PRICE AND TRADE VOLATILITY IN GLOBAL GRAIN MARKETS: POLICIES FOR A TURBULENT FUTURE

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Introduction

In the past few years, we have experienced a transition from the decades-long period of falling real prices of grains, and food more generally, to a new market environment in which commodity and food prices are, higher, more volatile and more highly influenced by petroleum prices. This market behavior and the conditions surrounding it are likely to continue, and the prospects of returning to the declining prices of the previous decades are less likely.

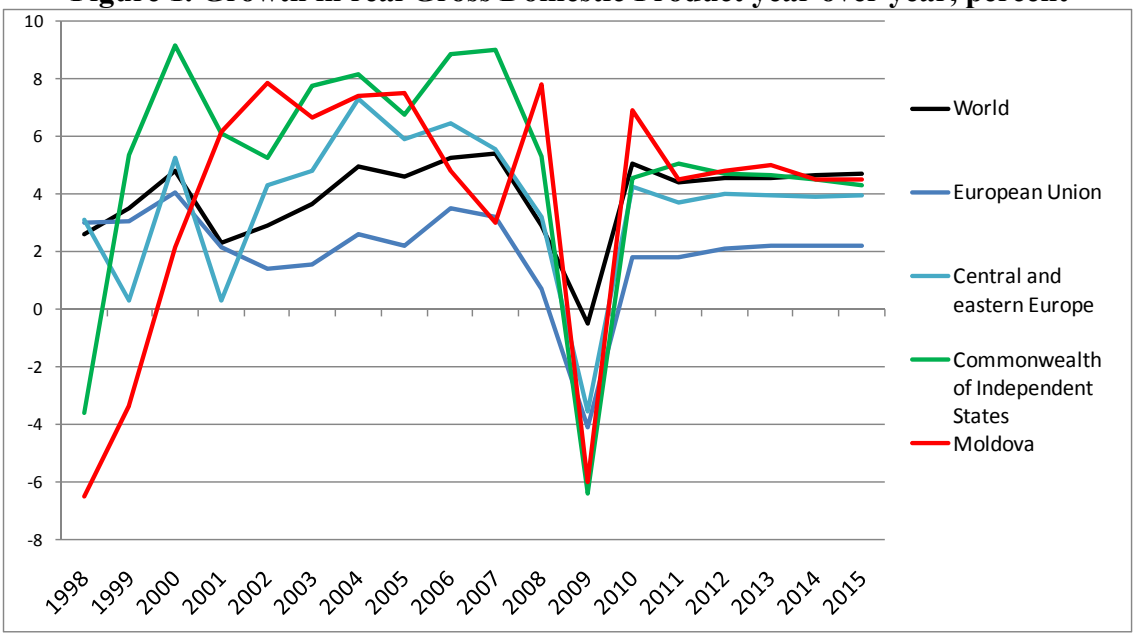
The food and financial crises of 2008 and 2009 led to social problems and unrest in scores of countries, and have added millions of people to the number of hungry and undernourished in the world while reversing progress towards the Millennium Development Goals hunger target. FAO estimated that the economic crisis added far more people to the number of undernourished than did the food crisis of 2008. The economic crisis that hit hardest in 2009 (figure 1) severely depressed economic growth and the purchasing power of consumers; and the recovery from this recession has been very slow in many countries. Since our session takes place in Moldova, I note that Moldova's economy declined more than some countries and regions but IMF also expects a faster recovery.

Now in 2010 and 2011 food and other commodity prices have risen again (figure 2), and as we will see later, many of these could remain high for a longer period than was the case in 2008. The economic shocks and the added impact of another food price surge in 2010 and 2011 are more severe for low-income populations, especially in food-deficit areas, and once again raise serious food security issues.

Factors contributing to the price surge

It is useful to look into the reasons for the recent surge in prices and to see which of these may be transient and which may be persistent in the future. A significant factor in the 2010-11 price surge was wheat losses due to poor weather in Europe and Central Asia, but it was exacerbated by low maize yields in the USA, which became apparent

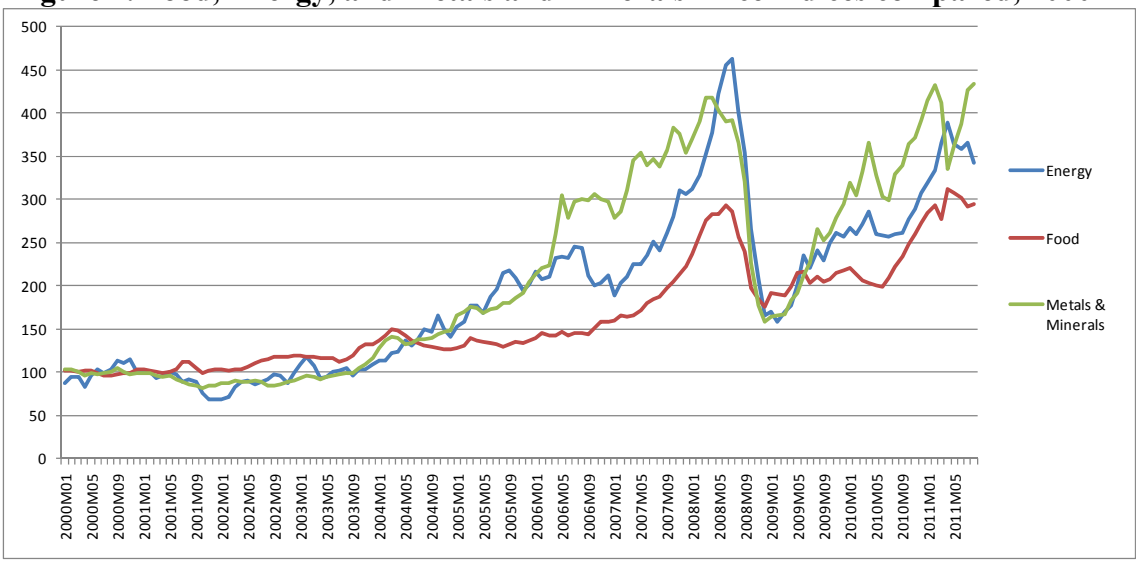
Figure 1. Growth in real Gross Domestic Product year over year, percent



Source: IMF April 2011 economic outlook

very late in the harvest season. Offsetting the low production in 2010 was that stocks were much higher leading into this crop year than in 2007. So world wheat production declined by 34.6 mmt from 2009/10 to 2010/11 according to the August 2011 USDA crop estimates, but world wheat supply was only 2.4 mmt lower. The story for coarse grains was better for production (-16mmt) but world supply was down the same amount (-16mmt), indicating that the beginning stocks situation was not as good as for wheat. By contrast, rice production and total supply actually increased by 10.8 and 13.2 mmt, respectively, over last year, and there has been no similar surge in rice prices. So weather is important, but it is not the only factor.

Figure 2. Food, Energy, and Metals and Minerals Price indices compared, 2000=1



Source: World Bank Commodity price data, September 11, 2011

Policy factors also played a role. Is it easy to remember that a severe wheat price spike in August coincided with the Russian ban on grain exports. Ukraine followed with export restrictions including quotas, and Turkey dropped its large import tariffs. All of

these policy actions were designed to protect domestic food and feed consumers, but they also increased prices to the rest of the world. Although the degree of such policy reaction was less widespread than was the case in the 2007/08 price surge period, it clearly contributed to price levels and price volatility.

Such trade reaction policies, if effective, also imply a tax to producers which lowers the incentive to respond to the international price increases and to increase food production. The likely long-run consequences of export restrictions are to reduce agricultural profits and production of farmers in the exporting country, and likewise efforts to lower domestic prices in importing countries, reduce profits and production of farmers in the importing country. Thus such market interventions increase uncertainty and volatility and undermine the role of trade in mitigating food crises.

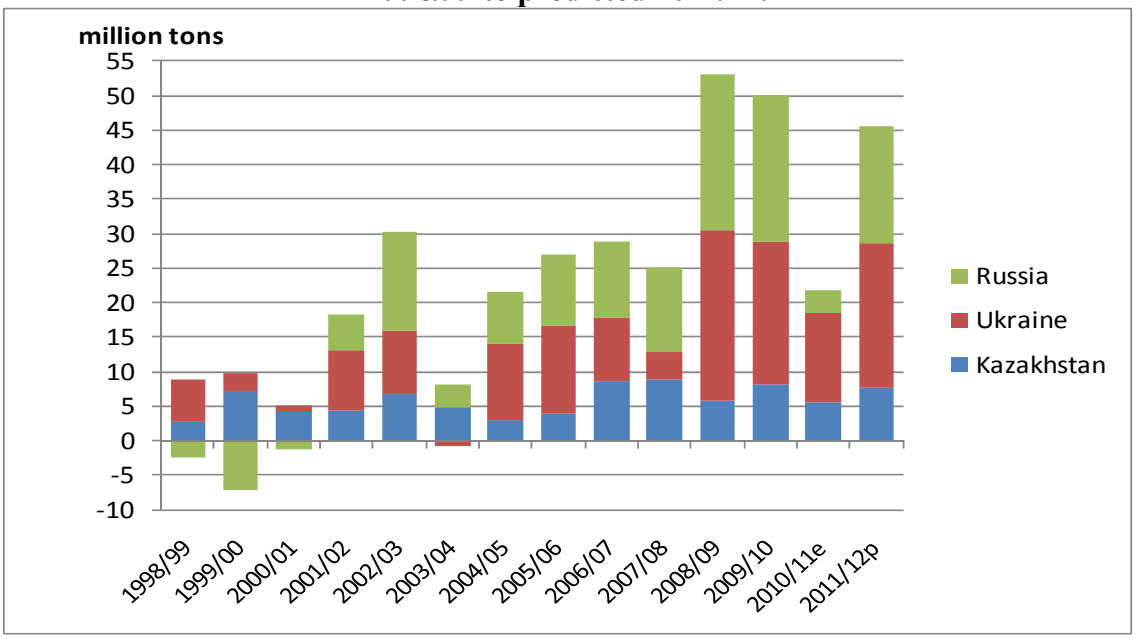
Another policy factor was the growing demand for maize, vegetable oil and sugar for biofuel production. This has been a relatively new and fast growing component of demand for grains and oilseeds in many countries, and especially in the US, EU and Brazil. Policies in the US, EU and other countries have stimulated growth of the industry, and this growth has been further enhanced by rising energy prices. The rapid growth of the biofuel industry also creates a much stronger linkage between food and feed prices and energy prices and can add more volatility to food and feed prices.

And finally, despite the financial crisis, demand for grains, oilseeds, cotton and sugar has also been stimulated by economic growth and changing consumption patterns of populations, especially in Asia. Although some of the factors already mentioned are transitory, others are clearly persistent, such as these demand factors and some of the policy factors as well.

One source of promise in the coming years is the underutilized potential of the grain growing areas of Kazakhstan, Russia and Ukraine (KRU), which have increased their exports substantially in recent years (figure 3). Kazakhstan, the Russian Federation and Ukraine once accounted for 13 percent of global grain imports (from 1988 to 1990), but these three countries accounted for more than 15 percent of global grain exports from 2007 to 2009 and as high as 19 percent in 2008. This hopeful sign is offset by the policy reactions of this region, which have sometimes restricted exports just when global markets need them most. Fortunately, the prospects for grain exports from the region in 2011/12 are much improved. Thus there is both promise and concern about the future role of this region as a reliable supplier in the face growing world demand for food.

It should be acknowledged that the US and the EU have, unfortunately, had their own experiences with restricting trade and exporting market instability to the rest of the world. Almost exactly 37 years ago the Nixon Administration Secretary of Agriculture, Earl Butz declared that it was "a very serious mistake" to stop US exports of soybeans in 1973. This soybean export embargo was imposed by the US on June 27, 1973, because of a bad crop and high prices (USDA 2009), but it was lifted one week later. It was a total export ban but mostly impacted Japan, and it took time to restore Japan's confidence in the US as a reliable supplier. It was a different story in the EU, where export subsidies and import tariffs were used for many years to keep domestic prices high and stable. In a few cases a surge in world prices was met with an export tax to prevent domestic prices from moving too high. These policies also caused increased price volatility in world markets until they were largely removed in the CAP reforms of the last two decades. These lessons learned in the US and EU should be a caution to other countries not to make the same policy mistakes.

Figure 3. Grain net exports of Kazakhstan, Russia and Ukraine, 1998/99 to predicted 2011/12.



Source: PSD online, August 2011

What is Ahead for Grain Markets?

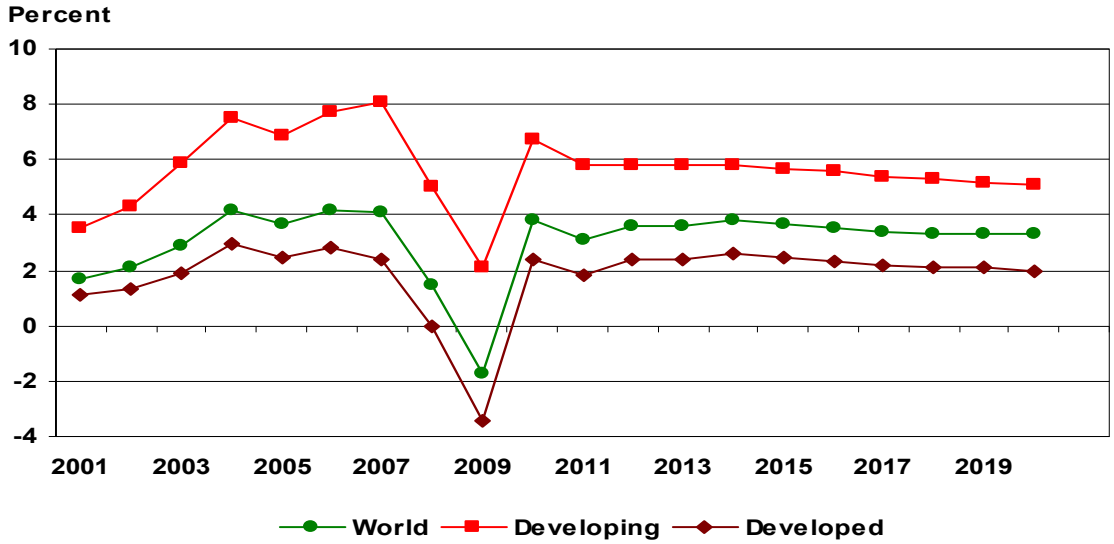
Before discussing the outlook for grain markets, it is important to say that no one can forecast prices with accuracy, because so many of the key factors influencing prices such as weather, energy prices, exchange rates, political shocks, economic shocks and government intervention are themselves highly uncertain. Therefore, the analysis conducted by FAPRI evaluates the fundamental factors driving demand, supply and prices in the future but also provides an estimate of possible variances of these results (Meyers et al, 2010).

This analysis has four main steps:

1. Economic models are used to capture the basic economic, policy and technical factors that determine supply, demand, prices and trade of commodities and their interactions,
2. Assumptions are made about the likely future paths of demographic and economic factors, technology and agricultural policies,
3. Models are simulated over ten years to generate a baseline of market outcomes,
4. A simplified system is simulated 500 times with random selections of stochastic variables such as yields, energy prices, macroeconomic variables (Westhoff et al)
5. The result of these analytical steps is a baseline for the next ten years that has a mean and also a distribution of the price and quantity outcomes.
6. Policies are assumed to remain the same as now and crop and livestock productivity are assumed to grow in line with historical trends. The macroeconomic assumptions are taken from the IHS Global Insight analysis and reflect a rather long and slow economic recovery from the 2009 global economic recession (Figure 4).

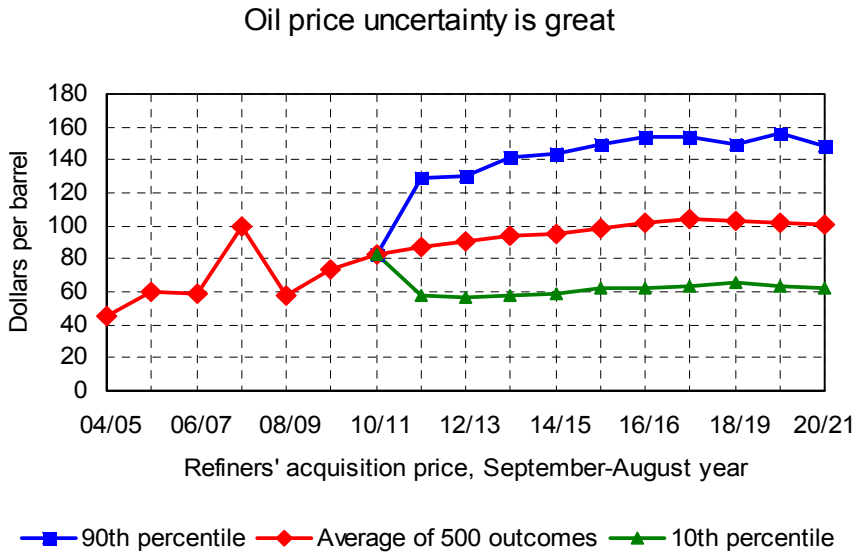
Oil price are projected to continue increasing and the currencies of China, Brazil and EU are expected to gain value relative to the US$. Of course, all of these are subject to uncertainty and could bounce up and down in any given year. The petroleum price, for example, has a 10 percent chance of averaging above $130 next year based on past volatility (Figure 5).

Figure 4. Real GDP growth assumptions for FAPRI-MU baseline.



Source: HIS Global Insight, January 2011

Figure 5. Oil price assumption and its stochastic distribution



Given these assumptions, the FAPRI-MU projections of global market prospects from 2010/11 to 2020/21 indicate that price increases this year may persist longer than the price increases we experienced in crop year 2007/08. It is projected that for the next decade prices are likely to remain well above levels in the first half of this decade. We are very likely in a new world of significantly higher prices and greater price volatility over the next decade.

Discussion of these results is focused on wheat, maize and soybeans (figure 6). Prices are projected to be up sharply in the current marketing year, and for maize they are expected to be even higher than in 2007/08 and closer to wheat than at any time in recent memory. Due to expected production response to these high prices, production is expected to expand next year and moderate the grain prices. But there is severe competition for planted area, and soybeans is not expected to get enough higher production to prevent further increase in price the following year.

These strong price projections, the longest sustained price increase FAPRI has ever foreseen, are assuming normal yields and stable policy and economic conditions

over the next decade. This strong growth in grains and oilseed demand and prices is not solely about biofuel and energy market impacts on food and agricultural markets, but also about the continuing growth in incomes and dietary changes in fast growing economies and the relatively slow growth of crop yields and increased production costs that arise from higher energy prices. Dietary changes lead to more vegetable oil and animal feed demand as incomes grow, and growing demand presses against limited capacity to expand planted area in the world and suggests greater research efforts are needed to expand crop and animal productivity in the future.

Of course prices never follow such a smooth path, as seen in the data for the last decade. A global bumper crop in the coming harvest could bring a bigger price decline, but another bad crop in some major growing area could move prices sharply higher next year. This is the kind of uncertainty and potential volatility represented by the wheat price stochastic analysis in figure 7. First there is the spot price on Sept 9, which indicates a one-day observation compared with the season average estimate in the chart. The range provided for the next 10 years says that roughly 80 percent of the time prices would be within that range of about $220 to $370, and they would average about $290 over that period.

Similarly, maize could be much higher or lower at the coming harvest depending on yield and demand developments (Figure 8). The spot price for Sept 9 is quite high relative to the estimated season average but again this is a one-day observation compared with the season average estimate in the chart. The range provided for the next 10 years says that roughly 80 percent of the time prices would be within that range of about 190 to $310, and they would average about $247 over that period. Maize markets now are even more volatile than wheat due to the low level of stocks, and of course these prices also influence wheat and other commodities, so the volatility effects all related markets.

Figure 6. FAPRI-MU projections of Corn, Wheat and Soybean export prices

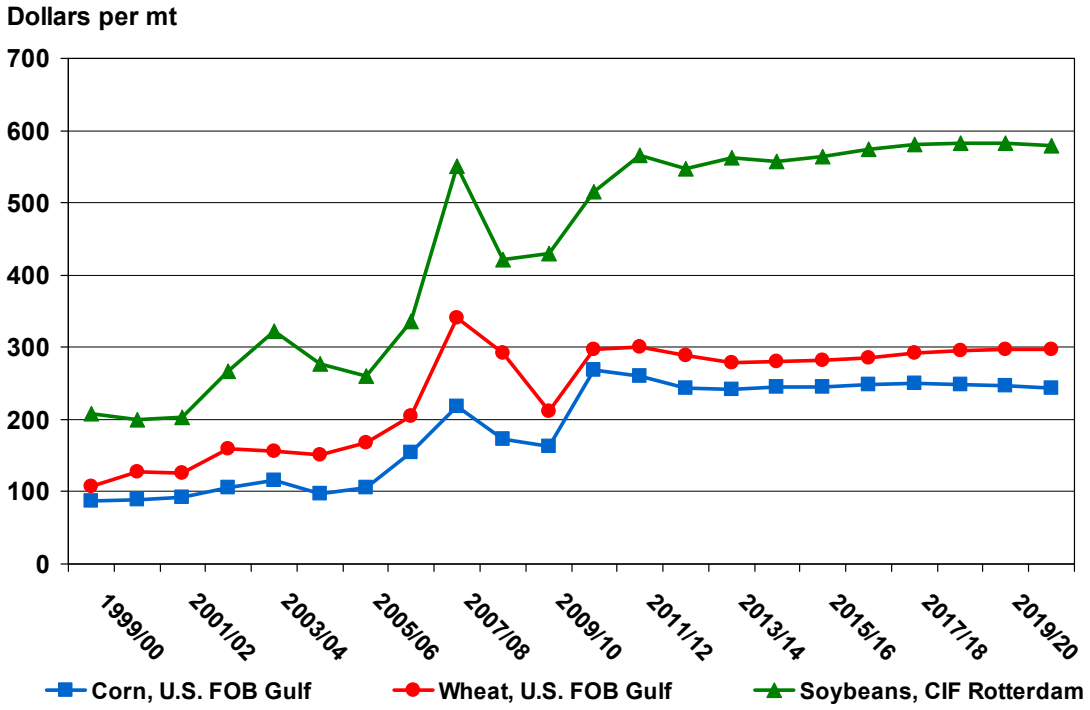


Figure 7. HRW Wheat US FOB Gulf Ports price projection, stochastic analysis and spot price

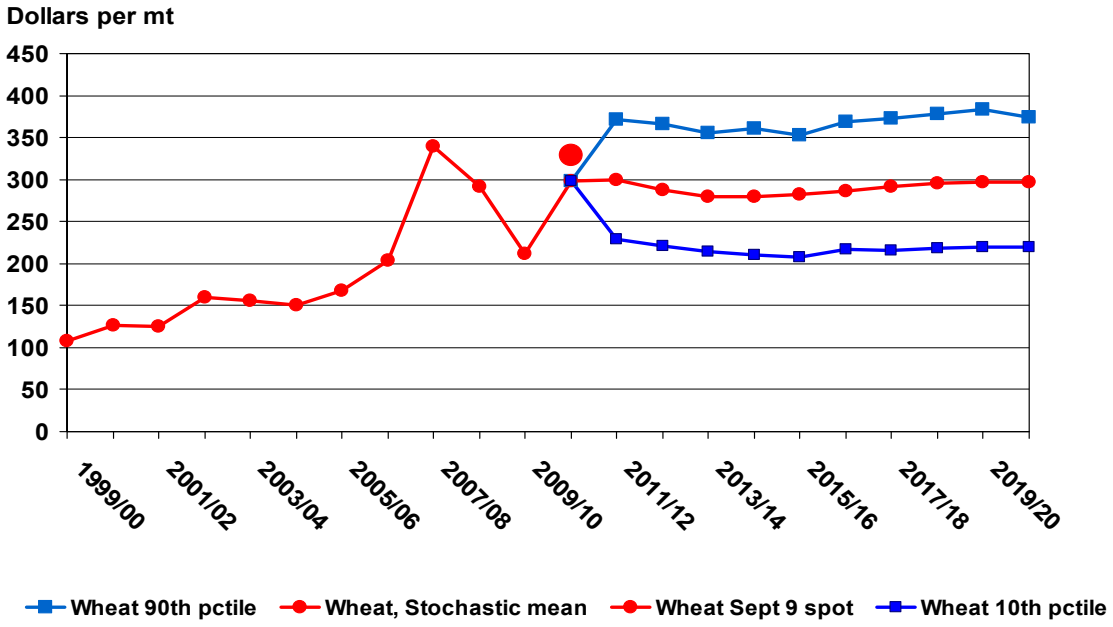
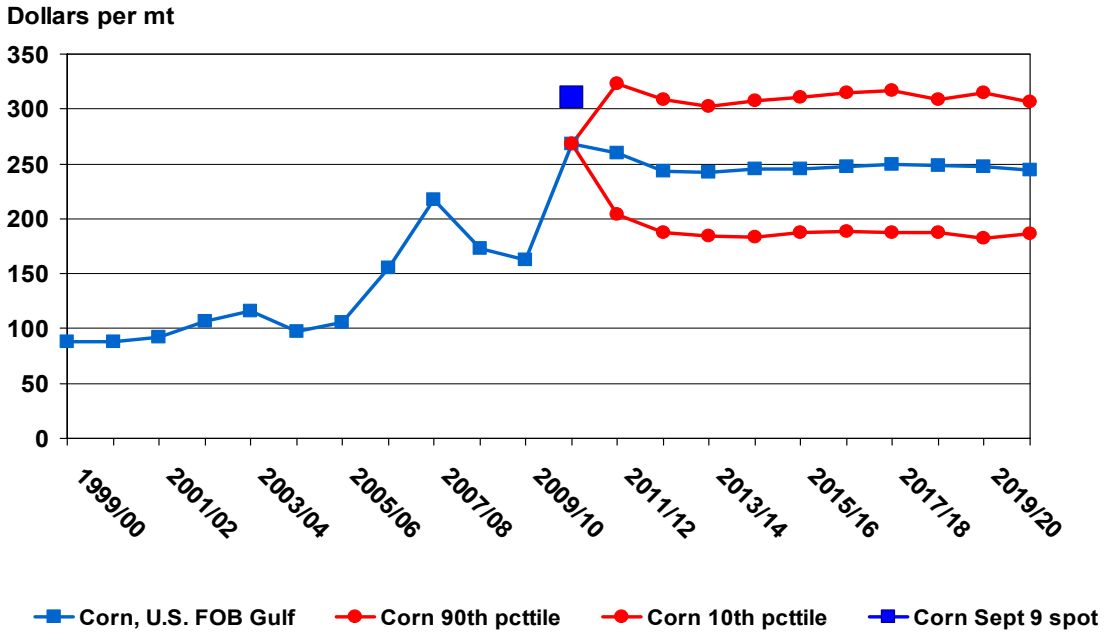


Figure 8. Maize US FOB Gulf Ports price projection, stochastic analysis and spot price



Grain markets have always been volatile, but it is expected that many unknowns and uncertainties will continue and likely increase the volatility of these prices in the future. This outlook has higher and more persistently higher prices than we have ever projected in more than 26 years of doing this type of analysis. The road to economic recovery is still unclear but the chance of a second economic decline in the near term seems unlikely. Oil prices are much more uncertain due to the overlay of political unrest in the Middle East, and an unexpected oil price shock could surely damage the weak economic recovery currently underway. Exchange rates are also quite uncertain and further weakening of the US dollar will further strengthen prices expressed in US$. Government policies can also change, and policies on biofuels are likely more critical to

these markets than direct agricultural policies, because many of the latter have been decoupled from production decisions. Likewise, government policies on export restrictions, such as in Russia and Ukraine are coming under pressure and could change if only because production returns to normal levels. Weather interruptions always have been a big factor in volatility and always will be, but climate change effects seem to have increased the frequency and severity of weather damage to crops.

In short, there are a wide range of possible outcomes and increasing difficulty for producers and policy makers to make decisions in view of increased uncertainty of future developments. As a famous agricultural economics professor at University of Minnesota, James Houck, used to tell his students, markets are like static on the radio. When the static is so loud, it is hard to hear the music. So the challenge for analysts and decision makers it to understand the music playing behind the daily static in the markets.

One of the bright hopes in this future is the agricultural potential of the KRU region, if they can be reliable suppliers. The KRU region is one that has significant potential to increase food production, and its role in global markets and in meeting food security needs as well as its economic prosperity would be enhanced if there were increased public and private agricultural investment as well as transparency and predictability in policy responses in times of price volatility.

For farmers, agribusiness, governments and international agencies, there is both opportunity and challenge in this outlook. Higher prices can increase both availability and access, because farm earnings increase; but when food prices are higher there is a greater challenge to provide safety net measures for vulnerable populations. When markets are in turmoil, private and public decision makers face complex issues and choices.

Policy Priorities for a Turbulent Future

The main challenge is to devise policy strategies and principles that are sustainable in the unpredictable environment in the coming years and to take advantage of opportunities that may emerge. This section elaborates on specific economic reforms, those that relate to national policy and those in the purview of international agencies or trade agreements, food and development assistance. A guiding principle should be to give priority to policies that contribute to long-term development goals and avoid policies that conflict with long-term development. Not all of these would be relevant to every country, so adaptation is needed on what is most appropriate, where and when (FAO 2010, Meyers 2010).

1. Prudent use of limited budget resources

The financial crisis has put governments' budgets for agriculture under pressure because of a decrease in government income due to a reduction in tax revenues and increased social payments. On the other hand, the financial crisis increased the need for public investments in the agricultural sector. Agriculture has much untapped potential in many countries and can still be an engine of growth in the next decade.

2. Short- versus medium- and long-term policy priorities

Governments should avoid short-term policies that conflict with long-term development goals. Short-term policies as a reaction to crises should reinforce, not conflict with, long-term development strategies. Too often, policy responses to a crisis are generated without taking into consideration all direct and indirect impacts, the longer-term effects or the possible unintended consequences. For example, short-term policies that create wrong incentive signals, market distortions, or disruption of reforms can waste scarce resources and precious time.

3. Food assistance and early warning

Governments and international agencies need to expand food assistance where

necessary, and create social safety nets and early warning and rapid response capacities and combine food security safety nets with measures to improve food access through normal market channels to ensure that the scarce food assistance resources are efficiently used. Early warning systems, including those supported by FAO, should be developed at farm/farmer and Ministry of Agriculture levels to combine market intelligence with statistical methods and evaluation missions to alert government authorities and international agencies about urgent needs for food assistance measures.

4. Continuation of reforms

Governments should continue and accelerate reforms, to enhance transfer of ownership and full ownership rights for land and other productive agricultural and rural assets and improve the business environment, for farms and especially for small and medium enterprises (SMEs).

With government resources stretched to the limit and bank credit constrained, farmers need to mobilize all possible resources. Restricted ownership is a handicap to any farmer wishing to maximize income from existing assets or to obtain more assets. Many countries need to complete the reform process so that commodity and land markets can operate efficiently. There may be a tendency to slow the reform process during this economic crisis, but further reforms can help attract investment as the economy recovers.

5. World trade organization (WTO) Doha round of trade negotiations

The World Trade Organization (WTO) Doha Round of trade negotiations should be completed in order to restore trust in the international trading system with multi- or plurilateral rules and agreements through open and responsible trade policies. The experiences with trade restricting policies employed by many countries in reaction to the food price crisis and the increased protectionism that has been seen since the financial crisis have created distrust in the global trading system and increased the cost of doing business in international markets. A Doha Round agreement would be an important step in restoring confidence in the trading system and in reducing distortions that restrict trade and create uncertainties for farmers and traders. Although it is tempting for countries to limit exposure of own consumers and producers to world market volatility, a way to protect food security in a global market is to expand trade and reduce trade restricting policies. Likewise, WTO members and countries seeking accession would all benefit from completion of these negotiations to add new members to the WTO.

6. Long-term priorities

Stimulate economic growth

The best strategy to reduce poverty, improve food security and enhance agricultural productivity in the past has been an increase in economic growth (FAO 2009b). As reported in the FAO study on increased hunger and undernourishment, the economic crisis pushed more people into hunger than did the food price crisis. Moreover, the duration of the economic downturn is longer than the food price spike in most countries. The agricultural sector benefits from the growth of the non-agricultural economy, because it reduces labour and unemployment in the sector and thereby increases labour productivity. Restoring economic growth must be a high priority; it reduces unemployment, increases household incomes and improves government budget resources for social protection programmes and sustains economic development.

Enhance investment (public and private) and agriculture research and development (R&D)

Both governments and international agencies and donor programmes need to give priority to investment in agriculture, which has been neglected for at least two

decades. The government's role is research and development, infrastructure investment and improvement of the business environment for the private sector to invest. A favourable institutional and regulatory environment for foreign investors is important, since FDI has proven to be an engine of growth for productivity and competitiveness in the agriculture and food industries of the transition economies. Surveys indicate that the volatility of the political and economic environment, ambiguities in the legal system and corruption, are the most important constraints for FDI in the region.

Investments in public goods, such as irrigation and roads, contribute more to agricultural growth than other public spending (e.g. farm subsidies). Investments in rural infrastructure have two important effects. First, they connect farmers to markets by reducing transport costs and integrate smaller farmers in modern supply chains. The investments in rural infrastructure also reduce constraints on farmers in delivering the quality demanded by modern supply chains. Second, investments in rural infrastructure improve the access of rural labourers to urban areas and attract more off-farm employment, including foreign investors.

Enhance rural development and rural infrastructure investments

Lagging rural incomes need special attention. The rural and the agricultural economies are interrelated in many ways but they are not the same, and rural policy needs to recognize that. Rural development needs targeted attention, including social infrastructure such as schools and child care facilities, hospitals and clinics, community centres with libraries, internet connections and adult learning facilities. These support measures are territorial not sectoral and they improve the rural business environment as well as the capacity of rural residents to enhance human capital, increase economic opportunities and improve the quality of life.

Invest in social protection or safety net measures

Safety nets include targeted food distribution programmes to protect vulnerable populations in the medium and long term as well as targeted cash transfer schemes, feeding programmes and employment schemes. Social protection is to cushion the main impacts of market and financial shocks in order to limit the long-term consequences. For example, when unemployment increases, incomes decline and food prices or shortages threaten households, they may dispose of valuable assets, interrupt the education of their children or suffer malnutrition. Safety net measures are temporary and targeted to mitigate the worst consequences of a financial or food crisis.

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