



**INVESTMENT IN UNITED STATES FUTURES AND
OPTIONS MARKETS:
A DISCUSSION OF THE POSSIBLE IMPACT ON
COMMODITY PRICES ¹**

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INVESTMENT IN UNITED STATES FUTURES AND OPTIONS MARKETS: A DISCUSSION OF THE POSSIBLE IMPACT ON COMMODITY PRICES ¹

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INTRODUCTION

An important trend in the global financial markets in recent years has been the rapid growth of futures and options markets. The trading volume at the world's futures and options exchanges has grown more than seven-fold in the past ten years, from 2.4 billion contracts in 1999 to 17.7 billion contracts in 2008. This growth in exchange-traded derivatives has paralleled the growing need for risk management and investment alternatives in the underlying financial and commodity cash markets.

As the futures and options markets have grown in liquidity and scope, the opportunities for investment (or, as some prefer, "speculation") in commodities have changed dramatically. Investors wanting to position themselves to profit from the changes in the values of the cash commodities can do so easily and cost effectively using the futures and options contracts based on those commodities. There are three reasons for this: i) there is a close correlation between the prices of cash commodities (e.g. maize), and the futures and options contracts based on these commodities (e.g. maize futures, and options on maize futures); ii) there are low transactions costs in the futures and options markets relative to the cash commodities markets; and iii) futures and options positions can be initiated, removed and changed readily.

For many years, there has been an ongoing discussion of the pros and cons of investment in futures and options markets, particularly by investors not active in the underlying cash markets. The recent increase in commodity prices has raised questions, once again, about the role of these investors in the markets and their impact on prices. In this article, possible cause and effect relationships between the activities of these investors and price movements are not rigorously analysed, although two such analyses are cited later. Instead, the change in the investment activities in the exchange-traded derivatives markets in the past five or ten years is described, while noting how prices have moved concurrently. To illustrate some of the patterns

discussed, futures and options markets in six commodities traded at two United States exchanges, maize, wheat, soybeans at the CBOT; and sugar, cocoa and coffee at the Intercontinental Exchange (ICE) are examined.

INVESTMENT IN THE FUTURES AND OPTIONS MARKETS

Investment has always been an integral component of futures and options markets. These markets exist in large part for risk management, or "hedging", purposes. Hedgers come to the markets to transfer their risk to other participants who are willing to take it, hoping to make a profit. Therefore, the risk capital provided by investors is essential to the proper functioning of these markets.

In recent years, as the financial markets have become more sophisticated, more and more investors are looking to add an asset class to their portfolios which is not correlated with stocks, bonds, real estate or other investment classes. They seek to decrease the overall risk of their portfolios by adding assets which are uncorrelated with its existing components. Investors having a portfolio of, say, stocks and bonds can reduce their risk by adding commodity futures and options contracts.

Two commodity indexes are often used as references by these investors, the Standard and Poor's Goldman Sachs Commodity Index (S&P GSCI) and the Dow Jones, AIG Index (DJ-AIG). The compositions of the two indexes differ. The S&P GSCI comprises 24 commodity futures contracts and has a 65 percent weighting in energy products. It includes all six of the futures contracts considered in this article. The DJ-AIG comprises 19 commodity futures contracts, with a maximum weighting of 33 percent for any product category. This index does not include cocoa. Correlations between these two indexes and the United States stock and bond markets are extremely low.

Passive investors, i.e. those who do not frequently modify their market positions, will replicate these indexes by purchasing, or "going long," the component futures contracts in proportions mirroring the structure of the indexes and adding these contracts to their portfolios to achieve their diversification objectives. They are only interested in having long positions in the markets and are sometimes called "long-only" investors. Futures contracts mature or "expire", according to a specified schedule. For example, the maize futures contract at the CBOT has scheduled expirations in March, May, July, September and December. In June, for example, the long-only

investors would normally achieve their desired position in the maize market by buying a quantity of the next maize futures contract to expire, i.e. July, which matches their weighting objectives. Then, sometime before the July contract expires, they would move, or “roll”, their positions into the September maize futures contract. Thus, they would maintain their long position, but it is now shifted to the next expiration month.

With regard to possible price effects of this activity, there are three points to highlight. First, this investment strategy can create significant buying activity which might be expected to have a positive price effect. Second, the roll process can be anticipated by other market participants who position themselves to profit from it. In the example above, if it is anticipated that the price of the September contract will rise as a result of the buying pressure associated with the July-to-September roll, other traders might buy that contract in advance, creating additional upward price movement. Third, the investment capital that is placed for portfolio diversification is not particularly price sensitive. Certainly the long-only investor’s hope is that prices will rise, but portfolio diversification is an important motivation.

Not all investors in the futures markets engage in this type of passive investment activity, motivated primarily by portfolio diversification objectives. Some seek profits from buying low and selling high. Their pattern of activity in the futures markets is quite different. First, the level of their investment in the futures markets will depend on profit opportunities in futures relative to other investment alternatives. If the stock market is not performing well during a certain period and there are profit opportunities in futures, investment capital will flow from one market to the other. Second, these investors will not hold strictly long positions. They will go long or “short” (i.e. sell) according to the results of their analyses of supply and demand or profit opportunities. They look for trends, and if prices are trending upward, they will buy; if prices are trending downward, they will sell. For example, there have been fairly strong upward trends in maize, wheat and soybeans prices at times because of ethanol production, China’s demand for commodities and other reasons, and these trends are attracting investment capital into the futures and options markets. Third, they will take positions in any contract expiration month, not limiting themselves to positions in the contracts which are the next to expire. Thus, if they see a profit opportunity in a contract that expires many months in the future, they will channel their investment capital into that month. Finally, these investors may take positions based on their

knowledge and expectations of the activities of the long-only investors. As noted, it may be possible to predict when the long-only investors will roll their positions and other, opportunistic investors may seek to position themselves in the market to profit from the roll activity.

To fully understand the changing role of investment-related activity in the markets, it is important to note that, in recent years, banks have become increasingly active in commodity futures and options markets. Much of this activity comes from swap dealers who are not actually investing, but rather hedging their price exposure in the over-the-counter swap market. For example, a bank swap dealer may enter into a transaction with a pension fund agreeing to exchange cash flows based on movements of one of the commodity indexes discussed above. If the S&P GSCI Index rises, the swap dealer may be obliged to pay the pension fund an amount equal to the value of the price rise. To hedge this exposure, the dealer will take a long position in a number of futures markets, replicating his over-the-counter exposure. If the S&P GSCI Index goes up, the swap dealer pays the pension fund but realizes an equivalent gain in the futures position. This swap hedging is another new, non-traditional investment-related activity in the markets and can be another source of increased positioning on the long side.

RECENT PATTERNS OF INVESTMENT IN SELECTED FUTURES AND OPTIONS MARKETS, WITH REFERENCE TO PRICE TRENDS

The government regulator of the United States futures and options exchanges, the Commodity Futures Trading Commission (CFTC), provides data which are helpful in understanding the activity levels of these investors in the markets. Since 1962, the CFTC has published Commitments of Traders (COT) Reports showing the “open interest”, or the number of futures and options contracts which remain open (i.e. contractual obligations are not yet fulfilled) at any given time, of various categories of market participants. In the COT reports, “commercial traders” in a given futures or options market are those who are hedging, or managing the price risk of, a cash market position. “Non-commercial traders” are those holding significant positions in the futures market for other reasons, usually investing.

The data are aggregated from reports that market participants with large open futures and options positions must file with the CFTC every day. It is important to note that many traders who are very active in the markets are not counted in these statistics. For example, market

makers trading large quantities of futures and options contracts during the day, providing significant market liquidity but having few or no open positions when the market closes, are not included.

Table 1 presents open interest data for six commodity futures and options markets (combined) for the month of April in each year, 2005-2009 – CBOT maize, wheat and soybeans; and ICE sugar, cocoa and coffee. Open interest in April 2000 is included to provide a sense of longer-term open interest changes. Cash prices for these commodities in April 2000 and 2005-2009 are also given to illustrate concurrent price tendencies over the period.

In all six commodity futures and options markets, total open interest has shown a fairly consistent upward trend between 2005 and 2008, with a significant increase from 2000, and a decline in 2009. This increase in open interest is evidence of rapid growth of these markets, noted at the beginning of this article.

Drawing on the COT data, the patterns of activity of various categories of investors in the six United States commodity futures and options markets in the last five years are examined. Their activity is on the long, or buy side of the market, as it is this activity that would be of particular interest to those concerned with rising prices are focussed upon. The patterns of investment on the long side to general price movements are related, but, as noted previously, it is not sought to measure any cause and effect relationship.

Non-commercial traders' share of open interest; 2005-2009

Over the past five years, have the non-commercial traders, i.e. market participants using the markets for investment purposes, been increasing their long positions as prices increased? Table 1 shows that in the maize, wheat and soybeans markets between 2005 and 2008, there was a steady upward trend in non-commercial long open interest which peaked in 2008, before declining in 2009. However, the same can be said about the long positions of the commercial traders. It is interesting to note that a non-commercial share of the total long positions held by all market participants increases from 2005 to 2008, before falling in 2009. Cash prices for maize, wheat and soybeans exhibited a similar pattern, trending up from 2005 to 2008, and declining in 2009.

In the sugar, cocoa and coffee markets, identifying any clear parallels between long open interest held by non-commercial traders and cash price movements is more difficult. However, their shares of the total market long open interest were relatively high during certain

periods of relatively high cash prices; e.g. in 2006 for sugar and 2008 for coffee. In considering the data, it is worth remembering that cocoa is not included in the DJ-AIG index. This limits passive investors' demand for long futures and options positions in that commodity.

Non-commercial traders' market positioning – net long or net short; 2005-2009

Have the non-commercial traders clearly been increasing their net long position in the markets (net long position = their total long position minus their total short position) as prices went up? Table 1 shows different patterns in the six different markets. In maize, net long positions of non-commercials increased steadily between 2005 and the price peak in 2008, before falling in 2009 as prices fell. In wheat, these investors are sometimes net long and sometimes net short, as prices trended upward. In soybeans, they were net short in 2006 when prices fell, but were net long in other years. In sugar, the investors increased their net long positions as prices rose in 2006 and 2008, but they have reduced their net long positions during the price increase in 2009. Likewise, in coffee, the non-commercials had larger net long positions in 2005 and 2008 as prices increased but during the sharp price rise in 2009, they reduced these positions. In cocoa, the investors have remained net long over the period but there appears to be no clear relationship between these levels and cash price movements.

The role of "index traders"

In January 2007, in response to market interest in having more detailed information on investment in the United States futures and options markets, the CFTC introduced a new, supplemental COT report showing the positions of so-called "index traders" in selected markets. These are the traders whose market positions are tied to the commodity indexes discussed previously. The new report draws managed funds, pension funds and other passive investors from the non-commercial trader category, and the swap dealers and other non-traditional hedgers from the commercial trader category to create the new index trader category.

Table 2 provides data on the six commodity futures and options markets (combined) from the supplemental reports released in April of 2007-2009. Note that, first, the index traders are consistently net long, as might be expected given their reasons for being in the market, explained previously. Second, when the data are re-worked by the CFTC to remove those not engaging in traditional hedging activities from the commercial

category, that category accounts for a rather small share of total long open interest; approximately 20-30 percent of the total, and less in the cases of wheat and soybeans. Of course, much of the traditional commercial use of the markets involves positions on the short side of the market to protect against price declines. Nevertheless, this emphasizes the major role of the investors and non-traditional hedgers in these markets.

CONCLUSIONS

It is clear that there is more investment capital in the commodity futures and options markets now and new, non-traditional strategies have been devised which tend to increase long side positioning. There is no reason to think that this trend will change. The financial markets are more sophisticated and more investors understand how futures and options markets can be used to improve their investment outcomes. The exchanges have greater market-making capacity to accommodate large flows of investment capital and the advent of electronic trading has made market access easier. The removal of credit risk at the exchanges by the clearing houses makes the exchange markets very attractive to investors relative to the over-the-counter markets. The cost of placing and lifting an investment position in the futures and options markets is low compared with the cost of positioning in other investment markets. Finally, there have been a number of price trends in recent years and global investors, for whom "the trend is your friend," have responded with larger futures and options market

positions.

In this article, the cursory examination of the data presented does not reveal any clear, uniform connection between price movements and investment in the futures and options markets. Other, more rigorous studies have been done recently on this issue, examining the investment and price patterns discussed in this article, with conflicting results. For example, Robles, Torero and von Braun (2009) conclude that speculative activities might have contributed to increasing agricultural commodity prices in 2007-2008. Irwin, Sanders and Merrin (2009) conclude that assertions that speculation caused the recent commodity price rises do not hold up to close scrutiny. Thus, the debate continues. As always, in evaluating empirical studies, cautious readers will continue to ask: Are we certain that statistical correlation between two events is not being confused with causality? Have all market complexities been adequately factored into the analysis?

As the ebb and flow of investment capital between the cash markets and the futures and options markets grow, occasionally there may be interest in regulating and restricting these flows. One would hope that any such regulation is very carefully considered, given the growing importance of futures and options in the world's financial markets, the advantages which increasing numbers of global investors are discovering in cash-futures/options market strategies, and the benefits which these investors provide hedgers of commodity price risk in terms of market depth and liquidity.

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Table 1. Open interest of commercial and non-commercial traders: Selected futures and options on futures markets; with cash prices; 2000, and 2005-2009 (April each year); open interest Data listed in thousands of contracts, with percent shares of total open interest listed in parentheses

	CBOT MAIZE	CBOT WHEAT	CBOT SOYBEANS	ICE SUGAR	ICE COCOA	ICE COFFEE
Total open interest						
2000	682.4	163.0	259.6	234.8	115.4	64.9
2005	825.2	281.9	396.5	489.5	145.6	158.5
2006	1 375.5	444.1	459.2	769.4	140.4	142.5
2007	2 073.8	495.5	648.4	827.5	185.7	199.1
2008	2 144.4	534.6	770.4	1 330.4	166.3	248.2
2009	1 252.0	417.5	476.9	937.3	120.3	180.5
Commercial - Long						
2000	308.7 (45.2%)	67.3 (41.3%)	71.8 (27.7%)	134.9 (57.4%)	68.8 (59.6%)	36.4 (56.0%)
2005	462.8 (56.1%)	139.7 (49.6%)	185.9 (46.9%)	241.5 (49.3%)	85.0 (58.4%)	52.3 (33.0%)
2006	610.9 (44.4%)	236.8 (53.3%)	234.3 (51.0%)	341.0 (44.3%)	82.6 (58.9%)	61.7 (43.3%)
2007	877.7 (42.3%)	251.2 (50.7%)	271.3 (41.8%)	471.0 (56.9%)	78.0 (42.0%)	92.4 (46.4%)
2008	945.9 (44.1%)	234.8 (43.9%)	301.4 (39.1%)	704.3 (52.9%)	79.5 (47.8%)	111.0 (44.7%)
2009	554.6 (44.3%)	185.5 (44.4%)	174.8 (36.7%)	510.7 (54.5%)	57.6 (47.9%)	88.7 (49.2%)
Non-Commercial - Long						
2000	219.0 (32.1%)	50.8 (31.2%)	110.1 (42.4%)	53.4 (22.8%)	19.8 (17.2%)	19.4 (29.9%)
2005	220.3 (26.7%)	106.8 (37.9%)	142.4 (35.9%)	165.8 (33.9%)	47.7 (32.8%)	91.6 (57.8%)
2006	564.6 (41.1%)	165.4 (37.2%)	154.2 (33.6%)	326.3 (42.4%)	45.8 (32.6%)	68.2 (47.9%)
2007	952.1 (45.9%)	209.6 (42.3%)	292.0 (45.0%)	272.0 (32.9%)	93.2 (50.2%)	90.0 (45.2%)
2008	985.5 (46.0%)	263.9 (49.4%)	404.8 (52.6%)	525.7 (39.5%)	73.0 (43.9%)	130.8 (52.7%)
2009	562.0 (44.9%)	200.6 (48.1%)	252.7 (53.0%)	352.6 (37.6%)	54.7 (45.4%)	81.4 (45.1%)
Non-Commercial - Net Long						
2000	47.9	-9.4	38.4	-1.0	-10.6	-0.7
2005	4.9	19.9	29.0	26.7	28.2	37.1
2006	139.3	-4.1	-51.9	95.4	9.6	7.3
2007	191.0	-12.1	88.1	4.1	48.5	1.7
2008	211.5	33.1	86.0	157.8	30.7	29.3
2009	85.7	-1.1	75.3	108.9	26.3	11.6
Cash prices						
2000	USD 2.25/bu.	USD 2.31/bu.	USD 5.09/bu.	6.87 c/lb.	USD 941/tonne	107.00c/lb.
2005	2.13	3.39	6.08	10.40	1 754	136.75
2006	2.38	3.47	5.68	18.19	1 794	115.84
2007	3.67	4.67	6.96	10.53	2 086	113.11
2008	5.97	6.30	12.66	12.98	3 076	143.04
2009	4.05	4.62	10.47	15.67	2 693	189.16

Table 2. Open interest of commercial and Index Traders: Selected Futures and Options on Futures Markets; 2007-2009 (April each year); open interest Data listed in thousands of contracts, with percent shares of total open interest listed in parentheses

	CBOT MAIZE	CBOT WHEAT	CBOT SOYBEANS	ICE SUGAR	ICE COCOA	ICE COFFEE
Commercial - Long						
2007	554.7 (26.8%)	80.3 (16.2%)	147.2 (22.7%)	271.5 (32.8%)	65.7 (35.4%)	55.5 (27.9%)
2008	533.6 (24.9%)	57.3 (10.7%)	144.0 (18.7%)	336.9 (25.3%)	55.5 (33.4%)	57.0 (22.9%)
2009	325.0 (26.0%)	55.6 (13.3%)	75.5 (15.8%)	324.0 (34.6%)	44.7 (37.2%)	53.8 (29.8%)
Non-Commercial - Long						
2007	913.0 (44.0%)	209.6 (42.3%)	292.0 (45.0%)	272.0 (32.9%)	93.2 (50.2%)	90.0 (45.2%)
2008	916.0 (42.7%)	263.9 (49.4%)	404.8 (52.6%)	525.7 (39.5%)	73.0 (43.9%)	130.8 (52.7%)
2009	497.6 (39.7%)	200.6 (48.1%)	252.7 (53.0%)	352.6 (37.6%)	54.7 (45.4%)	81.4 (45.1%)
Index Traders - Long						
2007	362.1 (17.5%)	197.4 (39.8%)	138.1 (21.3%)	230.2 (27.8%)	16.4 (8.8%)	41.8 (21.0%)
2008	481.8 (22.5%)	209.4 (39.2%)	181.5 (23.6%)	442.4 (33.3%)	29.4 (17.7%)	60.2 (24.3%)
2009	294.0 (23.5%)	163.6 (39.2%)	128.5 (26.9%)	249.8 (26.7%)	16.3 (13.6%)	38.5 (21.3%)
Index Traders - Net Long						
2007	346.6	192.7	136.8	202.6	16.2	40.2
2008	439.0	178.2	171.2	374.4	28.1	58.9
2009	251.3	136.3	111.2	189.8	15.7	33.0

Sources of data: Open Interest Data - Commodity Futures Trading Commission Commitments of Traders Reports; Price Data - www.barchart.com

Explanatory Note: In the Commitments of Traders Report (Table 1), "Commercial Traders" are defined as those who are hedging a cash market position; "Non-Commercial Traders" are defined as those holding positions for other reasons, usually investing. In the Commitments of Traders Supplemental Report (Table 2), managed funds, pension funds and other passive investors from the "Non-Commercial Traders" category, and swap dealers and other non-traditional hedgers from the "Commercial Traders" category, are placed in the "Index Traders" category.