

STOCK INDEX FUTURES: HEDGING OR SPECULATIVE MARKETS?

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ABSTRACT

The market structure of futures contracts is a neglected topic which has implications for futures pricing, regulation, and contract success. This paper examines the hedging versus speculative market structure for stock index futures contracts. Open interest data for speculators, hedgers, and non-reporting traders are analyzed across contracts and across time in order to determine the relationship between these categories and total open interest. Various measures of speculative and hedging importance show that most of the stock index futures contracts have matured from speculative markets to hedging markets over time. The S&P 500 contract is most closely associated with hedging, while speculation has almost no effect on this contract's total open interest. Other stock index futures have a greater speculative component, especially the NYSE contract.

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I. INTRODUCTION

The relative importance of hedging versus speculation for stock index futures has been a vigorously debated topic since the futures exchanges proposed contracts in this area. While cash settlement of these contracts created controversy and legal issues associated with gambling,¹ the key issue was the potential for excessive and unwarranted speculation. These fears concerning speculation caused the CFTC and the exchanges to require large initial margins for speculative positions, as well as to delay the implementation of these contracts for several years.

The two criteria for CFTC approval of a futures contract are price discovery and hedging ability. In fact, the existence of futures markets are often linked to the success of such markets to transfer risk from hedgers to speculators. While studies by Peck (1980a,b) provide evidence that large agricultural markets became less speculative and more of a hedging market from the 1960s to the 1970s, comparable evidence does not exist for stock index futures.

This paper examines the structure of the stock index futures market by analyzing the relative importance of large speculators, large hedgers, and non-reporting users of stock index futures. These categories are compared and analyzed across contracts and across time. The purpose of this paper is to determine the relative importance of these categories and to provide evidence that stock index futures have developed from speculative markets to hedging markets.

II. THE ISSUES AND THE DATA

A. Market Structure in Stock Index Futures Markets: The Issues

Determining the market structure of futures markets shows whether a particular futures contract is a hedging or a speculative contract, and whether the futures are dominated by large or small traders. In particular, stock index futures have been the brunt of numerous allegations that speculation has an undue influence on these futures and that the financial markets would be better served without these "dens of inequity". However, if these markets are truly hedging markets then they provide an important service to the financial community that can not be adequately obtained elsewhere.

Market structure for stock index futures is examined in this paper by analyzing the total open interest for the large noncommercial, large commercial, large spreading, and the non-reporting categories of the CFTC's Commitments to Traders. The noncommercial category is the speculative accounts, while the commercial category is the hedging accounts.² The data is also divided into long and short positions. The structure of these markets is investigated by calculating the relative proportions of these categories, both over time and across contracts, and by determining various measures of the speculative and hedging activity in these markets. Such measures include the net hedging balance, the speculative and hedging ratios, the speculative index, and the R^2 values from regressions of changes in the hedging/speculative open interest to changes in the total open interest.

The proportions of the four categories across contracts and time provide an initial measure of the relative importance of the speculative, hedging, and non-reporting categories. Determining the net hedging

balance, speculative and hedging ratios, and speculation index provide more specific evidence on the speculative versus hedging aspects of the stock index futures markets.

Net hedging balance between short and long hedgers is deemed important for long-term stability in the market. Hence, a market where speculators provide a temporal bridge between temporary long and short imbalances is deemed necessary, but a market where speculators are needed to offset a large consistent imbalance between long and short hedging positions creates potential for an unstable market. Hence, whether and when hedging balance occurs is an important issue for market stability and maturity.

The speculative and hedging ratios and the speculative index provide alternative measures of the balance in the market, with the objective of determining the extent of the excess speculation in the market in relation to the amount of hedging.³ The speculative ratio is defined as:

$$\begin{aligned} \text{SR} &= \text{SL}/\text{HS} && \text{if } \text{HS} > \text{HL} \\ \text{or} &&& \\ &= \text{SS}/\text{HL} && \text{if } \text{HL} > \text{HS} \end{aligned}$$

(1)

The hedging ratio is determined by:

$$\begin{aligned} \text{HR} &= \text{HL}/\text{HS} && \text{if } \text{HS} > \text{HL} \\ \text{or} &&& \\ &= \text{HS}/\text{HL} && \text{if } \text{HL} > \text{HS} \end{aligned}$$

(2)

Where:

SR = the speculative ratio

HR = the hedging ratio

SL = the amount of long speculation

SS = the amount of short speculation

HL = the amount of long hedging

HS = the amount of short hedging.

The speculative and hedging ratios are used separately and in conjunction with one another to determine how the larger component of the long/short hedging category is offset. For example, when short hedging is larger than long hedging then the speculative ratio examines the ratio of long speculation to short hedging, while the hedging ratio examines the ratio of long hedging to short hedging.

When short and long hedging are not balanced then speculation must create the needed balance. Hence, when $HS > HL$ then long speculation creates the net balance, with such speculation occurring either in the noncommercial or the non-reporting categories. To the extent that excess long speculation exists then additional (short) speculation must come into the market to create an overall balance between the long and short open interest figures. Determining the speculative ratio examines the relationship between the dominant speculative and hedging long/short categories. Meanwhile, the hedging ratio measures the extent of the balance between the short and long hedging open interest. The relationship between the two ratios provides evidence concerning whether speculation, hedging, or neither dominate a particular market.

The speculative index provides an alternative measure of the relationship between speculation and hedging. The speculative index, as first stated by Working (1960), is defined as:

$$\begin{aligned} \text{SI} &= 1 + \text{SS}/(\text{HL} + \text{HS}) && \text{if } \text{HS} > \text{HL} \\ \text{or} &&& \\ &= 1 + \text{SL}/(\text{HS} + \text{HL}) && \text{if } \text{HL} > \text{HS} \end{aligned}$$

(3)

Where:

SI = the speculative index.

The speculative index concentrates on the proportion of speculation that exists that is not needed to balance net hedging. Thus, when short hedging dominates then short speculation is not needed to make the market function or to create a net hedging balance. Hence, such short speculation necessitates additional long speculation to balance the market. The speculative index provides a measure of the amount of excess speculation in percentage terms. Large values indicate a speculative market and small values a balanced market.

Finally, another method to examine the relationship between total open interest and the categories of hedging and speculation is to calculate regression results between the changes in total open interest and the changes in the individual categories. The slopes of the regression equations provide the average relationships between the categories and total open interest changes, while the R^2 values show the percentage of the changes in total open interest explained by the changes in the hedging/speculative component of open interest. The category with the larger R^2 value is the one with a closer association between that category and the changes in total open interest.

B. The Data

The CFTC Commitments to Traders (1983-1988) is employed to obtain month end open interest totals for noncommercial (speculators), commercials (hedgers), spreaders, and non-reporting traders.⁴ Each category is reported both in terms of long and short positions at the end of each month. This study separates the data into the March quarterly cycle and the February quarterly cycle. The March cycle encompasses the March, June, September, and December open interest data. The February cycle considers

the February, May, August, and November data.

The data is examined across contracts and across time. The stock index futures contracts analyzed in this study are the S&P500, NYSE, MMI Maxi, Value Line, S&P100, and MMI Mini contracts.⁵ Since both the long and the short open interest categories equal the total open interest, the proportions calculated in this study add to 200%.

III. EXAMINING THE OPEN INTEREST BY CATEGORY

The initial measure of the relationship between noncommercial, commercial, and non-reporting open interest is to obtain their relative proportions of the total open interest. Table 1 determines these proportions in terms of the sum of the long and short positions for each stock index futures, for each year they were traded, and for the March and February cycles.⁶

 TABLE 1 ABOUT HERE

The results in table 1 show that on average the S&P500 futures is primarily a hedging contract, with a large commercial and a small noncommercial open interest. While the S&P contract started in 1983 with slightly more speculation than hedging, this situation reversed itself in 1984 and by 1988 the commercial category was 10 times as large as the noncommercial category. These relationships are shown in a more striking manner in Figure 1. The NYSE Index futures shows a different relationship. This contract has experienced a near balance in speculation and hedging

over the years, although large changes occur from one year to another. The NYSE contract also has a large proportion of its open interest in the non-reporting category for the March cycle.

FIGURE 1 ABOUT HERE

The Maxi MMI contract has always emphasized hedging, which is likely due both to its composition of large corporations and the fact it started trading two years after other stock index futures. The Value Line futures has larger speculative proportions overall, although by 1986 the hedging proportion of open interest had at least equaled the speculative proportion. The non-reporting category for Value Line is a very large percentage of the total open interest, indicating an active participation by small traders.

Table 2 separates the open interest into long and short proportions as well as showing the importance of the spreading category. Spreading is not significant except for the NYSE contract, where spreads make up an average 27% of the total 200% of open interest. The breakdown into the long and short categories provides a first approximation of the balance between the longs and shorts for hedging. While the averages tend to show reasonable balance for the various contracts, the individual yearly results suggest a lack of stability in this balance for some of the contracts.

TABLE 2 ABOUT HERE

IV. STOCK INDEX FUTURES: HEDGING OR SPECULATIVE MARKETS?

A. Net Hedging Balance

Net hedging is simply the difference between the long and the short commercial categories. It is important for a futures contract to achieve net hedging balance so that it does not have to rely on speculation to match the long and short hedging positions over the longer term. Table 3 shows the extent of the hedging balance for the various stock index futures contracts. The S&P500 contract quickly achieved hedging balance and continued to have balance over time. The NYSE and Maxi MMI contracts also have reasonable balance, except for 1988, while the Value Line contract had more difficulty in achieving balance. The distinction between the S&P500 and Value Line situations is shown in Figure 2, where the S&P500 futures are within 20% of balance from 1984 for each quarter, while the Value Line contract generally is more than 20% out of balance after 1984.

TABLE 3 AND FIGURE 2 ABOUT HERE

B. Speculative and Hedging Ratios

The speculative ratio defined in equation (1) determines the ratio of long speculation to short hedging (when short hedging dominates long hedging) or the ratio of short speculation to long hedging. The larger the ratio, the greater the amount of speculation, although the ratio also is affected by the amount of imbalance between the short and long hedging components. Consequently, by itself this ratio is more relevant when there is a net hedging balance. The hedging ratio defined in equation (2) provides another measure of hedging balance. The hedging ratio is always less than or equal to one, with values closer to one showing a greater hedging balance. Plotting the two ratios provides an additional perspective on the speculative versus hedging relationship.

Table 4 shows the speculative and hedging ratios when $HS > HL$, $HL > HS$, and the combined value of the ratios over all periods in the cycle. This table shows significant distinctions among the various futures contracts. The S&P500 and Maxi MMI contracts have low speculative ratios, while the NYSE and Value Line contracts have large speculative ratios. In addition, the S&P500 and Maxi contracts have larger hedging ratios than the NYSE and Value Line futures contracts. Table 5 shows these values on a year by year basis. Table 5 shows that the speculative ratio for the S&P500 declined significantly from 1983 to 1988, while the hedging ratio for this contract increased over this time period. Meanwhile, the NYSE contract has not had a discernible trend in these ratios. While some very large speculative ratios in 1983 and 1984 affected the Value Line contract speculative ratio average, this ratio also was large for other years. Moreover, the Value Line hedging ratio was low for all but one of the years measured.

TABLES 4 AND 5 ABOUT HERE

 Comparing Figures 3, 4, and 5 illustrate the differences in speculation versus hedging for these markets. Figure 3 shows that most of the observations for the S&P500 Index are in the lower right hand corner of the Figure, i.e. they have large hedging ratios and small speculative ratios. The Maxi contract Figure (not shown here) is similar to the one for the S&P500, with all but one of the observations in the lower right hand portion of the graph. The NYSE Index illustrated in Figure 4 shows that these observations are spread out throughout the graph, with much higher speculative ratios than shown for the S&P500 contract. Thus, even when the NYSE futures has a relatively high hedging ratio, it also has a high speculative ratio. Figure 5 shows that the Value Line index generally has a low hedging ratio, with the speculative ratio varying from about .4 to over 2.0.

 FIGURES 3, 4, AND 5 ABOUT HERE

 C. The Speculative Index

The speculative index, defined in equation (3), provides a measure of excess speculation. With a minimum value of 1, the index shows the proportion of short speculation to total hedging when short hedging exceeds long hedging, and vice-versa when long hedging dominates. Thus, the index

shows the amount of "unnecessary" speculation. In fact, the short (long) speculation measured by this index must be offset by long (short) speculation, since the speculation is on the same side of the market as the net hedging.

Table 4 shows the speculative index for HS>HL, HL>HS, and the combined values for all observations. These results confirm that the amount of excess speculation for the S&P500 and the Maxi MMI contracts is very low, the excess speculation for the NYSE contract is surprisingly high, and the value for the Value Line contract is very large. Table 5 presents the speculative index by year. This table shows that the S&P500 speculative index has fallen significantly over time, while the NYSE speculative index has no discernible pattern. This relationship is confirmed by Figure 6, which shows that the S&P500 speculative index has declined over time to near one, while the NYSE has much higher index values and is very volatile over time. The Value Line contract shows a pattern which is similar to the NYSE futures, even though table 5 shows that the very large speculative index values for Value Line in 1983 and 1984 no longer exist.

FIGURE 6 ABOUT HERE

D. Regressions of Changes in Open Interest

Examining the R^2 values for regressions between the changes in the open interest for the hedging/speculative categories and changes in total open interest provides additional evidence concerning whether hedging or

speculation is more important for a specific contract. Table 6 shows the slope of the regression line, the standard error of the slope, and the regression's R^2 value. Separate regression results are shown for the hedging and speculative categories, each stock index futures contract, and for the March and February cycles.

TABLE 6 ABOUT HERE

The S&P500 contract shows the most dramatic difference between the R^2 values for the hedging and speculative categories. Changes in total open interest for the S&P500 contract are associated with changes in hedging open interest only, since the speculative component has a very low R^2 value (insignificantly different from zero for the February cycle). Figure 7 visually supports this conclusion by showing that total open interest has grown in direct proportion with hedging open interest.

FIGURE 7 ABOUT HERE

Comparisons of R^2 values for the hedging and speculative results for the Maxi, Mini, and Value Line contracts shows that these contracts are affected more by hedging, while the changes in open interest for the S&P100 contract are influenced more by speculation. The results for the NYSE contract are mixed; the March cycle shows a greater association with

speculative open interest, while the February cycle has a larger R^2 for the hedging values.

Overall, the importance of hedging for stock index futures is evident in the regression results. The dominant stock index futures contract, the S&P500, has its changes in open interest solely associated with hedging open interest changes. The other contracts are significantly affected by hedging, but to a lesser extent than the S&P500 contract.

IV. CONCLUSIONS

Whether futures markets are hedging or speculative markets is an important issue often raised by legislators, regulators, and the popular press. In particular, stock index futures have received particular scrutiny because of the association between volatile cash markets and futures market activities. This paper examines the open interest of stock index futures by noncommercial (speculative) and commercial (hedging) traders in order to determine the market structure and speculative/hedging nature of stock index futures contracts, as well as to examine if changes have occurred over time.

The evidence shows that the major stock index futures, the S&P500 contract, quickly developed from a speculative to a hedging market. Similarly, the Maxi MMI futures is a hedging contract. However, the NYSE and Value Line contracts have a large excess speculation component, and the Value Line futures does not have hedging balance between the long and short hedging components. These conclusions are consistent across various measures of speculation and hedging.

FOOTNOTES

¹ See Garbade and Silber (1983), Jones (1982), and Martell and Salzman (1981).

² The discussion of the data in the next section specifies which months are employed, the categorization of arbitrageurs, and the large versus non-reporting status.

³ Peck (1980b) shows the relationship between the speculative and hedging ratios and the speculative index.

⁴ Large traders file a form with the CFTC where they check the purpose of their trades. Consequently, arbitrageurs are typically categorized as commercials, and hence as hedgers, since they are offsetting a cash position with a futures position. Dealers are considered to be hedgers. Individual small customers of brokerage houses, FCMs, etc. are considered to be individual non-reporting traders.

⁵ The MMI Maxi contract started reporting September 1985. The S&P100 reported from December 1983 through March 1985, with insufficient activity in December 1984. The MMI Mini contract reported from September 1984 to September 1985.

⁶ The spreading proportion is not shown here due to its very small percentage of total open interest for most contracts. The spread proportion is 200% less the total of the three categories listed here. The spread proportions are shown in Table 2.

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TABLE 1
PROPORTIONS OF TOTAL OPEN INTEREST BY CATEGORIES

MARCH CYCLE

	S&P500			NYSE			MAXI MMI		
	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP
AV.	0.293	0.999	0.686	0.447	0.355	1.151	0.388	1.035	0.536
σ	0.187	0.298	0.128	0.164	0.246	0.204	0.182	0.223	0.180
1983	0.584	0.567	0.798	0.554	0.045	1.278			
1984	0.470	0.723	0.766	0.586	0.184	1.166			
1985	0.257	1.014	0.722	0.335	0.516	1.129	0.602	0.845	0.473
1986	0.145	1.164	0.670	0.387	0.646	0.943	0.422	1.094	0.416
1987	0.128	1.261	0.604	0.343	0.322	1.295	0.306	0.933	0.751
1988	0.135	1.355	0.509	0.485	0.442	1.073	0.312	1.219	0.450

	VLA			S&P100			MINI MMI		
	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP
AV.	0.447	0.355	1.151	0.997	0.173	0.825	0.524	0.802	0.570
σ	0.164	0.246	0.204	0.436	0.220	0.537	0.168	0.252	0.172
1983	0.554	0.045	1.278						
1984	0.586	0.184	1.166						
1985	0.335	0.516	1.129						
1986	0.387	0.646	0.943						
1987	0.343	0.322	1.295						
1988	0.485	0.442	1.073						

FEBRUARY CYCLE

	S&P500			NYSE			MAXI MMI		
	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP
AV.	0.302	0.913	0.732	0.458	0.443	0.821	0.373	1.042	0.524
σ	0.195	0.319	0.118	0.150	0.161	0.160	0.141	0.171	0.201
1983	0.553	0.481	0.832	0.357	0.417	0.984			
1984	0.523	0.611	0.790	0.535	0.277	0.893			
1985	0.232	0.900	0.848	0.503	0.455	0.852	0.435	0.895	0.640
1986	0.224	1.037	0.689	0.501	0.570	0.758	0.399	1.132	0.383
1987	0.144	1.201	0.644	0.538	0.429	0.686	0.397	0.904	0.612
1988	0.081	1.361	0.543	0.267	0.535	0.733	0.266	1.202	0.519

	VLA			S&P100			MINI MMI		
	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP	NON-COM	COMM	NONREP
AV.	0.422	0.325	1.159	1.096	0.250	0.627	0.428	0.870	0.599
σ	0.131	0.203	0.148	0.398	0.167	0.532	0.248	0.161	0.117
1983	0.480	0.068	1.283						
1984	0.527	0.162	1.176						
1985	0.437	0.341	1.112						
1986	0.287	0.600	1.066						
1987	0.357	0.375	1.193						
1988	0.455	0.433	1.113						

GRAPH 1

TABLE 2
 PROPORTIONS OF OPEN INTEREST BY LONG AND SHORT CATEGORY:
 FEBRUARY CYCLE

REPORT.	OPEN	%NON-COMM		LONG	SHORT	COMMERCIAL		NON-
	INTEREST	LONG	SHORT	SPREAD	SPREAD	LONG	SHORT	LONG
SHORT								
S&P500								
AV.	69117	0.120	0.173	0.011	0.011	0.509	0.490	0.360
0.326								
σ	35644	0.075	0.126	0.017	0.017	0.154	0.172	0.087
0.061								
1983	23056	0.223	0.361	0.025	0.025	0.348	0.219	0.404
0.394								
1984	32532	0.180	0.290	0.021	0.021	0.363	0.360	0.436
0.330								
1985	58266	0.144	0.113	0.003	0.003	0.460	0.555	0.393
0.329								
1986	95567	0.063	0.082	0.010	0.010	0.572	0.592	0.355
0.316								
1987	107320	0.048	0.081	0.004	0.004	0.650	0.611	0.299
0.305								
1988	107579	0.043	0.093	0.000	0.000	0.712	0.643	0.245
0.264								
NYSE								
AV.	9449	0.273	0.283	0.135	0.135	0.149	0.227	0.443
0.354								
σ	3489	0.109	0.109	0.104	0.104	0.089	0.128	0.108
0.091								
1983	8193	0.229	0.215	0.099	0.099	0.129	0.248	0.543
0.439								
1984	8347	0.261	0.288	0.169	0.169	0.087	0.183	0.484
0.360								
1985	8870	0.348	0.342	0.041	0.041	0.092	0.305	0.519
0.311								
1986	14327	0.347	0.274	0.113	0.113	0.178	0.305	0.363
0.308								
1987	9552	0.310	0.302	0.182	0.182	0.141	0.189	0.368
0.327								
1988	6722	0.102	0.278	0.232	0.232	0.307	0.101	0.359
0.389								
MAXI MMI								
AV.	5402	0.119	0.270	0.020	0.020	0.567	0.468	0.294
0.242								
σ	2543	0.089	0.191	0.024	0.024	0.140	0.177	0.123
0.102								
1985	1994	0.137	0.465	0.040	0.040	0.477	0.368	0.346
0.127								
1986	7397	0.188	0.234	0.034	0.034	0.560	0.534	0.217
0.199								
1987	5816	0.079	0.227	0.005	0.005	0.491	0.441	0.424

TABLE 3
NET HEDGING BALANCE

MARCH CYCLE

	S&P500	NYSE	MAXI	VLA	S&P100	MINI
AV.	0.019	-0.078	0.099	-0.199	-0.040	-0.218
σ	0.132	0.173	0.229	0.162	0.167	0.185
1983	0.129	-0.119		-0.015		
1984	0.003	-0.097		-0.043		
1985	-0.095	-0.214	0.109	-0.296		
1986	-0.020	-0.128	0.027	-0.264		
1987	0.039	-0.048	0.050	-0.209		
1988	0.069	0.206	0.254	-0.419		

FEBRUARY CYCLE

	S&P500	NYSE	MAXI	VLA	S&P100	MINI
AV.	0.028	-0.007	0.028	-0.169	-0.040	-0.035
σ	0.087	0.161	0.233	0.169	0.204	0.185
1983	0.119	-0.005		-0.015		
1984	-0.065	0.018		0.001		
1985	-0.004	-0.083	-0.140	-0.191		
1986	0.044	0.009	-0.038	-0.285		
1987	0.040	-0.062	0.100	-0.190		
1988	0.037	0.109	0.134	-0.389		

GRAPH 2

TABLE 4
THE SPECULATIVE AND HEDGING RATIOS AND THE SPECULATIVE INDEX BY CATEGORY

MARCH CYCLE

		S&P500	NYSE	MAXI	VLA	S&P100	MINI
SPEC	HS>HL	0.304	1.368	0.310	4.003	*	*
RATIO	HL>HS	0.485	1.348	0.587	2.928	*	*
	COMBINED	0.406	1.362	0.481	3.909	*	0.764
	σ	0.377	0.696	0.383	7.803	*	0.317
HEDGING	HS>HL	0.813	0.471	0.774	0.234	*	*
RATIO	HL>HS	0.769	0.551	0.591	0.507	*	*
	COMBINED	0.788	0.495	0.661	0.258	*	0.503
	σ	0.176	0.278	0.218	0.217	*	0.253
SPEC	HS>HL	1.159	1.899	1.155	4.378	*	*
INDEX	HL>HS	1.149	1.630	1.082	3.034	*	*
	COMBINED	1.153	1.817	1.110	4.261	*	1.217
	σ	0.148	0.627	0.072	7.229	*	0.131

FEBRUARY CYCLE

		S&P500	NYSE	MAXI	VLA	S&P100	MINI
SPEC	HS>HL	0.336	0.772	0.335	1.008	*	*
RATIO	HL>HS	0.510	1.207	0.444	5.867	*	*
	COMBINED	0.457	0.999	0.393	2.065	3.001	0.579
	σ	0.477	0.732	0.207	2.362	0.857	0.419
HEDGING	HS>HL	0.844	0.553	0.752	0.306	*	*
RATIO	HL>HS	0.829	0.610	0.643	0.737	*	*
	COMBINED	0.834	0.582	0.755	0.400	0.247	0.661
	σ	0.138	0.252	0.181	0.320	0.195	0.156
SPEC	HS>HL	1.255	1.570	1.160	2.003	*	*
INDEX	HL>HS	1.224	1.536	1.107	3.968	*	*
	COMBINED	1.233	1.552	1.131	2.430	3.309	1.202
	σ	0.263	0.292	0.086	1.836	1.045	0.162

* Insufficient observations

1986	0.207	0.923	1.114	0.665	0.541	1.440	0.429	0.772
1.099								
1987	0.151	0.909	1.043	1.130	0.300	1.611	0.419	0.723
1.197								
1988	0.076	0.947	1.020	0.508	0.719	1.281	0.262	0.807
1.077								

	VLA			S&P100			MINI	
SPEC.	SPEC.	HEDGING	SPEC.	SPEC.	HEDGING	SPEC.	SPEC.	HEDGING
	RATIO	RATIO	INDEX	RATIO	RATIO	INDEX	RATIO	RATIO
INDEX								
AV.	2.065	0.400	2.430	3.001	0.247	3.309	0.579	0.661
1.202								
σ	2.362	0.320	1.836	0.857	0.195	1.045	0.419	0.156
0.162								
1983	4.942	0.453	5.301	*	*	*	*	*
1984	4.325	0.750	3.089	*	*	*	*	*
1985	0.775	0.313	1.804	*	*	*	*	*
1986	0.405	0.393	1.188	*	*	*	*	*
1987	0.441	0.353	1.636	*	*	*	*	*
1988	1.312	0.049	1.271	*	*	*	*	*

* Insufficient observations

GRAPH 3

GRAPH 4

GRAPH 5

GRAPH 6

TABLE 6
 REGRESSIONS OF CHANGES OF HEDGING/SPECULATIVE OPEN INTEREST ON
 CHANGES OF TOTAL OPEN INTEREST

March Cycle

	Δ HEDGING OPEN INTEREST			Δ SPECULATIVE OPEN INTEREST		
	b	$\sigma(b)$	R^2	b	$\sigma(b)$	R^2
S&P500	1.075	0.115	0.807	1.345	0.883	0.099
NYSE	2.577	0.370	0.698	1.747	0.164	0.844
MAXI	1.383	0.122	0.927	3.029	1.138	0.415
VLA	1.659	0.183	0.796	2.424	0.530	0.499
S&P100	0.251	2.002	0.008	0.693	0.270	0.678
MINI	1.212	0.211	0.943	6.342	4.860	0.460

February Cycle

	Δ HEDGING OPEN INTEREST			Δ SPECULATIVE OPEN INTEREST		
	b	$\sigma(b)$	R^2	b	$\sigma(b)$	R^2
S&P500	1.185	0.138	0.779	0.411	0.926	0.009
NYSE	1.871	0.199	0.808	2.407	0.457	0.569
MAXI	1.602	0.154	0.915	2.445	0.604	0.621
VLA	1.764	0.187	0.810	2.428	0.665	0.388
S&P100	10.737	2.942	0.869	1.154	0.048	0.997
MINI	1.488	0.765	0.654	0.937	1.283	0.211

GRAPH 7

- +
 - 1. Abstract
 - 2. Introduction
 - 3. Market Structure Concepts
 - A. Issues
 - 1. Their Importance: Concepts
 - 2. Related literature
 - a) Peck's articles and ideas therein
 - 3. How investigate these issues:
 - x a) by proportions, over time and across contracts; by examining the hedging balance, and the speculation and hedging ratios, the speculative index,
 - b) and regressions of hedging and speculative activity vs. open interest; examining concentration ratios and no. of traders as market matures and across markets.
 - B. Issues involved and why they are imp.
 - x 1. Where the activity is: major speculators, hedging, spreading, or non-reporting (small)
 - a) If type activity changes over time
 - b) If type activity differs over different contracts
 - 2. If futures are a speculative or hedging market
 - x a) Examine which comes first
 - x b) Examine hedging balance between longs and shorts: imp for it to come into balance
 - x c) Examine via speculation and hedging ratios developed by Working (?)
 - x d) Also by the speculation index
 - e) Examine via a regression analysis of total hedging vs. OI, and total speculation vs. OI
 - 3. The importance of concentration ratios and the no. of large traders
 - a) Compare over time and markets the concentration ratios and the no. of large traders
 - 4. Why contracts succeed or fail
 - a) Related to speculation or hedging?
 - b) Related to whether hedging is balanced? To a high concentration ratio and no. of traders?
 - 4. Data and the Issues
 - A. Data
 - x 1. CFTC Commitments to Traders
 - x 2. 1983 through 1988
 - x 3. List which contracts: perhaps table on dates of existence
 - 4. Type of info in report: open interest broken into long and short positions for major non-commericals (speculators), major commercials (hedgers), major spreaders, and those who do not report based on the reporting level.
 - x a) Have two sets of data: the Mar cycle and the Feb cycle, one before contract expiration and the other after.
 - b) The no. of traders for long and short for each category who are in the reporting group
 - c) The Concentration ratio for the largest four and eight traders
 - 5. Results

