THE COMMODITIES MARKET BUBBLE: MONEY MANAGER CAPITALISM AND THE FINANCIALIZATION OF COMMODITIES

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Public Policy Brief[1]

Introduction

We do live in interesting times. Over the past decade we've seen what are arguably the biggest equity, housing, and commodities booms in US history. Could it be a coincidence? I previously argued that the US real estate bubble was not an isolated event that resulted from spontaneous mass delusion or excessive monetary ease, and, indeed, that the financial crisis spawned by problems in subprimes would spread far beyond housing debt. (Wray 2008) Following Hyman Minsky, I blamed money manager capitalism—the current economic system that dominates the global economy, characterized by highly leveraged funds seeking maximum returns in an environment that systematically under-prices risk. In this paper, I will argue the commodities boom is no different. Soaring energy and commodities prices are the direct product of a boom-bust cycle that is getting progressively more damaging to the economy.

With little regulation or supervision of financial institutions, money managers have concocted increasingly esoteric and complex instruments and practices that spread as quickly as a deadly virus in a sci-fi flick. Contrary to what is taught in economics and business courses, markets generate perverse incentives for excess risk, punishing those who are reluctant to join the bandwagon with relatively low returns. Those who do play along are rewarded because highly leveraged funding drives up prices for the underlying assets—whether they are dot-com stocks or Las Vegas homes—until the inevitable collapse. But memories are short, dumb money is ample, and bailouts are frequent. Since each bust only wipes out a portion of the managed money, a new boom inevitably rises like Phoenix out of the ashes. Commodities are simply its latest reincarnation.

To make matters worse, the consequence of each boom (and bust) is more severe than the previous one. It is fairly easy to look back with some amusement at the fate of pets-dot-com. Do we really care that a handful of geeky internet gazzilionaires made and lost fortunes based on business models fabricated to burn through foolish people's money? We might even be able to overlook the recession that followed the Nasdaq crash. However it is not so easy to ignore the real suffering of homeowners across the nation as they face foreclosure and eviction. The "financialization" of America's residential real estate, which turned homes over to a giant international casino, will undoubtedly impose large economic and social costs for many years to come. Worse still, is the financialization of food and energy. Many Americans are being forced to cut back on driving, heating their homes in winter, or even buying groceries at the supermarket. The

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world's poor, meanwhile, are starving as managed money puts the price of food out of reach.

To be sure, it is very difficult to determine how much fault should be placed on the laps of money managers, because there are a number of forces coming together in a "perfect storm" to drive up commodities prices. Still, I will argue that there is adequate evidence that financialization is a big part of the problem and there is sufficient reason for policy makers to intervene with sensible constraints and oversight to reduce the influence of managed money in these markets. Further, there is every reason to believe that this boom is going to crash in a particularly ugly way, so it is not too early to begin to formulate the proper policy response to the coming collapse. Finally, if history is any guide (as Alan Greenspan was fond of putting it), we can expect the managed money that survives the coming crash to search for yet another asset class. Hence, policy ought to be reformulated to try to prevent the next speculative boom.

We will begin with an analysis of three explanations for the explosion of commodities prices in recent years. While these are sometimes presented as rivals, I will argue that simply because one explanation is valid that does not make the others incorrect. Indeed, there are synergies at work so that the several forces driving prices higher reinforce one another. We first look at the typical explanation provided by economists: it is all a simple matter of supply and demand. Supplies are naturally constrained while demand has been climbing rapidly. A nod is usually given in the direction of the booming economies of India and China, along with the warning that any attempt to regulate or supervise financial and commodities markets will just make things worse. All that can be done is to encourage the supply side, for example, by opening up the arctic to more resource exploitation. The market will then efficiently allocate resources among competing wants.

The second story involves market manipulation by commodities producers and traders. Indeed, in recent weeks the Justice Department has hinted at wide ranging investigations, and the CFTC has announced actions taken against traders who conspired to raise oil prices. As we know, there is a long history of price manipulation of metals (readers will recall the Hunt brothers' attempt to corner the silver market), and the volumes on these markets are small enough that it is possible to hide a sufficient inventory to force prices up (a point even Paul Krugman admits although he prefers the supply and demand story).

Finally, the most popular explanation in the nation's capital today is that financial speculation in commodities futures markets is the real culprit. Both the Senate and the House have held hearings into this issue, with impassioned testimony presented on both sides. So far, most of the discussion has centered around oil prices, with airlines, truckers, and other users of fuel blaming speculators, while financial markets representatives (as well as most economists) reject these claims as naïve. However, the boom of commodity prices is broad-based, so any analysis must go beyond oil.

I will argue that all three explanations are plausible and the identified mechanisms are mutually reinforcing. However, it appears quite likely that the rise of investments in

commodities indexes (a particular kind of speculation that has been called “index speculation”) is the most important cause. Further, commodities merely represent the latest asset class identified by money manager capitalism as ripe for financialization. On the one hand, this means that the problem is mostly human made. Rising energy and food prices do not result, for the most part, from any “natural” shortages. It would thus appear relatively easy to reverse price trends. On the other hand, it means that the problem is systemic—it results from the operation of the type of capitalism we have inherited. Only fundamental changes to the structure of our economic system can break the cycle of boom and bust, and halt the continual search for new asset classes. It won’t be easy, but it isn’t impossible.

A final note: as this Brief goes to press, commodities prices appear to have reversed course. While this provides welcome relief it does not mean we are out of the woods yet. Falling commodity prices will generate problems: production decisions as well as portfolio allocations have been made on the expectation of rising prices. A lot of leveraged money has gone into commodities markets (including physicals as well as futures), so just as falling real estate prices are devastating for households, for the real estate sector generally, and for financial markets, there will be significant fall-out from falling commodities prices. Further, without fundamental reform we can expect that managed money will begin its search for yet another asset class to financialize. Just as managed money moved from equities, to real estate, and finally to commodities, a collapse of this market will push funds into yet another. Thus, a policy response is still necessary.

Supply and Demand

Food riots. Grounded jets. Plummeting SUV sales. Pictures of starving children around the world. Rising prices at the pump and on the grocery aisles. The return of stagflation and the misery index (the sum of inflation and unemployment). We all see the consequences of rising commodities prices. Figure 1 below shows that spending on energy in the US has risen to 14% of GDP, even more than during the last energy crisis. This time around that is supplemented by unprecedented across-the-board inflation of commodities prices. Even as the economy slips deeper into recession, policy is hamstrung by memories of the last bout of double-digit inflation almost 30 years ago.

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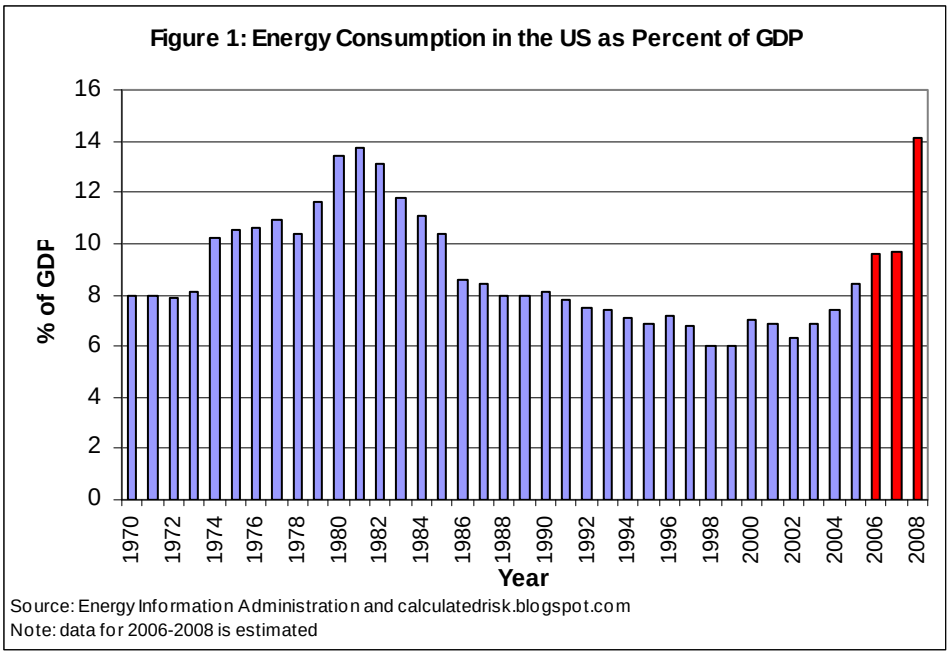


We "know" from our principles of economics textbook that the cause must lie somewhere between the "scissors" of supply and demand. Excess demand drives prices higher; fortunately the process is self-correcting, as higher prices depress demand and call-forth more supply. This could take some time to return to equilibrium, especially if government policies artificially inflate demand or restrict supply. For example, in a "misguided" attempt to help poor families buy food, many governments around the world have subsidized purchases—providing extra income that only helps to drive prices even higher. Or, government restricts the supply response by prohibiting oil exploration and drilling in protected wildernesses. Some governments have engaged in "beggar thy neighbor" policy by restricting food exports to preserve domestic production for their own citizens, thereby worsening food shortages (and driving up prices) elsewhere. The solution is to allow rising prices to diminish quantity demand, to encourage substitution into commodities that are more abundant, and to increase supply. In short, let the market work its wonders. Krugman has been one of the most prominent proponents of this view.

Below, we will look in some detail at commodities indexes that include prices of about two dozen basic commodities. For the moment I just want to provide some data on the the dizzying acceleration of prices increases. Most of the press has focused on rising oil, corn, and gold prices. But in fact, the boom has taken place across a wide range of commodities, and indeed is unprecedented in scope and size. According to an analysis by Frank Veneroso (10 June 2008), over the course of the twentieth century, there were previously just 13 instances in which the price of a single commodity rose by 500% or more. For example, the price of sugar rose 641% in 1920, and in the same year the price of cotton rose 538%. In 1947 there was a commodities boom across 3 commodities: pork bellies (1053%), soybean oil (797%) and soy beans (558%). During the Hunt brothers episode in 1980, silver prices were driven up by 3813%. Now, if we look at the current commodities price boom, there are already eight commodities whose price rise has

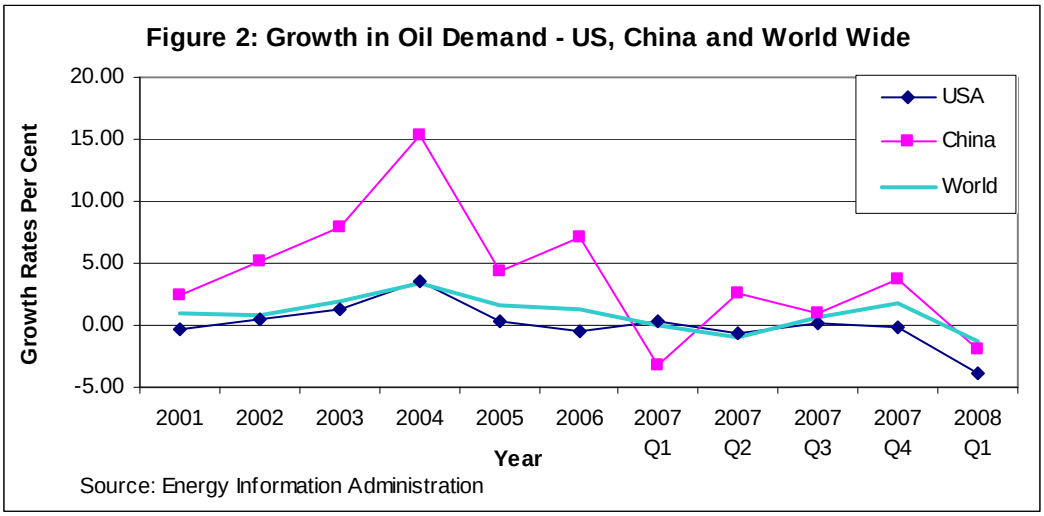
equaled 500% or more: heating oil (1313%), nickel (1273%), crude oil (1205%), lead (870%), copper (606%), zinc (616%), tin (510%), and wheat (500%). Many other agricultural, energy, and metals commodities have also had large price hikes, albeit below that threshold (for the 25 commodities typically included in the commodities indexes, the average price rise since 2003 has been 203%). (Masters and White 2008) There is no evidence of any other commodities price boom to match the current one in terms of scope.

It is true that there have been recent supply problems associated with some of these commodities. For example, there were labor disputes in Chilean copper mines that interrupted supply. An unusual number of oil refineries have been temporarily shut down, and there has been a longer-term trend of permanent closures and consolidation of the refinery industry. There are also all of the "peak oil" arguments (global production will begin to fall due to resource constraints), although if it is true that production is nearing its technical maximum the price rise should be gradual rather than abrupt. Still, economists argue that if demand is extremely price inelastic (consumers of the commodities do not reduce purchases even as prices rise) then prices could rise sharply whenever demand exceeds supply.

Most of those favoring the supply and demand story look to the demand side. In particular, this camp maintains that the rapid development of China and India is driving ever increasing demand in the face of a fairly inelastic supply, thereby boosting prices. Add supply constraints to the mix, and prices could rise quickly. While this story is appealing, it is also flawed. World growth has not been unusually high—rapid expansion in parts of Asia is offset by sluggish economies in Africa and Europe. According to the World Bank's estimates of inflation-adjusted GDP growth there appears to be nothing unusual in the current growth cycle, which started from very low growth in 2001 (below 2%) and climbed to nearly 4% at its peak. (Veneroso 1 Apr 2008) While that might be considered respectable, peaks in the 1980s were considerably higher, while those achieved in the 1960s were almost twice as high.

Of course, not all growth is the same, and it is conceivable that the development path chosen by China (in particular) generates high consumption of oil and other commodities. However, the US is also profligate in its consumption of some of these commodities—it is quite energy inefficient (using more oil per unit of GDP than other developed nations), and also inefficient in its use of some agricultural commodities (its grain and soy is run through cows—losing 90% of the food value—or, increasingly, through its cars, rather than more efficiently through its people). But even as the US economy slowed considerably over the past year, prices remained firm. Americans *have* responded to rising gasoline prices in the manner economists expect, with consumption falling sufficiently to offset China's increased use of crude oil—yet crude prices barely responded.[1] Figure 2 below shows global, US, and Chinese consumption of oil since 2001. While it is true that China's demand was growing very rapidly early in this decade, the growth rate fell off as oil prices rose. US consumption stabilized by mid-decade, long before oil prices peaked.

Insert Figure 2 here: Oil Consumption



Further, if the underlying cause had been "peak oil" and the *fear* of falling supply that drove prices, that should have been relieved to some extent by new discoveries of oil (Brazil, Greenland; indeed, proven oil reserves have been increasing at a rate of 2.5% per year since 2004, faster than consumption has grown) or expanded exploitation of substitutes (oil shales in the US; oil sands in Venezuela and Canada; together these exceed the total proven global oil reserves, and the cost of production is as low as $14.50 per barrel equivalent). (Eckhaus 2008) Moreover, even if oil is running out, according to Hotelling's Rule (commonly applied to depletable resources) oil prices should rise at the rate of interest if production costs remain constant. Obviously, prices have been rising very much faster than that. Finally, it has long been understood that the long run price of a commodity produced under competitive conditions should approach the marginal cost of production; for many commodities, those costs actually fall in real terms due to innovations to the production process—so that market prices rise more slowly than overall inflation. (Masters and White 2008) This is why investors have long shunned commodities as an inflation hedge. To the degree that oil markets as well as the markets for many other commodities are not competitive, these constraints on price rises may not apply. Still, there is little reason to attribute the tremendous price hikes experienced in the past few years to "peak oil" fears.

Eckhaus (2008) also dispenses with the argument that the oil price boom is due to political instability in the Middle East (nothing significant has happened, indeed, tensions between Israel and Syria have cooled a bit; while Iran has made the news, it has never threatened to cut off supplies and has even announced plans to increase production by a billion barrels daily). Dollar depreciation is often tagged as a contributing cause to price hikes as producers try to maintain purchasing power of their dollar revenues. Yet, the dollar fell by only 10% against the Euro between 2004 and mid 2008 even as oil prices quadrupled over the same period.

In any case, it is a bit too facile to resort to "supply and demand" explanations. Many who have used this argument graph crude oil supplies with a demand curve and show that they more-or-less match. Since supply just barely kept pace with demand, higher prices were needed to meet the demand. But it is always true that for every seller there must have been a buyer or the transaction would not have occurred—something that holds no matter what the price is. Simply because supply and demand must be equal at the market price tells us little about the determination of that price.

If markets are perfectly competitive, i.e., they contain so many buyers and sellers that none can influence the price, then the story provided by economists such as Paul Krugman makes some sense—demand might have grown faster than supply. Under idealized conditions, markets will then adjust quantity demanded and quantity supplied, with sellers and buyers reacting to price. Trouble is, commodities markets – especially oil – are far from perfectly competitive. Many are produced in conditions of oligopoly (a few producers—OPEC and Russia in the case of oil) and/or are sold to oligopsonists (a few buyers--ADM and Cargill in the case of grains) who intermediate between many producers and final consumers. In addition, many commodities are targeted by government policy. As crude oil prices rose, Congress decided to subsidize on a massive scale biofuels production—boosting corn and soy prices even as biofuels production increased use of oil (given US agricultural practices, production of the crops is energy-intensive). And, as mentioned above, when food shortages appeared, nations began to prohibit food exports—driving global prices higher. Attributing these price pressures to "supply and demand" is misleading.

Further, the Krugman argument ignores impacts of expected future prices on production today. Even if prices are rising, producers might not increase production if they believe it is best to wait until prices are even higher. Indeed, the Saudis have made precisely that argument: if all of the peak oil arguments are correct then prices in the future will be very much higher than they are today; hence it is best to leave the oil in the ground now so that Saudis in the future can enjoy higher prices and living standards.[2] Krugman also ignores the possibility that an intermediary (we could use a neutral term like "arbitrager" or one with a negative connotation, "speculator") might take the supply off the market to wait for higher prices tomorrow. If enough of the supply is removed, of course, this will actually *accelerate* price hikes (we would use the nasty term "manipulator" here). Yet none of these factors is considered in the simple models taught in economics principles textbooks. An effective framework must go beyond the conventional wisdom and consider these possibilities. In other words, we should be skeptical of simplistic application of inappropriate models to real world phenomena.

Veneroso's study of copper markets is particularly intriguing. Historically, copper use and price has been a very good predictor of recession because copper feeds directly into residential construction, which itself is very pro-cyclical. (Indeed, Leamer 2007 has provided an exhaustive demonstration of this correlation, and has gone so far as to claim that the "business cycle" is really a residential real estate construction cycle.) However, in the current cycle, copper has defied the usual trend. As the US housing boom turned to bust, copper prices continued to rise. As Veneroso argues, data on consumption of many

commodities are not good, and there is no direct measure of the global demand for copper. Estimates of the flow of new production exist, and currently total 17 to 18 million tons per year. To obtain a measure of demand, statisticians take total supply and then deduct estimates of the change to inventories. The result is called "apparent demand" and is subject to mismeasurement of both supply and inventory changes. For most countries there is little information on changes to inventory, so the estimates of apparent demand are usually suspect.

Critical to the supply and demand argument is the growing demand in China that might have offset the collapse of US demand. Veneroso reports that for 2007, China's domestic production of copper increased by 20% and its net imports doubled, so that total supply of copper to China was up by almost 40%--twice as high as any previous year. If China had actually used this amount of copper last year, this could explain why prices continued to rise even as US consumption fell. However, Veneroso claims that China's government actually keeps fairly good records on copper use, with estimates showing growth of demand over the year somewhere on the order of 8% to 19%. In other words, the growth of supply seems to have been at least twice as great as the growth of demand. If so, there is about 1 million tons of copper that have flowed into unrecorded inventories in China—a huge proportion of the world's supply. Veneroso believes there is perhaps another million tons of copper worldwide that is "missing", presumably held in unreported inventory accumulation. If true, a lot of copper is being held off the market and helping to fuel rising prices. In the next section we examine the possibility that prices are being manipulated in this manner. Again, a simple textbook "suppy and demand" story sheds little light by itself—given that these markets do not operate anything like the textbook perfectly competitive markets. What we really need to know is where the demand comes from, and who controls the supply.

Manipulation of supplies and prices

In recent years there have been several well-publicized cases of manipulation of commodities prices. For example, in winter 2004 British Petroleum monopolized 90% of all US TET propane supplies, and withheld enough from the market to drive prices up. In 2007 it reached a court settlement, agreeing to pay $303 million in penalties and restitution. (Stupak 12 Dec 2007) Amaranth manipulated natural gas spot prices by driving down futures contract prices in the last 30 minutes of trading for the March, April and May 2006 contracts. It made profits by shorting positions in the ICE (International Commodities Exchange) market before collapsing in September 2006. (ibid) Other well-known cases include the Hunt brothers' manipulation of silver prices, the Hamanaka affair in copper, the Marc Rich and Manny Weiss manipulation of aluminum, and the Tiger affair in palladium. (Veneroso 10 June 2008) More recently, SemGroup filed for bankruptcy on July 22 after it suffered $3.2 billion of losses on oil futures and derivatives, allegedly due to unauthorized speculation by its co-founder and former CEO. (Reuters 5 Aug 2008) It is not clear at this point whether the speculation consisted in manipulation or simply a series of ill-advised bets. In any case, there is little doubt that manipulation has played *some* role.

Acting Chairman Walter Lukken has argued the primary mission of the Commodity Futures Trading Commission (CFTC) is "detecting and rooting out illegal and intentional manipulation of the markets". (24 July 2008) After crude oil prices exploded, the CFTC put together a Nationwide Crude Oil Investigation that culminated in charges levied against Optiver for price manipulation back in March 2007. The CFTC found that its traders had successfully moved prices by small amounts to their benefit. Since 2002 the CFTC has filed 42 enforcement actions charging 72 defendants with manipulation; in addition, the Department of Justice has filed more than 47 criminal complaints. Still, in an interim report issued July 22, the CFTC concluded that although there were these isolated instances of manipulation, "rising oil prices are largely due to fundamental supply and demand factors." This is not altogether comforting given the CFTC's bias against intervention, as we will see.

In the next section we will discuss the possibility that financial markets have driven prices higher through the use of index funds that allocate a portion of assets to commodities. It is interesting that the CFTC not only rejects this interpretation, but also implicitly denies that such activity is within its "core mission" that is narrowly construed to detect "illegal and intentional manipulation" of prices. This statement even seems to reject CFTC responsibility for regulating *legal* speculation—something that was clearly part of its original mission, as we will see below. One might argue that the CFTC misses the forest for the trees as it focuses on individual traders who *illegally* move prices by a few basis points to make small profits, while pension funds and hedge funds might be increasing prices five-fold through legal buy-and-hold strategies. In other words, by limiting its concern to illegal manipulation, the CFTC ignores the much larger impacts on prices that result from speculative inflows of managed money.

Indeed, it is difficult to avoid the conclusion that the CFTC bears some responsibility for encouraging the massive flow of managed money into the commodities futures market in the first place when it actively promoted the notion that commodity futures should be seen as an asset class. Even as late as December 19, 2007—that is, long after it was obvious that a commodities price boom was underway--the CFTC released a study purporting to show that the returns on benchmark commodities remained uncorrelated with returns on equity investments. Thus, "commodity markets seem to have retained their role as a portfolio diversification tool." (CFTC 19 Dec 2007) In the next section we will show how this contrasts with the well-accepted understanding of the primary role that commodity futures markets should play. However, diversification provides the main justification for managed flows into commodities markets. Rather than showing concern, the CFTC was encouraging even greater flows. Second, the CFTC has steadfastly denied that the flow of managed money impacted commodities prices. For example, in its interim report issued last July the CFTC clung to the argument that "fundamentals" remain the main cause of rising prices. Only after determined prodding by elected representatives in Washington did the CFTC officials admit that their conclusions were not justified by their analyses, promising to collect more data before releasing a final report due September 11 or 12. The inspector general for the CFTC recently began an

investigation to determine whether the CFTC's interim report had intentionally misled Congress to help defeat anti-speculation legislation.[3] (Talley 27 Aug 2008)

These actions seem to have followed a long-term hands-off approach to commodities markets by the executive branch. When the House considered legislation (H.R. 6604) that would direct the CFTC to set and administer position limits across a range of commodity futures, the Bush administration signaled that it "strongly opposed" the bill and that the President would veto it. The CFTC has instituted position limits in the past, but it has also authorized a loophole that allows exemptions for swap dealers[4] beginning in 1991; similarly, the New York Mercantile Exchange (NYMEX) granted a large number of exemptions from position limits, the majority of which were for speculative rather than hedging purposes (again, these terms will be discussed in the next section). (Dingell and Stupak 17 June 2008) Just as the Fed under Greenspan's leadership refused to impose margins limits during the NASDAQ boom, the CFTC has failed to exercise its mandate to constrain leveraged positions in commodities futures. Those who followed the 1980s Savings and Loan fiasco will recall a similar hands-off treatment by many regulators. Indeed, top regulators saw their role as something akin to "cheerleading", best represented by Pratt's enthusiastic statement that the FHLBB should operate like a "trade association" for the thrift industry. Cheerleaders do not make good regulators. Unfortunately, at least some of the CFTC's behavior appears to border on cheerleading.[5]

As an example, so-called "black pools" were first encouraged in 1993 by Wendy Gramm, Chairwoman of the CFTC, who exempted from regulation customized energy derivatives that did not trade on registered exchanges. Congress extended this in 2000's Commodity Futures Modernization Act by including the "Enron Loophole" so that unregulated over the counter electronic exchanges would not be required to keep records or file reports with the CFTC. (Davis, WSJ 7 July 08; Engdahl 2008) The Enron fiasco that resulted did not deter the CFTC from granting further exemptions from oversight. In January 2006 the CFTC allowed ICE (the leader in electronic energy exchanges) to provide trading terminals in the US for the trading of US oil futures on the ICE futures exchange in London—promoting an escape chute around the CFTC-regulated NYMEX. Thus, US traders using terminals in the US to trade US commodity futures were exempt from US regulatory oversight. ICE accounts for more than a third of trading, on average, and total unregulated over-the-counter commodities trades are now estimated at $9 trillion, versus $5 trillion on regulated exchanges. Hence, the CFTC actually encouraged development of a largely unregulated competitor to the lightly regulated US exchanges.

In any case, the CFTC is woefully understaffed, raising questions about its ability to oversee even the regulated part of the market. As of last year it had only 437 employees, 12% fewer than it had in 1976 while the size of the market it supervises has grown more than a thousand fold over that span. (Davis 7 July 2008) Although the CFTC has indicated in recent weeks greater interest in expanding its reach (indeed, the CFTC has recently gained some authority over formerly exempt commercial markets such as ICE), its Chief Enforcement Officer at the time, Gregory Mocek, worried that extending surveillance to the huge "swap market" would cost too much. Unless Congress and the

President are willing to allocate a much larger budget to CFTC, it is unlikely that oversight will significantly improve.

The point of all of this is that so long as the term "manipulation" is limited to the actions of individual traders, it cannot play a significant role in the current commodities price boom since the most important markets—oil, soy, corn, wheat—are too big to be influenced for anything but the shortest time period. There are stories of oil tankers sent on round-about routes to try to keep oil off the market for a few days. There are a handful of rogue traders who try to move prices for a few minutes to complete trades. There might be a conspiracy to time maintenance shut-downs at oil refineries around the world. Still, the oil market is too big and there are too many players and too much incentive to take advantage of current high prices for narrowly defined manipulation to explain the historic run-up of crude oil prices over the past few years. In the case of agricultural commodities like corn or soy, markets are again too big to manipulate across growing seasons. However, as Veneroso has argued, metals markets are small and we *know* they have been manipulated in the past. So it is far more plausible that narrowly defined manipulation has affected prices of the smaller commodities markets. Note also how manipulation of supplies complements the supply and demand story from the previous section. So in conclusion, the manipulation of commodities markets by handfuls of suppliers and intermediaries probably goes some way toward explaining rising prices of at least some of the commodities, but is not likely to explain the broad-based commodities market boom over the extended boom that has been taking place for several years.

What is potentially far more important is the impact of large pools of money managed following similar strategies, with no necessity of explicit collusion. In the case of the subprime boom, we now know that the underlying mortgages were packaged into securities, blessed by ratings agencies, and marketed by Wall Street using similar statistical methods to assess risk. Regulators and supervisors responsible for protecting homeowners, financial institutions, and pension funds turned a blind eye to the systemic risk created (and in notable cases even led the cheers for the new instruments and practices; recall that Greenspan promoted the highly toxic option ARMs for subprime borrowers). (Wray 2008) It appears that the CFTC is now doing the same, as it focuses on individual price manipulators, while ignoring its Congressional mandate to ensure that commodities prices reflect the laws of supply and demand. The US Commodity Exchange Act states that "Excessive speculation in any commodity under contracts of sale of such commodity for future delivery…causing sudden or unreasonable fluctuations or unwarranted changes in the price of such commodity, is an undue and unnecessary burden on interstate commerce in such commodity" and directs the CFTC to establish trading limits "as the Commission finds are necessary to diminish, eliminate, or prevent such burden." (Engdahl, 2 May 2008) Unfortunately, the CFTC has instead allowed and even encouraged expansion of the portion of the market that is unregulated—the black pools of futures trading that are hidden from view—as it trains its sights on illegal manipulation.

As we will discuss in the next section, it is possible that commodities prices have been pushed by massive inflows of managed money following a "buy and hold" strategy that is self-reinforcing precisely because it will be successful so long as the flows are large enough. This could have been curtailed if the CFTC had recognized a broader mandate.

Index Speculation in Commodities Futures Markets

In late 2005 a friend working in financial markets told me that the Alaska Permanent Fund was considering allocating a portion of its portfolio into oil futures indexes. Recall that the purpose of this Fund is to reduce Alaska's dependence on revenues from its major, nonrenewable, resource—oil. The idea was that a portion of oil revenues would be invested in a diversified portfolio, with some of the returns paid to residents in the form of an annual dividend. At that time, the Fund was considering a move to put a portion of oil revenues into oil futures (and other commodities futures), essentially a "doubling down" of its bet on oil. To be sure, it was doing nothing unusual—pension fund managers, university endowments, and hedge funds were all doing the same thing, investing in oil and other commodities.

To understand why, one needs to know that a number of researchers had demonstrated that commodities prices are uncorrelated with returns from fixed income instruments (for example, bonds) and equities (stocks). Thus, holding commodities would reduce volatility of portfolio returns. Further, commodities tend to do fairly well in an inflationary environment—so adding commodities to the portfolio provides an inflation hedge[6]. However, holding commodities is expensive—there are substantial storage costs in addition to the usual opportunity or financing costs involved. Hence, money managers looked to the commodities futures market—paper claims to commodities could be held rather than the commodities themselves. Because a futures contract would expire on the contracted date, the holder of the paper would then be in a position to receive the commodities. Of course, these money managers do not want to *ever* receive the commodities scheduled to be delivered, so the contracts are "rolled" on the scheduled date—into another futures contract with a delivery date farther into the future.[7]

There are three main types of participants in commodities futures markets: hedgers, traditional speculators, and index speculators. The following table, created by Mike Masters, offers a useful classification of each by function. The allocation of a portion of the portfolio to commodities futures in order to diversify risks is undertaken by the index speculator. These are typically hedge funds, pension funds, university endowments, life insurance companies, sovereign wealth funds, and banks. Most importantly, index speculators only take long positions—it is a buy and hold strategy. To simplify allocation, managed money typically buys one of the commodity futures indexes—hence the term "index speculators".[8] The biggest are SP-GSCI and DJ-AIG. If index prices rise, they earn returns. Indeed, because commodities futures contracts do not pay any yield, the only possible source of return is an increase of the price of the futures contracts. For this reason, the purchases of a commodities futures index is fundamentally a speculative activity. Prior to the 1990s, the Prudent Investor rule prohibited pension plans from buying commodities futures contracts. (Masters and White 2008) It was the collapse of

the equities market in 2000 and the discovery that the performance of commodities was not correlated with equities performance that led to belief that the futures contracts could be used to reduce portfolio risk. This is what allowed Goldman, Sachs & Co. as well as other indexers to successfully push commodities futures as a new asset class for prudent investors.

Table 1: Types of futures market participants here******

Table 1: Types of Futures Market Participants		
HEDGER	**INDEX SPECULATOR**	**TRADITIONAL SPECULATOR**
Sheds Price Risk	Takes On Price Risk	Takes On Price Risk
Hedges Underlying Position	Profits From Price Moves	Profits From Price Moves
Consumes Liquidity	Consumes Liquidity	Provides Liquidity
Price Sensitive	Insensitive To Price	Price Sensitive
Take Long And Short Positions	Long Only	Take Long And Short Positions

Hedgers are those with a direct interest in the physical commodities. They use futures markets to reduce or eliminate losses due to unforeseen movement of commodities prices. Sellers of the commodities take short positions (agreeing to deliver commodities on the future date); buyers take long positions (agreeing to take physical delivery on the contract expiration date). The CFTC includes hedgers in its “commercial” category, however as discussed below, the CFTC also includes swaps dealers in the commercial category on the argument that at least some of these swaps are directly related to hedging of price risk of physical commodities. The traditional speculator facilitates hedging by taking the other side of the trade with hedgers, in other words, by taking the price risk that hedgers do not want. As discussed below, traditional speculators are said to provide liquidity by increasing the volume of transactions. The CFTC classifies such speculators as “non-commercial” because they have no direct interest in the physical commodities. Finally, index speculators pursue a “buy-and-hold” strategy, using futures contracts as a portfolio diversification tool. These are said to “consume liquidity” because they take only long positions (acting only as buyers of contracts). Further, these are the only market players that are insensitive to price—they allocate a percent of their portfolios to each commodity regardless of price. Index speculators can be included in the commercial category (even though they never take physical delivery) because they operate in the swaps market—which as mentioned above is counted as commercial activity. Masters and White (2008) argue that the commodities futures market is the only market that brings together participants in the physicals market plus speculators in financial derivatives tied to the physicals.

Table 2 below shows the weights in the two biggest commodities futures indexes. Energy commodities dominate, with crude oil making up 37% of the index, and petroleum-related products accounting for 58% of the index. The biggest agricultural commodities weightings are given to corn, soybeans, and wheat; the biggest shares for metals are in aluminum, copper and gold. It must be emphasized that while a 4% share assigned to a commodity might appear small, the size of managed money funds is gargantuan relative to the size of commodities futures markets. Table 3 below shows estimates provided in testimony by Masters of the quantities of commodities underlying the contracts held by managed money. For comparison purposes, Masters pointed out that the total increase of Chinese consumption of oil over the past five years totaled 920 million barrels, while he calculated that index speculators increased their holdings of contracts by 848 million barrels during the same period. In other words, the increased demand by managed money for oil futures nearly matched the increase of Chinese demand for actual oil. As another example, index speculators hold contracts for over 1.3 million tons of copper, out of a total annual production of less than 18 million tons. Between 2002 and 2007 China's reported increase in demand for copper was about 2 million tons (note the caveat above—Veneroso believes that much of this flowed into hidden inventories); by comparison, the demand for copper futures contracts by index speculators was 1.2 billion tons. (Masters and White 2008 p. 18) Indeed, index speculators now hold contracts greater than the total annual production of all US copper mines (the US is the world's number two producer); index speculators hold a sufficient quantity of wheat futures to supply America's demand for wheat for two years; and index speculators hold contracts on enough corn to supply the US ethanol industry for a year. (ibid)

Table 2: Index Component Weights here******

Table 2: Index Component Weights as of July 1, 2008				
Sector	**Commodity**	S&P-GSCI	DI-AIG	Weighted Average
Agricultural	Cocoa	0.2%	0.0%	0.2%
	Coffee	0.5%	2.7%	2.1%
	Corn	3.6%	6.9%	5.2%
	Cotton	0.7%	2.2%	1.6%
	Soybean Oil	0.0%	2.9%	2.9%
	Soybeans	0.9%	7.4%	5.1%
	Sugar	2.1%	2.8%	2.6%
	Wheat	3.0%	3.4%	3.1%
	Wheat KC	0.7%	0.0%	0.7%
Livestock	Feed Cattle	0.3%	0.0%	0.3%
	Lean Hogs	0.8%	2.5%	1.8%
	Live Cattle	1.6%	4.1%	3.0%
Energy	Brent Crude Oil	14.8%	0.0%	14.8%
	WTI Crude Oil	40.6%	15.0%	36.6%
	Gasoil	5.4%	0.0%	5.4%

	Heating Oil	5.3%	4.5%	5.1%
	Gasoline	4.5%	4.1%	4.4%
	Natural Gas	7.6%	16.0%	11.9%
Base Metals	Aluminum	2.1%	6.9%	5.1%
	Lead	0.2%	0.0%	0.2%
	Nickel	0.5%	1.7%	1.2%
	Zinc	0.4%	1.8%	1.4%
	Copper	2.6%	6.7%	4.9%
Precious Metals	Gold	1.5%	6.1%	4.6%
	Silver	0.2%	2.4%	2.1%
Source: Standard & Poor's, Dow Jones				

A useful way of assessing the impact of index speculation on commodities markets is to examine "open interest". This is a measure of the dollar values of positions in commodities futures contracts that are held overnight (it excludes the ebbs and flows of intra-day price moves). (Masters and White 2008) The final two columns of Table 3 below show open interest for 2002 and for 2008. Over that period, the dollar value of contracts swelled by a factor of more than nine times—obviously, many orders of magnitude greater than the growth of demand for the underlying commodities. In a separate calculation, Masters and White (2008 p. 20) estimate that the total volume of futures contracts purchased in the past five and a half years has increased by about 5.3 million, of which index speculators bought 2.7 million—or just over half. By contrast, physical hedgers purchased just a fifth. It is hard to avoid the conclusion that the index speculator tail is wagging the physical hedger dog when it comes to commodities futures contracts.

Table 3: Commodity purchases by index speculators last 5 1/2 years here*****

Table 3: Commodity Purchases By Index Speculators The Last 5.5 Years

Sector	Commodity	Units	Previous Futures Market Stockpile January 1, 2003	Net Purchases Last 5 1/4 Years	Current Futures Market Stockpile March 12, 2008	Dollar Value of Open Interest in Billions (2002)	Dollar Value of Open Interest in Billions (2008)
Agricultural	Cocoa	Metric Tons	18,828	303,352	322,180	1.8	4.1
	Coffee	Pounds	195,716,944	2,238,858,056	2,434,575,000	1.4	8.4
	Corn	Bushels	242,561,708	2,138,383,292	2,380,945,000	5.4	41.9
	Cotton	Pounds	544,934,999	5,548,915,001	6,093,850,000	1.6	11.1
	Soybean Oil	Pounds	163,135,678	4,312,624,322	4,475,760,000	1.4	8.7
	Soybeans	Bushels	81,028,272	890,616,728	971,645,000	4.9	34.6
	Sugar	Pounds	2,291,358,746	46,094,097,254	48,385,456,000	1.5	13.9
	Wheat	Bushels	166,738,225	967,351,775	1,134,090,000	1.8	17.2
	Wheat KC	Bushels	54,746,014	102,618,986	157,365,000	1.3	5.3
Livestock	Feed Cattle	Pounds	104,446,612	365,453,388	469,900,000	0.5	1.7
	Lean Hogs	Pounds	517,414,747	3,827,425,253	4,344,840,000	0.6	5.2
	Live Cattle	Pounds	669,766,732	5,099,033,268	5,768,800,000	2.7	9.7
Energy	Brent Crude	Barrels	47,075,357	144,524,265	191,599,621	6.6	61.8

	Oil						
	WTI Crude Oil	Barrels	99,880,741	538,499,579	638,380,320	16.1	295.7
	Gasoil	Metric Tons	1,682,662	6,027,680	7,710,342	4.0	27.7
	Heating Oil	Gallons	1,067,859,608	2,568,925,661	3,636,785,269	4.4	28.3
	Gasoline	Gallons	1,102,184,401	2,488,458,616	3,590,643,018	3.7	29.3
	Natural Gas	Million BTUs	330,652,415	1,932,356,225	2,263,008,640	23.6	87.3
Base Metals	Aluminum	Metric Tons	344,246	3,232,406	3,576,652	0.0	34.9
	Lead	Metric Tons	82,019	158,726	240,745	0.0	2.0
	Nickel	Metric Tons	20,147	101,988	122,135	0.0	6.7
	Zinc	Metric Tons	133,381	1,182,091	1,315,472	0.0	6.3
	Copper	Metric Tons	220,096	1,144,538	1,364,634	0.0	41.8
Precious Metals	Gold	Troy Ounces	979,863	8,742,401	9,722,264	5.6	40.1
	Silver	Troy Ounces	11,126,862	152,866,187	163,993,049	2.0	11.8
Total						90.9	835.5

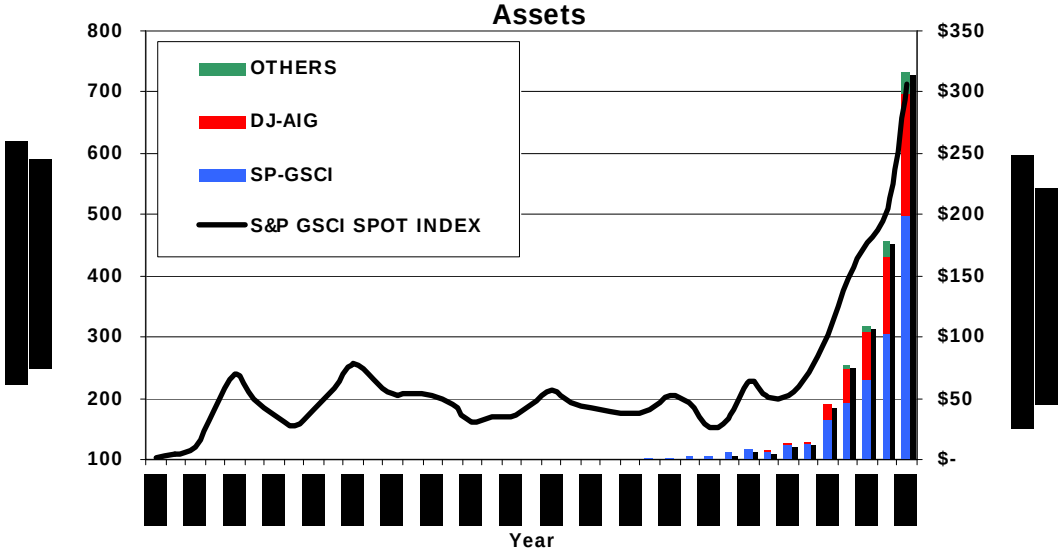
Sources: *CFTC Commitments of Traders CIT Supplement, calculations based upon CFTC COT/CIT Report*

However, comparing the volume and price of futures contracts purchased to the available supply of the physical commodities might appear to be a comparison of apples to oranges. After all, the pension fund that buys futures contracts is not actually going to receive delivery of the oil. What is important is that once a fund has decided to allocate, say, 5% of its investments to commodities futures, it stays in the commodities. As the total portfolio grows, the fund continues to increase its holdings of commodities futures indexes to hit its allocation target. As this strategy caught on, huge volumes of money flowed into the indexes, and thus into the commodities futures markets. In 2002 there was a total of about $50 billion in the indexes, growing above $100 billion in 2006 and above $300 billion now. In the first 52 trading days of 2008, $55 billion of managed money from pension funds, university endowments, banks and sovereign wealth funds poured into commodities futures markets pursuing the "buy and hold" strategy. (Masters 20 May 2008)

The case that these inflows of funds have driven commodity futures prices ever-higher seems easy to make. Most expositions begin with a figure plotting commodity prices with commodity futures investments, such as Figure 3 below. Note that here we have plotted the spot price of the S&P GSCI index—an index that reflects the current market price of 25 basic commodities.[9] This is because the concern is whether activity in futures markets is impacting today's commodities prices; further as shown in a figure below, spot and futures prices closely track one another. Figure 4 below plots swaps dealers long positions in the NYMEX crude oil futures against the price of crude. Recall that most index speculators use swaps dealers to replicate one of the commodities indexes, and as the quantity of managed money allocated to commodities increases, the number of contracts bought by swaps dealers rises. Again, the correlation is strong: as swaps dealers purchase more contracts, the price of oil rises.

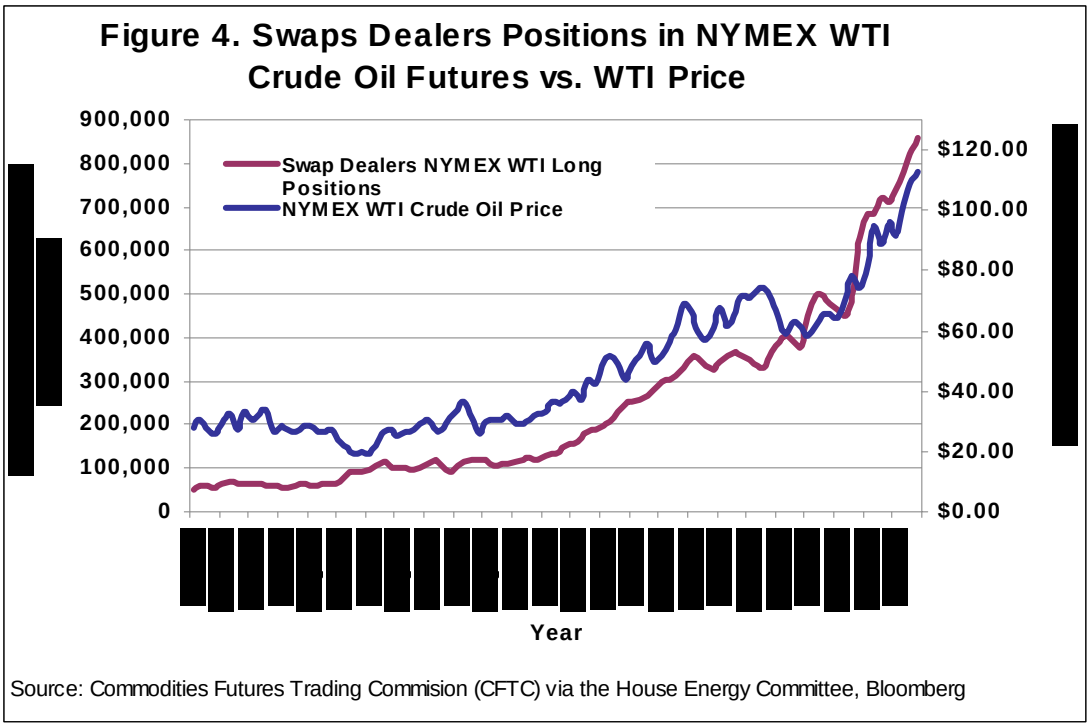
Insert Figure 3 here:

Figure 3: S&P GSCI Spot Price Index vs. Index Speculator Assets



Source: Bloomberg, Goldman Sachs, CFTC Commitments of Traders CIT Supplement, calculations based on CFTC COT/CIT Report

Insert Figure 4 here:



The picture seems clear: the match between the flow of managed money into futures markets and the spot price of commodities is remarkable: higher money inflows lead to higher prices. However, as any economist will warn, correlation never proves causation. And, indeed, the causation must go at least both ways: rising prices encourage more inflows, and more inflows generate higher prices. But even with that caveat, the evidence appears at least superficially quite strong and worthy of a call on Washington to do something about this speculatively-driven run-up of commodities prices.

Again, the economist urges caution. Futures markets play two essential roles. First, buyers and sellers use these markets to hedge price risk. A farmer can contract to deliver wheat at harvest at a locked-in price, secure in the knowledge that should prices fall before that date, the farmer receives the contracted price. On the other hand, a commercial bakery that wants to buy wheat at harvest can use a futures contract to hedge against the possibility that prices will rise. The problem is that the number of offers by farmers to sell at harvest will tend to exceed the number of bids by those who want to contract for delivery at harvest for a number of reasons. This results in a "bid-ask spread", the difference between the price buyers are willing to pay for future wheat and the price at which sellers are willing to sell future wheat. An intermediary—or, traditional speculator—can step in to lower the spread, essentially making a bet on whether prices are likely to rise (closer to the ask price) or to fall (toward the bid price). This role can be played by local traders and day traders, who go "long" by agreeing to take delivery of wheat on the contract date (they do not really want the wheat but instead expect to sell contracts for delivery to the users of the grain at a higher price than they paid for the contracts). In this manner, speculators lower the spread and are said to "provide liquidity"

to the market as they reduce costs. Such behavior is a common and necessary feature of all markets that have forward-looking contracts. The fear is that if government intervenes to constrain such speculation, it will reduce the "liquidity" that makes futures markets operate more efficiently: bid-ask spreads will widen, market costs will be higher and fewer futures contracts will be completed, and buyers and sellers of commodities will not be able to hedge price risk as desired. Thus, government should not constrain speculation.

The second role played by futures markets is said to be "price discovery". Commodities production is often local, while final consumption is more geographically dispersed. For example, wheat is farmed in several distinct rural regions in the US, with the ultimate consumers of wheat more than a thousand miles away. Farmers might sell to local grain elevator owners who act as intermediaries. Neither the farmer nor the local grain elevator owner has a lot of information about the price that the grain might ultimately fetch when sold to the food processing industry. However, unlike the local market for the physical commodity, the commodity futures market is national and even international. Futures prices are readily available and reflect real time "supply and demand". Thus, local physical commodities markets have come to rely on futures markets as the primary source of price information on the national and international markets. There is then an adjustment that is made to reflect local conditions—much as Kelly's Blue Book adjusts used car values to reflect local market conditions by zipcode.

The use of commodities futures markets has eliminated the sometimes large differences between prices in various regional spot markets that existed prior to the 1980s. (Masters 24 June 2008) Now, as the CFTC describes it, "In many physical commodities (especially agricultural commodities), cash market participants base spot and forward prices on the futures prices that are 'discovered' in the competitive, open auction market of a futures exchange."[10] (quoted in Masters 24 June 2008) Describing oil pricing, Platts (the biggest pricing service for the energy industry) writes "In the spot market, therefore, negotiations for physical oils will typically use NYMEX as a reference point, with bids/offers and deals expressed as a differential to the futures price. Using these differentials, Platts makes daily and in some cases intra-day assessments of the price for various physical grades of crude oil, which may be referenced in other spot, term or derivatives deals." (Platts 2007) Ironically, even the S&P-GSCI and the DJ-AIG "spot" price commodity indexes are actually "based predominantly upon the prices of the nearest-to-expiration futures contracts for their respective set of commodities". (Masters and White 2008, p. 8) Finally, Masters emphasizes the point: "*In the present system, price changes for key agricultural and energy commodities originate in the futures markets and then are transmitted directly to the spot markets.*" (Masters 24 June 2008, emphasis in original)

This is not what is usually taught in economics textbooks. According to traditional theory, "fundamentals" determine spot prices through the forces of supply and demand (as discussed above). Futures prices are then equal to spot prices plus the cost of carry less convenience yield. The cost of carry includes warehousing fees and forgone interest on money that is tied up in the contract; convenience yield includes income that could be earned by using the commodity until the contract date. Normally, if supply and demand

for future delivery is in balance, then the futures price should exceed the spot price because carrying costs are greater than convenience yields. A *contango* exists in this case: the futures price is higher than the spot price, with contracts priced higher the farther out is the expiration date. However, as is recognized in finance textbooks, following Keynes's seminal contributions, this is not the case in most commodity markets since the natural producers of commodities seeking to secure the price at which they will be able to sell their output will tend to outnumber those seeking to lock in the price at which they can fix the future price at which they will purchase. Thus, the supply of future contracts offered by commercial hedgers will exceed the demand for contracts leading to futures prices below cash prices in what Keynes called "natural backwardation" as the normal condition in commodity futures markets.

It is normally the case that when there is a shortage of supply or an excess speculative demand this is first evidenced in the spot market, driving cash prices above futures prices. This can occur if there has been an attempt to "corner" the market by buying up the physical supplies so that those who have sold futures have to buy at an excessive price to obtain the physical commodity (for example, this happened in the Hunt brothers' attempt to corner silver); it can also occur if there is a belief that there will be supply shortages and users seek to hoard supplies (as occurs in most famines). Here the increasing spot price creates a backwardation that feeds into the future prices. Indeed, virtually all the prior experiences of commodity booms have been characterized by this configuration. However, in the current run up of prices, the opposite has been the case, as futures prices have been typically above spot, suggesting dominance in the market by speculative demand.

For anyone seeking to buy the physical commodity there is always the choice between buying in the spot cash market and buying a future that is at maturity and taking delivery. This means that no one would ever pay more than the current spot price for a maturing futures contract since they both provide the same thing – spot delivery of the physical commodity. This is called the "convergence" of futures to spot prices. This "no arbitrage" condition has been used by many to claim that it is the spot price that determines the future price since the latter converges to the former. But it is easy to see that this conclusion is unwarranted since the futures price only converges to the spot price at the maturity of the contract. During the three month life of the contract the futures price is free to vary with market conditions, as does the spot price. At maturity it may be higher or lower than at the origination of the contract, and still satisfy convergence.

Further, each month there will be a new futures contract, and many speculators make spread trades which involve selling a nearer term futures contract and buying one for a longer term. In addition—as discussed above--index funds that do not want to take delivery of their maturing contracts will be rolling over positions, selling the near maturity contract and buying (usually a larger amount of) the next maturity or a longer maturity. This will mean that as older contracts mature, younger futures contracts will have come into existence with higher prices and those who have sold contracts will see that they could have waited to sell at higher prices. The expectation of continually rising futures prices thus creates an incentive to hold physical supplies off the spot market.

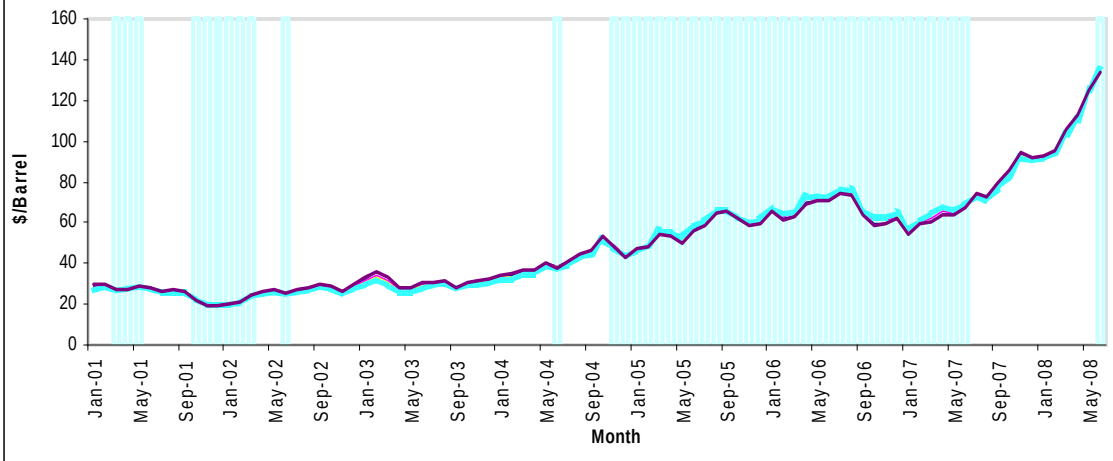
Those who are receiving physical supplies have an incentive to roll them over into farther future contracts, both acting to drive up spot prices in the wake of rising futures prices.

This tends to create a series of prices for forward futures contracts that resembles the yield curve on bonds, and with rising futures prices it has a positive slope associated with a contango. Thus one test of the impact of futures speculation on prices has been the existence of a positively sloped futures curve. Results of statistical tests have been inconclusive, but this is not surprising given the fact that the available data consists only of the reports provided to the CFTC, which as noted above does not include either trading on ICE or on proprietary over-the-counter electronic trading systems. Nonetheless, most previous experiences of rapidly rising commodity price booms gave been characterized by backwardation, while the present boom has been dominated by contango. This is not proof of speculation but is certainly consistent with the result that would be expected in a market dominated by flows of managed money from index speculators.

Krugman and others like the supply and demand story, but it doesn't work that way in many commodities markets. As we discussed in a previous section, many commodities prices have always been administered—by oligopolists or oligopsonists—not set by the impersonal forces of supply and demand in perfectly competitive markets. Further, as market participants and those who operate and regulate futures exchanges describe, spot prices are set with reference to futures prices. This means that market fundamentals and the forces of supply and demand *cannot* be the sole determinants of spot prices. If spot prices are set through reference to futures prices, then *anything* that affects futures prices can directly impact spot prices. Indeed, as Figure 5 below shows, there is very little divergence between crude oil spot prices and futures prices (more discussion of the figure follows). While the traditional story that spot prices and futures prices must converge on expiration is correct, this does not necessarily mean that it is future prices that must do the converging—spot prices can rise (or fall) to meet futures prices, and they can do so immediately. (Masters 24 June 2008) Finally, while finance theory teaches that contango is the "natural" relation (future prices are greater than spot prices to cover carrying costs), our discussion above led to the conclusion that backwardation is normal for many commodities because producers who want to sell dominate the market. So the future price should be below the spot price, rising over the life of the contract to converge with spot prices. This creates an incentive for the speculators to buy the futures contracts (taking long positions) promising later delivery from the producers. (Kregel 12 June 2008)

Insert Fig 5 here: Crude Oil Spot Prices vs. Futures Prices

Figure 5. Crude Oil Spot Prices vs. Futures Prices



*All Prices for Light-Sweet, Cushing, Oklahoma
Source: Energy Information Administration

This predominance of a contango can indicate a speculative market—the demand for futures contracts is spurred by a belief that spot prices will rise. If spot prices are set in reference to futures prices, a speculative boom is triggered because the rising spot prices validate the expectations and thereby fuel greater demand for futures contracts. Figure 5 is shaded to indicate periods of contango of crude oil prices. From late 2004 through mid 2007 oil was in contango, possibly indicating a speculative boom. It is also possible evidence of an expected future oil shortage—which could be the cause of the speculation in futures contracts. Or, it could be due to a flow of managed money into futures markets, as briefly discussed above. The timing does appear to be about correct: the flow of managed money into commodity futures indices grew from 2004 through 2007, coinciding with the contango in oil (the commodity that has the largest weighting in the indices). This is also the period in which oil futures prices began to grow very quickly.

Let us review the claim that index speculators have driven inflation of spot prices for commodities to historic levels. Commodities markets deviate substantially from the perfectly competitive model presented in textbooks, with substantial evidence that prices are administered rather than set by fundamental forces of supply and demand. In many cases, spot prices are determined directly by futures prices, in others they are determined by expectations of future spot prices generated in turn by commodities futures prices (with an adjustment to reflect local market conditions—a mark-up or mark-down over the prices quoted on near-date futures contracts). Futures prices, in turn, are influenced by a variety of forces including attempts by buyers and sellers to hedge price risk, by traditional speculators to go short or long as they make guesses about price movements, and by index speculators diversifying portfolios into a new asset class—commodities. It is no coincidence that futures prices soared over the past four years as huge sums of managed money flowed into futures markets--coming from pension funds, sovereign

wealth funds, hedge funds, and banks (mostly European). This reinforced other factors that had been driving up prices, including rapid growth in China and India as well as some supply constraints and inventory manipulation. Government policies, including export restrictions and US biofuels incentives, also played a role. These policy choices were themselves prodded by rising commodities prices, even as they contributed to rising prices. A perfect storm was created in which almost every participant's interest lay in continued price gains.

Many participants in and observers of commodity futures markets have argued that index speculation has contributed significantly to rising spot prices. Douglas Steenland, President and CEO of Northwest Airlines provided testimony before the House that reflected the beliefs of many in the airlines industry. The total annual cost of jet fuel for the industry increased by a projected fifty percent for 2008. The industry believes that the "Enron loophole" and the "London loophole" that exempted a huge swath of the futures markets from CFTC regulation allowed a surge of pension and other passive investment funds into commodities markets.[11] Steenland pointed out that in March 2008 1.2 billion barrels of oil were traded every day on the NYMEX and the London Intercontinental Exchange, with world consumption of oil at only 87 million barrels a day. Speculators hold about two thirds of the oil contracts, up from about a fifth twenty years ago. A barrel of oil might be traded 20 times before it is delivered to the end user. The airlines believe that speculation adds $30 to $60 per barrel. Tyson has also been vocal in its belief that speculators are driving up the price of agricultural commodities (hence, increasing the cost of producing poultry). Long-only indexers hold contracts equal to 33% to 65% of the corn, soy, and wheat crops. Greenwich Associates concludes that "the entry of new financial or speculative investors into global commodities markets is fueling the dramatic run-up in prices." These include pension funds that use commodities to diversify portfolios, European banks that use commodity derivatives to structure retail products sold to customers, and hedge funds that use commodities as a source of alpha. (Greenwich 7/30/08)

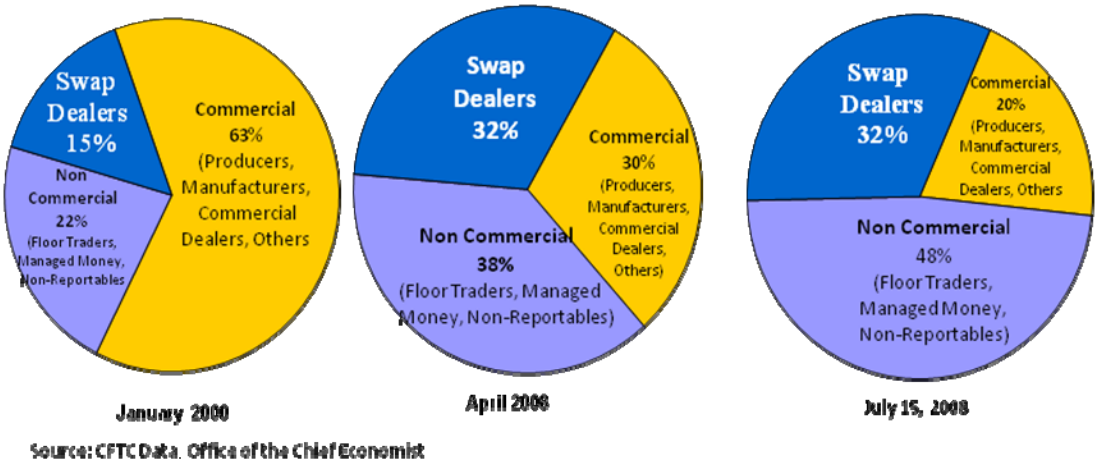
Mike Masters has testified before Senate and House committees, making the most convincing case for a large impact coming from index speculation. A number of rebuttals to his testimony have been attempted. Perhaps the strongest counterattack was launched by NYMEX staff. First, staff argued that Masters overstates the importance of speculators in commodities futures markets. Without going deeply into details, the data provided by CFTC does not make it possible to clearly distinguish among types of market participants. The CFTC uses only three categories: commercial (historically about half), non-commercial (35-40%), and unreported (5-10%). Commercial participants are supposed to be those that have an association with the physicals market—for example, the price-hedging producers and buyers. This category is supposed to exclude speculators. However, the CFTC includes in the commercial category swaps dealers, which are banks that provide over the counter derivatives. The reasoning is that bank customers with direct links to risks in the physicals markets can use these derivatives for hedging. However, there is nothing to prevent the banks from providing these services to those with no links to physicals; indeed, index speculators also use the swaps dealers that are counted as commercial participants. Hence many "commercial" purchasers are

speculators of one type of another. The non-commercial category is supposed to comprise the speculators—those with no direct interest in the physical commodities--but that undercounts the number because it excludes the swaps dealers.

Figure 6 allocates the unreported category to the noncommercials, and separates the swap dealers from the commercial category. If swap dealers are largely speculators, then they could be added to noncommercials, bringing the total to about 70% of the commodities futures markets. That is one basis for the claim that speculation dominates. However, according to NYMEX, that is far too high—because there is no basis for assuming that a large percent of the nonreportables and swap dealers are speculating. Further, NYMEX testified that the CFTC was undertaking a revision of its data that would rebut the claim that speculators dominate by reclassifying market participants. Ironically, on August 5 the CFTC did release revised data that boosted the proportion of contracts held by the non-commercial sector by an astounding 25%--to 48% of the market on July 15. In other words, the CFTC revision accomplished precisely the opposite of what was expected by NYMEX. Since this still excludes the swaps dealers, there is now little question that a large majority of positions is held by speculators. What was more shocking is that this adjustment resulted from reclassifying just one trader (Vitol)—who controls 10% of the entire oil futures market. This jolted markets—because not only do speculators dominate, but it opens the possibility that positions of just one trader could move the market. This particular trader appears to be a traditional speculator—one who holds shorts and longs—not an index speculator that would hold long-only positions. However that is not a great comfort because with positions so large, manipulation looks like a possibility.

Figure 6 here: Evolution of Speculative Trading

Figure 6: Evolution of Speculative Trading



NYMEX also attempted to argue that price determination runs from fundamentals to futures prices, with futures prices converging toward spot prices determined by the laws of supply and demand. We dealt with this argument above. There is no dispute that over time prices must converge, but this does not tell us anything about price determination. When NYMEX claims that “the futures market is a derivative of the physical market, not

the reverse", it is speaking of some idealized market that might have existed in the distant past, but not of today's financialized commodities market. It is certainly true that oil cannot be sold at $125 a barrel unless someone is willing to pay that price but that tells us nothing about the price that would be obtained in a perfectly competitive market by the forces of supply and demand—with supply coming from many producers and demand directly from users. In reality, supply is largely controlled to hit price, and the demand from end users is supplemented by the demand from arbitragers, manipulators, hedgers, speculators, and index "investors" with much more money to put into play. Even the major oil pricing service, Platts, argues that spot prices are set with reference to NYMEX futures prices—a point also made by the CFTC when it argues that one of the two essential services played by futures markets is price discovery!

Finally, Philip McBride Johnson, former Chairman of the CFTC under President Reagan flatly rejects the current CFTC Chairman's claim that fundamentals are driving the boom: "The fact that prices have been relentlessly trending up suggests a new type of market participant [with] a mentality that is traditionally more in line with investing in securities than trading in commodities. If enough of these wealthy people, or funds, or other entities with a lot of capital decide to flip out of securities for a little while and go into commodities, and they're all looking for something that is going up, and you get enough billions of dollars thinking that way, then their wish comes true." (Bario 6/19/08) Eckhaus (2008) says flatly: "Since there is no reason based on current and expected supply and demand that justifies the current price of oil, what is left? The oil price is a speculative bubble."

Policy Response

Let us assume for the moment that index speculators have helped to fuel the apparently unprecedented broad-based commodities price boom. Should policy react? If so, how?

Recall from above the two purposes of futures markets: risk reduction through hedging and price discovery. If we look at the second function, index speculators do not play a useful role because theirs is an allocative, buy-and-hold strategy. They are relatively impervious to price or to bid-ask spreads. They buy commodities futures (usually indexes of futures) to achieve a diversified portfolio. Further, commodities are seen as an inflation hedge. However, to the extent that index speculators help to drive up spot prices of commodities that then increase pressures on producer and consumer prices, the collective attempt to hedge against inflation actually accelerates inflation. But this hedges a different kind of risk than the risk for which these markets were initially designed—price risk for producers and users of commodities. It is true that as managed money flows into futures markets, it does increase the demand for contracts offered by producers who want to hedge price risk—thus, the inflow is a source of market liquidity to the sale side. Against that benefit must be weighed the cost to users of the commodities—who face rising futures prices as they compete with index speculators to hedge against the risk of rising spot prices.[12] And, of course, to the extent that index speculators cause commodities prices to rise ever upward, users of commodities cannot really win by hedging. At best, those users who do hedge are relatively better off than those who do not

(Southwest Airlines is currently doing better than the carriers that did not hedge enough jet fuel). But they too continue to pay ever-higher prices.
Also worth contemplating is the end of the speculative boom. Once all managed money has achieved the desired allocation of commodities, the large volumes of inflows subside. Further purchases of futures contracts will be undertaken merely to maintain an allocation. Suddenly the liquidity to which commodities producers had become accustomed begins to dry up. Traditional speculators revise their expectations of the course of prices; some might begin to short commodities. A strong price reversal can take place as the market reverts to backwardation. This is what took place between mid-July, when the price of oil brushed up against $150 a barrel, and mid-August, when it had dropped below $115. As sands shift, producers who had made business plans based on rising prices find that they cannot succeed in an environment of falling commodities prices. We have seen the result of falling agricultural commodities prices several times during the past century; of course the most significant was during the period described in *The Grapes of Wrath*. The consequences for rural America and its banks can be severe.

The 1935 Commodity Exchange Act quotes President Roosevelt regarding the necessity of restricting speculation in commodities markets:

> It is my belief that exchanges for dealing in securities and commodities are necessary and of definite value to our commercial and agricultural life. Nevertheless, it should be our national policy to restrict, as far as possible, the use of these exchanges for purely speculative operations.
>
> I therefore recommend to the Congress the enactment of legislation providing for the regulation by the Federal Government of the operations of exchanges dealing in securities and commodities for the protection of investors, for the safeguarding of values, and, so far as it may be possible, for the elimination of unnecessary, unwise, and destructive speculation.

The Act goes on to call for controlling speculation and to ensure that the exchanges function to provide a market for the *physical* commodities:

> The fundamental purpose of the measure is to insure fair practice and honest dealing on the commodity exchanges and to provide a measure of control over those forms of speculative activity which too often demoralize the markets to the injury of producers and consumers and the exchanges themselves. The bill has as another objective the restoration of the primary function of the exchanges which is to furnish a market for the commodities themselves.

Finally, the Act specifically exempts legitimate hedging from such restrictions:

> Transactions which are shown to be bona fide hedging transactions in a commodity by holders of that commodity or of products or byproducts thereof, or

> by growers of that commodity, are exempt from the limits, and brokers and commission merchants are subject to the limits fixed only to the extent that they deal for their own account.

Clearly we have moved far—too far—from the intentions of Congress, financializing commodities markets with the dominant players in futures markets having no interest in the underlying physicals. The majority of the participants by volume are traditional and index speculators. While there are identified benefits of participation by traditional speculators, position limits must be carefully administered to ensure that their activities do not "demoralize" markets. It is, however, difficult to find any strong justification for permitting entry into these markets by index speculators operating with buy-and-hold strategies merely to diversify portfolios. It is worth recalling Keynes's famous warning:

> Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. (Keynes 1964 p. 159)

In his testimony, Masters provided a useful analogy. Suppose there were some technological breakthroughs that created new medical devices and drugs that could cure cancer. Further presume that the financial wizards on Wall Street created a pharmaceutical index to provide an opportunity for investors diversify portfolios (suppose health deteriorates cyclically so that pharma spending is countercyclical) and to beat inflation (pharmaceuticals prices rise faster than inflation). As investors pour their money into the index fund, futures prices rise quickly—drawing in speculators (traditional and index varieties) making bets that prices will continue to rise. At some point, as the market moves into a strong contango, the drugs and devices will be purchased for inventory—to hold on the expectation of rapid price increases. With much of the supply taken off the market and with demand rising (both for use and for inventory accumulation), costs of curing cancer are driven out of the reach patients. At the same time, rising prices would induce indexes to raise their allocation targets—generating accelerating price hikes even as the funds held claims to the total supply (and more) of the cancer-curing devices of drugs. While this might sound far-fetched, it is quite close to what happened in commodities markets recently, as prices of grains rose beyond the reach of the world's poor, as ranchers slaughtered animals they could not afford to feed, and as index funds bought contracts on larger and larger portions of the total supply of crops.

If all of this isn't scary enough, imagine a scenario in which speculators were allowed to hold futures in commodified and financialized human organs on the argument that this enhances price discovery and provides needed liquidity to the market.

While it is certainly true that the rising prices of the commodified pharmaceuticals would encourage more production, the question is whether supply can grow fast enough to more than satisfy the demand of money managers able to leverage by a factor of 30 or more—in a world in which literally trillions of dollars of dollars are seeking diversification and inflation hedges. Further, just as demand for bio-fuels is encouraging nations to destroy

rain forests and to plow the world's grass lands to satisfy the current insatiable demand of hedge funds for an inflation hedge, do we really want to divert resources to produce pharmaceuticals (or organs) for storage rather than to cure disease?

The notion that "supply and demand" efficiently allocate resources through the price system is quaint, with little application to today's money manager capitalism, in which assets are purchased with leveraged money and with a view to price appreciation, rather than for consumption. No rational policy makers would allow speculators to purchase the cure to cancer only for storage in warehouses, nor should policy makers allow, much less encourage, money managers to fuel inflation, currency depreciation, hunger, and unemployment by driving commodities prices beyond reaches of consumers.

The first order of business is to direct the CFTC to broaden its mission so that it can accomplish the objectives of the original Commodities Exchange Act—to limit the effects of speculation on commodities prices. This should include bringing more of the market under regulation—by eliminating the various loopholes including the Enron, London, and swaps loopholes. Similar rules, regulations, and oversight should be applied to all players. It is sometimes argued that this will merely force exchanges to move outside the US, but others have pointed out that is an empty threat. As Masters testified, any futures contract that calls for physical delivery within the US is subject to US regulation; and no person in the US can lawfully trade in contracts that are evading US regulations without specific exemptions. Further, market participants prefer liquid, high volume, futures markets. Given that the US is the largest consumer of energy and the largest producer of food commodities, its futures markets will surely remain in demand. And no Iowa farmer is going to turn to London to hedge corn prices in an attempt to evade regulations.

The CFTC must re-establish and enforce position limits[13]. In emergencies (such as a euphoric boom), margin requirements for purchases should be raised. The CFTC should be directed to gather and to publish data on futures markets participants to help distinguish among hedgers, speculators, and index speculators. When the CFTC reclassified Vitol as a non-commercial participant, it withheld the firm's name. It is difficult to see why the identity of a speculator with positions equal to ten percent of the market should be withheld from public view. Greater transparency will not only permit better policy formation but will also help to protect the market from manipulation. The CFTC must also work more closely with regulators in other countries to promote greater uniformity of practices to avoid the tendency to rush to the lowest common denominator. To accomplish all of this, the CFTC's budget must be increased, and future funding needs to keep pace with growth of the markets.

If, as this Brief concludes, speculators dominate futures markets, Congress should consider the costs and benefits of allowing index speculators to pursue buy-and-hold strategies. Much of the managed money engaged in index speculation benefits from explicit or implicit government guarantees (such as the insurance that stands behind pensions) and from tax benefits (tax-advantaged savings). As expected, the managed money is already lobbying to protect its turf, arguing that fiduciary responsibility dictates

that it should assimilate diversified portfolios that are insulated from business cycles and inflation. Thus, they argue they should be permitted to retain commodities as an asset class. However, these funds must operate within constraints established by Congress to promote the public interest. If Congress should find that public interest is threatened by index speculation, then it is appropriate to prohibit commodity index replication strategies. Masters and White (2008) have argued for revision of the Prudent Investor rule to explicitly prohibit pension investment in commodities. Alternatively, they note that if all profits from speculation in commodities were subject to tax, it would severely reduce the attractiveness of these markets for tax-advantaged savings. Finally, to avoid a rapid sell-off of commodities futures contracts, Masters and White would impose "liquidation-only" rules on index speculators so that further purchases of commodities futures contracts would be prohibited as the funds would gradually sell-out positions.

More generally, the commodities market bubble (and coming crash) is the third such episode in recent years that resulted from unfettered, lemming-like, herding of money seeking the highest returns that led them over the cliff.. To be sure, there have been many earlier examples—muni bonds in the 1960s, commercial paper in the late 1960s, REITs in the early 1970s, commercial real estate and LBOs in the 1980s, and so on. The problem is that managed money has grown tremendously, and leverage ratios have risen as taste for risk grew even as ability to perceive risk became ever scarcer. (Minsky used to attribute this in part to fading memories of the Great Depression; many of today's money managers cannot even remember the 1980s—much less the 1930s.) As a result, we have—as they say—command over too much money chasing too few good asset classes with what are perceived to be acceptable returns. This is why everything is becoming financialized: from credit card debt to subprime mortgages and from student loans to pork belly futures. Perhaps managed money went too far when it turned America's homes, energy, and food into asset classes ripe for gambling. We should not wait for it to find the next asset class (human organs?).

Assuming that the commodities market boom is coming to what might be an ugly end, Congress also needs to consider what can be done to cushion the collapse. It is all too easy to say that government ought to stay away and let the market punish foolish speculators. Recent experience with the year-long credit crisis suggests this will not happen, and it probably should not be allowed to happen. Those holding futures contracts that cannot be rolled over except at catastrophic losses include our pension funds, banks (admittedly, mostly foreign), and hedge funds. Further, to the extent that futures prices affect spot prices, producers of agricultural commodities will be devastated when they find that market prices won't cover costs incurred. Already tight global food supplies will be restricted further if farmers react the way they usually do to falling prices: by destroying crops and slaughtering animals. Alternative energy suppliers will be hurt by falling crude oil prices; it is already unlikely that the US will reach its biofuels production goals even with the subsidies granted by Congress because of the high price of corn and policy-induced shortages. To help relieve distress, Congress needs to consider ramped-up global food aid this year, purchasing agricultural output to help US farmers facing falling prices, to be distributed to the world's hungry. American consumers need help in the form of energy relief; this can be accomplished through checks that can be called a tax

rebate or a fiscal stimulus—whichever is more politically palatable. This will help to recharge the US economy. American producers—especially of alternative energy—also need to be protected (temporarily) from falling commodities prices. More subsidies for wind, solar, and geothermal energy will be needed.

The US (and global) financial sector will continue to reel from the crisis that began with subprime mortgages; falling commodities prices will only make that very much worse. Pension funds will be threatened, perhaps depleting the already shaky Pension Benefit Guarantee Corporation. The FDIC's "insurance" fund already faces a pay-out equal to nearly a fifth of its total reserves due to the failure of just one bank (Indymac); it is likely that many more medium-sized banks and some big ones will fail—the total could be more than a hundred and will threaten the FDIC's solvency. Congress will have to walk a fine line between allowing the truly deserving to bear pain, and a pragmatic bail-out to keep the social costs of failures from hindering recovery. The credit crunch has already dried-up lending; it could get a lot worse. Still, if a lot of wealth is not wiped out, there will be tremendous pressure on money managers to find yet another asset class ripe with possibilities for lofty returns. Without greater oversight, the "cure" could be worse than the disease. So bail-outs will be needed, but strings must be attached in the form of regulatory constraint.

It is interesting that Credit Suisse has been pushing fixed rate swaps linked to commodities such as iron. This would put managed money into direct competition with users of natural resource commodities—skipping the intermediate step of going through futures markets. Wall Street banks have also been promoting Exchange Traded Funds (ETFs) to sell commodities indexes to retail investors. (Masters and White 2008) No matter what anyone believes about the relationship between spot and futures prices, this development makes it clear that policy makers must take the initiative to determine what should be financialized to serve as appropriate asset classes for our protected funds.

Senators Lieberman, Collins and Cantwell introduced the Commodity Speculation Reform Act of 2008 on July 10 to amend the Commodity Exchange Act. It would accomplish several of the objectives outlined above: it directs the CFTC to restrict the ability of traders to escape US oversight by moving to foreign exchanges and it applies position limits to all food and energy-related futures and derivatives contracts (whether on exchanges or over-the-counter)—exempting only bona fide hedging. It also prevents the CFTC from delegating responsibilities for setting position limits to the exchanges and from substituting reporting for actual speculative position limits (forcing it to act more like a regulator than a cheerleader). All of this is moving policy in the right direction. Unfortunately, the legislation failed in the last session. While it is likely to be reintroduced this fall, it has a long haul through Congress and faces a likely veto by President Bush. Further, it does not address the bigger problem of the propensity of managed money to destabilize one market after another. The wisdom of guaranteeing and promoting growth of managed money is an issue that needs to be addressed, but one that will almost certainly have to await a new administration and Congress.

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Endnotes

[1] With of course the caveat that as of mid-August 2008 it looks like commodities prices might have finally reversed course.

[2] Note that several economists have denied that oil prices have been driven up by speculators because inventories have remained relatively constant for the past couple of years. However, the best place to store oil is in the ground!

[3] As discussed below, concerns that the CFTC was intentionally misleading Congress were heightened when it became known that the CFTC had reclassified one very large trader into the "non-commercial" category (comprised of speculators) just before it released the interim report. The reclassification had been withheld from the report and from testimony presented to Congress even though it tipped the balance toward speculator dominance of futures markets.

[4] Swap dealers are discussed in some detail below. Most institutional investors that want to take positions in commodities go through Wall Street banks that arrange over-the-counter commodity index swaps.

[5] Interestingly, Gregory Mocek, who had been director of enforcement at the CFTC since 2002, left the commission in early July to join the law firm of McDermott Will & Emory, which represents the International Swaps and Derivatives Association on federal anti-manipulation efforts. (Lobsenz July 2008) Students of the 1980s S&L crisis will recall a similar "revolving door" in which regulators were offered lucrative positions in those institutions they were supposed to oversee. It was reported that Mocek's new firm said "Moecek would be invaluable in helping their clients fend off government energy manipulation investigations—an area that Mocek helped pioneer at the CFTC." (ibid) Apparently Mocek had been a feared enforcement officer, helping to lead cases against Enron, Amaranth, Dynegy, and other large energy companies. Perhaps energy price manipulators can sleep better at night now.

[6] For example, the California Public Employees' Retirement System (CALPERS) Statement of Investment Policy issued on February 19, 2008 includes commodities as a major part of its inflation-linked asset class, that comprises 5% of its total portfolio. The allocation within the inflation-linked asset class is as follows: commodities 1.5%, inflation-linked bonds 1%, infrastructure 1.5%, and forestland 1%. It obtains its positions in commodities through commodities futures that try to match the S&P GSCI Total Return Index. Note that the correlations that encouraged managed money to move into commodities could well break down by the flood of money since those correlations are obtained from a period in which such flows were insignificant. Further, if a crisis follows the current boom, it is unlikely that past correlations will persist.

[7] Index speculators do not want to receive physical commodities so they "enter into a pre-packaged trade called a 'calendar spread.' In a calendar spread, a trader simultaneously buys a more distant future and sells their closer-to-expiration future." (Masters and White 2008, p. 10) Because many index speculators will be doing a "Goldman Roll" at about the same time, the prices of expiring contracts are depressed while those of the more distant future contracts are pushed up due to "index roll congestion". This generates profits for speculators on spread trades, much of which are reaped by the Wall Street banks that provide swaps services. According to John Dizard (2007) this cost the index speculators about 150 basis points of return in 2007 and generated approximately $60 billion for the firms that manage the index funds.

[8] Strictly speaking, the index speculators do not "buy" the index but rather they outsource management of their futures trading to one of the Wall Street banks, which tries to replicate one of the indexes by purchasing a basket of commodities futures contracts with the same weighting scheme as the index. (Masters and White 2008) It is reported that 85-90% of institutional investors enter into over-the-counter commodity index swaps with Wall Street banks. Approximately 70% of this business is handled by just

four banks: Goldman Sachs, Morgan Stanley, J.P. Morgan, and Barclays. These four banks account for about a quarter of all contracts on the commodities futures exchanges. (Greenwich 2008; Masters and White 2008)

[9] As we will see below, the "spot" price reflected in the index is actually based on the futures contract price for the commodities included in the index.

[10] Not all commodities are priced this way; this description applies to wheat, corn and soybeans in agriculture and to WTI crude oil, heating oil, gasoline and natural gas in the energy sector. However, other commodities are priced relative to these. For example, coal is priced relative to oil. For this reason, prices in futures markets tend to affect spot prices across a range of commodities. See Masters 24 June 2008 pp. 3-4.

[11] The so-called London loophole refers to the CFTC's decision in 1999 to allow traders using London exchange to avoid position limits to which US exchanges were subject. ICE has taken advantage of this. The Enron loophole (2000) exempts electronic trading from US regulation. Its namesake used the exemption to corner the market for California's supply of electricity.

[12] This is why Masters and White (2008) insist that index speculators "suck" liquidity from markets as they take only one side of the trades.

[13] Shockingly, the CFTC has taken the opposite view: "In general, position limits are not needed for markets where the threat of market manipulation is non-existent or very low." (http://www.cftc.gov/industryoversight/marketsurveillance/speculativelimits.html#P8_883; quoted in Masters and White 2008 p. 40) This reflects the CFTC's erroneous interpretation that only manipulation—not speculation—poses a threat worthy of oversight.