Global Economic Prospects

Commodity Market Outlook

Published by The World Bank's Development Prospects Group

January 2013

A market in turmoil in 2012. Commodity prices ended 2012 close to where they began, but major global events created significant upward and downward price movements through the course of the year. The first half of 2012 brought declines in most commodity prices especially energy and metals as European sovereign debt troubles intensified and emerging economies, especially China, slowed. Price pressures were distinctly upward in the second half of the year, however. Maize and wheat prices spiked as parts of the United States, Eastern Europe, and Central Asia were gripped by a summer heat wave. Crude oil prices were driven up after an EU embargo on Iranian oil imports went into effect in July and violence and political instability continued in several oil-producing countries in the Middle East. In addition, renewed monetary policy easing by the central banks of the EU and the United States as well as weakness of the US dollar put upward pressure on industrial commodities.

Easing prices in 2013. Most commodity prices are expected to ease marginally in 2013. The forecast presented in this report indicates that crude oil will average US$102/bbl in 2013, just 3 percent lower than in 2012. Agricultural commodity prices are also forecast to decline: food by 3.2 percent, beverages by 4.7 percent, and raw materials by 2.2 percent. Metal prices are expected to rise slightly but still average 14 percent lower than in 2011. Fertilizer prices are set to decline 2.9 percent, while precious metal prices will increase almost 2 percent.

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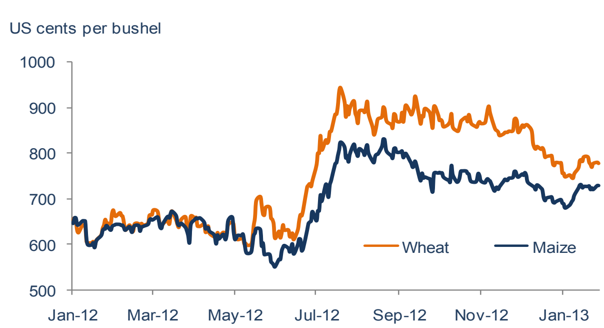
Commodity Markets

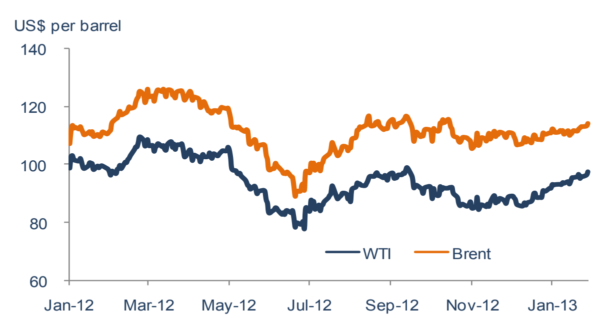
Weathering risks ahead. The 2013 commodity market outlook is subject to a number of risks. In regards to crude oil, global supply risks remain from ongoing political unrest in the Middle East. A major supply cutoff could limit supplies and result in prices spiking above US$150/bbl. For metals, prices depend importantly on economic conditions in China, which accounts for almost half of global metal consumption. Should conditions there deteriorate, metal prices could decline substantially. On agricultural commodities—most importantly, food—weather a key risk. Given historically low stocks, a major adverse weather event would induce sharp increases in maize prices. Wheat prices may come under upward pressure as well. In contrast, better-supplied rice and oilseed markets face limited upside price risks.

Food prices stabilize after the summer surge



Source: Chicago Mercantile ExchangDatastream and World Bank.

The gap between WTI and Brent persists



Source: Datastream and World Bank.

Overview

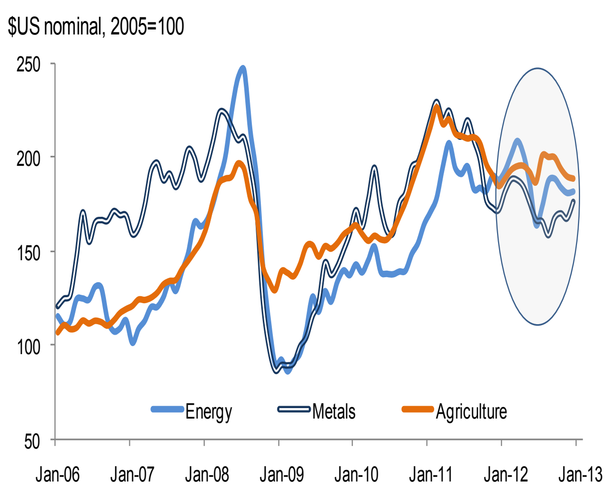
Following sharp declines during 2012Q2, commodity prices rebounded in the second half of 2012, with most of the relevant indices ending the year at levels close to where they began (figure 1). For 2012 as a whole, crude oil prices averaged US$105/bbl, just US$1 above the 2011 level. Food prices also increased marginally for the year, despite grain prices reaching record highs in 2012Q3 (figure 2). Metal prices declined more than 15 percent through the course of the year, ending 2012 at levels close to the mid-2010 lows. Prices of raw materials and beverages declined more sharply—by almost 20 percent each. Fertilizer and precious metal prices changed little.

The price declines of most commodities in the first half of 2012 reflected intensification of the European sovereign debt crisis and slowing growth in emerging economies, especially China. In the summer, however, food prices rose sharply as hot weather and dry conditions in the United States, Eastern Europe, and Central Asia reduced maize and wheat output. Toward the end of 2012Q3, prices of most industrial commodities firmed following the European Central Bank's bond purchase program and later the announcement of a third round of quantitative easing by the U.S. Federal Reserve. In addition to weakness in the global environment, oil prices have responded to geopolitical concerns, including the EU's embargo on Iranian oil imports and ongoing violence and political instability in several oil-producing countries in the Middle East.

Under our baseline scenario, which assumes further easing of financial tensions in Europe, most commodity prices are expected to ease in 2013. Oil is expected to average US$102/bbl for the year, just 3 percent lower than the 2012 average (table 1). Agricultural prices are set to decline more than 3 percent (food, beverages, and raw materials down by 3.2, 4.7, and 2.2 percent, respectively). Metal prices are expected to gain marginally but still average 14 percent lower than 2011. Fertilizer prices are expected to decline 2.9 percent, while precious metal prices will increase a little less than 2 percent.

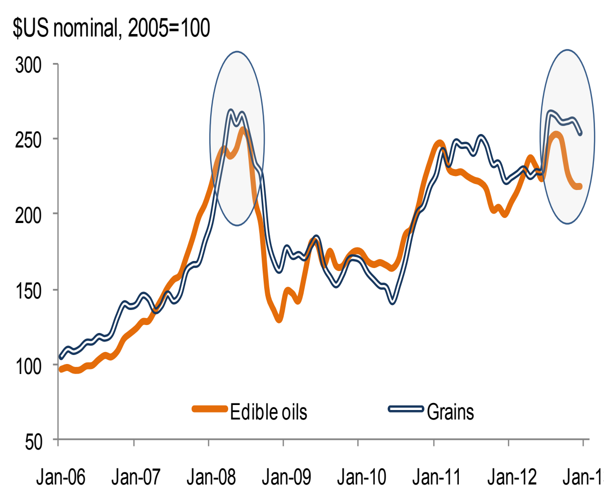
There are a number of risks to the baseline forecast. On oil, global supply risks remain from the ongoing political unrest in the Middle East. A major supply cutoff could result in prices spiking well above US$150/bbl. Such an outcome would depend on numerous factors, including the severity and duration of the supply cutoff, policy actions regarding emergency oil reserves, demand curtailment, and OPEC's response. Downside price risks, on the other hand, include weak oil demand due to continued mediocre economic growth rates, especially in

Figure 1. Commodity price indices



Source: World Bank.

Figure 2. Food price indices



Source: World Bank.

Table 1. Nominal price indices—actual and forecasts (2005 = 100)

	ACTUAL					FORECAST		CHANGE (%)		
	2008	2009	2010	2011	2012	2013	2014	2011/12	2012/13	2013/14
Energy	183	115	145	188	187	183	183	-0.4	-2.6	0.1
Non-Energy	182	142	174	210	190	186	180	-9.5	-2.0	-3.2
Metals	180	120	180	205	174	176	176	-15.3	1.3	-0.1
Agriculture	171	149	170	209	194	188	180	-7.2	-3.2	-4.4
Food	186	156	170	210	212	205	192	0.7	-3.2	-6.4
Grains	223	169	172	239	244	239	225	2.4	-2.1	-6.0
Fats and oils	209	165	184	223	230	220	206	3.3	-4.2	-6.5
Other food	124	131	148	168	158	153	143	-5.9	-3.1	-6.6
Beverages	152	157	182	208	166	158	155	-20.2	-4.7	-2.0
Raw Materials	143	129	166	207	165	162	162	-20.0	-2.2	0.4
Fertilizers	399	204	187	267	259	245	232	-2.9	-5.6	-5.3
Precious metals	158	175	272	372	378	378	353	1.7	0.0	-6.7
Memorandum items										
Crude oil ($/bbl)	97	62	79	104	105	102	102	1.0	-2.9	0.2
Gold ($/toz)	872	973	1,225	1,569	1,670	1,600	1,550	6.4	-4.2	-3.1

Source: World Bank.

emerging economies. The key element for price stability will be how well OPEC (and, importantly, Saudi Arabia) address changing demand conditions. Historically, OPEC has been able to respond quickly to defend a price floor by cutting production sharply, but it has been unwilling to set a price ceiling so rapidly. On the other hand, there is some room on spare capacity and stocks. OPEC's spare capacity averaged 3.9 mb/d during 2012Q3, 14 percent higher than 2012Q2 but remarkably similar to the past decade's historical average (it had reached a low of 2.3 mb/d during the first half of 2008, when oil prices exceeded US$140/bbl. Moreover, OECD oil inventories recovered remarkably, rising 17 percent from 2012Q2 to 2012Q3. On the demand side, while the oil intensity of GDP in middle- income countries has been rising, it has not reached levels that could derail economic growth.

Price risks on metals depend importantly on China; metal prices could decline significantly if China's economic conditions deteriorate substantially, as the country accounts for almost half of global metal consumption.

In terms of agricultural commodities (most importantly, food), a key upside risk is weather. Any adverse weather event is likely to induce sharp increases in maize prices, in view of historically low stocks. The wheat market, which currently is better supplied than maize, may come under pressure as well. In contrast, there are limited upside price risks for rice and oilseeds given that those markets are well supplied. Trade policy risks appear to be low as well. Despite the sharp increases in grain prices during the summer of 2012, countries did not engage in export restrictions—indeed, several press reports to the contrary turned out to be unsubstantiated. Finally, growth in the production of biofuels has slowed as policy makers increasingly realize that the environmental and energy security benefits from biofuels are not as large as initially believed.

Crude Oil

Despite large fluctuations, oil prices (World Bank average) ended the year at US$101/bbl, close to where they began (figure 3). The decline in the first half of 2012 (23 percent between March and June 2012) reflected weak demand due to slowing growth in developing countries and heightened concerns about the European sovereign debt crisis. Supply concerns, mostly of a geopolitical nature, came to bear in the second half of the year, prompting a firming of prices.

Although the price of Brent crude (the international marker) topped US$113/bbl in

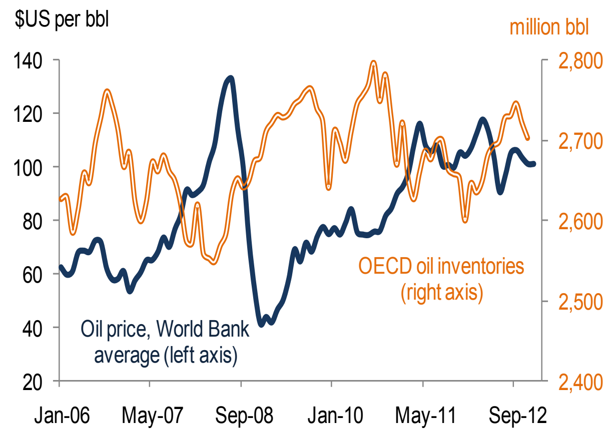
September, West Texas Intermediate (the U.S. mid-continent price) has remained almost US$20/bbl less due to the build-up of regional stocks (figure 4). A decline in the Brent-WTI spread in late 2011 and early 2012, which reflected reduced euro zone demand for Brent, turned out to be temporary; by August 2012, the spread again exceeded 20 percent.

In the United States, crude flows from Canada through the Keystone pipeline (which commenced in 2011), as well as rapidly rising domestic shale liquids production, especially in Texas and North Dakota, have contributed to a build-up of stocks at a time when U.S. oil consumption is dropping. Currently, there is limited additional capacity to transport surplus oil to the U.S. Gulf coast via rail, trucks, and barges. The WTI discount is expected to persist for, at least, another two years when new pipelines to the U.S. Gulf are expected to become operational. Yet, some easing may take place earlier, reversal of existing pipelines that carry oil from the East Coast to Mid-Continent US takes place earlier.

World oil demand increased modestly (less than 0.8 percent, or 0.67 mb/d) in 2012 (figure 5). Oil consumption among OECD countries fell, however, by almost 5 mb/d, or 10 percent, from the 2005 peak. Japan is the only OECD country for which crude oil demand increased (by 1 mb/d) in 2012. Most of that increase was to fill the loss of nuclear power generation capacity as a result of the Tohoku earthquake. Non-OECD demand remains positive and robust—currently, non-OECD countries account for almost half of global crude oil consumption and, as of 2012 all of the increase in global demand.

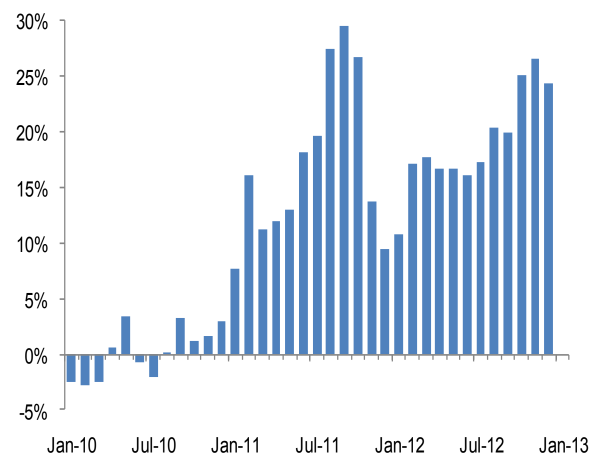
On the supply side, the decline in non-OPEC output growth in 2011 appears to have reversed. In 2012, non-OPEC producers added more than 1 mb/d to global supplies, mainly reflecting earlier large-scale investments. The technology used to exploit natural gas in the United States—a combination of horizontal drilling and hydraulic fracturing—has been adapted for use in the petroleum industry and is currently being applied to the oil-bearing shale plays of the

Figure 3. Oil prices and OECD oil stocks



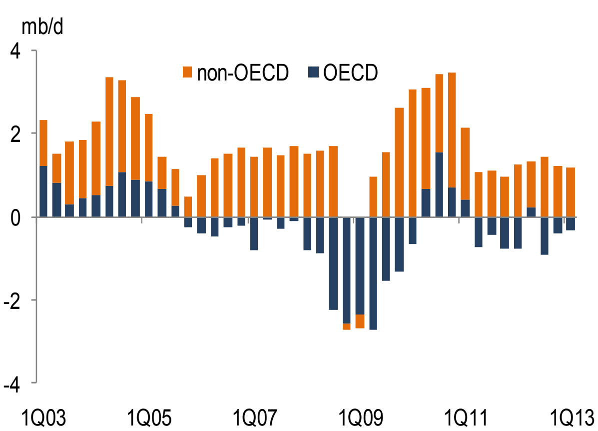
Source: International Energy Agency (IEA), World Bank.

Figure 4. WTI/Brent price differential



Source: World Bank.

Figure 5. World oil demand growth



Source: IEA, World Bank.

Bakken formation in North Dakota and Eagle Ford formation in Texas. Oil production in these two areas has risen very rapidly over the past few years, with Texas and North Dakota adding 1 mb/d of crude production in the 16 months from April 2011 to August 2012 (figure 6). Although shale liquids (also referred to as tight oil) production has great potential to be applied elsewhere in the U.S. and worldwide, there are public concerns about the ecological impacts of hydraulic fracturing—most notably, that the process leads to water contamination.

Oil production among OPEC countries has risen 1.8 mb/d since the end of 2010 (prior to disruptions in Libya), with Saudi Arabia accounting for 1.5 mb/d of the net gain. During the same time period, Libya's oil production has recovered to 1.3 mb/d, compared to 1.6 mb/d prior to the country's 2011 civil war, although further gains may be difficult due to ongoing internal disputes. Iraq's production reached a pre-war high of 2.84 mb/d in March 2012, and exports are increasing after the introduction of a new mooring system in the Gulf. Iran's oil exports 0.3 mb/d below pre-sanctions levels, and are set to tumble further unless alternative buyers (or buying arrangements) can be found. Iran's traditional crude buyers are struggling to arrange payment mechanisms, secure ships to lift oil, and engage insurance companies to underwrite the trade. Numerous reports, however, indicate that Iran is circumventing sanctions through bilateral in-kind trade arrangements.

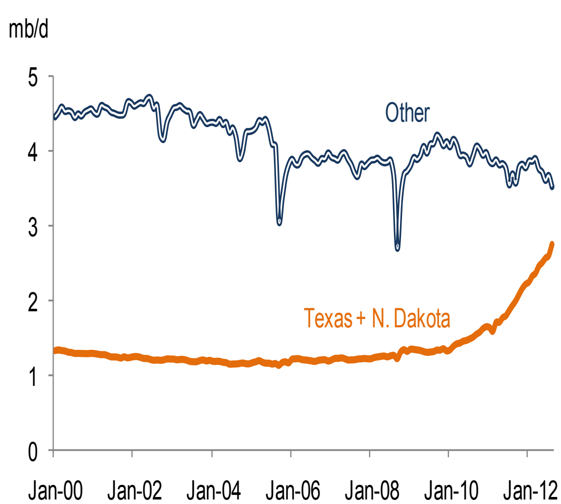
The net growth in OPEC oil production has reduced spare capacity among its member countries to 3.5 mb/d (figure 7), of which nearly two-thirds is in Saudi Arabia. The Saudi oil minister has promised to keep the market well supplied, but also deems US$100/bbl to be a fair price.

Outlook for crude oil

In the near term, oil prices are likely to be capped at around US$120/bbl because of price-induced demand restraint and publicly-announced intentions to release oil from strategic reserves in France, the United Kingdom, and the United States. Any crossing of the US$120/bbl threshold would likely stem from technical and geopolitical problems, particularly in countries struggling with conflict and security, including Libya and Iraq.

In the medium term, world oil demand is expected to grow moderately, at 1.5 percent annually, with all of the growth coming from non-OECD countries, as has been the case in recent years (figure 8). Growth in oil consumption among OECD countries is expected to continue to be subdued, due to efficiency improvements in vehicle transport and

Figure 6. U.S. crude oil production



Source: U.S. Energy Information Administration.

Figure 7. OPEC spare capacity

Source: IEA.

a gradual switch to electric and natural gas transport (in the absence of continued innovations, though, the switch may be slow, as discussed in box 1). Environmental pressures to reduce emissions are expected dampen oil demand growth at the global level. Growth in oil consumption developing countries, on the other hand, is expected to be strong in the near and medium terms, while it is expected to moderate in the long term as economies mature, subsidies are phased out, and other fuels become incorporated into the fuel mix, notably natural gas.

On the supply side, non-OPEC oil production is expected to continue its upward climb, as high prices have attracted considerable investment associated with continued advances in upstream technology (figure 9). High oil prices have reduced resource constraints, and new frontiers continue to be exploited, including deep water offshore and shale liquids. Production increases are expected in a number of areas, including Brazil, Canada, the Caspian, the United States, and West Africa, which together are likely to offset declines in mature areas such as the North Sea.

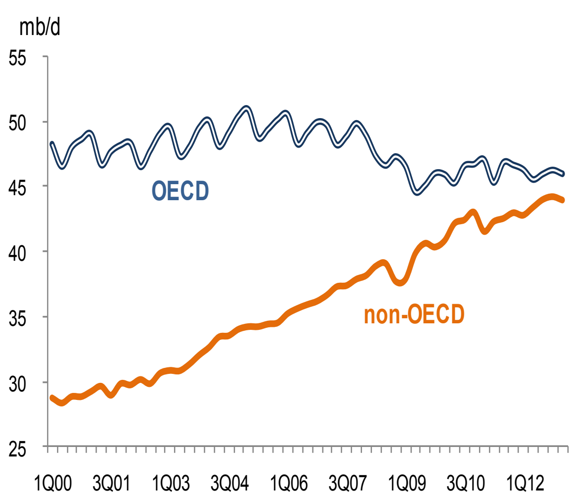
Nominal oil prices are expected to average US$102/bbl during 2013 and 2014 as supplies accommodate moderate demand growth. Over the longer term, oil prices are projected to fall in real terms, due to growing supply of conventional and (especially) unconventional oil, efficiency gains, and a substitution away from oil. The assumptions underpinning these projections reflect the upper-end cost of developing additional oil capacity, notably from oil sands in Canada, currently assessed by the industry at US$80/bbl in constant 2012 dollars. While it is expected that OPEC will continue to limit production to keep prices relatively high, the organization may be sensitive to letting prices rise too high, for fear of inducing technological changes that would alter the long-term price of oil.

Metals

Most metal prices declined steadily during the first three quarters of 2012 (by 15 percent between February and September) on global growth concerns, weakening demand by China, high stocks of most metals, and emerging supply growth (figure 10). China currently consumes almost 45 percent of world's metal's output (figure 11). Yet, there are signs that China's consumption growth has slowed during 2012 due to destocking

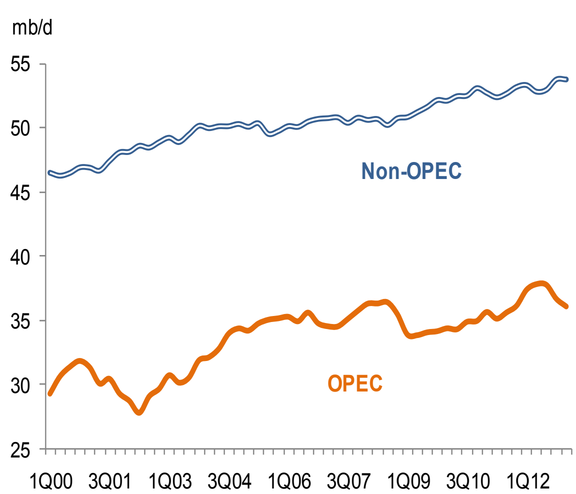
The extended period of high metal prices, underway since the mid-2000s, has generated significant investment in new capacity, and supply is rising more quickly than demand for

Figure 8. Crude oil consumption



Source: IEA.

Figure 9. Crude oil production



Source: IEA.

Box 1. The "energy revolution", innovation, and the nature of substitution

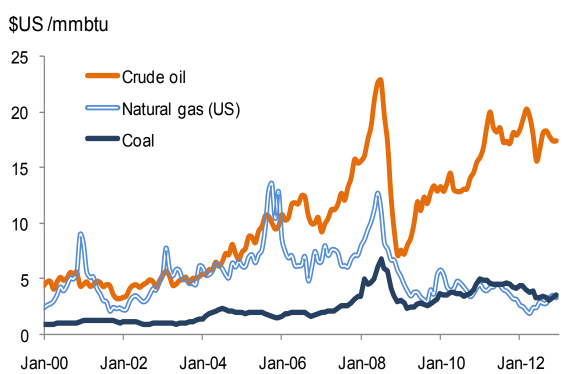
Large, sustained price changes alter relative input prices and induce innovation (Hicks 1932). The post-2004 crude oil price increases did just that in both natural gas and oil exploration and extraction through new technologies such as horizontal drilling and hydraulic fracturing. Because of these technologies, the United States increased its natural gas production by almost 30 percent during 2005-12. Similarly, U.S. crude oil production increased by 1.3 mb/d over the past four years. To put this additional oil supply into perspective, consider that global biofuel production in terms of crude oil energy equivalent was 1.2 mb/d in 2011.

The sharp increase in natural gas supplies not only put downward pressure on prices, but also induced substitution of coal by natural gas in various energy intensive industries, notably in electricity generation and petrochemicals. Natural gas, which traded just 7 percent below oil in 2000-04 in energy-equivalent terms, averaged 82 percent lower in 2011-12 and has been trading close to parity with coal (figure box 1.1). On the other hand, growing U.S. oil supplies, coupled with weak demand, caused WTI to be traded at 20 percent below Brent, the international marker (figure box 1.2). The discount is expected to persist until 2015, when new pipelines and reversal of existing pipelines will move oil supplies from the Midwestern United States to the Gulf Coast.

Yet, the shift from crude oil to other types of energy, notably electricity and natural gas, with potential use by the transportation industry (which globally accounts for more than half of crude oil consumption) has been very slow. Such slow response reflects the different physical properties of various types of fuel, namely density (the amount of energy stored in a unit of mass) and scalability (how easily the energy conversion process can be scaled up). The energy densities of the fuels relevant to the transportation industry are 37 MJ/liter for crude oil, 1 MJ/kg for electricity, and 0.036 MJ/liter for natural gas (in its natural state). Compressed natural gas (GNG), used by bus fleets in large cities, is about 10 MJ/liter, while the density of liquefied natural gas (LNG) is 24 MJ/liter. Energy density is measured in megajoules (MJ) per kilogram or liter. For comparison, note that one MJ of energy can light one 100-watt bulb for about three hours.

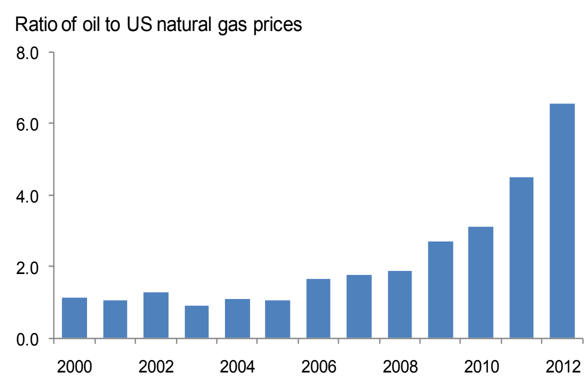
To gauge the importance of energy density associated with various fuels and technologies consider the following illustrative example. If a truck with a net weight capacity of 40,000 pounds were to be powered by lithium-sulphur batteries (currently used by electric-powered vehicles) for a 500-mile range, the batteries would occupy almost 85 percent of the truck's net capacity, leaving only 6,000 pounds of commercial space. That is, an energy conversion process that works at a small scale (a passenger car) does not work at larger scales (in a truck, an airplane, or an ocean-liner). Similarly, to increase the energy density of natural gas, it must be liquefied, which involves cooling it to about -62^{o}C at a LNG terminal, transporting it in specially designed ships under near atmospheric pressure but under cooling, and then off loading at destination, gasified and re-injected into the natural gas pipe network. This is a technically demanding process adding considerable costs at delivery. Contrary to natural gas, crude oil products have convenient distribution networks and refueling stations that can be reached by cars virtually everywhere in the world. Thus, in order for the transport industry to substitute crude oil by natural gas at a scale large enough to reduce oil prices, innovations must take place such that the distribution and refueling costs of natural gas become comparable to those of crude oil, which explains why the transport industry is slow to utilize natural gas.

Box figure 1.1 Energy prices



Source: World Bank.

Box figure 1.2 Oil to natural gas price ratio



Source: World Bank.

some metals, including nickel and copper. During 2012Q4, however, most metal prices trended upward as the possibility of hard economic landing in China became more remote.

An interesting characteristic of metals and other industrial commodities during the recent price boom is that prices have been highly volatile, even more volatile than food prices (historically, the reverse has been the case). In fact, non-food price volatility during the second half of the past decade has been the highest since 1970. For example, non-food price volatility during 2000-05 reached 9.7%, when the previous high in 1970-75 was 7.8%. Most likely, high non-food price volatility reflects that fact that these commodities increased the most during the recent boom. food commodities increased the most during the recent boom. Nevertheless, overall price volatility appears to have eased during the past two to three years, indicating that the high volatility during 2008-10 reflected the move from low to high prices and the financial crisis of 2008 (see discussion in box 2).

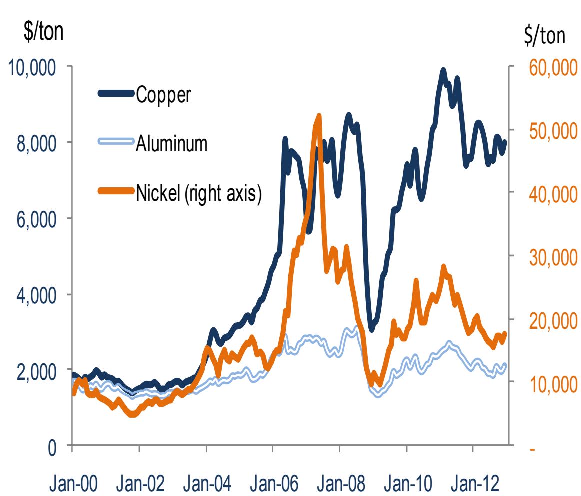
Recent developments in metal markets

Aluminum prices fell below US$2,000 per ton in the 2012Q3, near their pre-2005 levels, due to a persistent global surplus and high stocks. Prices are now at or below marginal production costs for many producers, with more limited downside risks—suggesting that prices are unlikely to fall much more. Furthermore, a significant amount of aluminum inventories are tied up in warehouse financing deals and unavailable to the market. Aluminum consumption continues to benefit from substitution, mainly substitution away from copper in the wiring and cable sectors (copper prices are now more than four times higher than aluminum prices, whereas the two were similar prior to the 2005 boom). Substitution is expected to continue for as long as the aluminum to copper price ratio remains above 2:1.

Global aluminum production capacity continues to outstrip consumption, with the bulk of the latter originating in China and, to a lesser extent, Europe, the Middle East, and North America. The market surplus is expected to endure in the near term. Therefore, prices are likely to respond to higher production costs, of which energy accounts for 40 percent alone.

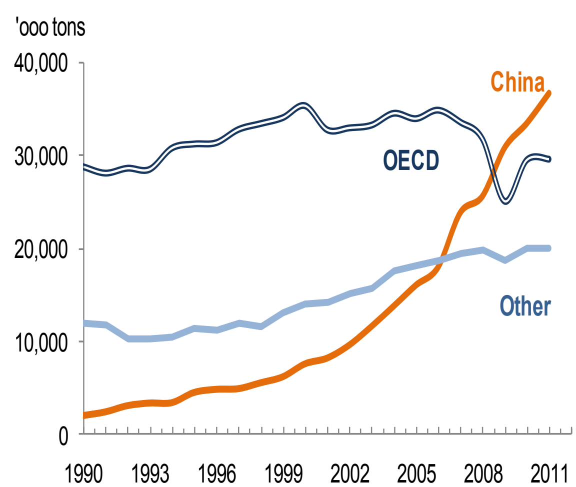
Copper prices fell sharply in 2012Q2 due to weakening import demand by China. Still, the large difference between copper and aluminum prices has led not only to increased use of aluminum in place of copper, but also to accelerated rates of copper recycling of scrap reprocessing. Copper demand is expected to increase at a modest 2.5 percent per annum, however, over the forecast period, before

Figure 10. Metal prices



Source: World Bank.

Figure 11 . Consumption of metals



Source: World Bureau of Metal Statistics.

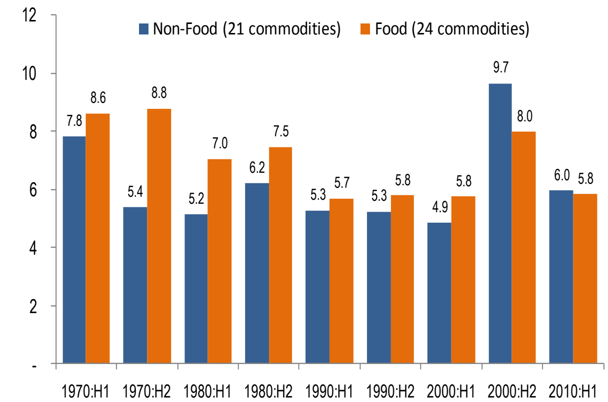
Box 2. Commodity prices: levels, volatility, and comovement

Applying a standard measure of volatility to 45 monthly prices during 1970-2012 shows that even though historically non-food prices have been less volatile than food prices, non-food price volatility exceeded that of food prices by a wide margin (9.7 versus 8.0) during 2005-09. Furthermore, while non-food price volatility reached record highs during 2005-09, food price volatility did not—i.e., food price volatility during the recent boom has been high but not unprecedented. This result is remarkably similar to Gilbert and Morgan (2010, p. 3023) who concluded that food price variability during the post-2004 boom has been high but, with the exception of rice, not out of line with historical experience. And, there is some evidence that volatility has come down to historical norms during the past 3 years (box figure 2.1). Two factors may account for the high volatility during 2005-09: the move from a lower to higher price equilibrium and the 2008 financial crisis. The latter is supported by the fact that volatility increases sharply when August 2008 is included in a two-year moving average, while a similar decline becomes apparent when January 2011 is included in the average (box figure 2.2).

In addition to increased levels and volatility, commodity prices have been moving in a more synchronous manner. In fact, price comovement during the second half of the past decade has been the highest compared to the 43-year sample period (box figure 2.3). Moreover, while there is some evidence that comovement has moderated recently, it is still high by historical standards. The increase in comovement implies that common factors have been the dominant force behind post-2004 commodity price movements (box 3 elaborates further on this point).

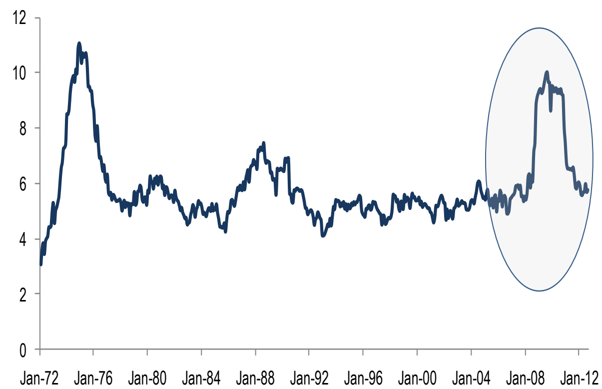
Price volatility is calculated as the median of 100*STDEV[*log p(t)) - log p(t-1)*] for 21 non-food and 24 food prices, where STDEV denotes standard deviation, *p(t)* is the current price of each commodity, and *p(t-1)* is the one-period lagged price (their logarithmic difference is the so-called returns). The measure is applied to five-year periods, denoted as H1 and H2 for the first and second part of each decade, respectively (2010:H1 includes 36 observations because the sample ends in December 2012). Volatility is also presented as a two-year trailing moving average. Apart from its simplicity, this measure of volatility is appropriate for non-stationary variables, which is typically the case with commodity prices. Comovement is measured as a two-year trailing moving average of ABS[*n(up)-n(down)*]/[*n(up)+n (down)*], where ABS is the absolute value operator and *n (up)* and *n(down)* denote the number of prices that went up and down during the month. The index can take values between zero (when half of the prices go up and half go down) and unity (when all prices move in the same direction). While random chance is expected to an equal num-

Box figure 2.1 Commodity price volatility: food and non-food (5 year averages)



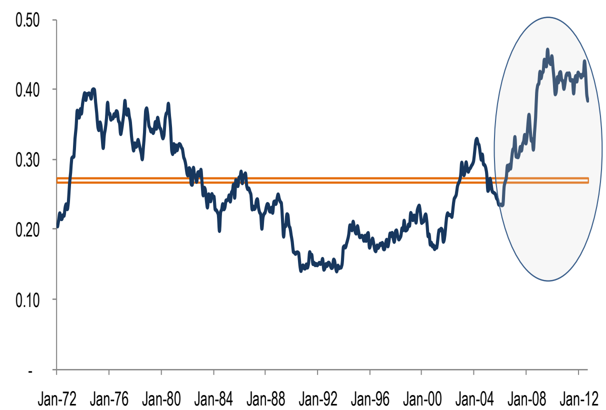
Source: World Bank

Box figure 2.2 Commodity price volatility: all commodities (2-year trailing moving average)



Source: World Bank.

Box figure 2.3 Commodity price comovement



Source: World Bank.

ber of increases and declines, because of common factors, the index is likely to take values well above zero. Indeed during 1970-2012 the index averaged 0.27, implying that of the 44 commodities of the sample, on average, 16 prices went up (down) and 28 prices went down (up). Two key advantages of the index are that (i) it measures comovement across a large number of prices (difficult to measure using parametric models), and (ii) it is not subjected to degrees of freedom limitations. However, these advantages come at the expense of measuring direction of change only, not magnitude, thus underutilizing the informational content of prices. The index has been used in the financial literature (see, for example, Morck, Yeung, and Yu (2000) on the measurement of equity price comovement in emerging economies).

slowing further over the longer term as copper intensity in China—which has risen sharply—plateaus.

Copper mine production, which was flat in 2011, has not kept pace with consumption for a number of reasons: technical problems, labor disputes, declining grades, delays in start-up projects, and shortages of skilled labor and inputs. The tightness in copper production has been pronounced at the world's two largest mines, Escondida in Chile and Grasberg in Indonesia. However, high copper prices have induced a wave of new mines that are expected to come on-stream shortly—in several African countries, China, Peru, and the United States, for example.

Nickel prices rose modestly in early 2012 before receding due to the sluggish market for stainless steel (the end use of more than two-thirds of nickel production) and the rapid restart of nickel pig iron (NPI) production in China. China now accounts for 40 percent of global stainless steel production, up from 4 percent a decade ago. Stainless steel demand is expected to remain robust in the medium term, growing by more than 6 percent annually, mainly driven by high-grade consumer applications, initially in high-income countries and, increasingly so, in emerging economies as well. A wave of new nickel mine capacity is expected to keep nickel prices close to marginal production costs, however. Several new projects will soon ramp up production, including those in Australia, Brazil, Madagascar, New Caledonia, and Papua New Guinea. Another major global source of nickel is NPI in China, which sources low-grade nickel ore from Indonesia and the Philippines. China's production capacity may soon be constrained, though, given that Indonesia has announced that it will develop its own NPI industry and has introduced export quotas and may ban nickel ore exports by end-2013.

Outlook for metals

Overall, metal prices are forecast to increase marginally in 2013. Aluminum prices are expected to increase almost 3 percent and remain at that level through 2015 due to rising power costs and the fact that current prices have pushed some producers at or below production costs.

Nickel prices are also expected to increase almost 3 percent in 2013, and to follow a slightly upward trend thereafter. Although there are no physical constraints in these metal markets, there are a number of factors that could push prices even higher over the forecast period, including declining ore grades, environmental issues, and rising energy costs.

On the contrary, copper prices are expected to decline 2 percent in 2013 and as much as 10 percent in 2014, mostly due to substitution pressures and slowing demand.

Precious metals

Precious metals prices increased less than 2 percent in 2012, a significant slowdown compared to the previous two years, during which increases of 37 and 28 percent, respectively, occurred (figure 12). Nonetheless, 2012 was the eleventh straight year of higher nominal prices of precious metals, as measured by the precious metal index, mostly reflecting their attractiveness "safe-haven" investment assets. The price of gold spiked twice in 2012, once during 2012Q1 on heightened tensions with

Iran and again in 2012Q3 following the announcement of the third round of quantitative easing in the United States. According to several reports, high gold prices during 2012 may have been supported by strong physical demand in Turkey, mostly reflecting bilateral trade based on gold-based transactions with Iran.

On the supply side, high gold prices have attracted considerable investment in the gold mining industry, not only to replace aging existing mines but also to develop new mines. China has announced a new production target of 450 tons per year by 2015, up from 400 tons at present, while production in South Africa appears to be in long-term decline. The decline in South Africa was compounded by very serious labor disputes in September and October 2012, which disrupted production of both gold and platinum. Prices of gold are expected to decline by 4 percent in 2013, while platinum and silver are expected to change little. Most risks are on the downside as the pace of global recovery improves, including further easing of financial tensions in Europe.

Agriculture

Following an across-the-board sharp decline from the peaks of 2011, agricultural commodity prices diverged in the summer of 2012. Food prices firmed following a heat wave that affected maize-producing areas in the Midwestern United States, while drought conditions in Eastern Europe and Central Asia reduced the outlook for wheat. On the other hand, oilseed and edible oil prices weakened toward the end of the year on better supply prospects from South America (soybeans) and East Asia (palm oil). Beverages and raw material prices continued their slide as well in the latter part of the year, to about 30 percent lower than the 2011 peaks (figure 13). For the year as a whole, the World Bank's agricultural price index is down almost 7 percent.

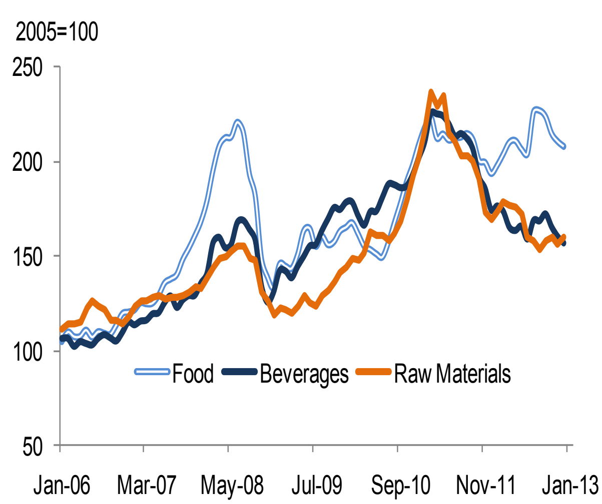
Recent developments in agricultural markets

Grain prices were remarkably stable between the end of 2011 and the summer of 2012, when initial assessments for the 2012/13 season indicated a good crop (figure 14). As a consequence, prices of key grains fluctuated within a tight band during this period. The outlook changed dramatically, though, as the summer got underway and a heat wave in the United States and drought conditions in Europe and Central Asia induced sharp declines in maize and wheat yields. In its July update, the U.S. Department of Agriculture (USDA) reduced its 2012/13 assessment for global maize production from 950 to 905 million tons, causing end-of-season stocks to decline by 14 percent—

Figure 12. Precious metals prices

Source: World Bank.

Figure 13. Agriculture price indices



Source: World Bank.

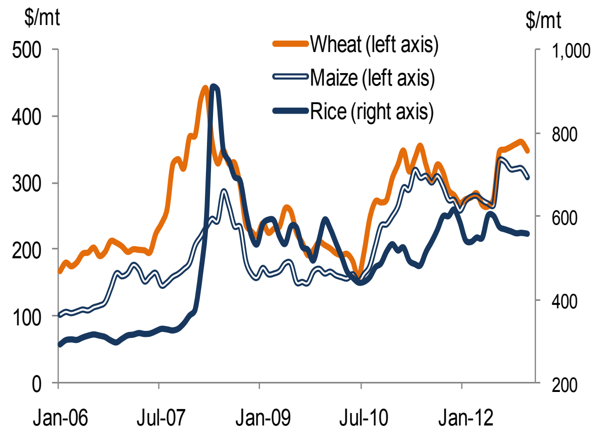
associated with a stock-to-use ratio of less than 15 percent, the lowest since 1972/73. A smaller, but still important, downward assessment occurred for wheat yields. Prices of both maize and wheat then increased almost 40 percent within just a month. Since then, subsequent USDA assessments have retained the tight outlook for both commodities.

Between August and December 2012, maize and wheat prices averaged US$313 and US$353 per ton, respectively, associated with a 9 percent premium of wheat over maize—historically the premium has averaged 30 percent. The summer drought therefore not only reduced the maize stock-to-use ratio to historical lows, but brought the wheat-to-maize price premium to historical lows as well (figure 15).

Rice prices have averaged US$520/ton over the past three years (they have exceeded US$600/ton on only a few occasions), in large part due to the fact that, contrary to the situation for wheat and maize, the rice market remains well-supplied. The variability of rice prices over the past year reflects, in part, purchases through the Thai Paddy Rice Program. Thailand is the world's largest rice exporter, accounting for 25-30 percent of global exports, and hence its policy actions have a large impact on world markets. Although flood damage incurred early in 2012 led to reports that rice yields would be affected, the concern turned out not to be important. According to the USDA's January 2013 assessment, global rice production is expected to reach 466 million tons, 1 million tons above the 2011/12 record. The stock-to-use ratio is expected to reach 22 percent, marginally lower than 2011/12 but well within historical norms. Trade in rice has improved as well reaching a new record of 39.1 million tons in 2012, aided in part by a surge in Chinese imports (2.6 million tons in 2012, up from 0.5 million tons in 2011).

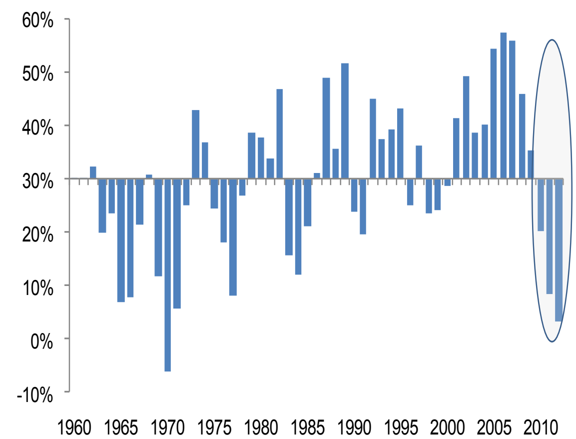
Edible oil prices dropped almost 12 percent from August to December 2012, as measured by the World Bank edible oil price index, reversing a 27 percent increase during the first eight months of the year (figure 16). The decline reflects an improved outlook for the South American crop

Figure 14. Grain prices



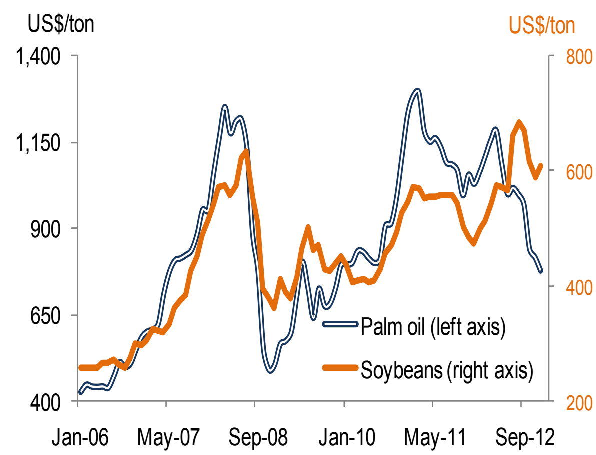
Source: World Bank.

Figure 15. Wheat-to-maize price ratio



Source: World Bank.

Figure 16. Edible oil prices



Source: World Bank.

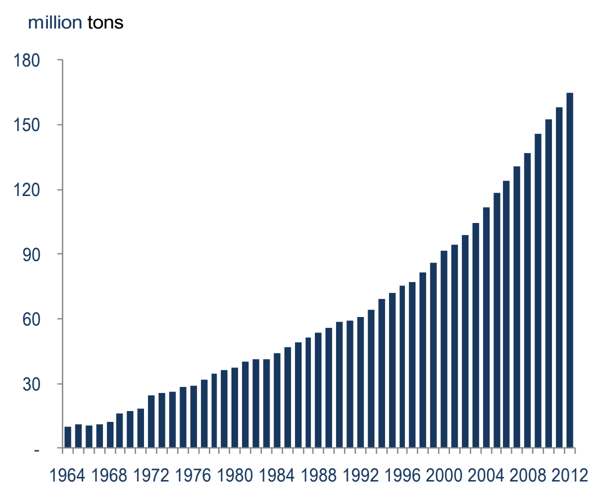
as well as a reassessment of the U.S. soybean crop, for which yields turned out to be higher than originally expected. Palm oil supplies from Indonesia and Malaysia are improving as well.

It should be emphasized that edible oils experienced the fastest consumption growth rates of all food groups during recent decades. Between 1964 and 2012, edible oil consumption grew at an average annual rate of 6.1 percent, almost three times as large as the increase in grain consumption, which grew at 2.4 percent annual rate, a rate remarkably similar to population growth (figure 17).

In general, edible oils are, perhaps, the only food commodity group income elasticity is high not-only for low and middle income countries but also for high income countries. This reflects the fact that as people become wealthier, they tend to eat more in professional establishments and also consume more pre-packaged food items, both of which are using more edible oil than otherwise.

Beverage prices declined consistently in 2012, ending the year 30 percent lower than their historic early 2011 highs. The previous strength in overall beverage prices reflected a surge in ***coffee*** prices—specifically, arabica coffee—which averaged close to $6.00/kg during 2011, the highest-ever nominal level. However, news that Brazil's crop for the current season will be much larger than anticipated caused arabica prices to plummet 36 percent in 2012—Brazil is the world's largest arabica producer. Robusta prices have been remarkably stable over the past year (around US$2.30/kg) despite a record-large crop in Vietnam, the world's largest producer of robusta. The stability of robusta prices can be attributed to coffee roasters including more robusta in their blends as arabica prices have risen. ***Cocoa*** prices, which reached record highs in 2011 as well, have weakened considerably in response to an improved crop outlook in Côte d'Ivoire and weakening demand in Europe. ***Tea*** prices edged down marginally in 2012, a little less than 1 percent. Nevertheless, prices have surged to record highs during the last five years, partly in response to repeated cycles of adverse weather conditions in the producing countries and partly in response to strong demand by major tea consuming countries, including various Middle East countries, Pakistan, Russia, as well as domestic consumption in India.

Figure 17. Global edible oil consumption



Source: US department of Agriculture

Cotton prices declined sharply in the first half of 2012, to US$2/kg in May, following a quadrupling of prices in the year leading up to March 2011, when they exceeded US$5/kg. The improved supply outlook for the 2012/13 crop year induced further declines in prices, which ended the year 18 percent lower than in January 2012. The cotton market is well supplied by historical standards; global production is expected reach 25.5 million tons in 2013, while consumption is not expected to exceed 23.5 million tons. An estimated 2 million tons will be added to stocks, pushing the stock-to-use ratio to 70 percent, the highest since the end of World War II. Approximately 9 million tons of cotton have gone to the state reserve of China during the past two seasons, explaining why prices did not collapse (ICAC 2012). Nevertheless, from a long-term perspective, cotton prices increased the less than other agricultural commodities during the recent price boom, primarily because of the increase in yields by China and India following the introduction of biotech crops (Baffes 2011).

Natural rubber prices declined steadily in 2012, to average the year almost 30 percent lower than 2011. As was the case with cotton, natural rubber prices reached record highs in 2011, exceeding US$6/kg in February 2011, more than a four-fold increase within two years. The recent decline reflects both increased supply and fears of demand deterioration, especially from China. (most natural rubber goes toward tire production, and China is the fastest-growing market for tires). Crude oil prices play a role in the price of rubber as well, because synthetic rubber, a close substitute to natural rubber, is a crude oil by-product. Regarding ***timber***, expectations for a boom in prices following the Tohoku earthquake were short lived. The price of logs from Malaysia, for instance, dropped 8 percent in 2012, effectively reaching pre-Tohoku levels as global demand for timber products has weakened considerably.

Recent trends in domestic food prices

The discussion thus far has focused on price movements in U.S. dollar terms. However, what matters most to consumers is the price they pay for food in their home countries. It is not uncommon for prices paid by consumers in an individual country to differ considerably from international prices, at least in the short run. Reasons for this include exchange rate movements, trade policies intended to insulate domestic markets, the long distance of domestic trading centers from ports (adding considerably to marketing costs), quality differences, and differences in the composition of food baskets across countries.

Table 2 reports changes in domestic wholesale prices of three commodities (maize, wheat, and rice) for a set of low- and middle-income countries. The period chosen is 2012Q3 against 2012Q2 and 2012Q3 against 2011Q3. The first comparison captures the likely impact of the summer drought that affected mostly maize and wheat prices, which increased 22 and 30 percent, respectively (rice prices did not change substantially during these two quarters). The second comparison is intended to capture the longer term effect of price changes, given that in

Table 2. Food Prices in selected Low and Middle Income Countries (nominal local currencies, percent changes)

	2012Q3/ 2012Q2	2012Q3/ 2011Q3
Maize (21 countries)		
World (US$)	**21.6**	**8.8**
USD, broad index	**-0.1**	**4.9**
Rwanda	16.0	31.5
South Africa	19.8	26.1
Thailand	7.3	23.9
Nigeria	1.0	20.0
Tanzania	-1.5	19.1
Dominican Republic	-12.5	4.2
Brazil	19.8	3.0
Mexico	-4.6	-1.3
Peru	-0.3	-3.8
Ethiopia	8.7	-7.7
Kenya	-0.5	-13.2
Panama	1.5	-14.1
Costa Rica	0.5	-19.4
Philippines	1.5	-20.2
Colombia	1.0	-23.9
Uganda	-25.6	-25.4
Guatemala	9.3	-26.1
Honduras	15.2	-31.0
Bolivia	-7.8	-33.6
Nicaragua	15.0	-41.4
El Salvador	-1.3	-42.3
Wheat (7 countries)		
World (US$)	**29.9**	**10.7**
Sudan	16.2	25.2
India	4.9	17.2
Brazil	20.1	16.1
South Africa	21.5	11.5
Peru	0.2	3.8
Ethiopia	4.5	-2.7
Bolivia	-9.3	-10.3
Rice (18 countries)		
World (US$)	**-2.5**	**0.1**
Mexico	20.3	33.3
Brazil	2.7	17.0
Nicaragua	0.1	12.4
Colombia	-2.6	9.5
India	4.2	8.8
El Salvador	3.2	6.2
Myanmar	18.2	5.9
Guatemala	2.6	2.1
Philippines	-0.6	1.4
Honduras	1.9	0.1
Niger	0.0	0.0
Cambodia	8.6	-2.2
Burkina Faso	3.2	-3.0
Bolivia	-0.5	-4.1
Mali	-13.7	-4.9
Peru	-2.6	-6.1
Dominican Republic	-7.4	-8.6
Bangladesh	-2.4	-22.2

Sources: World Bank, FAO (GIEWS Food Price Data).

most cases the price transmission is likely to be slow. Yet, the price increases between 2012Q3 and 2011Q3 were relatively small, at 9 for maize and 11 percent for wheat (again, the price of rice was stable).

These results vary widely across commodities and across countries. For example, between 2011Q3 and 2012Q3, 14 out of the 21 countries that reporting data experienced price declines in maize, while only seven experienced price increases; the world maize price during this period increased 9 percent. Interestingly, even between 2012Q2 and 2012Q3, 14 out of the 21 countries experienced single-digit prices changes (an equal number of increases and declines), while only five countries reported maize price increases comparable to world price changes. This discrepancy may reflect the fact that the world price of maize is reflects demand and supply of maize used for feed, while most domestic prices refer to maize for human consumption. The results for wheat and rice are more in line with expectations: three of the seven countries reporting data for wheat experienced increases comparable to world prices. Furthermore, with only three exceptions, domestic rice prices did not change much, which was the case with world prices. A key conclusion from this brief analysis regarding the shorter term, is that in the case of wheat and rice, domestic prices do follow world prices (with some lags); this is not the case for maize.

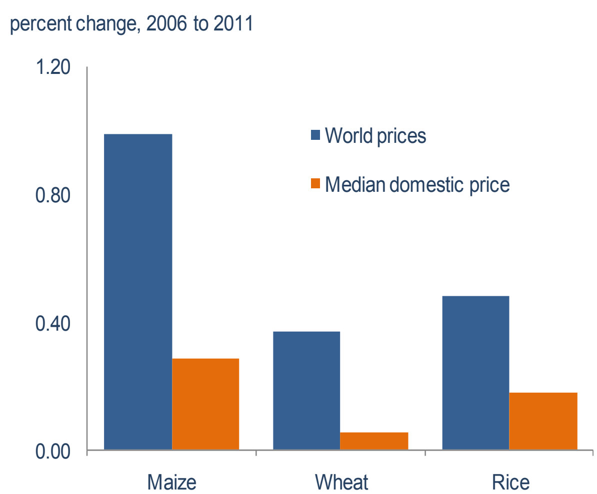
In the longer term, it appears that about one-third of the world price movements are transmitted to domestic prices, not surprisingly given the host of reasons mentioned above. For example, between 2006 and 2011, roughly corresponding the period spanning the recent commodity price boom, the median domestic maize price increase for the sample of countries mentioned above was approximately 30 percent, compared to a doubling in world maize prices. The corresponding price changes for were 37 versus 6 percent for wheat and 48 versus 18 percent for rice (figure 18).

Outlook for agricultural commodities

Agricultural prices are projected to decline 3.2 percent in 2013. Specifically, wheat and maize prices are expected to average 2.2 and 2.8 percent less, respectively, than their 2012 levels. Rice prices are expected to decline about 4 percent, to an average of US$540 per ton, while soybean and palm oil prices are expected to be 3.6 and 2.1 percent lower, respectively. Among beverage prices, coffee may experience the largest decline (9.6 percent for robusta and 7.6 percent for arabica), while cocoa and tea will change only marginally. On raw materials, timber and natural rubber prices are expected to decline modestly (0.5 and 2.3 percent, respectively), while cotton prices are forecast to drop by 8.5 percent.

A number of assumptions underpin the outlook for agricultural commodities. First, it assumes that crop production in the Southern Hemisphere will not be impacted by adverse weather conditions, and that next season's outlook will return to normal trends—note that the wildfires that affected Australia in early January did not affect its wheat crop. In its January 2013 assessment, the USDA estimated the 2012/13 season's global grain supplies (production plus starting stocks) at 2.47 billion tons, down 2.5 percent from 2011/12. If history is any guide, when markets experience negative supply shocks

Figure 18. World and domestic price changes



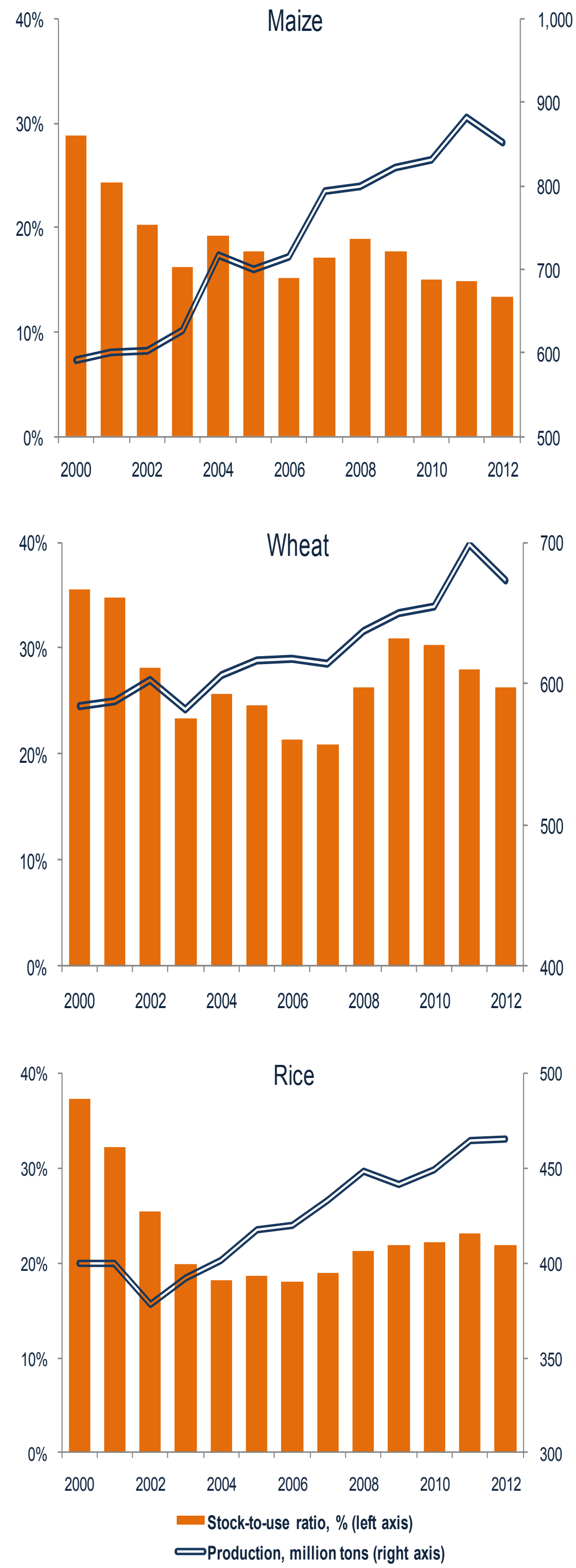
Source: FAO and World Bank.

similar to the one experienced in the summer of 2012, production comes back to pre-crisis levels within the next season through resource shifting, as was the case for maize in 2004/05, wheat in 2002/03, and rice in 2001/02 (figure 19). However, it takes between three and four seasons before stocks are fully replenished, in turn keeping prices of the respective commodity under pressure. As discussed earlier, wheat is traded about 30 percent above maize in the long term, indicating that it may take up to three years before maize and wheat prices return to their long term equilibrium.

Second, the outlook assumes that in 2013 crude oil prices will ease marginally, while fertilizer prices will decline by more than 6 percent (both fertilizer and crude oil are key inputs to agriculture). However, because of the energy intensive nature of agriculture—the industry is estimated to be four to five times more energy intensive than manufacturing—an energy price spike is likely to be followed by food price increases. The price transmission elasticity from energy to agriculture ranges between 0.2 and 0.3 (depending on the commodity), implying that a 10 percent increase in energy prices will induce a 2-3 percent increase in food prices (see box 3 for crude oil's contribution to food price changes).

Third, based on recent experience, the outlook assumes that policy responses would not upset food markets. This assumption, however, depends crucially on how well markets are supplied. If the baseline outlook materializes, policy actions are unlikely and, if they take place, will be isolated with only limited impact. For example, when the market conditions for rice and cotton were tight (in 2008 and 2010, respectively), export bans had a major impact on market prices. However, last year's Thai rice purchase program and the Indian export ban of March 2012 had very limited impact on prices because these markets were (and still are) well supplied. Reports in October 2012 that some Central Asian grain producing countries might introduce export bans did not materialize. For agricultural commodities, policy response is perhaps the only risk that is covariant with the

Figure 19. Grain production and stocks



Source: US Department of Agriculture (January 2013 update).

Box 3. Which drivers matter most in food price movements?

The post-2004 commodity price boom took place during a period when many countries were experiencing strong economic growth. Growth in low- and middle-income countries averaged 6.2 percent during 2005-12, one of the highest eight-year averages in recent history. Yet, economic growth was only one among numerous causes of the commodity price boom. Fiscal expansion in many countries, along with low interest rates, created an environment favoring high commodity prices. A depreciating U.S. dollar also strengthened demand from (and limited supply to) non-US$ commodity consumers (and producers). Other factors include low investment in agriculture in the past, especially in extractive commodities (in turn a response to a prolonged period of low prices); capital markets activity by financial institutions including commodities in their portfolios; and geopolitical concerns, especially in energy markets. In the case of agricultural commodities, prices were affected by higher energy costs, increasingly frequent adverse weather conditions, and the diversion of some food commodities to the production of biofuels. These conditions led to global stock-to-use ratios of some agricultural commodities down to levels not seen since the early 1970s. Lastly, policy responses including export bans and prohibitive taxes to offset the impact of high world prices contributed to creating the conditions for what has been often called a "perfect storm" (box table 3.1).

Which drivers matters most for food commodity prices? A reduced-form econometric model applied to five food commodities (wheat, maize, rice, soybeans, and palm oil) using 1960-2012 data shows that crude oil price is the most important variable by far, explaining almost two-thirds of the post-2004 food price increases. Stocks-to-use (S/U) ratio is also important, accounting for about 15 percent, as is exchange rate, accounting for 10 percent. The remaining 15 percent reflects, among other drivers, policies (details can be found in Baffes and Dennis 2013).

As an example, consider wheat. Between 1997-2004 and 2005-12 (roughly, the pre-and post boom periods), wheat prices increased by 81 percent; the S/U ratio declined by 17 percent; oil prices increased 228 percent; and the U.S. dollar depreciated 12 percent against the SDR. The three significantly different from zero estimated elasticities were: -0.50 (S/U ratio), 0.28 (crude oil), and –0.86 (exchange rate). These elasticity estimates are consistent with the literature—see FAO (2008), Bobenrieth, Wright, and Zeng (2012) for the S/U ratio, Gardner (1981) and Gilbert (1989) for exchange rates, and Borensztein and Reinhart (1994) and Baffes (2007) for oil prices. When these elasticities are applied to changes in the respective drivers, they give an 83 percent increase of the price of wheat during these two periods [-0.50*(-17%) + 0.28*228% -0.86*(-11.8%) = 8.7% + 64.3% + 10.2% = 83.2%]. These changes imply an 11 percent contribution by the S/U ratio, 77 percent contribution by oil, and 12 percent by exchange rate movements. Using related methodology, von Witzke and Noleppa (2011) arrived at a remarkably similar conclusions. World Bank (2012) used similar methodology.

Box table 3.1 Most of the post-2004 "perfect storm" conditions are still in place

	1997-2004	2005-12	Change
Food price index (nominal, 2005 = 100)	**89**	**154**	**73%**
MACROECONOMIC DRIVERS			
GDP growth (middle income countries, % p.a.)	4.6	6.2	35%
Industrial production growth (middle income countries, % p.a.)	5.4	7.3	35%
Crude oil price (nominal, US$/barrel)	25	79	216%
Exchange rate (US$ against a broad index of currencies, 1997 = 100)	118	104	-12%
Interest rate (10-year US Treasury bill, %)	5.2	3.6	-31%
Funds invested in commodities (US$ billion)	57	230	304%
SECTORAL DRIVERS			
Stocks (total of maize, wheat, and rice, months of consumption)	3.5	2.5	-29%
Biofuel production (tousand b/d of crude oil equivalent)	231	892	286%
Fertilizer price index (nominal, 2005 = 100)	69	207	200%
Growth in yields (average of wheat, maize, and rice, % p.a.)	1.4	0.5	-64%
Yields (average of wheat, maize, and rice, tons/hectare)	3.7	4.0	8%
Natural disasters (droughts, floods, and extreme temperatures)	174	207	19%
Policies (Producer NPC for OECD countries, %)	1.3	1.1	-15%

Source: Barclays Capital, Center for Research for the Epidemiology of Disasters, Federal Reserve Bank of St. Louis, Organization of Economic Cooperation and Development, US Department of Agriculture, U.S. Treasury, World Bank, and author's calculations.
Note: 2012 data for some variables are preliminary.

risk of adequate supplies, which in turn depends on weather.

Lastly, despite an only marginal increase in global biofuel production in 2011 and 2012, the outlook assumes biofuel production will continue to play a key role in the behavior of agricultural commodity markets. Currently, biofuels account for 1.3/bbl of crude oil equivalent (figure 20). The 2012 joint OECD-FAO Agricultural Outlook expects global biofuel production to expand at an annual rate of more than 5 percent over the next decade (from 140 billion liters in 2012 to 222 billion liters in 2021). Thus, it is feasible that at the beginning of the 2020s, between 3 and 4 percent of the world's land area could be allocated to grains and oilseeds (evaluated at average world yields). On the other hand, policy makers are increasingly realizing that the environmental and energy security benefits of producing biofuels may not outweigh their costs (in terms of higher food prices), thus subsidies and mandates that have supported the biofuel sectors of many countries may ease.

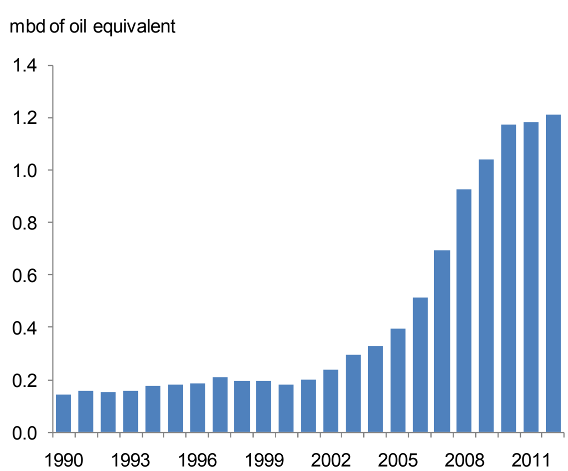
Yet, the likely long-term impact of biofuels on food prices is complex, as it goes far beyond the land diversion, subsidies, and mandates. The impact is likely to depend more on the following factors: (i) the level at which crude oil prices make biofuels profitable and (ii) whether technological developments within existing biofuel crops (especially maize, edible oils, and sugar cane) or new crops increase the energy content of these crops, thus making them more attractive sources of energy. Thus, high energy prices in combination with technological improvements may pose upside risks for food prices in the long term.

Fertilizers

Fertilizers, a key input to the production of most agricultural commodities especially grains and oilseeds, experienced one of the largest price increases during the post-2005 commodity boom (figure 21). For example, between 2003 and 2008, the World Bank's fertilizer price index increased five-fold. In addition to demand, most if the fertilizer prices increases are due o increases in energy prices, especially natural gas—some fertilizers are made directly out of natural gas. The fertilizer price index declined marginally in 2012 (down 3 percent form 211). The declined were led by DAP and TSP, 13 and 14 percent down (potassium price was up 4.5 percent).

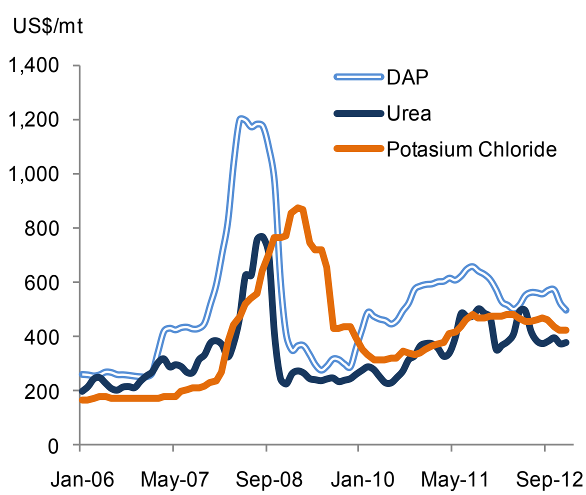
Fertilizer prices are expected to ease almost 6 percent in 2013, and decline another 5 percent in the next two years. The key reason behind the declining path of fertilizer prices is the assumed moderation of natural gas prices.

Figure 20. Biofuel production



Source: BP Statistical Review of World Energy and OECD.

Figure 21. Fertilizer prices



Source: World Bank.

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Table A1. Commodity price data

Commodity		Unit	Annual averages Jan-Dec 2010	Jan-Dec 2011	Jan-Dec 2012	Quarterly averages Oct-Dec 2011	Jan-Mar 2012	Apr-Jun 2012	Jul-Sep 2012	Oct-Dec 2012	Monthly averages Oct 2012	Nov 2012	Dec 2012
Energy													
Coal, Australia	a/	$/mt	98.97	121.45	96.36	114.91	113.65	95.54	89.40	86.87	81.85	85.89	92.88
Coal, Colombia		$/mt	77.97	111.50	83.95	101.18	91.77	82.22	82.68	79.14	77.46	78.85	81.10
Coal, South Africa		$/mt	91.62	116.30	92.92	106.85	105.00	93.47	87.42	85.79	82.80	85.74	88.84
Crude oil, average	a/	$/bbl	79.04	104.01	105.01	103.16	112.52	102.83	102.77	101.93	103.41	101.17	101.19
Crude oil, Brent	a/	$/bbl	79.64	110.94	111.97	109.29	118.60	108.86	109.95	110.45	111.97	109.71	109.68
Crude oil, Dubai	a/	$/bbl	78.06	106.03	108.90	106.16	116.07	106.18	106.18	107.19	108.73	107.13	105.69
Crude oil, West Texas Int.	a/	$/bbl	79.43	95.05	94.16	94.03	102.88	93.44	92.17	88.14	89.52	86.68	88.22
Natural gas Index	a/	2005=100	91.1	107.3	108.3	111.3	106.4	106.3	108.0	112.6	110.7	113.6	113.6
Natural gas, Europe	a/	$/mmbtu	8.29	10.52	11.47	11.42	11.51	11.52	11.13	11.73	11.58	11.83	11.79
Natural gas, US	a/	$/mmbtu	4.39	4.00	2.75	3.32	2.46	2.28	2.88	3.40	3.32	3.54	3.34
Natural gas LNG	a/	$/mmbtu	10.85	14.66	16.67	16.58	16.36	17.06	17.56	15.69	15.30	15.28	16.49
Non Energy													
Agriculture													
Beverages													
Cocoa	b/	¢/kg	313.3	298.0	239.2	246.8	234.1	228.2	249.4	245.1	246.4	247.8	241.0
Coffee, arabica	b/	¢/kg	432.0	597.6	411.1	536.2	486.9	400.4	400.0	357.1	382.1	352.5	336.7
Coffee, robusta	b/	¢/kg	173.6	240.8	226.7	215.9	222.1	231.0	234.1	219.5	230.3	215.3	212.9
Tea, auctions (3) avg.	b/	¢/kg	288.5	292.1	289.8	279.5	254.9	292.2	308.4	303.6	300.9	301.7	308.3
Tea, Colombo auctions	b/	¢/kg	329.0	326.4	306.3	316.7	292.7	304.7	308.1	319.5	315.9	311.6	331.0
Tea, Kolkata auctions	b/	¢/kg	280.5	277.9	275.0	256.4	205.3	289.9	313.4	291.4	298.9	289.2	286.2
Tea, Mombasa auctions	b/	¢/kg	256.0	271.9	288.1	265.4	266.7	282.0	303.5	300.0	288.0	304.3	307.7
Food													
Fats and Oils													
Coconut oil	b/	$/mt	1,124	1,730	1,111	1,377	1,400	1,187	1,013	844	898	848	785
Copra		$/mt	750	1,157	741	917	933	793	672	565	591	577	526
Groundnuts		$/mt	1,284	2,086	2,175	2,646	2,800	2,617	1,858	1,424	1,488	1,418	1,367
Groundnut oil	b/	$/mt	1,404	1,988	n.a.	2,245	n.a.	n.a.	2,476	2,298	2,375	2,303	2,216
Palm oil	b/	$/mt	901	1,125	999	1,025	1,107	1,088	993	809	839	813	776
Palmkernel oil		$/mt	1,184	1,648	1,110	1,250	1,366	1,242	1,020	813	862	815	762
Soybean meal	b/	$/mt	378	398	524	357	392	488	630	587	601	579	580
Soybean oil	b/	$/mt	1,005	1,299	1,226	1,214	1,253	1,236	1,258	1,158	1,175	1,135	1,163
Soybeans	b/	$/mt	450	541	591	488	518	572	672	604	617	589	607
Grains													
Barley	b/	$/mt	158.4	207.2	240.3	210.9	215.6	237.8	258.4	249.3	252.9	252.1	242.9
Maize	b/	$/mt	185.9	291.7	298.4	269.3	277.7	270.2	328.6	317.2	321.2	321.6	308.6
Rice, Thailand, 5%	b/	$/mt	488.9	543.0	562.9	600.1	542.5	582.8	568.3	558.2	558.3	559.3	557.0
Rice, Thailand, 25%		$/mt	441.5	506.0	n.a.	570.0	534.0	n.a.	547.9	531	532.5	530	530
Rice,Thai, A.1		$/mt	383.7	458.6	525.3	527.6	520.4	545.4	513.3	522.0	520.3	523.0	522.7
Rice, Vietnam 5%		$/mt	429.2	513.6	434.5	551.2	436.9	428.7	433.6	438.8	453.7	448.3	414.3
Sorghum		$/mt	165.4	268.7	271.9	261.8	269.6	259.4	273.4	285.4	283.1	289.0	284.0
Wheat, Canada		$/mt	312.4	439.6	n.a.	405.2	378.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Wheat, US, HRW	b/	$/mt	223.6	316.3	313.2	279.7	278.8	269.0	349.5	355.7	358.2	360.8	348.0
Wheat, US, SRW		$/mt	229.7	285.9	295.4	250.5	258.9	251.8	333.4	337.3	340.2	346.5	325.2
Other Food													
Bananas, Europe		$/mt	1,002	1,125	1,100	968	1,143	1,171	982	1,103	1,117	1,068	1,123
Bananas, US	b/	$/mt	868	968	984	951	1,052	979	960	945	956	934	944
Fishmeal		$/mt	1,688	1,537	1,558	1,336	1,300	1,481	1,677	1,776	1,635	1,812	1,880
Meat, beef	b/	¢/kg	335.1	404.2	414.2	407.2	424.7	413.0	400.1	419.1	401.0	424.7	431.6
Meat, chicken	b/	¢/kg	189.2	192.6	207.9	197.0	201.6	207.1	209.7	213.2	211.3	213.0	215.3
Meat, sheep		¢/kg	531.4	663.1	609.1	660.2	644.5	618.3	587.5	586.2	586.6	582.7	589.3
Oranges	b/	$/mt	1,033	891	868	824	771	844	995	862	981	847	758
Shrimp		¢/kg	1,004	1,193	1,006	1,085	1,055	977	970	1,024	981	1,025	1,066
Sugar, EU	b/	¢/kg	44.18	45.46	42.01	44.01	42.85	41.93	40.90	42.38	42.35	41.93	42.87
Sugar, US	b/	¢/kg	79.25	83.92	63.56	82.09	75.66	66.63	61.50	50.46	52.54	49.65	49.20
Sugar, world	b/	¢/kg	46.93	57.32	47.49	53.29	52.75	47.05	46.85	43.33	44.78	42.64	42.57
Raw Materials													
Timber													
Logs, Cameroon		$/cum	428.6	484.8	451.4	483.0	463.6	452.6	436.2	453.2	450.7	449.3	459.4
Logs, Malaysia	b/	$/cum	278.2	390.5	360.5	409.0	373.3	361.0	355.1	352.7	350.2	353.0	354.8
Plywood		¢/sheets	569.1	607.5	610.3	617.5	612.8	609.9	607.1	611.5	610.2	611.5	612.9
Sawnwood, Cameroon		$/cum	812.7	825.8	759.3	774.6	755.5	760.7	755.2	765.9	766.5	761.3	770.0
Sawnwood, Malaysia	b/	$/cum	848.3	939.4	876.3	911.8	882.9	883.8	864.3	874.4	873.4	870.0	879.9
Woodpulp		$/mt	866.8	899.6	762.8	834.6	781.1	786.8	735.2	748.3	726.0	746.8	771.9

Table A1. Commodity price data

Commodity		Unit	Annual averages Jan-Dec 2010	Jan-Dec 2011	Jan-Dec 2012	Quarterly averages Oct-Dec 2011	Jan-Mar 2012	Apr-Jun 2012	Jul-Sep 2012	Oct-Dec 2012	Monthly averages Oct 2012	Nov 2012	Dec 2012
Other Raw Materials													
Cotton	b/	¢/kg	228.3	332.9	196.7	228.4	221.5	198.9	185.6	180.9	180.7	178.3	183.8
Rubber, RSS3	b/	¢/kg	365.4	482.3	337.7	360.6	385.3	359.1	297.0	309.6	320.4	297.4	311.0
Rubber, TSR20		¢/kg	338.1	451.9	315.6	358.7	368.8	330.1	275.0	288.3	295.4	280.0	289.6
Fertilizers													
DAP	b/	$/mt	500.7	618.9	539.8	605.7	516.6	545.2	565.0	532.3	573.0	524.8	499.0
Phosphate rock	b/	$/mt	123.0	184.9	185.9	201.3	195.8	179.4	183.3	185.0	185.0	185.0	185.0
Potassium chloride	b/	$/mt	331.9	435.3	459.0	473.0	479.8	461.3	464.8	430.1	440.2	425.0	425.0
TSP	b/	$/mt	381.9	538.3	462.0	564.2	440.4	470.4	485.0	452.2	474.0	447.5	435.0
Urea	b/	$/mt	288.6	421.0	405.4	437.3	387.3	470.0	381.3	383.0	396.0	374.2	378.8
Metals and Minerals													
Aluminum	b/	$/mt	2,173	2,401	2,023	2,094	2,179	1,982	1,929	2,003	1,974	1,949	2,087
Copper	b/	$/mt	7,535	8,828	7,962	7,514	8,318	7,889	7,729	7,913	8,062	7,711	7,966
Iron ore		$/dmt	145.9	167.8	128.5	140.8	141.8	139.6	111.6	120.9	114.0	120.4	128.5
Lead	b/	¢/kg	214.8	240.1	206.5	199.2	209.1	197.9	198.7	220.1	214.2	218.2	228.0
Nickel	b/	$/mt	21,809	22,910	17,548	18,393	19,636	17,186	16,384	16,984	17,169	16,335	17,449
Tin	b/	¢/kg	2,041	2,605	2,113	2,085	2,291	2,063	1,936	2,161	2,123	2,071	2,288
Zinc	b/	¢/kg	216.1	219.4	195.0	190.4	202.5	193.2	189.2	195.2	190.4	191.2	204.0
Precious Metals													
Gold		$/toz	1,225	1,569	1,670	1,682	1,692	1,612	1,656	1,718	1,747	1,722	1,685
Platinum		$/toz	1,610	1,719	1,551	1,529	1,604	1,500	1,501	1,598	1,636	1,576	1,582
Silver		¢/toz	2,015	3,522	3,114	3,179	3,258	2,941	2,995	3,261	3,319	3,277	3,187
World Bank commodity price indices for low and middle income countries (2005 =100)													
Energy			144.7	188.2	187.4	186.6	200.8	183.7	183.2	182.1	183.7	180.9	181.6
Non Energy			173.9	209.9	190.0	188.8	192.9	189.3	191.0	186.9	188.8	184.9	186.9
Agriculture			170.4	209.0	194.0	190.7	192.6	191.7	200.6	191.1	194.2	190.1	188.9
Beverages			182.1	208.2	166.2	183.7	171.7	162.7	169.7	160.8	165.4	160.3	156.9
Food			169.6	210.1	211.6	197.6	203.6	206.9	225.2	210.7	214.4	210.2	207.6
Fats and Oils			184.5	222.7	230.0	202.5	216.9	231.1	250.2	221.9	227.8	219.4	218.6
Grains			171.8	238.5	244.2	229.3	226.8	227.2	264.0	258.8	261.1	261.8	253.7
Other Food			148.2	167.8	157.9	162.2	165.2	156.8	157.1	152.4	154.4	151.5	151.4
Raw Materials			166.3	206.7	165.3	177.8	176.5	169.3	156.6	158.7	160.0	156.3	159.8
Timber			130.5	153.5	142.7	152.2	144.9	143.7	140.7	141.7	141.3	141.2	142.5
Other Raw Materials			205.4	264.8	189.9	205.8	211.0	197.4	173.9	177.4	180.5	172.9	178.7
Fertilizers			187.2	267.0	259.2	284.2	260.1	270.0	256.9	249.9	256.0	247.1	246.6
Metals and Minerals c/			179.6	205.5	174.0	174.0	185.7	175.4	163.9	171.1	170.0	167.3	176.1
Base Metals d/			169.2	193.2	168.6	164.1	178.2	166.2	162.1	167.7	168.8	163.2	171.1
Precious Metals (NEW)			272.2	371.9	378.3	382.0	386.1	363.6	372.7	390.7	397.4	391.7	383.0

a/ Included in the energy index (2005=100) b/ Included in the non-energy index (2005=100)
c/ base metals plus iron ore d/ Includes aluminum, copper, lead, nickel, tin and zinc
$ = US dollar ¢ = US cent bbl = barrel cum = cubic meter dmt = dry metric ton dmtu = dry metric ton unit kg = kilogram
mmbtu = million British thermal units mt = metric ton toz = troy oz n.a. = not available n.q. = no quotation

Table A2. Commodity Prices and Price Forecast in Nominal US Dollars

Commodity	Unit	Actual						Forecast								
		1980	1990	2000	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025
Energy																
Coal, Australian	$/mt	40.1	39.7	26.3	99.0	121.4	96.4	93.0	91.0	90.0	91.0	91.9	92.9	93.9	94.9	100.0
Crude oil, avg, spot	$/bbl	36.9	22.9	28.2	79.0	104.0	105.0	102.0	102.2	102.1	101.9	101.7	101.5	101.4	101.2	101.5
Natural gas, European	$/mmbtu	4.2	2.8	3.9	8.3	10.5	11.5	11.2	11.1	11.0	10.9	10.8	10.7	10.6	10.5	10.0
Natural gas, US	$/mmbtu	1.6	1.7	4.3	4.4	4.0	2.8	3.5	4.0	4.5	5.0	5.3	5.5	5.8	6.0	7.0
LNG, Japanese	$/mmbtu	5.7	3.6	4.7	10.8	14.7	16.7	16.0	15.5	15.0	14.8	14.5	14.3	14.0	13.8	12.5
Non Energy Commodities																
Agriculture																
Beverages																
Cocoa	¢/kg	260	127	91	313	298	239	235	232	230	229	228	227	226	225	220
Coffee, Arabica	¢/kg	347	197	192	432	598	411	380	370	360	359	358	357	356	355	350
Coffee, robusta	¢/kg	324	118	91	174	241	227	205	190	185	183	182	180	179	177	170
Tea, auctions (3) ave	¢/kg	166	206	188	288	292	290	285	288	291	295	298	301	305	308	325
Food																
Fats and Oils																
Coconut oil	$/mt	674	337	450	1,124	1,730	1,111	950	940	930	927	924	921	918	915	900
Groundnut oil	$/mt	859	964	714	1,404	1,988	2,436	2,150	1,950	1,900	1,895	1,890	1,885	1,880	1,875	1,850
Palm oil	$/mt	584	290	310	901	1,125	999	930	910	900	889	879	869	859	849	800
Soybean meal	$/mt	262	200	189	378	398	524	520	460	410	407	404	401	398	395	380
Soybean oil	$/mt	598	447	338	1,005	1,299	1,226	1,200	1,100	1,050	1,045	1,040	1,035	1,030	1,025	1,000
Soybeans	$/mt	296	247	212	450	541	591	570	540	520	519	518	517	516	515	510
Grains																
Barley	$/mt	78	80	77	158	207	240	230	215	200	198	197	195	194	192	185
Maize	$/mt	125	109	89	186	292	298	290	270	250	248	246	244	242	240	230
Rice, Thai, 5%	$/mt	411	271	202	489	543	563	540	520	500	498	496	494	492	490	480
Wheat, US, HRW	$/mt	173	136	114	224	316	313	320	300	270	270	271	271	272	272	275
Other Food																
Bananas US	$/mt	377	541	424	868	968	984	980	970	950	947	944	941	938	935	920
Meat, beef	¢/kg	276	256	193	335	404	414	410	360	315	323	330	338	347	355	390
Meat, chicken	¢/kg	76	108	131	189	193	208	201	201	201	202	203	203	204	204	205
Oranges	$/mt	400	531	363	1,033	891	868	845	860	900	903	906	909	912	915	930
Shrimp	¢/kg	1,152	1,069	1,515	1,004	1,193	1,006	1,005	1,035	1,100	1,110	1,120	1,130	1,140	1,150	1,200
Sugar, world	¢/kg	63.2	27.7	18.0	46.9	57.3	47.5	45.0	40.0	38.0	37.7	37.4	37.1	36.8	36.5	35.0
Agricultural Raw Materials																
Timber																
Logs, Cameroonian	$/cum	252	343	275	429	485	451	450	457	465	473	481	489	497	505	535
Logs, Malaysian	$/cum	196	177	190	278	391	361	356	362	368	374	381	387	393	400	425
Sawnwood, Malaysian	$/cum	396	533	595	848	939	876	875	885	902	919	937	955	974	1,000	1,080
Other Raw Materials																
Cotton A Index	¢/kg	206	182	130	228	333	197	180	190	200	205	209	214	219	224	250
Rubber, Malaysian	¢/kg	142	86	67	365	482	338	330	325	320	318	316	314	312	310	300
Tobacco	$/mt	2,276	3,392	2,976	4,333	4,485	4,294	4,200	4,100	4,000	4,010	4,020	4,030	4,040	4,050	4,100
Fertilizers																
DAP	$/mt	222	171	154	501	619	540	500	490	480	478	476	474	472	470	460
Phosphate rock	$/mt	47	41	44	123	185	186	175	160	150	145	140	135	130	125	105
Pottasium chloride	$/mt	116	98	123	332	435	459	430	410	380	375	369	364	359	354	330
TSP	$/mt	180	132	138	382	538	462	430	425	420	415	409	404	399	394	370
Urea	$/mt	192	119	101	289	421	405	390	370	350	345	339	334	329	324	300
Metals and Minerals																
Aluminum	$/mt	1,775	1,639	1,549	2,173	2,401	2,023	2,200	2,400	2,500	2,537	2,575	2,614	2,653	2,693	2,900
Copper	$/mt	2,182	2,661	1,813	7,535	8,828	7,962	7,800	7,400	7,000	6,980	6,960	6,939	6,919	6,899	6,800
Iron ore	¢/dmtu	28	33	29	146	168	128	130	132	135	136	138	139	141	142	150
Lead	¢/kg	91	81	45	215	240	206	210	215	220	221	222	223	224	225	230
Nickel	$/mt	6,519	8,864	8,638	21,809	22,910	17,548	18,000	18,200	18,500	18,948	19,407	19,877	20,358	20,851	23,500
Tin	¢/kg	1,677	609	544	2,041	2,605	2,113	2,200	2,250	2,300	2,346	2,392	2,440	2,488	2,538	2,800
Zinc	¢/kg	76	151	113	216	219	195	210	220	230	232	234	236	238	240	250
Precious Metals																
Gold	$/toz	608	383	279	1,225	1,569	1,670	1,600	1,550	1,500	1,479	1,458	1,437	1,417	1,396	1,300
Silver	c/toz	2,080	483	495	2,015	3,522	3,114	3,100	2,950	2,800	2,768	2,737	2,706	2,676	2,646	2,500
Platinum	$/toz	679	472	545	1,610	1,719	1,551	1,544	1,469	1,395	1,379	1,363	1,348	1,333	1,318	1,245

a/ iron ore unit for years 1980 to 2005 is cents/ dmtu, thereafter is $/dmt.

Source: World Bank, Development Prospects Group.

Table A3. Commodity Prices and Price Forecast in Real 2005 US Dollars

		Actual						Forecast								
Commodity	Unit	1980	1990	2000	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025
Energy																
Coal, Australian	$/mt	52.7	41.0	29.4	87.6	98.7	79.9	75.7	72.5	70.4	69.8	69.3	68.9	68.4	67.9	65.4
Crude oil, avg, spot	$/bbl	48.4	23.7	31.6	70.0	84.6	87.1	83.0	81.4	79.8	78.3	76.8	75.3	73.8	72.4	66.3
Natural gas, European	$/mmbtu	5.5	2.9	4.3	7.3	8.5	9.5	9.1	8.8	8.6	8.4	8.1	7.9	7.7	7.5	6.5
Natural gas, US	$/mmbtu	2.1	1.8	4.8	3.9	3.3	2.3	2.8	3.2	3.5	3.8	4.0	4.1	4.2	4.3	4.6
LNG, Japanese	$/mmbtu	7.5	3.8	5.3	9.6	11.9	13.8	13.0	12.3	11.7	11.3	10.9	10.6	10.2	9.8	8.2
Non Energy Commodities																
Agriculture																
Beverages																
Cocoa	¢/kg	342	131	101	277	242	198	191	185	180	176	172	168	165	161	144
Coffee, Arabica	¢/kg	455	204	215	383	486	341	309	295	281	276	270	265	259	254	229
Coffee, robusta	¢/kg	426	122	102	154	196	188	167	151	145	141	137	134	130	127	111
Tea, auctions (3) ave	¢/kg	218	213	210	255	237	240	232	230	228	226	225	223	222	220	212
Food																
Fats and Oils																
Coconut oil	$/mt	884	348	504	995	1,406	921	773	749	727	712	697	683	668	654	588
Groundnut oil	$/mt	1,127	997	799	1,243	1,616	2,019	1,750	1,554	1,485	1,455	1,426	1,397	1,369	1,341	1,209
Palm oil	$/mt	766	300	347	798	915	828	757	725	704	683	663	644	625	607	523
Soybean meal	$/mt	344	207	212	335	324	434	423	367	321	312	305	297	290	282	248
Soybean oil	$/mt	784	463	378	890	1,056	1,017	977	876	821	802	784	767	750	733	654
Soybeans	$/mt	389	255	237	398	440	490	464	430	407	398	391	383	376	368	333
Grains																
Barley	$/mt	103	83	86	140	168	199	187	171	156	152	149	145	141	138	121
Maize	$/mt	164	113	99	165	237	247	236	215	195	190	185	181	176	172	150
Rice, Thai, 5%	$/mt	539	280	227	433	441	467	440	414	391	382	374	366	358	350	314
Wheat, US, HRW	$/mt	227	140	128	198	257	260	260	239	211	208	204	201	198	195	180
Other Food																
Bananas US	$/mt	495	559	475	769	787	816	798	773	743	727	712	697	683	669	601
Meat, beef	¢/kg	362	265	216	297	329	343	334	287	246	248	249	251	252	254	255
Meat, chicken	¢/kg	99	112	147	168	157	172	164	160	158	155	153	151	148	146	134
Oranges	$/mt	525	549	407	915	724	720	688	685	704	693	683	674	664	655	608
Shrimp	¢/kg	1,511	1,106	1,696	889	970	834	818	825	860	852	845	837	830	823	784
Sugar, world	¢/kg	82.9	28.6	20.2	41.6	46.6	39.4	36.6	31.9	29.7	28.9	28.2	27.5	26.8	26.1	22.9
Agricultural Raw Materials																
Timber																
Logs, Cameroonian	$/cum	330	355	308	379	394	374	366	364	364	363	363	362	362	361	350
Logs, Malaysian	$/cum	257	183	213	246	317	299	290	288	288	287	287	287	286	286	278
Sawnwood, Malaysian	$/cum	520	551	666	751	764	727	712	705	705	706	707	708	709	715	706
Other Raw Materials																
Cotton A Index	¢/kg	271	188	146	202	271	163	147	151	156	157	158	159	159	160	163
Rubber, Malaysian	¢/kg	187	89	75	324	392	280	269	259	250	244	238	233	227	222	196
Tobacco	$/mt	2,986	3,508	3,332	3,837	3,646	3,560	3,419	3,267	3,127	3,079	3,033	2,987	2,942	2,897	2,679
Fertilizers																
DAP	$/mt	292	177	173	443	503	447	407	390	375	367	359	351	344	336	301
Phosphate rock	$/mt	61	42	49	109	150	154	142	127	117	111	105	100	95	90	69
Pottasium chloride	$/mt	152	101	137	294	354	380	350	327	297	288	279	270	262	253	216
TSP	$/mt	237	136	154	338	438	383	350	339	328	318	309	300	291	282	242
Urea	$/mt	252	123	113	256	342	336	317	295	274	265	256	248	240	232	196
Metals and Minerals																
Aluminum	$/mt	2,329	1,695	1,734	1,924	1,952	1,677	1,791	1,912	1,954	1,948	1,943	1,937	1,932	1,926	1,895
Copper	$/mt	2,863	2,752	2,030	6,672	7,177	6,601	6,349	5,896	5,472	5,359	5,250	5,144	5,039	4,936	4,444
Iron ore	¢/dmtu	37	34	32	129	136	107	106	105	106	105	104	103	103	102	98
Lead	¢/kg	119	84	51	190	195	171	171	171	172	170	167	165	163	161	150
Nickel	$/mt	8,553	9,167	9,669	19,312	18,625	14,548	14,651	14,501	14,463	14,549	14,640	14,733	14,825	14,916	15,357
Tin	¢/kg	2,201	629	608	1,807	2,118	1,751	1,791	1,793	1,798	1,801	1,805	1,808	1,812	1,815	1,830
Zinc	¢/kg	100	157	126	191	178	162	171	175	180	178	176	175	173	172	163
Metals and Minerals																
Gold	$/toz	798	397	312	1,084	1,276	1,384	1,302	1,235	1,173	1,135	1,100	1,065	1,032	999	850
Silver	c/toz	2,730	500	554	1,785	2,864	2,581	2,523	2,350	2,189	2,126	2,065	2,006	1,949	1,893	1,634
Platinum	$/toz	891	488	610	1,425	1,398	1,286	1,257	1,171	1,090	1,059	1,029	999	971	943	814

a/ iron ore unit for years 1980 to 2005 is cents/ dmtu, thereafter is $/dmt.

Source: World Bank, Development Prospects Group.

Table A4. Weighted Indices of Commodity Prices and Inflation, 2005=100

	Actual						Projection								
	1980	1990	2000	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025
Price indices in nominal US dollars															
Energy	66.0	43.4	53.2	144.7	188.2	187.4	182.6	182.8	182.8	182.8	182.7	182.5	182.4	182.3	183.4
Non-energy commodities	102.2	84.0	72.2	173.9	209.9	190.0	186.2	180.4	175.4	175.6	175.7	175.9	176.2	176.5	177.7
Agriculture	119.6	90.5	78.7	170.4	209.0	194.0	187.8	179.6	173.2	173.1	173.0	173.0	173.0	173.1	172.7
Beverages	157.7	90.5	76.8	182.1	208.2	166.2	158.4	155.3	153.3	153.1	152.9	152.8	152.6	152.4	151.7
Food	124.6	90.6	76.6	169.6	210.1	211.6	204.8	191.7	181.3	180.5	179.8	179.1	178.4	177.7	174.0
Fats and oils	120.4	82.3	76.6	184.5	222.7	230.0	220.5	206.0	196.0	194.6	193.3	191.9	190.6	189.3	182.8
Grains	126.8	99.4	79.9	171.8	238.5	244.2	239.0	224.7	208.8	207.7	206.7	205.6	204.6	203.6	198.6
Other food	128.0	93.6	73.8	148.2	167.8	157.9	153.1	143.0	137.0	137.4	137.8	138.1	138.6	139.0	140.2
Raw materials	88.0	90.2	84.7	166.3	206.7	165.3	161.7	162.4	163.5	165.1	166.7	168.4	170.1	172.4	180.1
Timber	68.1	82.3	90.9	130.5	153.5	142.7	142.1	143.9	146.6	149.3	152.1	154.9	157.8	161.6	173.8
Other Raw Materials	109.9	98.9	77.9	205.4	264.8	189.9	183.1	182.6	182.0	182.4	182.8	183.2	183.6	184.1	186.9
Fertilizers	89.1	65.4	67.0	187.2	267.0	259.2	244.8	231.9	219.8	215.4	211.2	207.0	203.0	199.0	180.6
Metals and minerals a/	68.1	72.8	59.5	179.6	205.5	174.0	176.3	176.1	174.9	176.1	177.3	178.5	179.8	181.0	187.7
Base Metals b/	73.9	78.1	63.0	169.2	193.2	168.6	170.8	169.9	167.3	168.2	169.2	170.2	171.2	172.2	177.7
Precious Metals	162.7	81.3	63.6	272.2	371.9	378.3	378.3	352.8	339.9	335.3	330.8	326.3	321.9	317.5	296.6
Price indices in real 2005 US dollars c/															
Energy	86.6	44.9	59.5	128.1	153.0	155.4	148.7	145.6	142.9	140.4	137.8	135.3	132.8	130.4	119.9
Non-energy commodities	134.1	86.9	80.8	154.0	170.7	157.5	151.6	143.7	137.1	134.8	132.6	130.4	128.3	126.3	116.1
Agriculture	156.9	93.6	88.1	150.9	169.9	160.8	152.9	143.1	135.4	132.9	130.5	128.2	125.9	123.8	112.8
Beverages	207.0	93.6	86.0	161.3	169.3	137.8	128.9	123.7	119.8	117.6	115.4	113.2	111.1	109.0	99.1
Food	163.4	93.7	85.8	150.2	170.8	175.4	166.7	152.7	141.7	138.6	135.6	132.7	129.9	127.1	113.7
Fats and oils	158.0	85.1	85.7	163.4	181.1	190.7	179.4	164.1	153.2	149.5	145.8	142.3	138.8	135.4	119.5
Grains	166.4	102.8	89.5	152.1	193.9	202.4	194.5	179.0	163.2	159.5	155.9	152.4	149.0	145.7	129.8
Other food	167.9	96.8	82.6	131.2	136.4	130.9	124.6	113.9	107.1	105.5	103.9	102.4	100.9	99.4	91.6
Raw materials	115.5	93.3	94.8	147.2	168.0	137.0	131.6	129.4	127.8	126.8	125.8	124.8	123.9	123.3	117.7
Timber	89.3	85.1	101.8	115.5	124.8	118.3	115.7	114.7	114.6	114.7	114.7	114.8	114.9	115.6	113.6
Other Raw Materials	144.2	102.2	87.2	181.9	215.3	157.4	149.1	145.5	142.3	140.0	137.9	135.8	133.7	131.7	122.1
Fertilizers	116.9	67.7	75.1	165.7	217.0	214.9	199.3	184.8	171.8	165.4	159.3	153.4	147.8	142.4	118.0
Metals and minerals a/	89.4	75.3	66.6	159.1	167.0	144.3	143.5	140.3	136.7	135.2	133.7	132.3	130.9	129.5	122.7
Base Metals b/	97.0	80.8	70.6	149.8	157.1	139.7	139.0	135.3	130.8	129.2	127.6	126.1	124.7	123.2	116.1
Precious Metals	213.4	84.1	71.2	241.1	302.4	313.6	307.9	281.1	265.8	257.5	249.5	241.9	234.4	227.2	193.9
Inflation indices, 2005=100 d/															
MUV index e/	76.2	96.7	89.3	112.9	123.0	120.6	122.9	125.5	127.9	130.2	132.6	134.9	137.3	139.8	153.0
% change per annum		2.4	-0.8	2.4	8.9	-1.9	1.9	2.2	1.9	1.8	1.8	1.8	1.8	1.8	1.8
US GDP deflator	47.8	72.3	88.7	111.0	113.4	115.5	117.0	119.5	122.1	124.7	127.4	130.2	133.0	135.9	151.3
% change per annum		4.2	2.1	2.3	2.1	1.9	1.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2

a/ Base metals plus iron ore.

b/ Includes aluminum, copper, lead, nickel, tin and zinc.

c/ Real price indices are computed from unrounded data and deflated by the MUV index.

d/ Inflation indices for 2011-2025 are projections. Growth rates for years 1990, 2000 and 2010 refer to compound annual rate of change between adjacent end-point years; all others are annual growth rates from the previous year.

e/ Unit value index of manufacture exports (MUV) in US dollar terms for fifteen countries (Brazil, Canada, China, Germany, France, India, Italy, Japan, Mexico, Republic of Korea, South Africa, Spain, Thailand, United Kingdom, and United States).
Please see the MUV Index and its compilation methodology online.

Source: World Bank, Development Prospects Group. Historical US GDP deflator: US Department of Commerce.

Description of price series

Coal (Australia), thermal, f.o.b. piers, Newcastle/ Port Kembla, 6,700 kcal/kg, 90 days forward delivery beginning year 2011; for period 2002-2010, 6,300 kcal/kg (11,340 btu/lb); prior to year 2002, 6,667 kcal/kg (12,000 btu/lb).

Coal (Colombia), thermal, f.o.b. Bolivar, 6,450 kcal/kg, (11,200 btu/lb) ; during years 2002-July 2005 11,600 btu/lb, less than .8% sulfur, 9% ash , 90 days forward delivery

Coal (South Africa), thermal, f.o.b. Richards Bay, 90 days forward delivery; 6,000 kcal/kg, during 2002-2005, 6,200 kcal/kg (11,200 btu/lb); during 1990-2001 6390 kcal/kg (11,500 btu/lb)

Crude oil, average price of Brent, Dubai and West Texas Intermediate, equally weighed.

Crude oil, U.K. Brent 38` API.

Crude oil, Dubai Fateh 32` API.

Crude oil, West Texas Intermediate (WTI) 40` API.

Natural Gas Index (Laspeyres), weights based on 5-year consumption volumes for Europe, US and Japan (LNG), updated every 5 years, except the 11-year period 1960-70.

Natural Gas (Europe), average import border price, including UK. As of April 2010 includes a spot price component. Between June 2000 - March 2010 excludes UK.

Natural Gas (U.S.), spot price at Henry Hub, Louisiana.

Natural gas LNG (Japan), import price, cif, recent two months' averages are estimates.

Cocoa (ICCO), International Cocoa Organization daily price, average of the first three positions on the terminal markets of New York and London, nearest three future trading months.

Coffee (ICO), International Coffee Organization indicator price, other mild Arabicas, average New York and Bremen/Hamburg markets, ex-dock.

Coffee (ICO), International Coffee Organization indicator price, Robustas, average New York and Le Havre/Marseilles markets, ex-dock.

Tea , average three auctions, arithmetic average of quotations at Kolkata, Colombo and Mombasa/Nairobi.

Tea (Colombo auctions), Sri Lankan origin, all tea, arithmetic average of weekly quotes.

Tea (Kolkata auctions), leaf, include excise duty, arithmetic average of weekly quotes.

Tea (Mombasa/Nairobi auctions), African origin, all tea, arithmetic average of weekly quotes.

Coconut oil (Philippines/Indonesia), bulk, c.i.f. Rotterdam.

Copra (Philippines/Indonesia), bulk, c.i.f. N.W. Europe.

Groundnuts (US), Runners 40/50, shelled basis, c.i.f. Rotterdam

Groundnut oil (any origin), c.i.f. Rotterdam.

Palm oil (Malaysia), 5% bulk, c.i.f. N. W. Europe.

Palmkernel Oil (Malaysia), c.I.f. Rotterdam.

Soybean meal (any origin), Argentine 45/46% extraction, c.i.f. Rotterdam beginning 1990; previously US 44%.

Soybean oil (Any origin), crude, f.o.b. ex-mill Netherlands.

Soybeans (US), c.i.f. Rotterdam.

Barley (US) feed, No. 2, spot, 20 days To-Arrive, delivered Minneapolis from May 2012 onwards; during 1980 - 2012 April Canadian, feed, Western No. 1, Winnipeg Commodity Exchange, spot, wholesale farmers' price

Maize (US), no. 2, yellow, f.o.b. US Gulf ports.

Rice (Thailand), 5% broken, white rice (WR), milled, indicative price based on weekly surveys of export transactions, government standard, f.o.b. Bangkok.

Rice (Thailand), 25% broken, WR, milled indicative survey price, government standard, f.o.b. Bangkok.

Rice (Thailand), 100% broken, A.1 Super from 2006 onwards, government standard, f.o.b. Bangkok; prior to 2006, A1 Special, a slightly lower grade than A1 Super.

Rice (Vietnam), 5% broken, WR, milled, weekly indicative survey price, Minimum Export Price, f.o.b. Hanoi.

Sorghum (US), no. 2 milo yellow, f.o.b. Gulf ports.

Wheat (Canada), no. 1, Western Red Spring (CWRS), in store, St. Lawrence, export price.

Wheat (US), no. 1, hard red winter, ordinary protein, export price delivered at the US Gulf port for prompt or 30 days shipment.

Wheat (US), no. 2, soft red winter, export price delivered at the US Gulf port for prompt or 30 days shipment.

Bananas (Central & South America), major brands, free on truck (f.o.t.) Southern Europe, including duties; prior to October 2006, f.o.t. Hamburg.

Bananas (Central & South America), major brands, US import price, f.o.t. US Gulf ports.

Fishmeal (any origin), 64-65%, c&f Bremen, estimates based on wholesale price, beginning 2004; previously c&f Hamburg.

Meat, beef (Australia/New Zealand), chucks and cow forequarters, frozen boneless, 85% chemical lean, c.i.f. U.S. port (East Coast), ex-dock, beginning November 2002; previously cow forequarters.

Meat, chicken (US), broiler/fryer, whole birds, 2 -1/2 to 3 pounds, USDA grade "A", ice-packed, Georgia Dock preliminary weighted average, wholesale.

Meat, sheep (New Zealand), frozen whole carcasses Prime Medium (PM) wholesale, Smithfield, London beginning January 2006; previously Prime Light (PL).

Oranges (Mediterranean exporters) navel, EEC indicative import price, c.i.f. Paris.

Shrimp , (Mexico), west coast, frozen, white, No. 1, shell-on, headless, 26 to 30 count per pound, wholesale price at New York.

Sugar (EU), European Union negotiated import price for raw unpackaged sugar from African, Caribbean and Pacific (ACP) under Lome Conventions, c.I.f. European ports.

Sugar (US), nearby futures contract, c.i.f.

Sugar (world), International Sugar Agreement (ISA) daily price, raw, f.o.b. and stowed at greater Caribbean ports.