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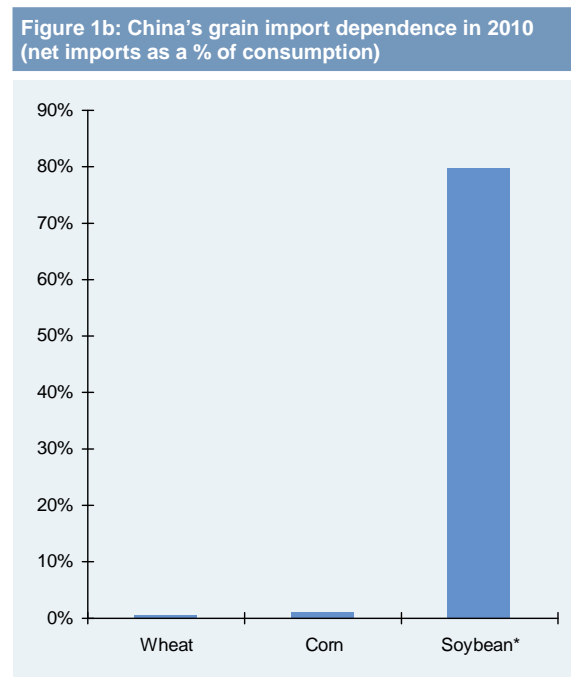
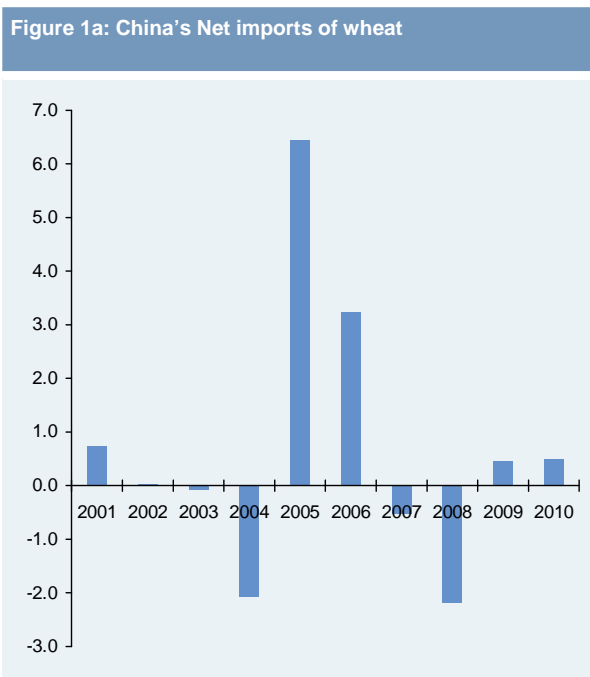
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China's Grain Output and Inflation – Weighing the Risks

At a time when governments around the world are grappling with domestic food inflation and global grain production constraints, a rare alert issued last week by the UN's Food and Agriculture Organization has triggered considerable media coverage of China's drought and the impact on the winter wheat harvest. With Northern China afflicted by perennial drought and the months of December to February historically accounting for very low levels of annual precipitation, the recent wave of alarm concerning China's winter wheat crop appears premature. This report examines the current drought situation in the context of tight global grain supplies and elevated domestic inflation, as well as concerns about China's impact on the international grain trade. First, a few basic facts are worth bearing in mind:

- **China is self-sufficient in wheat.** China has historically been self-sufficient in wheat. During the two-year period including the 2004-05 and 2005-06 crop years, net imports spiked to approximately 10 million tons following four years of consecutive production declines (a large numbers of farmers had switched to higher-valued crops such as oil seeds and cotton, resulting in a 12% reduction in sown area for grains between 1998-2003 – *See Figure 1*). Even so, this level of net imports amounted to roughly 5% of domestic production. In response to the shortfall, Chinese authorities introduced policy incentives to lift grain production, which subsequently boosted grain acreage by 8.1% between 2004 and 2010.
- **Chinese wheat reserves are elevated.** Seven successive years of bumper harvests have created a strong buffer of domestic inventory. Although China's official grain reserve levels are considered a national secret, USDA estimates place 2010/11 ending stocks for wheat at approximately 60 million tons – the highest level in at least 5 years. With this year's consumption growth estimated at 1.7%, a production decline of as much as ~17% would reduce stocks levels to the 5-year average level of 47.5mn tons.
- **Production forecasts largely intact.** Despite issuing its first China drought alert since at least 1995, the FAO did not alter its wheat output forecast of 112 mn tons for the 2010/11 crop year. Meanwhile, the US Department of Agriculture has assessed that China's annual wheat output may drop to 114.5 million tons compared to 115.1 million tons in the previous crop year.
- **Drought is a perennial problem.** In each of the last several years, China's winter drought was said to be the worst in many decades. In 2010 the drought was mainly in the southwest, which is not a major grain producing region. However in the year before, the drought, primarily in the North China Plain, was said to have affected 10.9 million hectares of cropland, with the vast majority being winter wheat in the top 8 wheat provinces – and left 4.2 million people short of drinking water at the drought's peak in early February. Winter wheat constitutes roughly 20% of China's full-year crop yields and 90% of wheat production. For the full-year, China's major wheat producing regions still experienced minor production gains. The current drought has affected 6.7 million hectares of crops and left 2.8 million short of drinking water. While the FAO has said two-third of the country's vast wheat crop is



Source: CN Grain, CEIC, USDA *Based on imports / (imports + production)

at risk due to the winter drought, China's Office of State Flood Control and Drought Relief has put the figure at 42%.

Through swift, labor-intensive irrigation, even severe drought conditions can be ameliorated. Approximately three-quarters of China's winter wheat production receive supplemental water both before entering dormancy and as winter transitions into Spring.

Too early to quantify the impact of severe drought on production

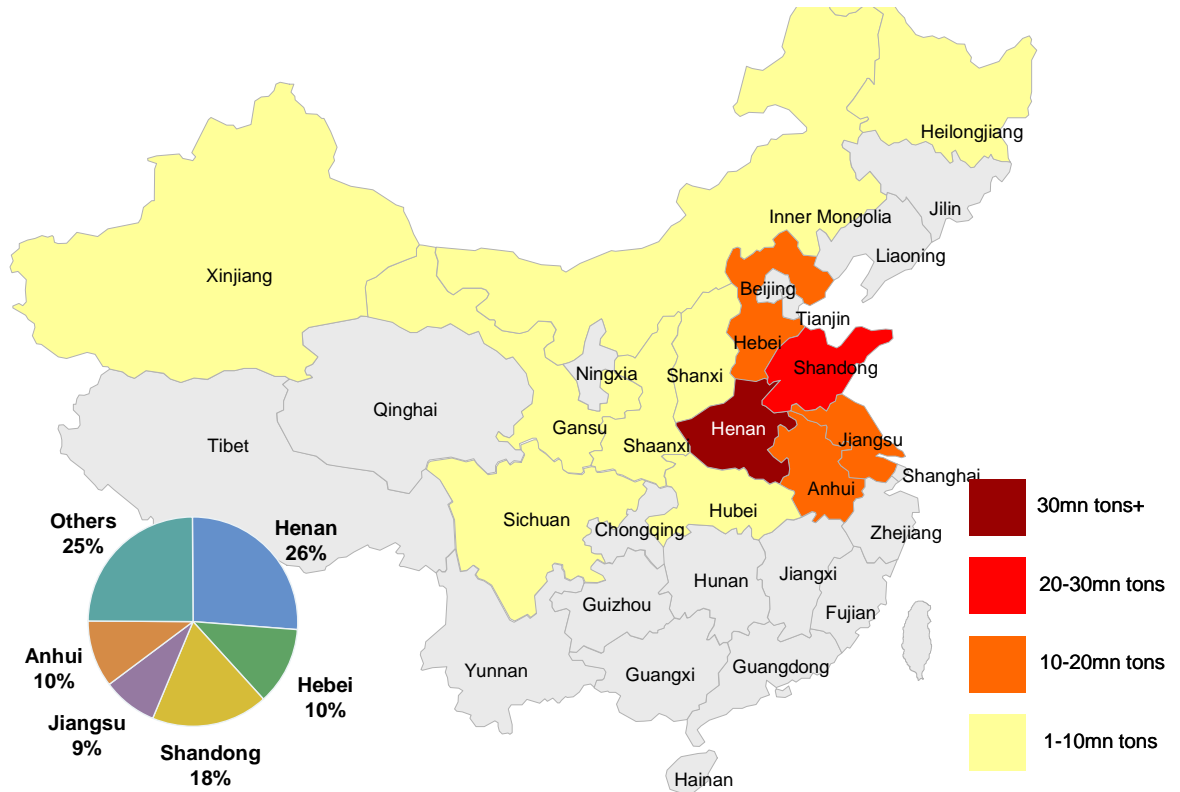
China's current drought has been characterized as the most severe in sixty years by the Office of State Flood Control and Drought Relief, with rain in eight provinces substantially below normal levels since October. The affected areas include the major wheat-producing provinces of Shandong, Henan, Hebei and Jiangsu, which together accounted for 63% of China's wheat output in 2009 (see Figure 2). The Xinhua News Agency cited a Ministry of Agriculture expert as saying that the affected areas needed at least 50mm of precipitation, but recent snowfalls amounted to less than 10mm.

Winter wheat is typically planted between September and November. It germinates and then goes into dormancy under cold temperatures before beginning to grow in March the following year (and ultimately being harvested in the early-summer). Agricultural experts have emphasized that the growing season has many weeks remaining and that late-February to early-April is the critical period when precipitation levels will determine crop results.

In response to the lack of precipitation thus far, the central government has allocated RMB12.9 billion to boost grain output and alleviate drought. The Ministry of Land and Resources has started a massive emergency irrigation effort in the country's drought-stricken regions, initially focusing on Shandong province, where 1,000 wells are being drilled, with the involvement of 5,000 technical staff and 500 drilling machines to provide water for residential and livestock consumption, and to irrigate 33,333-53,333 hectares of agricultural land.

Reflecting the aggressive irrigation effort and recent snowfall, the Ministry of Agriculture assessed that by February 14, the drought-affected area had receded by 4%, while the area hit by severe drought has declined by 11.6%. By February 15, the affected acreage in eight provinces had decreased to 6.71mn hectares (compared to 7.7 million hectares on February 10), while the area experiencing severe drought fell to 1.21mn hectares.

Figure 2: Wheat production by province (2009)



Source: CN Grain

Government officials have also come forth in recent days to emphasize that national wheat reserves stand at healthy levels and that China’s impact on international prices is likely to be minimal. China’s Foreign Ministry spokesman emphasized that the nation has had seven successive years of bumper harvests and stocks are sufficient to meet domestic demand. Meanwhile, the director of the State Administration of Grain emphasized that the total international trade in grains amounts to 40% of China’s annual consumption, and thus large-scale imports were "unrealistic" in the context of a tight global market.

A tight global wheat market, but China plays a limited role

Largely as a result of last summer’s Russian drought, global wheat production is expected to decline 5.5% in the 2010/2011 marketing year, according to USDA estimates. Reflecting production constraints in Russia and elsewhere, international wheat futures rose 46.7% in the 2010 calendar year. In the year-to-date, international wheat prices have increased by 5.5%, with China’s drought attracting investor attention as the latest natural disaster to affect a major wheat-growing region. However the USDA’s 2010/2011 global production forecast of 645 million tons remains unchanged, since stronger wheat output in certain regions is expected to offset shortfalls in others.

Despite severe floods in Australia, wheat production forecasts by the Australian Bureau of Resource and Agricultural Economics (ABARE) put this crop year’s output at close to last year’s record level (which rose 20% to 26.3 million tons from the 2009/2010 level). That said, the global wheat supply is expected to remain tight in light of the ongoing export ban in Russia and poor weather conditions surrounding the US winter wheat crop.

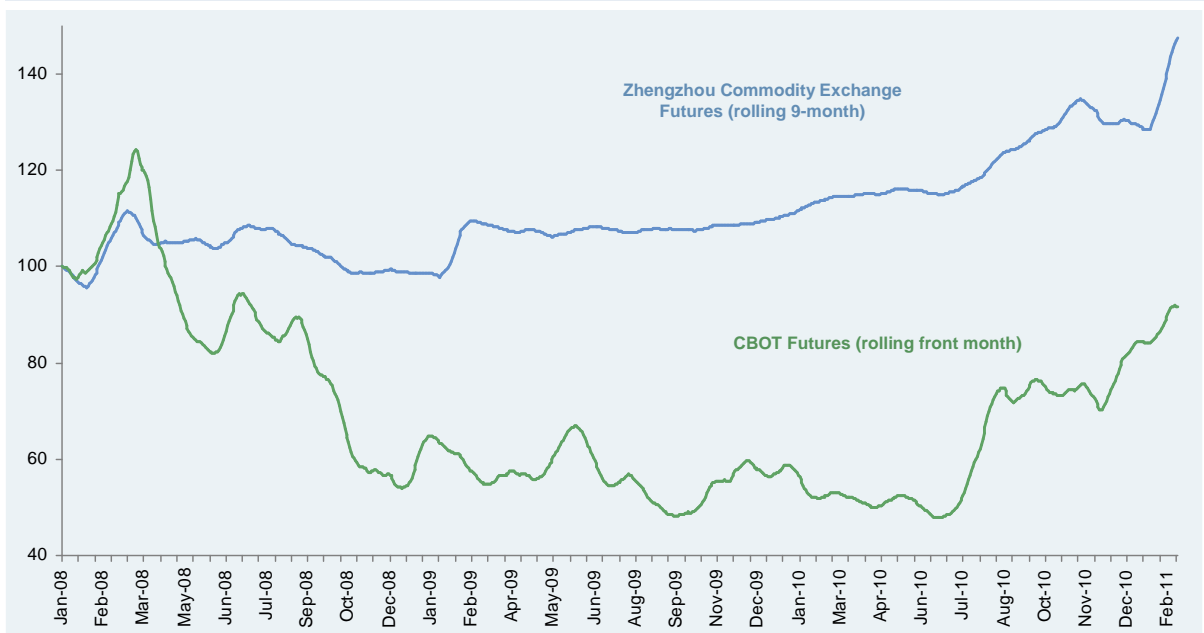
High corn prices encourage imports of feed-quality wheat

In January, COFCO, China's largest food industry conglomerate, reportedly imported 150,000 tons of feed wheat from Australia, for March/April delivery, at approximately US\$5.7 per bushel. Approximately 11% of China's wheat consumption is related to animal feed, which is of a lower quality than exchange-traded wheat (currently quoted at \$8-8.50 per bushel). According to ABARE estimates, half of the New South Wales wheat crop or around 5 million tons may be downgraded to feed quality as a result of adverse weather. Since corn prices have surged due to global supply tightness and ethanol production continues to account for roughly one-third of US production, we might expect increased feed substitution from corn into wheat. Analysts from both the International Grains Council and research firm Beijing Orient Agribusiness Consultant expect that China may import 2-3 mn tons of wheat this year under current conditions, representing 1.9-2.8% of Chinese consumption (vs. 1.4 million tons of imports in 2010). Australian traders have also cited Australian feed wheat potentially displacing other feed grains in Asia and in parts of Europe.

Impact on inflation

The recent runup in wheat prices (by observing the most widely held wheat futures contract on the Zhengzhou Commodity Exchange – see Figure 3) accelerated in the beginning of February due to CNY effects, but has continued to rally. These changes, however, have not been fully reflected in retail prices yet, as flour prices, tracked by the MOF, increased only 0.2% in the week ending 2/13, and was flat one week prior.

Figure 3: ZCE and CBOT wheat futures prices (1/1/2008 = 100, 15 day moving average)



Source: J.P.Morgan, Bloomberg

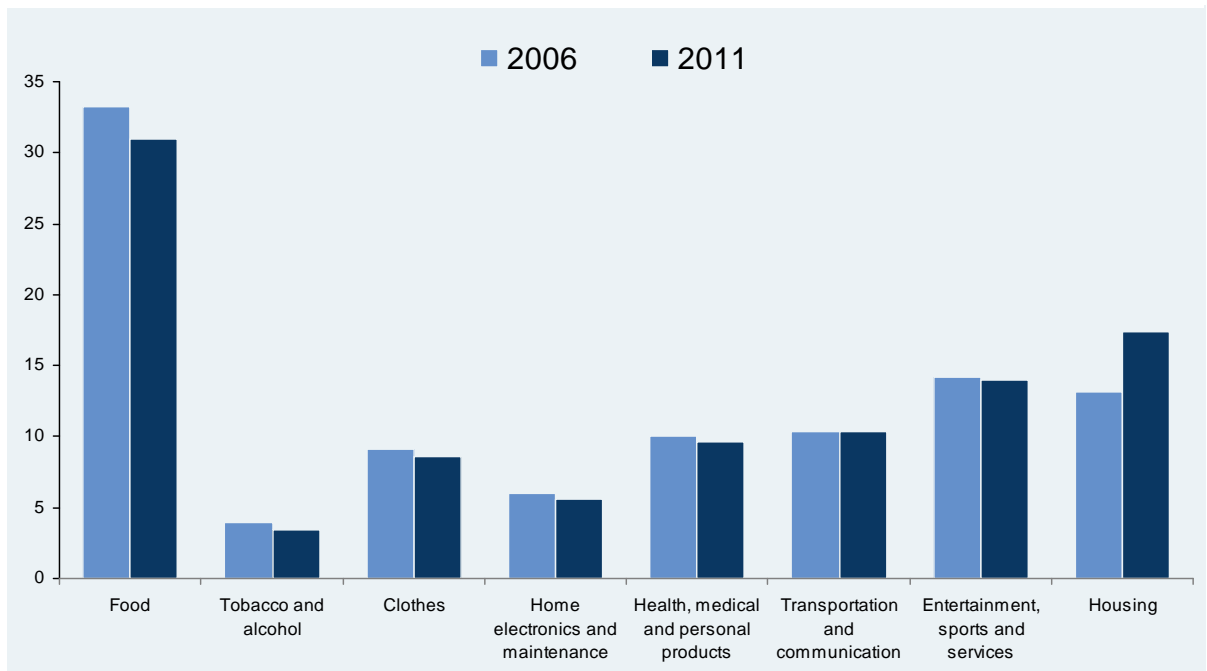
As indicated in the January CPI data, food prices in China continued to rise after easing in December, gaining 10.3% YoY compared to 9.6% in December. While exchange-traded wheat prices may remain elevated and volatile, we believe that the ultimate impact of higher wheat prices on Chinese inflation will be limited for the following reasons:

- China's CPI basket weightings were adjusted from January, with the food weighting reduced from 33.2% to 31.0% (see Figure 4).
- Despite the likelihood of higher imports, China is likely to remain more than 95% self-sufficient in wheat in 2011. To deter volatility and support farmers' incomes, the Chinese government actively

manages the prices of food grains by conducting reserve auctions or setting minimum purchase prices during bumper harvests.

- Chinese wheat demand is primarily associated with traditional buns and noodles, which generally require lower grades of wheat, as compared to Western wheat-based foods. Prices for wheat futures are generally associated with higher quality wheat, which are in shorter supply.

Figure 4: Revision of China's inflation basket



Source: NBS, J.P. Morgan

Prospect for higher grain imports

During a recent Hands-on China conference call with Colin Carter, chair of the department of Agriculture and Resource Economics at UC Davis, and Kevin Latner, director of the U.S. Grains Council's China office, it was highlighted that globally there is a shortage of high quality wheat, of which the U.S. is the predominant producer. This is evident in the premium of spring wheat over hard red winter wheat in U.S. markets. Despite strong domestic wheat prices, China is not a big player in the wheat market; the more dominant importers are Egypt, Brazil, Indonesia, and Japan. China accounts for about 1/3 of world wheat stocks, but consumes just 17% of global supply. This elevated level of stockpiling is an element of China's efforts to manage food price volatility.

International wheat prices have risen 75% since last summer, while corn prices are up 60%. Unlike wheat, China's corn stocks have been drawn down considerably to a level that was estimated to range from 15mn-30mn tons. Price pressure in the corn market may give rise to acreage competition in the U.S., which might affect the future supply of high quality wheat. Soybean prices, on the other hand, have been less buoyant, since the supply and demand picture has been better balanced.

In Professor Carter's opinion, there is no overall shortage of wheat internationally, and with the wheat market very responsive to price signals, he expected higher prices would result in a bigger crop next year. On the whole, he expressed a bearish sentiment towards the soft commodities complex, finding an overreaction in the wheat and cotton markets in particular.

With China’s soybean imports growing 12.7 times since 1999 to account for ~60% of global trade (see Figure 5), and the country transitioning into a net-importer of corn in 2010 (with volumes amounting to 1.5% of global trade), the two experts expected to see continued growth in soy imports in the years ahead, a modest increase in corn imports (estimates by JCI, a Chinese agricultural research firm, have put the level of corn imports at 5.8 million tons in 2011, compared to 1.5 million tons in 2010), and the continued status-quo of self-sufficiency in wheat.

Figure 5a: China’s net imports of corn (mn tons)

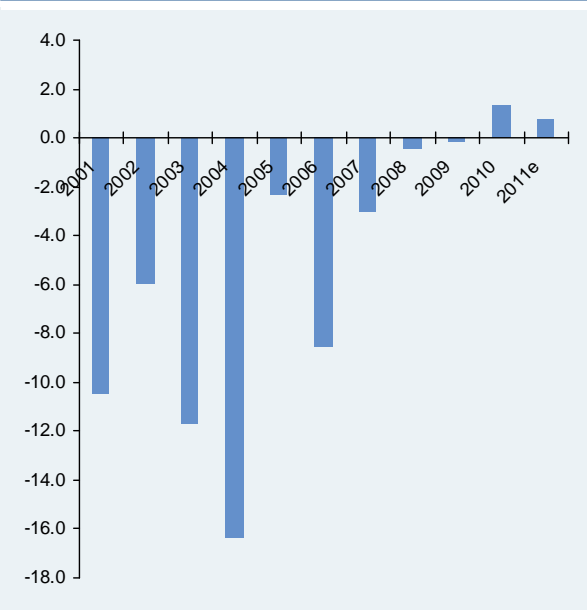
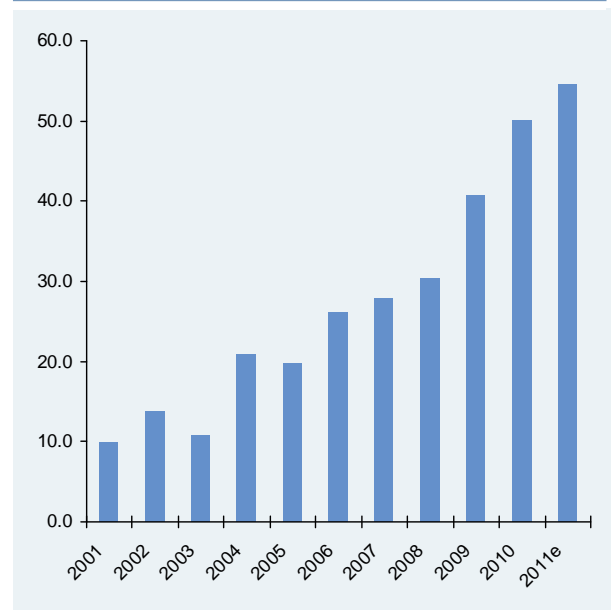


Figure 5b: China’s net imports of soybean (mn tons)



Source: CN Grain January forecasts

During the call, it was also highlighted that several developments on the horizon could improve agricultural yields in China and reduce the need to rely on imports: i) the adoption of more drought-tolerant crops through the use of biotechnology, something that could gradually be embraced in China if supply-demand imbalances increase, ii) improved technologies in irrigation and the completion of massive water transfer projects between Southern and Northern China in the next several years, iii) reforms in water pricing.

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