



# Physical and Virtual Global Food Reserves to Protect the Poor and Prevent Market Failure

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The current food crisis has several causes—rising demand for food and feed, biofuels, high oil prices, climate change, stagnant agricultural productivity growth—but there is increasing evidence that the crisis is being made worse by the malfunctioning of world grain markets. Given the thinness of major markets for cereals, the restrictions on grain exports imposed by dozens of countries have resulted in additional price increases. A number of countries have adopted retail price controls, creating perverse incentives for producers. Speculative bubbles have built up, and the gap between cash and futures prices has risen, stimulating overregulation in some countries and causing some commodity exchanges in Africa and Asia to halt grain futures trading. Some food aid donors have defaulted on food aid contracts. The World Food Programme (WFP) has had difficulty getting quick access to grain for its humanitarian operations. Developing countries are urgently rebuilding their national stocks and re-examining the “merits” of self-sufficiency policies for food security despite high costs.

These reactions began as consequences, not causes, of the price crisis, but they exacerbate the crisis and increase the risks posed by high prices. By creating a feedback loop with high food prices, they further increase price levels and volatility, with adverse consequences for the poor and for long-term incentives for agricultural production. Because they impede the free flow of food to where it is most needed and undermine the flow of price signals to farmers, these market failures impose enormous efficiency losses on the global food system, hitting the poorest countries and people hardest.

## Why Is This Happening?

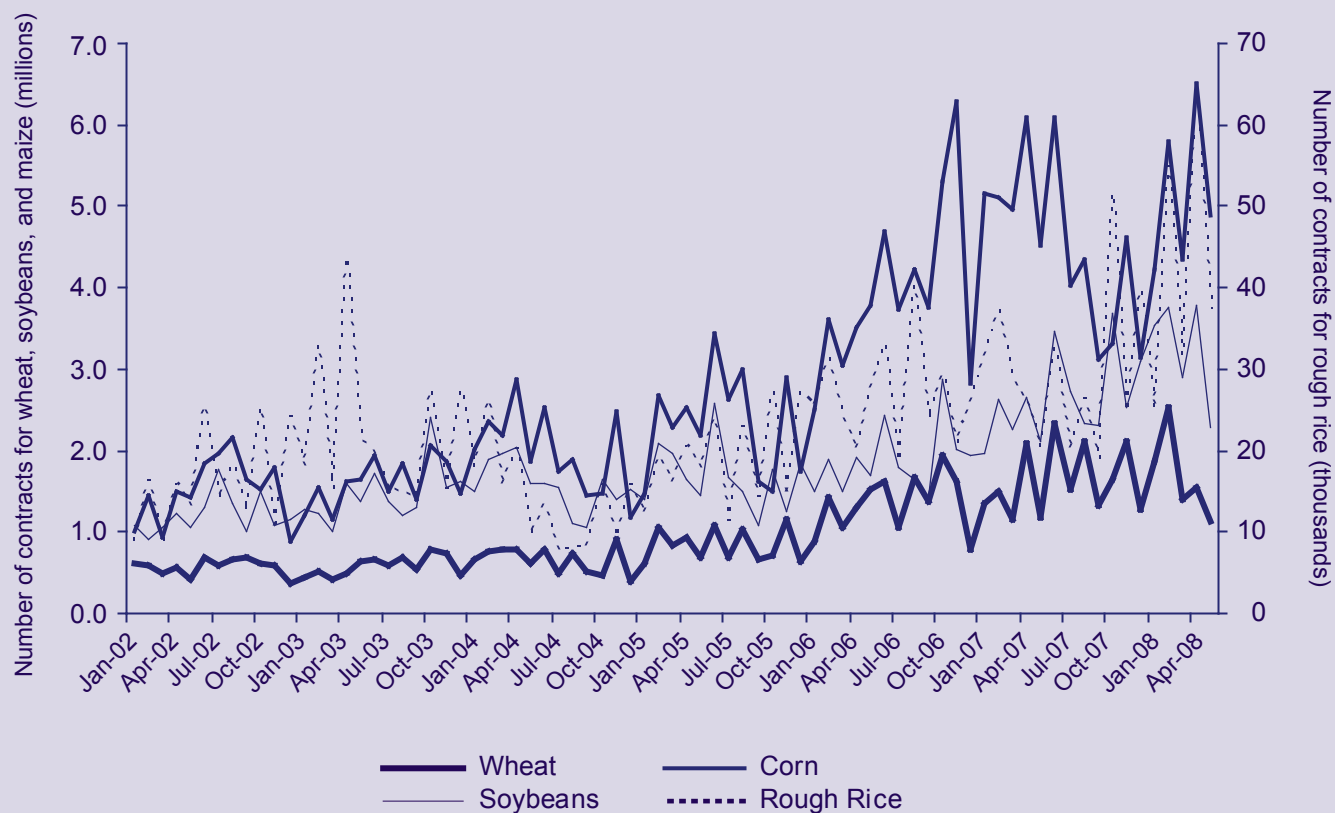
Changes in supply and demand fundamentals cannot fully explain the recent drastic increase in food prices.

Rising expectations, speculation, and hoarding have also contributed to the increasing level and volatility of food prices. The flow of speculative capital from financial investors into agricultural commodity markets has increased drastically, as shown by the rise in the number of traded futures contracts in recent years (Figure 1). Excessive speculation in the commodity futures market can, in principle, push up not only futures prices but also spot prices above levels justified by supply and demand. Despite the fact that still more research is needed to clearly identify the causal links between speculation and cash prices, it is apparent that some activity in the futures market reflects a genuine concern about future supply and demand and a desire by consumers to hedge against risks.

To analyze whether recent price increases reflect higher levels of speculation or hedging activity, we examined weekly reports by the U.S. Commodity Futures Trading Commission (CFTC) on trading activities in futures markets by commercial and noncommercial traders. Commercial traders enter futures markets mainly for hedging purposes, whereas noncommercial traders speculate mainly in search of financial profits. We found that for maize, wheat, soybeans, and rice, the total number of positions in futures contracts by noncommercial traders as a fraction of the total positions (commercial plus noncommercial) has significantly increased in the past six months, implying the possibility of a price bubble above what is justified by fundamentals.

Appropriate global institutional arrangements for preventing these market failures are missing. A global solution that addresses the need for reliable emergency food supplies and prevents excessive speculation in food markets may be costly, but given the losses created by the crisis, it will still have large positive net returns.

**FIGURE 1—Monthly Traded Volumes of Futures Contracts, Chicago Board of Trade, January 2002 – May 2008**



Source: Chicago Board of Trade.

Notes: For wheat, soybeans, and maize, 1 contract = 5,000 bushels.  
For rice, 1 contract = 200,000 pounds.

## A New Global Institutional Arrangement

A traditional approach to coping with the market failures revealed by the food-price crisis would involve building up a physical, public, globally managed grain reserve. These reserves could be released to cope with excessive price increases. This option has the disadvantages, however, of high storage costs and slow transactions.

Alternatively, commodity exchanges could be reformed. The incentives for speculation in food commodities could be reduced by (1) limiting the volume of speculation relative to hedging through regulation; (2) making delivery

on contracts or portions of contracts compulsory; and/or (3) imposing additional capital deposit requirements on futures transactions. These reforms could be implemented case by case or through an international alliance of commodity exchanges.

Difficulties could arise, however, in walking a line between ineffective regulators and overzealous ones. Market regulation also raises political economy concerns, such as lack of institutional capacity to implement and enforce regulations and the possibility that regulatory measures could benefit relatively small groups.

Instead, we propose a new global institutional arrangement that would consist of two prongs: (1) a minimum physical grain reserve for humanitarian assistance, and (2) a virtual reserve and intervention mechanism to calm markets under speculative situations, backed up by a financial fund.

**Prong 1: An independent emergency reserve.** A modest emergency reserve of around 300,000 metric tons of basic grains<sup>1</sup>—about 5 percent of the current food aid flows of 6.7 million wheat-equivalent metric tons—would be supplied by the main grain-producing countries and funded by a group of countries participating in the scheme (that is, the Group of Eight Plus Five [G8+5] countries [Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, the United States, Brazil, China, India, Mexico, and South Africa] and maybe others). This decentralized reserve would be located at strategic points near or in major developing-country regions, using existing national storage facilities. The reserve, to be used exclusively for emergency responses and humanitarian assistance, would be managed by the WFP. The WFP would have access to these grains at pre-crisis market prices, to reduce the need for short-term ad hoc fundraising. To cover the cost of restoring the reserve to its initial level, (i.e. the difference between the post-crisis price and the pre-crisis price times the quantity of reserves used by WFP), an emergency fund should be created and its level maintained by the participating countries.

**Prong 2: A virtual global food commodity exchange.** A virtual reserve and intervention mechanism would be based on a coordinated commitment by the group of participating countries. Each of the countries would commit to supplying funds if needed for intervention in grain markets. Determining the size of this fund will require further analysis as commodity futures markets allow for high levels of leverage. For

example, a fund of US\$12 to 20 billion might cover 30 to 50 percent of normal grain trade volume and be sufficient to send a strong signal if an intervention is needed. These resources would be promissory, or virtual, not actual budget expenditures.

Then, if needed, intervention in the futures markets would be guided by a **high-level technical commission**. This commission, which could be appointed by the group of participating countries on a permanent basis, would depend on a **"global intelligence unit"** to trigger the alarm that prices are significantly above their estimated dynamic price band (that is, lower and upper price limits) based on market fundamentals, and that intervention is needed. **The intervention** would consist of executing a number of silent short sells over a specific period of time (that is, selling a firm promise—or a futures contract—to deliver grain at a later date at the specified price) in futures markets around the world at a price lower than the current spot price. The global intelligence unit would recommend the price or series of prices to be offered in the short sells, which should move smoothly toward the upper limit of the estimated price band. This increase in the supply of future sells (short) should lower spot prices and minimize speculative attacks. In other words, the virtual fund will come into play only if there is a need to realize the future sells, in which case the fund will be used to obtain the necessary grains to comply and calm the markets. Usually, this action would not be necessary and the whole operation would stay virtual.<sup>2</sup>

We recommend intervening through futures markets (rather than spot markets) because under current tight market conditions, accumulating a global stock of grain large enough to calm markets is simply infeasible. The needed incremental supply is missing, and holding large grain reserves around the world would be inefficient. Moreover, to the extent food price rises were caused by a

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<sup>1</sup>This number is based on current emergency requirements by the WFP which may be larger in the future.

<sup>2</sup>All contracts are ultimately settled either through liquidation by offsetting purchases or sales or through delivery of the actual physical commodity. An offsetting transaction is usually used; delivery occurs in less than 2 percent of all agricultural contracts traded.

speculative attack, the market would respond immediately to an intervention in the futures market, and the cost would be minimal, given that the selling positions at lower prices would be closed immediately.

The global intelligence unit, to be permanently funded by the participating countries, would have three main roles: (1) advising when the emergency stocks should be accessible to the WFP; (2) designing and implementing a dynamic price band system; and (3) triggering sales in the futures market by the high-level technical commission until a speculative attack is eliminated.

## Mechanism to Monitor Compliance

One potential risk of cross-country coordinated institutional design is the probability that a member country will fail to comply with the agreed-upon commitments. To ensure that all participants in this new system comply with the agreed-upon rules, existing World Trade Organization (WTO)

dispute resolution mechanisms could be used. If the WTO's formal process for raising disputes for consultation fails to produce a satisfactory result, the matter moves to a hearing by a panel and possibly an appeal to the Appellate Body.

## Toward an Effective World Food System

The G8+5, at their meeting in July 2008, should consider these and other options for calming global food markets. The World Bank should also initiate discussions on these issues with other global institutions and consider playing a lead role. Any solution must balance external regulation with internal corporate governance in a way that marries market development and welfare objectives. Some argue that achieving this balance is too difficult, but in fact the world cannot afford not to do so. Markets are needed to offer choices, but policymakers must play a role in assuring that the global food system meets the needs of the poor and vulnerable.

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