figures indicate that there was a strong tendency to liquidate profitable cycles while profits were increasing, and unprofitable cycles when losses were growing.

In contrast to the four situations described as "regular" above are the four situations which may be termed "anomalous." These are: Profitable long cycles liquidated on days of falling prices, profitable short cycles closed out on days of rising prices, unprofitable long cycles liquidated on days of increasing prices, and unprofitable short trades covered while prices were falling. These situations are called anomalous because the current price movement tends to reduce the number of positions in the market which fall in the specified categories. When prices are falling, profitable long cycles and unprofitable short cycles are becoming fewer and fewer. Similarly the unprofitable long cycles and profitable short cycles tend to disappear when prices are rising.

It is also to be expected that the greater the price movement the fewer the number of traders to be found in one of these anomalous positions, and consequently the fewer the number of cycles liquidated. Examination of table 59 will reveal that there is no uniform pattern of this type. There is some evidence of the expected progression in the case of profitable short cycles liquidated on days of rising prices. In this case the number of cycles liquidated declined from 3.37 per day for price increases of less than 1 cent to 1.68 per day on days of price rises of 4 to 4⅞ cents, and to 1.70 when price increases were 5 cents or more. In two of the other three anomalous cases the lowest rate of liquidation occurred on days of price changes of 5 cents or more, but there was little other evidence of the expected pattern.

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Some inferences with respect to trading patterns may be derived from table 59. If cycles were liquidated on a chance basis we should expect a positive progression in the number of cycles liquidated per day in the regular situations, and a negative progression in the anomalous situations. The positive progressions actually found were more pronounced and the negative progressions were much less evident than normally would be expected. This suggests that there was a liquidation pattern in which traders tended to cut profits and losses when they were increasing, but refrained from closing out either profitable or unprofitable trades when price movements were tending to eliminate the accrued profit or loss.

In table 60 a comparison is made between cycles liquidated and price movements on the previous trading day. In this case the expected progressions are again found in the regular situations, although they are somewhat less pronounced and consistent than in the comparison with liquidating-day price changes. The results in the anomalous situations were even more ambiguous than those shown in table 59. In only one of the four cases was the smallest number of cycles liquidated per day associated with the largest price change, and in no case was there more than a suggestion of a negative progression. These results tend to confirm the conclusions drawn from the data shown in table 59. If the effect of the previous day's price movement was to reduce either a profit or a loss there was much less disposition to liquidate than if the effect was to increase the accrued profit or loss.

TABLE 60.—*Two-day wheat cycles liquidated: Total number and number per day, by direction and amount of previous-day price change, and type of cycle*

Price change in cents	Number of days	Long				Short			
		Profitable		Unprofitable		Profitable		Unprofitable	
		Number	*Per day*	*Number*	*Per day*	*Number*	*Per day*	*Number*	*Per day*
Increase:									
0–⅞	648	4, 289	6. 62	2, 604	4. 16	2, 619	4. 04	1, 650	2. 55
1–1⅞	373	3, 774	10. 12	1, 585	4. 25	1, 529	4. 10	1, 579	4. 23
2–2⅞	152	2, 029	13. 35	660	4. 34	600	3. 95	894	5. 88
3–3⅞	62	862	13. 90	237	3. 82	218	3. 52	436	7. 03
4–4⅞	41	586	14. 29	108	2. 63	92	2. 24	278	6. 78
5 and over	27	484	17. 93	93	3. 44	97	3. 59	229	8. 48
Decrease:									
0–⅞	691	3, 659	5. 30	3, 962	5. 73	3, 421	4. 95	1, 476	2. 14
1–1⅞	426	2, 082	4. 89	3, 292	7. 73	3, 080	7. 23	863	2. 03
2–2⅞	172	916	5. 33	1, 766	10. 27	1, 434	8. 34	336	1. 95
3–3⅞	54	289	5. 35	736	13. 63	607	11. 24	127	2. 35
4–4⅞	34	165	4. 85	518	15. 24	329	9. 68	74	2. 18
5 and over	25	149	5. 96	510	20. 40	235	9. 40	48	1. 92

RELATION OF TRADING TO SHORT-TERM PRICE SWINGS

The analysis of relations between trading and price changes on a single day has dealt with only one aspect of the relation between price movements and trading. Actually trading decisions are related to price movements which are several days in length, and in some cases several weeks. It was not possible to explore all these relations in

detail, but some study has been made of the relation of trades liquidated to short-term swings in prices. A short-term price swing is defined here as the total change in price during a period in which the daily close-to-close price changes are all in the same direction. If prices have been falling and then on 1 day rise by 1 cent per bushel, but fall again on the following day, the upward movement is described as an upward price swing of 1 cent, with a duration of 1 day. If the close-to-close price changes had been upward for 2 days, amounting to three-quarters of a cent each day, the upward price swing would have amounted to 1½ cents, and would have had a duration of 2 days. Because of the nature of price changes on futures markets price swings defined in this way rarely have long duration. During the period covered by this study the average duration of the swings in prices of the dominant wheat futures was slightly less than 2 days, and the longest swing lasted for only 9 days. Undoubtedly, many traders in the sample were influenced by price trends which were longer in duration than the price swings as defined here, but in which there were minor interruptions in the series of close-to-close price changes. The market activities of such traders may show little relation to the short-term price movements considered here. It is nevertheless of interest to discover whether trading behavior was in any way related to these short-term swings in prices.

Presumably the trader's objective is to liquidate unprofitable trades—if they cannot be avoided entirely—as early as possible in adverse price movements, and to close out profitable trades as late as possible in favorable price movements. There are a number of formulas designed to achieve such an objective. One of them, for example, calls for the liquidation of unprofitable trades immediately if the market movement is adverse, but the holding of profitable trades until a reversal of the price movement appears. Even with such a formula there would be no uniformity in trading behavior, since there is so much room for interpretation as to what constitutes a reversal of a price movement. But if most traders actually followed such a formula some discernable effect should appear in the data studied here. Incidentally, it is unlikely that the formula referred to above describes the principal trading pattern of the traders in the sample, since under this formula all liquidation would have occurred on adverse price movements, and on relatively small price movements. The analysis of trading as related to daily price changes indicates that this was not the prevailing pattern.

In the examination of liquidation during price swings it is of interest to discover whether positions are closed out early in swings, or whether there is an increasing tendency to leave the market as prices continue to move in the same direction. Table 61 presents a comparison of the number of cycles liquidated on the first day of the short price swings described above, and those liquidated on subsequent days. The tabulating process did not provide the information for this table directly. The figures presented are the result of an estimating process in which for each category it is assumed that the number of cycles liquidated per day on the first day of a price swing of more than 1 day is the number liquidated in 1-day price swings in the same direction. The distinction between regular and anomalous situations is retained, the classification being based on the direction of the price change on the day of liquidation.

TABLE 61.—*Two-day wheat cycles liquidated: Estimated number in different price situations*

Item	Price upswings		Price downswings		Total
	First day	Subsequent days	First day	Subsequent days	
Number of days	729	574	729	673	2,705
	REGULAR SITUATIONS		ANOMALOUS SITUATIONS		
Long profitable cycles:					
Number	6,210	7,151	4,585	1,338	19,284
Percent	32.2	37.1	23.8	6.9	100.0
Cycles per day	8.5	12.5	6.3	2.0	7.1
Short unprofitable cycles:					
Number	2,306	2,945	2,016	723	7,990
Percent	28.9	36.9	25.2	9.0	100.0
Cycles per day	3.2	5.1	2.8	1.1	3.0
	ANOMALOUS SITUATIONS		REGULAR SITUATIONS		
Long unprofitable cycles:					
Number	3,737	1,468	3,909	7,047	16,161
Percent	23.1	9.1	24.2	43.6	100.0
Cycles per day	5.1	2.6	5.4	10.5	6.0
Short profitable cycles:					
Number	3,286	901	3,964	6,110	14,261
Percent	23.0	6.3	27.8	42.9	100.0
Cycles per day	4.5	1.6	5.4	9.1	5.3

Some of the relations shown in table 61 are those which would be expected to result from the price movement. In every case the number of cycles liquidated in accordance with what has been called the regular pattern was greater on later days in the price swing than on the first day. This is consistent with the fact that the longer a price swing lasts the larger the proportion of open positions which should be found in the regular category. For the same reason it should be expected that the number of anomalous positions would decline with continued price swings, and consequently the number of cycles liquidated in these categories to be greater on the first day of price swings than on subsequent days. This was true for each comparison shown in table 61. For later days in price swings the number of cycles liquidated in the regular situations was greater than those liquidated in the anomalous situations. All of these relations are to be expected as effects of continued price movements on the accrued profits and losses of the open positions in the market.

The pattern of liquidation on the first day of price movements is more difficult to interpret. The distinction between regular and anomalous situations is continued here, but it is much less certain to be

associated with the assumed predominance of accrued profits and losses than in the case of later days of a price swing. The first day of an upswing, for example, may come after a prolonged decline in prices. If so, most of the long positions in the market would have accrued losses, and most of the short positions in the market would still show profits. For this reason more cycles were liquidated in anomalous situations on the first day of price movements than on subsequent days. But there were some interesting contrasts between profitable and unprofitable cycles on the first day of price movements that are not so easily explained. For both price upswings and downswings and for both long and short positions the number of profitable cycles liquidated on the first day was greater than the number of unprofitable cycles liquidated. This means that for short cycles on price upswings and for long cycles on downswings the number of cycles liquidated in the anomalous situation on the first day of a price swing was greater than in the regular situation. This suggests that there was a tendency for both longs and shorts to take profits on price reversals, but to let losses run.

The same situation is shown in another way in figure 28 in which the number of cycles liquidated per day is shown for cycles of varying length. In the regular situations the number of cycles liquidated tended to increase with the length of the cycle, and in anomalous situations the number tended to decline with the length of the cycle.[18] But in 1-day price swings the number of profitable cycles liquidated was greater than the number of unprofitable cycles liquidated, whether the situation was regular or anomalous.

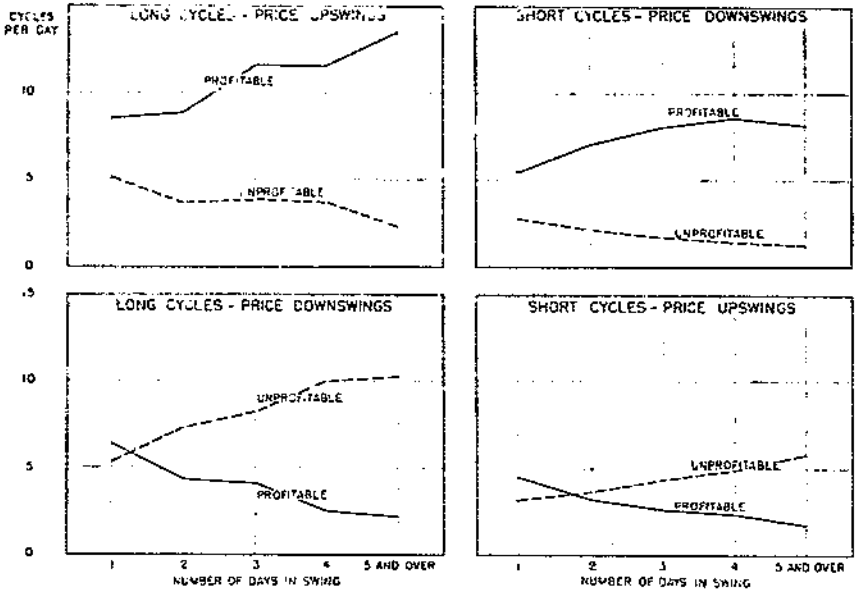

FIGURE 28.—Number of cycles liquidated per day during price movements, by type of cycle, and length and direction of price swing.

[18] There are two exceptions to these general tendencies. There were slightly less profitable long cycles liquidated per day in 1-day price upswings than in 3-day swings. There were also fewer profitable short cycles liquidated per day in price declines lasting 5 days or more than in those which lasted only 4 days.

Another comparison of number of cycles liquidated in price swings is given in table 62, in which the short-term price swings are classified according to the total change in price during the swing. The pattern that develops is quite similar to that revealed when liquidation was related to the amount of liquidating-day changes in prices (table 59). For all of the regular situations shown in table 62 the number of cycles liquidated increased with the amount of the price change. The progression is unmistakable, although less uniform and consistent than was the case with the relation between number of cycles liquidated and liquidating-day price changes. There was slight evidence in table 62 of negative progression in the anomalous situations of unprofitable long cycles and profitable short cycles during upswings in prices, but in both cases the largest number of cycles liquidated per day came with price swings of 7 to 7⅞ cents. It is possible that the tendency to liquidate profitable cycles on price reversals tended to obscure the picture for such cycles. This would not explain the lack of the expected progressions for unprofitable cycles.

TABLE 62.—*Two-day wheat cycles liquidated: Total number and number per day, by direction and total amount of price swing, and type of cycle*

Price change per swing (in cents)	Total days in swings	Long				Short			
		Profitable		Unprofitable		Profitable		Unprofitable	
		Number	*Per day*	*Number*	*Per day*	*Number*	*Per day*	*Number*	*Per day*
Increase:									
0 ⅞	264	1,038	3.93	1,209	4.58	1,118	4.23	394	1.49
1 1⅞	310	2,487	7.31	1,469	4.32	1,229	3.61	930	2.74
2 2⅞	189	2,035	10.77	702	3.71	629	3.33	775	4.10
3 3⅞	160	2,072	12.95	620	3.88	421	2.63	735	4.59
4 4⅞	77	1,198	15.56	295	3.83	183	2.38	419	5.44
5 5⅞	56	895	15.98	177	3.16	115	2.05	308	5.50
6 6⅞	61	961	15.75	196	3.21	130	2.13	460	7.54
7 7⅞	33	539	16.33	209	6.33	151	4.58	235	7.12
8 8⅞	21	325	15.48	108	5.14	49	2.33	168	8.00
9 9⅞	20	360	18.00	47	2.35	39	1.95	163	8.15
10 10⅞	19	338	17.79	21	1.26	13	.68	173	9.11
11 11⅞	21	310	14.76	49	2.33	35	1.67	127	6.05
12 and over	42	803	19.12	100	2.38	75	1.79	364	8.67
Decrease:									
0 ⅞	238	1,379	5.79	709	3.36	646	2.71	579	2.43
1 1⅞	312	1,546	4.96	1,503	4.82	1,506	4.83	652	2.09
2 2⅞	217	912	4.20	1,621	7.47	1,493	6.88	459	2.12
3 3⅞	178	624	3.51	1,368	7.69	1,514	8.51	273	1.53
4 4⅞	134	476	3.55	1,369	10.22	1,368	10.21	222	1.66
5 5⅞	98	309	3.15	1,153	11.77	979	9.99	155	1.58
6 6⅞	62	98	1.58	690	11.13	619	9.98	82	1.32
7 7⅞	29	81	2.79	388	13.38	391	13.48	41	1.41
8 8⅞	49	103	2.10	718	14.65	516	10.53	73	1.49
9 9⅞	15	124	8.27	195	13.00	164	10.93	44	2.93
10 10⅞	17	57	3.35	160	9.41	155	9.12	38	2.24
11 11⅞	16	78	4.88	294	18.38	258	16.12	21	1.31
12 and over	37	136	3.68	698	18.86	465	12.57	100	2.70

SUMMARY

This study is concerned primarily with the trading behavior of small speculators in grain futures, and the results of their trading. Statistics were analyzed on the futures operations of nearly 9,000 traders, extending over a 9-year period (1924–32) and involving more than 400,000 individual futures transactions. This wealth of data, set up on punch cards and processed by machine-tabulation methods, provided comprehensive evidence for the first time on some of the most important questions in the field of futures trading. The study confirms a number of commonly held opinions as to the results of speculative trading; it tends to disprove others which have also been widely accepted.

The first obvious conclusion from the analysis is that the great majority of small speculators lost money in the grain futures market. There were 6,598 speculators in the sample with net losses, compared with 2,184 with net profits, or three times as many loss traders as profit traders. Net losses of speculators were approximately six times net profits, or nearly $12,000,000 of losses, compared with about $2,000,000 of profits. Speculative traders in the sample lost money in each of the four grains traded—wheat, corn, oats, and rye.

Primarily responsible for the high ratio of losses was the small speculator's characteristic hesitation in closing out loss positions. An often-quoted maxim for speculative trading is "Cut your losses and let your profits run." Contrary to this advice, speculators in the sample showed a clear tendency to cut their profits and let their losses run. Futures positions or cycles resulting in losses were held open for consistently longer durations than profit cycles—average losses were larger than average profits—and long cycles were kept open for a greater number of days than short cycles. In wheat futures, for example, the average duration of profit cycles was only 10.5 days, compared with 16.3 days for loss cycles. The average duration of the profit trader in wheat futures was 114.8 days, compared with 182.5 days for the loss trader.

Speculators who did make profits on individual trades were inclined to cut them short. The tendency on individual cycles was to settle for profits which were much smaller on the average than the average loss on trades closed out unprofitably. With this situation, plus the shorter time duration of profit cycles, it is not surprising that there were actually more individual profit cycles than loss cycles.

In wheat futures, for example, there were 42,668 profit cycles compared with 34,373 loss cycles. But the average gain on the profitable cycles was only $212, while the average loss on those unprofitable was $501. Obviously, the outcome was a net loss, not only from the standpoint of the greatest number of traders, but also from the standpoint of aggregate profits and losses of the group as a whole. What happened, of course, was this: When profits on one trade were combined with losses on other trades, the end result was a net loss for the great majority of speculators.

The study confirms the commonly held impression that the amateur speculator is more likely to be long than short in the futures market. About half of the speculators in wheat and corn had positions only on

one side of the market, and of this group, those on the long side only greatly exceeded the number with short positions only. However, the one-side-only traders did only a minor proportion of the total trading. The other half of the speculators who had both long and short cycles accounted for most of the trading in wheat and corn. From the standpoint of market activity, the preference for the long side was not as great as is sometimes supposed. In wheat futures approximately 63 percent of the cycles were long and 37 percent short, and in corn 58 percent were long and 42 percent short. The preference for the long side was more pronounced in oats and rye.

Analysis of the data shows that a great majority of speculators in the sample had relatively small profits and losses. The profits of 84 percent of the profit traders were less than $1,000 each, and the profits of 39 percent less than $100 each. The losses of 68 percent of the loss traders were less than $1,000 each, and 16 percent had losses of less than $100 each. Obviously, a very large percentage of the traders in the sample operated on a small scale, and many of them discontinued trading before realizing large profits or suffering large losses.

Short positions of speculators tended to show profits more frequently than long positions. While a majority of the trades of consistent bulls resulted in losses, consistent bears in all gains had more profits cycles than loss cycles. Among traders who operated on both sides of the market, there was also a greater frequency of profits on short cycles than on long cycles. In spite of this, however, the total losses of short sellers exceeded their total profits—just as in the case of consistent longs.

The representation of large-scale traders in the sample was not broad enough to warrant positive conclusions as to the success of large speculators in grain futures, as compared with the profits and losses of small traders. There was no evidence, however, that the largest size classes included a higher proportion of successful traders than the groups with smaller average positions. Generally speaking, the large and small traders alike were unsuccessful in their trading.

Among all the major occupational groups losses from speculative trading in grain futures greatly exceeded profits. Among managers of business concerns, for example, there were 840 profit traders, compared with 2,563 loss traders. The aggregate profits of this occupational group amounted to $1,076,300, against losses of $6,210,200. Persons with occupations "unknown" had the greatest proportion of profit traders—32.3 percent. Farmers had the lowest proportion of profit traders—21.2 percent. "Retired" persons made up the only group having a better-than-average proportion of profit traders in each of the four grains covered by the survey.

From the standpoint of aggregate profits and losses for occupational groups, managers in the grain business were somewhat more successful in speculative trading than other groups. But even with this class aggregate profits in dollars were only 28 percent of aggregate losses. Semiprofessional workers showed the lowest profit ratio in aggregate dollar amounts—11 per cent. The profit ratio for farmers on this basis was 13 percent. In general, the chances for success in grain futures trading did not differ greatly from one occupation to another. Special knowledge of the commodity traded seemed to have little effect on the outcome of speculative trading during the period studied.

The study clearly shows the tendency of long speculators to buy on days of price declines, and for shorts to sell on price rises. Analysis of 58,000 two-day cycles showed that almost 62 percent of the two-day long cycles were initiated on days of decline in the price of the dominant future, and that 55 percent of the two-day short cycles began on days of advancing prices. Furthermore, the greater the price decline on a given day the larger the number of long cycles initiated. Trading against the current movement of prices was the dominant pattern on both sides of the market, but was not nearly so definite for shorts as for longs.

The tendency of longs to buy on price declines and for shorts to sell on price rises indicates that traders in the sample were predominantly price-level traders. Longs tended to buy when prices fell below levels which they considered proper, and shorts sold when prices advanced above levels which they believed justified. The inclination to trade according to predetermined price opinions apparently was not disturbed by the long period of declining prices from 1929 to 1932. However perverse it may seem, this period of declining prices stimulated speculative buying by small speculators, although the activity of short sellers was dampened slightly.

It has not been possible in this study to explore all the aspects of speculative trading on grain futures markets, nor to answer all the questions which have been raised. A final comment should be made involving a most important question. As already indicated, the losses of traders in the sample were much greater than their profits. If these results are representative of trading by small speculators generally, there must be other groups—large speculators, scalpers, spreaders, or hedgers—which make very large profits.

There is no known empirical study, however, which reveals other groups of traders with net profits sufficient to balance such large losses as those suffered by small speculators in the sample. Yet the nature of futures trading is such that all losses are balanced by profits. This raises the most important question left unanswered by this study. Was the sample in this respect not typical of small speculative traders? There is no apparent reason for pronounced bias in the direction of losses. If the sample is representative, is there another group of traders who consistently make profits large enough to balance the losses of small speculators? There is no convincing evidence that such large profits are made by any class of traders. These are questions which can be answered only by further studies of the results of futures trading.

APPENDIX

LIST OF TABLES

LIST OF FIGURES

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END