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Commodity Futures II: Gains and Losses of Hedgers and Futures-Speculators

H. S. Houthakker and L. G. Telser

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1. Introduction

The financial outcome of operations in commodity markets, particularly of hedging and speculation, is an item of interest for its own sake and may also throw considerable light on the validity of any theory about price relations in such markets. If the actual records of traders are available the measurement of financial results is a comparatively simple matter, but in the absence of such information only indirect and hypothetical inferences are possible. As part of the present inquiry an attempt at estimation, based mainly on the excellent statistics recently published in [4], has been undertaken, on which this paper is a first report.

Among previous contributions on this subject the most important one was made by Stewart [2], who made a very detailed analysis of the accounts of about 9,000 customers of a brokerage firm over the period 1925-34. These accounts reflected almost exclusively speculative transactions, mainly by non-professional traders. The most striking results were that nearly 75% of the speculators lost money, and that in the entire sample total losses were about six times total gains. Since in the futures market as a whole, gains and losses cancel out (apart from commissions) the problem arises by whom corresponding profits were made. Although Stewart's material could not shed much light on this problem, he seems to have thought it difficult to account for the large losses observed and to have suspected some unknown bias in his sample. There are in fact two possible sources of bias. In the first places, prices in 1934 were much lower than in 1925, while the customers tended to prefer the long side; this effect, however, does not explain a great deal since the trading experience of the shorts in the sample was not much

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less disastrous than that of the longs. A second source of bias may have been that the firm with whom the accounts were held went bankrupt, which casts some doubt on the reliability of the advice they presumably gave to their clients.

If no actual trading accounts are available, estimates of gains and losses must be made from price movements and assumptions about commitments; this was done for speculators in [5] and for hedgers in [6]. A basically similar technique was adopted by us, but with greater use of observed data and for a much longer period than was possible before.

2. Method and data.

The method followed is very simple in principle. For any particular commitment the difference in the relevant price (or prices) between two instants or periods of time is multiplied by the size of the commitment. Thus if the position of a futures - speculators between times t_1 and t_2 were w_k bushels, and futures prices were $p_z\ (t_1)$ and $p_z\ (t_2)$ respectively, then the net money gain will be

(1) $$w_k \{p_z\ (t_2) - p_z\ (t_1)\}$$

Similarly for a short hedger with a position of v_k bushels the net gain will be

(2) $$v_k \left[\{p_x\ (t_2) - p_x\ (t_1)\} - \{p_z\ (t_2) - p_z\ (t_1)\}\right]$$

where p_x is the cash price. The first expression in curly brackets is the result per bushel in the cash market, the second one the same for the futures market.

These results are hypothetical, for they assume that the position was opened at t_1 and closed at t_2. Moreover they are inaccurate to the extent that the values used for p_x and p_z are not those used in actual transactions; particularly in the case of cash prices this inaccuracy is hard to

avoid because there are so many of them. It is also necessary to recognize that these results are comparative with respect to some stated alternative. Thus (1) is the outcome of a futures transaction compared to not trading at all (rather than to taking and liquidating a position of opposite sign); (2) is the outcome of a short hedging transaction compared again to having no commitment in any of the two markets, not to holding unhedged stocks.

Calculations of this sort were carried out for futures-speculation and hedging in corn and wheat. Data about futures commitments were obtained from [4] for crop years beginning in 1937-9 and in 1946-51, i.e. nine crop years in all. These are tabulated by futures, though not completely, and by three types of traders: large hedgers (with at least 200,000 bushels in any one future), large speculators (similarly defined and including spreaders) and non-reporting traders (those whose commitments do not reach 200,000 bushels in any future). From such meager evidence as is available it seems fairly certain that the non-reporting traders contain relatively few hedgers, and include the large mass of outside (non-professional) speculators. The large speculators are probably almost entirely professionals. These figures are available for the end of each month during the period.

Futures prices used were unpublished monthly averages of daily closing prices in Chicago, computed by the Commodity Exchange Authority. For the hedging calculations monthly averages of cash prices in Chicago were used, viz. of No. 3 yellow corn and No. 2 Hard Winter Wheat [3]. In corn these are averages of actual prices weighted by carload sales and therefore not strictly comparable with the futures prices, but this is only a minor source of error. The cash price series for Chicago wheat is of more doubtful value because there is little cash wheat trading in Chicago during most of the year, so that the series is mostly nominal; it would have been better to use weighted

averages of cash prices in various cities and attempts on those lines are under consideration. The latter difficulty is less serious in corn because Chicago is the most important cash market and virtually the only futures market.

A more serious defect of the hedging calculations, as will be clear from [1], is the neglect of the heterogeneity of cash transactions which is one of the mainsprings of hedging. Gains and losses based on one contract grade will therefore give a rather imperfect picture of the outcome of actual hedging transactions, which are probably more profitable than can be estimated in this manner.

The following results can be interpreted as applying to transactions that are open at the end of the month in which they have been initiated. The initial price for each position was the average price in the month before the observed date, the liquidation price the average in the succeeding month. The implied average duration of commitments is therefore one month; figures derived by Stewart [2] suggest that at any rate for speculators this is reasonably close to reality. A commitment of say three months can be regarded as being composed of three commitments of one month, since intermediate liquidation or renewal are always possible. Commission and other charges are not taken into account.

Although these calculations are still of a hypothetical nature, they are nevertheless more realistic than previous attempts in that they reflect the actual distribution of commitments between futures, instead of assuming, e.g. that futures commitments are always in the nearest or in the dominant future. This is especially important because the distribution between futures is highly variable both seasonally and between different groups of traders (cf. Section 4).

3. Gains and losses in futures only.

Table I shows the distribution of gains and losses in futures markets between (large) speculators, (large) hedgers and non-reporting traders. For the crop years 1937-40 these refer to the Chicago Board of Trade only, for 1946-51 to all markets combined. The omission of other markets in the pre-war years in unimportant for corn, but important for wheat where much futures trading is done in Kansas City and Minneapolis. The crop year for corn starts on October 1, for wheat on July 1. The first 6 months of the crop year 1946-47 had to be omitted in wheat because futures trading was still restricted. It will be noted that the gains and losses of the three groups always add to zero apart from rounding off. Table I also shows the net price change (in ¢ per bushel) for each period; this is derived from the cash price series mentioned above.

Despite the considerable variability of the entries in Table I, certain broad conclusions may tentatively be advanced, pending further analyses, some of which are reported below. It appears that on the whole, the (large) hedgers lost, the (large) speculators gained and the small traders lost. In the case of the hedgers, of course, only results in the futures markets are shown, which are more or less offset by results in the cash market (cf. Section 5). Most conspicuous is the profitability of the large speculators' transactions; even though they lost in a few years, they never lost much. This shows considerable flexibility in the adjustment of their position to changing circumstances. Less flexibility is apparent in the behavior of small traders, who on the whole tended to be long and therefore to lose when prices fell, as they did over the period as a whole. This tendency is by no means uniform, however; in 1946-47 small corn traders went short when prices were still rising and lost considerably, but when the downturn came, somewhat later than they

Gains and losses of traders in corn and wheat futures, as estimated from price change in each future; also net change in cash price
(gains and losses in thousands of $, price changes in ¢ per bushel)
(+ = gain or rise, - = loss or fall)

CROP YEAR	CORN				WHEAT			
	gain or loss of			net change in cash price	gain or loss of			net change in cash price
	hedgers	speculators	non-reporting traders		hedgers	speculators	non-reporting traders	
1937-38	+ 412	+ 223	- 634	- 21	+ 21,933	+ 369	- 22,301	- 55
1938-39	+ 1,851	- 858	- 993	+ 3	+ 5,911	- 452	- 5,459	- 3
1939-40	- 1,650	+ 550	+ 1,100	+ 16	- 2,588	+1,698	+ 890	+ 7
total pre-war */	+ 614	- 85	- 528	- 2	+ 25,255	+1,615	- 26,870	- 51
1946-47 **/	- 202	+6,134	- 5,932	+ 58	+ 6,769	+1,427	- 8,197	+ 21
1947-48	- 380	+1,353	- 973	- 93	- 22,858	+13,395	+ 9,463	- 9
1948-49	+3,592	- 551	- 3,041	- 32	- 342	+1,564	- 1,223	- 31
1949-50	-6,141	+2,560	+ 3,581	+ 37	- 5,441	+5,099	+ 341	+ 27
1950-51	-5,541	+2,488	+ 3,053	+ 26	- 473	- 55	+ 527	+ 7
1951-52	+1,961	- 268	- 1,694	- 19	- 9,191	+4,242	+ 4,949	- 5
total post-war ***/	-6,711	+11,715	- 5,004	- 23	-31,535	+25,674	+ 5,861	- 10
grand total	-6,097	+11,630	- 5,532	- 25	- 6,280	+27,289	-21,009	- 61

*/ Chicago Board of Trade only
**/ Last 6 months only for wheat
***/ All markets combined

had thought, they were no longer in a position to cash in on it. In wheat, too, small traders were speculating against the upturn of early 1947 and lost heavily, but later that year they reversed their position and thus managed to reap large gains from the tail end of the boom, much of which was lost again when prices broke early in 1948.

More definite conclusions must await the completion of a detailed analysis of the monthly figures, but it already seems certain that the usual picture of the small outside speculator as an incurable bull, who is especially stimulated by price rises, is not confirmed here. On the contrary, it appears that small traders, possibly influenced by the gloomy predictions of economists shortly after the war, were much more depression-conscious than they should have been. The large losses initially resulting from this Cassandra attitude may have unnerved them to such an extent that in the end they failed to earn the just rewards of their pessimism. It also appears that the boom of 1947, except perhaps in its final stage, was not of a speculative origin but primarily caused by a shortage of spot supplies.

4. <u>The distribution of open contracts by futures, and its effect on gains and losses</u>.

The calculations summarized in Table I were obtained by applying appropriate price changes to the open contracts in each future separately. Since the data necessary for this approach are available only for corn and wheat it is desirable to see whether a simpler method, based on less information, would still yield reliable results and might therefore be applied to other commodities. Such an alternative calculation will also show, when compared with Table I, how much of the gains and losses of each group of traders is due to the way in which that group distributes its commitments between different futures.

It is first necessary to show that there are in fact considerable differences between the distributions of commitments for the three categories of traders. To put this in a convenient form we calculated the "average length of commitment", showing how long on the average the futures contracts of a group have to run till maturity. It is defined by

$$(3) \qquad l_i^{(h)} = \frac{\sum_j w_{ij}^{(h)} t_{ij}}{\sum_j w_{ij}^{(h)}}$$

Where $l_i^{(h)}$ is the average length of commitment (in months), h is an index for the group of traders considered (e.g. the long hedgers), i is the time at which commitments are observed, j the time at which the future expires, $w_{ij}^{(h)}$ the open contracts of group h at time i in future j, and t_{ij} the interval from i to j (in months). It turns out that $l_i^{(h)}$ shows considerable seasonable variations, as can be seen from Table II (obtained from post-war observations only). On the whole the hedgers are in nearer futures than the non-reporting traders, and the(large) speculators are in even more distant futures. There are also some conspicuous differences between the long and short side of each group; we see e.g., that towards the end of the crop year the short hedgers are in nearer futures than the long hedgers, but that this relationship gets reversed as the crop comes in. It can also be observed that, throughout in corn and at the beginning of the crop year in wheat, the short speculators have a greater average length of commitment than the long speculators, indicating perhaps a considerable amount of "forward spreading", i.e. spreading which, on the expiry of the nearest future, will turn into short hedging.

Because in each future the longs and the shorts must be equal the entries in Table II are not independent when taken by rows. There is a linear

Table II

Monthly averages of average length of commitment for various groups of traders.

Commodity	C O R N						W H E A T					
group of traders	hedgers		speculators		non-reporting		hedgers		speculators		non-reporting	
long or short	long	short	long	short	long	short	long	short	long	short	long	short
January	4.00	4.33	4.74	5.63	4.86	4.75	4.18	4.10	4.63	4.90	4.66	4.75
February	3.51	3.85	4.21	5.32	4.63	4.17	3.54	3.38	4.51	4.51	4.10	4.39
March	2.97	3.04	3.74	4.93	4.06	3.90	3.25	2.89	4.36	4.12	3.64	4.03
April	2.94	2.53	3.22	4.61	3.61	3.69	2.97	2.76	4.27	3.71	3.44	3.90
May	3.71	2.50	3.50	4.44	3.71	3.87	3.36	3.14	4.38	3.97	3.69	4.17
June	3.07	2.43	3.74	4.74	3.74	3.77	3.09	3.95	4.80	4.99	4.65	4.17
July	3.87	3.19	4.85	6.05	4.17	4.20	3.17	4.53	5.31	5.99	5.84	4.69
August	3.92	3.54	4.99	5.78	4.34	4.38	4.03	4.91	5.17	6.48	5.85	5.03
September	4.65	4.70	5.39	5.97	5.40	4.92	4.30	4.83	5.56	6.90	5.71	5.45
October	4.38	4.74	4.92	5.99	5.31	4.70	4.11	4.73	5.39	6.18	5.18	4.80
November	4.24	4.81	4.91	6.19	5.57	4.90	4.56	4.74	4.91	5.90	5.32	4.72
December	4.83	5.14	5.28	6.06	5.57	5.41	4.96	4.79	5.27	5.62	5.31	5.53

relation between them involving the average commitments of the various groups; the latter will not be given in this paper.

Having seen that there are in fact differences in length of commitment between groups of traders we must now see how serious they would be in a simplified calculation of gains and losses. The entries in Table I can be written as

$$(4) \qquad g_i^{(h)} = \sum_j w_{ij}^{(h)} \Delta p_{ij}$$

Where $g_i^{(h)}$ is the gain or loss of the h-th group on the open contracts held at time i, $w_{ij}^{(h)}$ has the same meaning as in (3) and Δp_{ij} is the change in the price of the j-th future from the i-th to the (i+1)-th month. If the $w_{ij}^{(h)}$ are unknown we can alternatively work with

$$(5) \qquad g_i^{(h)} = w_j^h \frac{\sum_j w_{ij} \Delta p_{ij}}{\sum_j w_i}$$

Where $w_j^{(h)} = \sum_j w_{ij}^h$ and w_{ij} is the total of open contracts over all groups of traders (long or short side only). Data on $w_j^{(h)}$ and w_{ij} are available for a considerable number of commodities. It will be seen that (5) assumes that the proportionate distribution of contracts between futures (and therefore the average length of commitment) is the same for all groups of traders. Results using (5) are given in Table III.

Comparing Tables I and III it can be seen that in the latter the results for hedgers and speculators are rather consistently less favorable than in the former; correspondingly the results for non-reporting traders are more favorable. Since (4) is no doubt more accurate than (5) it appears that (5) gives definitely biased results. On the other hand this bias does not seem to be so large as to make results obtained with (5) altogether unrepresentative. Calculations using (5) for other commodities, particularly cotton, are

Table III

Gains and losses of traders in corn and wheat futures, as estimated from weighted index of price changes (for explanation and footnotes see Table I)

CROP YEAR	CORN			WHEAT		
	hedgers	speculators	non-reporting	hedgers	speculators	non-reporting
1937-38	+ 356	+ 232	- 588	+ 22,049	+ 148	- 22,197
1938-39	+ 1,732	- 835	- 898	+ 5,739	- 490	- 5,249
1939-40	- 1,656	+ 541	+ 1,115	- 2,751	+ 1,638	+ 1,112
total pre-war*/	+ 432	- 61	- 371	+ 25,037	+ 1,296	- 26,334
1946-47**/	- 158	+ 5,867	- 5,708	+6,725	+ 1,070	- 7,795
1947-48	- 447	+ 1,144	- 696	- 24,142	+ 12,712	+ 11,430
1948-49	+ 3,701	- 726	- 2,975	- 171	+ 1,031	- 860
1949-50	- 6,193	+ 2,624	+ 3,569	- 5,145	+ 4,571	+ 574
1950-51	- 7,056	+ 3,007	+ 4,049	- 992	+ 305	+ 686
1951-52	+ 1,433	- 362	- 1,071	- 8,868	+ 3,467	+ 5,402
total post-war***/	- 8,720	+ 11,552	- 2,832	- 32,593	+ 23,156	+ 9,437
grand total	- 8,288	+ 11,491	- 3,203	- 7,556	+ 24,452	- 16,897

therefore in preparation.

From these two tables it is also evident that the distribution of commitments between futures is related to the financial success of the three groups. As a first attempt to make this effect more specific a calculations of gains and losses in expiring futures was made. Towards the end of the life of a future the amount of deliverable stocks becomes increasingly important for its price, and this is a factor which large hedgers and large speculators, since they are professionals, can evaluate much better than the small outsiders. We therefore expect that non-reporting traders will do particularly badly in these expiring futures. Table IV confirms this view; like Table I it reflects the gains and losses on commitments in the expiring future open at the beginning of the delivery month, assuming that they were open at the average price in the preceding month and closed at the average price during the delivery month. The calculation was not possible for

Table IV

Gains and losses of traders in expiring corn and wheat futures (in thousands of $)

PERIOD	C O R N			W H E A T		
	hedgers	speculators	non-reporting	hedgers	speculators	non-reporting
pre-war	- 316	- 3	+ 319	- 577	+ 713	- 136
post-war	- 2,207	+ 4,477	- 2,270	- 462	+ 3,990	- 3,528
total	- 2,523	+ 4,474	- 1,951	- 1,039	+ 4,703	- 3,664

all expiring corn futures during the period and the figures in Table IV are subject to revision. There appears to be a difference between pre-war and post-war years, especially in corn; this may be due to differences in the

composition of the three groups of traders. At any rate it may be inferred that the trade in expiring futures is a major source of revenue for the large speculators and a very unpromising venture for the small traders, though of course none of our results are too cheering for them.

In interpreting Tables I and III it would be useful to have an idea of the commissions and other trading costs incurred. Unfortunately these are hard to estimate with any precision; for the non-reporting traders the amount paid annually in commissions is probably somewhere between $3,000,000 and $5,000,000 for both corn and wheat. The commissions paid by hedgers and speculators are probably much lower since many of them will be members of an exchange.

5. Net gains and losses of hedgers in corn.

The results given for hedgers in Tables I, III and IV relate only to their futures position; to obtain a complete picture it is of course also necessary to look at their cash position. As pointed out in Section 5 this meets with many difficulties arising from heterogeneity, which are especially serious in wheat because of the decentralization of futures trading. Although the calculations reported below for corn were also made for wheat, and yielded very similar results, we will not give them here but try to find a more satisfactory way of accounting for price changes.

The outstanding conclusion from Table V is that in the period observed long hedging was much more profitable than short hedging, though this was not true for all crop years. In fact there seems to be a difference between the pre-war and the post-war years in this respect, which can be explained by the fact that before the war stocks were generally higher, and the "basis" consequently lower, than thereafter. A low basis favors short hedging, a high basis favors long hedging (cf. [1]). The nine years as a whole were

Table V

Gains and losses of hedgers in cash corn and corn futures, by crop years (in thousands of $).

CROP YEAR	LONG HEDGERS			SHORT HEDGERS		
	cash	futures	net	cash	futures	net
1937-38	+ 2,247	- 2,074	+ 173	- 1,876	+ 2,486	+ 610
1938-39	- 868	+ 201	- 668	+ 952	+ 1,651	+ 2,602
1939-40	- 1,491	+ 917	- 575	+ 4,953	- 2,566	+ 2,387
total pre-war	- 113	- 957	- 1,070	+ 4,029	+ 1,570	+ 5,600
1946-47	- 5,045	+ 10,601	+ 5,555	+ 1,428	- 10,803	- 9,375
1947-48	+ 6,947	- 1,824	+ 5,124	- 6,683	+ 1,444	- 5,239
1948-49	+ 3,853	- 1,063	+ 2,790	- 5,235	+ 4,655	- 580
1949-50	- 1,199	+ 1,642	+ 443	+ 9,405	- 7,783	+ 1,623
1950-51	- 2,039	+ 2,809	+ 769	+ 8,574	- 8,350	+ 224
1951-52	+ 2,967	- 734	+ 2,232	- 2,593	+ 2,695	+ 103
total post-war	+ 5,483	+ 11,430	+16,914	+ 4,897	- 18,141	-13,244
grand total	+ 5,371	+ 10,473	+15,844	+ 8,926	- 16,570	- 7,644

Table VI

Net gains and losses of hedgers in cash corn and corn futures, and volume of hedging by months (1937-40 and 1946-52)
(absolute amounts in $000, per bushel in ¢, volume in millions of bushels)

MONTH	LONG HEDGERS					SHORT HEDGERS				
	cash	futures	net total	net per bu.	volume	cash	futures	net total	net per bu.	volume
October	+4,301	+3,687	+7,988	+8.7	91.5	-6,854	-6,446	-13,300	-7.9	166.9
November	-5,837	+3,758	-2,079	-2.4	84.7	+18,919	-10,219	+8,700	+3.5	250.1
December	-1,803	+869	-933	-1.2	80.5	+4,786	-2,097	+2,689	+0.9	282.9
January	+6,917	-6,506	+410	+0.5	77.8	-14,319	+13,019	-1,301	-0.5	272.2
February	-3,941	+2,665	-1,276	-1.7	74.3	+8,486	-4,816	+3,670	+1.4	256.9
March	-1,760	+1,488	-275	-2.7	76.3	+5,311	-4,233	+1,078	+1.2	237.6
April	-526	-151	-676	-1.0	68.7	+2,160	+450	+2,610	+1.4	191.0
May	-3,239	+2,247	-991	-1.7	59.1	+283	+725	+1,008	+0.6	158.3
June	-10	+925	+915	+1.4	65.7	+887	-587	+300	+0.2	136.8
July	+478	+900	+1,377	+2.4	55.9	-2,188	+187	-2,001	-2.0	102.3
August	+839	+1,754	+2,593	+3.4	72.8	+1,379	-3,837	-2,458	-2.6	95.4
September	+9,952	-1,165	+8,789	+9.7	90.3	-9,922	+1,284	-8,639	-9.0	96.1
Total	+5,371	+10,473	+15,844	+ 1.76	897.6	+8,926	-16,510	-7,644	-0.34	2,246.4

probably about average in this respect, and therefore we lumped them together in Table VI to show seasonal movements.

Table VI, in fact, shows much the same phenomenon within the crop year. In the early part of the crop year, when stocks are large, short hedgers gain and long hedgers lose; the opposite is true at the end of the crop year when stocks are small. Hedging carry-over stocks is evidently an unprofitable transaction, at least according to our method of calculation. This method, however, is particularly inaccurate when stocks are small and the new harvest is just coming in, for it is based only on the price of the contract grade at Chicago. The latter is not of much interest either to the holder of carry-over stocks in other grades and locations, nor to the country elevator operator who is buying early arrivals from farmers but cannot transport them to Chicago in time to profit from the old crop price. During this period, therefore, the method used in Tables V and VI is biased against short hedgers and in favor of long hedgers. It will be seen that leaving out, e.g., the months of September and October when harvesting is in full swing would change the net gains and losses drastically.

The "volume" columns of Table VI indicate that both long and short hedging are responsive to prospects of profit, though in the case of short hedging not enough so to offset the large losses calculated for the harvesting period. The net gains for short hedging still have to be reduced by commission and storage charges, which are of the order of 1 cent per bushel per month. Even in the most favorable months short hedging in contract grades was therefore not noticeably profitable.

6. Final remarks.

We have stressed repeatedly that any conclusions drawn from our figures must be tentative because of their preliminary nature, the absence of sig-

nificance tests and the limitations of methods and data. Nevertheless it may be useful to consider some general questions raised by them.

In the first place we obtained substantial confirmation of Stewart's findings that outside speculators do very badly, especially if commissions are taken into account. It is true that Stewart also found no difference in success between large and small operators, whereas on our results large speculators do very well, but this can be explained by a difference in definition. Stewart's large traders, of which there were only a few in his sample, were typically outsiders since they traded through a broker; the large speculators on the official definition used by us are probably mostly professionals who deal directly on the exchange floor.

The profits of these large speculators (in our sense) appear to have two sources. If cash prices are approximately constant in the long run, a certain amount of profit can be derived from taking the opposite side of hedging positions, constituting what has often been called a risk premium. This premium they apparently receive, which means essentially that as futures-speculators they get a share of the results of the cash-speculation that hedgers shift to the futures market.

Another source of their profits is of a more questionable nature, viz. that which is based on the misguidedness of small outsiders. There is little reason to stop people from risking their money in unpromising ventures, but to the extent that the profits of large traders originate in this manner, their economic function does not differ from that of the owner of a gambling casino. Somewhat more publicity about the ex post results of uninformed speculation might lead the enthusiasts to reconsider whether they do not pay too much for the excitements of commodity trading.

It is true that by their participation small traders increase the per-

fection of the market and that we have found no evidence of a destabilizing effect of their operations. However, if they contributed to the process of production and distribution they would no doubt get some return in the long run, and since they apparently get no return the value of their contribution is doubtful. This question is often discussed purely in terms of psychological effects leading to waves of speculation, but even if, as seems more likely, small traders have a dampening effect on price movements their influence might be undesirable because they would thus retard needed adjustments.

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