

Feeding the world: the economics of food

AT A GLANCE

- Recent price rises in foods, such as corn, cocoa, wheat, and coffee, can be mostly attributed to poor harvests brought on by adverse weather conditions.
- Aside from the fragility of the agricultural system to shocks, there are structural factors affecting supply and demand that pressure the outlook for prices.
- Food price spikes have sparked panics in recent years, making the economics of food a serious issue in many countries.
- The need to produce more food, particularly meat, will have a multiplied effect on grain production.
- After years of underinvestment in farming and a decline in the amount of arable land, we should see renewed focus on increasing yields via fertilisers.
- There are a number of investment opportunities in stocks that are involved in becoming part of the solution to the world's food challenges.

Food is back on the business pages. Recent price rises in food commodities, particularly corn, wheat, cocoa and sugar are making many investors think it's 2008 again, when rampant food inflation led to social unrest in many parts of the world. Much of this can be attributed to weather conditions affecting supply but it shows how fragile the world's food system is to shocks.

Here, we examine the long-term prospects for food in the context of an expanding global population, supply-side rigidities and dietary changes that could have a big impact on demand, prices and production intensity. We also consider some investment opportunities in stocks that are embracing these changes in an effort to provide higher agricultural yields or lower-cost foodstuffs.

THE FOOD PRICE SPIKE

The UN's composite Food Price Index recently hit its highest level since records began in 1990. Moreover, UN economists believe prices could stay elevated for a while, having been on a rip since the middle of 2010 (see chart below left).

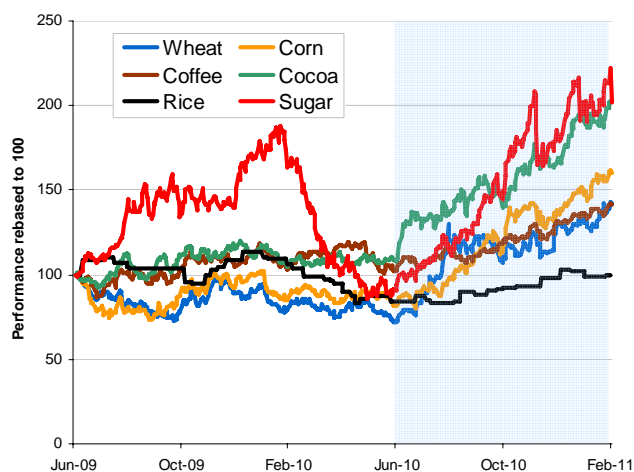
Catastrophic weather has been the key driver, with a major snowstorm in the US dumping 20 inches on some parts of the grain belt. US wheat prices hit a two and a half year high last week. Supplies were already tight, prices having spiked higher in 2010 due to a drought in Russia that led to a ban on exports to the end of 2011. In Australia, a massive cyclone has added to the misery of the recent floods, threatening the country's important sugar cane crop. As the chart (below left shows), the price of sugar has doubled in two years. Coffee has also hit record highs on the back of a string of poor harvests, especially of premium Arabica beans.

Bad weather is, of course, difficult to fathom, but some commentators have pointed to the largely negative impact of 'La Nina' (a weather phenomenon that cools sea temperatures) on food harvests in certain countries, especially in the southern hemisphere. Beyond the meteorological explanations, it is widely held that rock bottom US interest rates and quantitative easing are forcing excess liquidity into commodities and emerging markets.

COMPARING THE SPIKES: 2010-11 VERSUS 2007-08

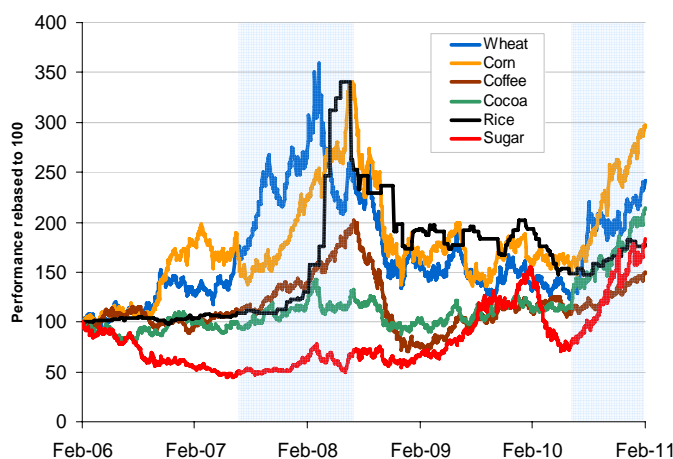
The spike in food prices is slightly different this time around. Critically, the last spike included rice – the most important staple in many developing countries. Fortunately, rice harvests have been healthy this year and the rice price is little changed in the past 12 months. Like last time, the spike should eventually ease back over time, as higher prices encourage new supply. However, it is also the case that longer-term structural factors are tending to exert upward pressure on prices.

SUGAR, COCOA, CORN & WHEAT HAVE RISEN STRONGLY



Source: DataStream, as at 04.02.2011.

GRAINS ARE STILL SOME WAY OFF THEIR 2008 HIGHS



Source: DataStream, as at 04.02.2011.

THE RISE OF FOOD POLITICS: PROTECTIONISM...

Commentators regularly talk about 'energy politics' when discussing how the distribution of oil resources affects the economy. In 2007/08, when we last saw rapid food inflation, the economics (and politics) of food took on huge importance, becoming an issue that was more socially and politically sensitive than oil, at least for a short time. Access to, and control of, food resources is likely to remain a prominent theme at both the macro and corporate level.

The social unrest caused by the price spikes in 2007/08 lives long in the memory of many governments. In developing countries, food makes up a far larger part of total spending than it does in developed nations.

For instance, in the US, food has an 8% weighting in the CPI basket. In India, the figure is a whopping 47%. Food inflation, therefore, quickly manifests itself in overall inflation in developing economies, raising the political stakes and the potential for unrest.

We are also likely to see a backlash against professional speculators operating in the food markets as politicians seek to apportion blame for food price rises. Last year, the hedge fund, Armajaro, drew attention to itself by cornering a large portion of the world's cocoa market via purchases of 240,000 tonnes of the physical commodity – the single largest trade in 14 years.

...AND FOOD COLONIALISM

This current bout of food inflation raises the prospect of further 'food colonialism' by food - importing nations. Saudi Arabia, China and South Korea have all been trying to secure long-term food supplies by buying up large tracts of farmland in developing countries.

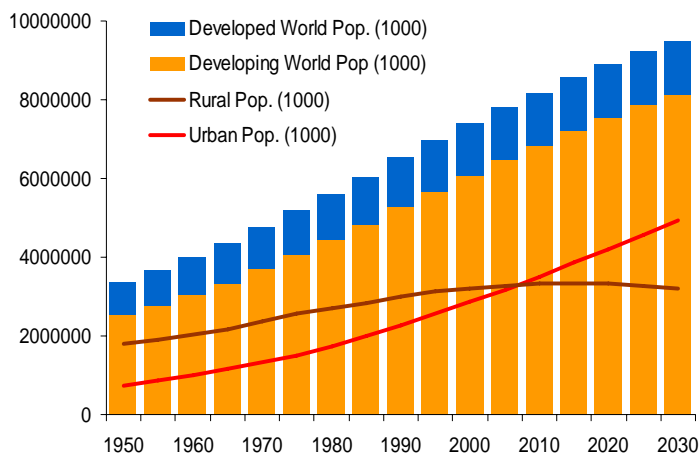
The morality of these 'farmland grabs' has been brought into question as the investors plan to export most of the produce back to their own populations. Peter Brabeck, chairman of Nestle, estimates total farmland investments of at least 15m hectares in developing Africa, Asia and Latin America, equivalent to half the size of Italy.

THE WORLD NEEDS MORE FOOD...FROM A DECLINING ARABLE LAND BASE

The World Bank estimates that demand for food will rise by 50% by 2030, largely as a result of population growth, rising affluence and changing diets. The population of the world is growing at around 1% per year. It might not sound much, but it means an additional 70 million mouths to feed every year.

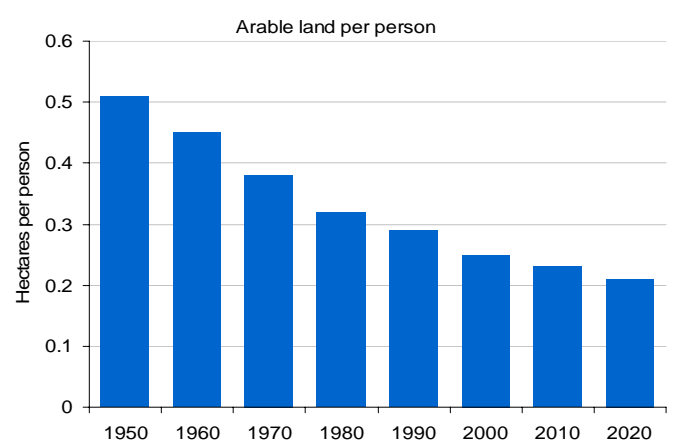
As the chart above reveals, the overwhelming catalyst for this growth is the developing world. This population explosion poses a serious challenge for food production, particularly when you consider that the amount of arable land in the world has been reduced due to industrialisation and urbanisation.

MORE AND MORE MOUTHS TO FEED...



Source: FAOSTAT, United Nations. 06.09.2010.

...BUT DECLINING ARABLE LAND



Source: Doane, Potash Corp.

CHANGING DIETS AND THE MEAT MULTIPLIER

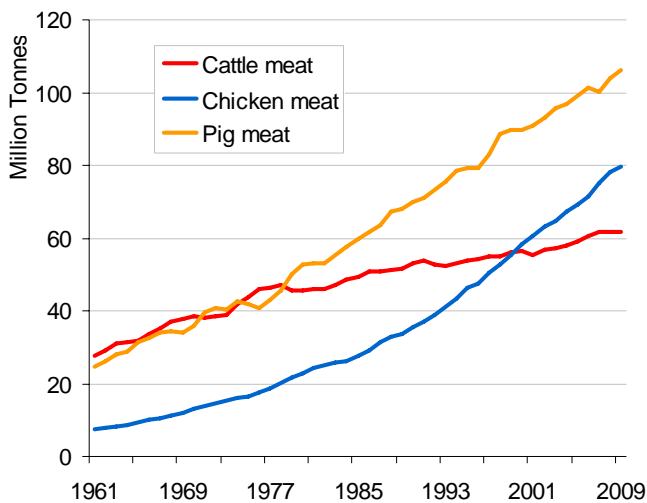
With a growing number of mouths to feed yet declining arable land (exacerbated by the use of cropland for bio-fuels) we already have some strong fundamentals that point to the need to increase crop yields. However, changing diets in the developing world add an extra dynamic to the mix.

Economic growth and rising affluence in developing countries, such as China, India and Brazil, is allowing huge numbers of people to improve their diets by adding more protein, namely meat and dairy products.

Meat consumption is growing particularly rapidly from relatively low levels. The direct impact is that global meat prices recently hit record high as strong developing world demand coincided with a drop in production by exporters such as the US and Australia. There has been sustained demand from Asia and the Middle East for beef and lamb.

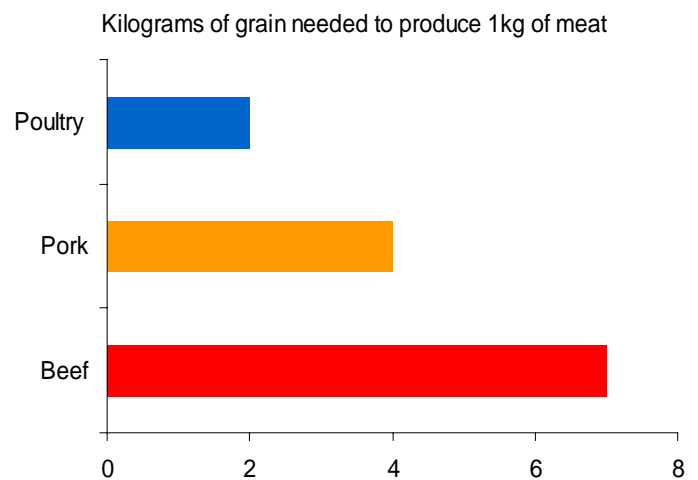
The demand for more protein has a significant indirect impact on grain. Livestock is reared on grain feed making production heavily resource intensive. Indeed, it takes 7 kilograms of grain to produce just 1 kilogram of meat. In a world growing ever hungrier for meat, the need for more grain and better yields is clear. Grain demand in China alone is set to grow substantially.

MEAT CONSUMPTION IS GROWING RAPIDLY...



Source: FAOSTAT. 06.09.2010.

...WHICH HAS A MULTIPLIED EFFECT ON GRAIN



Source: Doane, Potash Corp.

MORE FOOD FROM LESS LAND MEANS ONLY ONE THING: FERTILISER

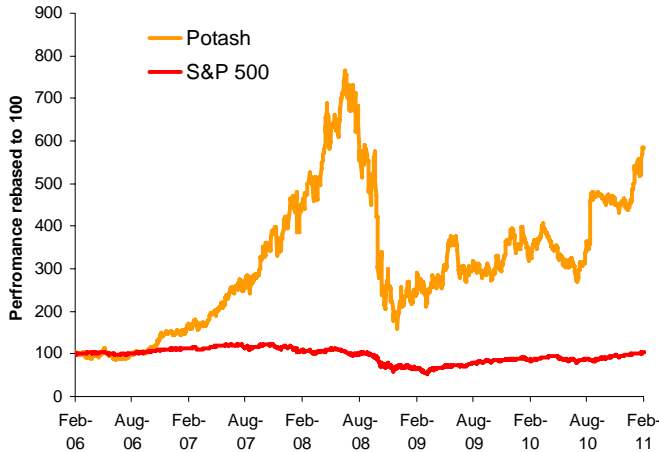
The most efficient way to meet increasing demand is to increase crop yields by using fertilisers. Much of the arable land in the developing world is inefficient and significant gains in yields can be made via the use of fertilisers. Higher commodity prices mean that farmers are making healthy profits and can afford to buy fertilisers. The demand for, and the price of, fertiliser is likely to grow strongly over the next decade.

During the 2007/08 food price spike, the cost of fertiliser commodities such as urea and potash rose around tenfold. While the financial crisis saw prices fall back sharply, demand is now recovering strongly and is expected to challenge capacity in coming years; it takes around seven years to develop a new potash operation. We are therefore likely to see both healthy profits as well as more consolidation among the fertiliser companies, a feature that has been accelerated recently by the interest of large mining groups in the fertiliser market.

"Fertiliser companies have been attractively valued, trading at a discount to replacement cost, and stand to benefit from strong supply and demand fundamentals. The world's growing demand for food, especially in emerging markets, is encouraging farmers to use more fertilisers such as phosphate and potash to increase yields. Given the fact it can take several years to develop new potash sites, fertiliser supply is likely to be challenged by demand. This also helps explain the consolidation we are seeing in the sector, which I expect to continue." **Aris Vatis, US Equities**

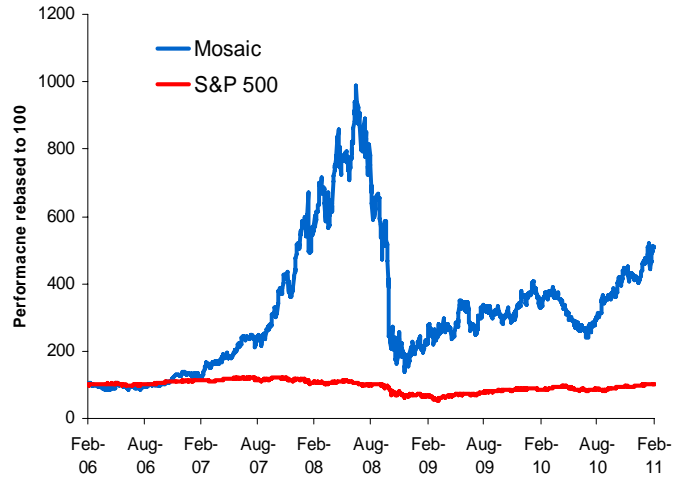
PLAYING THE FERTILISER PRODUCERS

POTASH CORP is the world's largest producer of potash, phosphate and nitrogen by capacity, with operations in Canada and the US, as well as investments in Israel, Chile and China. It is currently the subject of a hostile bid from mining giant, BHP Billiton.



Source: DataStream, 04.02.11.

MOSAIC is a US based producer of concentrated phosphate and potash, with global operations in Brazil, Argentina, Chile, Mexico, India, Thailand and China.



Source: DataStream, 04.02.11

A RANGE OF BENEFICIARIES, BUT STOCK SELECTION IS KEY

A number of stocks can be expected to benefit from the world's growing need for food. Fertiliser stocks are one of the most direct beneficiaries of the need to increase crop yields. Stocks such as **Potash Corp** and **Mosaic** outperformed massively during the last episode of food inflation, when many of the themes discussed here initially caught investor attention. Valuations are now more reasonable yet, as we have discussed, the long term fundamentals remain very attractive.

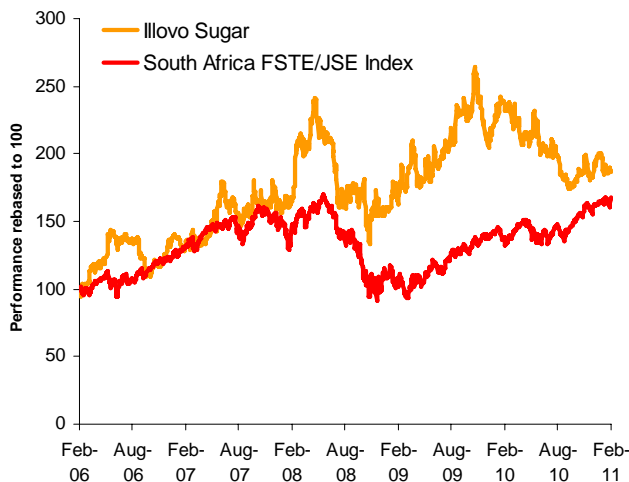
Stock selection is critical to identify the winners and losers in the food chain. A rising food price can mean bumper profits for a commodity producer but increased costs for a food processor. Many food companies, such as Kellogg's, now hedge their input costs, having learned from the last crisis. Low cost producers, such as **Illovo** in sugar, are set to take advantage of steadily rising global demand. You might expect supermarkets to lose out from higher food prices. However, those with significant buying power and leading market positions, such as **Tesco**, have the ability to pass on more of the price rises to consumers.

"Emerging markets are some of the world's lowest cost producers of commodities. While Brazil remains the world's largest sugar producer, South Africa is the largest producer on the African continent having grown its supply strongly. Leading low-cost producer Illovo is well placed to benefit from growing demand as emerging consumers develop a sweeter tooth much like their developed market cousins."

Nick Price, Emerging Markets

LOW-COST SUGAR PRODUCERS...

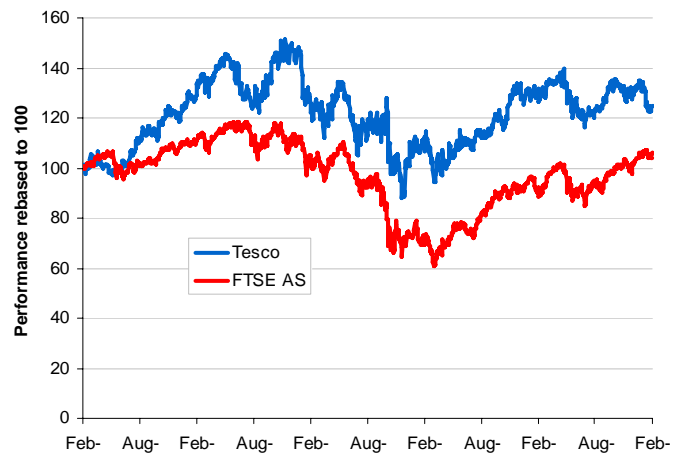
ILLOVO is a leading low-cost, high quality sugar producer based in South Africa, with operations in several African countries.



Source: DataStream, 04.02.11

...AND SUPERMARKETS WITH PRICING POWER

TESCO is a large supermarket with tremendous leverage with suppliers and a leading market position which gives it the pricing power to squeeze supplier margins and pass on price rises in foods to consumers.



Source: DataStream, as at 04.02.11

THE FUTURE OF FOOD: SOME INTERESTING DEVELOPMENTS...

A second 'green revolution'? - China and India will be incentivised, along with other emerging markets, to lead a second 'green revolution', with many of the gains being made in sub-Saharan Africa. Increases in market prices will stimulate developments to increase arable land and irrigation projects. This could help to dampen volatility and stabilise the supply side. In the next 25 years, we should expect significant increases in African grain yields.

Precision agriculture - Indeed, we can expect to see the development of something called "precision agriculture" over the next decade. This involves the integration of satellite observations, on-the-ground instruments and sophisticated farm machinery to apply the optimum amounts of seed, water and fertilizer for maximum efficiency.

Biotechnology and 'GM' crops - Although the majority of GM crops are grown in North America, there has been rapid growth in GM cropland in developing countries, particularly Brazil and Argentina and, increasingly, India and China. European production has been held back by a more stringent EU authorisation regime as well as cultural resistance on the part of consumers.

The next decade may see great progress in GM product development as researchers gain increasing access to genomic resources. Future GM developments could see drugs incorporated into foods; for instance, bananas that produce vaccines against infectious diseases such as hepatitis B. We could also see metabolically-engineered fish that mature more quickly, fruit and nut trees that yield earlier, as well as foods that lack the properties associated with intolerances.

'Fast food' from animal cells - Dutch scientists have found a way to create artificial meat by delivering an electric charge to the muscle cells of a pig in a mixture of amino acids, which causes the cells to multiply. Although this is currently a very expensive way to produce a piece of pork, it offers the potential to feed millions of people cheaply in the future in a resource-efficient manner. Given that the predicted growth in meat consumption in developing countries and the incredibly resource-intensive nature of production, this may become an environmentally acceptable option.

BIO-DIVERSITY UNDER THREAT?

New technologies tend to bring new threats. When it comes to biotechnology and GM foods, the big concern is the perceived threat to biodiversity. Given human dependence on a small proportion of plant and animal species for our diets, genetic diversity within these species is crucial. Fortunately, improvements to crops and livestock have traditionally been localised. However, as the agricultural business becomes more globalised and the key players become larger, we are likely to see less variety in our farmed crops and animals. A cow cloned to provide more milk, or a corn crop designed to be more nutritious, may become very problematic if its widespread use is followed by its failure to combat some, as yet, unknown threat.

CONCLUSION

How the world responds to the challenge of feeding a growing and more affluent population is set to become a prominent theme over the next few decades. As the United Nations has already cautioned, we can expect generally higher food prices going forward. However, the ability of mankind to overcome such bottlenecks is underestimated. By investing in companies that allow us to grow or create more food, investors can take advantage of these secular trends.



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