

SPECIAL FEATURE: COMMODITY MARKET REVIEW¹

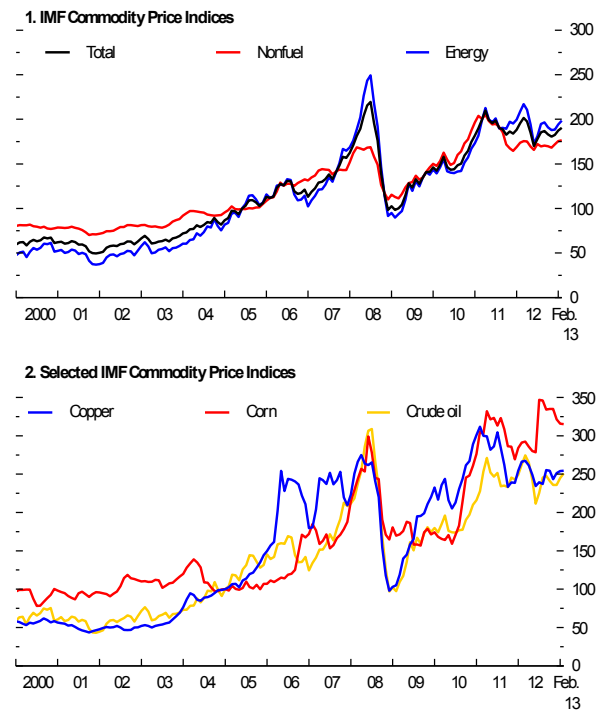
Overview

The overall IMF commodity price index fell by 9 percent since peaking in April 2011, because of generally weaker demand and an uncertain global economic outlook—a decline anticipated in the October 2012 *World Economic Outlook* (Figure 1.SF.1, panel 1). Nonetheless, prices remain elevated compared with historical levels (Figure 1.SF.1, panel 2).

Commodity prices bottomed out in June 2012 and have since risen by 12 percent due to supply constraints and some improvement in demand. Weather-related supply shocks helped lift cereal prices higher by 10 percent, although they have eased slightly. Energy prices climbed 15 percent on lower production by the Organization of the Petroleum Exporting Countries (OPEC) and stronger emerging market and U.S. demand. Metal prices rose 10 percent on expectations of stronger emerging market demand, but stocks remain high and most markets are in surplus.

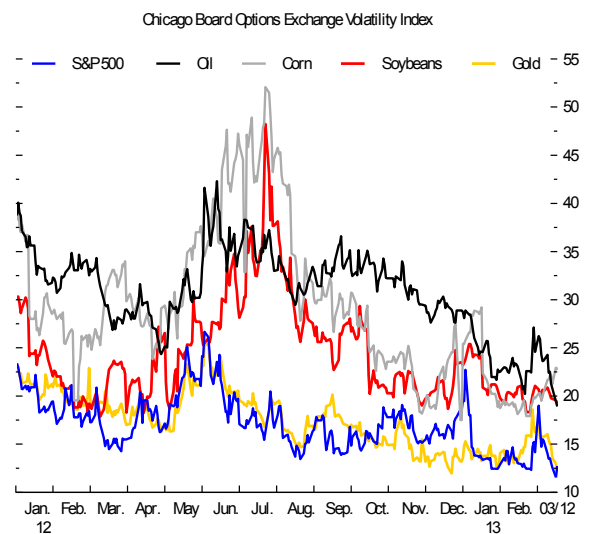
Recent declines in commodity price volatility reflect improvements in global financial conditions, realized on the back of policy actions that lowered the acute crisis risks (see Chapter 1; Figure 1.SF.2). These improvements also affected forward-looking indicators such as purchasing managers' indices and equity prices (along with prices of other risky assets), which rose globally (Figure 1.SF.3).

Figure 1.SF.1. IMF Commodity Price Indices
(2005 = 100)



Source: IMF, Primary Commodity Price System.

Figure 1.SF.2. Equity and Commodity Market Volatility Indices

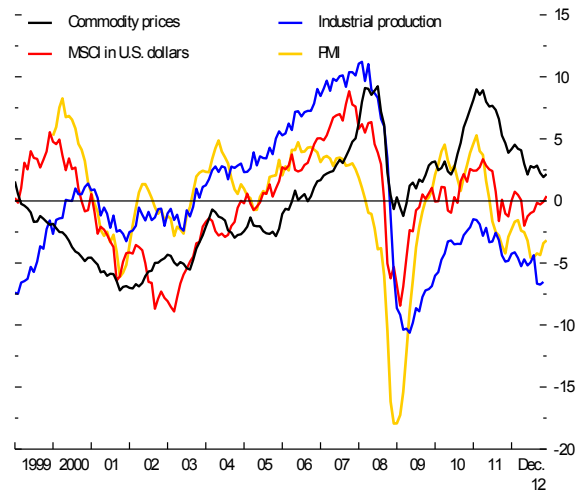


Source: Bloomberg, L.P.

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The near-term outlook for commodity prices, as reflected in futures prices, shows broad declines across all main commodity groups, including oil. Overall, prices are projected to decline by 2 percent in 2013 (year over year), with improving supply prospects for all main commodity sectors. Energy prices are expected to fall by almost 3 percent on recovering oil supply from the past year's outages and strong growth in non-OPEC supply, particularly in North America, which will continue to reduce U.S. crude oil imports. Food prices are projected to fall by more than 2 percent on the assumption of normal weather and improved harvests, and beverage prices are expected to drop by about 12 percent on abundant supply. Only metal prices are projected to trend upward, by more than 3 percent, which is consistent with global economic recovery and higher demand, especially in China.

Figure 1.SF.3. Commodity Prices and Economic Activity: First Principal Components
(Detrended data)



Sources: IMF, Global Data Source; IMF, Primary Commodity Price System; and IMF staff calculations.
Note: MSCI = MSCI indices of stock prices; PMI = purchasing managers' indices.

However, there are a number of risks to the outlook of falling commodity prices—beyond those of weaker or stronger growth in the global economy and, more specifically, in emerging markets. Upside risks to prices appear more pronounced than downside risks. On the supply side, a return of problems that affected metal and energy markets in the past decade (accidents, project delays, shortages of equipment and skilled labor) could again lead to supply deficits and higher prices. Much stronger Chinese demand, for both domestic consumption and restocking, is an added risk. Additional concerns include geopolitical tensions in the oil-producing regions of the Middle East and Africa and further non-OPEC supply outages or a major supply shock. For agricultural commodities, weather is the key variable, and continued adverse growing conditions could result in higher prices for grains, especially corn, whose stock levels are historically low. Downside price risks center on resurgent supplies of energy and metals, including the larger-than-expected growth in production of shale gas and tight oil in the United States and current metal supply overhangs.

Energy Market Developments and Prospects

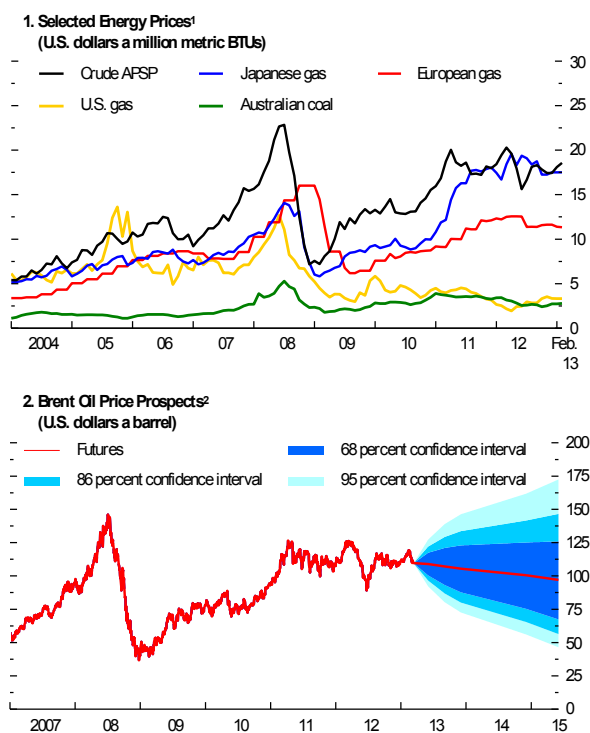
Although energy prices rose only by 1 percent in 2012, they are up 15 percent since June 2012, led by gains in oil (19 percent) and U.S. natural gas (35 percent)—the latter on stronger demand for power generation (which displaced coal) and depressed drilling for natural gas because of low prices (Figure 1.SF.4, panel 1). There continues to be divergence in regional natural gas prices, with market segmentation driven by whether gas prices are strongly linked to long-term oil-priced contracts (yes in Japan, no in the United States) or whether this linkage has been loosened (Europe). Liquefied natural gas (LNG) prices in Japan eased as demand moderated after the surge that accompanied the shutdown of nuclear power in the wake of the Fukushima disaster, but prices remain high. European natural gas prices also fell on weaker demand and increasing penetration of spot-priced gas supplies.

Energy prices are expected to decline during 2013, as reflected in futures prices, led by crude oil (Figure 1.SF.4, panel 2). Falling crude oil prices reflect expected increases in non-OPEC production and declining demand in industrial countries due to improved vehicle efficiency and the effects of higher prices. However, the natural gas price index is expected to edge higher, led by a 34 percent increase in U.S. gas prices that will help sustain robust shale gas development. LNG prices in Japan are expected to continue their decline in the face of lower demand as nuclear power generation comes back on line and as oil prices fall. Coal prices are expected to decline on increasing supply and moderating demand, in part due to environmental constraints. Risks to energy prices, however, are tilted to the upside.

Oil

Spot crude prices: Crude oil prices have remained relatively stable—albeit high—since early 2011, with the average selling price near \$105 a barrel during the past two years (Figure 1.SF.5, panel 1). Prices have been supported by outages due to geopolitical events in several countries in the Middle East and Africa, the EU oil embargo and U.S. sanctions against Iran, and other unexpected outages, such as in the North Sea. The price of West

Figure 1.SF.4. Energy Prices



Sources: Bloomberg L.P.; IMF Primary Commodity Price System; and IMF staff estimates.

¹ AFSP = average petroleum spot price; BTU = British thermal unit.

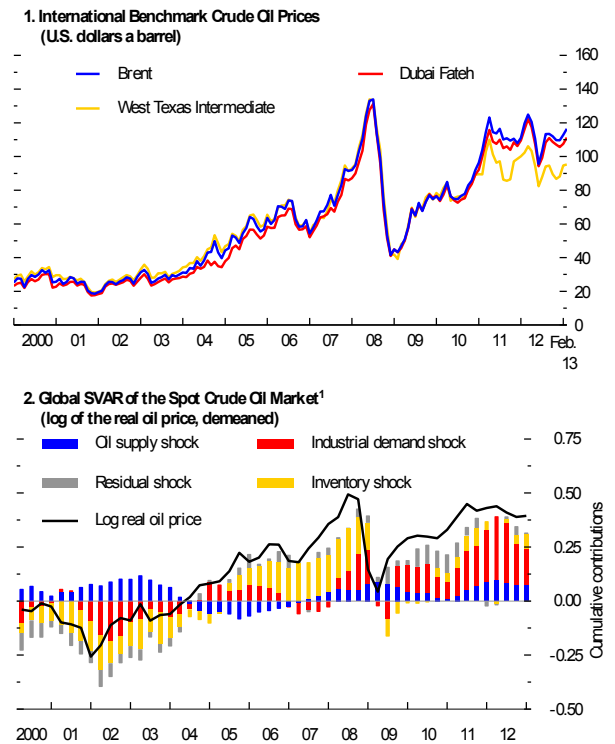
² Derived from prices of futures options on March 12, 2013.

Texas Intermediate (WTI) fell substantially below Brent because of a buildup in crude oil in the United States, primarily from new tight-oil production in North Dakota and Texas but also from rising Canadian oil imports. Pipeline constraints limit the movement of these supplies to refineries on the Gulf Coast and elsewhere, and producers are shipping crude oil by rail and barge, which is economical because of the large price discount. New pipeline projects and reversals of existing pipelines are under way, which will eventually lead to a narrowing of the Brent-WTI spread.

Price drivers: Weaker aggregate demand (proxied by the log change in global industrial production) and declines in other demand components (that is, inventories), along with a positive oil supply response, explain the downward pressure on the spot crude oil price during the second and third quarters of 2012 (Figure 1.SF.5, panel 2). However, the spot price began to pick up during the fourth quarter, as OPEC supply fell and geopolitical tensions rose, leading to a buildup in precautionary demand (inventories). Recent IMF staff analysis suggests that both supply and (flow and precautionary) demand shocks have been important drivers of the spot oil price (Beidas-Strom and Pescatori, forthcoming).

Demand: World oil demand grew by 1 percent, or 0.9 million barrels a day (mbd), in 2012, with a decline of 0.6 mbd in the Organization for Economic Cooperation and Development (OECD) countries and growth of 1.5 mbd in non-OECD countries (Figure 1.SF.6, panel 1). Oil demand in the OECD has fallen by 9 percent (or 4.5 mbd) since 2005 as a result of higher prices, greater efficiency, and recession—factors that are expected to affect

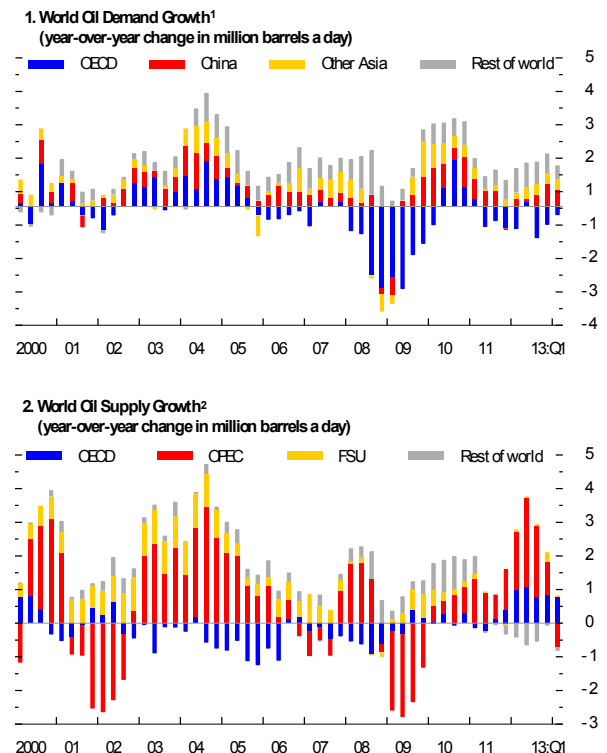
Figure 1.SF.5. Crude Oil Prices and SVAR¹ Model



Sources: IMF, Primary Commodity Price System; and IMF staff estimates.

¹SVAR = structured vector autoregression.

Figure 1.SF.6 Oil Market Prospects



Sources: International Energy Agency; and IMF staff calculations.

¹OECD = Organization for Economic Cooperation and Development.

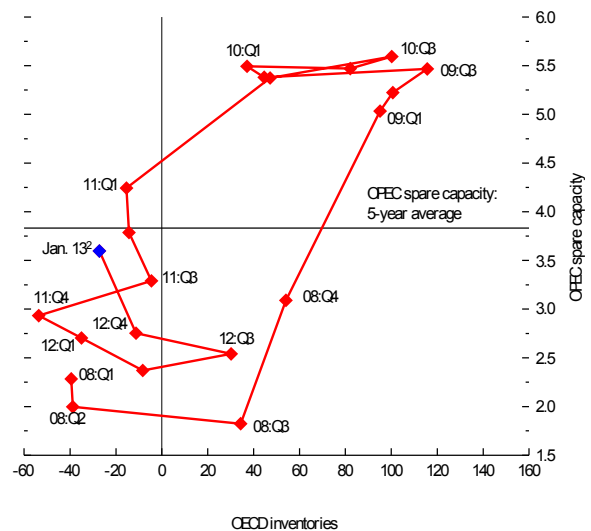
²OPEC = Organization of Petroleum Exporting Countries; FSU = former Soviet Union.

developments into 2013 and beyond. While emerging market demand has moderated from its rapid growth in recent years, demand picked up by 1.6 mbd during the second half of 2012, led by Brazil, China, and countries in the Middle East and Asia. These emerging market economies are expected to account for all the growth in global demand in 2013, which is projected to be little more than 0.8 mbd.

Supply: World oil supply grew by 2.5 mbd in 2012, well above demand, resulting in more than 1 mbd going into inventories (Figure 1.SF.6, panel 2). The bulk of the increase was from OPEC (1.9 mbd), with the largest increments being the rebound in production from Libya, followed by rising output in Saudi Arabia and Iraq. However, OPEC supply fell during the fourth quarter, led by declines in Saudi Arabia, outages in Nigeria, and the continued impact of sanctions and embargoes on Iran. OPEC remains concerned about weak demand and rising supply and has announced its desire to keep oil prices around \$100, which generally satisfies its relatively high break-even requirements. Non-OPEC supply grew by 0.6 mbd in 2012, led by increases in the United States and Canada and by smaller increments in China and Russia, which more than offset production losses in the other regions. Non-OPEC production is expected to increase by 1 mbd in 2013, slightly exceeding the growth in demand.

Buffers: Reflecting supply and demand developments during the fourth quarter of 2012 and estimates for the first quarter of 2013, there was a seasonal drawdown of inventories among OECD countries and an increase in OPEC spare capacity, albeit still below its historical average (Figure 1.SF.7).

Figure 1.SF.7. OI Market Buffers¹
(Data from January 2008–November 2012)



Sources: International Energy Agency; U.S. Energy Information Administration; and IMF staff estimates.

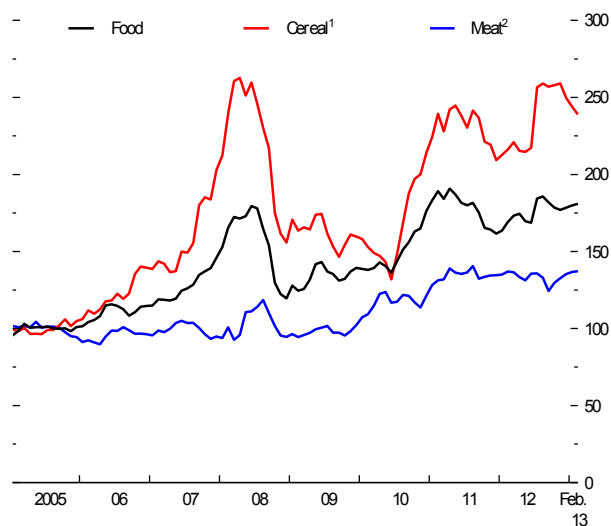
¹Organization for Economic Cooperation and Development (OECD) stocks, deviations from five-year average (million barrels) on x-axis; Organization of the Petroleum Exporting Countries (OPEC) effective spare capacity (million barrels a day) on y-axis (excluding Iraq and Nigeria for the entire time period, Venezuela through February 2012, Libya since November 2011, and Iran since March 2012).

²March spare capacity and February/March stocks are estimates

Food Market Developments and Prospects

Prices: Food prices have eased from recent highs on improving supply prospects, but markets remain tight due to historically low stock levels (Figure 1.SF.8). In addition, prices continue to be supported by high input prices that are transmitted through various channels, including fuel, fertilizer, and biofuel.² Cereal prices have edged downward from record highs in 2012 that were caused by significantly lower corn and wheat output because of extreme heat in the United States and drought in eastern Europe and central Asia. Oilseed and edible oil prices fell by a greater amount on better supply outlooks for South American soybean production and east Asian palm oil. Rice prices have been relatively stable during the past three years as markets remained well supplied.

Figure 1.SF.8. IMF Food Price Indices
(2005 = 100)



Source: IMF, Primary Commodity Price System.
¹A weighted average of wheat, corn, rice, and barley.
²A weighted average of beef, lamb, pork, and poultry.

Outlook: Food prices are projected to moderate but are likely to remain elevated in the first half of 2013 due to tight supplies—especially for corn, soybeans, and wheat (Figure 1.SF.9, panel 1). The probability of extreme price fluctuations over the nine-month horizon has picked up for corn and wheat since the October 2012 *World Economic Outlook*, indicating that the upside price risks have risen slightly (Figure 1.SF.9, panel 2). Contributing to these upside price risks are low inventories, adverse weather conditions, potential policy responses to tight markets (for example, export bans), and higher-than-expected oil prices. In addition, increases in biofuel production could divert crops away from food uses.³

Meanwhile, the upside price risks for soybeans have abated, but downside price risks have emerged.

Market balance: Amid expectations that global growth will rebound slightly in 2013, growth in food demand is expected to remain robust (Figure 1.SF.9, panel 3). Emerging

² Fuel for agricultural machinery and transportation is a significant portion of production costs, while fertilizers also have a significant energy cost component. Biofuel production raises aggregate demand for crops and is diverted away from food supplies.

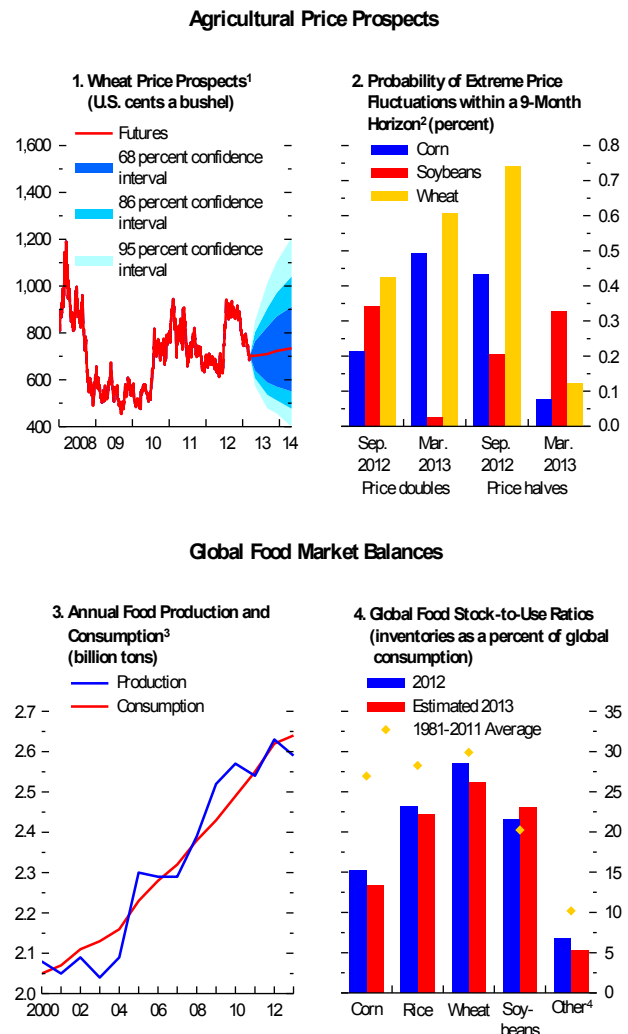
³The impact of higher biofuel production on food prices is not straightforward, but depends on technological progress, policy decisions, and other factors.

market economies, namely China, are the major source of increased demand for major crops. Although supply conditions have improved following the disruptions of 2012, inventories are not expected to be fully replenished. Overall, current global food stock-to-use ratios remain low, and they are estimated to fall below both 2012 and historical levels for most major grains and oilseeds in 2013 (Figure 1.SF.9, panel 4).

Major crops: *Corn* is particularly vulnerable to supply shocks because it has the lowest stock-to-use ratio among major food crops. Growing conditions in Brazil appear favorable, and, as a result, *soybean* yields are projected to rise. However, crop-producing areas of Argentina face reduced yield prospects relative to market expectations despite a significant improvement this year, because heavy rains delayed planting and dryness threatens corn and soybean harvests. Until there is more certainty about the production prospects in the United States—the largest producer of both crops—prices are unlikely to ease significantly. Lending support to further corn and soybean market tightness are ethanol and biodiesel production. Although their output and consumption waned in 2012, both are expected to rebound strongly by the end of this year.

Among key grains, *wheat* production is expected to underperform consumption by the greatest percentage this year, which puts pressure on already declining global stocks. In contrast, the *rice* market appears adequately supplied, and 2013 production is projected to reach record-high levels and broadly align with global demand needs.

Figure 1.SF.9. Food Prices and Inventories



Sources: Bloomberg, L.P.; United States Department of Agriculture; IMF, Primary Commodity Price System; and IMF staff estimates.

¹Derived from prices of futures options on March 12, 2013.

²Derived from prices of futures options on September 11, 2012 and March 12, 2013.

³Sum of major grains and oilseeds: barley, corn, millet, rice, rye, sorghum, wheat, palm kernel, rapeseed, soybean, and sunflower seed.

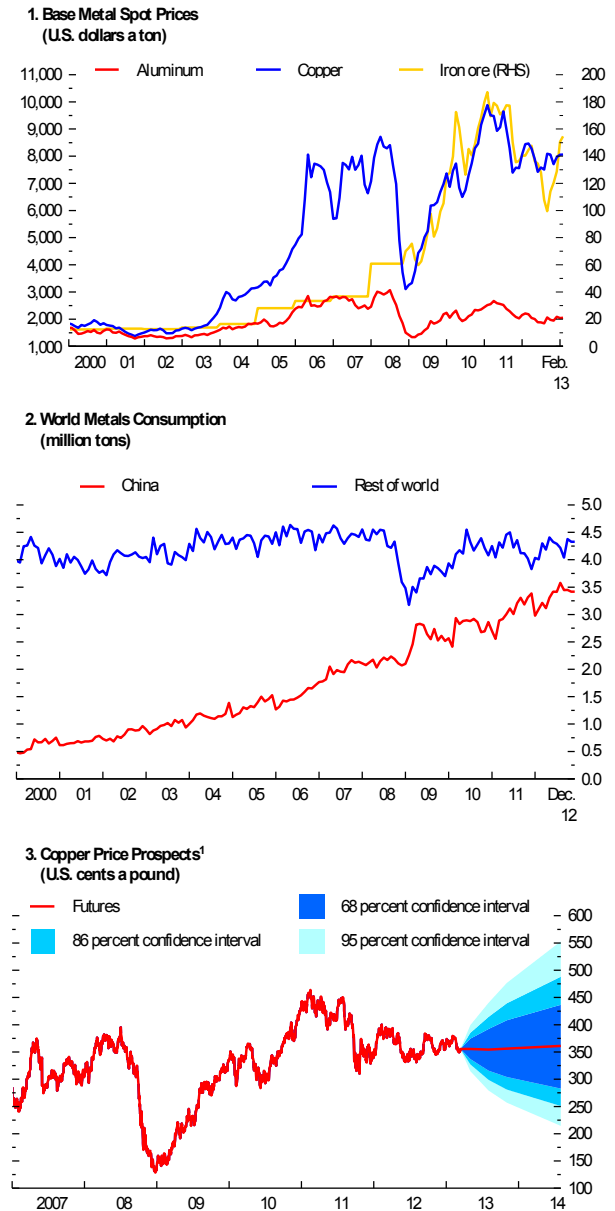
⁴Other = Other grains and oilseeds: barley, millet, palm kernel, rapeseed, rye, sorghum, and sunflower seed.

Metal Market Developments and Prospects

Prices: Metal prices have generally declined since early 2011—following large restocking in China and a sharp increase in stocks—due to slowing consumption and weak import demand in China (Figure 1.SF.10, panels 1 and 2). However, prices picked up during the fourth quarter of 2012 and into early 2013 on improving macroeconomic sentiment. For some metals (such as copper), prices remain elevated as supply continues to struggle; for other metals (such as aluminum), prices have recently moved into the upper portion of the industry cost curve, and so downside price risks are much lower. Aluminum prices have remained relatively low during the past decade because of large investments in aluminum smelters (in China and the Middle East). Nonetheless, the current market remains somewhat tight: warehouse financing arrangements have kept a large portion of inventories unavailable to the market.

Outlook: The outlook for metal prices is tightly bound to developments in China, which consumes more than 40 percent of all metals. Growth in China’s metal demand is expected to moderate as the economy moves more toward services. There are still plans for large infrastructure projects, which will lead to upside risks to prices (Figure 1.SF.10, panel 3). Reliance on metal futures prices, however, is not without important caveats—their predictive ability appears to have declined (Chinn and Coibion, forthcoming). For example, from 2009 to 2010, copper prices rose more than 100 percent, yet 12-month futures predicted a price increase of only 3 percent during the same period. Other metal commodities, such as lead, nickel, and tin, displayed similar patterns. In

Figure 1.SF.10. Metals: Prices, Demand, and Prospects



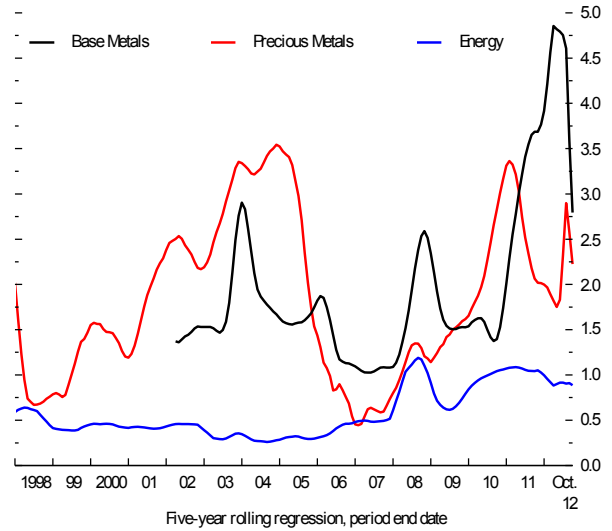
Sources: Bloomberg, L.P.; IMF, Primary Commodity Price System; World Bureau of Metal Statistics; and IMF staff estimates.

¹ Derived from prices of futures options on March 12, 2013.

contrast, oil and natural gas futures prices were much more reliable predictors of actual price changes in these markets during the same period. Figure 1.SF.11 shows the decline in the predictive ability of futures prices and the increase in their volatility across commodity markets.

Figure 1.SF.11. Declining Predictive Content of Commodity Futures Prices

(Average deviation from unbiasedness of futures prices)



Sources: Bloomberg, L.P.; and Chinn and Coibion (forthcoming).