

Testimony before the CFTC

July 28, 2009

Todd E. Petzel, Ph.D.
Chief Investment Officer
Offit Capital Advisors, New York

Testimony before the CFTC

July 28, 2009

Todd E. Petzel, Ph.D.

Chief Investment Officer

Offit Capital Advisors, New York

Mr. Chairman and Commissioners, my name is Todd Petzel and I am the Chief Investment Officer of Offit Capital Advisors, a New York City based Registered Investment Advisor. Our business is to advise on investment portfolios to private families and not-for-profit entities. Our client base numbers 43, and the assets under advisement exceed \$4 billion dollars. The portfolios are diversified across all asset classes and are truly global. Our clients are not major investors in futures markets, but rely on the efficient workings of securities and commodity markets worldwide.

Despite my current lack of direct involvement in futures markets, I have long been a student of and a practitioner in the futures markets. My academic research in the markets dates back over thirty years. From 1982 to 1988, I was Chief Economist of the Coffee, Sugar & Cocoa Exchange, where my duties included monitoring positions for market surveillance purposes. From 1988 through 1995, I was with the Chicago Mercantile Exchange, mostly in the role of Chief Economist. During my more than 13 year exchange tenure, I worked closely with the CFTC and its staff on market surveillance and position limit issues. In 1996 I moved into the money management and advising business, serving as Chief Investment Officer of Commonfund, Azimuth Trust, and Offit Capital Advisors in the time since. In 1996 I was first elected a public director to both the National Futures Association (NFA) and the Futures Industry Association (FIA). I have been reelected regularly to both posts since, but I want to emphasize that my testimony here today represents my own views and should not be attributed to either organization or its members.

While the focus of the panel today is on the energy markets, the issues are much broader, and the topics are not new. In 1981 I published a paper, included as Appendix A, trying to identify if large speculators unduly influenced wheat prices in the volatile markets of 1925, an episode that generated Congressional hearings and helped ultimately to shape the Grain Futures Act of 1936, creating the first federal limits on futures positions.¹ Citations from the hearings and research of that era are strikingly similar to much of the dialogue today.

¹ Petzel, Todd E. "A New Look at Some Old Evidence: The Wheat Market Scandal of 1925," Food Research Institute Studies, Vol XVIII, Number 1, 1981.

The three topics I wish to address concern collection and dissemination of market information, position limits, and the participation of traditional investors in commodity futures markets, often in the form of commodity index products.

Collection and Dissemination of Market Information

The subject of information is relatively easy as it is undeniably essential to good market oversight. Exchanges and CFTC collect good information for their analysis. Any positions above a “reportable” level are collected with enough background information to identify the ultimate owner, which allows the exchanges and the Commission to aggregate common accounts held at different clearing members. Participants in the markets implicitly agree to supply further detailed information on request. The record of the exchanges and the Commission in keeping such delicate information confidential has been exemplary.

When positions grow large enough to approach the position limits set by Federal statute or the exchanges, the typical behavior is to request an exemption for the purposes of hedging or risk management. In these instances, additional information about the nature of the trade is routinely collected to evaluate the merits of the request. When I was actively involved in the process, the data set was reasonably rich.

Broad summaries of the reportable positions have been created and published by the Commission for many years. Originally the categories included labels like “speculator” and “hedger,” which implicitly imputed motivation. These were later changed to “commercial” and “non-commercial” in an honest effort toward more objective labeling.

Recently questions have arisen about the activities of unleveraged commodities investors, who, if they are trading directly, often establish positions in portfolios of futures contracts. In these situations they would be classed as “non-commercial” traders. More often, however, these investors establish index positions away from the exchanges, using structures created by dealers that were not contemplated when the reporting rules were established. When this occurs, the dealers providing these structures to their customers can turn to the exchange to offset the risk. In the traditional scheme of reporting rules, such activities fall under the “commercial” heading.

Herein lays a problem. Investors trading directly are counted among the non-commercial set. But if they do the same activity via an off-exchange structure, and that gets hedged back to the exchange, it gets counted as commercial activity. The exchanges and the Commission probably have enough detail to see through the reality, but the users of the public reports are severely disadvantaged.

Adding more classification in public reports is probably a good idea to help market participants. It is my experience that most commercial market participants have an excellent understanding of the current market dynamic. But for those who do not, and for all of the broader public participants, summaries of market positions that are more granular in their categories would be most helpful. The steps taken to date by the Commission should be encouraged and applauded.

Position Limits and Exemptions

The subject of position limits is much more complicated. Much of the confusion over this topic stems from some very loose language. The terms investor, speculator and manipulator are used almost interchangeably in some circles, doing a great disservice to the process of finding the correct regulatory mix. As the Commissioners are certainly aware, manipulation in a legal sense involves not only artificial prices, but also the specific intent to create them. This is an important fact to keep in mind, and it would be a major step for a free society to move from a historical policy of preventing market manipulations to using laws and regulations in an attempt to change unpopular market outcomes.

Position limits have a very basic role. They are set by statute or regulation to help prevent any individual participant, or a group of participants acting in concert, from amassing a position so large that it would disrupt the market in general, or, if held toward expiration, the convergence of the relevant spot and futures prices. Anyone who has performed a market surveillance function knows that position limits are only a starting point, and great mischief can be done by people who begin with positions well inside the limits.

I wish there was a magic formula that translated the size of a physical market to the appropriate position limits, but there is none. When one considers the number of links in any commodities supply chain, one could easily see futures open interest five or six times the total size of the physical market *without including any non-commercial participants*. Setting workable position limits combines art and science.

When the authority for setting position limits is delegated to the exchanges, they have a very strong incentive to get it right. One should always remember that futures markets are completely voluntary activities. Commercial participants, who form the backbone of all successful futures contracts, are particularly disturbed by markets that are prone to excessive volatility or expirations that lack convergence.

If the limits are set too loose, there is the possibility of disruptive behavior, which can drive commercial participants away. If they are set too tight, traders who possess important market information and provide crucial liquidity are kept away. At either extreme, the markets fail, though for different reasons. When one considers the phenomenal growth of commodity and non-commodity futures contracts alike over the past 30 years, it is hard to give the exchanges anything but strong marks in striking the right balance. Any particular commercial participant may not like a specific outcome, but on average the group has voted with their feet that the markets are doing a good job.

The exchanges understand that this is not a permanent state of affairs. Competitors for risk management are everywhere and vigilance is ongoing. As the exchanges have transformed from mutualized not-for-profits to competitive, for-profit organizations, there are heightened pressures to get the position limit puzzle solved correctly.

The Commission or the Congress could step in as they did in 1936 and impose their own view. This would likely be an error. With no disrespect to the staffs of either organization, it is unlikely that there is

either the knowledge base or the incentives to strike the right balance when establishing appropriate limits. Instead the pressure would be political and reflective of only the moment. Imagine the conflicts when tight position limits are set to combat perceived high energy prices, only to be followed by a period of bumper crops where farmers are begging for demanders of any kind.

Exemptions to the position limits are as old as the limits themselves. Congress understood that commercial activity could be done in sizes greater than the limits, and allowed for hedge exemptions. It is important to note that exemptions to the speculative limits are not a blank check, but instead are *expanded* limits that are applied for by the hedger. This process, in my experience, allows the exchange or the Commission to acquire supporting documents describing the size and nature of the commercial activity being hedged.

In the 1980's and the early 1990's the traditional concept of hedge exemptions needed to evolve to incorporate commercial activities using recently invented financial futures. The parallelism between a grain dealer and a Treasury Bond dealer was exact and needed no real modification of the model. But the growth of interest rate swaps off exchanges was the first major application of the hedge principle to activities that were constructed by financial engineers. The growth of both the interest rate swap market and the Eurodollar futures market at the CME came about in no small way because of the early recognition that the activity of swap dealers qualified for bona fide hedge exemptions to the position limit rules.

The second major evolutionary step was the creation of *risk management* exemptions. A few years after stock index futures were begun in 1982, traditional stock investors recognized that they could create an unleveraged equivalent of an S&P 500 index portfolio by combining S&P 500 futures and Treasury Bills. These positions were fully collateralized and marked a major step in improving the efficiency of portfolio management. The question naturally arose as to whether this activity would qualify for a hedge exemption.

Obviously, this was not hedging activity in the traditional sense, nor was it leveraged speculative activity that largely motivated the creation of position limits. There was an acknowledgement that there were few reasons to artificially constrain this synthetic portfolio activity. Anyone can build a stock index portfolio of virtually any size, so allowing equivalent activity using futures not only made sense, but likely would add to the liquidity of and connectivity between cash and futures markets. Rather than try to contort the then existing hedge exemptions to this situation, the exchanges and the Commission in the early 1990's agreed to the concept of risk management exemptions.

As usual, in a dynamic, evolving world, the risk management exemption concept that initially had a narrow application to stock index futures and portfolios soon became relevant for a broader range of activities. It is particularly relevant today in the discussion of synthetic commodity portfolios.

Commodity investing by traditional portfolio managers will be discussed in more detail in the section below, but for now, the important thing to consider is that many institutional and individual investors have made significant commitments to long commodities as part of their asset allocation. These are not, in general, investors who have any interest in constructing CTA like positions of leveraged

exposures. Instead their research has led them to conclude that their overall risk and return profile is enhanced by the inclusion of *unleveraged* holdings of physical commodities including industrial and commercial metals, foods and fibers, and energy. The big question then becomes, what is the most efficient way to access these markets for these investors who have no particular skill in handling physical commodities.

Two logical avenues appeared. It is in the public record that in the 1990's Harvard Management Company began an internal program of building commodity exposures in a variety of ways. But a cornerstone of this program was a portfolio of fully collateralized futures contracts that they rolled forward at regular intervals. The program was modeled along the lines of the Goldman Sachs Commodity Index, which had been created in the early part of that decade, though Harvard developed its own modifications to the standard index.

Few institutional investors, and probably no individuals, were as well equipped as Harvard to execute such a plan directly. Swap dealers, who had deep experience in creating customized, off-exchange solutions for their clients, quickly turned their skills to commodities. They offered a wide array of structures that generally provided access to a diversified array of commodity exposures in an unleveraged product.

These dealer-created, synthetic portfolios of commodity exposures needed to be managed by offsetting positions in the cash and futures markets. While the motivation of the ultimate customer might be different, this activity is the same in principle to a wheat or coffee dealer negotiating price-to-be-fixed contracts with a miller or roaster, and it deserved hedge exemptions from the position limits.

There is a valid question whether non-commercial commodities buyers can use off-exchange transactions to circumvent position limits. The matter is somewhat complicated by the fact that dealers only bring their net off-exchange transactions to the futures markets to hedge, but there may be a way to address this. Dealers should be able to provide documentation justifying any hedge exemption request. If that documentation shows any single off-exchange position that would translate to a violation of the position limits, that request could be denied. In such cases the dealer would choose either to carry an unhedged position against that customer or turn to other markets for protection. An example could show how this might work.

Suppose there is a stylized commodity futures contract with a position limit of 100. A dealer offers swap positions or structures that replicate that commodity from either the long or the short side. 20 clients come to the dealer and each want the equivalent of 10 contracts long. The dealer writes the contracts and then hedges the position in the futures market. Since the 200 contract total exceeds the 100 contract limit, a hedge exemption would be applied for. Since each of the customers is well below the individual limit, this dealer hedge exemption should be granted.

Now suppose another client comes to the dealer and wants to take a 200 contract position on the short side. The dealer could create a structure for this client, taking the chance that the 20 clients on the long side together would act as an internal hedge. This would be a calculated risk from an execution stand point. If most of the long clients decided to cover their positions, the remaining net exposure would be

larger than the position limit at the exchange. If the dealer tried to justify a hedge exemption with the short position of the single customer, it would be flagged as inappropriate and denied. The dealer could turn to the physical markets to hedge in this instance, which is always an option for those skilled in that activity.

I purposely used a completely abstract example above to avoid any value judgments in the discussion. It doesn't matter what the commodity is or whether the limits are "too small." The point is that once limits are established, there should be a mechanism for dealers to create the synthetic equivalent of futures positions for customers who choose not to trade directly. And that activity should be completely supported by the hedge exemption process as long as it is not being used to circumvent the position limit rules.

Today, we do not know if this is anything more than a theoretical issue. As the Commission gets more of the detailed data from market participants discussed above, they will be able to determine if this is a real problem at all and how big it is.

While the proper size and effectiveness of position limits can be debated at great length, what cannot be disputed is the necessity of dealer hedge exemptions associated with any activity that is consistent and allowed by the established position limits. The negative impact of disallowing such exemptions on the effectiveness of our futures markets cannot be overstated.

Traditional Investors in Commodity Futures Markets

Much has been made about the impact of traditional investors who in the last several years have increasingly added unleveraged synthetic or direct positions in commodities to their portfolios. The language has been particularly unhelpful, as some commentators use the terms investor, speculator and manipulator with almost no distinction. I would like today to try to clarify what I believe are the most relevant points in the discussion.

And clarification is needed because as the debate has heated up, advocates on both sides have been increasingly shrill in their assertions. In these comments I hope to be able to strike a balance, as I have no index products to sell and I have no reason to keep legitimate investors from pursuing any particular opportunity.

There is a camp that asserts that commodity index investors are only liquidity providers and that they have no impact on the price of the underlying commodities. These assertions strain our intuition about how markets work, and they come in the following three varieties:

- Commodity index owners are always buying and then selling, never taking delivery. Therefore it is not "real demand." The act of selling the soon to expire futures contract when the more deferred contract is purchased is a neutral act.
- Commodity index owners rebalance these exposures to maintain target portfolio weights, just as they do their bond and stock exposures. Rebalancing involves selling after markets appreciate and buying after declines, so commodity index owners add stability to the market.

- Commodity index buyers clearly had no impact on their markets as evidenced by the fact that prices for commodities that had futures and those that did not both went up in 2007 and early 2008. If index buyers had an impact the futures based commodities would have gone up while those without futures would have not.

Each of these points is made with great conviction, backed with data where selectively appropriate, and each contains a grain of truth. But the broader assertions are false for the following reasons:

- Any neutrality of “rolling” futures positions is true only *after* the initial positions are established. Every time a new long-only index futures client appears, they represent a new long position that has to be met by a short. Tens of billions of dollars of new money entered the index space in 2007 and early 2008, competing with other longs. Higher prices were required to encourage new shorts to be counterparties. This is exactly how markets always work, and these index buyers did not magically appear on the open interest records to assume their price neutral rolling activity. Additionally, the act of rolling futures contracts may be neutral with respect to price levels, but it is not neutral with respect to the spreads. Selling the front month and buying the deferred tends to create and widen the carry in any market. Many market participants believe commodity index buyers have had a meaningful impact on both price levels and spreads. This is not a new phenomenon. For several years I have communicated with my investors and advisory clients describing the process. Copies of these commentaries can be found in Appendix B.
- The rebalancing comment is quite accurate *if the number and size of commodity index participants is static*. The problem in 2007 and 2008 was that for every investor who was trimming an outsized commodity exposure because of price appreciation, there were probably 10 new participants who were being attracted to the space. The net effect was still a major net addition to the long side as prices rallied.
- The correlation argument is made only by those people who fail to understand or acknowledge that physical commodity markets are linked in many ways. Coal and rice are two commodities for which futures markets have never achieved serious liquidity. And yet, their prices rose in 2007 and 2008 without futures buyers. Unfortunately for this assertion, many end users of natural gas and heating oil on the energy side and wheat and corn on the food side have the ability and incentive to shift to coal and rice when the prices of the futures commodities go up. In economics this is called a cross elasticity of demand.

While it is certainly true that China, India and many other parts of the developed and developing world were rapidly expanding their demand for all commodities in 2007 and early 2008, it is also true that tens of billions of dollars of demand was entering the market via commodity index investing. Ascribing how much of a price increase is attributable to each activity is probably beyond the powers of our econometric tools. Saying one is responsible and the other is not is roughly the equivalent of trying to say which blade of the scissors is doing the cutting. Most sensible people believe that both activities had a role, which leads to the discussion of the other extreme opinion in this debate.

There are those who believe institutional investors like pension plans, insurance companies and endowments should be prohibited from investing in these unleveraged, futures-based products, not because they are manipulating the market, but simply because they are “too big.” The theory goes that in the short run, the supplies of any physical commodity are relatively constrained and that when large sums of money appear on the long side, the result is unnecessary price volatility. Like the extreme arguments on the opposite side of the debate, there is some intuition that has appeal, but the ultimate argument is equally flawed.

The basic error comes from the assumption that such investors will either invest in futures based products or they will do nothing at all. While the futures based instruments are perhaps the most convenient and cost effective, there are many other ways to gain exposure. Notable just last week was a news report that prominent fund investor David Einhorn had converted his sizable holdings in a gold based ETF into actual holdings of physical gold. While this is not a specific example of an index investor, it suggests what will happen if investors are prohibited from those products. Many of the same dealers who today provide futures based structures will simply create private facilities for holding inventories of commodities, which they could unitize and assign to the investors. Sophisticated investors like Harvard Management Company would decide whether the service was worth the fees, and might elect to manage the inventories directly. In either case, the institutional investor will secure access to physical commodities, which as we all know, will translate right back to the futures market through the arbitrage process.

An intermediate proposal would be to simply ban the activities of those investors who are deemed “too big” for the markets. Presumably at the top of the list would be state and national pension plans measured in the tens of billions of dollars. But under what rules does one draw the line? Is a \$50 million endowment all right? Can we allow small state pension plans access to efficient tools, but keep California and New York out? The issue of equity is an important one, and discriminating across classes or sizes of investors is a very bad idea. Add that to the fact that any such scheme won’t work for the reasons cited above, and this discussion should be given no attention.

Careful thinkers do ask the question, “Don’t these large flows of money matter?” and the answer is, of course, yes. They matter in the same ways that flows into tech stocks and emerging market equities in the 1990’s mattered, and the path of prices as a result is not always pretty. But those price signals are not noise, and they do illicit a response from people who can modify their own supply and demand. There are people who believe they know better than the market what is a fair value, but I am not one of them. Having twice had first hand experience in the 1970’s with gasoline rationing created entirely by programs designed by people who presumed they knew more than the markets, I am more humble.

Seasoned observers of commodity markets know that as non-commercial participants enter a market, the opposite side is usually taken by a short-term liquidity provider, but the ultimate counterparty is likely to be a commercial. In the case of commodity index buyers, evidence suggests that the sellers are not typically other investors or leveraged speculators. Instead, they are owners of the physical commodity who are willing to sell into the futures market and either deliver at expiration or roll their hedge forward if the spread allows them to profit from continued storage. This activity is effectively

creating “synthetic” long positions in the commodity for the index investor, matched against real inventories held by the shorts. We have seen high spot prices along with large inventories and strong positive carry relationships as a result of the expanded index activity over the last few years.

While some have complained about the immediate resulting price moves, over a longer horizon two things will likely occur. First, the build up of inventories beyond historical norms will have a moderating effect on supply disruptions. Given our stocks of natural gas, propane, crude oil and heating oil today, we are in much better position to withstand the impact of a misplaced hurricane than we were just a few years ago. The second effect is a natural decline in the attractiveness of the commodity index strategy. The large inventories and the prevailing positive carry in the market create a “negative roll yield” for the investor. This is not a random event, but a direct result of the size of the commodity index activity. For several years, I have advised clients who are seeking commodity exposure that there are less expensive ways to acquire that portfolio exposure. The motivation for these recommendations is not the goal of a better operating futures market, but maximized returns for the client. Examples of these views are found in the commentaries included in Appendix B. As more people become aware of these features, the allure of commodity index investing may wane without any outside intervention.

Finally, it needs to be emphasized that if synthetic vehicles to acquire long commodity exposure are limited or made prohibitively expensive, investors will find other ways to achieve their ends. If we think such investors are disruptive to the futures markets, imagine how much more disruption would result from institutional investors taking over grain elevators or oil bunkers. Attempts to keep these investors out of the market will only succeed in moving them into storage activities where they have little skill and no advantage. It is much better to let them be met by professionals in the handling of the commodities, and keep them on the exchange, adding to both liquidity and transparency.

I have great empathy for consumers and producers of commodities who operate in a world of many uncertainties. Both buyers and sellers frequently encounter bad price outcomes and there is a natural temptation from some to approach Washington to reshape the market mix to a more favorable outcome. I would caution the Commission, however, that if limits are imposed on long, unleveraged futures participants in an attempt to keep energy prices low for important groups of consumers, there will be a day on the horizon when those limits are completely derided by farmers facing large crops and artificially constrained demand.

Summary

I greatly appreciate the opportunity to share my views with the Commission on this important topic. These markets are complicated and dynamic, and the enormity of the oversight task is large. Any time there has been extreme volatility in any important market there has been a historical temptation to look for culprits and victims, and perhaps try to shape the outcomes differently. Unless there is a permanent problem and no other solution, this temptation should be resisted.

Exchanges will seek to preserve non-manipulated markets. Commercial users of the markets can adjust their trading and hedging activities to profit from non-commercial speculators and investors. That latter group, if they are not acting in concert to create an artificial price, should fend for themselves. These

investors are not manipulators and will find a way to get the exposures they want for their portfolios. The Commission and Congress, through their actions, can encourage well functioning, transparent markets or they can force these participants into higher cost, much less transparent opportunities. The issues being debated here are not new, but each generation has to reaffirm their commitment to letting market forces interact for the long-term benefit of all participants.

In my opinion the exchanges have done an outstanding job in letting market forces work, balancing the need for control with the absolute requirement of encouraging liquidity and free price discovery. The growth of these markets over the past 40 years has been nothing but phenomenal, but that growth has not been an accident. Efforts to expand transparency will enhance the markets. The judicious use of position limits and appropriate exemptions to these limits will continue the tradition of fair, non-manipulated markets that are largely the envy of the world. I encourage the Commission to make the continuation of that legacy their highest priority.

APPENDIX A

A New Look at Some Old Evidence

258.105
ST

ITCX

ISSN 0193-9025



Food Research Institute Studies

CONTENTS

Quantifying the Nutrition Situation in Developing Countries

Thomas T. Poleman

Risk and Adoption of Hybrid Maize in El Salvador

Thomas S. Walker

The Chicago Wheat Futures Market:
Recent Problems in Historical Perspective

Roger W. Gray and Anne E. Peck

A New Look at Some Old Evidence:
The Wheat Market Scandal of 1925

Todd E. Petzel

Vol. XVIII, No. 1, 1981

TODD E. PETZEL *

A NEW LOOK AT SOME OLD EVIDENCE: THE WHEAT MARKET SCANDAL OF 1925

Futures market speculators have frequently been blamed for variations in grain prices. In periods of rising prices (e.g., the early 1920s, the Korean war, inflation, and the 1970s) grain speculators have been accused of increasing the prices of agricultural commodities artificially. During the early 1930s when agricultural prices were low, grain speculators were accused of depressing prices. The role speculators actually play in determining market prices is a subject long open to debate. This paper analyzes the relationship of speculators to price in the wheat market for the crop year 1924, a time of volatile prices and little regulatory constraint.

The price of the May 1925 futures contract, the last contract dealing with the 1924 wheat crop, advanced from \$1.19 $\frac{3}{8}$ per bushel in July 1924 to \$2.05 $\frac{7}{8}$ at the end of January 1925.¹ After an uncertain February when the price moved roughly between \$1.75 and \$2.00, the price broke, hitting a low of \$1.35 $\frac{1}{2}$ on April 3. (By way of contrast the May 1924 wheat future had traded throughout its life in a band between \$1.00 and \$1.15.) This decline outraged wheat producers and moved the United States Department of Agriculture (USDA), through the Grain Futures Administration (GFA), to undertake a thorough examination of the grain futures trade.²

The investigation raised two issues which were frequently confused in discussions of the events. The most significant charge leveled against the speculators was that large purchases were made in order to move market prices to levels unwarranted by supply and demand conditions. The argument goes that as the price was driven up, the public was drawn into the market to relieve the large speculators as their original long positions were covered. The second charge

* Assistant Professor, Food Research Institute. The author would like to acknowledge the helpful comments of Roger Gray, Anne Peck, and Jerome Stein. They are in no way responsible for any remaining errors.

¹ These and other price and volume data are from U.S. Congress (1926).

² The investigation resulted in three major reports, U.S. Congress (1926), and two papers by J.W.T. Duvel and G. Wright Hoffman (1927, 1928).

dealt with large daily fluctuations in prices that were thought to be caused by excessive speculation. Both of these supposed effects of speculation have been called manipulation at one time or another, and while this labeling may be effective rhetorically, it clouds the true content of the specific charges. Manipulation should be defined as the deliberate, knowing, or intentional creation of unwarranted or artificial prices. Squeezes and corners are clearly forms of manipulation, and when traders purposely influence the price of a commodity a week or a month in the future by their trading today, this too is manipulative. Calling daily price swings that result from large scale trades manipulative seems to stretch the logic too far. If a trader tries to cover a large long position rapidly, the price will probably break, causing any paper profits to be diminished or possibly reversed. Only if the large trade occurs prior to the price change can there be a possibility of a manipulative content. Large fluctuations in price provide poor signals to producers and consumers and therefore are undesirable, but they do not imply manipulation.

The GFA investigators approached the analysis of the May 1925 contract systematically and carefully. They first examined the trading behavior of three individuals who were reported in the popular press to have manipulated the market. They found that one represented a hedging account, the second was a relatively minor trader, and the third did not participate in the market during this time. The analysis then moved to a broader statistical investigation. Statistics of daily volume and open interest were compared with the daily prices. A statistical analysis of price and volume data cannot address the issue of manipulation directly. What can be analyzed is the price effect of trades made by individuals or groups. If a significant price effect is found, it is then necessary to establish that the trade was intended to drive the price to an artificial level for manipulation to be proved. If on the other hand it is found that speculators' trades did not cause any price changes, then they certainly did not cause any unwarranted changes and manipulation can be rejected. The conclusions the USDA drew from the price and trading data were based on their interpretation of the evidence and assumptions concerning intent and artificiality of price.

On 60 percent of the days when there were individual sales or purchases of 500,000 bushels or more, price moved in the same direction (purchases producing price increases, sales producing declines). The same test for trades of two million bushels or more produced like price movements 76 percent of the time. This nonparametric analysis was supported by an examination of the correlation between changes in net position by class of trader and change in price. The report concludes from this "that the net purchases or sales . . . on a single day will usually cause the price to move in the same direction" (Senate, 1926, p.67). Of course, simple correlation analysis cannot imply the direction of causality, but the results are consistent with this intuitive explanation of events.

The examination of the broader issues of manipulation over time was made by graphical inspection. Plots of net positions of large traders were compared to plots of price levels. The conclusion from this fairly crude inspection was that the group of largest traders "either had far greater insight into the future regarding the course of grain prices . . . or else the course of its trading from day to day directed, in no small measure, the course of grain prices" (Senate, 1926, p. 51).

The ability to predict the future course of prices, often called discounting in the literature, is viewed as legitimate speculation in that it is trading that is borne out by the conditions of supply and demand. The GFA investigators in their conclusion rejected this interpretation of the observed trading pattern. G. Wright Hoffman (1941) in a 15-year (1923–38) survey of the grain markets also argued against the discounting explanation for two reasons. First, large speculators were not consistent in their individual or collective behavior, suggesting that the apparent discounting was not in fact due to any special skills or fundamental knowledge. The second factor was the precipitous decline in price from the \$2.00 level, which after the fact was deemed unwarranted.

The findings of the investigation did not immediately lead to new legislation, though in late 1925, at the urging of the Secretary of Agriculture, the Chicago Board of Trade began implementing machinery that would permit the imposition of limits on daily price movements in times of emergency. There were many who believed that this was not sufficient and argued that the Grain Futures Act of 1922, which relied almost exclusively on the exchanges policing themselves, contained only a shadow of the regulatory force that the situation called for.³ There were cries that the markets were nothing but gambling dens, and that all forward contracts not explicitly designed for physical delivery should be outlawed. More moderate voices called for federal imposition of limits on daily price movements and on the levels of individual traders' daily volume and open interest in any given contract. After a decade of debate the Commodity Exchange Act of 1936 significantly amended the 1922 act.

Several major changes in the regulation of the markets resulted from the 1936 act, but of particular interest to this study was the creation of speculative limits. The events of 1925, the GFA investigations, and the widely held belief in the manipulative impact of large speculators were important in the passage of the bill. Representative John Marvin Jones of Texas in presenting the act on the floor of the house stated (U.S. Congress, 1935, p. 8589):

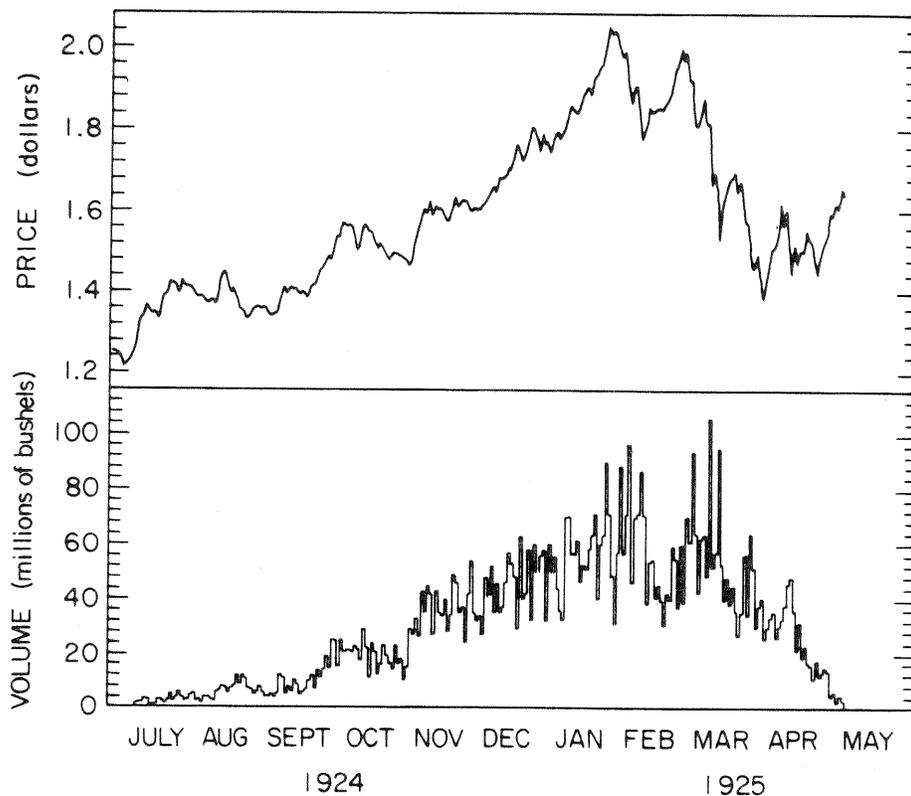
During the last 15 years about 16 big traders in grain have from time to time taken advantage of unusual conditions to make raids upon the market and to rig the market to the detriment not only of the producer but also of all others engaged in legitimate transactions in various farm commodities . . . The bill provides that the Commission which was established in the original act shall have the power to limit the net-short position or the net-speculative position of any one of the big traders at any time so as to avoid manipulation of the market.

The act itself, in Section 4a . . . imposing speculative limits, specifically mentions "excessive speculation" causing "unreasonabale fluctuations" or "unwarranted changes."

Because graphical inspection of open interest and prices may be open to a great deal of subjective interpretation, this study employs cross correlation techniques to examine the broader issue of interday manipulation. David Rutledge (1977)

³ Excellent summaries of early legislation of commodity futures trading may be found in Hoffman (1932) and in *Yale Law Journal* (1951).

CHART I.—PRICE AND VOLUME, MAY 1925 WHEAT*



* Data are for successive Wednesdays, from U.S. Congress (1926), "Fluctuations in Wheat Futures," Senate Document No. 135, 69th Congress, 1st Session, Washington, D.C., p. 17.

used similar techniques to investigate the links between trading volume and price changes and found them to be useful time series tools. By examining the 1925 data in this way a sounder interpretation of the events can be provided.

THE PRICE AND TRADING DATA

With so few constraints on speculation, the focus of the Secretary's investigation was on the behavior of the members of the Board of Trade who were classified as "large" traders. Detailed information about price movements and trading behavior of various classes of members were presented and analyzed. Daily movements of prices and total volume traded in the May contract are presented in Chart 1. The bulk of the finely detailed statistics gathered by the study was for the period of price decline (January 2 to April 18). From the point of view of the USDA, this made good sense because it was the period of highest volume and price variability, but it constrains the present study to the same

A NEW LOOK AT SOME OLD EVIDENCE

121

TABLE I. — VOLUME OF TRADING IN 1925 MAY WHEAT BY
CLASSES OF TRADERS, JANUARY THROUGH APRIL*
(Thousands of bushels)

Class	Volume of trading		Percent of total volume	
	Bought	Sold	Bought	Sold
Large traders				
Commission houses	693,667	690,346	15.0	14.9
Hedgers	137,275	103,791	2.9	2.2
Scalpers	1,060,960	1,061,002	22.9	22.9
Speculators	615,087	652,005	13.3	14.1
Spreaders	58,401	54,042	1.3	1.2
Speculative scalpers	667,690	666,801	14.4	14.4
Total	3,233,080	3,227,987	69.8	69.7
Other traders	1,402,491	1,407,584	30.2	30.3
Total all traders	4,635,571	4,635,571	100.0	100.0

* Data from U.S. Congress (1926), "Fluctuations in Wheat Futures," Senate Document No. 135, Washington, D.C., p. 29.

period. Ideally the statistical series should include the autumn period of price increase as well. However, if this earlier period was not characterized by a speculative price effect, the inclusion of these data could dilute any effect alleged to be present in the volatile spring months.

The USDA study identified 627 traders who each bought or sold as much as 100,000 bushels of May wheat within a single day. These large traders comprised six categories: 1) commission houses, 2) hedgers, 3) scalpers, 4) speculators, 5) spreaders, and 6) speculative scalpers. They were responsible for about 70 percent of the total volume of trade in the May contract (Table 1).

The activities of the commission houses represent, by and large, the trading of small speculators who may be thought of as the outside participants in the market: they are people who want to invest in commodities at levels that would not justify the purchase of a seat on the exchange. Since they must trade through a broker their access to market information is not as immediate as that of traders who are active on the floor.

Hedgers are traders, like terminal elevator operators and large millers, who own cash wheat somewhere, and tend to maintain cash positions of the crop corresponding to their futures contracts. Most hedgers would not take or make delivery on their futures contracts because this would involve the costs associated with cash transactions in Chicago.

The primary function of scalpers, or pit traders, is to add liquidity to the market. They rarely hold a position overnight. During the period of study, they bought 1,060,960,000 bushels of May wheat and sold 1,061,002,000 bushels.

Their market behavior virtually precludes their having any sustained price influence.

Speculators are individuals who trade on a relatively large scale as compared with those making up the "general public" (Senate, 1926, p. 26). During the life of the May contract these traders made up about 14 percent of the total volume. It should be noted that combining this group with commission house traders does not exhaust the group of speculators. What it captures are the large traders (100,000 bushels or more) and the small (who do not own seats).

The GFA was particularly interested in a group of the very largest speculators. They found that 57 of the 302 traders in the group of speculators held at some time net positions of 500,000 bushels or more. Twelve traders in this group held between one and two million bushels, and eight others held over two million bushels in net positions at some time. Detailed statistics of volume and open interest are available for these 20 largest traders and data for this subgroup are used in the next section.

Spreaders and speculative scalpers are difficult to identify precisely. Spreaders trade on the temporal or geographical basis (price difference). That is, they may buy July wheat and sell December, or they may sell Chicago wheat and buy a similar contract in Kansas City. This apparent arbitrage activity accounted for 15 percent of total volume, and it is difficult to imagine these traders having a manipulative impact, since most of their activities were close to those of pure scalpers. Speculative scalpers maintained largely offsetting positions and were a relatively minor force in the market.

"Other" traders are member traders who bought or sold less than 100,000 bushels of the May contract.

METHODOLOGY AND RESULTS

The GFA study provides daily prices and data on transactions for each of the large classes of traders, but the tabular and graphical analysis employed could not link speculative behavior with price changes. Cross correlation techniques suggested by C. W. J. Granger (1969), and detailed in D. A. Pierce and L. D. Hough (1977), provide a mechanism for determining the association between trading activity and price.

Three variables are examined here for possible linkages to the change in price. The thrust of the USDA report was that large speculators "directly or indirectly" manipulated price, and so the first potential link is between changes in the trading position of largest speculators, who at some time during the period of study had an open interest of one million bushels or more, and the change in the price of the May contract. The second test includes all of the large speculators. The third test is for a link between brokerage-house change in open interest and price.

This cross correlation technique permits examination of interday relationships between trading activity and price. Unfortunately, if a link is found between trading today and price changes on later days, the test cannot distinguish between discounting and manipulation, although if no link is found, both can be rejected. Speculation causing immediate price fluctuations would be suggested

though not proved by a positive correlation between same day price changes and trading activity, but for a price effect to be demonstrated it would be necessary but not sufficient to establish that large traders formed their positions prior to the price change.

Basically the procedure examines the cross correlations between two pre-whitened series at various leads and lags.⁴ Equation (1) gives the formal definition of this cross correlation:

$$\rho_{xy}(k) = \frac{E(X_t Y_{t+k})}{\sqrt{[E(X_t^2)E(Y_t^2)]}} \quad t = 1, 2, \dots, n - k \quad (1)$$

A number of causal links may exist between two series. If $\rho_{xy}(k) \neq 0$ for some $k > 0$, and zero elsewhere, then this implies that X causes Y. As an example, suppose X_t is the change in the net long position of large speculators, and Y_t is the change in the price at any time t . If $\rho_{xy}(5)$ was significantly positive, net increases in buying (long positions) today would cause the price to go up five days from now. If $\rho_{xy}(k) \neq 0$ for some $k < 0$, and zero elsewhere, causality is reversed. Many other causal relationships potentially exist including feedback (non-zero correlations at both positive and negative lags), instantaneous causality ($\rho_{xy}(0) \neq 0$), and independence (no significant non-zero autocorrelations).

If one examines the autocorrelation structure of the change in prices, and the change in the net long positions of each of the three trading groups listed above, it appears that they exhibit the properties of a white noise process. This permits the examination of the cross correlations of two series directly without going through any further transformations (Chart 2).

The most noticeable feature is the prominent spikes in all three diagrams at lag zero ($k = 0$). For both groups of speculators, where the spike is positive, this implies that on days when these groups bought futures the price went up. It is important that causality not be read into the preceding sentence. It is impossible to determine whether price increases (or decreases) during the day caused purchases (or sales) by speculators or the converse. Intuition would suggest the latter, but to test this intuition would require similar time series data *within* the trading day. The results for the zero order correlations demonstrate apparent simultaneity.

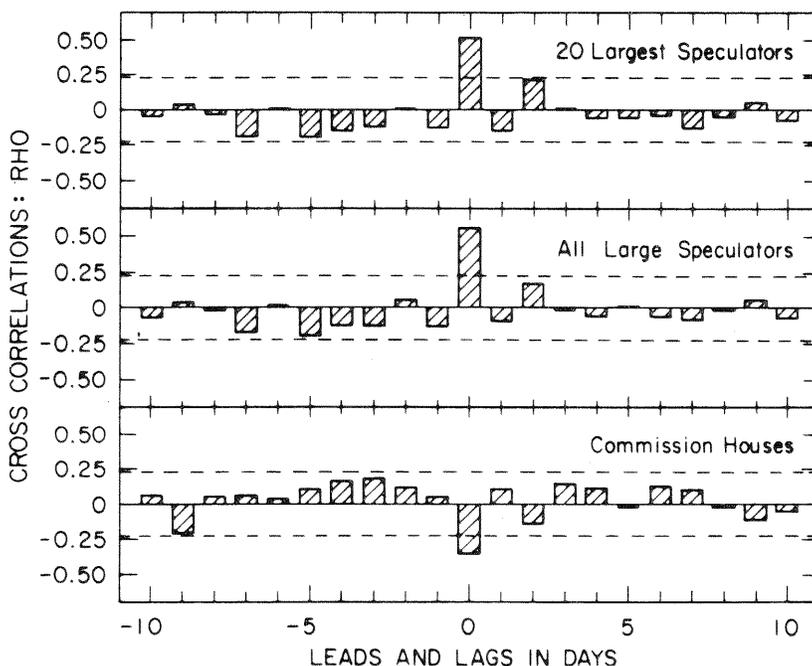
A similar picture emerges for commission house trading except that here the within day correlation is negative. Assuming that commission house trading is representative of small speculators, then small speculators buy more when price is falling.

None of the correlations at other lags is significantly different from zero, rather convincing evidence that trades on any given day do not affect prices on other days, and vice versa.⁵ If the general conclusions of the USDA report concerning

⁴ A series is said to be whitened when it is transformed by a linear filter to a series that is "white noise" (a series that does not exhibit any form of autocorrelation). This is discussed in Box and Jenkins (1976). Pierce and Haugh (1977) demonstrate that this transformation when applied to both series in question preserves the causality between the series.

⁵ Wider bands of lags were also examined and found to produce no significant correlations. The disadvantage of widening the lags under examination is that it consumes degrees of freedom and consequently reduces the level of confidence attached to any given correlation.

CHART 2. — CROSS CORRELATIONS BETWEEN CHANGES IN PRICE AND CHANGES IN OPEN INTEREST, BY CLASS OF TRADER*



* See text. Confidence limits formed through an application of a formula by Bartlett in G. E. P. Box and J. M. Jenkins (1976), *Time Series Analysis*, Holden Day, San Francisco, California.

an interday price effect were true, significant positive correlations should be seen at some positive lag ($k > 0$) for at least the group of large speculators. This would be true if purchases of large speculators led to higher prices in the future, inducing a profit for these traders. The converse would be true for a sale today leading to lower prices in the future. The only evidence that is consistent with a speculative price effect is the relatively large (though not statistically significant) positive cross correlation at lag 2 for the largest traders. But this result is no more striking than any of the other individual correlations (e.g., $k = -9$ for the commission houses, and $k = -5, -7$ for the large speculators).

Looking beyond the 95 percent confidence interval an interesting picture emerges. As a group the correlations for negative lags (i.e., the effect of price on trading at future times) are largely negative for the two groups of large speculators and positive for the small speculators. If this relationship is significant, which is difficult to confirm statistically, it would imply that if the price went up today, large speculators would react by selling wheat over the next several trading days, while small speculators would buy. It is possible that large

traders were selling out to take advantage of the price increase, while small speculators were trying to spot an incipient trend that may or may not have appeared.

For every seller of a futures contract there must be a buyer, and it appears (from the near mirror images of the correlations between large speculators and small) that traders working through the brokerage houses by and large took the reverse position of the large speculator. Given these correlations it is difficult to arrive at an interpretation which would lead to the average small speculator making money, and this is in agreement with the results of previous studies that examined the net outcomes of trades and discovered small traders to be remarkably unsuccessful. Blair Stewart (1949), working for the Commodity Exchange Authority of the USDA, examined the results of over 400,000 individual futures transactions from 1924 to 1932. Of the identified small speculators, 6,598 had net losses while only 2,184 had net gains. Possibly even more striking was the result that the net dollar losses for the losers were six times larger than the net gains of the winners. H. S. Houthakker (1957) and C. S. Rockwell (1967), respectively, examined this same question for 1938-51 (war years omitted), and 1947-65, and found that the abilities of the small speculators have not improved dramatically through time. The lagged correlation approach suggests the dynamics involved to explain why small amateur speculators lose out, on average, to the large professional traders.

Whatever conclusion one draws from these latter findings, there is still no evidence of the longer-term price effect of the trading of grain speculators alleged by the GFA. The GFA conclusion that excessive swings in prices within the trading day are caused by large trades cannot be tested adequately with these data, but the correlation analysis shows a link between the direction of trades and movements of prices.

IMPLICATIONS AND CONCLUSIONS

The wheat market's behavior in the spring of 1925 was violent and unpredictable, and it caused hardship for producers and consumers of wheat. Some journalists and many government officials firmly believed that large speculators had engineered the prolonged advance and the precipitous decline. This opinion was held by scholars in the area as well. J. S. Davis, K. Snodgrass, and A. E. Taylor writing in April 1925 gave their quarterly evaluation of the wheat market and noted two causes for the break in prices: the sale of futures on unhedged wheat from the Southern hemisphere, and the sale of May futures by (Davis et al., 1925, p. 149):

. . . professional speculators who believed the market was "overbought," also that the "longs" were financially overextended, and that therefore a selling campaign could be launched and prices driven down with the expectation of covering before the demoralized prices could be revived.

The support for the price-effect hypothesis seems to be the graphical inspection discussed earlier and the intuition of the various commentators. The belief that large traders caused excessive intraday variation was based on non-

parametric tests and simple correlation analysis. By using Granger-style cross-correlation analysis, the interday movements may be addressed directly, and the results offer no evidence of a price effect. The correlations between large speculator trading and price changes on the same day are essentially the same as those of the GFA study, but without intraday trading data it is impossible to suggest a causal relationship. Comparing the results for large speculators and commission houses brings to light an issue not considered by the original investigators. The dynamics among classes of traders has usually been considered in the light of trading results (i.e., small traders lose). The data from this study allow for a closer look at the mechanics of this process and appear to show a concrete relationship between large and small traders over several trading days.

If the hypothesis of a speculative impact on prices is not supported by the data, then an explanation of the volatile price behavior must be sought elsewhere. Davis and Taylor (1925) in their review of the 1924 crop year listed several events contributing to the movement of wheat prices. For three crops prior to 1924, supplies had been high and prices depressed. With short crops in 1924 in Canada and Europe, the world picture became quite clouded. The long price advance from May 1924 to January 1925 represented an adjustment from a surplus situation to one of potential shortfall. In G. W. Hoffman's words (1941, p. 16):

Looking back now it would appear that a fuller realization of the supply situation at the outset of the crop year 1924-25 would have placed prices somewhat higher.

In the last stages of the advance, it was European demand that maintained the inertia of the six-month increase in prices. Davis and Taylor wrote (1925, p. 39),

In retrospect it seems evident that these purchases had their major importance in strengthening the conviction that the wheat shortage was more acute than had been generally supposed, and than it actually proved.

It was in March that the most severe break in prices occurred. In addition to speculative causes, Davis and Taylor list the failure of European import and American milling demand to maintain their high levels, and the increased prospects for a good 1925 crop worldwide.

What seems to have happened here is that the meshing of information about supply and demand in the market connecting North America, Europe, Argentina, and Australia, was not perfect — as it never is. In times of market uncertainty errors are made even by well informed people. In January of 1925 the USDA stated its belief that the current price (near \$2.00) was justified by perceived supply and demand conditions. One cannot help notice the phrases "looking back" and "in retrospect" in the quotations from Hoffman, and Davis and Taylor. Unfortunately the determination of a market price is not formed by hindsight. As good information enters the market it corrects errors made earlier in an atmosphere of uncertainty, and it may correct them quickly as it did in March 1925. Such corrections are rarely, if ever, painless to all of the participants in a market, and it is all too easy after suffering an economic loss to look for the villain in the piece. In 1925 the public found its villains and conspirators in 1925 in the large speculators.

The GFA scholars in the 1920s used the best tools at their disposal, and concluded that a speculative price effect played a significant role in the movement of the May 1925 wheat prices. A careful look at their results shows that such a conclusion cannot be supported. The reexamination performed here using more modern techniques fails to uncover any hidden evidence of price effect, and without a price effect there could have been no manipulation.

The economic analysis behind most regulation of the futures markets has generally been less careful than that performed by the GFA in 1925, and yet charges of manipulation, frequently leading to legislation, appear regularly. As noted above, the Commodity Exchange Act of 1936, which shifted the function of regulation of trading away from the exchanges and to the government, was passed in an attempt to rid the trade of disruptive forces. Futures trading in onions was halted by Congress when it was believed that excessive speculation, and in some cases manipulation, were the dominant factors in price movements. President Truman in 1947 called for higher margin requirements to check speculation and the post-war food inflation. This last attempt at expanding regulation failed, but in early 1980 Commodity Futures Trading Commission Chairman James M. Stone renewed the call for government control over margins.

Charges of manipulation and excessive speculation usually arise during periods of unusual market activity, but they should be subject to careful analysis before action is taken. This paper suggests techniques which may be applied to these and other similar situations.

CITATIONS

- Box, G. E. P., and G. M. Jenkins (1976), *Time Series Analysis*, Holden Day, San Francisco, California.
- Davis, J. S. and A. E. Taylor (1925), "The World Wheat Situation, 1924-25," *Wheat Studies of the Food Research Institute*, Vol. 2, No. 1, November.
- Davis, J. S., K. Snodgrass, and A. E. Taylor (1925), "Developments in the Wheat Situation, January to March, 1925," *Wheat Studies of the Food Research Institute*, Vol. 1, No. 5, April.
- Duvel, J. W. T., and G. Wright Hoffman (1927), "Speculative Transactions in the 1926 May Wheat Future," United States Department of Agriculture Department Bulletin No. 1479, Washington, D.C.
- _____ (1928), "Major Fluctuations in the 1926 December Wheat Future," United States Department of Agriculture Technical Bulletin No. 79, Washington, D.C.
- Granger, C. W. J. (1969), "Investigating Causal Relations by Econometric Models and Cross Spectral Methods," *Econometrica*, Vol. 37, No. 3, May.
- Hoffman, G. Wright (1932), *Future Trading*, University of Pennsylvania Press, Philadelphia.
- _____ (1941), "Grain Prices and the Futures Market, a 15 Year Survey, 1923-1938," United States Department of Agriculture Bulletin No. 747, Washington, D.C.

- Houthakker, H. S. (1957), "Can Speculators Forecast Prices?" *Review of Economics and Statistics*, Vol. 39, No. 2, May.
- Pierce, D. A. and L. D. Haugh (1977), "Causality in Temporal Systems," *Journal of Econometrics*, Vol. 5, No. 3, May.
- Rockwell, Charles S. (1967), "Normal Backwardation, Forecasting, and Returns to Commodity Futures Traders," *Food Research Institute Studies*, Supplement to Vol. 7.
- Rutledge, David (1978), "Trading Volume and Price Variability: New Evidence on the Price Effects of Speculation," in Chicago Board of Trade, *Futures Trading Seminar*, Chicago, Illinois.
- Stewart, Blair (1949), "An Analysis of Speculative Trading in Grain Futures," United States Department of Agriculture Technical Bulletin No. 1001, Washington, D.C.
- United States Congress (1926), "Fluctuations in Wheat Futures," Senate Document No. 135, 69th Congress, 1st Session, Washington, D.C.
- _____, (1935), *Congressional Record*. 74th Congress, 1st Session, Washington, D.C., June 3.
- Yale Law Journal* (1951), "Federal Regulation of Commodity Futures Trading," Vol. 60, No. 5, May.

APPENDIX B

Commentaries from
May 2005, September 2006, and
September 2008

Todd E. Petzel, Ph.D.

Carry Me Home Investment Commentary

by Todd E. Petzel
Chief Investment Officer
Azimuth Trust

May 1, 2005

Summary Points

- Last month's commentary ended with a comment about the impact of commodity funds on the likely shape of the price of crude oil futures. Some readers asked for a further explanation of why that is relevant to investors.
- "Roll yield" is an important component to historical commodity fund returns. It is, however, heavily dependent on the configuration of futures prices, which might not be favorable at all points in time.
- Unlike many dimensions to investing, roll yield is fairly easy to anticipate in the short run, making the economics of commodity fund investing open to some easy analysis.
- As more and more investors add commodity funds to their portfolios, the head wind created by negative roll yield will make it increasingly difficult to produce a profit.

Last month's discussion was on the state of the energy markets and how a heated (perhaps overheated) view of world supply and demand has caused many investors to consider adding a commodity index investment to their portfolios. We described the state of the oil futures markets being in a "carry" as a market signal that inventories were relatively high and offered Department of Energy data to support that. Still, over the past month prices continue to be at or near historical highs and more investors are heeding the siren's call to join the band wagon.

The vehicle most often used by investors in commodities is a fund that rarely actually owns the physical product, but instead establishes long positions synthetically through the use of futures or other derivatives. At the end of last month's commentary I suggested that the environment for these funds might be entering into a troubled phase simply because of the number of people using them. This prompted a few inquiries into why this might be the case.

Most of us are quite comfortable with the way our stock and bond funds work. In general, we give the manager a dollar and he or she buys a dollar's worth of securities. These securities are placed in custody for a very nominal fee and we benefit to the extent that price appreciation plus dividends or interest exceed the costs of "storing" the securities plus the management fees. We hardly ever think about the cost of storing stocks because it is so very low.

Commodities are different. Almost without exception, physical commodities are a pain in the neck to store properly. They can be bulky and difficult to transport. Grains and products like cocoa and sugar change in quality through time. In the extreme, some commodities are actually alive (cattle and hogs). All in all, most people who are interested in speculating in commodities do so using futures contracts because those instruments allow them to participate in price changes (up or down) without having to actually deal with the physical products if they choose not to.

Investors in commodity funds might think they have something akin to their stock and bond funds, but the difference is striking and it is all about storage. Very few, if any, commodity fund managers have any experience in the complicated business of physical commodity management. So what they do is construct unlevered synthetic buckets of commodities using a combination of treasury bills and long commodities futures contracts. Let's look at a simple example.

An investor wants to be long crude oil as part of their portfolio. Each NYMEX crude oil futures contract calls for delivery of 1,000 barrels of West Texas Intermediate crude oil. With the current front month contract trading at \$58 a barrel, each contract is worth \$58,000. For simplicity, let's assume the investor wants to invest \$580,000, or 10 contracts worth of oil.

The typical commodity fund will first take the \$580,000 and buy t-bills, or some other very secure interest bearing collateral. It will then go out and purchase 10 of the front month futures contract, which is the position that most closely corresponds to the spot price of oil. Note that when this trade is done, the end

result is almost the same as if the investor had bought \$580,000 worth of oil and hired some storage facility to hold the goods for him or her.

The key word, though, is almost. The commodity fund investor doesn't have to pay storage or insurance and the fund investor doesn't give up the interest on \$580,000 by actually buying the product. This synthetic futures business sounds like a pretty good deal, but as you might suspect it's not as easy as it might seem. Let's break the source of the fund's returns down.

There are three components. The first is the interest earned on the collateral. It is your money and you are entitled to the interest. Small retail investors sometimes give this up to their brokers, but any commodity fund worth its salt captures this for the investor. The second component of the return is the price change of the commodity. If when you sell, the futures price is, say, \$63.80, you will have a \$5.80 per barrel, or 10%, profit. Of course, if you sell at \$52.20, there will be a \$5.80 per barrel, or 10% loss. Note that since you have committed the full value of the contracts as collateral, there is no leverage effect on the return. If the price moves a dollar, you make or lose a dollar.

Life would be pretty simple if that was all there was to it, but commodity fund investors tend to want to be long commodities for longer than a few weeks. When the front month contract approaches delivery, to stay long one has to sell the current contract and buy the next one in the string. Let's go back to the simple example. The only thing to keep in mind is that futures prices can always be expected to converge to the spot price as they move toward delivery.

Suppose the spot price is \$58 and the market is inverted because inventories are relatively low. This means the first futures price might be at \$57 and the next contract at \$56. You go long the front contract as described above. Now suppose a few weeks pass and **nothing** happens to the spot price. The futures contract you own moves toward the spot price as delivery approaches, and we can assume the spread between the futures stays at a dollar. You sell your maturing futures near the \$58 spot price and buy the next future for around \$57. Note that in an inverted market you make money from what is called "the roll yield" even if commodity prices remain unchanged.

This leads us to see how the total return of a commodity fund is comprised of interest returns on collateral, price appreciation of the commodity and roll yield. In a bull market that is inverted, this is like the trifecta of investing: you earn interest, a positive roll yield and any price appreciation. But it doesn't always work that way.

As discussed last month, in physical commodity markets that have ample inventories, the futures markets are usually in a carry relationship. That is, the deferred contracts are more expensive than spot. In our simple example, the spot price might be \$58, while the first and second futures contracts are \$59 and \$60. Going long the front futures contract and holding it a month in the example now produces a loss of \$1 per barrel as the futures market converges to spot. And as long as the market is in a carry, this loss will happen continuously over the life of the investment. This is known as "negative roll yield" and it can be significant.

As an example of how significant this effect can be, consider the expiration of the May 2005 NYMEX crude contract that happened the third week of April. At its widest point on April 13 of this year the spread between the May and June contracts reached \$1.91 per barrel, when the May contract was trading at \$50.22. On a pure percentage basis, that is around 3.8%, or over 40% annualized! The person buying June and selling May to roll the position forward is trying to walk into a proverbial hurricane.

Who benefits from this? The owner of physical oil who has hedged it by selling futures is the real winner. As delivery draws near and the commodity index long holder gets more anxious about avoiding physical oil, the short tries to suppress a grin. "Sure. I'll keep the stuff. But at a price." And then they finally cover their short and roll the position into the next contract, set up to replay the scenario as often as they can. The worst thing that can happen to them is that the longs actually want to take delivery and the game stops. There is essentially no risk to this trade. Assuming it costs around \$.60 per barrel to physically store the oil, such a strategy returns a net \$1.31 per barrel (\$1.91 - \$.60 in the example) or 2.6% **for the month** on the committed capital. While this example is taken from the most extreme point of this past month's cycle, even narrower spreads yield incredible returns for what is essentially a risk free trade. This is, in my opinion, the best trade in the world right now, and unfortunately, you can't take advantage of it without a real presence in the oil business.

Are there ways to speculate on this? Absolutely. You can open a commodities account and watch the spreads. You can sell the front month and buy a deferred contract when you anticipate the spread to widen

out as the commodity index players roll forward their long positions. If you are nimble, this is a good contrarian trade. However, if you wake up one day with news that another Middle East hotspot has blown up, the nice carry market that you were counting on will likely be reversed in a wink, and you will become the weak party coming to the table to cover. The true short hedgers do not face this risk because they can always deliver.

This leads us back to where we began last month. What is the state of the energy market and where is it likely to go? There is no way of knowing exactly what amount of buying is coming from real demanders and how much is coming from commodity index investors. Anecdotal evidence is suggesting that a great deal of money is coming into the funds, but if those investors are correct they will still be quite small relative to real demanders around the globe. It appears, however, that the index people may have gotten a little ahead of real demand, and if that is the case the state of carry in the front oil markets may be with us for some time to come.

Sponsors of commodity indexes at this point should be crying, "Wait. It's not just about oil." This is true. Toward one extreme, you have the Goldman Sachs Commodity Index (GSCI) that is more than 70% energy related. Other index providers have looked at that and said that was too much and have more balanced indexes across energy, metals, crops and livestock. But the carry question still needs to be asked. In mid-April, a quick examination of the 24 commodities in the GSCI showed only 5 (live cattle, Kansas City wheat, copper, nickel and lead), representing less than 9% of the index weight, in an inverted state. It seems the headwind is blowing at more than just oil, and one should look carefully at this factor in any index being considered.

It is a curious state of the world, these days. Every day we are confronted with logical arguments about how we are running out of our natural resources, and yet the inventory markets are saying something completely different. It reminds me a bit of the early days of TIPs trading when real yields being offered were over 4% for risk free instruments. There were lots of stories why that supposedly made sense at the time, but ultimately the imbalances were addressed, and real yields fell.

How this shakes out remains to be seen. The only point to these past comments is that investors need to think through the situation and decide carefully whether the environment is truly supportive of a commodity investment, or whether running with the consensus in this instance is setting up such hurdles to success that disappointment is a much more likely outcome.

Will this be the Winter of our Discontent?

Investment Commentary by Todd E. Petzel
Managing Director and Chief Investment Officer
September 1, 2006

Summary Points

- **2006 has seen well publicized increases in energy and metal prices. The impression is of significant commodity price inflation.**
- **Because of the popularity of commodity indexes, these increases in spot prices have not translated into gains for index investors.**
- **There are not only investment issues with passive commodity investing, there are broader social implications.**
- **Investors wanting to exploit commodity themes have many opportunities beyond passive commodity indexes.**

Scan the following percentage price changes. Each price change is calculated between December 30, 2005 and August 28, 2006, capturing pretty much 2006's experience to date. All the prices are for the "spot" commodity, or what you would pay to take immediate delivery.

Commodity	% Change
Aluminum	10.5%
Copper	66.6%
Crude Oil	15.5%
Gasoline	17.1%
Gold	18.7%
Silver	36.6%

There is little new in this chart. We hear about it every day in the newspapers and on CNBC. By now we all know we are in a raging commodity bull market. One can't help but look at the above chart and infer that once again commodities are stomping stocks and bonds. But appearances can be deceiving.

As of August 28, the total return Goldman Sachs Commodity Index had earned .07% for 2006. That's according to Goldman Sachs' web site. Since the six commodities above represent 62% of the GSCI, one can reasonably ask what else was going on to produce the paltry index returns.

One contributor is other spot prices that were falling. Natural gas, soybeans and sugar all fell over the period, but their declines are far from large enough to offset the price increases above.

A cynic might suggest fees are the culprit. While it is true that the commodities index business has been extremely lucrative for Goldman Sachs, AIG, Pimco and many others, the fees are tiny in terms of basis points of return.

The real reason was described in my May, 2005 investment commentary, [Carry Me Home](#). You may access the full text from our web site, but that commentary's last summary bullet point says it all:

- **As more and more investors add commodity funds to their portfolios, the head wind created by negative roll yield will make it increasingly difficult to produce a profit.**

If the concept of a roll yield is unfamiliar to you, I encourage you to go back and look at the April and May, 2005 commentaries. The basic theme is that commodity index investors typically do not own the physical commodities directly. They create synthetic portfolios with fully collateralized futures contracts, which must be rolled over from month to month. Since the contracts being sold and bought during the roll rarely have the

same price, the synthetic commodity investor is subject to risk that can either add to or reduce total return.

This risk is not a random factor. If there are large inventories of a product around, the spot price will be less than the deferred futures price to compensate those who actually incur the costs of storage. The synthetic investor in these circumstances is typically selling low and buying high, which we call a negative roll yield. I argued over a year ago that this could produce a significant head wind to the commodity investor. It appears this has been the major story so far in 2006. It may be the main story for a long while.

Passive investors in commodities have produced such a demand for every commodity index component that they have produced huge distortions in the physical flow of these goods. We are living in a world of higher than average inventory levels and the perception of scarcity. The energy markets are perhaps the clearest examples of this phenomenon.

The Department of Energy publishes weekly reports on the supplies of petroleum products and natural gas. Each market is highly seasonal, so comparing gasoline or natural gas stocks in September to those six months ago is almost meaningless. One needs to look at where we stand versus a year ago and against longer term averages. The reports covering the third week in August are typical for the recent months.

Supplies of crude oil in the United States at the end of September stood 2% *higher* than they were a year ago and now are about 10% above the previous 5-year average. This figure includes almost no contribution from the largely symbolic Strategic Oil Reserve. Non-gasoline distillates are also above their five year ranges. Natural gas stocks are 10% higher than the year ago pre-Katrina's levels and 13% above the 5-year average. Only gasoline stocks aren't plentiful by historical standards, but supplies are still 10% higher than they were a year ago.

With all these energy products around, how do we explain the high prices? It must be demand. The popular story is that global growth is running well ahead of our capacity to supply energy and hence higher prices are necessary to allocate the scarce resource across an increasingly competitive world. These growth projections may be spot on, but the shortage story doesn't ring true with the current market even after the hurricane disruptions. There is something else going on behind the headlines.

Welcome to commodity investing. You may have seen ads for seminars or investment products touting the benefits of owning baskets of commodities. In the new global economy there simply won't be enough of anything to go around, so you should make sure your portfolio doesn't miss this next big theme. To back up the promise, the sellers look at the last few years' returns. In the last five years U.S. equities have earned almost nothing and bonds, thanks to the Fed, have earned little more. Commodities? Depending on the index you follow, the average return has exceeded 20% a year. 2006's disappointment will only lower the three and five year returns a little.

The investment pitch to add "real" resources to one's portfolio is more than just a returns story. Commodities offer some protection against inflation and they tend to move somewhat independently of stocks and bonds. To the experts this spells diversification, the holy grail of portfolio construction. But in the end, it is the eye-popping returns that continue to grab people's attention.

Many individuals and institutions have responded. From essentially zero 12 years ago when Goldman Sachs introduced their own commodity index and trading vehicles, the industry has grown to become a significant part of the investment landscape. Giants like PIMCO, AIG, Deutsche Bank and others have all introduced products. While specific figures are hard to come by, industry analysts estimate that more than \$65 billion are currently invested in products tied to commodity baskets. This is, of course, a tiny number when compared to stock and bond markets, but it appears to be growing by several billion dollars a year. It also represents real buying power when it comes to the size of the underlying commodity markets.

Buyers of commodity index products are just like buyers of stock index mutual funds. Few follow the underlying components, and there is usually little analysis assessing which areas are cheap and which are dear. If you buy a stock index, you get all the stocks in the weights established by the index provider. The same is true for commodity indexes, and these days the biggest weights are on energy related commodities like crude oil, natural gas, and gasoline.

Who are the buyers? Nearly everyone. Foundations, endowments and pension funds are all actively pursuing the strategy or are considering it. These are institutions that have no immediate need for food, industrial metals or fuel. They simply want to own a block of resources because their value might be rising in a way different from their stocks and bonds. Trustees are simply trying to do what is best for their

institutions. Since the early innovators have been richly rewarded over the past few years, there are many others wanting to follow their lead.

Interestingly, these buyers may be the least economical actors in the play. As energy prices have increased, suppliers around the world are scrambling to deliver more product. Real demanders are also responding as evidenced by an apparent drop in gasoline purchases as prices have broken \$3. Econ 101 teaches us that the longer we live with high prices, suppliers will increasingly come to market and demanders will figure out how better to economize. For the commodity index demander, however, the more prices go up, the greater the appeal.

Commodities are highly cyclical, and to produce massively larger supplies of energy requires investments of hundreds of billions of dollars and many years. That is what happened in the 1970's and by the following decade we had a world of excess supply, cheap energy and virtually no new investment in energy infrastructure. Proponents of the commodity investment story argue that there is a lot of time left in the upside of the current cycle.

Others argue that this looks like a bubble, similar to tech stocks in the late '90's and more recently, housing. There seem to be no real shortages, yet the fear of future problems and a momentum mentality have driven prices up and up.

If this is an overheated market, it is fundamentally different than the tech stock bubble. As equities prices were bid up in the 1990's, most real people weren't hurt. Some worthy entrepreneurs in traditional industries may have had trouble raising capital as the venture capital world was infatuated with tech wizards, but most people were either on the sidelines watching or were helped modestly by the updraft in the economy.

Today there are many people, perhaps millions, who will be making hard choices this winter. For every person forgoing a ski trip to Aspen because the heating bill in their McMansion has doubled, there are hundreds of middle and lower class Americans who will be squeezed in much more critical areas. We may read of people freezing to death or dying in fires from improvised heaters as they fail to cope with the world of high energy costs.

In the 1980's a small movement began that stressed socially responsible investing. Typically, institutions shunned certain stocks and bonds from companies pursuing agendas inconsistent with their own values and goals. South African firms during Apartheid, tobacco and arms manufacturers, and many others found themselves on restricted lists. Students have long carried the banner in this area and have encouraged their institutions to either formally follow a socially responsible investment program or simply avoid the most egregious investments.

Commodities may appear to be above morals, but perhaps they are not. What is socially responsible about some of the wealthiest institutions in the country figuratively stocking their larders and fuel tanks with products they neither need nor want while the rest of the population suffers real deprivation? The fact that you can buy a basket of commodities doesn't mean you should.

Unfortunately, one of the main problems with these institutions is their staying power. Unlike the Eddie Murphy and Dan Ackroyd characters in the 1981 movie Trading Places, these investors use no leverage and are not easily swayed from their position. They may have tiptoed into the market when oil was in the \$40 neighborhood. They are now looking at their results compared to their traditional stock and bond portfolios. Instead of cutting back demand as prices rise, they may be thinking of adding to their positions. It will take a huge drop in commodity prices to force them out of the market.

Perhaps we need an old fashioned public awareness campaign. We used to chastise hoarders during war times, but that kind of moral suasion now seems passé. We've already had the president urge us to drive less. The exhortation to turn down thermostats can't be far behind. Americans, by and large, are trying to do their part.

You don't need \$70 oil or \$10 natural gas to make new energy investments or conservation programs attractive. And much higher prices are not going to bring new supplies to market immediately. It will take time and money to fully respond to the world's growth, but historically this has always happened. Malthus predicted over 200 years ago that the planet would periodically out consume its resources, leading to economic crisis and worse. Others have followed in his path with great regularity and just as inaccurate a vision.

Still enchanted with the scarcity story? Consumers in India and China and many other increasingly wealthy nations have growing real demands for energy and scores of other commodities. If this is an investment theme you want to pursue, there are many ways to pursue it. It is a rare day I don't speak with equity investors who believe they have found fundamental values in traditional and alternative energy companies. There are also private equity and long/short strategies that hold much more promise today than simple commodity index investing.

We will get through this cycle. Supply will eventually adjust, as will demand. Technologies will continue to evolve to save scarce resources. But that is an economist's perspective. That the long run will take care of itself is of small comfort to people who have to get through this winter. A modern day Marie Antoinette might suggest wintering in the Caribbean. Trustees of institutions that are adding to commodity demand right now should first ask themselves if they are doing a smart thing. Then they may want to ask if they also doing the right thing.



**Commodities Update
Web Commentary
Todd E. Petzel
Chief Investment Officer
Offit Capital Advisors**

September 1, 2008

Summary Points

- **For commodities, the start of the second half of 2008 could not have been in greater contrast to the beginning of the year with prices for precious metals, industrial metals, energy and agricultural products all falling by significant margins.**
- **Slowing global economies, demand destruction and a stronger dollar all contributed to the declines, but there were other forces at work as well.**
- **It appears too that the popular long commodities trade that built momentum through the first half of the year was sharply reduced beginning in July.**
- **The main lesson from the last six weeks is that commodity price movements will always be governed by specific supply and demand factors in the long run, but short-term volatility can be dominated by unexpected, highly correlated trades.**

At the end of June, many not-for-profit investors looked at their fiscal year-end investment performance and saw massive disappointment in their equity book. It did not matter whether one was in large or small cap, growth or value, or domestic or international stocks. Equity investments of all types were challenged in the previous 12 months. For some investors, however, there was a major bright spot on their account summary: long commodities. Returns differed according to one's specific approach, but it was not unusual to have earned 40% for the trailing twelve months.

Then July arrived. Almost in a blink of an eye, commodities across the board turned south, and over the next six weeks gave back in some instances more than half of the previous year's return. Commodities crossing all sectors participated in the decline: gold, down 15%; copper, down 14%; crude oil, down 19%; corn, down 26%.

Naturally, such an abrupt market turn evoked all kinds of commentary. Some have argued that the secular bull market in commodities is over. Slowing economies around the world will see at least declines in the rate of growth of consumption, if not absolute declines in demand. Others have also noted real demand destruction as prices rapidly accelerated. While there is likely merit in such arguments, the size of the price move does not seem completely consistent with the change in the fundamentals.

In the first half of the year commodities rallied despite slowing global economies. The increase in prices was propelled by a long-term expectation of demand growth as well as investors and speculators coming increasingly into the long side of the trade. These traders likely played a big role in the recent reversal as well. One of the truly remarkable facts about the six weeks starting July 1 is that virtually all traded commodities fell over the period. This high level of correlation is an anomaly. It is unlikely that the supply and demand picture for scores of unrelated products should all move in the same direction independently. The more likely common factor was the unwinding of part of the commodity trade.

It appears that the most successful investors in the first half of 2008 had one or more types of the long commodity trade in place. There were those who traded commodity futures directly, or through index based products. There were also many who might not have the authority or inclination to trade futures, but got their commodity exposure through commodity themed equities including ETFs. No matter which path one took, there were profits to be had.

What changed on July 1? It was not the state of the world economy. The most likely event was that investors looked at their allocations at quarter end and saw much higher commodity exposure than targeted. Not only were commodities higher, but equities were lower, driving commodity's share up. As investors tried to sell some commodity exposure to get back within target ranges, there were few fundamental buyers at historically high prices. Commodity prices had to tumble significantly to clear the market.

Such moves also had follow-on effects. Trend-following traders were primarily long going into July. When commodity prices began to reverse, these traders not only covered their long positions, but might have switched to the short side, adding to the downward price pressure.

Some argue that two forces have combined to create these price drops: demand destruction, and dollar strength. Recall that most internationally traded goods are denominated in dollars. When the dollar strengthens, prices of these commodities decline to reflect the stronger purchasing power of each dollar. However, in the first half of the third calendar quarter the value of the dollar increased only 6.5%, hardly enough to push commodities as much as they fell.

Then there is demand destruction. One recent news story trumpeted the fact that Americans drove 54 billion fewer miles over the past 8 months versus the comparable period a year earlier. This sounds like a big number. However, there are 250 million registered vehicles in the United States. That means the roughly 7 billion miles saved each month, translates to 28 fewer miles driven per vehicle per month. That may be an important start toward greater conservation, but hardly massive demand destruction.

The specific lesson here comes from our August commentary, "Lessons Learned from a Volatile Year". Investors need to be careful about potentially crowded trades. Fundamentals do not have to change materially for such trades to reverse suddenly and produce high volatility. A corollary to this is that correlations across independent markets can rise suddenly as well, diminishing the benefits of diversification.

One can argue that the commodity “super-cycle” is still in place because of global development and demand growth outpacing supply. The start of the third calendar quarter was perhaps just a dramatic correction from the still present bull market. The next several months will give greater clarity about the long-term direction of the market. But whether you are a bull or bear, the last several weeks have been a text book example of how commodities can trade. High volatility and correlation are not always the investor’s friend.

This report is for informational purposes only and is not an offer, solicitation or recommendation that any particular investor should purchase or sell any particular security or pursue a particular investment strategy. Any data here are obtained from what are considered reliable sources; however, its accuracy, completeness, or reliability cannot be guaranteed.