

HANDS-ON CHINA REPORT August 3, 2012

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Is China Vulnerable to Global Agricultural Risks?

Although drought conditions around the world have brought a sharp rally in grains and oilseeds, China is not as exposed to the jump in prices as more heavily import-dependent nations: i) China is a price-taker in the world soybean market, but the country remains highly self-sufficient in the major grains, ii) China has recorded a bumper summer grain harvest (mainly winter wheat and early-season rice) and according to the US Grains Council, is expected to see its corn harvest increase by 6-10 million tons (3-5%) from last year's record level as a result of favorable weather, and iii) with non-food CPI at just 1.4% in June and a supply upswing occurring in key food items such as pork, near-term inflationary pressure appears under control. The following report examines the extent to which China's domestic food economy will be affected by the global picture.

- **Soaring global grain prices not likely to trigger a spike in domestic inflation.** Despite becoming a net-importer in 2011, China remains 98.9% self-sufficient in corn – unlike the situation with soybeans where imports account for ~80% of Chinese consumption. Food makes up about 30% of China's CPI basket and there is typically a 2-6 month lag before higher agricultural import prices impact domestic households. As a result of China's price support mechanism and self-sufficiency in most grains – as well as a downtrend in domestic hog prices, the rise in global food prices is unlikely to reignite inflation or complicate monetary policy.
- **With the after-tax import price now at a 17% premium to domestic corn, a lower level of corn imports can be expected.** Given the sharp rise in international grain prices since mid-June and expectations for a bumper domestic corn harvest in September, an official with the State Administration of Grain has indicated that it is difficult for China to import corn under present circumstances (*Bloomberg, August 2*). China's grain policy is focused on supply security and price stability. Towards achieving these ends, China has increased its international agricultural investments, is embracing agricultural modernization to improve crop yields and has room to improve feed conversion efficiency in the livestock sector.
- **Soybean-dependent producers are most at risk.** The biggest negative impact is currently being felt by edible oil producers, and by upstream livestock and feed producers who must contend with high input costs at a time of adequate supply. Singapore-based Wilmar International recently indicated that the Chinese government has advised edible-oil producers to avoid raising prices unless absolutely necessary. However, the general upside risk to domestic food prices is not currently as high as in recent years when price controls were imposed on a variety of consumer staples.

The global agricultural commodities rally

This summer's severe drought in the American Midwest and resulting rally in grains and oilseeds is raising concerns about higher food prices around the world, considering that the U.S. is the world's top exporter of corn and second largest exporter of soybeans. The US Department of Agriculture's July 30 crop progress report marked the ninth consecutive week of declining crop conditions,



with only 24% of the corn crop rated in good to excellent condition, compared to 26% a week earlier and 62% a year ago; 29% of the soybean crop was rated good to excellent, down from 31% a week earlier and 60% a year ago. In July, the USDA cut the projected size of this year's corn crop by 12.3% from its June projection and reduced its estimate of the soybean crop by 4.8%. Elsewhere, heat waves in Southern Europe and the delayed monsoon in India have added to concerns about the global crop outlook.

Since mid-June, corn and soybean futures have risen 60% and 29%, respectively, to USD8.05/bu and 16.26/bu. Although scattered rain last week in the north and east of the U.S. farm belt provided some relief and precipitation forecasts for the first half of August have improved, J.P. Morgan's commodities research team does not expect a significant increase in corn yields since the pollination period is drawing to a close; in comparison, the most sensitive period for soybean yield determination falls between late-July and late-August. As such, JPM's commodities team has recently lowered its 2012/13 US corn production estimate by 8.3% to 11,453 million bushels and reduced forecasts for the 2012/13 US soybean crop by 7.5% to 2,804 million bushels. Corn prices are expected to trade at USD8.25/bushel on average in 2H2012, while the soybean price forecast has been raised by 11% for 2H12, and by 7% for 1H13, to USD16.8/bushel and US\$15/bushel, respectively.

Figure 1a: Major exporters of corn: 2011/12 ('000 metric tonnes)

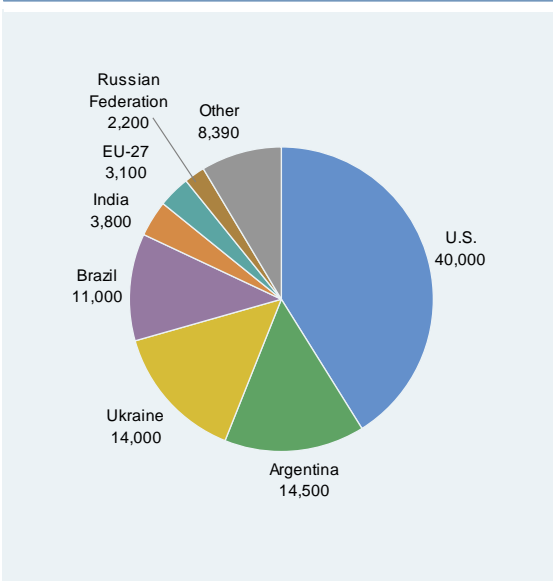
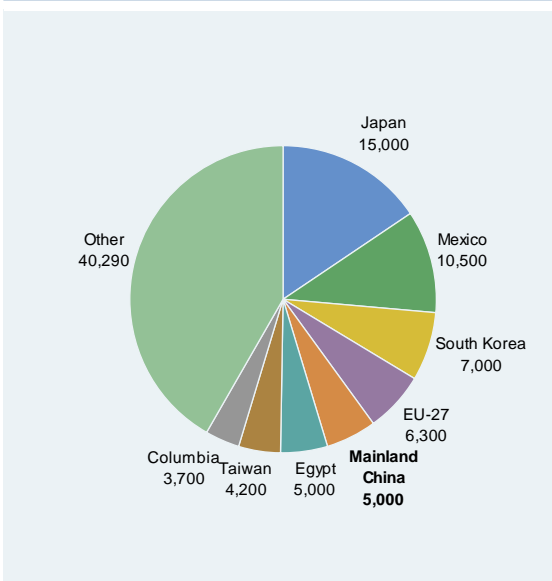


Figure 1b: Major importers of corn: 2011/12 ('000 metric tonnes)



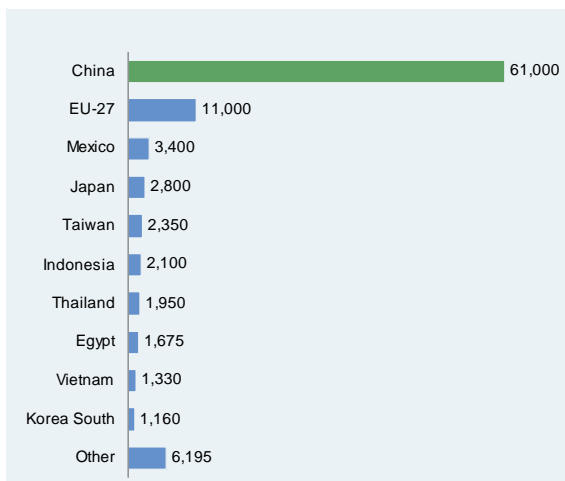
Source: USDA Economic Research Service

How does China factor into this picture?

As a result of an increasingly meat-centric diet, China's imports of soybeans have grown by a compound annual rate of 23% since 1999. As Figure 2 shows, China imports a higher volume of soybeans than the rest of the world combined and will buy about 64% of globally traded soybeans in Q1-Q3, or a record 57.5 million tons, according to USDA data. Demand for soybean crush accounts for 85% of domestic consumption and has accounted for more than 90% of the increase in Chinese soybean demand since 2006. Meanwhile, the country has emerged as a net-importer of corn in 2010 and 2011 after 14 years of self-sufficiency. Feed-related demand for corn has been augmented by growing demand from the industrial sector, which now accounts for 30% of domestic demand compared to 28% in 2006/7.

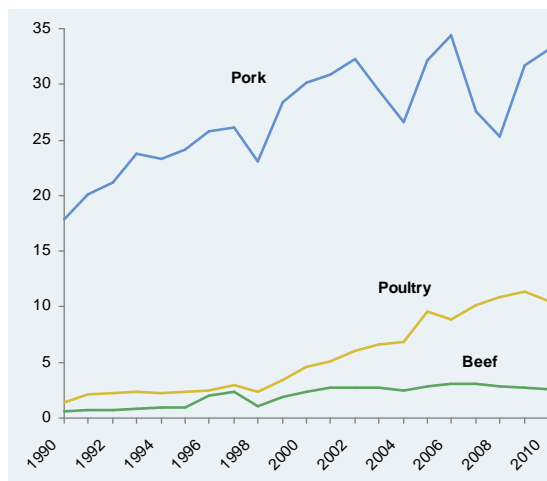


Figure 2a: World's Largest Soybean Importers 2012/13



Source: USDA Foreign Agricultural Service

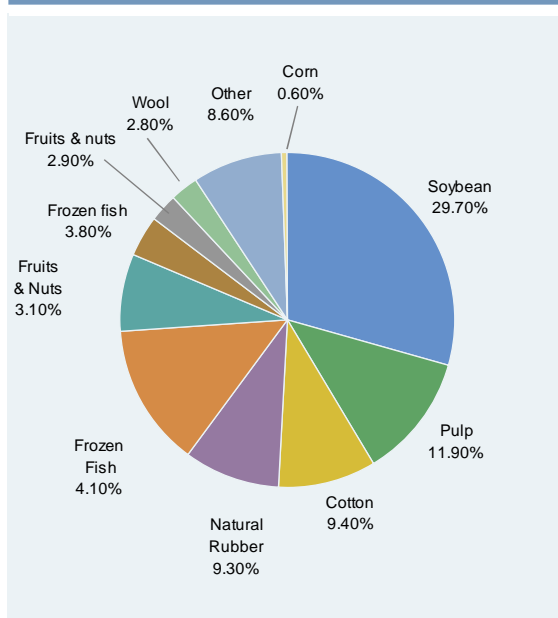
Figure 2b: Sales per capita of meat products (Kg)



- The shift towards modern livestock production has boosted soy demand.** The proportion of soybean meal used in Chinese feed mix has gradually risen in the last decade as farmers have increased the protein content of livestock feed. Most of China's meat is produced by small farmers, with modern hog operations accounting for only about 30% of the country's pork production. Since modern hog farms typically use higher concentrations of soybean meal in their feed, the policy-supported transition towards larger operations has also boosted demand for soybeans. Imports from the U.S. accounted for 42.5% of China's total soybean imports in 2011, while Brazil, the second-largest supplier accounted for 39.2% of imports and Argentina accounted for 14.9%.
- China's reliance on imported corn is still limited.** Although the recent shift towards net-imports of corn has garnered much attention, China's reliance on imported corn remains limited and is unlikely to follow the dramatic trajectory seen in China's soybean trade starting in the mid-1990s, when the country's self-sufficiency fell from 94% to 50% in the span of five years. As Figure 3 shows, China was still 98.9% self-sufficient in corn last year, but relied on imports for about 80% of its soybean consumption. In terms of the two main food grains, China's supply and demand balance for wheat can be erratic but is usually in approximate balance, while rice is exported on a net basis in most years. That said, high domestic grain prices turned China into a net importer of corn, wheat and rice in 2011 and 1H2012 before the start of the global grain price rally.

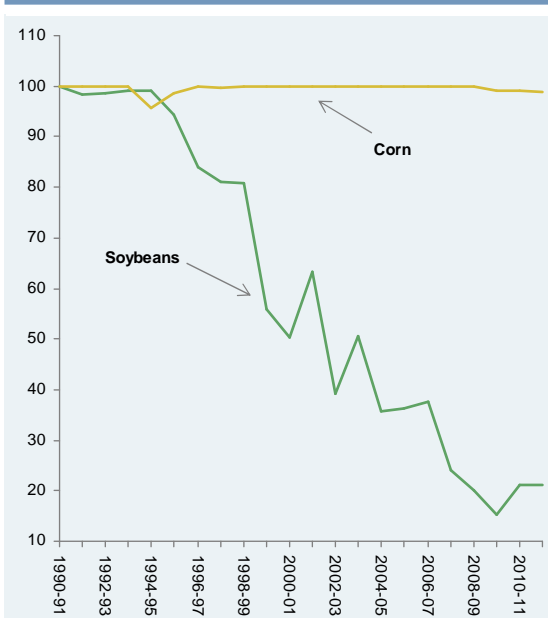


Figure 3a: China's Major Agricultural Imports



Source: USDA Economic Research Service, CEIC, J.P. Morgan estimates

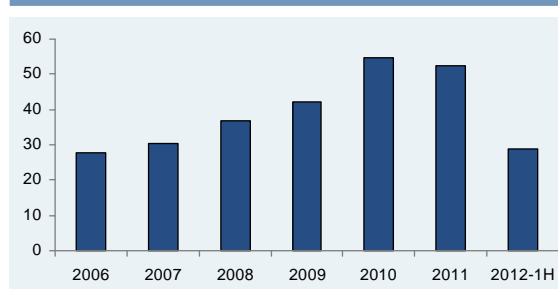
Figure 3b: China's self-sufficiency in soybeans & corn (%)



- **YTD: strong rise in grain imports before recent rally.** In the first half of 2012, China's total grain imports increased 41% YoY to 40.85 million metric tons, out of which soybeans accounted for 29.05 million tons (+22.5% YoY), while corn and wheat imports respectively amounted to 2.4 million tons (+6,535%) and 2.2 million tons (+294.9%). The sharp rise in imports was supported by bargain-driven purchases when grain prices declined during the second quarter. In 1H12, the volume growth in China's grain imports outpaced the growth in imports by value, suggesting that average import prices declined on a year-over-year basis.

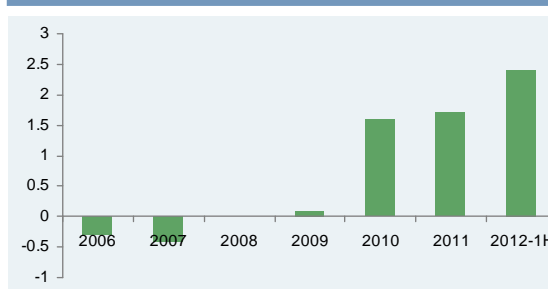
In June, corn imports reached a five-month high of 528,600 tons, while soy imports reached a seven-month high of 5.6 million tons. Given the sharp rise in international grain prices since mid-June and expectations for a bumper domestic corn harvest in September, it is possible that China's pace of imports will slow in the next several months. Indeed, some news reports in recent weeks have suggested that Chinese buyers have been taking profit on soybean and corn purchases made earlier in the year, which had not yet been exported from the U.S..

Figure 4a: Soybean net imports (million metric tons) 2006-2012



Source: Bloomberg

Figure 4b: Corn net imports (million metric tons) 2006-2012

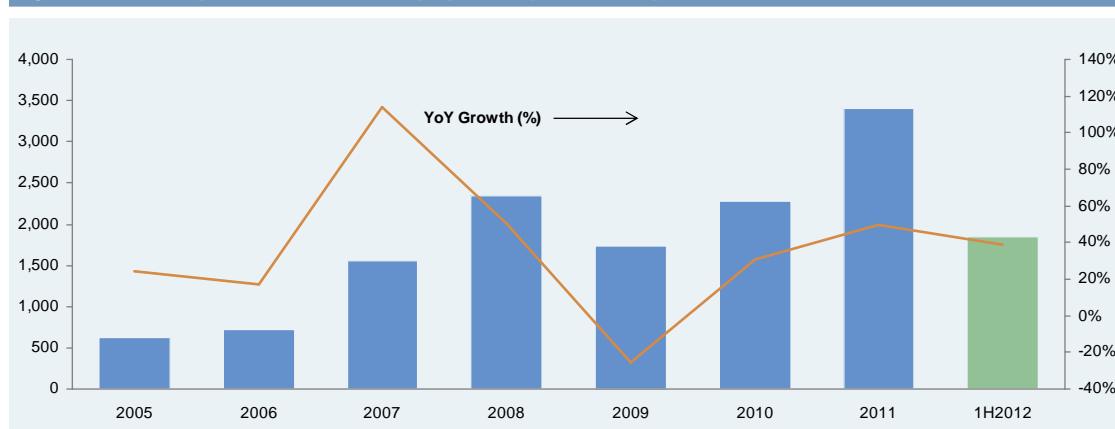


- **A setback for exporters.** According to the USDA, this year's planted area for corn was the highest in 75 years, while the planted area for soybeans was the third-highest on record. Prior to



the onset of the U.S. drought, a major corn surplus had been expected for the 2012/13 season. In its June production report, the USDA estimated a 19.7% increase in U.S. corn production over the 2011/12 season to 375.7 million metric tons; however by July 11, this estimate had been revised down to 329.5mmt or only a 4.9% increase. A sharp increase in production implied fundamentally cheaper corn and high expectations for U.S. exports of corn to China in 2012, as well as exports of meat (China's meat imports rose 50% YoY in 2011 – see Figure 5). As such, the deterioration in the U.S. crop outlook has been a major setback for U.S. meat producers, who must cope with higher feed costs and price-sensitive domestic consumers on top of a worsening export outlook.

Figure 5: China's imports of meat and meat preparation (USD millions)



Source:CEIC

China's exposure to global grain prices

As one would expect, the rally in grain and oilseed prices this year has increased cost pressures for food processors, with the biggest impact being felt by highly soybean-dependent operators in the feed and livestock industries. As a result of China's price support mechanism and high degree of self-sufficiency in most grains, domestic grain consumers are shielded to a degree from extreme price swings in the international market, except in the case of soybeans where more than 80% of consumption is met by imports.¹ Still, according to J.P. Morgan consumer analyst Jessica Hong, the domestic soybean price has exhibited a relatively high degree of correlation to CBOT prices: 76% in the period since 2007 and 81% in the year-to-date. In comparison, the domestic corn price has a correlation of 72% against the international price since 2007, but only 28% YTD.

¹ Soybeans are classified as grain in China – imports are almost entirely comprised of approved GMO varieties, whereas the domestic soybean crop is non-GMO

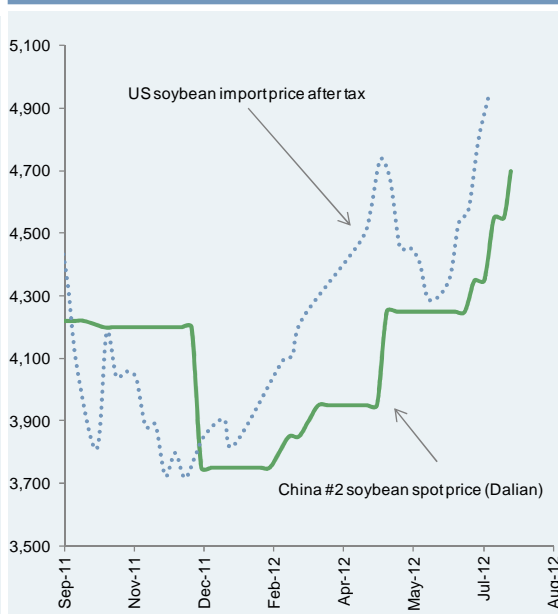


Figure 6a: Domestic vs. import prices for corn (RMB/ton)



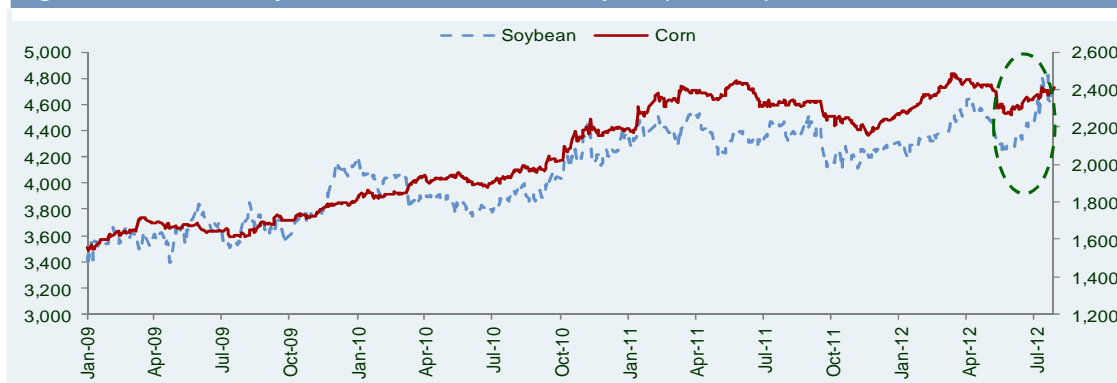
Source: Bloomberg, CNGRAIN.com

Figure 6b: Domestic vs. import prices for soybeans (RMB/ton)



As Figure 7 shows, the main soybean and corn contracts on the Dalian commodity futures exchange have increased since mid-June in response to the weather-induced rally in international grain prices. However, domestic prices have appreciated more modestly than global prices – soybean prices have increased by 10% while corn has gained only 4.9%.

Figure 7: Main Dalian soybean & corn futures contract price (RMB/ton)



Source: CEIC

Bumper domestic grain harvest expected

According to the National Bureau of Statistics, the output of summer grain (mainly winter wheat and early-season rice) reached a record 129.5 million metric tons, or 2.8% higher than last year's output. According to the Chinese agricultural research firm Shanghai JC Intelligence, good weather in China's corn growing regions is likely to result in improved yields this year and a bumper September harvest. Weaker demand from the corn processing industry should also help reduce pressure on supplies. Both the USDA and the China Grain Reserves Corporation are projecting an uptick in corn production (+3.6% and +2%, respectively) this year. Soybean output, however, is expected to decline to 12.6

million tons according to USDA, with the import dependency ratio rising from 80.8% to 83.1%. As Figure 8b shows, China's wholesale agricultural product price index declined significantly in the May-June period due to healthy supply conditions.

Figure 8a: China's summer grain output

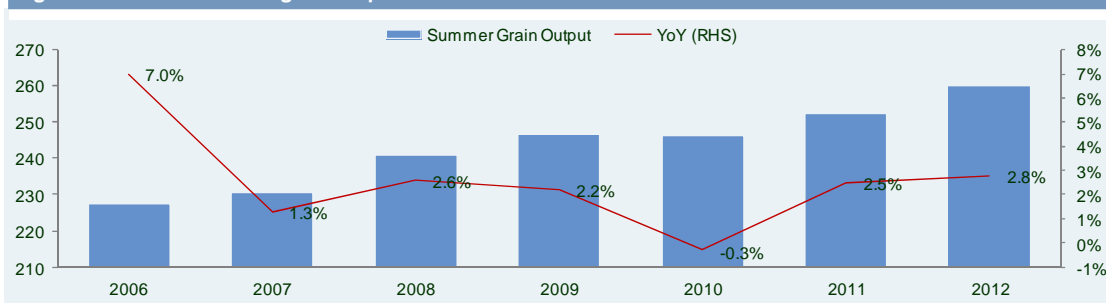
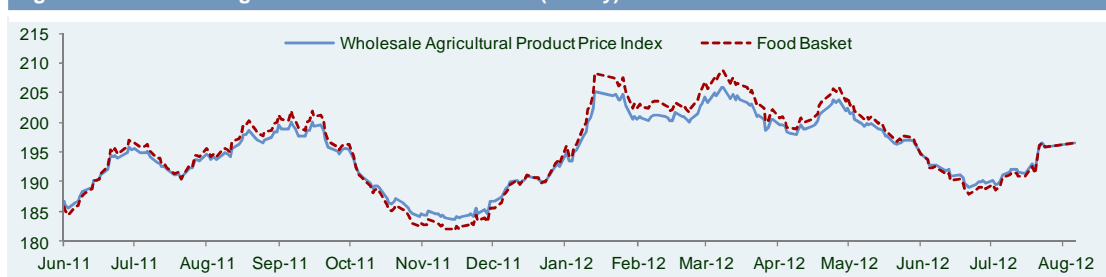


Figure 8b: Wholesale Agricultural Product Price Index (weekly)



Source: CEIC

Despite a healthy production outlook and rising imports, the domestic inventory picture is one of declining stocks-to-use levels for both soybeans and corn. J.P. Morgan's commodities research team expects the level of stocks-to-use for soybeans to decline from a high of 81.2 days in 2009 to 58.5 days in 2012/13. For corn, the level of stocks-to-use is projected to decline to 40.3 days in 2012/13, from 71.6 days in 2009. J.P. Morgan's estimates for Chinese corn stocks differ substantially from the USDA – which has projected 2012/13 ending stocks of 105.1 days based on official Chinese statistics. J.P. Morgan analysts Pierre-Henri Dietz and Elizabeth Volynsky argue that U.S. export data, Chinese corn prices and anecdotal evidence all suggest that Chinese official ending stock figures are likely overstated.

Figure 9a: Soybeans: stocks-to-use levels in days



Figure 9b: Corn: stocks-to-use levels in days



Source: J.P. Morgan commodities research by Pierre-Henri Dietz; USDA View from July 2012 USDA Revision

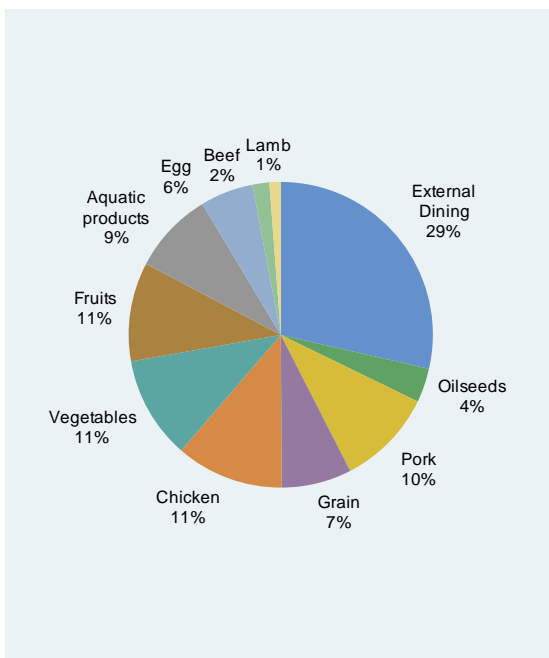
Implications for domestic food industries and CPI

Figure 10a: Hog-to-feed ratio since early 2011 (weekly data)



Source: CEIC, NBS; Hog-to-feed breakeven threshold at 5.5

Figure 10b: most of the CPI food basket is affected by rising corn/soybean prices



Although CPI inflation in China has been on a downtrend since March, the potential for imported agricultural price inflation is of some concern, considering the decisive shift towards monetary easing in recent months. Food makes up about 30% of China's CPI basket and there is typically a 2-6 month lag before higher agricultural import prices impact domestic households. With the spot price for Dalian soybean meal increasing 33.5% and the spot corn price rising 5% since early June, some domestic media reports have recently suggested that feed mills are having a hard time passing on rising costs to hog producers (who are facing margin pressure and declining hog prices this year). As Figure 10a shows, the domestic hog-to-feed ratio has reached its lowest level mid-2011. As a guideline, it is generally believed that pork producers stand to lose money when the ratio falls below a level of 5.5.

At times of high corn prices, Chinese feed mills and livestock farms often shift to using feed-grade wheat as a substitute. Losses may also encourage farmers to reduce production, which sets the scene for another cycle of hog price volatility. High corn and soybean prices may also have an impact on other components of food CPI, such as edible oil and external dining. However, with non-food CPI at just 1.4% in June, the near-term inflationary impact of agricultural commodity prices is unlikely to affect the government's current policy stance. J.P. Morgan China economist Haibin Zhu expects headline inflation to fall below 2% in the third quarter.

Impact on consumer staples

As mentioned, the biggest negative impact will be felt by upstream livestock and feed producers, since they must contend with high input costs at a time of excess supply. However, fundamentals might improve in the third quarter if the National Week/Mid-Autumn holiday season stimulates higher meat consumption.



Considering that China is 95-100% self-sufficient in rice, wheat and corn, with prices quasi-controlled by the government, J.P. Morgan's consumer staples analyst Jessica Hong does not believe that margin pressure from rising raw material costs is a major concern for companies such as Tingyi (322 HK, N) and UPC (220 HK, UW), for whom wheat flour and palm oil account for 5% and 7% of COGs, respectively (18% and 13% of COGs, respectively, for instant noodles). On balance, the likelihood of higher advertising and promotions spending is seen as the greater risk for consumer staples. Jessica Hong has lowered 2012 earnings estimates for China's largest pork processor, China Yurun Food (1068 HK, UW), since the company is substantially impacted by increasing corn and soybean prices (hog prices account for 97% of the cost for upstream products).

J.P. Morgan analyst Ying-Jian Chan believes that the Chinese government's recent request that cooking oil manufacturers not raise prices, negatively impacts Wilmar (WIL SP, N) at both the Oilseeds & Grains level as well as at the Consumer Products level, since the vertically-integrated company will need to continue crushing soybeans (despite rising costs) in order to maintain its market share. Sustained high soybean prices in the remainder of the year would imply a further 24% downside to Wilmar's consensus earnings estimates. In contrast, the impact on China Agri (606 HK, OW) is less direct, since branded cooking oil is distributed by China Foods (506 HK), which the company supplies to at arm's length on wholesale pricing. Although there is some downside risk to wholesale soybean oil pricing, Ying-Jian Chan believes this is sufficiently reflected in the share price (currently trading at 0.7x P/B).

Agricultural policies

China's price-support mechanism for grain

To encourage grain production by farmers, China introduced a minimum price procurement program for rice in 2004, which by 2009 had been extended to wheat, corn, soybeans and rapeseed. Under the program, the state-owned China Grain Reserves Corporation (Sinograin), is obliged to purchase grains at the minimum price set by the National Development and Reform Commission (NDRC) and Ministry of Agriculture (MoA) when the market price dips below the established support level. These purchases are government-subsidized (funded by the Agricultural Development Bank of China) and are later auctioned off at a higher price than the minimum price incurred.

In 2010, the government also authorized COFCO, China Logistics and Chinatex to participate in the purchasing program, but this year decided to reinstate Sinograin as the sole purchaser. This decision followed reports of grain hoarding, where designated buyers received subsidies for the costs of purchasing and storing grain, but delayed auctions until there was a strong level of price support. Because local market fragmentation and misaligned incentives have been a problem for the government's price-support mechanism, the State Council issued a draft grain law this February, which aims to clarify the roles and responsibilities of different administrative departments in managing grain production.

Promoting grain production

Because of consecutive increases in domestic grain output since 2003, China did not experience major shortages during the 2008 global food crisis (when droughts in major grain production nations, a poor Russian wheat harvest and export bans resulted in global price shocks and supply disruptions). However, domestic agricultural prices appreciated in 1H2008 (with notably increases in the prices of vegetables, soybeans and edible oil), during which food inflation peaked at 23.3% in February.



In response to concerns about the stability of food prices and grain output, the State Council announced a ~5% increase to its RMB562.5 billion agricultural budget in March 2008, pledged to release grain reserves when prices increase rapidly and attempted to reduce logistics costs by exempting perishable agricultural products from toll fees. In its recent agricultural policy, China's Ministry of Land and Resources has set a "red line" to guarantee that the nation's arable land remains above 1.8 billion mu (120 million hectares), with 1.6 billion mu dedicated to crop cultivation. The MoA is targeting an 8% increase in grain production capacity by 2015 from 2010 levels and has kept unchanged its 95% grain self-sufficiency rate target. The MoA has targeted an annual grain capacity of more than 540 million tons in the 12th Five-Year Plan [2011-2015], compared to around 500 million tons in 2010. Detailed minimum inventory levels for provincial-level grain reserves have also been specified, with the main producing regions in northeastern China required to maintain at least 3-months of sales inventory, while other regions must maintain at least 6-months of inventory.

Grain security and self-sufficiency

China's policy with regard to grain is focused on supply security and price stability. The following variables are key towards achieving these ends:

- **International agricultural cooperation.** China has been inking agricultural cooperation agreements with major grain producers worldwide to improve the security of its supply. During his trip in June to Argentina, Premier Wen signed a series of mostly farm-related agreements and met with Argentine agricultural officials and executives. Agriculture accounted for about one-third of the two countries' USD14.8 billion in bilateral trade in 2011. Argentina is the world's leading exporter of flour and soy oil, third largest soybean exporter, and number two corn exporter. According to recent media reports, China may soon start importing Argentine corn, which has been banned because certain genetically modified strains were not previously approved by Beijing.

In late-June, China's Eximbank signed an MOU with Ukraine's Agriculture Ministry, under which Eximbank will extend a USD3 billion loan for a set of projects in Ukraine's agricultural sector (the loan was issued for 15 years with an annual interest rate of six percent), in return for which Ukraine takes an obligation to supply China with 2-2.5 million tons of corn to China annually. China has also entered into agricultural pacts with countries in Africa, Brazil, Australia and Russia to replenish its reserves, according to the U.S. Grains Council.

- **The extent to which China improves crop yields and embraces genetically modified crops.** A simple comparison of yields in China vs. the U.S. indicates that China's corn yields are about 57% of the yield in the United States while soybean yields are about 61% of US yields. Since these are relatively low-yielding crops in China, considerable policy incentives must be in place to encourage farmers to grow these grains instead of more profitable alternatives. Crop yields are a function of the nation's agricultural resource endowment, but also seed quality, crop science, irrigation, and farmer incentives.



Figure 11: Average crop yields in the last 5 years (Mt/Ha)

	Wheat	Corn	Soybeans
U.S	2.95	9.65	2.83
China	4.74	5.46	1.72

Source: USDA

At present, approval for commercial production of genetically modified (GM) foods only applies to tomatoes, papayas and bell peppers. After years of anticipation, some agribusiness executives expressed hope earlier this year that commercial production of GM corn and rice might soon be approved. However, this now seems like a less imminent prospect since the draft Grains Law legislation released in February stated that “neither group nor individual may apply genetically-modified technologies to staple foods.”

- **The extent to which China improves feed efficiency.** At J.P. Morgan’s China conference, Ismael Roig, Asia Pacific President at Archer Daniels Midland noted that there are considerable obstacles to changing China’s agricultural supply equation, especially considering the high degree of land fragmentation. China currently has a population base of more than 300 million people in the rural sector, producing roughly the same amount of grain as the U.S., where only 300,000 people are involved in agriculture. That said, there is considerable opportunity for improvements in animal husbandry. China’s feed efficiency ratio is currently 3:1 compared to 2.6:1 in Western agriculture, suggesting potential efficiency improvements of ~15%. In theory, such improvements in the upstream meat production segment could return China to a state of self-sufficiency in corn. Mr. Roig noted that the most compelling investment opportunities in China’s food economy are in the food processing segment linking commodity producers to branded goods producers.

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