



Dragon shift

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When the biggest nation building ends

Our previous INCH reports



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Dragon shift

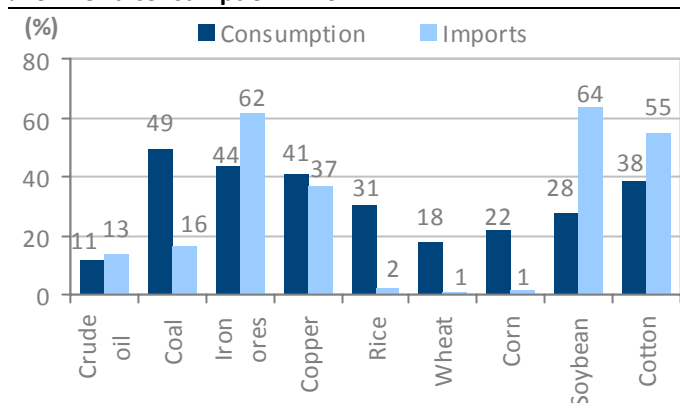
Chinese consumption of industrial commodities is set to decelerate sharply as the country enters a slower growth stage. We expect China's steel consumption to enter a phase of multi-year negative growth from 2013, a drastic turn from the double-digit growth of the past decade. Consumption growth for refined copper is expected to soften from double digits to 2% annually and for oil from 7.7% to 4%, going ahead. This would materially soften global prices of iron ore, coal and copper as China is a major consumer/importer of these commodities. Within soft commodities, China is a large importer of soybean, prices of which are expected to firm up.

The world's biggest nation building exercise ends: Ten years under President Hu and Premier Wen can perhaps be termed as the biggest nation building exercise in history. Between 2002 and 2011, China accounted for 23% of incremental world GDP and 46% of incremental global investment. As a result, China accounted for more than 30% of incremental imports of both non-fuel minerals and non-food soft commodities. As China's annual GDP growth slows down from more than 10% in the past decade to an expected 6-8% going ahead, its consumption of industrial commodities such as steel, coal, copper and oil is expected to decelerate significantly over the next 2-3 years.

China is self sufficient in food: China's imports of major grains account for less than 2% of world trade and 1% of China's total consumption. As China's per capita food consumption is close to some developed countries and the population is aging fast, growth potential here is rather limited. Similarly, China's per capita meat consumption has already exceeded that of the US. China will remain a large importer of soybean but its cotton imports are expected to reduce.

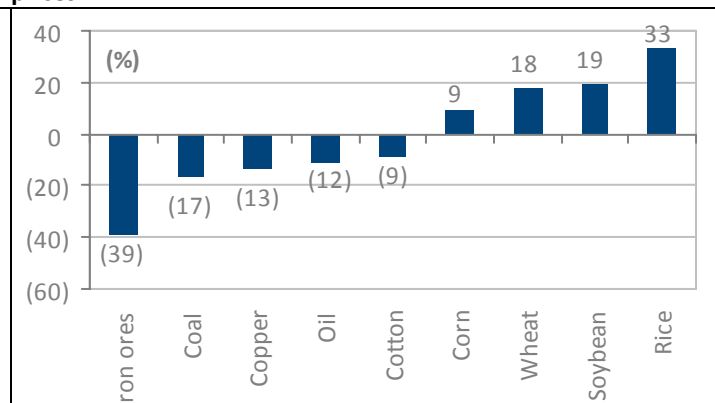
Price downside for hard commodities, upside for soft: Peak prices of oil, coal and iron ore in the current cycle (2002-2012) are higher than those in the previous cycle (1960-2002) in real terms. In contrast, peak prices of soft commodities in the current cycle are much lower than in the 1970s, the previous period of food crisis. Based on the level of vulnerability to China's slowdown, there is still downside risk to prices of iron ore, coal, and copper. But prices of food commodities could have a sizable upside, though the China factor is rather minimal, except for soybean and cotton.

China's import and consumption of select commodities as % of world consumption in 2011



Source: UN Comtrade, BP, USDA, ICGS, WSA, IIFL Research

12-month target upside/downside from September 2012 prices



Source: World Bank, IIFL Research

The world's biggest nation building exercise ends

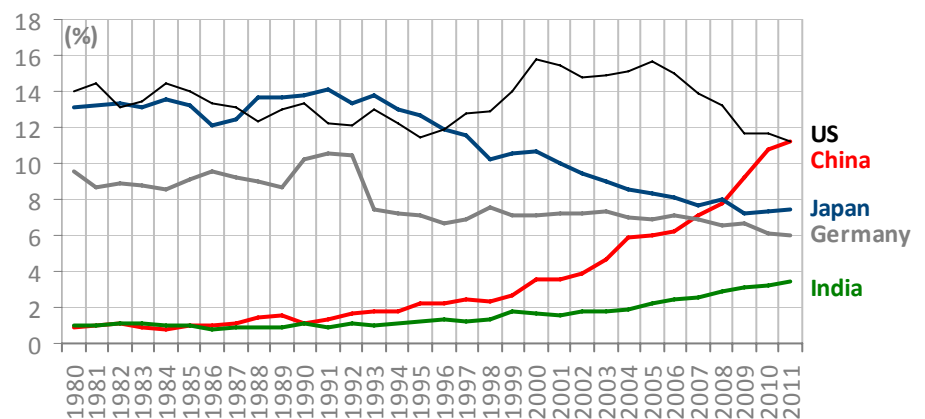
In 2011, China's imports of non-fuel minerals and non-food soft commodities accounted for more than 20% of the total global imports. Over 2002-2011, China's incremental imports as a percentage of these two category of imports were more than 30%. On the other hand, China's influence on world trade of fuel and food products is more moderate.

Predominant player for non-food soft commodities and non-fuel mining imports

In 2011, China replaced the US to become the world's largest commodities importer (See Figure 1). In 2002, the year before President Hu Jintao and Premier Wen Jiabao assumed office, the US commodities imports were 3.8x of China. In 2011, China's commodities imports, including soft commodities, fuel and other mining products, reached US\$661bn (See Figure 2), slightly ahead of the US. This was 12x of 2002 and 43x of 1992, the year of Deng Xiaoping's Spring Speech marked the beginning of full-fledged market-oriented reforms.

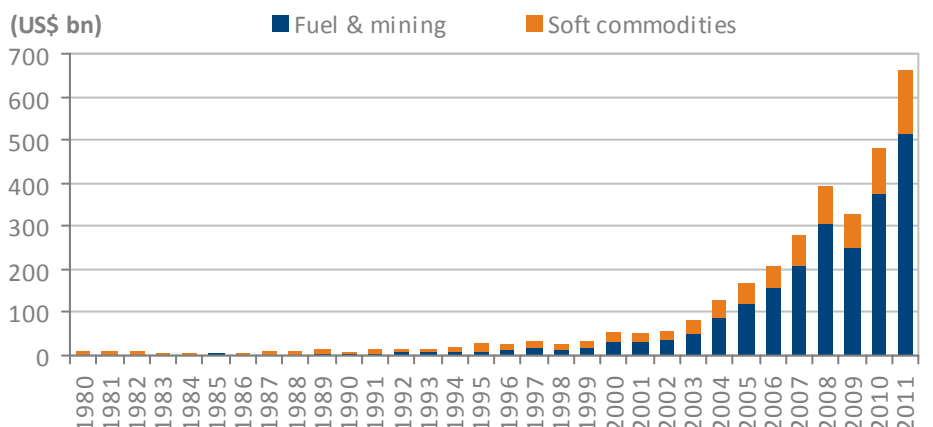
In 2011, China replaced the US to become the world's largest commodities importer

Figure 1: Commodities imports as % of world imports



Source: WTO, IIFL Research; Note: India was the 7th largest commodities importer in 2011 next to Korea, Netherlands and the other four countries appeared in the chart.

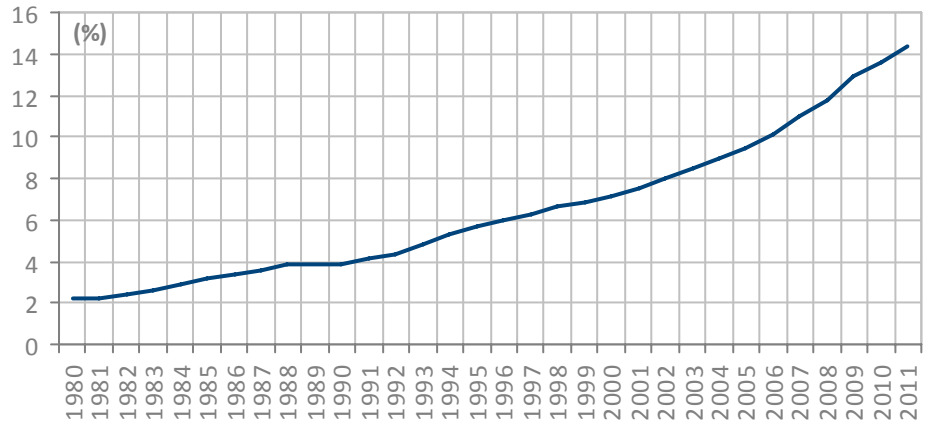
Figure 2: China's commodities imports



Source: WTO, IIFL Research

The rise of China's commodity imports in world ranking is the result of faster economic growth. China's GDP as a percentage of global GDP measured in terms of Purchasing Power Parity (PPP) increased from 8% in 2002 to 14% in 2011 (See Figure 3).

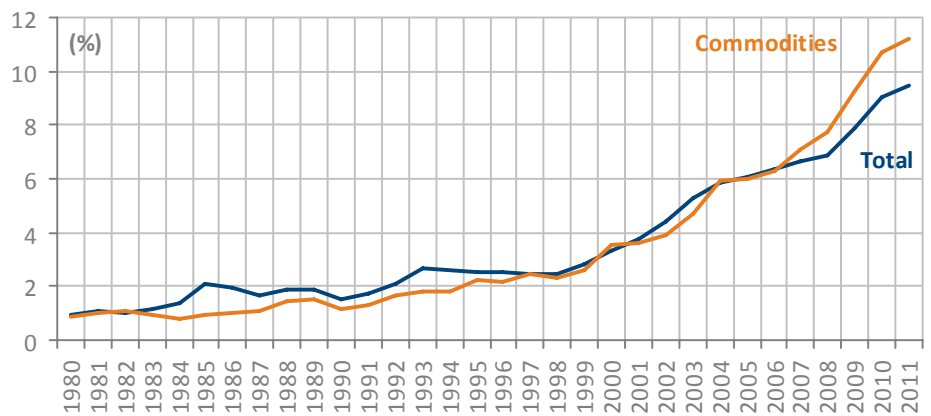
Figure 3: China GDP as % of world GDP (in PPP)



Source: IMF, IIFL Research

Besides the overall size of the economy, China's economic structure has led to its role in world commodities trade being even bigger. The market share of China's commodities imports has started to outpace its overall imports since 2006 (See Figure 4), which reflects that the intensity of China's commodities use has accelerated in the past few years.

Figure 4: China's imports as % of world total imports



Source: WTO, IIFL Research

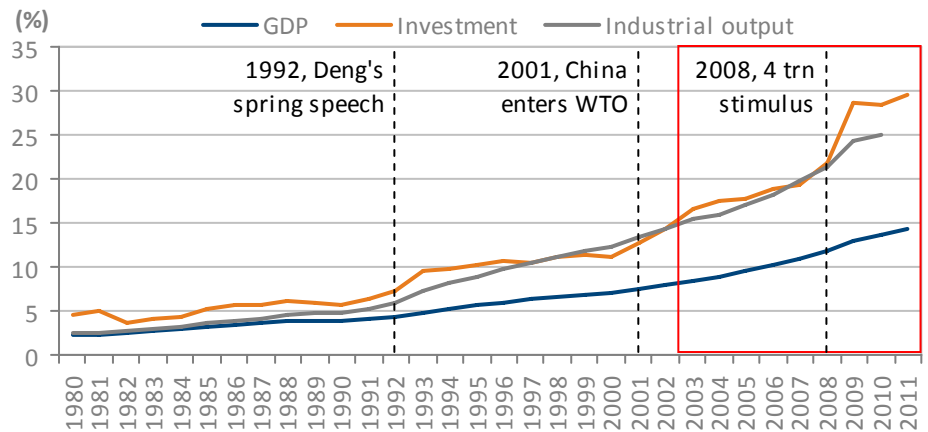
This is because China's economic structure is skewed toward industrial and investment, which has been reinforced even in the past few years.

From 2002 to 2011, China's share of global investment increased from 14% to 29% and its share of industrial output increased from 14% to more than 25% (see Figure 5).

From 2002-2011, China's incremental investment and industrial output accounted for more than 40% of world total

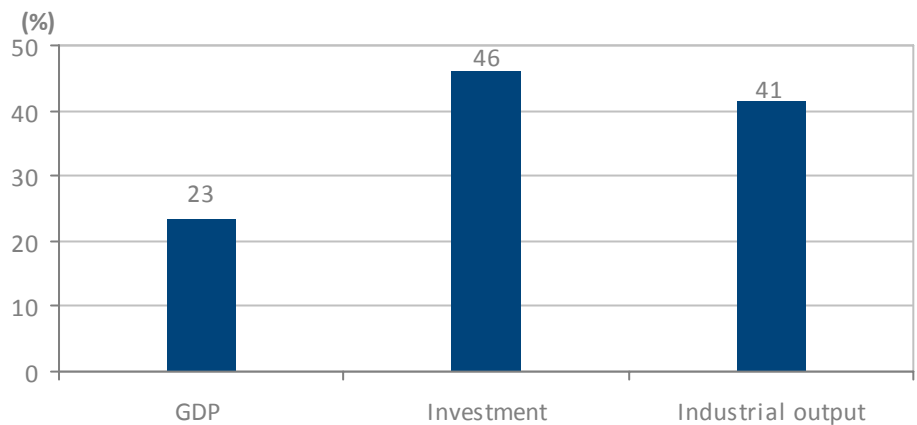
The dominance of China's investment and industrial output is even more striking if we look at incremental values. From 2002 to 2011, China's incremental GDP accounted for nearly a fourth of world's incremental GDP measured in PPP terms, whereas China's incremental investment and industrial output accounted for more than 40% of the world total during the same period (See Figure 6).

Figure 5: China's GDP, investment and industrial output as % of world total (in PPP terms)



Source: IMF, UN, IIFL Research; Note: the red box indicates the period of Hu and Wen administration

Figure 6: China's incremental value as % of world from 2002-2011 (in PPP)



Source: IMF, UN, IIFL Research; Note: Industrial output is from 2003 to 2010

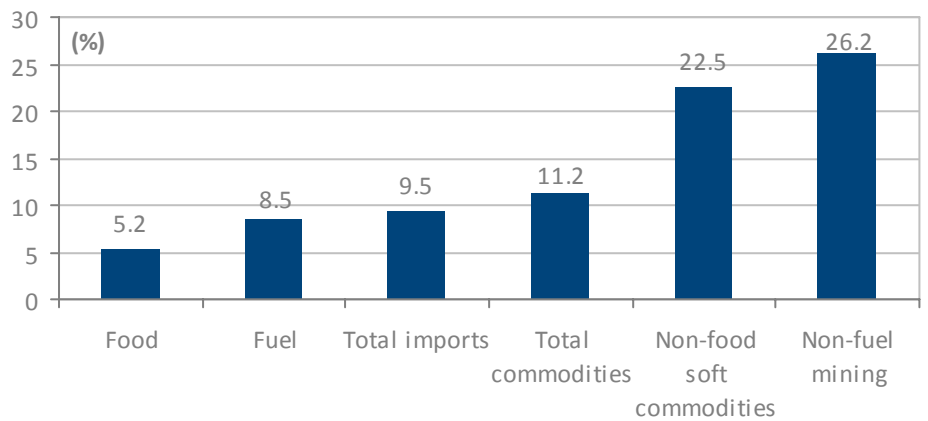
Not surprisingly, dominance of China's investment and industrial output led to the country's dominance in construction and industrial-related commodities trade overriding the overall commodities trade.

In 2011, China's non-fuel mining imports accounted for 26% of world trade and imports of non-food soft commodities accounted for 23% of world trade

In 2011, China's non-fuel mining imports accounted for 26.2% of total world trade and non-food soft commodities imports accounted for 22.5% of world trade (See Figure 7). In contrast, China's fuel imports accounted for only 8.5% of world trade.

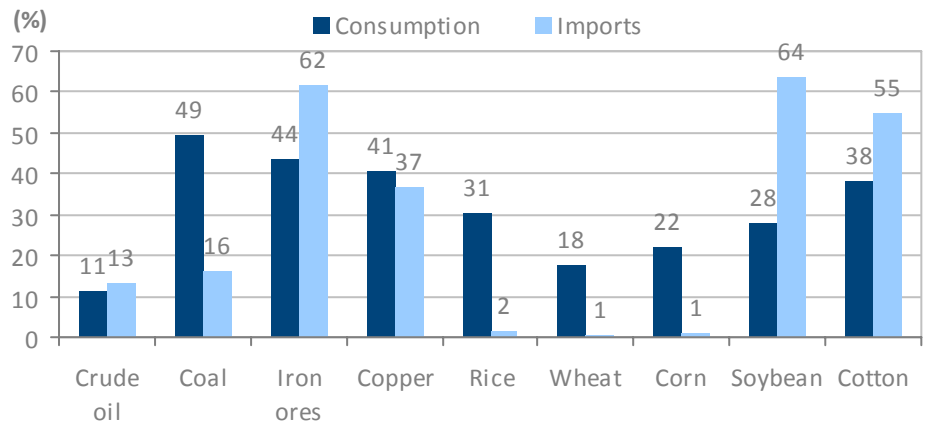
At the same time, as food self-sufficiency (soybean is an exception) has been one of the key strategic decisions, China's food imports play an even more moderate role. In 2011, China's food imports accounted for only 5% of world trade. For the three major agricultural crops wheat, rice and corn, China's imports are negligible and the country's metal trade is certainly much more important to the rest of the world (See Figure 8).

Figure 7: China imports by category as % of world imports in 2011



Source: WTO, IIFL Research

Figure 8: China's imports and consumption of select commodities as % of world imports and consumption in 2011

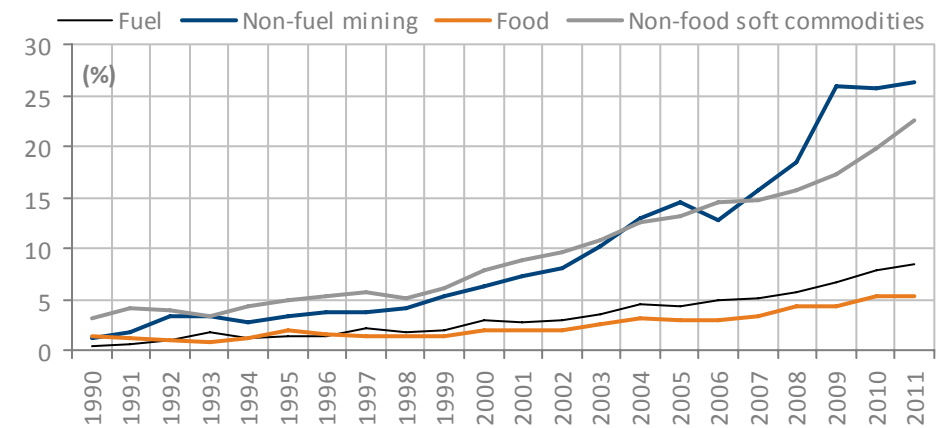


Source: UN Comtrade, BP, USDA, ICSG, WSA, IIFL Research

The 10 years under President Hu and Premier Wen witnessed one of the biggest nation building and industrialisation in human history. This reflects in the sharp rise in the share of commodity imports, especially non-fuel mining products and non-food soft commodities. The share of non-fuel mining imports and non-food soft commodities, as a percentage of world trade in 2011, was 18pps and 13pps higher respectively than in 2002 (See Figure 9), the year before Hu and Wen assumed office.

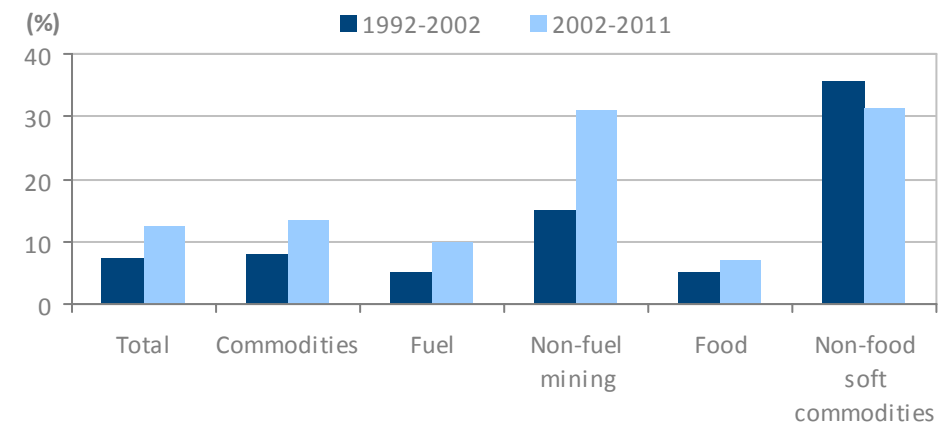
As a result, the share of imports of these products on an incremental basis is even more important. From 2002 to 2011, incremental imports of China's non-fuel mining products and non-food soft commodities accounted for more than 30% of the world's total incremental imports (See Figure 10).

Figure 9: China's commodities imports by category as % of world imports



Source: WTO, IIFL Research

Figure 10: China's incremental imports by category as a % world incremental imports

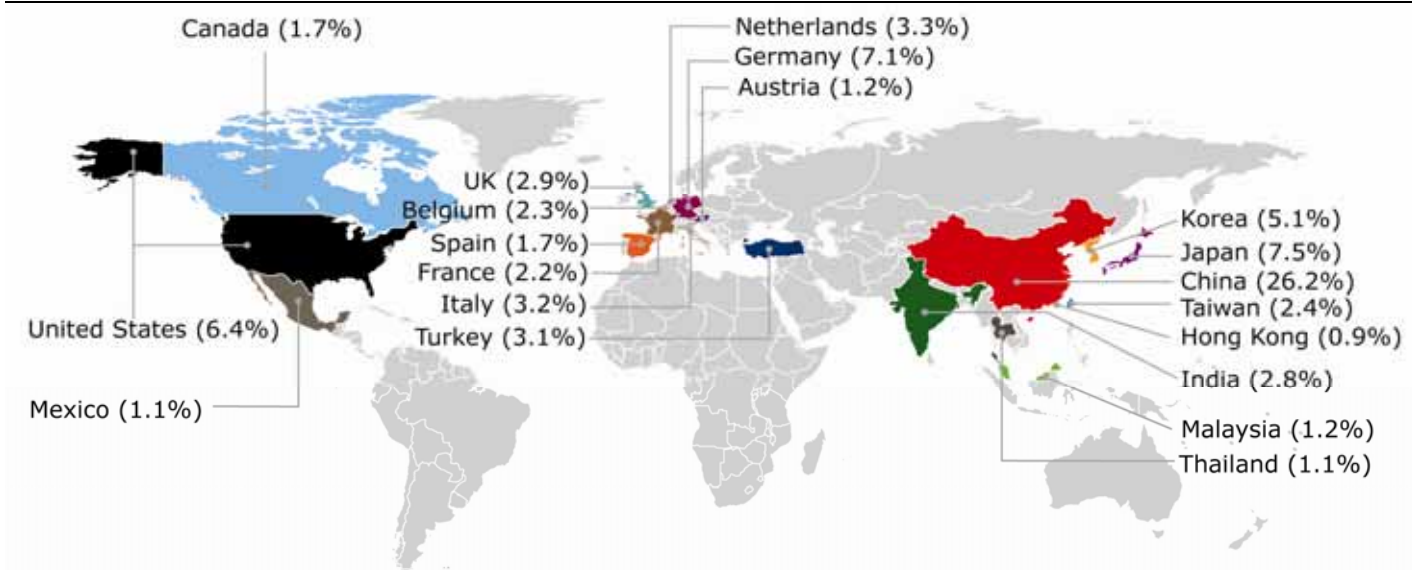


Source: WTO, IIFL Research

In 2011, China's imports of non-fuel mining products were 3.5x that of Japan, the second biggest importer

The large size of China's imports of these two categories makes it too big to find an alternative once China's appetite wanes. In 2011, China's non-fuel mining products imports were 3.5x that of Japan, the second-largest importer; it was also more than combined imports of Japan, Germany, the US and Korea, the second-to-fifth-largest importers (See Figure 11).

Figure 11: Major non-fuel mining products importers in 2011

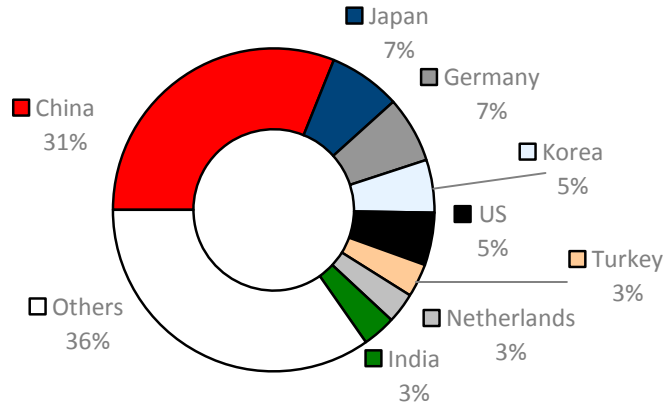


Source: WTO, IIFL Research; Note: figures in brackets are their share of global imports

From 2002 to 2011, China's incremental non-fuel mining products imports were 4.3x that of Japan

From 2002 to 2011, China's incremental non-fuel mining products imports were 4.3x that of Japan; they were also more than the combined imports of Germany, Korea, the US, Turkey and the Netherlands (See Figure 12).

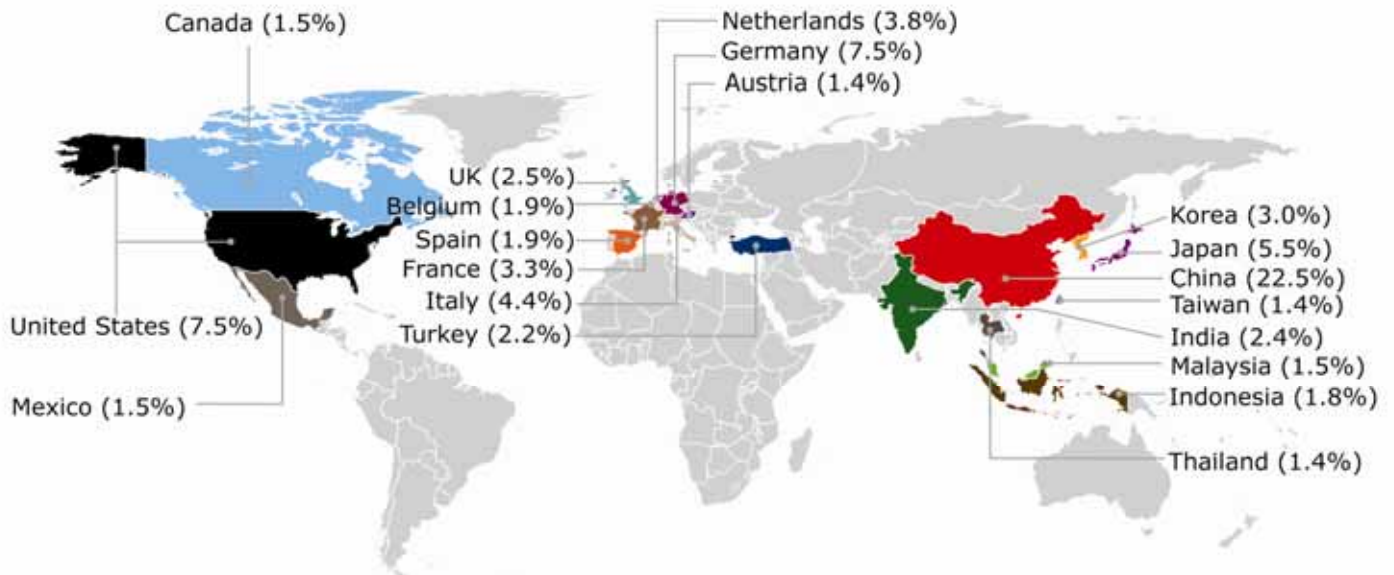
Figure 12: 2003-2011 Incremental non-fuel mining imports as % of world



Source: WTO, IIFL Research

The scenario is similar for non-food soft commodities. In 2011, China's non-food soft commodities imports were 3x that of the US, the second-largest importer; they were also more than the combined imports of the US, Germany and Japan, the second-to-fourth-largest importers (See Figure 13).

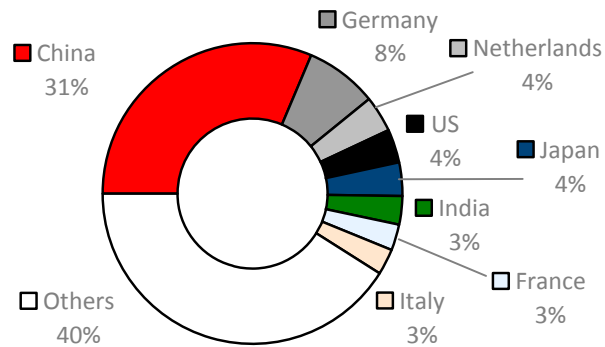
Figure 13: Major non-food soft commodities products importers in 2011



Source: WTO, IIFL Research Note: figures in brackets are their share of global imports

From 2002 to 2011, China's incremental non-food soft commodities imports were 4x that of Germany; they were also more than the combined imports of Germany, the Netherlands, the US, Japan, India, France and Italy (See Figure 14).

Figure 14: China’s incremental imports of non-food soft commodities over 2002-2011 as % of world imports



Source: WTO, IIFL Research

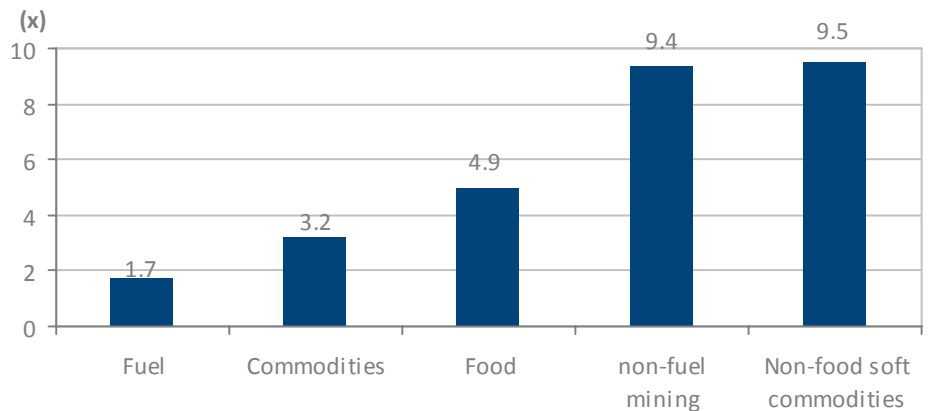
INCH comparison for commodities imports

Currently, India is the second-largest commodities importer among the emerging economies. But there is a big gap between China and India. In 2011, China’s commodities imports were 3.2x that of India.

China’s imports of non-food soft commodities and non-fuel mining were more than 9x that of India in 2011

India-China (INCH) ratio for non-food soft commodities and non-fuel mining were both more than 9x in 2011 (See Figure 15). In comparison, the gap between China and India for fuel imports has been the smallest one. In 2011, China’s fuel imports were only 1.7x of India, which means fuel trade is less vulnerable from the point of view of China slowing down.

Figure 15: INCH ratio of commodities imports by category in 2011

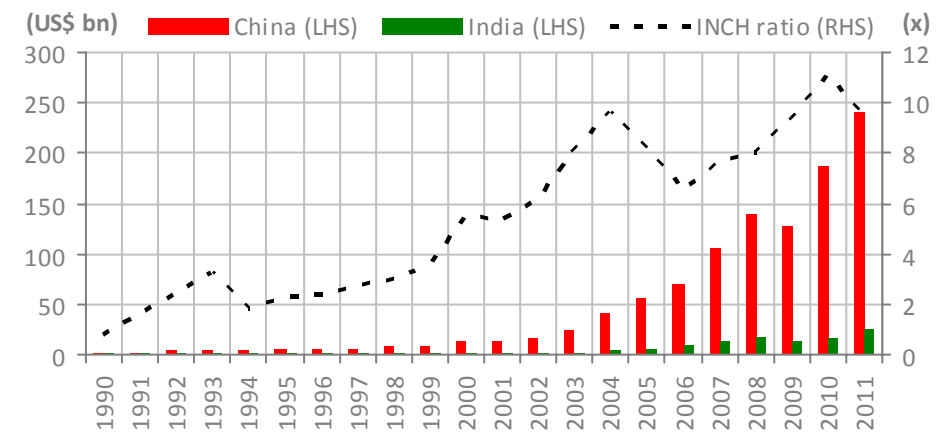


Source: WTO, IIFL Research; Note: INCH ratio is the value of China divided by value of India.

India’s non-fuel mining imports in 2011 were equivalent to China’s in 1998 in real terms

The gap between China and India for commodities imports has widened in the past. In 1992, when China’s full-fledged market-oriented reforms kicked off, the country’s non-fuel mining imports were 2x that of India, they increased to 6x by 2002 and were more than 9x in 2011 (See Figure 16). Deflated by UNCTAD’s minerals, ores and metals price index, India’s non-fuel mining imports in real terms in 2001 were only equivalent to China’s in 1998.

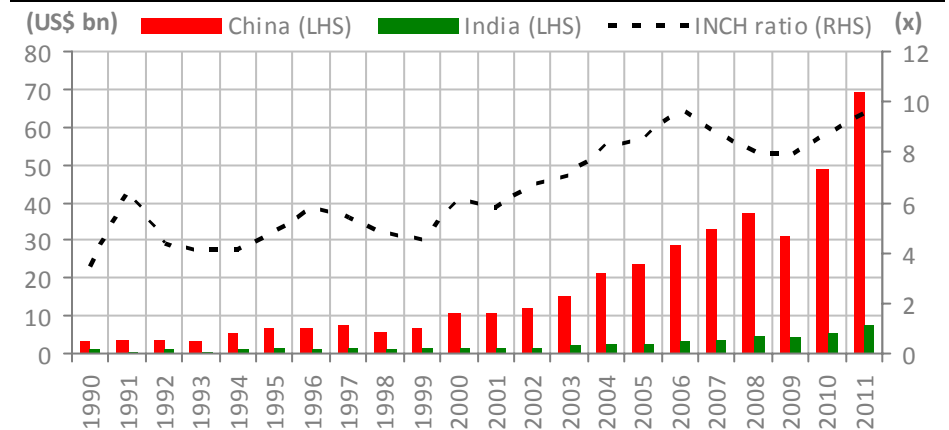
Figure 16: INCH imports of non-fuel mining products



Source: WTO, IIFL Research

As for non-food soft commodities imports, the INCH ratio was 4.4x in 1992, which increased to 6.7x in 2002 and reached 9.5x in 2011 (See Figure 17). Deflated by UNCTAD’s agricultural raw materials price index, India’s 2011 non-food soft commodities imports in real terms are only equivalent to China’s in 1990.

Figure 17: INCH imports of non-food soft commodities products



Source: WTO, IIFL Research

Who are more vulnerable after China’s appetite wanes?

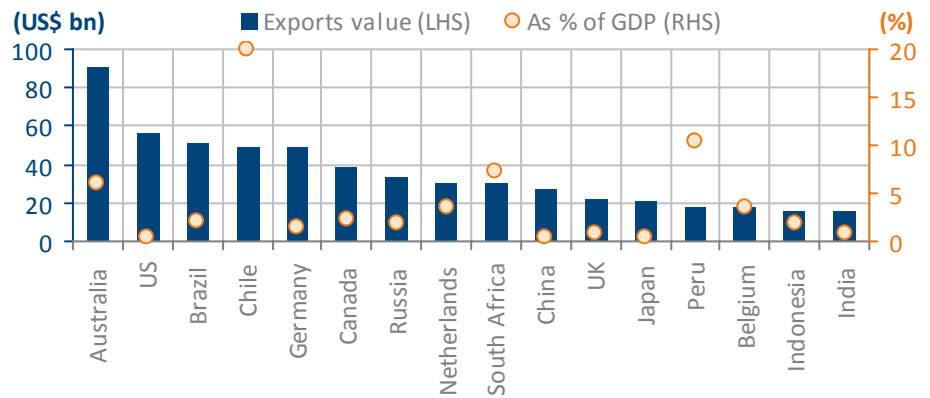
As China’s imports play a predominant role in trade of non-fuel mining and non-food soft commodities, we will look at these two categories to gauge which countries would be more vulnerable after China’s imports of those products slow or even decline.

Australia is the world’s largest non-fuel mining products exporter

In 2011, Australia was the world’s largest exporter of non-fuel mining products. With export value of US\$ 91bn, Australia’s non-fuel mining product exports were 1.6x that of the US and 1.8x that of Brazil, the second and third largest exporters.

In terms of dependence on non-fuel mining exports (defined as exports value of those products as percentage of GDP), Chile, Peru, South Africa and Australia are the four countries with more than 5% dependence on non-fuel mining exports (See Figure 18). Their dependence was 19.9%, 10.3%, 7.4% and 6.1% respectively. In contrast, the dependence of the US and Brazil was only 0.4% and 2% respectively. In other words, Chile, Peru, South Africa and Australia are more vulnerable than Brazil if non-fuel mining trade, which is centred on China, corrects.

Figure 18: Top non-fuel mining exporters in 2011

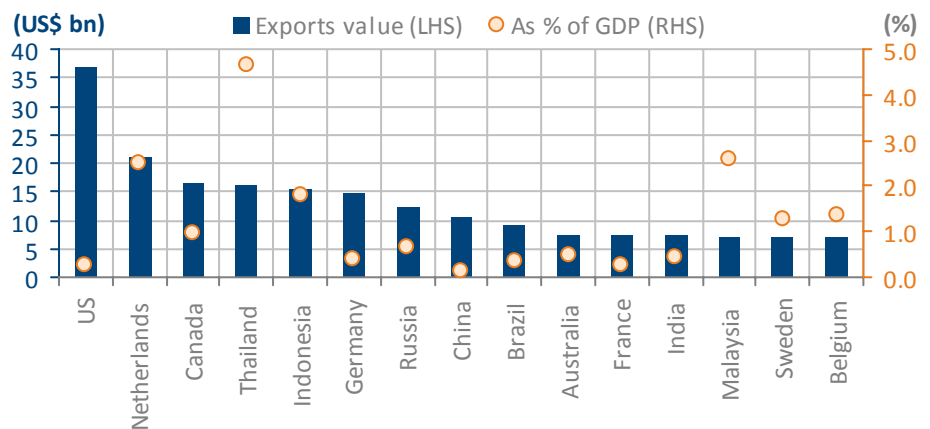


Source: WTO, IMF, IIFL Research

As for non-food soft commodities exports, the US ranked among the largest exporters in 2011 with its exports being 1.7x and 2.2x that of Canada and the Netherlands the second and the third-largest exporters, respectively.

But dependence of non-food soft commodities is much more moderate compared with non-fuel mining among major exporters. This is because non-food soft commodities trade is much smaller than non-fuel mining trade. In 2011, non-fuel mining trade was 2.2x of non-food soft commodities trade. In 2011, Thailand ranked the first in terms of dependence on non-food soft commodities (4.7% of GDP) (See Figure 19).

Figure 19: Top non-food soft commodities exporters in 2011



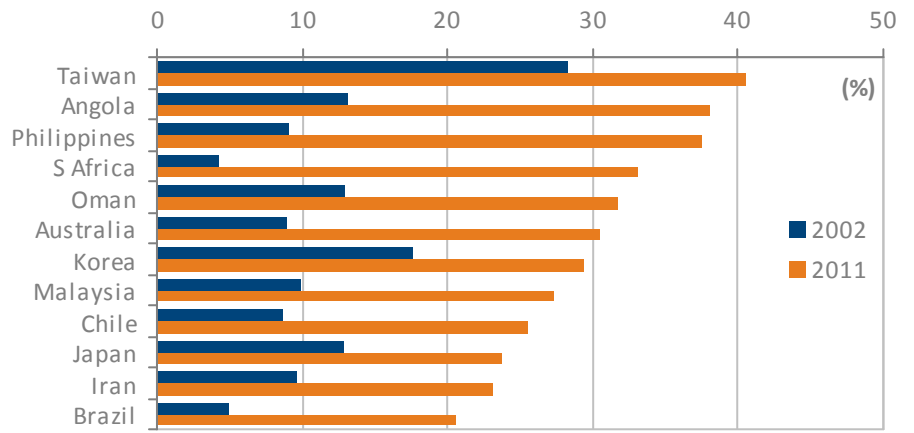
Source: WTO, IIFL Research

Major exporters to China

Another metric we can use is the overall export dependence on China. For example, Taiwan is most vulnerable once China slows down, measured by exports to China as a percentage of total exports. In 2011, more than 40% of Taiwan’s exports were to China (See Figure 20).

Major non-fuel commodity exporters such as South Africa, Australia, Chile and Brazil also feature on the top China dependence list, which confirms their vulnerability. The pace of increasing dependence on China has been exceptional for South Africa. In 2002, its dependence on China was only 4%. But by 2011, it had increased 29pps to 33%.

Figure 20: Exports to China as % of total exports of select economies



Source: CEIC, WTO, IIFL Research; Note: the value of exports to China is the value of China imports from individual countries recorded by China Customs.

Energy and metals

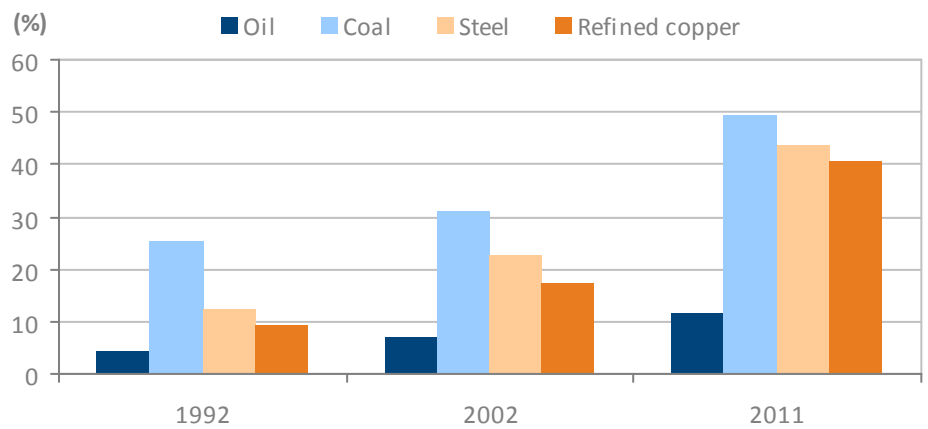
The Hu and Wen era (2003-12) was possibly the largest nation building exercise in history, which may not be repeated. During those 10 years, China's steel consumption was 2/3rd that of cumulative US consumption in the past 113 years. Indeed, the consumption elasticity ratio of steel correlates more with the change of investment as % of GDP. In a "de-investment" cycle (share of investment comes down), similar to the 1993-1998 period, China's steel consumption will enter a phase of multi-year negative growth. China's oil consumption is expected to slowdown from 7.7% annually in the past decade to a moderate 4%.

China's consumption of crude oil, coal, steel and copper accounted for 11.4%, 49.4%, 43.5% and 40.6% of world's total consumption respectively in 2011

China's dominance

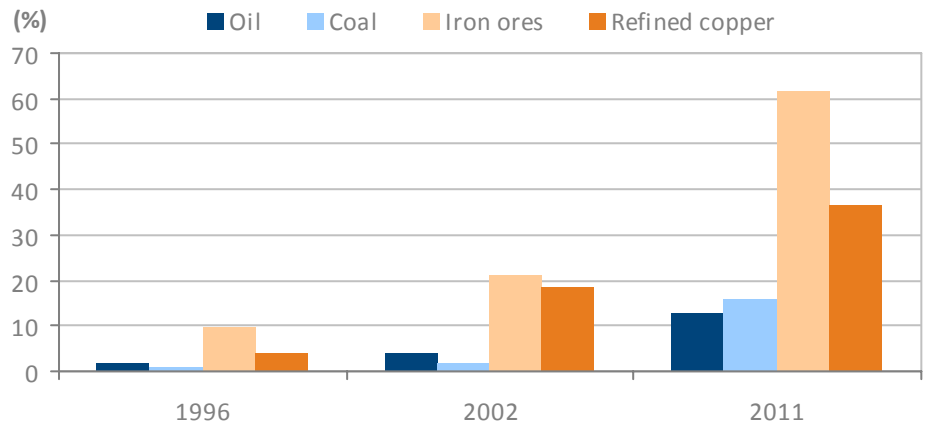
China's consumption of major commodities as % of world's total consumption in 2011 was 11.4% for crude oil, 49.4% for coal, 43.5% for steel and 40.6% for copper. These are significantly higher in 2002 (See Figure 21). In terms of major imports, China's share of world imports was 13.3% for crude oil, 16.0% for coal, 61.6% for iron ore and 36.7% for refined copper (See Figure 22). It is also notable that while China's share of coal imports is much smaller than the share of consumption, its share of imports has been growing rapidly in the past few years. In 2002, its share of coal imports was only 2% compared with 16% in 2011.

Figure 21: China's consumption as % of world consumption



Source: BP, WSA, ICSG, CNMIA, IIFL Research; Note: measured by quantity.

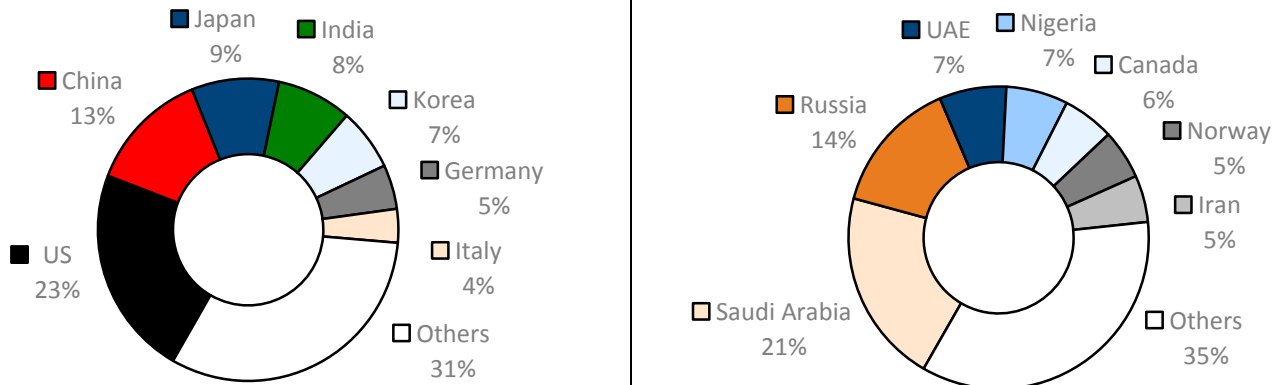
Figure 22: China's imports as % of world trade



Source: UN Comtrade, WSA, EIA, IIFL Research; Note: measured by quantity.

In 2011, China was the second-largest crude oil importer, next to the US (See Figure 23). Saudi Arabia, Russia and the UAE were the three largest exporters in 2010, accounting for 21%, 14% and 7% respectively of world's total crude oil exports.

Figure 23: Major importers (left) and exporters (right) of crude oil in 2011

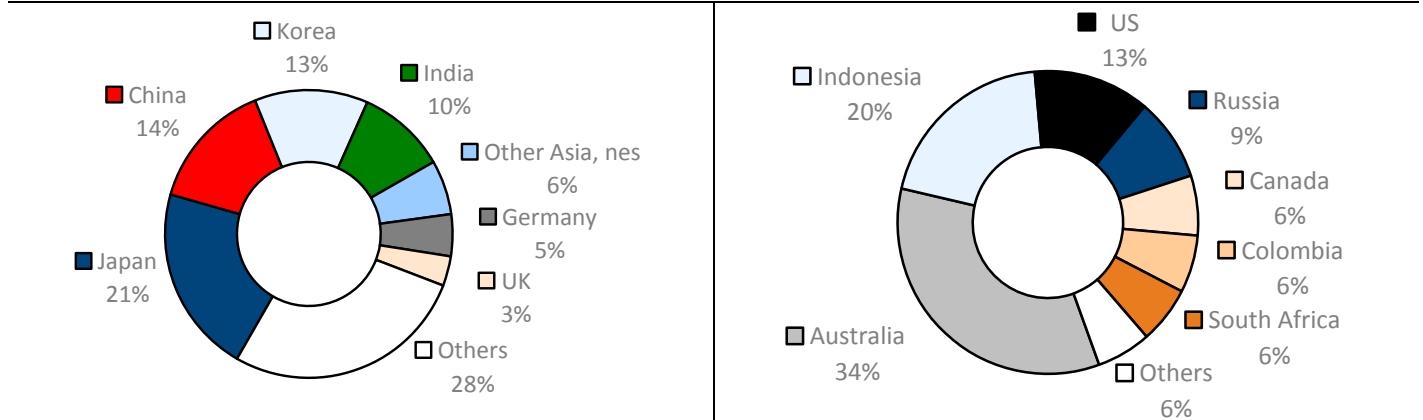


Source: UN Comtrade, IIFL Research; Note: Measured by value and exporters data is as of 2010.

In terms of tonnage, China is the world's largest coal importer. In 2011, China imported c190 million tonnes of coal, 8.6% higher than Japan. But as Japan imported a higher percentage of coking coal, which commands a higher price, in terms of value of imports, China ranked second (See Figure 24).

Similarly, though Indonesia ranked first in terms of tonnage coal exports, it ranked second in terms of value. In 2011, the market share of coal exports was 34% for Australia and 20% for Indonesia.

Figure 24: Major importers (left) and exporters (right) of coal in 2011



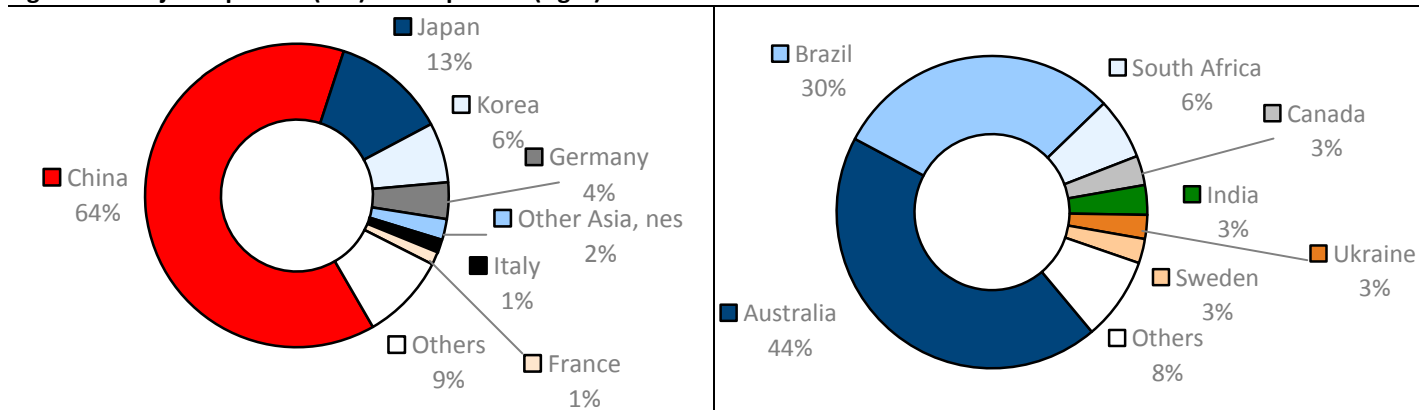
Source: UN Comtrade, IIFL Research; Note: Measured by value.

In 2011, China's iron ore imports accounted for 64% of world trade

Compared with crude oil and coal imports, dominance of China in iron ore trade is much bigger. In 2011, China's iron ore imports accounted for 64% of world trade measured by value (62% by quantity) (See Figure 25). In contrast, Japan, the second-largest iron ore importer, only accounted for 13% of market share.

As for the exporters, Australia and Brazil are the two predominant iron ore suppliers. In 2011, they accounted for nearly three-fourths of world's iron ores exports.

Figure 25: Major importers (left) and exporters (right) of iron ores in 2011



Source: UN Comtrade, IIFL Research; Note: Measured by value.

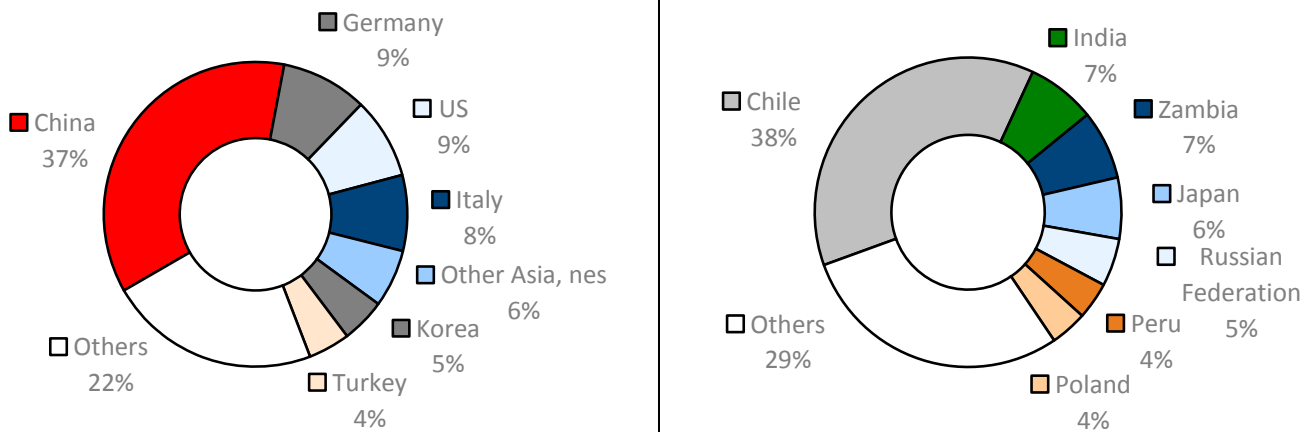
Compared with steel for which China mainly imports iron ores, the dependence of China's copper consumption is more complex. It imports significant quantities of ores and concentrates as well as refined copper.

In 2011, China was the largest importer of refined copper (37%) and copper ores and concentrates (32%), measured by value.

As for exports, Chile is the world's largest exporter of copper ores and concentrates and refined copper. In 2011, Chile accounted for exports of 38% of refined copper and 32% of ores and concentrates.

For refined copper, Germany was the second-largest importer in 2011 (See Figure 26). As UN Comtrade database does not update the exports of Zambia, one of the major refined copper exporters, we have to look at 2010 data for market share of refined copper exports. In 2010, India and Zambia accounted for 7% each of the world's refined copper exports.

Figure 26: Major importers (left) and exporters (right) of copper in 2011



Source: UN Comtrade, IIFL Research; Note: Measured by value; Note: exporters' data is as of 2010. .

China's consumption, in the light of the US

The last section is about the current dominance of China's consumption and imports of energy and metal products. But what is more relevant is future demand. Currently, the most common method to gauge China's future commodities demand is by comparing China's per capita consumption and GDP per capita data with other countries.

But the data is divergent and we believe it would be more relevant to compare China with the US, a country with a similar geographic size and many economists believe the economy size of these two may converge in the next decade or so. Besides looking at annual consumption, we also look at cumulative consumption, i.e. how many tonnes of steel have been consumed in the land in the past decade of nation building.

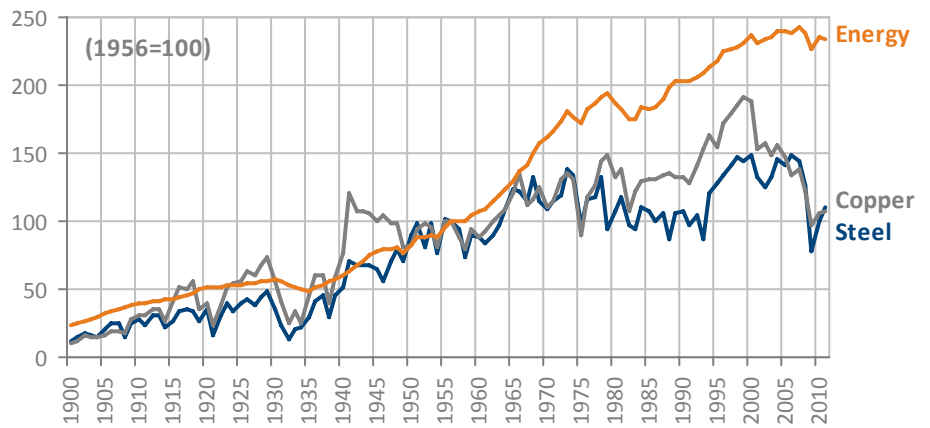
To some extent, we can term steel and copper and other metals as "stock" products, because they accumulate over time. After all, the steel used for Empire State Building back in 1929-1931 is still there. In comparison, we can call energy as a "flow" product, which means it is simply consumed and vanishes.

The US's energy consumption in 2010 was 2.3x the level of 1956, while its steel and copper consumption were close to the level of 1956

In the US, energy consumption has been growing continuously over time, quite different from copper and steel. For example, energy consumption of the US in 2010 was 2.3x the level of 1956, the year when the Federal Aid Highway authorised the inter-state highways system to be build, while steel and copper consumption were close to the level of 1956 (See Figure 27).

So in terms of growth, energy products are a much better bet.

Figure 27: The US energy and metal consumption (rebased)



Source: USGS, EIA, IIFL Research; Note: Energy consumption original data before 1950 is available for every 5 years; data in between are interpolated.

Back to China, we believe the decade under Hu and Wen (2003-2012) is possibly the world’s largest nation building exercise ever in human history.

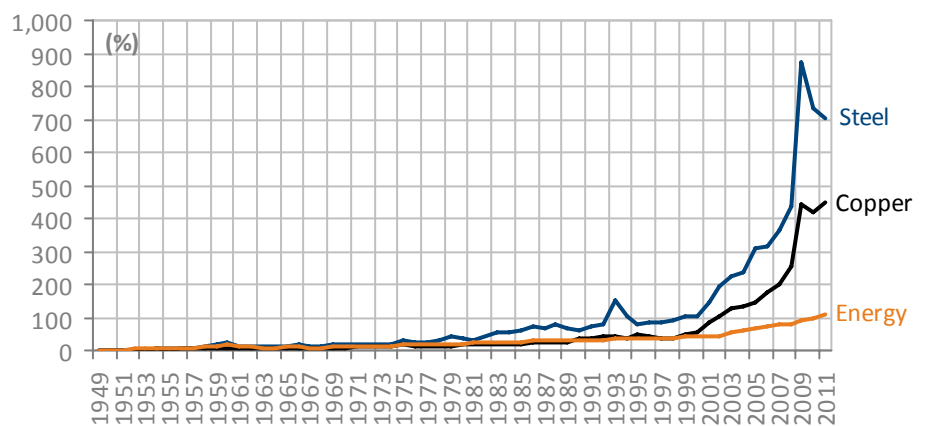
In the late 1990s, China’s steel consumption was similar to that of the US and its copper consumption was less than half of the US. But in the early 2000s, China’s steel and copper consumption picked up momentum. In 2002, China’s steel consumption was 2x that of the US and its copper consumption was comparable to the US.

But under the Hu-Wen administration, this gap increased significantly, especially during period of the global financial crisis. In 2009, when the US faced the worst of the financial crisis, China’s steel and copper consumption was 8.7x and 4.4x that of the US.

China’s 2011 steel and copper consumption was 7.1x and 4.6x that of the US

Even though the US has recovered gradually, China’s 2011 steel consumption was still 7.1x and the gap for copper consumption widened to 4.6x that of the US. In contrast, China’s energy consumption just exceeded the US for the first time (Figure 28).

Figure 28: China energy and metal consumption as % of the US

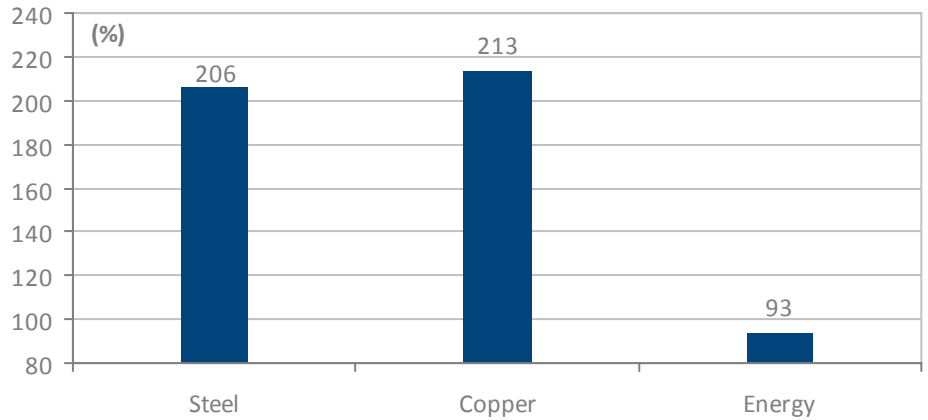


Source: WSA, USGS, EIA, CNMIA, ICSG, CEIC, IIFL Research

China's cumulative steel and copper consumption over 2003-12 is 2x of China's cumulative consumption over 1949-2002

China's cumulative steel and copper consumption over 2003-12 is likely to be 2x of China's cumulative consumption over 1949-2002. But its energy consumption will be only 93% of the cumulative consumption from 1949 to 2002 (See Figure 29).

Figure 29: China's cumulative consumption during Hu and Wen era (2003-2012) as % of China's cumulative consumption from 1949 to 2002



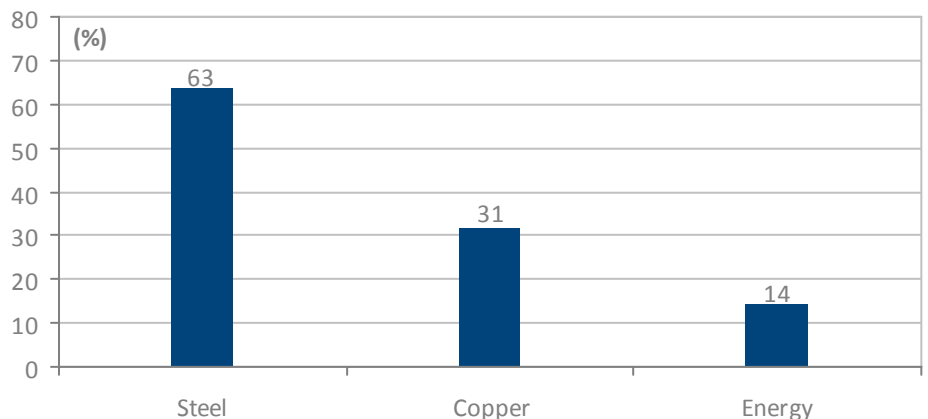
Source: WSA, USGS, EIA, CNMIA, ICSG, CEIC, IIFL Research; Note: 2012 data is forecasted

China's cumulative steel and copper consumption over 2003-12 is c2/3rd of the US' cumulative consumption over 1900-2012

Indeed, China's cumulative steel and copper consumption over 2003-12 is likely to reach 63% and 31% of the cumulative US consumption respectively over 1900-2012 (See Figure 30).

This means the total steel consumption during the decade of Hu-Wen administration is 2x that of China's total steel consumption in the previous 50 years, and 2/3rd of the total steel consumption of the US in the past 113 years.

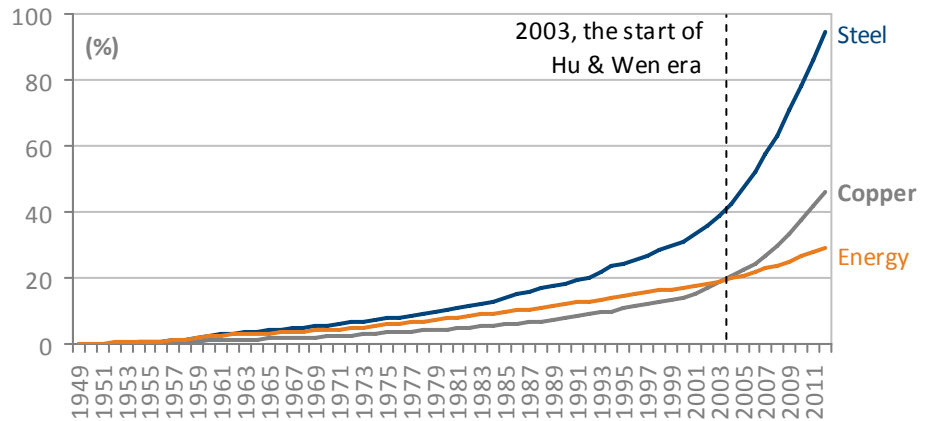
Figure 30: China's cumulative consumption during Hu and Wen era (2003-2012) as % of US's cumulative consumption from 1900 to 2012



Source: WSA, USGS, EIA, CNMIA, ICSG, CEIC, IIFL Research

As a result, China's cumulative steel consumption is catching up with the US rapidly (See Figure 31). By 2012, China's cumulative steel, copper and energy consumption is likely to be 94%, 46% and 29% respectively of the accumulative consumption of the US from 1900 to 2012 (See Figure 32).

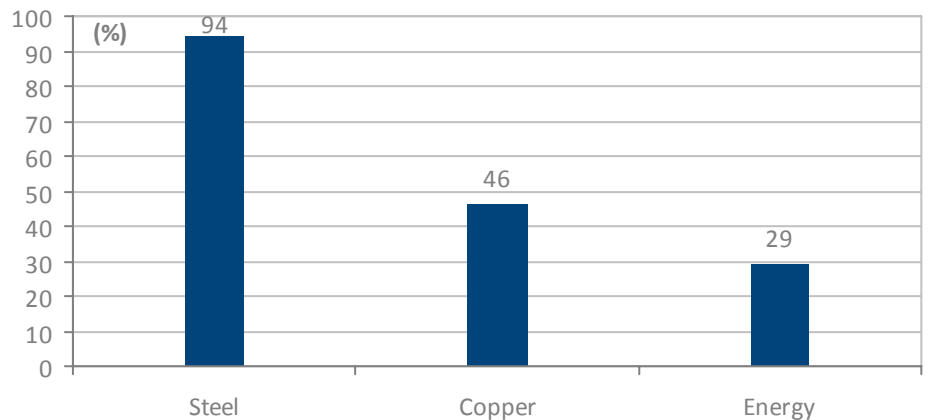
Figure 31: China’s cumulative consumption since 1949 as % of the US cumulative consumption since 1900



Source: WSA, USGS, EIA, CNMIA, ICSG, CEIC, IIFL Research

So we are most bearish on China’s steel consumption whereas we are relatively bullish on the country’s energy consumption. We should see steel consumption growth turning negative in 2013 and expect no turnaround any time soon. After all, even if China maintains its steel consumption at the 2011 level, China’s cumulative steel consumption in the next 10 years alone will be comparable to the US in the past 113 years (88%, to be precise).

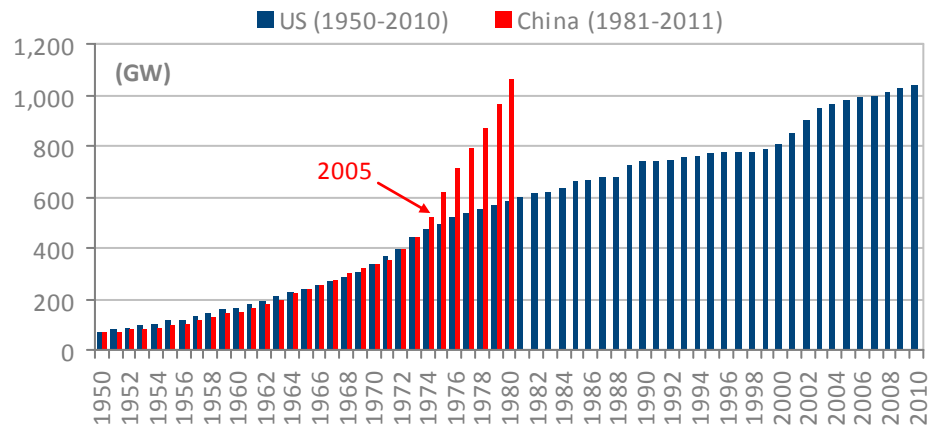
Figure 32: China’s cumulative consumption from 1949 to 2012 as % of US’ cumulative consumption from 1900 to 2012



Source: WSA, USGS, EIA, CNMIA, ICSG, CEIC, IIFL Research

The magnitude of China’s construction boom can be seen in individual sectors as well. For example, China’s installed power capacity in the early 1980s was roughly at the same level as that of the US in the early 1950s, or was 30 years behind. Since then, this lag remained broadly unchanged until the early 2000s. Note that in 2002, China’s installed power capacity was similar to that of the US in 1971, which was still a 30-year lag (see Figure 33).

Figure 33: China's installed power capacity from 1981 to 2011 versus US's installed power capacity from 1950 to 2010



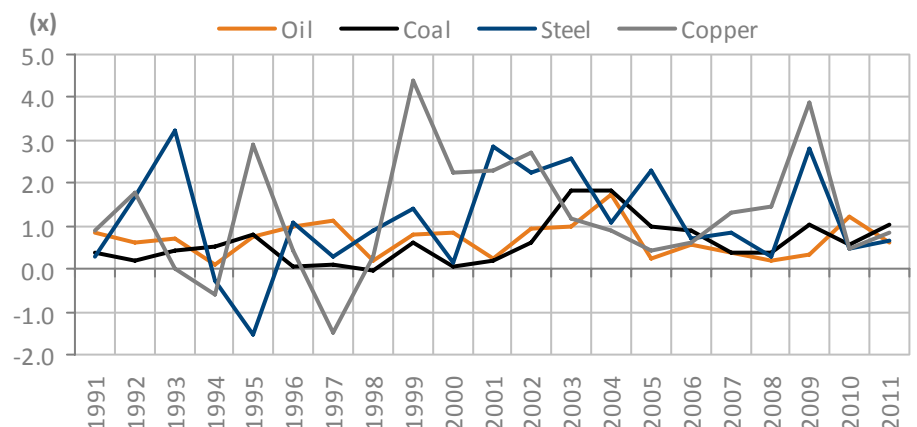
Source: EIA, CEIC, IIFL Research

But from 2005 this trend was broken. In 2005, China's installed power capacity exceeded that of the US in 1974. Note that even thermal power plants take two years to build, which is the shortest among major types of power units. So the boom would have begun around the time Hu and Wen assumed office in 2003.

China's consumption trend, in light of the past

Another method we use to measure potential growth in China's consumption of industrial commodities is to look at the consumption elasticity ratio and GDP growth together with the economic structure. Measured by the elasticity ratio of consumption, namely the ratio of consumption growth of a product to GDP growth, we find that steel and copper are more volatile than coal and oil consumption (See Figure 34).

Figure 34: Oil, coal, steel and copper consumption elasticity ratio

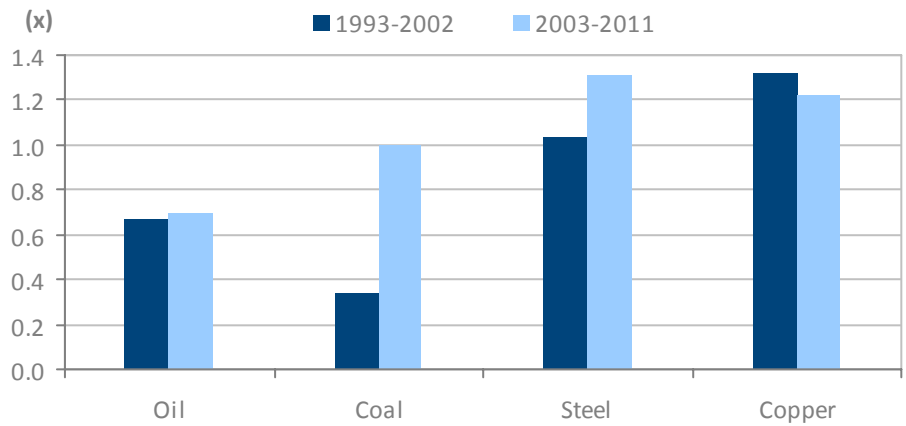


Source: WSA, BP, CNMIA, ICSG, IIFL Research

Oil consumption elasticity ratio is the most stable one

At the same time, the average elasticity ratios of coal consumption as well as steel consumption have increased over 2003-2011 from the period 1993-2002 (see Figure 35). But the elasticity ratio of oil consumption remained almost unchanged, while that of copper dropped slightly (See Figure 35). The relatively less volatility and stable long-term average consumption elasticity of oil perhaps suggests that future oil consumption outlook may remain stable.

Figure 35: Average consumption elasticity ratio in the past two decades

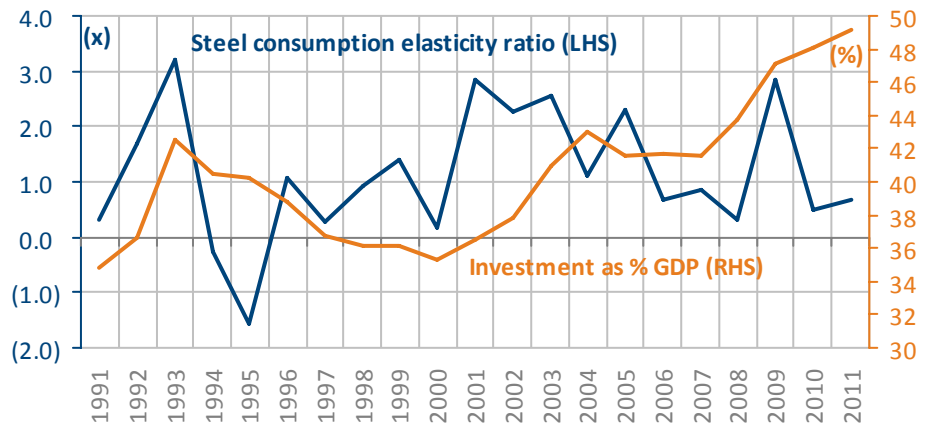


Source: WSA, BP, CNMIA, ICSG, IIFL Research

When the change in share of investment in GDP increases, so does the elasticity ratio of steel consumption

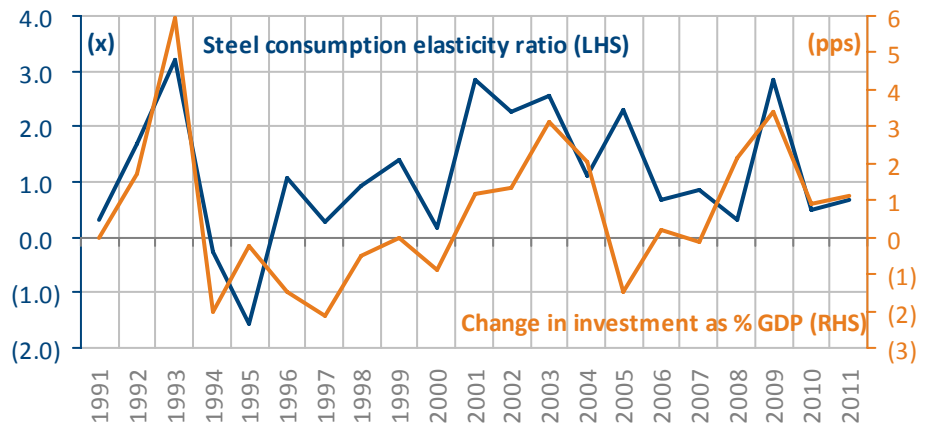
As steel consumption is closely related to investment, the change in ratio of steel consumption is highly correlated to the share of investment in GDP (see Figure 36). The relationship between the two is more evident on comparison of the change in investment as percentage of GDP directly with the elasticity ratio of steel consumption (see Figure 37). When the change in share of investment in GDP increases, so does the elasticity ratio of steel consumption. In a de-investment cycle, the elasticity ratio will plunge.

Figure 36: Elasticity ratio of steel consumption versus investment as % of GDP



Source: WSA, CEIC, IIFL Research

Figure 37: Elasticity ratio of steel consumption versus change in investment as % of GDP

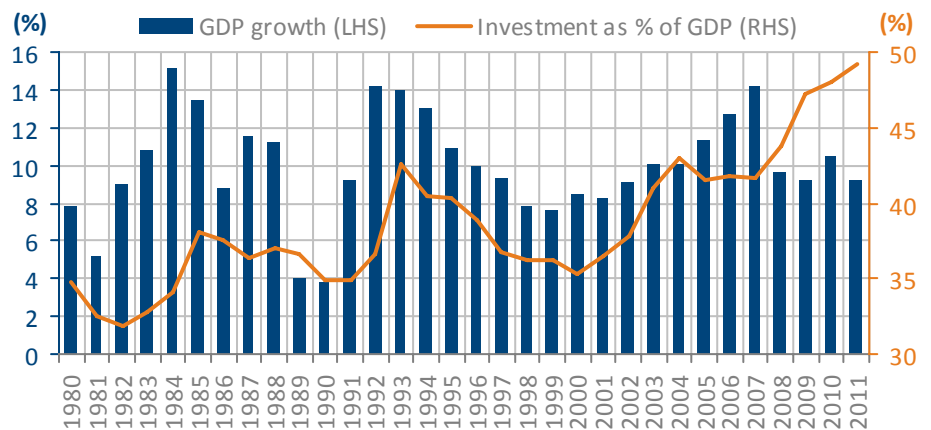


Source: WSA, CEIC, IIFL Research

Indeed, in the past, a higher share of investment was also accompanied by higher GDP growth (see Figure 38). Thus, steel consumption enjoyed a double boost from acceleration in the share of investment and higher GDP growth.

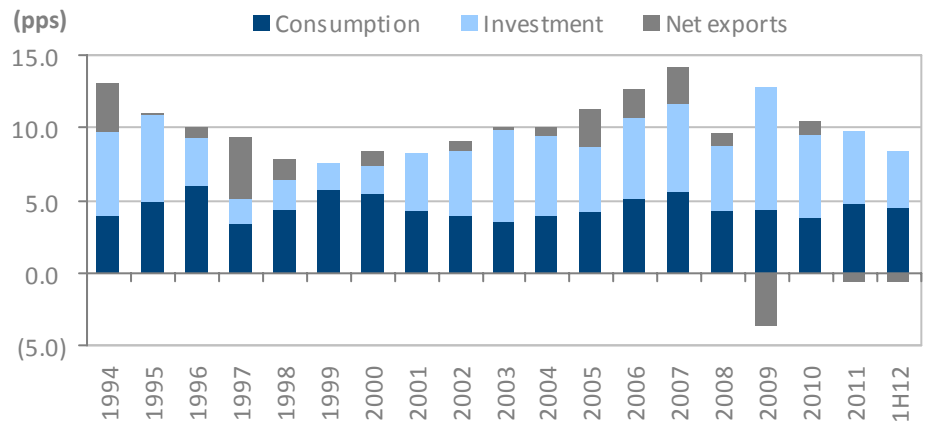
The relationship between higher investment as a percentage of GDP and higher GDP growth has broken down since 2004. From 2005 to 2007, the share of investment remained almost unchanged whereas GDP growth continued to accelerate, owing to rapid export growth (see Figure 39). In the aftermath of the recession, China was forced to ramp up investment to counter the plunge in exports. Thus, GDP growth softened despite the rise in investment as a percentage of GDP.

Figure 38: GDP growth versus investment as percentage of GDP



Source: CEIC, IIFL Research

Figure 39: GDP growth breakdown by expenditure



Source: CEIC, IIFL Research

The consumption elasticity ratio of oil, coal and copper versus the change in the share of investment as % GDP is shown in Figures 40-42. It can be seen that consumption elasticity ratio of oil correlates the least with the change in the share of investment as % of GDP.

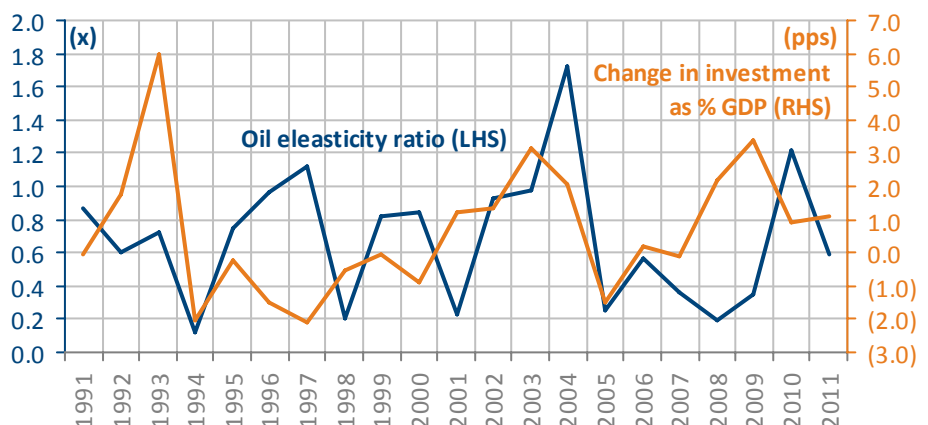
Steel consumption is highly related to investment cycle while there is little relationship between oil and investment cycle

The calculation of correlation between consumption elasticity ratio and share of investment in GDP confirms that while steel is highly related to the investment cycle, there is little relationship between oil and the investment cycle (See Figure 43). Coal and copper are somewhere in between.

We expect China to enter a “de-investment” cycle similar to the one seen in 1993-98. Indeed the dismal external environment and China’s dramatic demographic shift (declining share of working population) may lead to a decline in GDP growth from more than 10% to 6-8%.

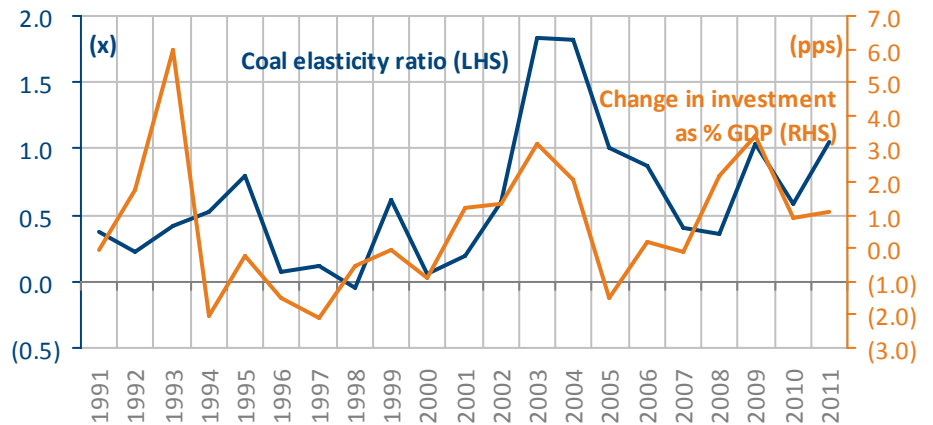
Thus, instead of enjoying the double-ups (higher GDP growth and higher share of investment), steel consumption will undergo double-downs (lower GDP growth and lower share of investment). We expect the commodity sectors to perform even worse than in mid-1990s when steel consumption enters a phase of multi-year negative growth.

Figure 40: Elasticity ratio of oil consumption versus change in investment as % of GDP



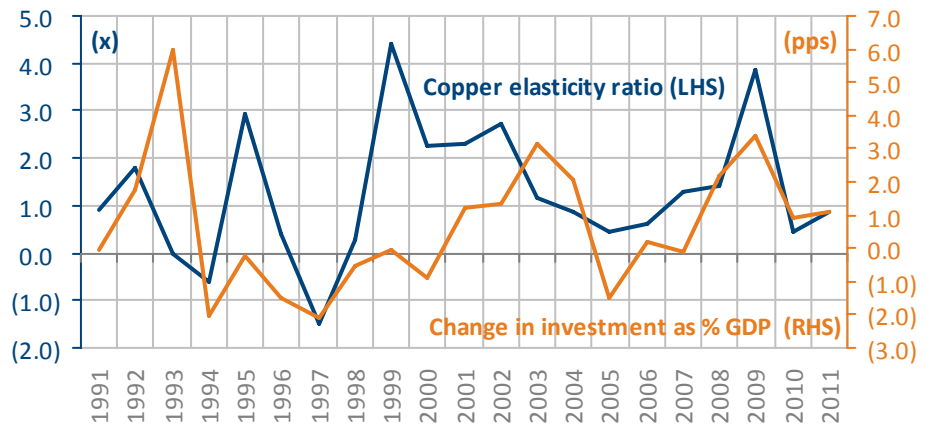
Source: BP, CEIC, IIFL Research

Figure 41: Elasticity ratio of coal consumption versus change in investment as % of GDP



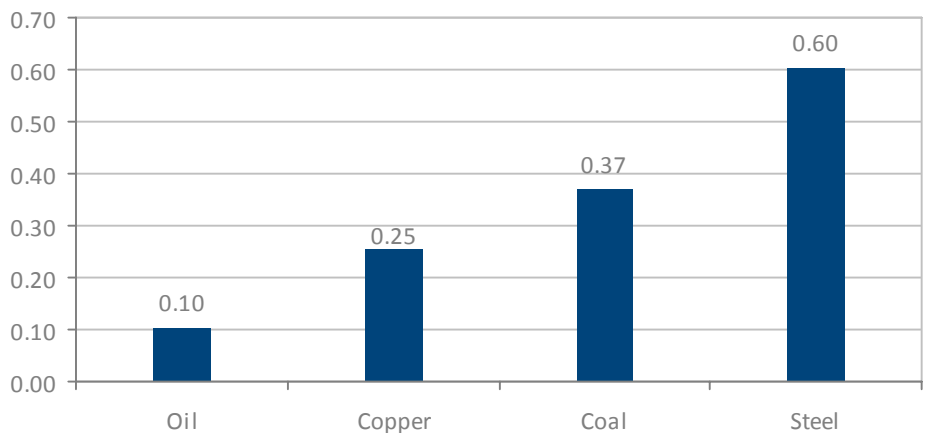
Source: BP, CEIC, IIFL Research

Figure 42: Elasticity ratio of copper consumption versus change in investment as % of GDP



Source: ICSG, CNMIA, CEIC, IIFL Research

Figure 43: Correlation of consumption elasticity ratio and change in investment as % of GDP



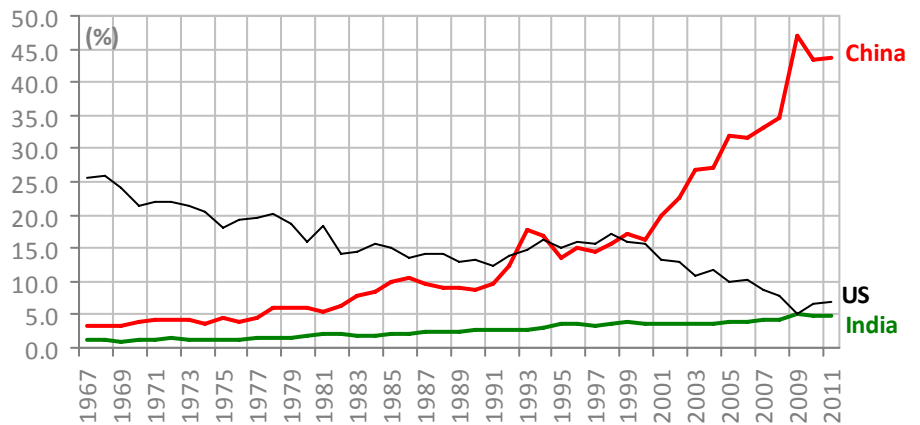
Source: WSA, BP, CNMIA, ICSG, IIFL Research

China steel producers are too big to hide

We rank the metals from bearish to bullish (on a relative basis) in the following order: steel, copper, coal and oil.

At the same time, though China's steel consumption turned negative in the mid-1990s, steel producers still had the luxury to seek refuge in the overseas markets. But this is no longer the case. Leaving aside soft external demand, China's steel producers are too big to hide. In the mid-1990s, China's steel consumption accounted for 15% of the world total and China's market share now is c 45% (See Figure 44). Thus, in 2013 we will not only see negative steel consumption but negative steel production as well, which will be painful for steel producers and suppliers.

Figure 44: China steel consumption as % of world consumption



Source: WSA, IIFL Research

Forecast of future consumption of oil, coal, steel and copper

In the past decade (2002-2011), China's consumption of oil, coal, steel and copper has accelerated dramatically (See Figure 45).

But in our view, China's consumption for these products will decelerate significantly in the next two to three years and we expect the situation to worsen compared with mid-1990s when China experienced the last de-investment cycle.

But as discussed in the previous two sections, both in the light of US demand comparison and China's past trends, we expect fuel, especially oil, to fare better and steel to be the worst hit.

While we expect consumption of these products to grow at about 3-5% in 2012, we expect steel consumption to enter a phase of multi-year negative growth from 2013 and there is high possibility that copper demand growth will see at least one year of negative growth in the next couple of years. Overall, over 2012-2015 we expect China's consumption Cagr at 4% for oil, 2% for coal, -3% for steel and 2% for refined copper.

Figure 45: CAGR of oil, coal, steel and copper consumption

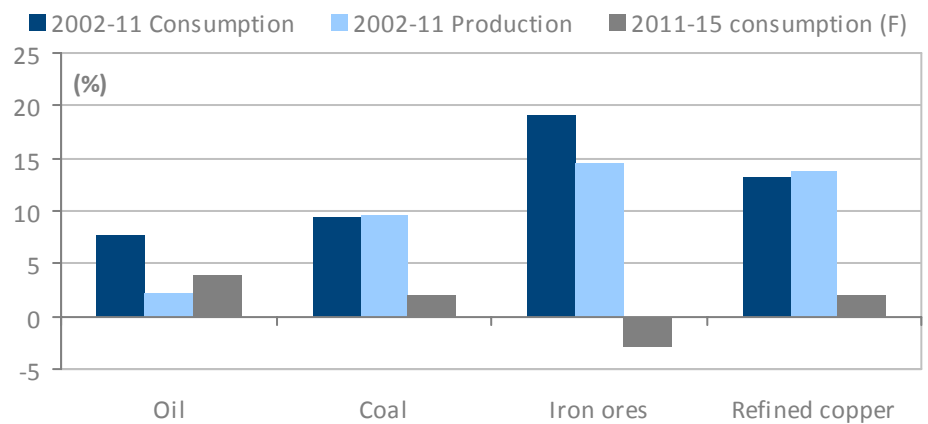
	Oil	Coal	Steel	Refined copper
1993-1998	4.6	2.2	(0.1)	5.4
1998-2002	6.8	3.1	16.2	24.0
2002-2011	7.7	9.4	14.0	13.2
2011-2015 (F)	4.0	2.0	(3.0)	2.0

Source: CEIC, WSA, CNMIA, ICSG, IIFL Research

... we expect steel consumption to experience multi-year negative growth from 2013

As for the external impacts, we expect oil imports to hold up and coal, iron ore and refined copper imports to have significant downward risk. This is due to two reasons: 1) China's crude oil production growth has been only 2% annually in the past decade despite the consumption increasing at 7.7% per annum; 2) for the other products, coal, iron ore and refined copper, production growth rate will be much higher than the projected consumption growth rate in the next three years (See Figure 46).

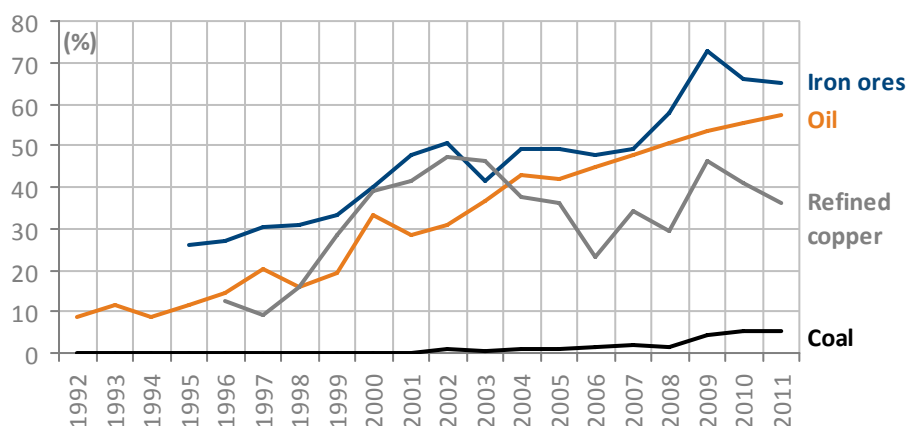
Figure 46: Consumption and production Cagr



Source: CEIC, WSA, CNMIA, ICSG, IIFL Research; Note: iron ore production was converted to world trade average Fe content; Note: 2012-2015 forecast consumption for iron ore is based on steel consumption growth.

As the result, although China's import dependence on both iron ore and crude oil has been more than 50% (See Figure 47), the diverging outlook of those two products will generate two totally opposite results. Indeed, the fact that China's imports account for more than 60% of the world's iron ore trade will make iron exporters extremely vulnerable.

Figure 47: China imports as % of China consumption



Source: CEIC, WSA, CNMIA, ICSG, UN Comtrade, IIFL Research; Note: iron ores production was converted to world trade average Fe content

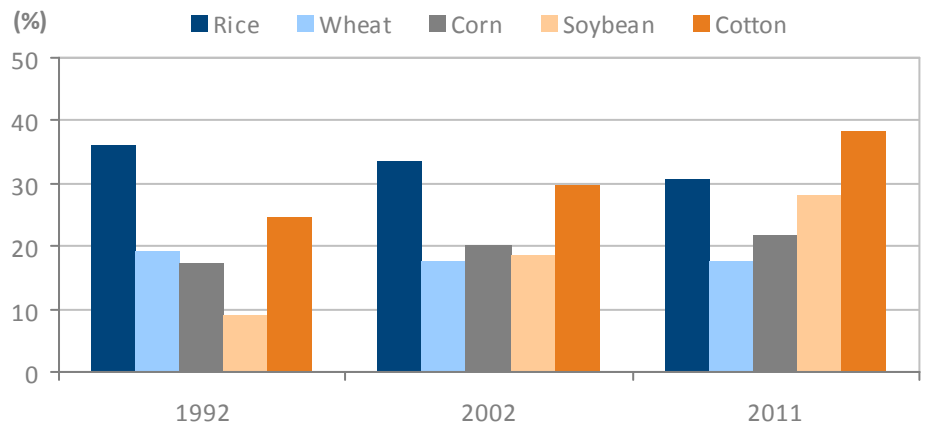
China is self sufficient in food

In 2011, China's imports of major grains were less than 2% of world trade and less than 1% of China's total consumption. China's per capita food consumption is close to some developed countries and its consumption of rice and wheat is likely to remain flat in future. China's per capita consumption of meat, measured by energy intake, is already higher than the US and the hype on China's corn consumption is not definitive. In contrast, there is room for the country's soybean consumption to grow further.

China is not important to world grain trade but is dominant in soybeans and cotton

With about 20% of the world's population, China's share of world consumption in 2011 was 30.6% for rice, 17.5% for wheat, 21.8% for corn, 27.9% for soybean and 38.3% for cotton (See Figure 48). Compared with 1992, its share was down 5.5pps for rice and down 1.6pps for wheat. But the share of soybeans consumption increased by 19.1pps and that of cotton increased by 13.7pps. Share of corn consumption also gained 4.6pps during the same period.

Figure 48: China's soft commodities consumption as % of world consumption



Source: USDA, IIFL Research; Note: Measured by quantity.

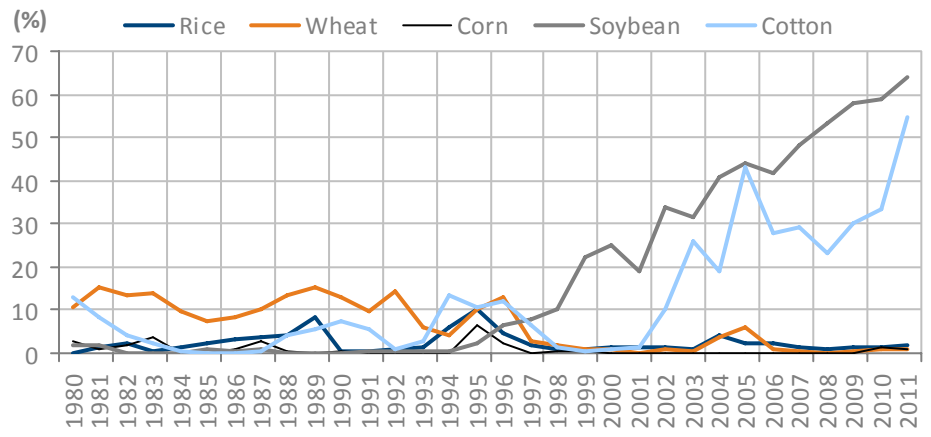
Since late 1990s, China's grain imports accounted for less than 2% of world trade for most years

But in terms of world trade, China's grain imports are small. Since the late 1990s, China's grain imports accounted for less than 2% of world trade for most of the years (See Figure 49). In contrast, China's soybean and cotton imports as % of world trade have increased dramatically in the past 10 years. In 2011, China's soybean and cotton imports accounted for 65% and 55% of world imports respectively.

China's grain imports accounted for less than 1% of China's total grain consumption

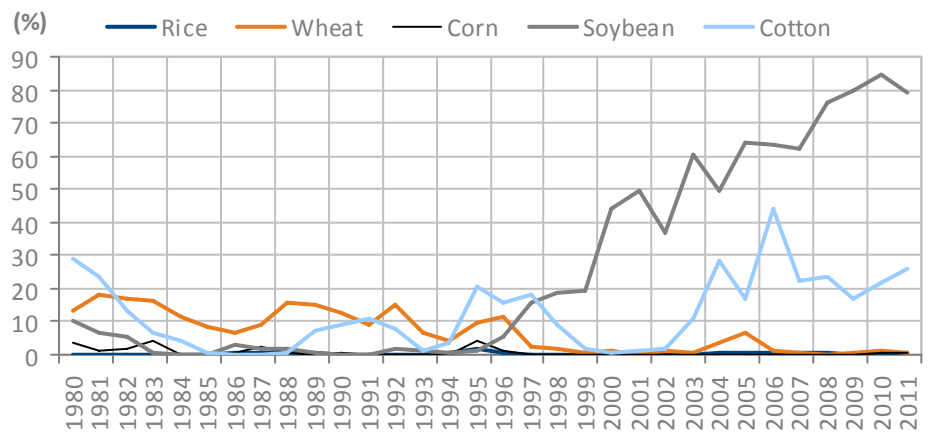
As for imports as % of consumption, China's grain imports accounted for less than 1% of China's total consumption for most of the years since late 1990s (See Figure 50). In contrast, China's soybeans imports accounted for c80% of China's total consumption whereas cotton and soybean imports accounted for 26% of China's consumption in 2011 (See Figure 50).

Figure 49: China soft commodities imports as % world imports



Source: USDA, IIFL Research; Note: Measured by quantity.

Figure 50: China's soft commodities imports as % of China's consumption



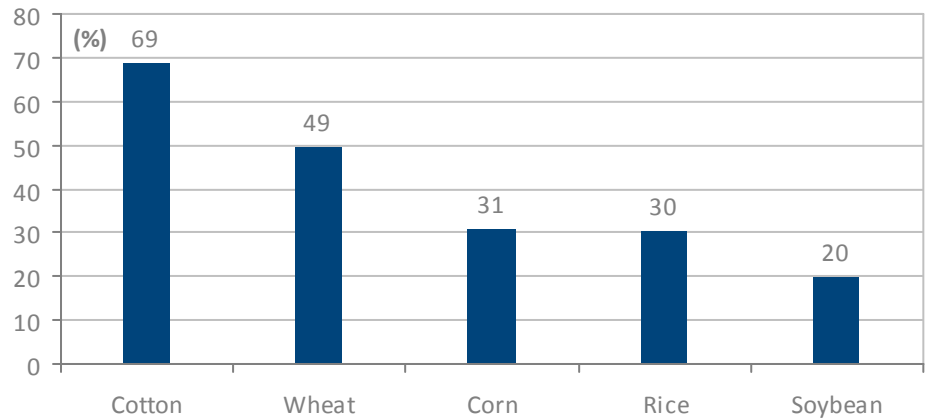
Source: USDA, IIFL Research; Note: Measured by quantity.

At the same time, the soybeans stock is also one of the lowest among soft commodities. In the past three years, China's soybean stocks, on an average, accounted for only 20% of China's annual consumption while grain stocks accounted for 30% or higher despite its imports accounting for less than 1% of annual consumption (See Figure 51). At the same time, China maintains a high level of cotton stocks (c70% of annual consumption).

High share of world trade, high level of dependency on imports and low level of stocks make soybean the best play on China's soft commodities consumption

High share of world trade, high level of dependency on imports and low level of stocks make soybean the best soft commodities play for China. In the following sections, we will also demonstrate how soybean has one of the highest growth potential.

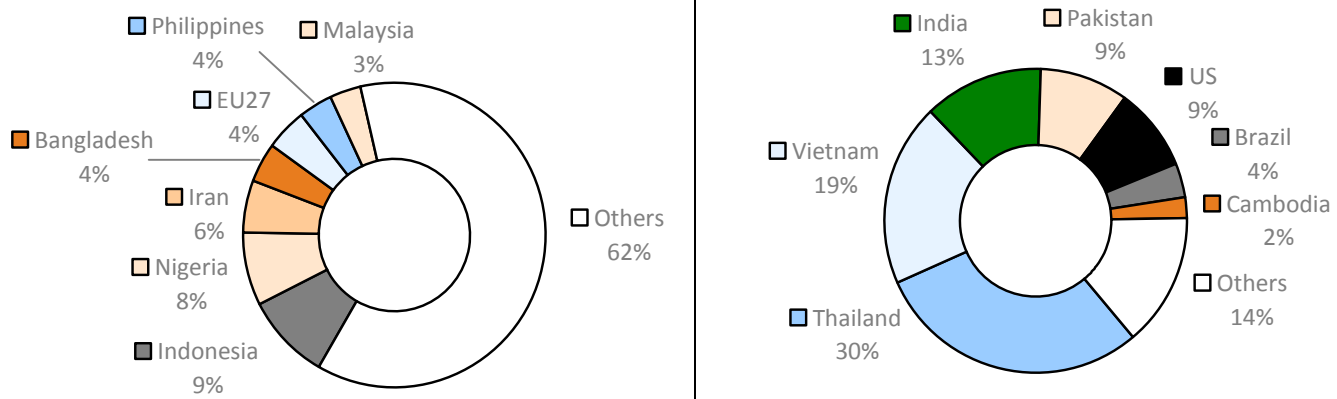
Figure 51: China's soft commodities year-end stocks as % of consumption (2009-2011 average)



Source: USDA, IIFL Research

In 2011, China was the 17th largest rice importer and accounted for only 1.7% of the world's rice trade. In 2011, Indonesia was the world's largest rice importer and Thailand was the world's largest rice exporter (See Figure 52).

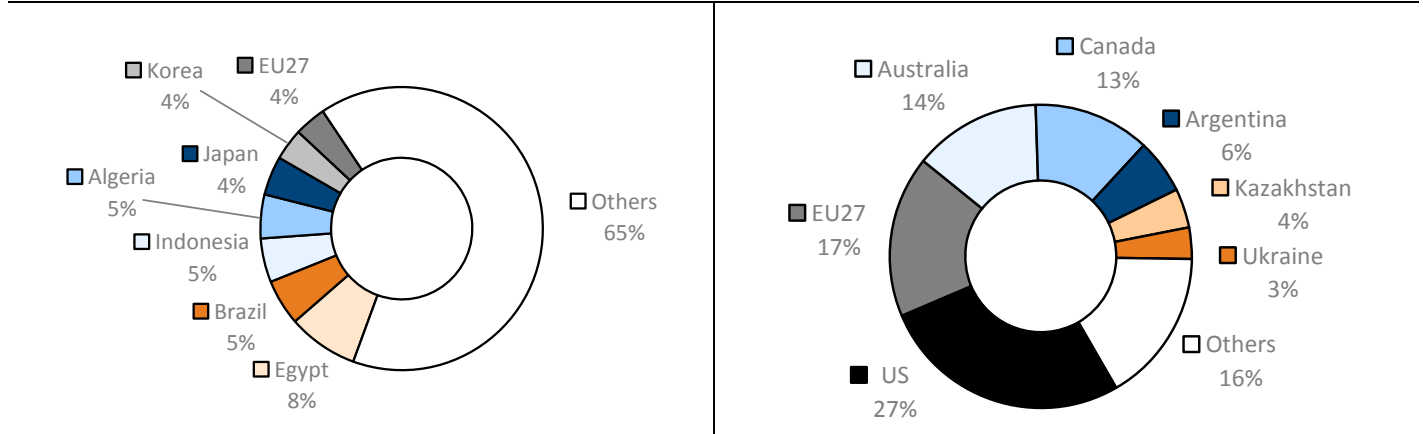
Figure 52: Major importers (left) and exporters (right) of rice in 2011



Source: USDA, IIFL Research; Note: Measured by quantity.

In 2011, China's wheat imports accounted for 0.7% of world's wheat trade, ranking the country 38th. In 2011, the top wheat importers were Egypt, Brazil, Indonesia, Algeria and Japan (See Figure 53). On the other hand, the US, EU27, Australia and Canada were the top wheat exporters in 2011. The temporary ban on wheat imports has reduced the importance of Russian wheat dramatically in 2011. In normal years, Russia has a capacity for exports comparable to Australia and Canada.

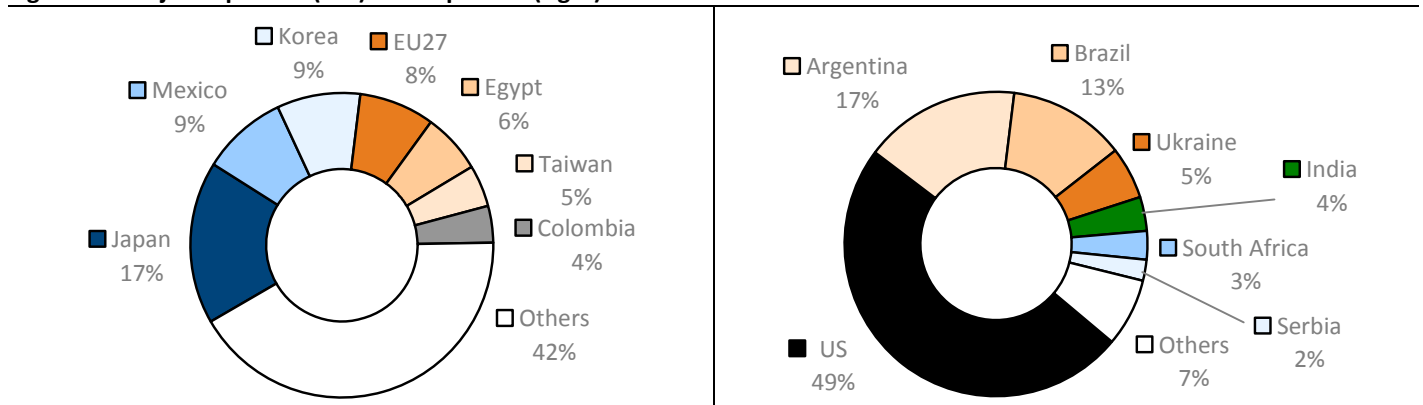
Figure 53: Major importers (left) and exporters (right) of wheat in 2011



Source: USDA, IIFL Research; Note: Measured by quantity.

Similar to rice and wheat imports, China's corn imports ranked only 20th in 2011, accounting for 1.1% of the world's corn trade. In 2011, the top corn importers were Japan, Mexico, Korea and EU27 (See Figure 54). On the other hand, the US, Argentina and Brazil are the top corn exporters. In 2011, the three countries accounted for 78% of world corn exports.

Figure 54: Major importers (left) and exporters (right) of corn in 2011

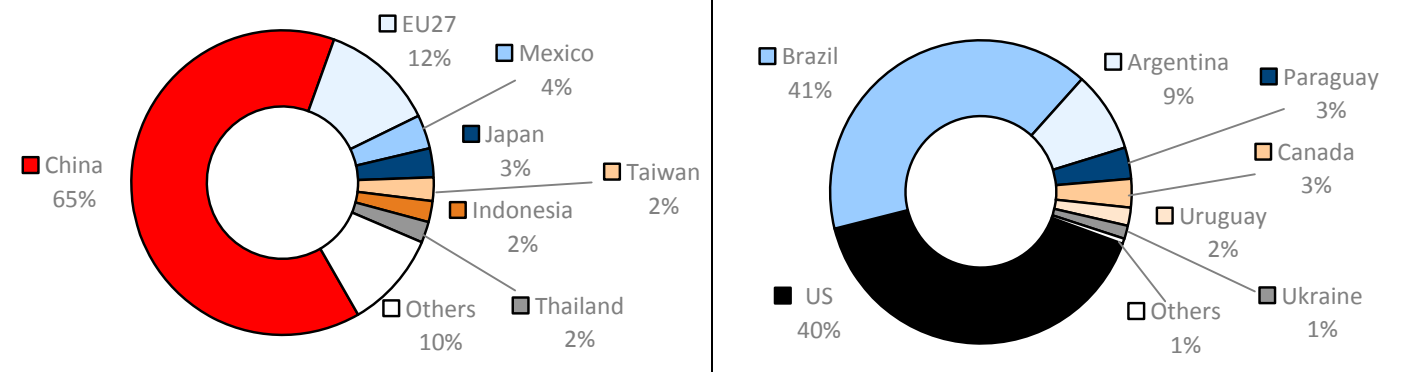


Source: USDA, IIFL Research; Note: Measured by quantity.

But when we turn to soybeans, the picture is totally different. In 2011, China accounted for 65% of the world's soybeans imports. Its share was more than 5x that of the EU27, the second-largest soybeans importer (See Figure 55).

At the same time, the US and Brazil are the top two soybeans exporters. In 2011, they accounted for more than 80% of the world's soybean exports.

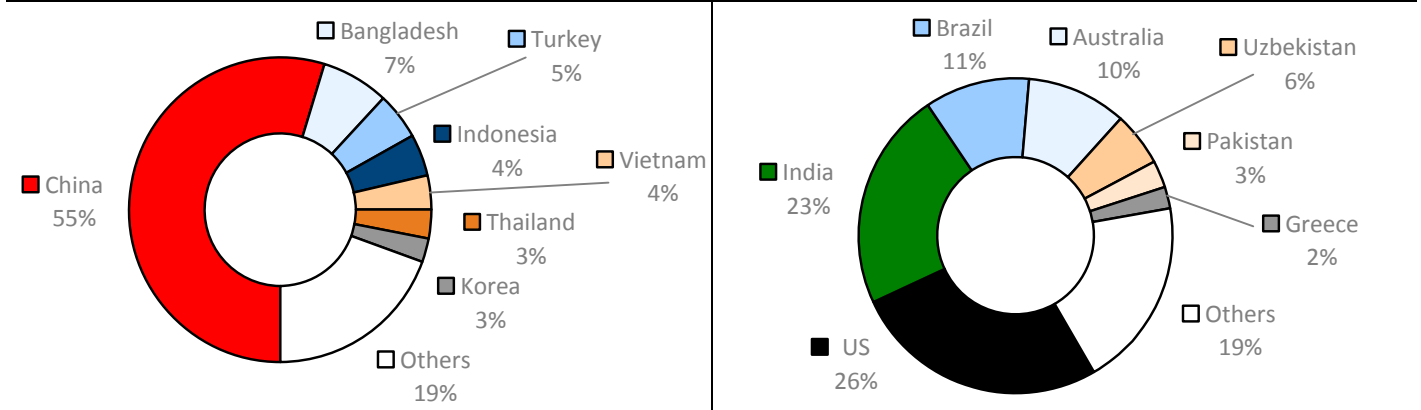
Figure 55: Major importers (left) and exporters (right) of soybean in 2011



Source: USDA, IIFL Research; Note: Measured by quantity.

The dominance of China's cotton imports is similar to that of soybeans. In 2011, China accounted for 55% of world's cotton imports (See Figure 56). Its share was more than 7x that of Bangladesh, the second-largest cotton importer. In 2011, the US, India, Brazil and Australia were the top four cotton exporters.

Figure 56: Major importers (above) and exporters (below) of cotton in 2011

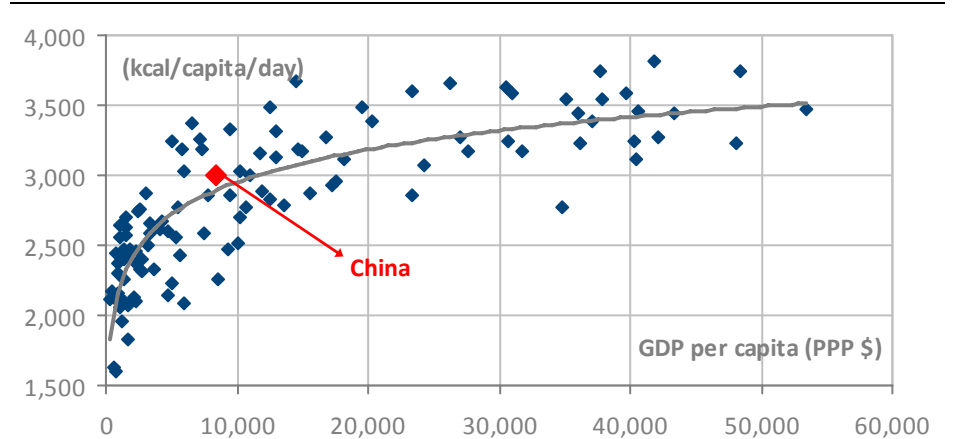


Source: USDA, IIFL Research; Note: Measured by quantity. . .

China's per capita food consumption versus the world

Currently, China's per capita food consumption is more than 3000kcal/day, higher than the food consumption versus income trend line (See Figure 57) and close to some developed countries.

Figure 57: Per capita food consumption versus GDP per capita

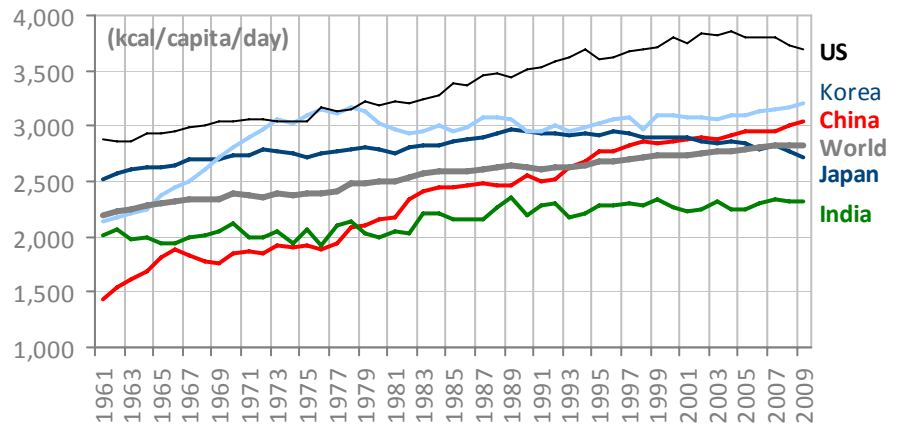


Source: FAO, IMF, IIFL Research; Note: food consumption is average from 2007-2009 and GDP per capita is 2011.

In 2009, China's per capita food consumption was 31% higher than India and 7% higher than the world average

The improvement in China's living standard is quite impressive (See Figure 58). In 1978 when it first opened its doors to the world, China's per capita food consumption was 3% lower than that of India and 16% lower than the world average. In 2009, China's per capita food consumption was 31% higher than India and 7% higher than the world average.

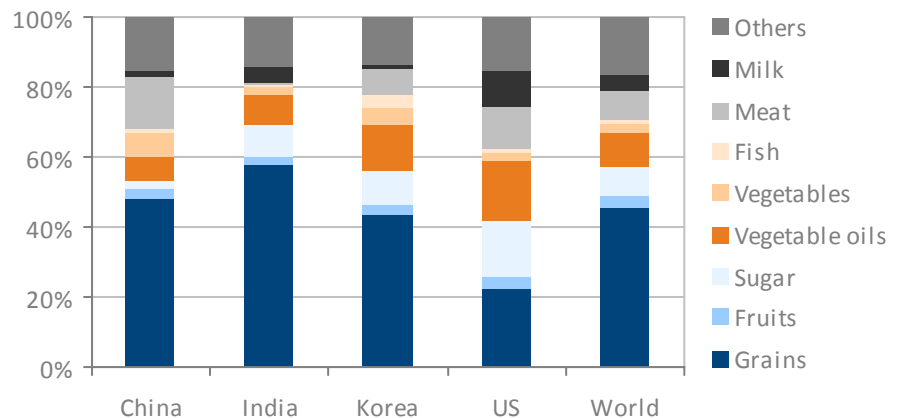
Figure 58: Selected countries' per capita food consumption



Source: FAO, IIFL Research

Currently, China's grain consumption as percentage of total consumption is still higher than the world average and its meat consumption is already significantly higher than the world average (See Figure 59). But the share of sugar consumption is significantly lower than the world average (2% versus 8%).

Figure 59: Selected countries' per capita food consumption breakdown (2007-09 average)

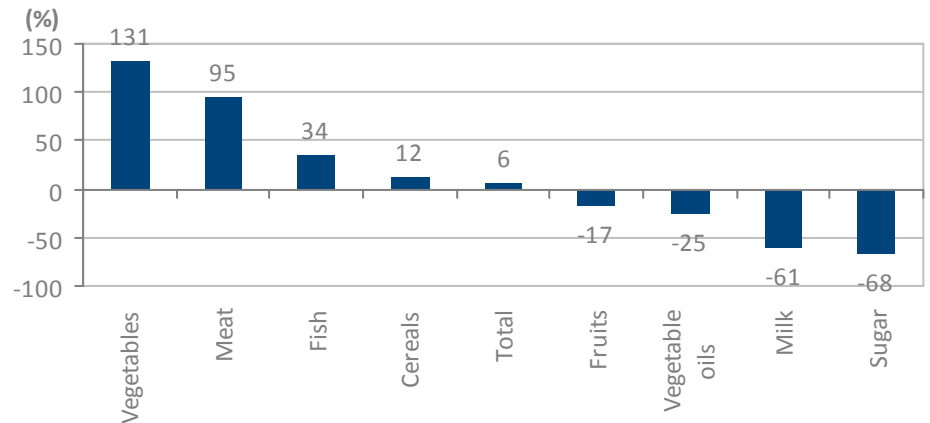


Source: FAO, IIFL Research

China's vegetables and meat per capita consumption was 131% and 95% higher than the world average

In terms of absolute energy intake, China's per capita consumption of vegetables was 131% higher and that of meat was 95% higher than the world average during the period from 2007 to 2009 (See Figure 60). In contrast, China's per capita consumption of sugar, milk and vegetable oils was 68%, 61% and 25% lower than the world average, respectively.

Figure 60: China's per capita consumption by products compared with world average (2007-09 average)

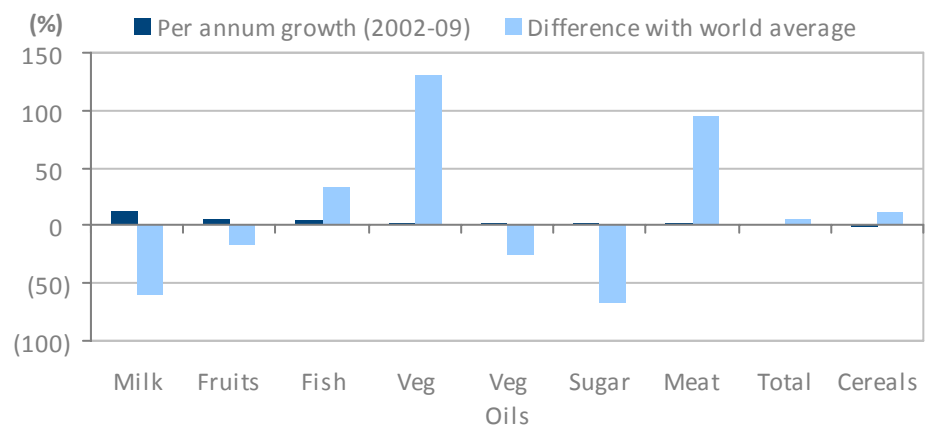


Source: FAO, IIFL Research

For some products, the difference between China's per capita consumption with the world average suggests that China is likely to consume more (when less than world average) or consume less (when more than world average).

For example, from 2002 to 2009, China's per capita milk consumption grew at 13.4% per annum in line with the fact that China is still hugely under-consuming milk compared with the world average (See Figure 61). Fruits, vegetable oils, the two other fast-growing consumption products also follow the same rule.

Figure 61: Product consumption growth versus gap with world average



Source: FAO, IIFL Research

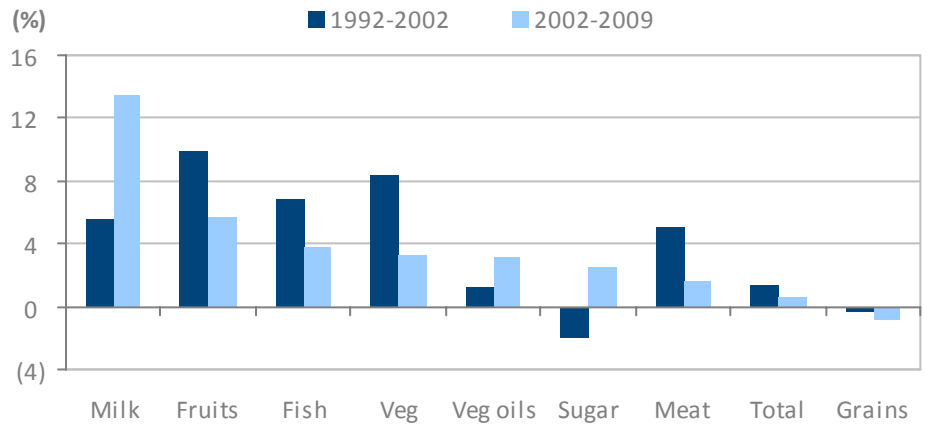
China's consumption of milk and vegetable oils has been accelerating

But there are exceptions to this rule, given China's specific dietary habits. For example, while China consumed more vegetables and fish compared to the world average, the growth rate was still high.

China's per capita food consumption growth has decelerated in 2002-2009 compared with 1992-2002; however, its consumption of milk and vegetable oils has been accelerating (See Figure 62). We can expect these two items to remain one of the few winners in terms of per capita food consumption growth in the next ten years.

It is also notable that China's per capita meat consumption growth dropped significantly from 5.1% during 1992-2002 per annum to only 1.6% per annum during 2002-2009. We will discuss the myth of China's corn consumption in the next section.

Figure 62: Per capita food consumption annual growth by products



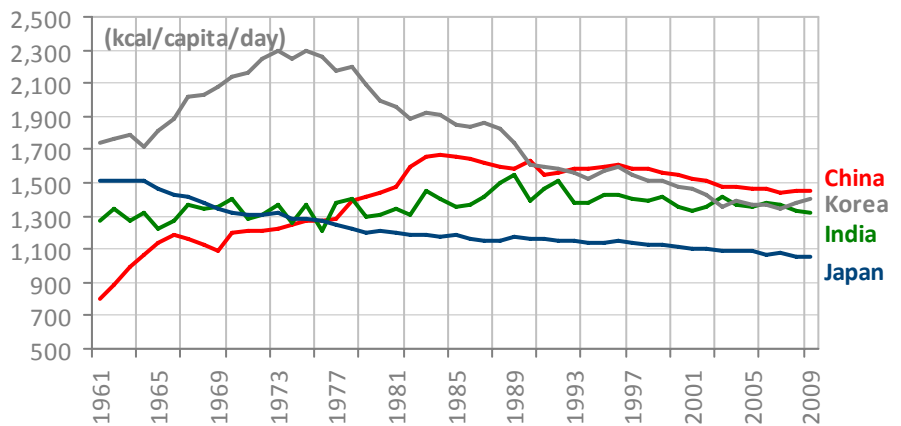
Source: FAO, IIFL Research

In 2009, China's per capita grain consumption was 1447 kcal/day, 13% lower than its peak in early 1980s

The myth of boom in China's corn consumption

When a country gets richer, its people consume less grains, both in terms of share of total food consumption and the absolute amount of per capita consumption (See Figure 63). China is no exception. In 2009, China's per capita grain consumption was 1447 kcal/day, 13% lower than its peak in the early 1980s.

Figure 63: Select countries' per capita food grain consumption

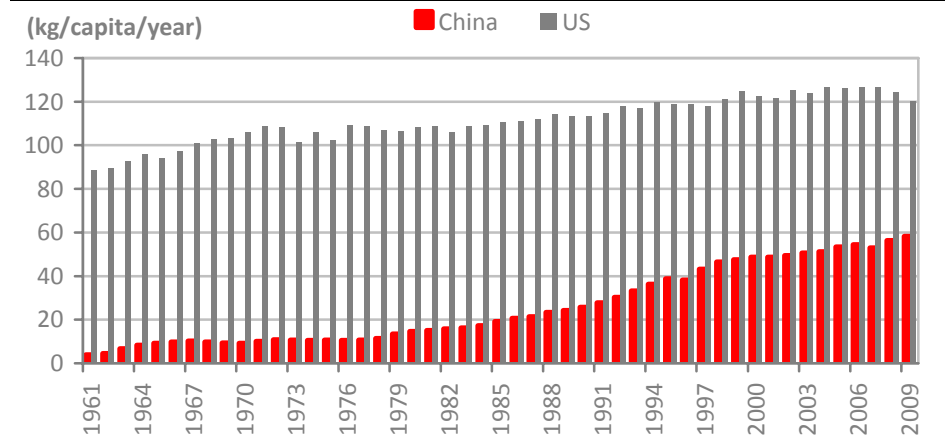


Source: FAO, IIFL Research

Therefore, while it is more convincing to say that China will not need to import big quantities of rice and wheat in future, many suggest that China may need to import large quantities of corn in future as the country's demand for meat is fast rising.

Indeed, it is very common to cite the difference between China and the US per capita meat consumption by quantity. In 2009, an average Chinese consumed 58 kg of meat per year, only 48% that of an average American (See Figure 64). Thus, there appears a big room for China to increase meat consumption. In turn, there should be a big potential for growth in China's corn consumption (as feed stock).

Figure 64: China and the US per capita meat consumption by quantity



Source: FAO, IIFL Research

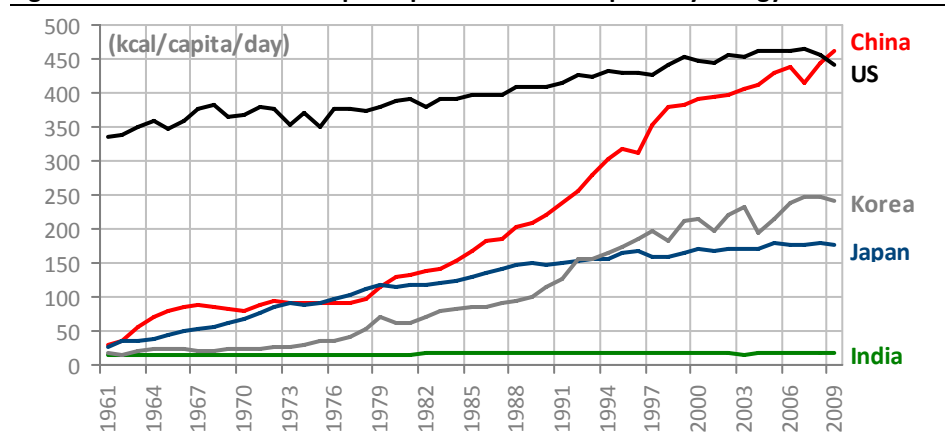
But there is a problem with this view. The Chinese are predominantly pork eaters whereas Americans consume more bovine meat. Measured by energy, the same weight of bovine meat is much less than the same weight of pork. Indeed, the pork consumed by Chinese is fatter than pork consumed by Americans.

In 2009, China's per capita meat consumption by energy intake was 5% higher than the US

As a result, China's per capita meat consumption by energy intake was 5% higher than the US in 2009 (Figure 65). As far as food consumption is concerned, energy intake is more relevant than the quantity consumed. In 2009, China's per capita meat consumption, measured by energy, was 1.9x that of Korea, 2.6x that of Japan and 27x that of India.

The fact that Chinese are consuming more meat than the US, perhaps one of the most over-consuming countries, suggests that there is little scope for China to consume more meat in the future. And as shown in Figure 62, meat consumption growth from 2002-2009 was much lower than 1992-2002.

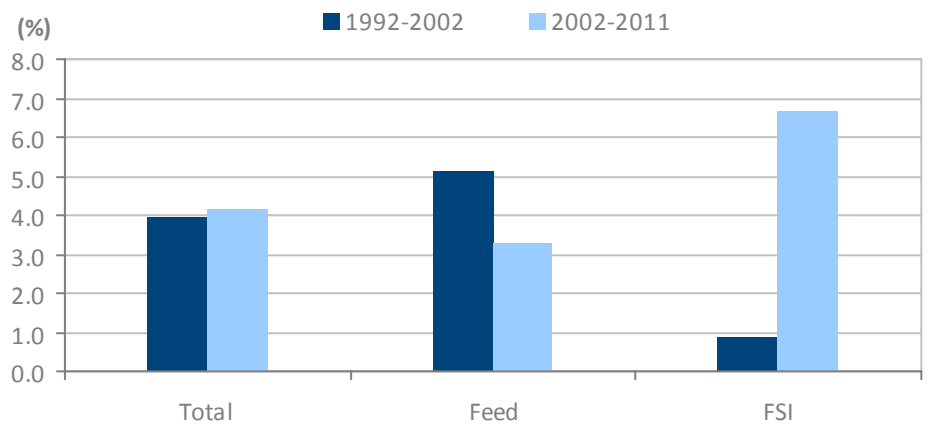
Figure 65: Selected countries' per capita meat consumption by energy



Source: FAO, IIFL Research

We also have to realise that China's fast corn consumption growth is caused by industrial use. From 2002-2011, China's corn consumption for feed grew at 3.3% per annum, lower than 5.1% in the 1992-2002 period. In contrast, the growth rate of corn consumption for FSI (food/seed/industrial, mainly for industrial) has accelerated from 0.9% in 1992-2002 to 6.7% in 2002-2011 (See Figure 66). As grain self-sufficiency is the country's top priority, China can scale back corn for industrial usage if necessary.

Figure 66: China corn consumption growth



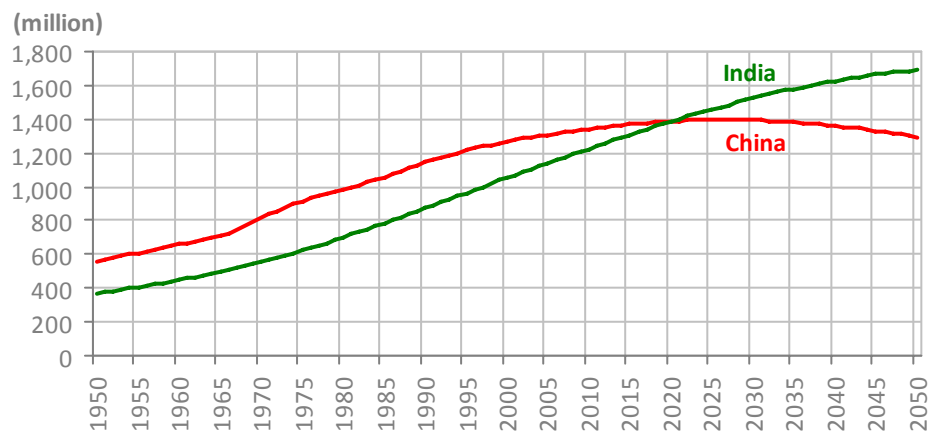
Source: USDA, IIFL Research; FSI stands for food, seed and industrial usage.

China's population growth rate will drop to 0.4% for the period 2011-2015, lower than 0.5% from 2002-2011 and 0.9% from 1992-2002

The problem of getting old before getting rich and sick

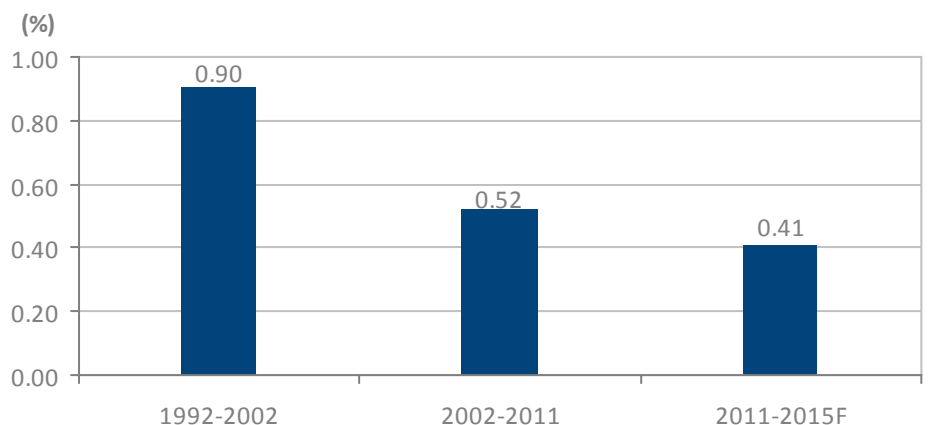
Thanks to one-child policy adopted in the late 1970s, China's population is set to peak in 2026 and India will replace China to emerge as the world's most populous nation by 2021 (See Figure 67). China's population growth rate will drop to 0.4% for the period of 2011-2015, lower than 0.5% from 2002-2011 and 0.9% from 1992 to 2002 (See Figure 68).

Figure 67: China and India population



Source: UN population division, IIFL Research

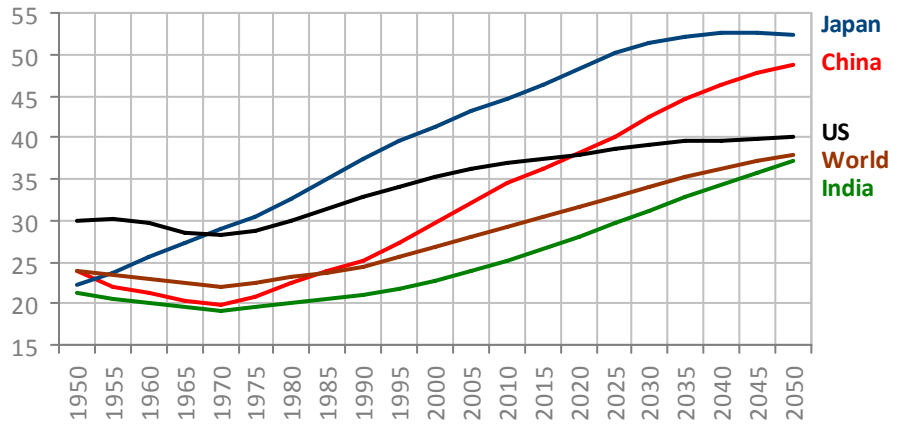
Figure 68: China population growth per annum during different periods



Source: UN population, IIFL Research

The one-child policy, together with improved living standards (life span has also increased), has turned China much older in terms of median age. China's median age was 22.4 years in 1980, reached 34.5 by 2010 and will reach 38.1 by 2020 (See Figure 69). China is aging at a pace similar to Japan.

Figure 69: Median age of selected countries



Source: UN population division, IIFL Research

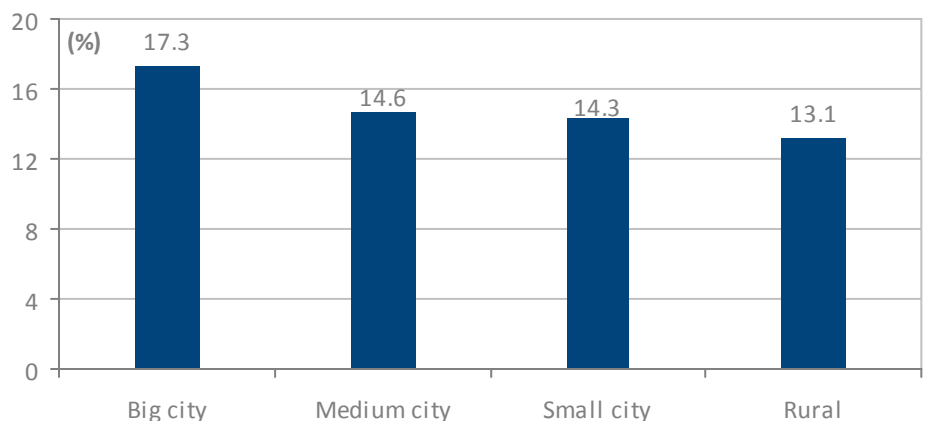
Chronic patients in China are estimated to have reached 260 million or c16% its population

As part of the aging problem, chronic illness is a major problem faced by China. Chronic patients in China are estimated to have reached 200 million or c16% of its population. But besides the aging problem, China's unbalanced dietary preference (too much meat) and unhealthy lifestyle (only 12% of adults exercise regularly) also play a role in the fast growth of chronic diseases.

China's unbalanced dietary preference and unhealthy lifestyle also play a role in the fast growth of chronic diseases

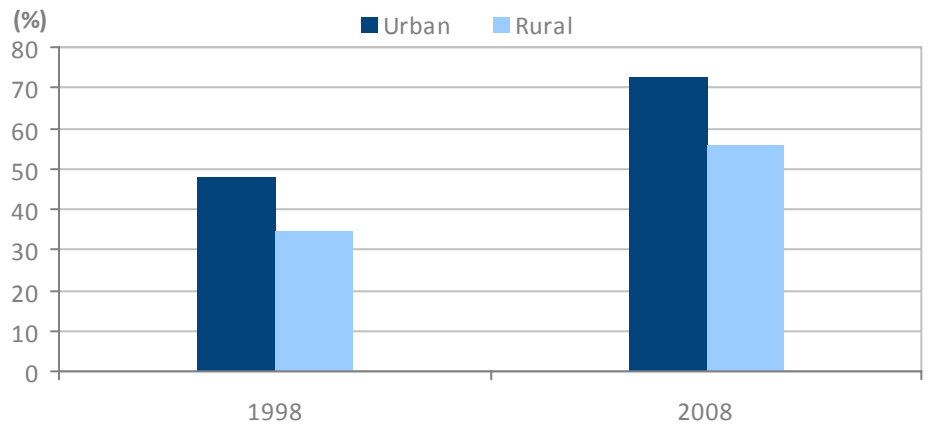
In 2008, 17.3% of Chinese from big cities were plagued by chronic illnesses as against only 13.1% in the rural areas (See Figure 70). The fast growth of chronic illnesses among the Chinese has already taken a toll on China. Within ten years, chronic illness has become the predominant illness in China. The share of chronic illness cases as a percentage of total illness cases has increased from 48% in 1998 to 73% in 2008 in urban China and from 35% in 1998 to 56% in 2008 in rural China (See Figure 71).

Figure 70: Rate of chronic illnesses in 2008 by location (age standardised)



Source: MOH, IIFL Research; Note: age standardized means the sampling result has been adjusted accord to the difference between sample age distribution and overall population age distribution.

Figure 71: Chronic illness cases as percentage of total illness cases



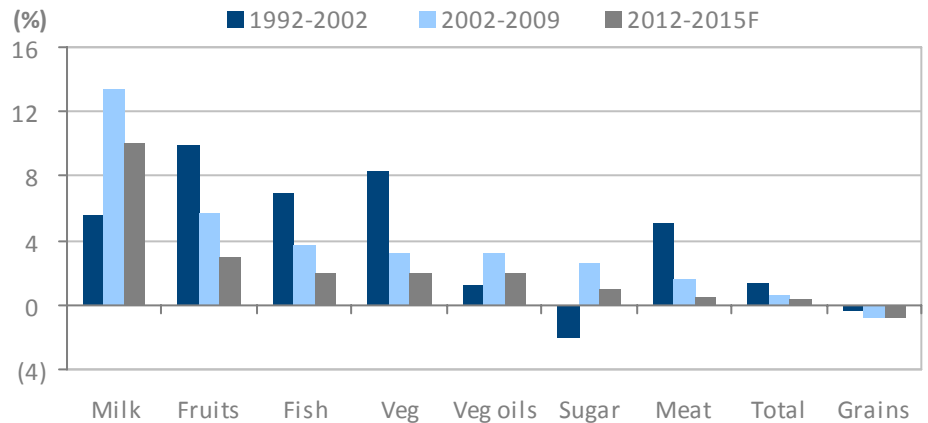
Source: FAO, IIFL Research

We expect China's per capita food consumption growth to drop from 0.6% in 2002-2009 to 0.3% per annum

We expect China's per capita food consumption growth to drop to 0.3% per annum from 0.6% over 2002-2009. We expect per capita consumption of grains to continue (-0.8% per annum) and meat consumption growth to further slow to 0.5% from 1.6% per annum over the 2002-2009 period.

Assuming China's per capita consumption growth has been the same in 2009-2012 with 2002-2009, with our forecast rate, China's per capita food consumption will reach c3200 kcal/day by 2015, closer to the level of Korea in 2009.

Figure 72: Future per capita food consumption growth versus the past

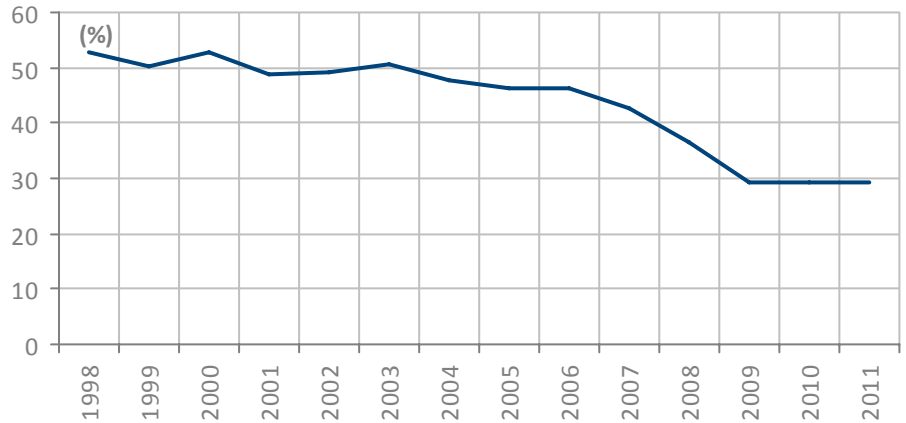


Source: FAO, IIFL Research

China’s shining position as top textile exporter is dimming

A big chunk of China’s cotton consumption is for export use. In 2011, China’s textiles and clothing exports accounted for 30% of the industry output.

Figure 73: China’s textile and clothing exports as % of total sales

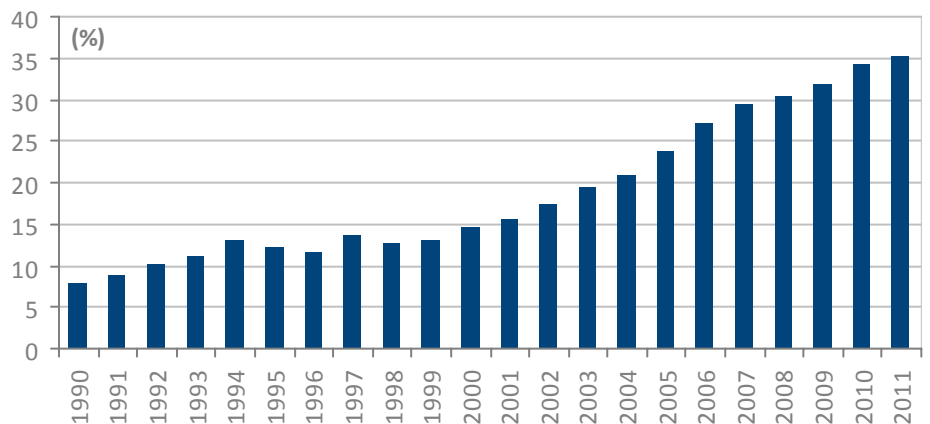


Source: CEIC, WTO, IIFL Research

In 2011, China’s textile and clothing exports accounted for more than 1/3rd of world’s total exports

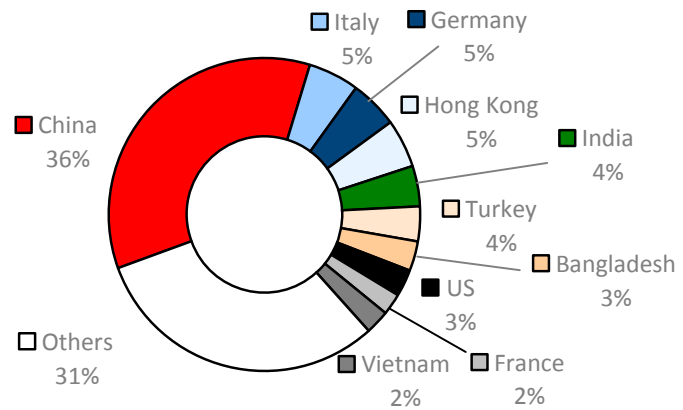
In the past 20 years, China’s share of low-end product exports has increased substantially and there are few better examples than textiles and clothing. In 2011, China’s textiles and clothing exports accounted for more than a third of the world’s total exports. Its market share was 4x that of 1990 (See Figure 74). China’s market share of textiles and clothing exports was more than the combined market share of the next nine biggest exporters in 2011 (See Figure 75). It is certainly difficult to further expand China’s market share.

Figure 74: China’s textiles and clothing exports as % of world exports



Source: WTO, IIFL Research

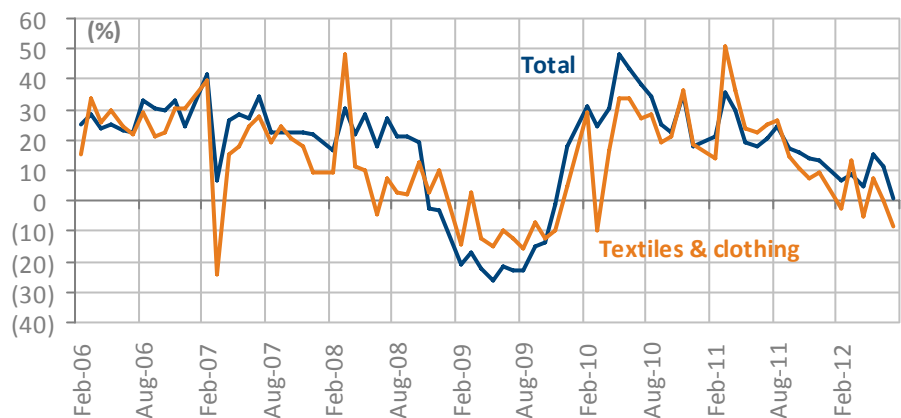
Figure 75: World's top textiles and clothing exporters in 2011



Source: WTO, IIFL Research

At the same time, as China's labour cost is rising fast, it is inevitable for China to lose its competitive edge over low-end manufacturing. China's export growth has dropped to near-zero in July 2012 and the labour-intensive textiles and clothing sector dropped 8% YoY (See Figure 76). As a result, China's appetite for cotton is expected to turn softer as well. But loss of China's production capacity may be gain of other countries. Therefore, the real impact of China's waning appetite for cotton imports will be more moderate.

Figure 76: China's exports growth (YoY)



Source: FAO, IIFL Research; Note: February data is January and February accumulative data.

We expect consumption Cagr of 0.0% in rice, 0.5% in wheat, 2.0% in corn, 6.0% in soybean and -1.0% in cotton until 2015

Forecast of China's consumption of soft commodities in future

Based on our per capita food consumption and adjusted for some potential waste and population growth, we expect consumption cagr of 0.0% in rice, 0.5% in wheat, 2.0% in corn, 6.0% in soybean and -1.0% in cotton until 2015 (See Figure 77).

Figure 77: Cagr in consumption of soft commodities by China

	Rice	Wheat	Corn	Soybean	Cotton
1992-2002	0.6	0.1	3.7	13.3	2.8
2002-2011	0.3	1.5	4.6	8.0	3.7
2011-2015F	0.0	0.5	2.0	6.0	(1.0)

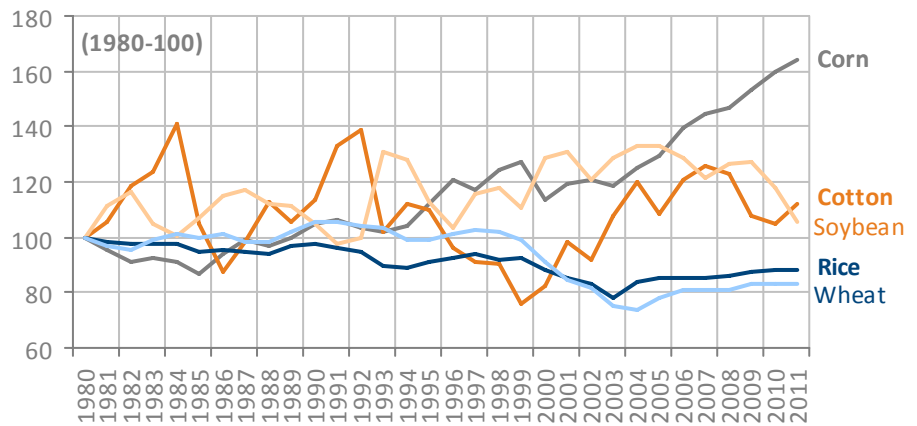
Source: USDA, IIFL Research

The harvested area of soybean and cotton are much more volatile

Lastly, we want to emphasize that China is very serious regarding grain self-sufficiency. From Figure 78, it can be seen that since Wen and Hu assumed office in 2003, China has gradually increased the harvested area of major grains and China will maintain it at the current level or may increase it further (for example in the case of corn). In contrast, the harvested area of soybean and cotton are much more volatile, which shows a lesser extent of government inference.

Therefore, we expect China's share of world trade in rice, wheat and corn to remain small in the next few years. But dependence on imports of soybeans may increase further.

Figure 78: Area of crops harvested



Source: USDA, IIFL Research

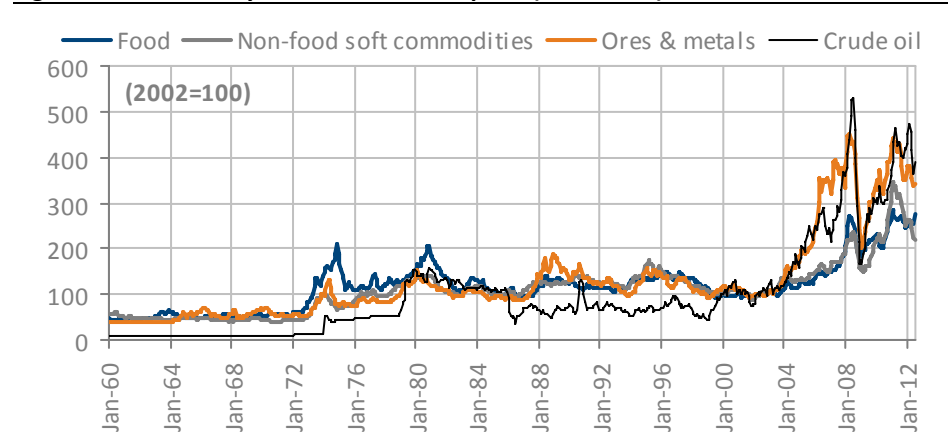
Price downside for hard commodities, upside for soft

Among the nine commodities covered in this note, only the peak prices of oil, coal and iron ore are higher in the current cycle (from 2002) than in the previous cycles (1960-2002) in real terms. In contrast, peak prices of soft commodities in the current cycle are still much lower than prices reached in 1970s, the period of the previous food crisis. We believe that there is more downside risk to prices of iron ore, copper and coal, measured by their current prices as percentage of peak prices in the previous cycle and the extent of their vulnerability to China's slowdown.

A fifty-year trend

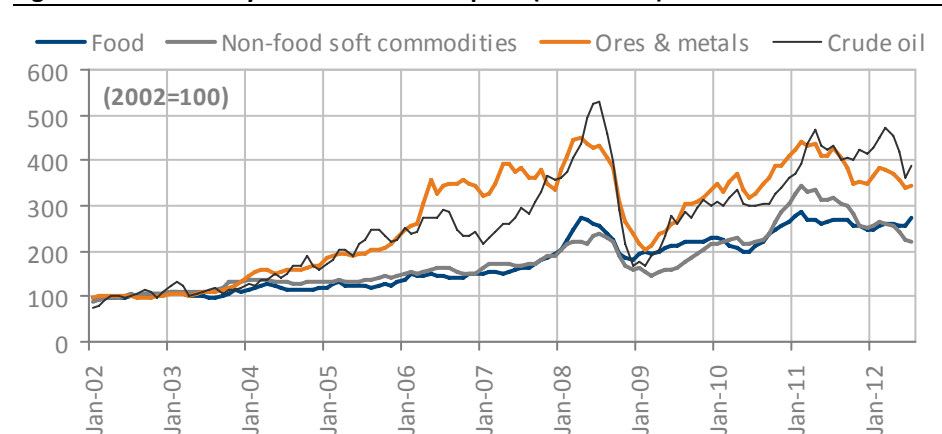
Despite being different, commodities tend to move in tandem most of time, as seen in the past 50 years (See Figure 79). Since 2002, prices of crude oil, ores and metals have risen faster (and crashed harder) than that of soft commodities (See Figure 80).

Figure 79: Commodity indices in nominal price (1960-2012)



Source: UNCTAD, IIFL Research

Figure 80: Commodity indices in nominal price (2002-2012)



Source: UNCTAD, IIFL Research

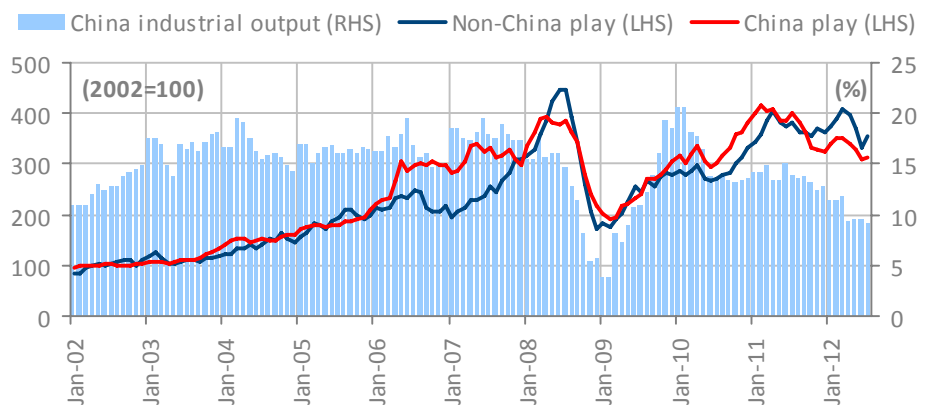
As noted earlier, we have found that as far as China's imports are concerned, non-fuel mining and non-food soft commodities are greatly dependent on China (China accounted for more than 20% imports in 2011 and more than 30% incremental imports from 2002-2011).

Therefore, we created two indices: 1) China play index - this is the weighted average of non-food soft commodities and ores & metals (weighted by traded value of non-food soft commodities and non-fuel mining products in 2011), and 2) non-China play index – this is the weighted average of crude oil index and food index (weighted by traded value of fuel and food in 2011).

As China’s industrial output started to decelerate since 3Q 2011, China play index has fallen faster than non-China play index

The difference between China play index and non-China play index has been rather limited until recently. But since China’s industrial output started to decelerate since 3Q 2011, the China play index has fallen relatively faster than non-China play index (See Figure 81).

Figure 81: Commodity indices versus China’s industrial output (2002-2012)

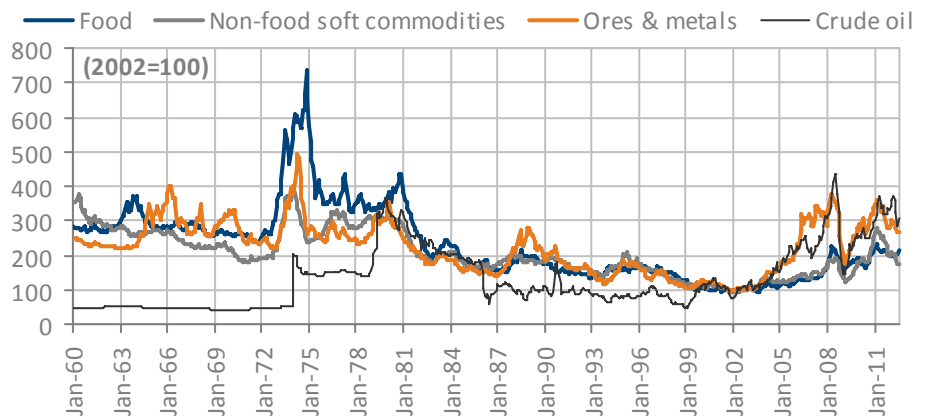


Source: UNCTAD, IIFL Research

Peak prices of soft commodities in the current cycle are far below their historical highs measured in real term

Measured by nominal price, commodities prices seem well above their historical prices. But measured in real terms (adjusted by the US CPI), the result is different. Crude oil is the only commodity with historical peak reached since 2002. The peak of soft commodities prices in the current cycle is far below their historical highs measured in real terms. For example, the recent peak of food price index in real terms (since 2002) was 69% below the all-time high reached in 1974 and the recent peak of the non-food price index (since 2002) was 24% below its historical high reached in 1974 (See Figure 82).

Figure 82: Commodity indices in real terms (1960-2012)



Source: UNCTAD, IIFL Research

With growing population and limited technology breakthroughs in agriculture in the recent decades, soft commodities would have more potential to rise in future. This is especially so since frequent extreme weather conditions and embargo on soft commodities may become more frequent than in case of other commodities. As the value of food exports often accounts for a small portion of exporters' economy than other types of commodities, it is easier for exporters to implement exports ban once the production is impacted by extreme weather.

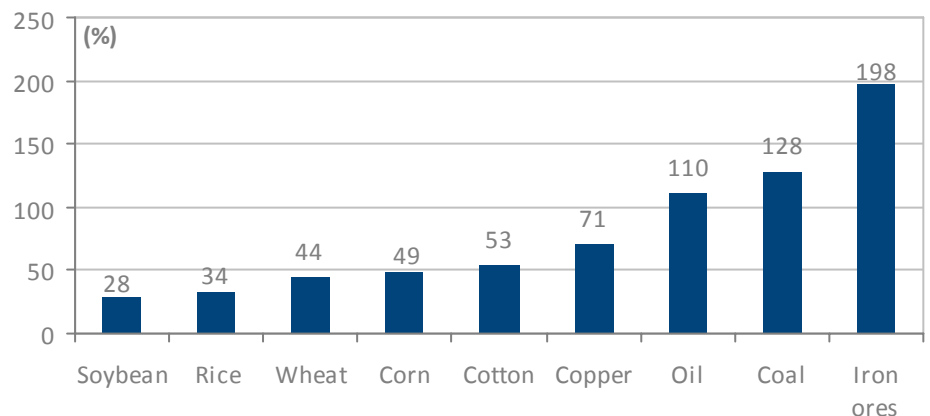
Iron ore's peak price in the current cycle reached in early 2008 was c2x of the price reached in early 1975

The peak price of rice in current cycle was only 34% of the peak price in 1970s

The trends of individual commodities

Among the seven commodities covered in this note, only the peak price of oil, coal and iron ore in the current cycle (defined as since January 2002) was higher than price in the previous cycle (1960-2002) in real terms (See Figure 83). The peak price of iron ore in current cycle reached in early 2008 was c2x of that reached in early 1975. In contrast, peak price of soft commodities in the current cycle is still much lower than the price reached in 1970s, the previous food crisis. For example, the peak price of rice in the current cycle was only 34% of the peak price in the 1970s.

Figure 83: Current cycle's peak price as % of previous cycle's peak measured in real terms



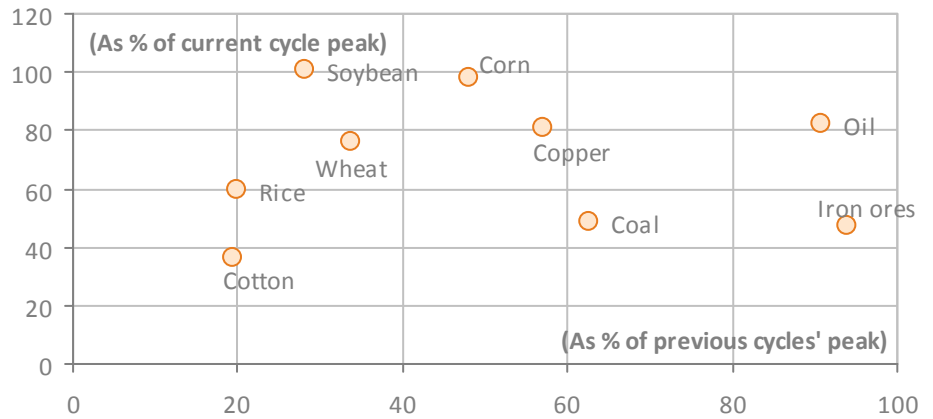
Source: World Bank, IIFL Research; Note: Current cycle start from 2002.

We further plot a chart with current price (average price of September 2012) as percentage of current cycle peak and previous cycles' peak (See Figure 85).

It can be seen that oil price remains elevated both measured by current price as percentage of the current cycle's and previous cycle's peak. In contrast, rice and cotton price is relatively cheap both to current cycle and previous cycle's peak.

At the same time, while current price of iron ore is only half of current cycle's peak, it is still not cheap measured by the previous cycle (still 94% of previous cycle's peak price). In contrast, while corn price is still close to the peak of the current cycle, it is only at 48% of previous peak. In other words, on a long-time horizon, corn price is still not expensive.

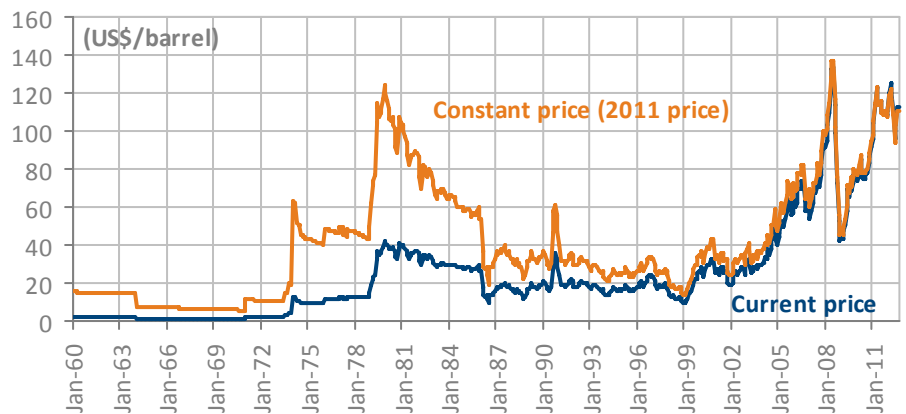
Figure 84: September 2012 price as % of current cycle's and previous cycle's peak price measured in real term



Source: World Bank, IIFL Research

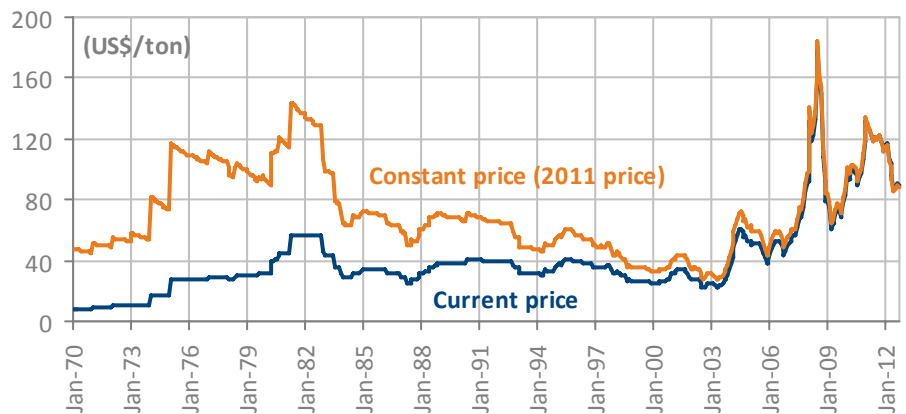
The monthly average price of commodities covered in previous sections both in nominal terms and real terms is shown from Figure 85 to Figure 93.

Figure 85: Crude oil price



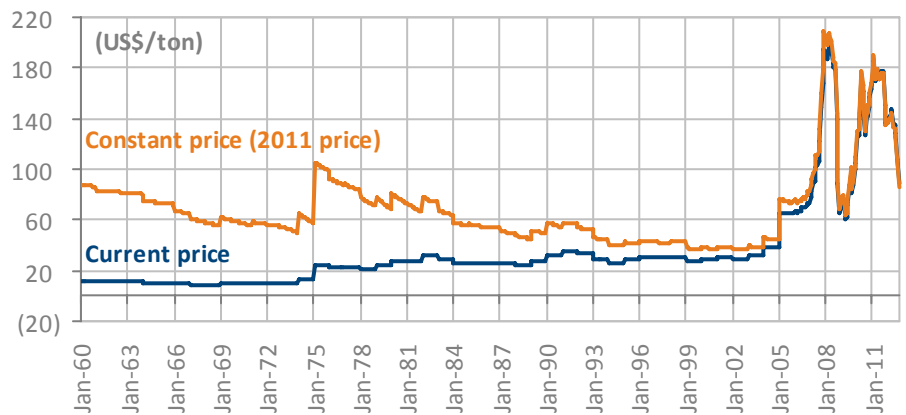
Source: World Bank, IIFL Research; Note: Brent oil price.

Figure 86: Coal price



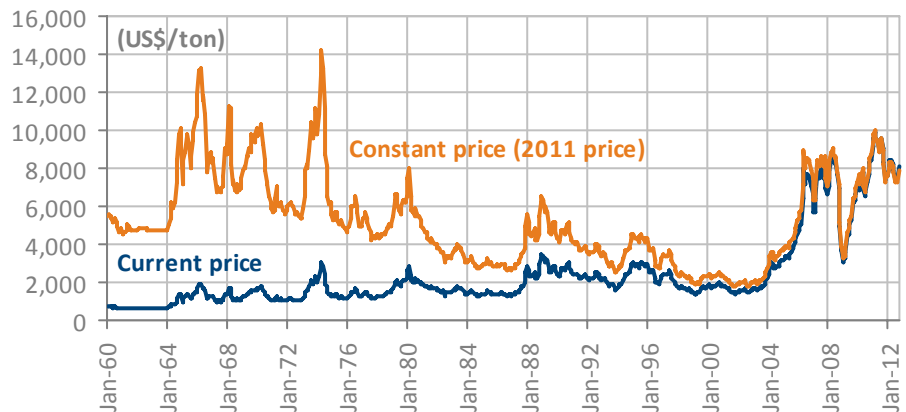
Source: World Bank, IIFL Research; Note: Australian thermal coal price.

Figure 87: Iron ores price



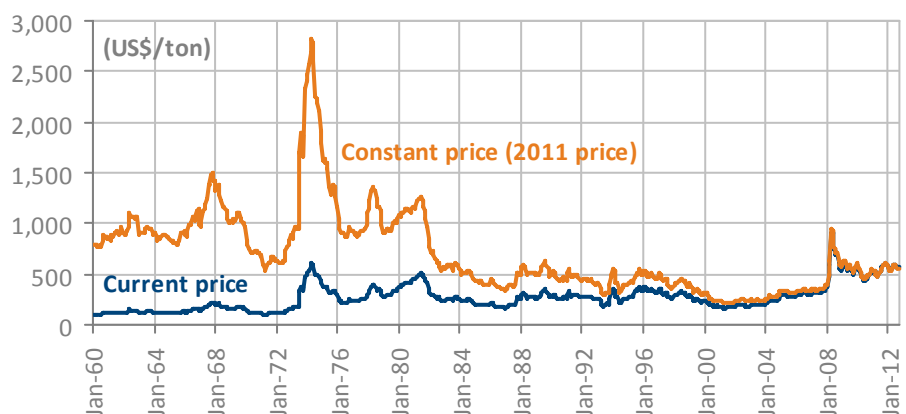
Source: World Bank, UNCTAD, IIFL Research; Note: Data before 2006 was Brazilian to Europe, Vale Itabira SSF, 64.5% Fe content, FOB; after 2006 was China import Iron Ore Fines 62% FE port spot price

Figure 88: Copper price



Source: World Bank, IIFL Research; Note: LME copper price

Figure 89: Rice price



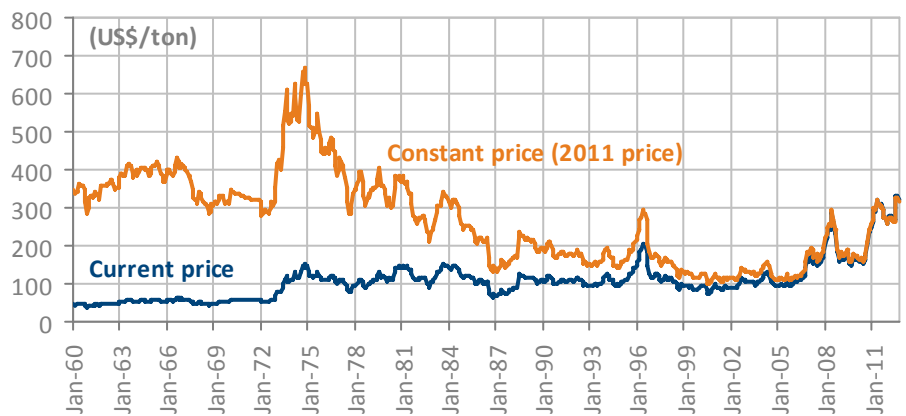
Source: World Bank, IIFL Research; Note: Thailand, white milled, 5% broken

Figure 90: Wheat price



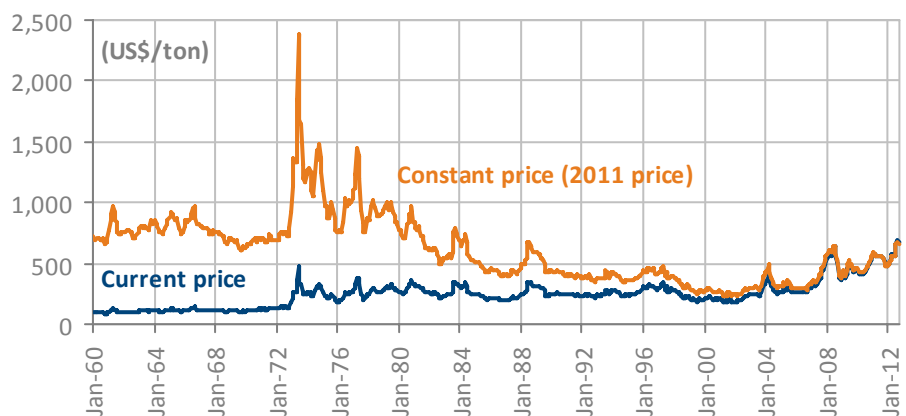
Source: World Bank, IIFL Research; Note: it is the US HRW

Figure 91: Corn price



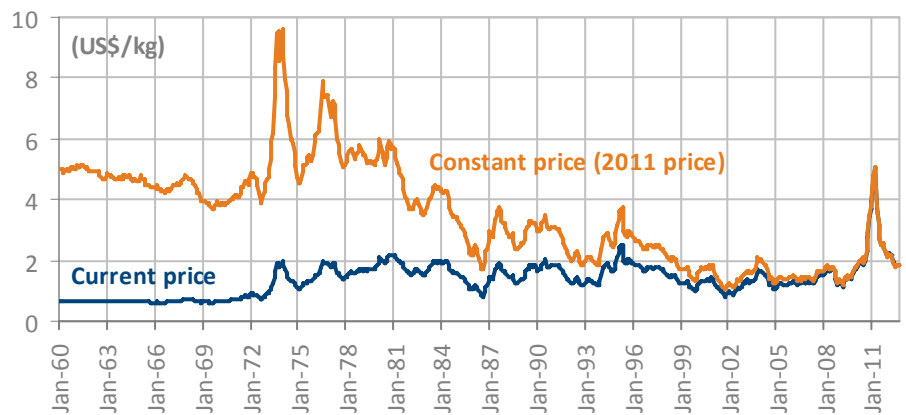
Source: World Bank, IIFL Research

Figure 92: Soybean price



Source: World Bank, IIFL Research

Figure 93: Cotton price



Source: World Bank, IIFL Research

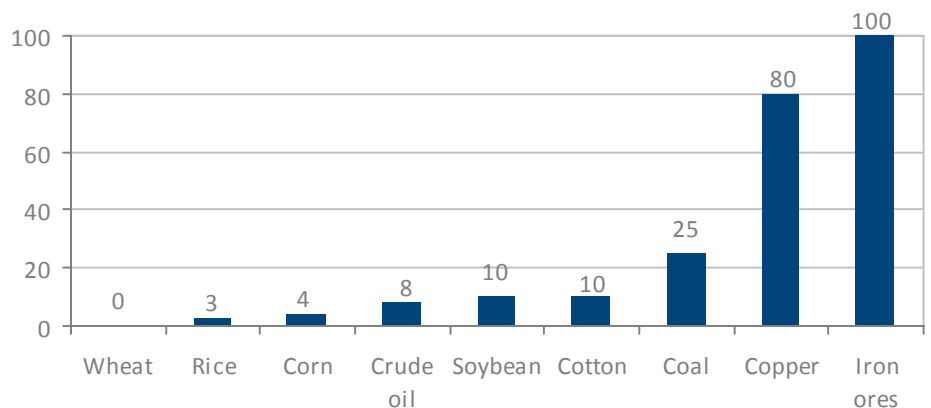
To quantify the decline in China’s consumption of commodities, we invent a simple index — the China Vulnerability Index. This index is the multiple of China’s standardised share of world imports for that commodity and the magnitude of China’s consumption growth that is slowing down.

On a scale of 0 to 10, according to the share of world imports, we set a different number to individual commodities. For example, for commodities for which China’s imports as percentage of world trade is 0-1%, we set a value of 0 for that commodity (for example in the case of wheat). In contrast, we set value of iron ore at 10 as China’s imports as % of world trade is above 50%.

For the standardised decline in growth rate, we consider both the percentage points drop as well as the decline as a percentage of previous growth rate. Again, we set 0-10 scale for individual commodities. At the same time, we manually adjust some commodities’ standardised decline in growth rate. For example, for soybeans, while consumption growth will drop from 9% in the past four years to 6%, it is still a decent number.

The multiple of these two variables will be the China Vulnerability Index. With a value from 0 to 100, the bigger the value, the more vulnerable this commodity will be from China consumption decline point of view. While iron ore is most vulnerable, the potential negative impact for China for grains is negligible (See Figure 94).

Figure 94: China Vulnerability Index



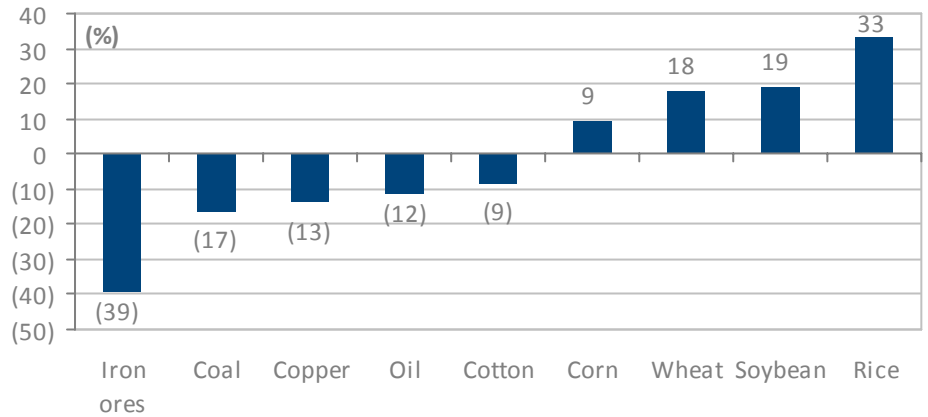
Source: IIFL Research

There may be still more downside risk for prices of iron ore, copper and coal

Of course, investors have to take other factors into consideration, such as current price as a percentage of current cycle's peak as well as previous cycle's peak value.

On a 12-month horizon, we expect price of iron ore to further correct by 40% from the September 2012 level, being the most vulnerable commodity, whereas, we expect rice to have more than 30% upside (See Figure 95). The summary of individual commodities can be seen in the Appendix.

Figure 95: 12-month target up/downside from September 2012 prices

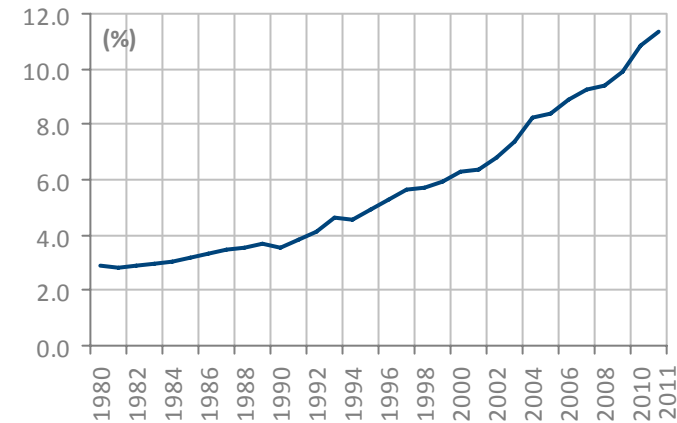


Source: World Bank, IIFL Research

Appendix - China's global share of consumption/imports, growth and price trends

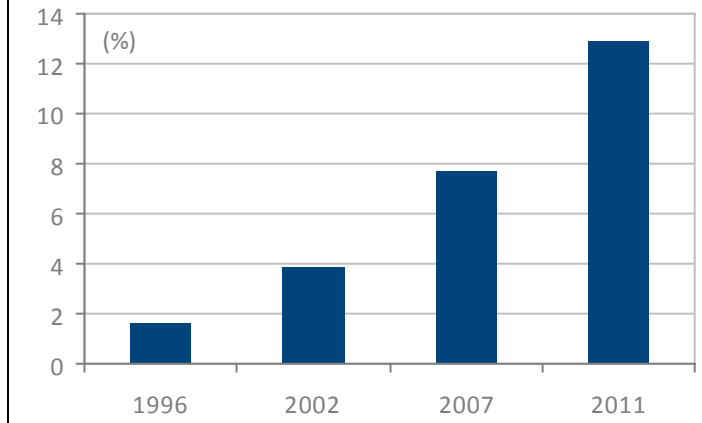
Crude oil

Figure 96: China's oil consumption as % of world consumption



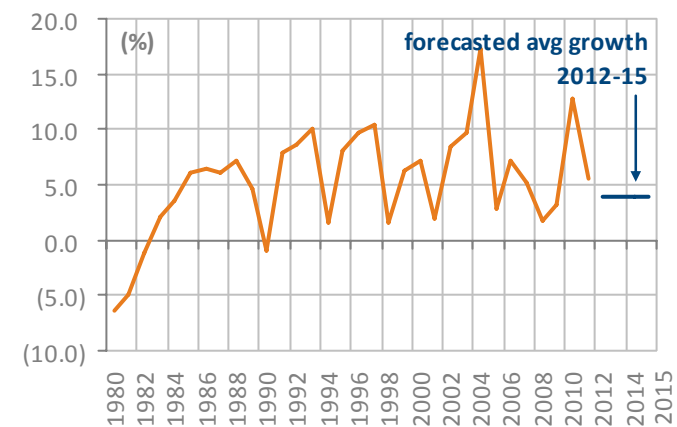
Source: BP, IIFL Research

Figure 97: China's oil imports as % of world imports



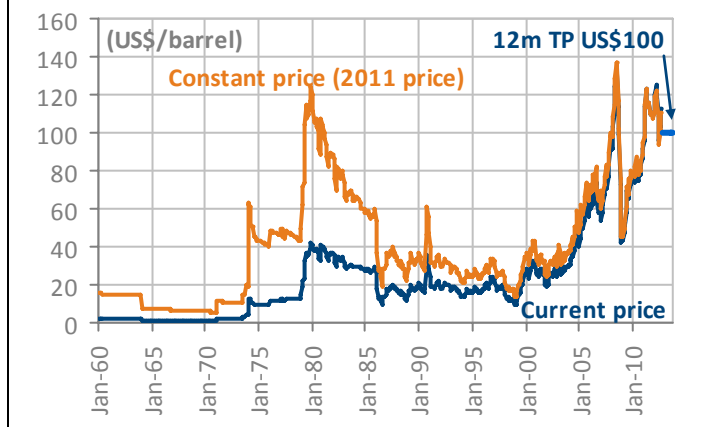
Source: UN Comtrade, IIFL Research

Figure 98: China's oil consumption growth



Source: BP, IIFL Research

Figure 99: Long-term oil price

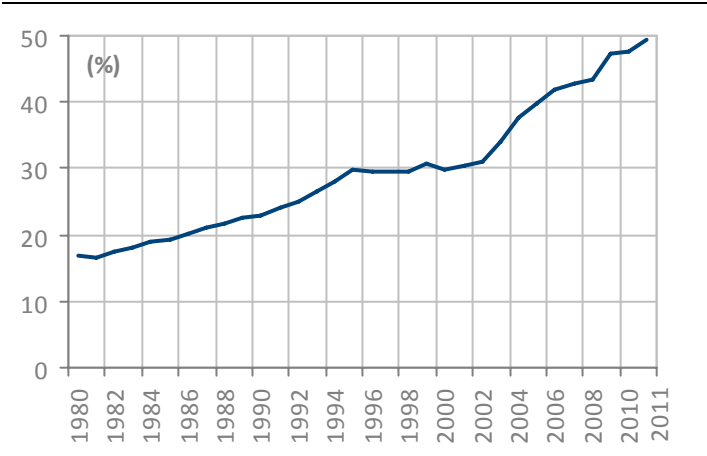


Source: World Bank, IIFL Research; Note: Brent oil price.

- From 1996 to 2011, China's share of oil consumption as percentage of world consumption increased from 5.2% to 11.4%. In 2011, China was the world's second-largest oil importer, next to the US. At the same time, China's share of world imports also increased from 1.6% to 12.9% during the same period. In 2011, China's dependence on imported oil (imports as % of total consumption) reached 57%. Back in 1990s, China was still a net oil exporter.
- China's oil consumption growth has been relatively stable across cycles. We expect the country's consumption growth to decline from 5.8% annually in the past five years to 4% from 2012 to 2015.
- Despite liberal dosages of liquidity infusion, we expect the world economic growth to remain sluggish. As a result, we expect average crude oil price to reach US\$100/barrel in 12 months or 12% lower than the average price in September 2012.

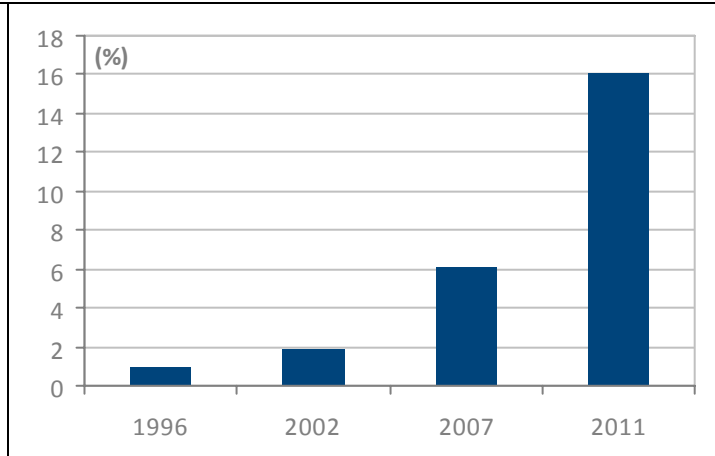
Coal

Figure 100: China's coal consumption as % of world consumption



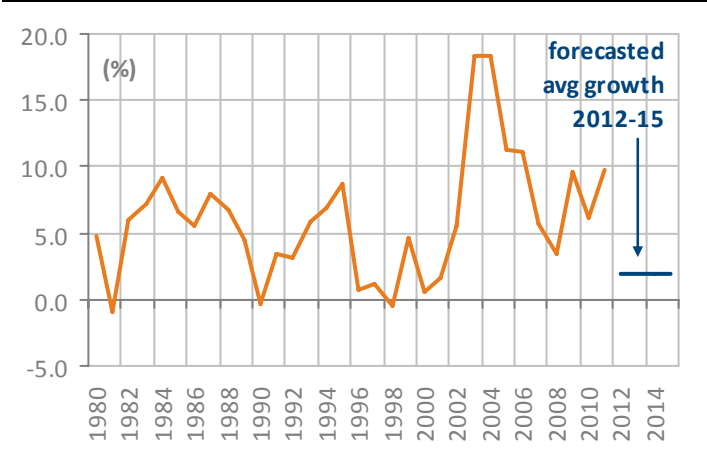
Source: USDA, IIFL Research

Figure 101: China's coal imports as % of world imports



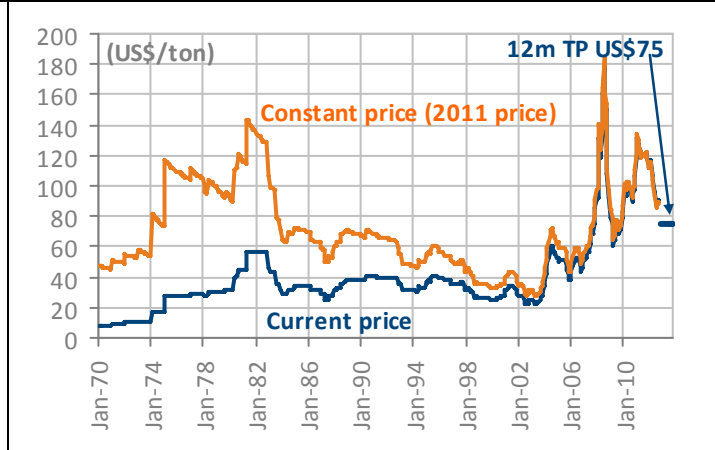
Source: UN Comtrade, IIFL Research

Figure 102: China coal consumption growth



Source: BP, IIFL Research

Figure 103: Long-term coal price

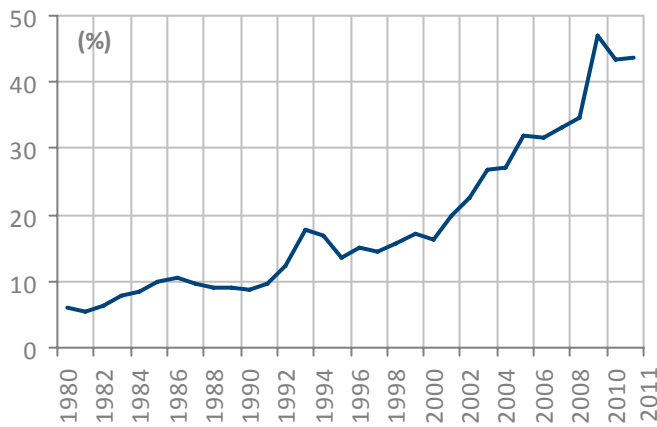


Source: World Bank, IIFL Research; Note: Australia thermal coal

- From 1996 to 2011, China's share of coal consumption as percentage of world consumption increased from 29% to 49%. It is notable that there was a sharp increase from 2002 onwards whereas China's share of coal consumption was virtually flat from 1995 to 2001.
- At the same time, China's share of world imports increased from 0.9% to 16% during the same period, measured by tonnage. In 2011, China was the world's largest coal importer, measured by tonnage (next to Japan) and the second largest measured by value.
- But China's dependence on imported coal (imports as percentage of total consumption) was still small (5.3% in 2011). We expect China's coal consumption growth to drop to 2% annually from 2012 to 2015 in contrast to c10% in the past four years. As such coal price should decline further. Our 12 month target price for coal is US\$75/ton, or 17% lower than the September 2012 average.

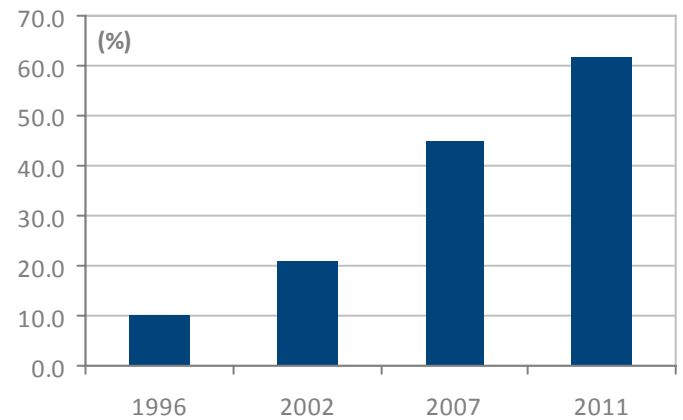
Steel/iron ore

Figure 104: China's crude steel consumption as % of world consumption



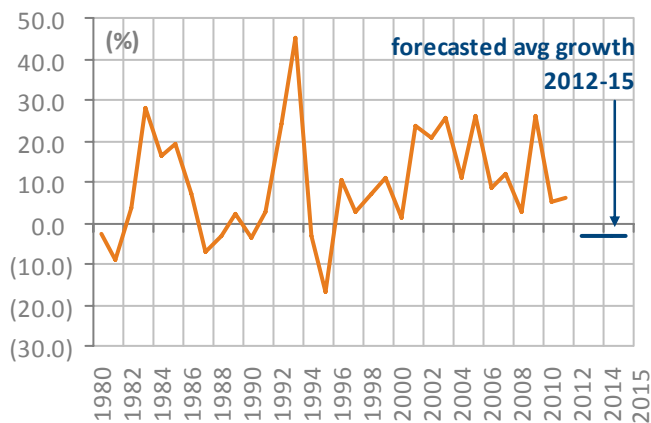
Source: WSA, IIFL Research

Figure 105: China's iron ores imports as % of world imports



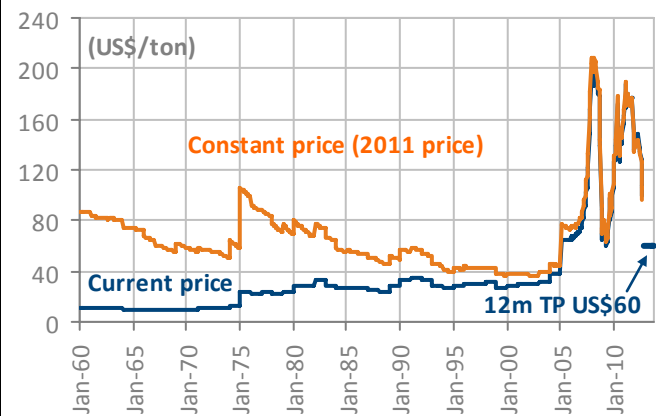
Source: WSA, IIFL Research

Figure 106: China's crude steel consumption growth



Source: WAS, IIFL Research

Figure 107: Long-term iron ores price

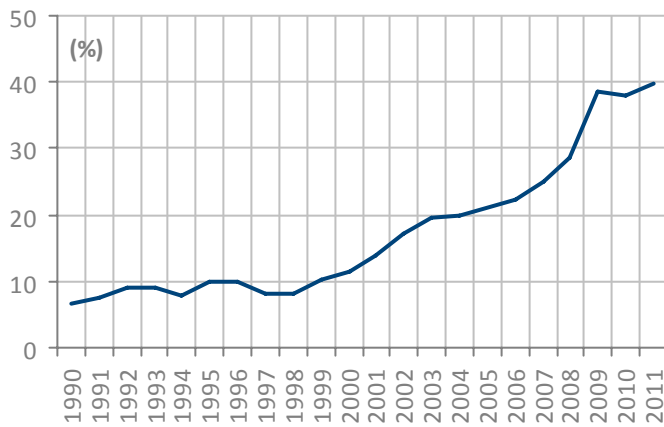


Source: World Bank, Bloomberg, IIFL Research; Note: Data before 2006 was Brazilian to Europe, Vale Itabira SSF, 64.5% Fe content, FOB; after 2006 was China import Iron Ore Fines 62% FE port spot price

- From 1996 to 2011, China's share of crude steel consumption as percentage of world consumption increased from 15% to 44%. At the same time, China's share of iron ore imports also increased from 10% to 62% during this period. In 2011, China's dependence on imported iron ore (imports as % of total consumption) reached 65%.
- After the biggest nation building exercise during Hu and Wen administration (2003-2012), we estimate a multi-year negative growth in steel consumption ahead. We expect China's consumption growth from 2012 to 2015 to be -3%, a sharp slowdown compared with the 14% Cagr in the past four years.
- As China is dominant in world iron ore imports, the sharp slowdown of steel demand in China should translate into weak iron ore price. We expect iron ore price to reach US\$60/ton in 12 months, or c40% lower than the September 2012 average.

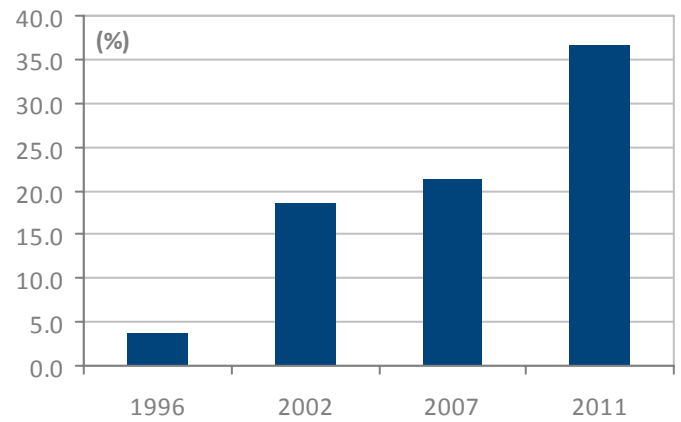
Copper

Figure 108: China's copper consumption as % of world consumption



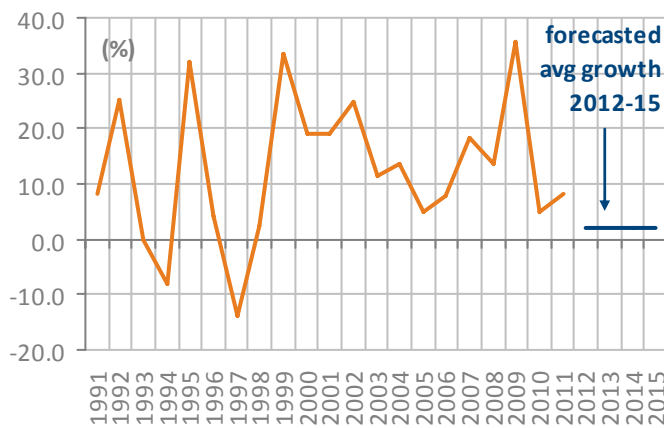
Source: CNMIA, ICSG, IIFL Research

Figure 109: China's refined copper imports as % of world imports



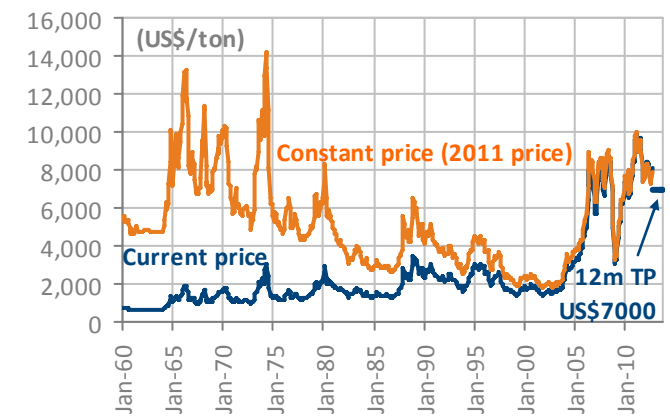
Source: UN Comtrade, IIFL Research

Figure 110: China's copper consumption growth



Source: CNMIA, ICSG, IIFL Research

Figure 111: Long-term copper price

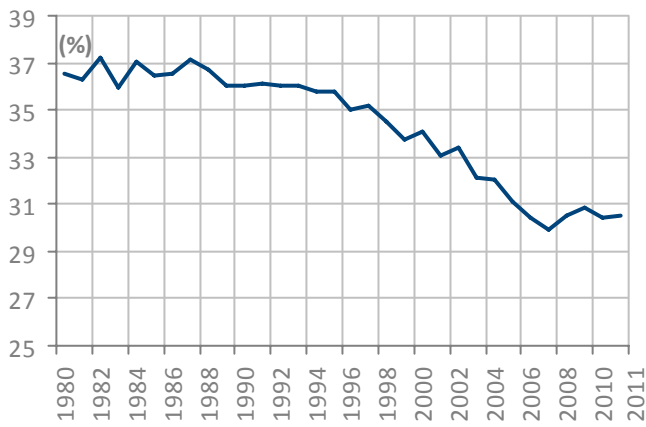


Source: World Bank, IIFL Research; Note: LME copper price.

- From 1996 to 2011, China's share of refined copper consumption as percentage of world consumption, increased from 10% to 40%. At the same time, China's share of world imports also increased from 4% to 37% during the same period. In 2011, China's dependence on imported refined copper (imports as % of total consumption) reached 36%.
- We expect China's refined copper consumption to soften to 2% in 2012-2015 from 15% in the past four years.
- As copper has increasingly turned a financial product, we expect the price of copper to be much firmer than steel/iron ore. The 12-month price target for copper is US\$7000/ton, or 14% lower than the September 2012 average.

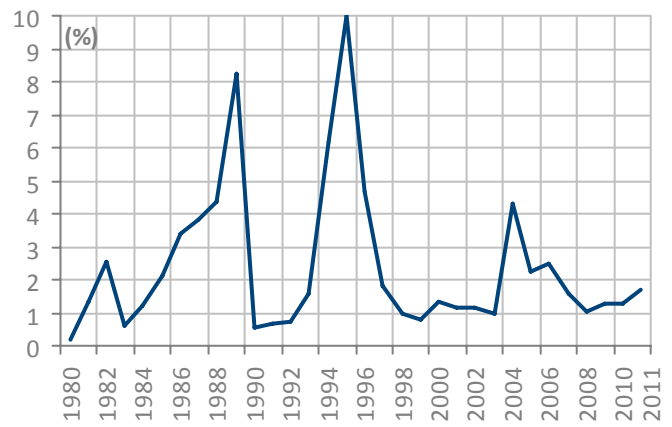
Rice

Figure 112: China's rice consumption as % of world consumption



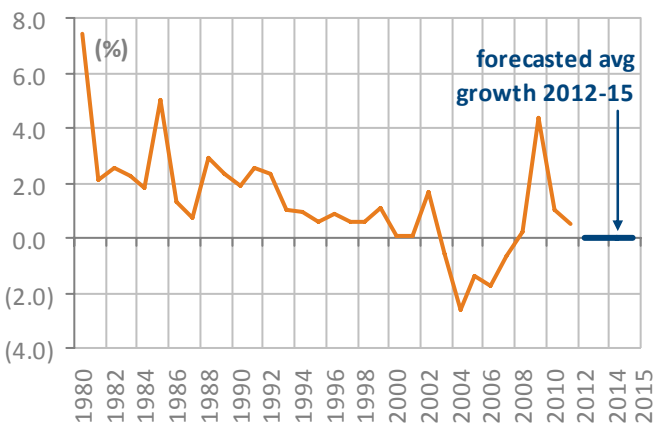
Source: World Bank, IIFL Research; Note: Australia thermal coal

Figure 113: China's rice imports as % of world imports



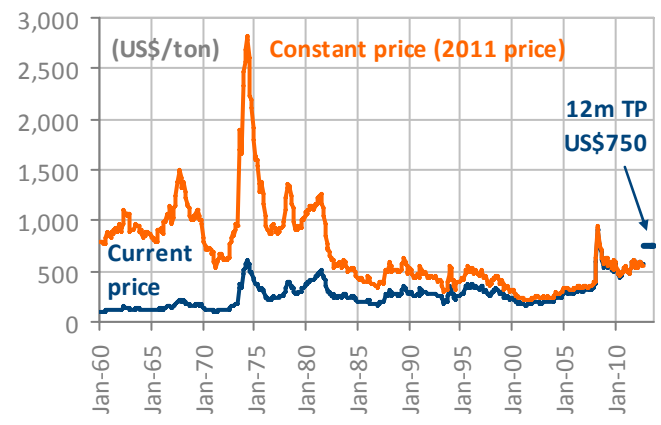
Source: World Bank, IIFL Research; Note: Australia thermal coal

Figure 114: China's rice consumption growth



Source: USDA, IIFL Research

Figure 115: Long-term rice price

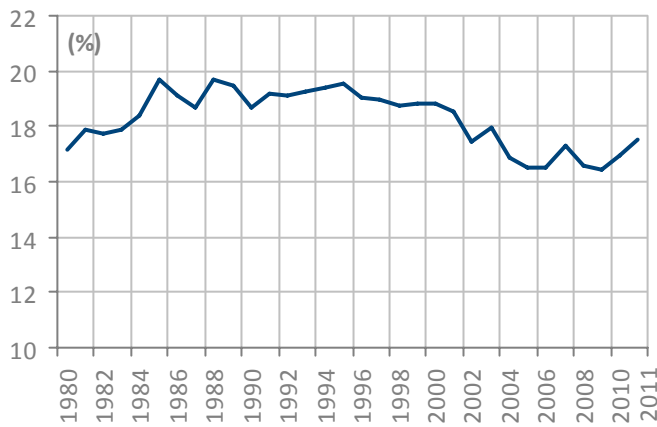


Source: World Bank, IIFL Research; Note: Thailand, white milled, 5% broken

- Though China accounts for c30% of world's consumption of rice, its influence on world rice trade is rather minimal. In the past decades, bar one or two years, China's imports as percentage of total world trade was less than 2% and its dependence on rice imports was less than 1%.
- China's rice consumption Cagr was 0.1% in the past 10 years and 1.5% in the past four years. As China's per capita rice consumption is set to decline further, we expect China's total rice consumption to remain flat from 2012-2015.
- Given the importance of food (relative to industrial and energy commodities) and as weather becomes increasingly volatile, we expect food price to be more prone to the influence of global liquidity flows. Our 12-month price target for rice is US\$750/tons, or 33% higher than the September 2012 average.

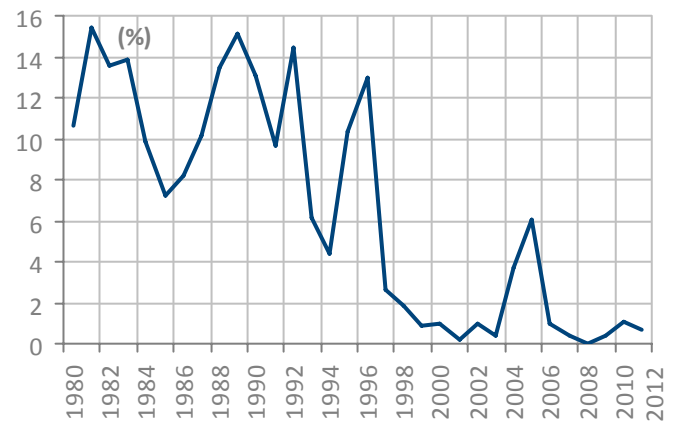
Wheat

Figure 116: China's wheat consumption as % of world consumption



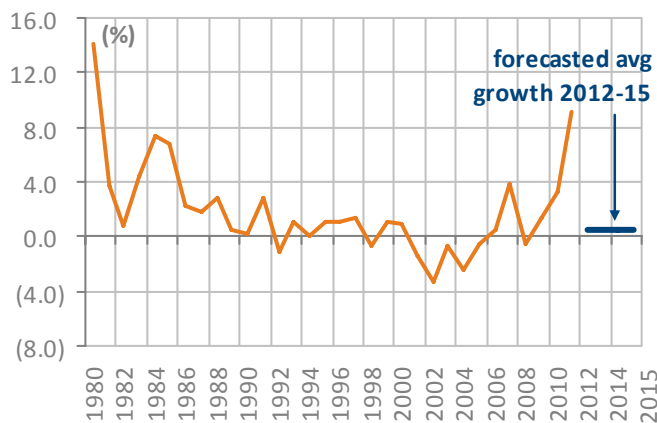
Source: USDA, IIFL Research

Figure 117: China's wheat imports as % of world imports



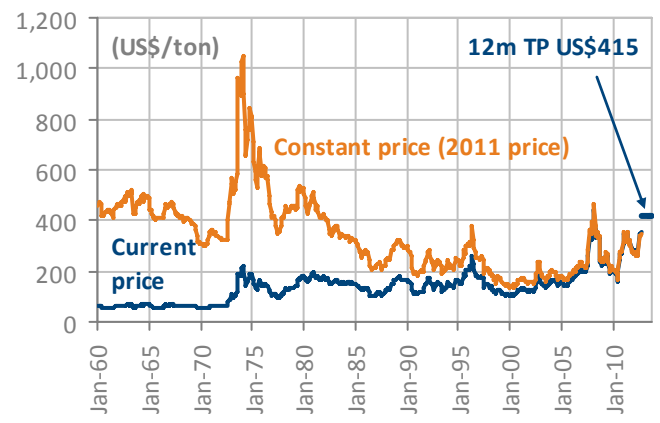
Source: USDA, IIFL Research

Figure 118: China's wheat consumption growth



Source: USDA, IIFL Research

Figure 119: Long-term wheat price

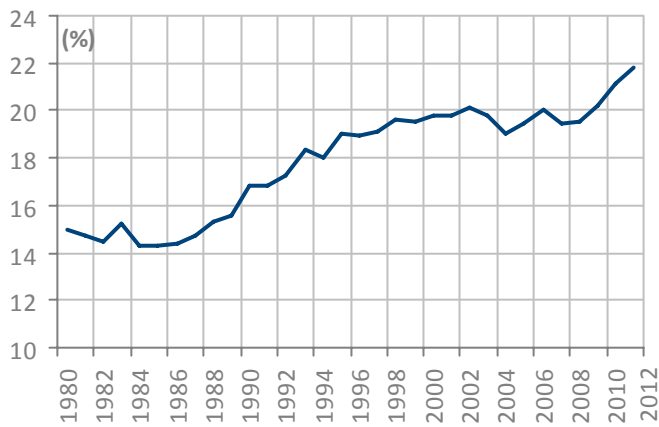


Source: World Bank, IIFL Research; Note: the US HRW

- Similar to rice, as China has put in more effort in achieving food self-sufficiency since the late 1990s, its influence on wheat trade is rather muted although China accounts for c18% of world's wheat consumption. In the past decades, bar one or two years, China's wheat imports as % of total world trade was less than 2% and its dependence on wheat imports was less than 1%.
- China's wheat consumption Cagr was 1.0% in the past 10 years and 3.3% in the past four years. The strong growth in wheat consumption in the past few years is mainly driven by feed stocks use, an alternative to corn. But China could curtail the industrial usage of corn and China's per capita meat consumption is already higher than the US. As a result, we expect China's wheat consumption to grow at 0.5% from 2012-2015.
- The 12-month price target for wheat is US\$415/tons, or 18% higher than the September 2012 average. It is 10% below March 2008 current cycle's peak price.

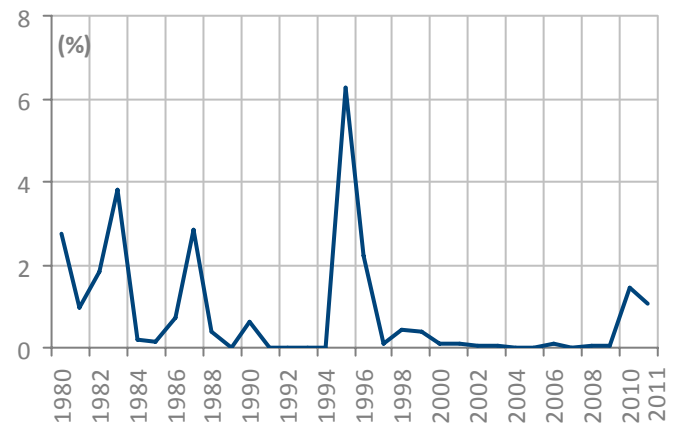
Corn

Figure 120: China's corn consumption as % of world consumption



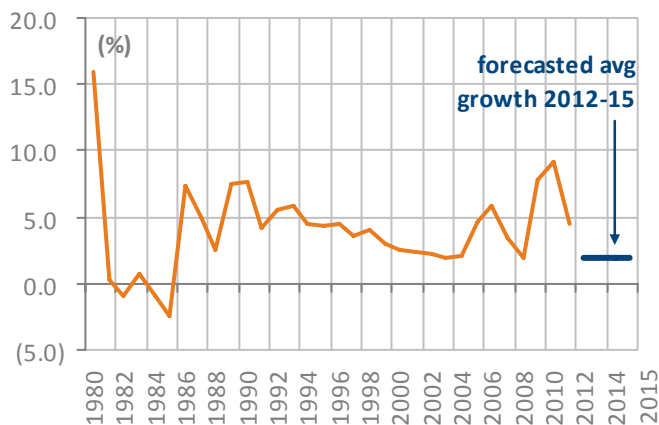
Source: USDA, IIFL Research

Figure 121: China's corn imports as % of world imports



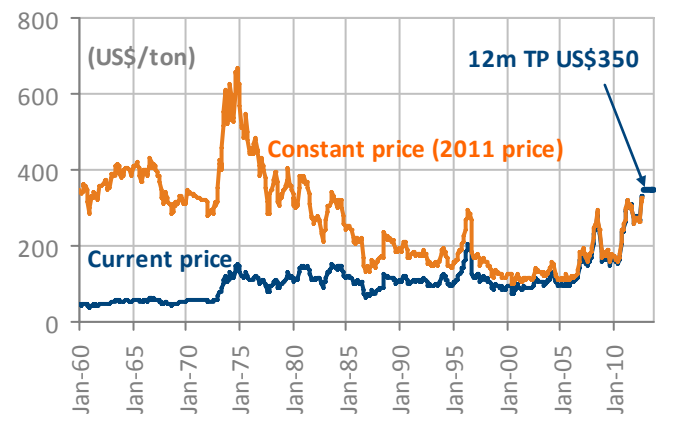
Source: USDA, IIFL Research

Figure 122: China's corn consumption growth



Source: USDA, IIFL Research

Figure 123: Long-term corn price

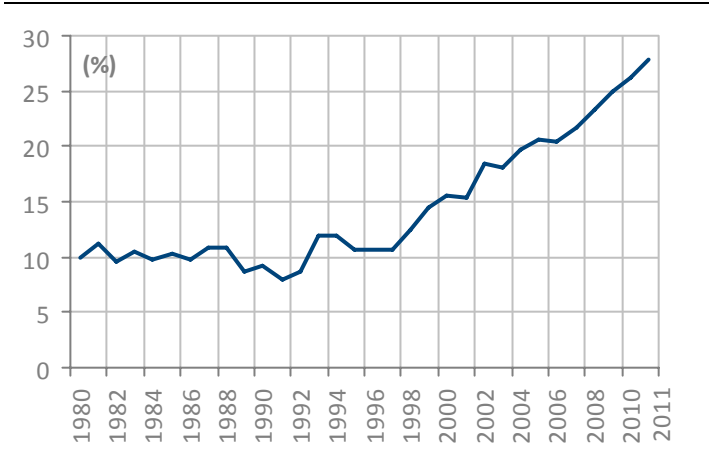


Source: World Bank, IIFL Research

- Unlike rice and wheat, the share of China's corn consumption has increased over the years. From 1980 to 2011, its share has increased from 15% to 22%. But it remains largely self-sufficient. Currently, China's corn imports as percentage of world trade remains below 2% and China's corn imports as percentage of total consumption is below 1%.
- China's corn consumption Cagr was 4.3% in the past 10 years and 5.8% in the past four years. The acceleration of corn consumption is also partially due to fast growth in industrial use. As 20% of Chinese suffer from chronic diseases, partially due to an unhealthy lifestyle and aging problems, we expect China's corn consumption growth to soften to 2% in the next few years. Our 12-month price target for corn is US\$350/tons, or 9% higher than the September 2012 average.

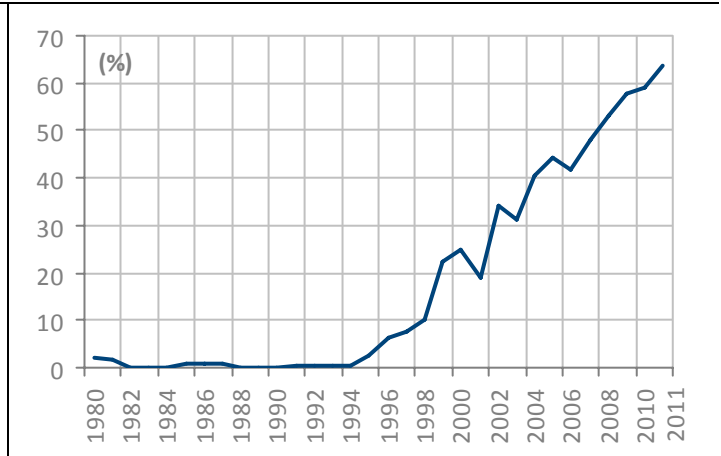
Soybean

Figure 124: China's soybean consumption as % of world consumption



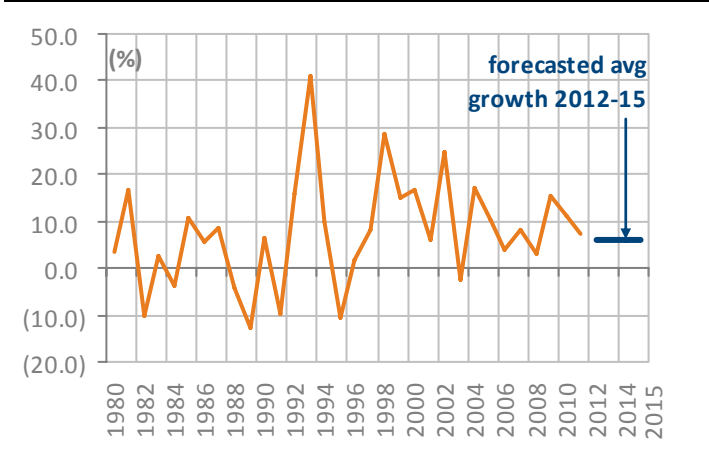
Source: USDA, IIFL Research

Figure 125: China's soybean imports as % of world imports



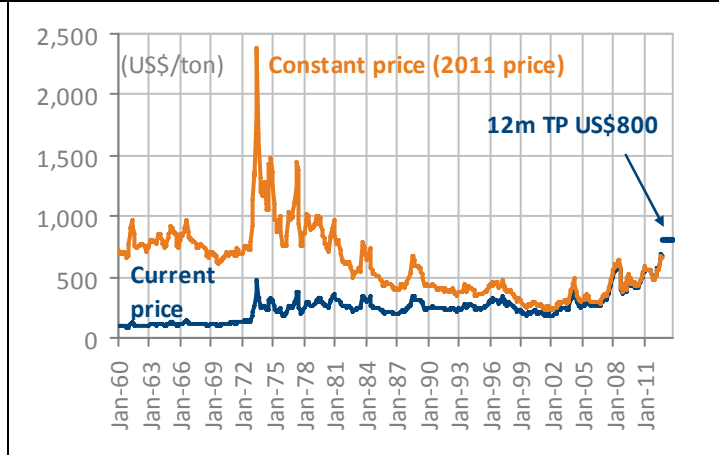
Source: USDA, IIFL Research

Figure 126: China's soybean consumption growth



Source: USDA, IIFL Research

Figure 127: Long-term soybean price

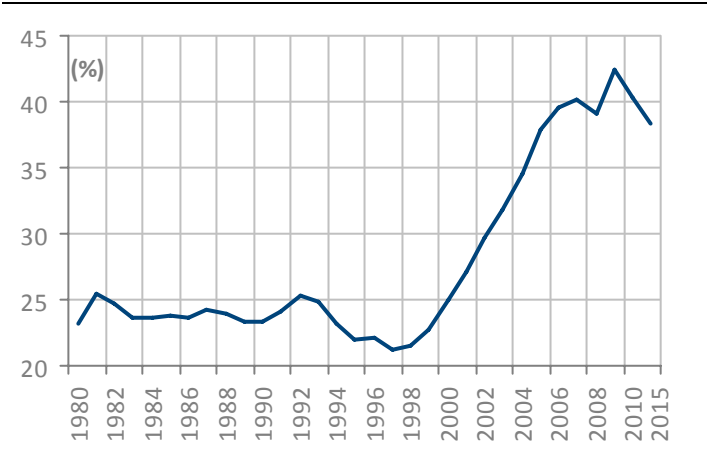


Source: World Bank, IIFL Research

- From 1980 to 2011, China's share of soybean consumption as percentage of world total increased from 10% to 28%. During the same period, China's soybean imports as percentage of world imports increased from near-zero to 64%. China's dependence on imports has currently reached c80%. Soybeans have emerged a pure China play.
- China's soybeans consumption Cagr was c10% in the past 10 years and could remain strong in future. We expect soybeans consumption Cagr of 6% over 2012-2015.
- The strong China growth and its dominance in soybean trade could suggest firm soybean price ahead. Our 12-month price target for soybean is US\$800/tons, or c20% higher than the September 2012 average.

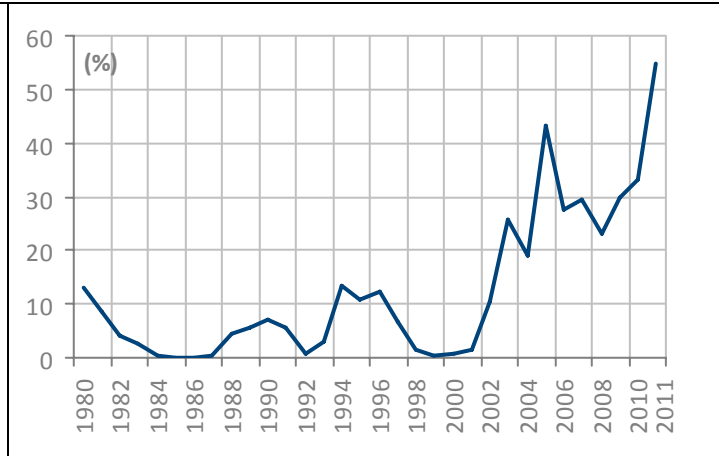
Cotton

Figure 128: China's cotton consumption as % of world consumption



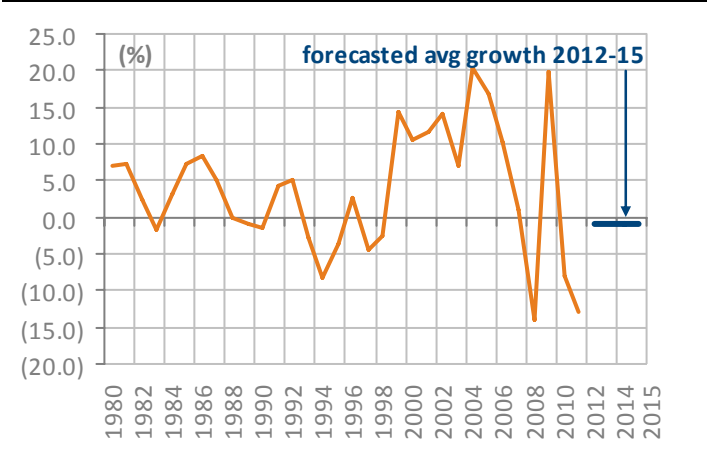
Source: USDA, IIFL Research

Figure 129: China's cotton imports as % of world imports



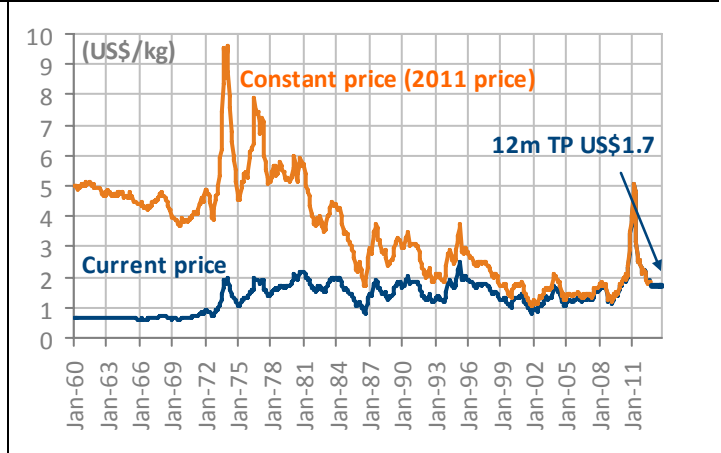
Source: USDA, IIFL Research

Figure 130: China's cotton consumption growth



Source: USDA, IIFL Research

Figure 131: Long-term cotton price



Source: World Bank, IIFL Research

- From 1980 to 2011, China's share of cotton consumption as percentage of world total increased from 23% to 38%. During the same period, China's cotton imports as percentage of world total imports increased from 13% to 55%. Currently, China's cotton imports account for more than 20% of China's total cotton consumption.
- But it is notable that China's share of world cotton consumption has started to drop since 2009 as higher cost has made some textile and clothing production less appealing in China.
- China's cotton consumption growth has turned negative in the past few years and we expect it will continue to shrink in the next few years. Our 12-month price target for cotton is US\$1.7/kg, or 9% below the September 2012 average.

NOTES

NOTES

NOTES

Key to our recommendation structure

BUY - Absolute - Stock expected to give a positive return of over 20% over a 1-year horizon.

SELL - Absolute - Stock expected to fall by more than 10% over a 1-year horizon.

In addition, **Add** and **Reduce** recommendations are based on expected returns relative to a hurdle rate. Investment horizon for **Add** and **Reduce** recommendations is up to a year. We assume the current hurdle rate at 10%, this being the average return on a debt instrument available for investment.

Add - Stock expected to give a return of 0-10% over the hurdle rate, ie a positive return of 10%+.

Reduce - Stock expected to return less than the hurdle rate, ie return of less than 10%.

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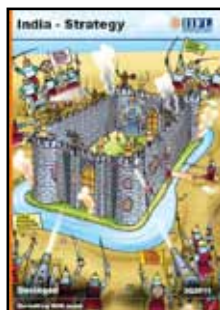
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