Food Price Hikes: How Much Is Due to Excessive Speculation?

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There is a view that we are now in the midst of the emergence of a new world food regime, characterised by three important and interrelated features – the rise of large corporate food empires with oligopolistic powers over entire food supply chains, the growing dominance of cash crops at the expense of food agriculture and the closer alignment of domestic market prices with international prices. There is also an ongoing debate about whether and how the 2007-08 price spike might have been driven by financial speculation in commodity markets, and the role it is playing in the current episode of excessive price volatility. This note critically examines the debate.

I have benefited greatly from discussion with Jomo Kwame Sundaram, UN-DESA. However, views expressed herein are entirely mine and should not be attributed to the United Nations or any of its agencies and officials.

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Some observers emphasise the emergence of a new world food regime, characterised by three important and interrelated features: (i) the rise of large corporate food empires with oligopolistic powers over entire food supply chains; (ii) the growing dominance of cash crops at the expense of food agriculture; and (iii) the closer alignment of domestic market prices with international prices. There is also an ongoing debate about whether and how the 2007-08 price spike might have been driven by financial speculation in commodity markets, and the role it is playing in the current episode of excessive price volatility. This note will attempt to provide a brief overview of this debate.

Speculation in Futures

Speculation in agriculture or commodity future markets is not new. It has been used since the 19th century to enable commodity traders and processors to protect themselves against short-term price volatility. That is, hedging by traditional or commodity index speculators. Of price insurance.

When Index Speculators pour large amounts of money into the commodities markets and buy large amounts of futures contracts, prices go up. When they pull large amounts of money out and sell large amounts of futures contracts, prices go down.

Food prices are on the rise again (Figure 1, p 13). The Food and Agriculture Organisation’s (FAO) Food Price Index rose for the eighth consecutive month, averaging 236 points in February 2011, up 2.2% from January and the highest (in both real and nominal terms) since January 1990. The index averaged 232 points in April 2011, 36% above the April 2010 level, and 8 points higher than the peak reached at the height of the 2008 food crisis. The FAO’s Cereal Price Index averaged 265 points in April 2011, marking an increase by 5.5% (14 points) from March and 71% from April 2010, and is likely to exceed the April 2008 peak of 274.3.

April also saw a sharp increase in international grain prices, with wheat and maize (corn) prices gaining 4% and 11% respectively. The FAO has attributed the April rises of international grain prices to unfavourable weather and planting delays, but also observed that large export supplies had prevented international rice prices from rising.

Food price surges in recent years are the result of a complex interplay of several factors, including supply shortfalls. Some factors are recent, such as greatly increased speculation on agricultural commodity futures, drought- and flood-induced crop failures in major grain- and cereal-producing regions, higher production costs due to rising energy prices and more biofuel production in Europe and the United States. Other causes are long-term, including reduced national and international investments in developing country agriculture and changing food consumption patterns.

Some key factors that distinguish the food price spikes in recent years from previous price increases is the role played by commodity index speculators. They are mainly institutional investors such as large banks, university endowments, pension and hedge funds involved with long-term investment goals.
There is a crucial distinction between traditional speculators and index speculators: traditional speculators provide liquidity by both buying and selling futures. Index speculators buy futures and then roll their positions by buying calendar spreads. They never sell. Therefore, they consume liquidity and provide zero benefit to the futures markets.5

Commodities have become especially attractive to large institutional investors as they are believed to move in the opposite direction to shares and bonds and provide a hedge against inflation.6

Commodity index funds bundle futures contracts according to a formula that weights and tracks the prices of agricultural and non-agricultural commodities as a single financial instrument. They are designed to enable investors to have broad exposure to a range of commodity futures markets without having to invest in particular commodities futures. Commodity index traders sell financial instruments whose values rise and fall with the value of the commodity index on which they are based. Index traders sell these index instruments to institutional investors and wealthy individuals who want to invest or speculate in the commodity market without actually having to buy physical commodities. Index traders typically buy futures contracts on which index-related instruments are based to offset their financial exposure to changes in commodity prices that make up the index and the value of the index-related instruments they sell. It is through the purchase of these futures contracts that commodity index traders directly affect the futures markets.

Commodity index traders focus on returns from changes in the index of a commodity by periodically rolling over commodity futures contracts prior to their maturity date and reinvesting the proceeds in new contracts. That is, index traders deal only in forward positions with no physical ownership of the commodities involved. Additionally, financial investment in commodity indexes is part of a passive investment strategy. Therefore, index traders must maintain the balance among the various commodity futures announced in the prospectus of the index fund they are mimicking as their passive investment strategy. That is, if they buy future contracts of one commodity, they also buy futures of other commodities in the bundle in proportion. That is, there is no attempt to distinguish between the good and bad performance of individual commodities.7

Energy and mineral commodities typically dominate the basket of commodities; the fundamentals and/or expectations in the energy and mineral markets drive the market. Therefore, as worries about the availability of oil drive up the price of crude, additional purchases of the other commodities are made to maintain the pre-specified balance. This drives the price of agricultural commodities in the index funds having virtually nothing to do with their market conditions. That is, energy and minerals in the index fund reign supreme – grains are along for the ride with little to no regard to the fundamentals in the grain sector.

Ninety-five per cent of commodity index funds are based on the Goldman Sachs Commodity Indices (gsci) and Dow Jones commodity indices.8 Commodity index funds are predominantly traded over the counter (otc).9 The defining feature of otc transactions is that they are bespoke (customised) bilateral contracts made directly between two institutions without the transparency of being traded on an exchange. In 2008, these types of transactions accounted for 99% of money invested in index funds in the us.10 Index investors gain exposure in commodity indexes by entering into a bilateral financial contract, usually a swap, with a bank or a broker. They purchase parts in a commodity index from the bank or the broker to hedge their exposure resulting from the swap agreement through commodities futures contracts on a commodity exchange.

Financial investors have been active in commodity futures and options markets since the early 1990s. However, their involvement increased in the aftermath of the dot-com crash on equity markets in 2000, rising dramatically in early 2005. After falling sharply starting in mid-2008, financial investments in commodities picked up in the first half of 2009.11

Index Funds and Price Spikes
Index funds represent a large portion of all long positions on the commodity markets. For example, index funds held about $200 billion in long commodity positions in March 2008 – more than a third of the $568 billion total long positions.12 The record level of activity in the futures market by index funds would seem to make index funds a logical source of possible price overshooting. us Congress-man Bart Stupak, based on Lehman Brothers research, stated in his testimony before the House Agriculture Committee, that “since 2003, commodity index speculation has increased 1,900%, from an estimated $13 billion to $260 billion” in March 2008. This situation is claimed to have driven up futures prices for major crops, such as wheat, rice, corn and soybeans, creating a food price bubble as can be seen from Figure 2 (p 14), which shows that prices of agricultural commodities moved more or less in line with the trends in financial position of commodity index traders (citr).

A report by the Minnesota-based Institute for Agriculture and Trade Policy (iatp) concluded that the us government’s deregulatory steps since 2000 opened the door for large financial services speculation to make huge “bets” that destabilised the structure of agriculture commodity markets.13 Commodity Futures Trading Commission Chairman Gary Gensler told the us Senate in 2009, “I believe that

Figure 1: FAO Monthly Food Price Index (2002-04=100)

Source: Food and Agriculture Organisation.
increased speculation in energy and agricultural products has hurt farmers and consumers”.14

According to the UN’s special rapporteur on food, Olivier De Schutter, the increases in price and the volatility of food commodities could only be explained by the emergence of a “speculative bubble” which he traced back to the early years of the new century. In a report, he wrote,

Beginning at the end of 2001, food commodities derivatives markets and commodities indexes began to see an influx of non-traditional investors, such as pension funds, hedge funds, sovereign wealth funds, and large banks ...The reason for this was simply because other markets dried up one by one: the dotcoms vanished at the end of 2001, the housing market in August 2007. As each bubble burst, these large institutional investors moved into other markets, each traditionally considered more stable than the last. Strong similarities can be seen between the price behaviour of food commodities and other refuge values, such as gold.15

As the subprime mortgage crisis in the US deepened and spread in early 2008, speculators started investing in food and metals to take advantage of the “commodities super cycle”. This was further boosted as the dollar declined relative to other currencies and the Federal Reserve continued to cut already low interest rates from August 2007 onwards, which

encouraged investors (or speculators) to shift out of Treasury Bills into other assets such as foreign currencies, emerging market stocks, and commodities – including food commodities.16 As of July 2008, $317 billion was invested in commodities index funds, led by the major traders, Goldman Sachs and American Insurance Group.

Although the number of index fund traders is small, on average they take very large positions in the commodities markets – sometimes 10 times higher than non-index traders.17 Therefore, the actions of the long-held-focused institutional investors can push prices up as these indefinitely long-term investments amount to “virtual hoarding” of agricultural products positions.18 The four largest financial swaps dealers (Goldman Sachs, Morgan Stanley, J P Morgan and Barclays Bank) controlled an estimated 70% of commodity index fund trading in 2008.19

Dissenting Voice
Not all agree on the role of index traders in recent commodities, especially food price hikes. For example, an Organisation for Economic Co-operation and Development (oecd) report co-authored by Scott Irwin of the University of Illinois and Dwight Sanders of the University of Southern Illinois finds no statistical evidence that speculation played any role in generating the volatility in food and energy prices during 2008. It even goes so far as to claim the opposite: that speculation by long-only index investors actually helped to reduce volatility by providing liquidity.20 According to them, the amount of trading in futures is irrelevant to the real price, because it is always a “zero-sum game” between traders. For every position that bets on a rising price (long position), there is a counterparty which bets on a falling price (short position). By this view, the amount of trading is detached from the price level.

However, this well publicised study has been criticised for the use of “inappropriate” methodology and data.21 Irwin and Sanders’ findings also contradict claims of market participants, such as Michael Masters in his testimony before the Commodities Futures Trading Commission.22 Moreover, a number of studies have found that subsequent to the passage of the Commodity Futures Modernisation Act (cfma) of 2000, which exempted from regulation the trading of futures contracts and swaps for energy and metals commodities on electronic exchanges, the proportion of participants with no legitimate commercial interest more than doubled and the overall size of the oil futures market also quadrupled in size due to the sheer volume of these non-commercial speculators.23 These studies also found high correlations between the flows of speculative money into oil futures and the price of oil, causing volatility in the price of oil not seen even during the 1973 oil embargo, the Iranian revolution, or the Persian Gulf War.

Econometric work done at the United Nations Conference of Trade and Development (unctad) found evidence showing that the actions of index-based investors did amplify the 2008 price spike24 (Figure 3, p 15).

Another unctad study concluded that the positions of index traders appear to have affected the prices of a wide range of commodities over the past three and a half years...The increased positive relationship between financial investor positions on commodity futures exchanges and equity market developments, and the apparent decreased importance of hedging against dollar depreciation as a determinant of position taking, have created a greater interdependence between financial and commodity markets.
These effects of the financialisation of commodity futures trading have made the functioning of commodity exchanges increasingly contentious. Concluding Remarks

Correlation and causality are not the same. While most observers agree on the correlation between index funds trading and the commodity price hike in recent years, there is mixed evidence as to whether commodity index traders contributed to it. The picture becomes much more complicated due to the fact that price volatility also increased for commodities such as rice and palm oil that are not included in the major commodity indexes, suggesting that factors other than the financialisation of commodity markets may also have caused the increase in price volatility of exchange-traded commodities. One may, however, point to the substitution effects between commodities of the two groups in terms of both production and consumption. Notwithstanding the complexities, there is general consensus on the effects of commodity index trading on market volatility. The empirical evidence tends to support the view that the entry of this new group of traders has made the futures market more volatile, and difficult to predict.

The issue of causality, however, is much more complex. It can be difficult to isolate the impacts of such individual factors as rising demand from emerging economies and supply shortfalls due to natural disasters in major food producing countries from the impact of index funds. For example, as noted above, a number of studies showed a high correlation between commodity index trading, or flows of speculative money, and energy prices. The steep increases in the price of energy, particularly in response to expected shortages of oil and other sources of energy. The rise in energy prices may have also influenced the final price of food crops and vegetable oil as they led to increased competition from biofuel producers for arable land. At the same time, factors such as the decline in the Russian wheat supply in 2010 followed by the recent devastating floods in Australia did affect food prices. Thus, one would not be wrong to conclude that recent developments in commodity and food prices have been driven by both fundamentals and speculative financial investment.

NOTES

3 See, for example, Van Der Ploeg, Jan Douwe (2010), “The Food Crisis, Industrialised Farming and the Imperial Regime”, Journal of Agrarian Change, 10, pp 98-119.
6 See Hailu and Weersink, op cit. This study finds that commodity index returns are negatively correlated with returns in other asset classes. Also see Jayati Ghosh (2009), “The Unnatural Coupling: Food and Global Finance”, The IDEAS Working Paper No 08/2009.
7 For a lucid description of how index funds work, see Hailu and Weersink, op cit.
9 Epstein, op cit.
10 Masters (2008), op cit.
14 See, for example, Frenk and Staff (op cit), also see, Tan, Ky and Xiong Wei (2009), Index Investing and the Financialisation of Commodities, Technical Report, Princeton University. Tan and Xiong have shown that since 2000 when CFMA opened the loophole that enables index speculation, agricultural commodities have begun to behave more and more like the energy commodities they are indexed with.
17 Mayer (2010), op cit.

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