A World Bank Quarterly Report

APRIL 2015

Commodity Markets Outlook

WORLD BANK GROUP

Q1
Q2
Q3
Q4

A World Bank Quarterly Report

APRIL 2015

Commodity Markets Outlook

WORLD BANK GROUP

Table of Contents

Boxes

Figures

Tables

Acronyms

bbl	barrel of oil
BP	British Petroleum
BPC	Belarus Potash Company
DAP	Diammonium Phosphate
ECB	European Central Bank
EIA	Energy Information Administration
FSU	Former Soviet Union
GDP	Gross domestic product
IEA	International Energy Agency
LME	London Metal Exchange
LNG	Liquefied Natural Gas
mb/d	million barrels per day
Mt	metric ton
NPI	Nickel Pig Iron
OCP	Office Chérifien des Phosphates [Sharifian Phosphate Office]
OECD	Organization of Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
QE	Quantitative Easing
S/U	Stocks-to-Use ratio
toz	troy ounce
TSP	Triple Superphosphate
USDA	United States Department of Agriculture
WTI	West Texas Intermediate

Acknowledgments

This World Bank Group report is a product of the Prospects Group in the Development Economics Vice Presidency. The report was managed by John Baffes under the general guidance of Ayhan Kose and Franziska Ohnsorge.

Several people contributed substantively to the report. Damir Cosic provided help with the sections on energy, metals, and precious metals, and Xinghao Gong assisted with data work. Graeme Littler and Dana Vorisek provided extensive comments. The design and layout of the report was managed by Maria Hazel Macadangdang. Indira Chand managed the media relations and dissemination. The accompanying website was produced by Mikael Reventar.

Several other reviewers provided advice and comments: Christian Eigen-Zucchi, Poonam Gupta, Bryce Quillin, David Rosenblatt, Marc Stocker, and Ekaterine T. Vashakmadze.

The World Bank's *Commodity Markets Outlook* is published quarterly, in January, April, July, and October. The report provides detailed market analysis for major commodity groups, including energy, metals, agriculture, precious metals, and fertilizers. Price forecasts to 2025 for 46 commodities are also presented, together with historical price data. Commodity price data updates are published separately at the beginning of each month.

The report and data can be accessed at:
www.worldbank.org/commodities

Executive Summary

The decline in commodity prices that began with metals and agriculture four years ago—joined by crude oil in mid-2014—continued in 2015Q1 (Figure 1). Energy, metals, and agricultural prices were down 28, 11, and 5 percent, respectively, from the previous quarter. Increasing supplies, bumper harvests, weak demand and a stronger U.S. dollar contributed to the declines. The weakness is expected to continue for the rest of the year. All key price indices are projected to decline in 2015 before recovering moderately in 2016 (Figure 2). This issue's Special Focus section examines the four episodes of oil price crashes since 1970 and finds that the 2014-15 and 1985-86 crashes were driven mostly by supply-related factors, while the other two episodes were associated with the First Gulf War and 2008 financial crisis, respectively.

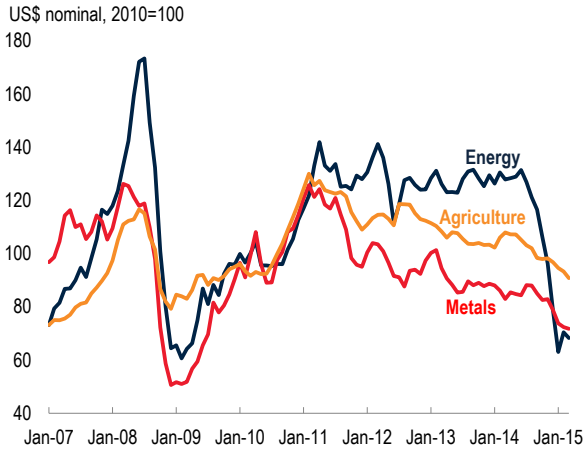
Trends. A surplus in the supply of primary fuels lowered energy prices 28 percent in 2015Q1, led by a 31 percent plunge in oil prices and a 16 percent fall in natural gas prices. *Energy* prices in March were little more than half levels of nine months earlier. Despite higher than expected demand, the oil market remains oversupplied, with large inventories, especially in the United States. The U.S. rig count fell by half in the past five months, but oil production continues to climb by more than 1 mb/d year-on-year. OPEC production rose during the quarter with Saudi Arabia averaging 10 mb/d in March.

Non-energy commodity prices fell 6 percent in 2015Q1 over the previous quarter—the index down a third from its high in 2011—due to abundant supply and large inventories. *Metals* prices dropped 11 percent as most markets remained in surplus, particularly iron ore—off two-thirds from its 2011 high. *Agricultural* prices fell 5 percent, with declines in all main sub-indices. Beverage prices fell 9 percent, mainly reflecting improved supply conditions for coffee (Arabica) in Brazil. Food prices dropped 5 percent following record or near-record harvests for main crops, with grains and oilseed prices down a third from their 2011 highs. Other food prices fell on ample supplies, notably beef, oranges and sugar. *Fertilizer* prices declined 3 percent on weak seasonal demand. *Precious metals* prices fell 2 percent on reduced investor demand driven by a stronger dollar and expectations of higher U.S. interest rates later this year.

Outlook and risks. All main commodity price indices are expected to decline in 2015, mainly due to abundant supplies (Table 1). *Energy* prices are projected to fall 42 percent from 2014, largely reflecting a 45 percent drop in oil prices. Earlier projections of $53/bbl appear on the mark, with realized year-on-year declines implying flat oil prices for the rest of 2015. The U.S. Energy Information Administration expects moderate growth in oil output in 2015Q2 and no growth in 2015Q4. Natural gas prices are also expected to decline significantly following the lead of oil, especially in Europe and Asian LNG markets. U.S gas prices are projected to fall 15 percent due to continued growth in shale gas production. Coal prices are projected to decline 12 percent due to weak import demand and surplus supply.

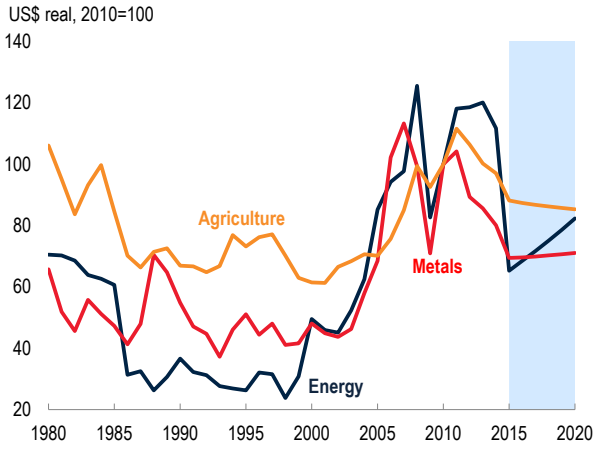
Downside risks to the energy forecast include higher-than-expected production (supported by falling costs) and reduced supply stemming from voluntary cutbacks or market forces. Upside risks include earlier than expected closure of high-cost operations, supply restraint by major producers, and unexpected disruptions in supply stemming from geopolitical risks.

FIGURE 1 Commodity price indices, monthly



Source: World Bank.

FIGURE 2 Commodity price indices, annual



Source: World Bank.
Note: Shaded area denotes price forecast.

TABLE 1 Nominal price indices, actual and forecasts (2010 = 100)

	ACTUAL					FORECAST		GROWTH (%)		
	2010	2011	2012	2013	2014	2015	2016	2013-14	2014-15	2015-16
Energy	100	129	128	127	118	69	74	-7.2	-41.7	6.9
Non-Energy	100	120	110	102	97	87	88	-4.6	-10.2	1.2
Metals	100	113	96	91	85	73	75	-6.6	-13.4	2.1
Agriculture	100	122	114	106	103	93	94	-3.4	-9.3	0.9
Food	100	123	124	116	107	97	98	-7.1	-9.7	0.8
Grains	100	138	141	128	104	96	97	-19.0	-7.3	1.0
Oils and meals	100	121	126	116	109	92	94	-5.9	-15.3	1.5
Other food	100	111	107	104	108	103	103	4.3	-4.5	-0.2
Beverages	100	116	93	83	102	93	92	22.2	-8.6	-1.1
Raw Materials	100	122	101	95	92	84	86	-3.6	-8.4	2.4
Fertilizers	100	143	138	114	100	97	96	-11.6	-3.5	-0.6
Precious metals	100	136	138	115	101	98	97	-12.1	-3.4	-0.7
Memorandum items										
Crude oil ($/bbl)	79	104	105	104	96	53	57	-7.5	-44.7	7.5
Gold ($/toz)	1,225	1,569	1,670	1,411	1,266	1,240	1,225	-10.3	-2.0	-1.2

Source: World Bank.

Note: Definition of prices can be found in the "Description of Price Series" section. Growth refers to year-over-year growth (2014 refers to price change from 2013 to 2014).

Non-energy prices are expected to fall 10 percent in 2015, with declines in all main indices. *Metals* prices are projected to decline 13 percent due to capacity increases and slowing demand in China. The largest decline (35 percent) is expected for iron ore due to new low-cost mining capacity (mainly in Australia) coming online this year and next. Many metals markets are adjusting by closing high-cost operations. Markets will eventually tighten, in part due to large zinc mines closures, and as Indonesia's ore export ban weighs on supplies, notably nickel.

Risks to the non-energy price forecasts are mostly to the downside. They include slower demand in China and a tightening of the country's environmental restrictions to reduce pollution. Lower production costs and further currency depreciation could sustain output and delay rebalancing supply and demand. An unexpected lifting of Indonesia's export ban could also weaken further metal prices.

Agricultural prices are projected to fall 9 percent in 2015, with notable declines in all indices amid abundant supply and stocks for most commodities. The largest decline is projected for edible oils and meals (down 15 percent) mainly owing to large harvests in the Americas and rising stocks. Beverage and agricultural raw material prices will decline by about 8.5 percent. *Fertilizer* prices, a key cost for most agricultural commodities, are expected to decline 4 percent on weaker demand and ample supply.

Risks in the agriculture price forecasts are on the downside. In its April assessment, the U.S. Department of Agriculture confirmed its solid outlook for grains and oilseeds, with stock-to-use ratios increasing for most commodities. On trade policy, export restrictions are unlikely to be imposed given that markets are well-supplied. Lastly, the sharp decline in oil prices weakens pressures to divert food commodities to biofuels.

Focus. A review of the last four largest oil price declines finds that the 2014-15 and 1985-86 crashes were primarily driven by supply-related factors while the 1990-91 selloff was associated with the First Gulf War and the 2008-09 with the global financial crisis. There are several similarities between these two crashes. Prior to 1985-86, output surged in Alaska, the North Sea, and Mexico, while prior to 2014-15 new production surged from U.S. shale oil and (less so) Canadian oil sands and biofuels. Both episodes followed a period of high prices and also coincided with OPEC abandoning price targets. Some differences are also noteworthy. Although price volatility spiked during each episode, the increase was much smaller in 20014-15. In 1991-92 and 2008-09, oil prices reverted to earlier levels. The review notes that some of the conditions that led to low prices during 1985-2003 are no longer in place. But shale oil's technological advances, short project cycle, and falling costs along with expected weakness in demand growth from developing economies could lead to another prolonged period of low oil prices.

SPECIAL FOCUS

Anatomy of the last four oil price crashes

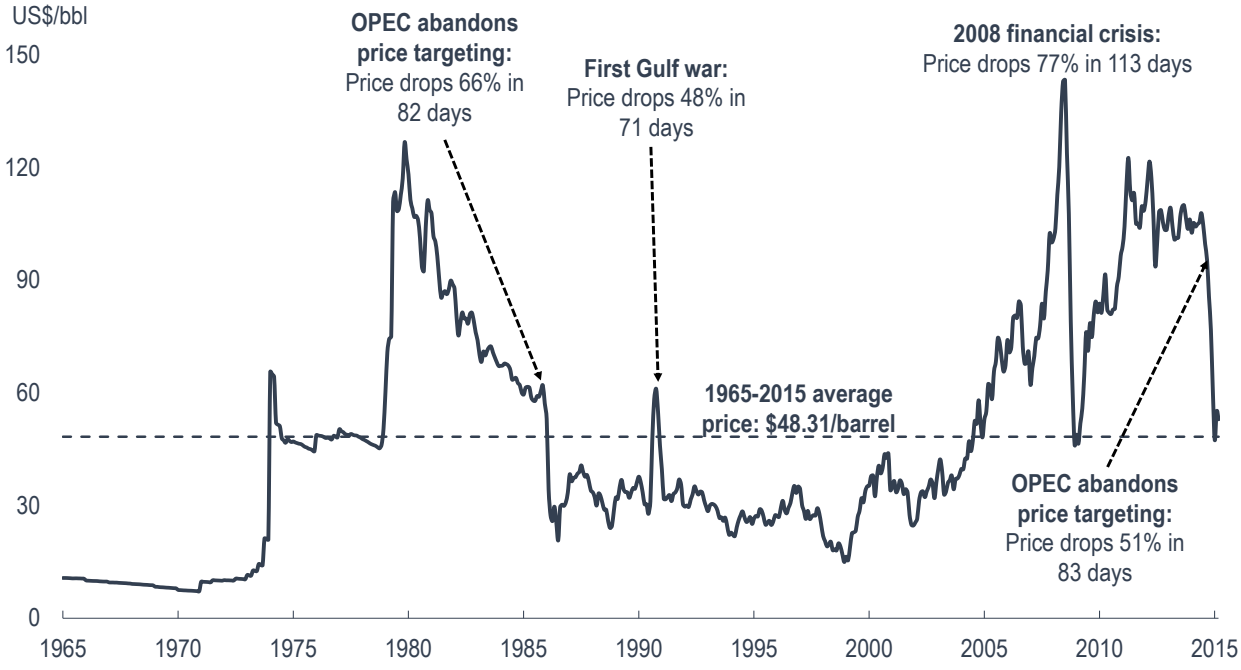
Anatomy of the last four oil price crashes

The 2014-15 and 1985-86 price crashes were primarily driven by supply-related factors while the 1990-91 selloff was associated with the First Gulf War and the 2008-09 episode with the global financial crisis. There are several similarities between these two crashes. Prior to 1985-86, output surged in Alaska, the North Sea, and Mexico, while prior to 2014-15 new production surged from U.S. shale oil and (less so) Canadian oil sands and biofuels. Both of these episodes followed a period of high prices and also coincided with OPEC abandoning price targets in favor of market share. Some differences are also noteworthy. Although price volatility spiked during each episode, the increase was much smaller in the recent case. In 1991-92 and 2008-09, oil prices reverted to earlier levels, while they stayed low for almost two decades following the 1985-86 crash. Low prices during 1985-2003 were aided by several factors: large OPEC spare capacity, surplus production associated with the collapse of the Soviet Union, fuel efficiency gains and substitution away from oil, and, toward the end of the period, weak demand due to the Asian financial crisis in 1998 and the U.S. recession in 2001. While some of these conditions are no longer in place, technological advances, short project cycle, and falling costs in the shale oil industry, along with expected weakness in demand growth from developing economies, could lead to another prolonged period of low oil prices.

Dissecting the four oil price crashes

During the past half century, there have been four large oil price declines (Figure F.1). High oil prices during the early 1980s led to a gradual increase in non-OPEC supplies, especially from Alaska, Mexico, and North Sea (most of it off-shore). In 1985-86, OPEC changed its objective from price targeting to securing a share of the market leading to the prices collapse of 1985-86. The second crash took place during the first Gulf War. Prices fell in January 1991 after International Energy Agency (IEA) members agreed to release crude stocks and when it became apparent that oil production from Iraq and Kuwait would recover soon after the success of "Operation Desert Storm." The third and largest decline unfolded during the financial crisis of 2008. Oil prices dropped 70 percent within just six months—from $133/bbl in July to $41/bbl in December 2008. The most recent decline was the halving of oil prices towards the end of 2014. This was in response to strong non-OPEC supply growth, notably shale oil by the United States, weak global demand, and, perhaps most importantly, OPEC's

FIGURE F.1 Crude oil prices (real, 2014 terms)



Source: World Bank.

Note: Last observation is March 2015. Oil prices have been deflated by the U.S. CPI (2014 constant terms).

changing objective from price targeting to market share (as was the case in 1985-86).

The 1985-86 crash

The collapse of oil prices in 1986 was preceded by several years of high (but declining) oil prices precipitated by the Iranian Revolution. OPEC's practice was to set official prices for its various types of crude oil, with light oil from Saudi Arabia used as the benchmark—it was set at $34/bbl in 1981. High prices and a recession in the early 1980s led to a large decline in oil consumption, mainly in advanced economies. High prices also encouraged fuel conservation, substitution away from oil, especially in electricity generation (some by nuclear power), and efficiency gains—particularly higher minimum fuel efficiency standards for automobiles. They also sparked non-OPEC production, notably in Alaska, Mexico, and the North Sea. Weak demand and rising non-OPEC output led to a near halving of OPEC production, which was mostly absorbed by Saudi Arabia. Saudi light prices declined to $28/bbl in 1985, owing to sluggish global economic activity and difficulties with the pricing system as several member countries discounted official prices to increase exports.

By 1985 Saudi Arabia had seen its oil production drop to 2.3 mb/d from 10 mb/d a few years earlier. Clearly if Saudi Arabia had maintained its role as the swing producer, it may have been driven out of the market. To regain market share, it raised production, abandoned official pricing, and adopted a spot pricing mechanism.

The 1990-91 crash

The August 1990 Iraq invasion of Kuwait was preceded by a lengthy period of low oil prices. Brent oil averaged less than $17/bbl over the previous five years. Iraq's invasion of Kuwait and the subsequent Iraq war removed more than 4 mb/d of combined Iraq/Kuwait crude from the market. Other OPEC members, however, had large untapped capacity to fulfill this shortfall that could be traced back to the early 1980s, when OPEC had chosen to reduce production to defend high prices. While other OPEC members were able to make up the shortfall, it took some time to ramp up output. Brent prices briefly eclipsed $40/bbl in September 1991 before slowly retreating to $28/bbl in December as additional supplies reached the market.

The ensuing price crash in mid-January 1991 was sharp and sudden. Prior to the war the IEA agreed to release

TABLE F.1 Summary statistics, the markets environment, and OPEC's policies

	1985-86	1990-91	2008-09	2014-15
Key Statistics				
Dates	Nov 1985 to Mar 1986	Nov 1990 to Feb 1991	Jul 2008 to Feb 2009	Oct 2014 to Jan 2015
Duration (days)	82	71	113	83
Price drop (percent)	66	48	77	51
Volatility (percent)	4.69	5.18	4.62	2.58
Coefficient of variation	0.32	0.16	0.44	0.22
Comovement (percent)	27	19	48	25
Correlation with equities	0.01	0.03	0.12	0.06
Correlation with ex. rates	0.07	0.02	0.18	0.06
Market and Policy Environment				
Fundamental drivers	Increasing non-OPEC oil supplies, especially from Alaska, Mexico and the North Sea	Operation "Desert Storm" and IEA emergency stock draw calmed oil markets	Sell off of assets (including commodities) due to the 2008 financial crisis	Increasing non-OPEC oil supplies, especially shale oil from the U.S.
OPEC's policy objective	Protect market share rather than target prices	Keep oil market well-supplied	Target a price range	Protect market share rather than target prices
OPEC's action	Raise production	Raise production	Cut production	Raise production
Pre-crash oil prices	Gradual decline of official OPEC prices	Sharp increase	Large increase prior to the crash	Relatively stable prices above $100/bbl
Post-crash oil prices	Remained low for almost two decades	Returned to pre-spike levels	Reached pre-crash levels within two years	They are projected to remain lower

Notes: Comovement is defined as the proportion of prices that move in the same direction in a particular month, averaged over the 12-month period before the end of the crash. It is bounded between zero and 100, zero implying that half of the price movements are up and half down and 100 implying that all prices move in the same direction, either up or down. Coefficient of variation is the standard deviation of prices (levels) divided by the mean. Definitions of correlation between oil prices with equities and exchange rates and volatility of oil prices can be found in the box.

2.5 mb/d of emergency stocks in the event of war. This, and the apparent early success of "Operation Desert Storm," prompted an immediate collapse in prices to under $20/bbl. Thus, the 1991-92 crash was a reversion of prices to their pre-spike levels following an external shock, rather than following a prolonged period of high prices, as in the other three cases.

The 2008-09 crash

The largest post-WWII oil price decline came in response to the 2008 financial crisis. During the second half of 2008, oil prices declined more than 70 percent. The price collapse, which reflected uncertainly and a drastic reduction in demand, was not unique to oil. Most equity markets experienced similar declines, as did other commodity prices, including other energy (such as coal), metals, food commodities, and agricultural raw materials (such as natural rubber). The 2008 oil price crash was also accompanied by a spike in volatility as well as closer comovement across most commodity prices.

In the run-up to the 2008 financial crisis, OPEC had reverted to restricting oil supplies in the early 2000s by briefly targeting a price range of $22-28/bbl. However, when prices exceeded that range in 2004, OPEC gradually raised its "preferred target" to $100-110/bbl. As the financial crisis unfolded prices dropped to a low of less than $40/bbl. Within the next two years prices surged back to the $100 mark, helped by stronger demand as the global economy rebounded and supported by OPEC's decision to take 4 mb/d off the market.

The 2014-15 crash

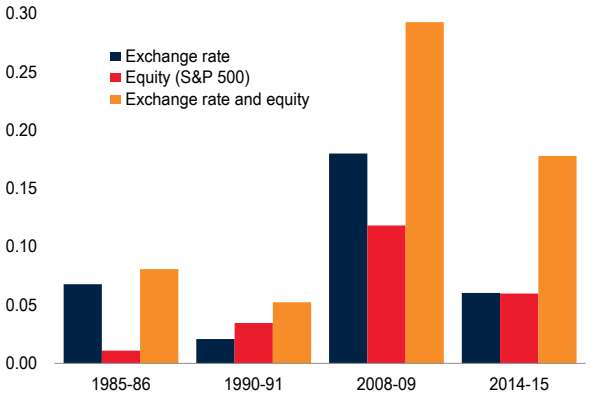
The most recent crash took place against a backdrop of high oil prices, weak demand, and strong oil supply growth, especially from unconventional sources in the United States (Arezki and Blanchard 2014; Baffes et al. 2015). During 2011-14, the United States alone added 4 mb/d to global oil supplies. Combined with two other unconventional sources—Canadian oil sands and biofuels—more than 6 mb/d was added to the global oil market. On the geopolitical front, some conditions eased. Despite ongoing internal conflict, Libya added 0.5 mb/d of production in the third quarter of 2014. Iraq's oil output turned out to be remarkably stable, at 3.3 mb/d during 2014, the highest average since 1979. Even sanctions imposed on Russia and ensuing countersanctions have had little impact on European natural gas markets.

On the policy front, on November 27, 2014, OPEC announced that it would focus on preserving its market share instead of maintaining a $100-110/bbl price range. This shift in policy suggests that OPEC will no longer act as the swing oil producer. Instead, the marginal cost producers of unconventional oil are increasingly playing this role (Kaletsky 2015). The steep price decline also coincided with a sharp appreciation of the U.S. dollar, which trends to be negatively associated with U.S. dollar prices of commodities, including oil (Frankel 2014; Zhang et al 2008; Akram 2009).

Contrasting the oil price crashes

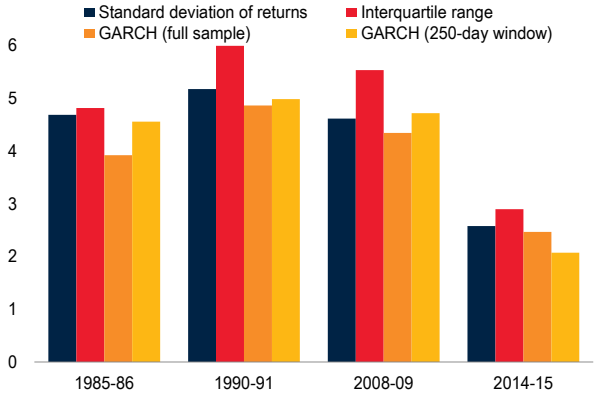
There are multiple similarities and differences among the four oil price crashes (Table F1). Most striking are the similarities between the first and last crash. Both occurred after a period of high prices, and rising non-OPEC oil supplies: from Alaska, North Sea, and Mexico in 1985-86 and from U.S. shale, Canadian oil sands, and biofuels in 2014-15. In both crashes OPEC changed its policy objective, from price targeting to market share. There is a similarity between the 1990-91 and 2008-09 crashes as well, in that

FIGURE F.2 Correlation between oil price and financial variables



Source: World Bank
Note: Correlation refers to the R-square of the respective regression.

FIGURE F.3 Volatility of oil price during the four crashes



Source: World Bank.
Note: Details on the volatility measures are discussed in the box.

both were precipitated by global events: the First Gulf War (the former) and the 2008 financial crisis (the latter).

There are also key differences, with the 2008-09 crash exhibiting some unique characteristics. Prices during that crash were highly correlated with equity and exchange rate movements (Figure F.2). Similarly, comovement across most commodity prices was high during 2008—twice as high compared to the historical average (and other crashes). However, although volatility spiked during all four episodes, the increase was much smaller (and began much later) during the last crash, a result consistent across several measures of volatility (Figure F.3).

Current conditions compared with 1985-86

Following the 1985-86 collapse, oil prices remained relatively low for almost two decades. Brent prices averaged $20/bbl between November 1985 and December 2003, beginning and ending the period at about $30/bbl. Prices were kept in check for several reasons, both supply and demand related, and OPEC policy.

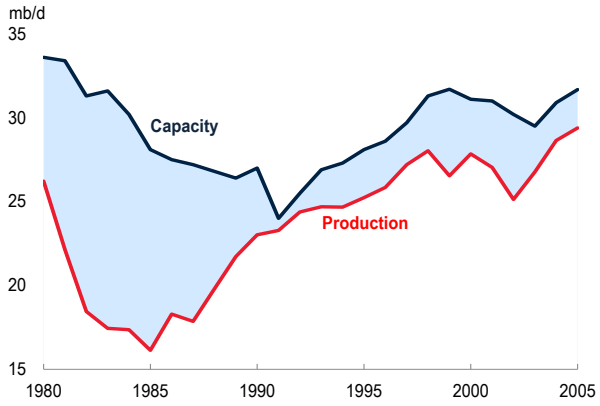
On the supply side, OPEC's spare capacity stood at a massive 12 mb/d in 1985 (Figure F.4). A surplus also developed in the former Soviet Union (FSU) during the transition of the 1990s. Although FSU oil production fell by 5.5 mb/d initially, most was brought back on line (Figure F.5). These supply cushions kept oil prices low for several years.

On the demand side, the efficiency gains in the automobile sector in the 1970s and early 1980s came to a halt as lower prices led consumer preference to less efficient vehicles—U.S. efficiency standards for passenger cars remained at 27.5 miles per gallon during 1985-2010. Substitution away from oil slowed as well. Oil demand grew relatively strongly in industrial countries over the next 20 years (1.5 percent per annum or 6.8 mb/d during 1985-2005). However, growth was larger in non-OECD countries outside the FSU, rising by 4.2 percent per annum, or 16.8 mb/d.

Some of the conditions behind the low oil prices of 1985-2003 are no longer in place. First, OPEC's spare capacity is significantly lower now than it was in 1985. According to the IEA, OPEC spare capacity today is 2.5 mb/d (excluding Iraq, Iran, Libya and Nigeria). Oil demand conditions in the OECD have changed dramatically. High prices and new efficiency standards have led to decline in OECD consumption since 2005 of nearly 5 mb/d. Most forecasts show little or no growth in OECD consumption going forward, and some show declines due to anticipated increases in fuel efficiency and environmental constraints. Given that developing and emerging economies consume much less oil in per capita terms, potential still remains for significant growth in consumption where most the gains are expected to occur.

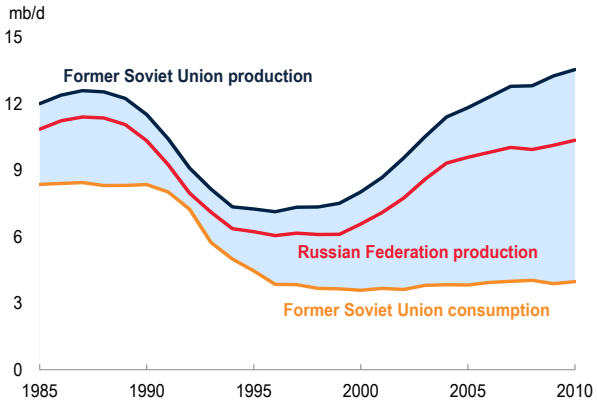
There are some factors that could lead to a prolonged period of low oil prices. On the supply side, U.S. shale oil production provided much of the growth during the past five years. Although shale oil costs vary widely (some well below $50/bbl and others above $70/bbl), the industry's production costs are falling due to greater operational knowledge, improved technologies, and lower input prices. Thus, shale oil production may be sustained at higher-than-expected levels. On the demand side, if the global prospects in emerging and developing economies remain muted, oil consumption growth may suffer. Lastly, technological breakthroughs, either through improvement in battery technology or further use of natural gas in transportation, are less likely to materialize at current oil prices (say, $50-60/bbl range) than they would be at, say, the $100-110/bbl price range.

FIGURE F.4 OPEC production and capacity



Source: KBC Energy Economics.

FIGURE F.5 Former Soviet Union oil production and consumption



Source: BP Statistical Review (June 2014 update).

BOX 1 Modeling oil prices: A single factor model and a GARCH (1, 1) specification

Two models are used to analyze the nature of the recent oil price decline and compare it with the three earlier price declines. First, a single factor model examines the relationship between changes in oil prices and changes in equity markets.

$$R_t^{OIL} = \beta_0 + \beta_1 R_t^{Equity} + \varepsilon_t. \quad (1)$$

R_t^{OIL} denotes the first difference of oil price, $R_t^{OIL}=log(P_t^{OIL}/P_{t-1}^{OIL})$ where P_t^{OIL} is the price of oil at time t. R_t^{Equity} is defined in a similar fashion. $ß_0$ and $ß_1$ are parameters to be estimated while ε_t is the error term. $ß_1$ measures the responsiveness of oil price changes to the equity market. The R^2 of equation (1) gives how much of the change in oil price is explained by changes in the equity markets. Equation (1) is similar to Sharpe's single-index model, typically used in the financial literature (Sharpe 1963; Tsay 2010). A difference is that oil price and equity returns have not been adjusted by the riskless asset. In addition to equities, the single-index model was applied to exchange rate, interest rate, and all three variables together in a single equation.

Data represent the West Texas Intermediate (WTI) settlement price of the front futures contract for the oil; the US S&P 500 is a proxy for the equity index; and the broad trade-weighted US dollar index was used as an exchange rate proxy. The data consist of daily observations covering the period January 1, 1985 to March 10, 2015. Summary statistics are reported in Table F.1. The R^2s of all versions of the model, depicted in Figure F.2, show that while there was low correlation between oil prices and macroeconomic fundamentals during the 1985-86 and 1990-91 price collapses, the correlation was large during the 2008-09 collapse. The correlation during the most recent collapse was moderate. The results confirm that the 2008-09 price decline was strongly correlated with the financial crisis.

A GARCH (1, 1) specification was also employed to estimate oil price volatility and identify the influence of equity market and exchange rate shocks (Bollerslev 1986; Engle and Patton 2001). The model is parsimonious and also widely used in the literature (Hansen and Lund 2005; Tsay 2010). First, oil price returns are conditioned on the riskless asset as follows:

$$R_t^{OIL} = \beta_0 + \beta_1 Tbill_t + \varepsilon_t. \quad (2)$$

R_t^{OIL} is defined as before; $Tbill_t$ denotes the U.S. Treasury Bill; ε_t is a heteroscedastic error term whose variance follows a Gaussian autoregressive moving average process defined as:

$$Var(\varepsilon_t) = \sigma_t^2 = \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 \sigma_{t-1}^2 + exp\left(\alpha_0 + \alpha_3 R_{t-1}^{Equity\,[+]} + \alpha_4 R_{t-1}^{Equity\,[-]} + \alpha_5 R_{t-1}^{XR[+]} + \alpha_6 R_{t-1}^{XR[-]}\right). \quad (3)$$

$R_{t-1}^{Equity[.]}$ and $R_{t-1}^{XR[.]}$ represent logarithmic changes of the equity and exchange rate indices defined in a similar fashion to the oil returns; the [+] and [-] signs are associated with positive and negative changes allowing for asymmetric impacts of such shocks. Taking expectations on both sides of (3) gives results in the following representation:

TABLE F.1 Oil price summary statistics

	Pre-Boom 1983-2003	Post-Boom 2004-2015	Crash 1 11/25/85-03/31/86	Crash 2 11/08/90-02/21/91	Crash 3 07/14/08-02/19/09	Crash 4 10/01/14-01/29/15
Nominal price level statistics						
Maximum	40.42	145.29	31.70	35.53	145.18	91.01
Minimum	10.42	32.48	10.42	18.50	33.87	44.45
Max to Min change (%)	—	—	-66.4	-47.9	-76.7	-51.2
Returns statistics						
Mean	0.01	0.01	-1.33	-0.35	-1.29	-0.86
Standard Deviation	2.42	2.32	4.69	5.18	4.62	2.58
Interquartile Range	2.26	2.41	4.82	6.00	5.54	2.90
Distribution of quartiles						
Minimum	-17.45	-13.07	-13.91	-13.17	-12.60	-10.79
Median	0.00	0.06	-1.37	-0.27	-1.27	-0.89
Maximum	14.03	16.41	11.04	12.68	14.55	5.49
25th percentile	-1.07	-1.19	-3.84	-3.32	-4.54	-2.21
75th percentile	1.19	1.22	0.98	2.68	1.00	0.70
Fraction of days with shocks						
Greater than +1%	0.28	0.29	0.24	0.39	0.26	0.18
Greater than +2%	0.15	0.14	0.20	0.32	0.19	0.10
Less than -1%	0.26	0.28	0.52	0.45	0.54	0.45
Less than -2%	0.14	0.15	0.44	0.30	0.43	0.29
Fraction of stable days	0.72	0.71	0.37	0.38	0.37	0.61
Observations	*4,759*	*2,816*	*82*	*71*	*113*	*83*

Source: Baffes and Kshirsagar (2015).
Note: "—" indicates not applicable.

TABLE F.2 GARCH (1, 1) Estimates of the variance equation

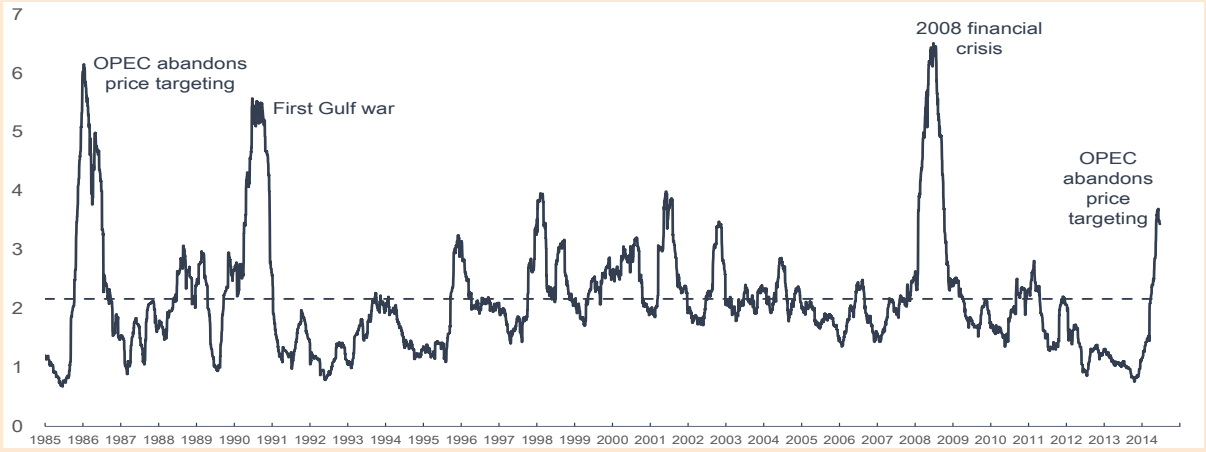
	Pre-Boom: 1985-2003	Post-Boom: 2004-15	Crash 1: 11/19/85-04/31/86	Crash 2: 11/09/90-02/22/91	Crash 3: 07/02/08-02/13/09	Crash 4: 10/01/14-01/28/15
α_0	-1.62*	-3.13***	-2.13	-0.46	-0.08	-2.58***
	(1.64)	(7.09)	(0.96)	(1.32)	(0.16)	(3.72)
ε_{t-1}^2	0.10***	0.06***	0.28	0.02	0.07	0.00
	(5.91)	(4.32)	(0.87)	(0.28)	(1.03)	(0.02)
σ_{t-1}^2	0.01***	0.92***	0.67**	0.69***	0.67***	0.95***
	(85.2)	(53.1)	(1.99)	(8.20)	(4.91)	(56.5)
$R_{t-1}^{Equity\,[+]}$	0.57	-0.98	2.75**	1.21***	0.52**	-4.53
	(0.08)	(1.52)	(2.20)	(3.81)	(6.27)	(0.99)
$R_{t-1}^{Equity\,[-]}$	0.32	-0.62***	-1.08	-1.20***	-0.42***	13.9
	(1.60)	(4.07)	(0.50)	(4.53)	(3.38)	(1.30)
$R_t^{XR[+]}$	10.68	-0.38	-210.6	3.41***	-0.74	6.66***
	(0.68)	(0.19)	(0.60)	(4.39)	(1.02)	(9.12)
$R_t^{XR[-]}$	18.43	-0.86***	1.48	-0.30	-0.42	-0.14
	(1.20)	(2.99)	(0.46)	(0.25)	(1.07)	(0.02)
Observations	*4,603*	*2,722*	*250*	*250*	*250*	*250*

Source: Baffes and Kshirsagar (2015).
Notes: One (*), two (**), and three (***) asterisks denote parameter estimate significant at the 10, 5, and 1, percent levels.

$$E(\sigma^2) = \frac{exp\left(\alpha_0 + \alpha_3 R_{t-1}^{Equity\,[+]} + \alpha_4 R_{t-1}^{Equity\,[-]} + \alpha_5 R_{t-1}^{XR[+]} + \alpha_6 R_{t-1}^{XR[-]}\right)}{(1-\alpha_1-\alpha_2)}. \quad (4)$$

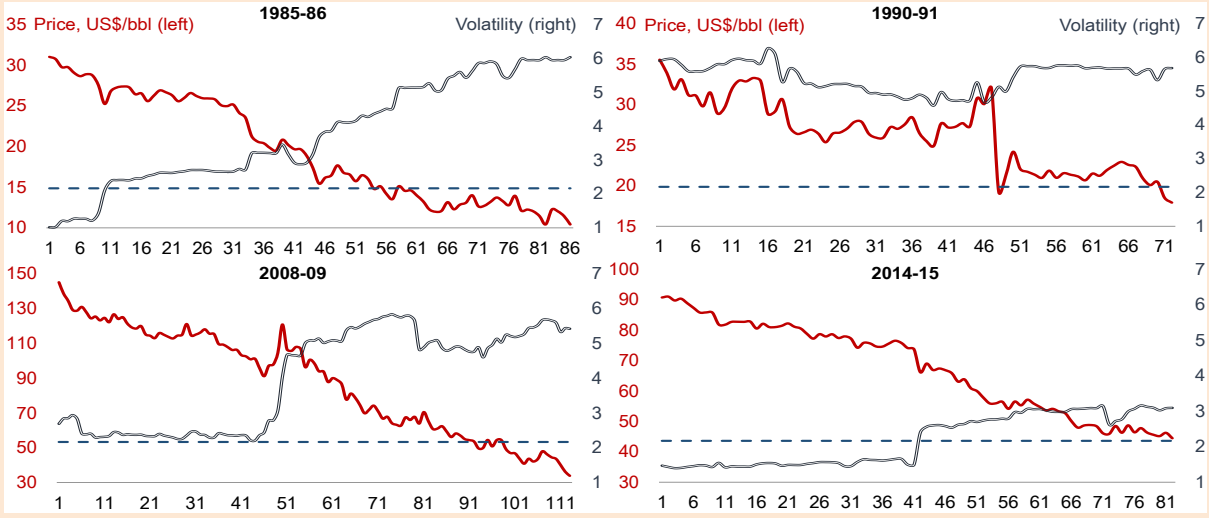
Parameter estimates of the variance equation (reported in Table F.2) lead to a number of conclusions. First, the GARCH volatility estimates are similar to the standard deviation of oil returns (Figure F.3 shows the four volatility measures while Figures F.6 and F.7 depict the standard deviation of returns with a 60– and 30-day rolling windows). This, in turn, confirms that volatility during the recent episode was indeed lower than earlier ones. Second, positive equity market shocks during the three previous crashes were associated with greater volatility while negative equity shocks were associated with greater volatility in 1990-91 and 2008-09. For example, while unconditional variance (with no equity shocks) was just 3.5 percent in 2008/09, the conditional variance stood at 22.3 percent. The recent crash was not associated with either positive or negative equity shocks. Third, the appreciation of the U.S. dollar was associated with greater volatility in 2014-15. A 0.5 percent appreciation of the US dollar is associated with a 39.6 percent increase in variance during the 2014-15 crash and a 12.1 percent increase during the first Gulf War crash. However, no association between exchange arte and oil price volatility was found in the other two crashes.

FIGURE F.6 Oil price volatility, 60-day window



Source: World Bank

FIGURE F.7 Oil prices (levels and volatility) during the four price collapses, 30-day window



Source: World Bank

References

Akram, Q. F. (2009). "Commodity prices, interest rate, and the dollar." *Energy Economics*, 31, 838-851.

Arezki, R. and O. Blanchard (2014). "Seven questions about the recent oil price slump." *IMF Blog*, December 22. International Monetary Fund. Washington, D.C.

Baffes, J., M.A. Kose, F. Ohnsorge, and M. Stocker (2015). *The great plunge in oil prices: Causes, consequences, and policy responses*, Policy Research Note 15/01. The World Bank. Washington, D.C.

Baffes, J. and V. Kshirsagar (2015). "Sources of volatility during four oil price crashes." *Mimeo*, Development Prospects Group, The World Bank. Washington, D.C.

Bollerslev, T. (1986). "Generalized autoregressive conditional heteroskedasticity." *Journal of Econometrics*, 31, 307-327.

Engle, R.F. and A.J. Patton (2001). "What good is a volatility model?" *Quantitative Finance*, 1, 237-245.

Frankel, J. (2014). "Why Are Commodity Prices Falling?" Project Syndicate, December 15.

Hansen, P.R. and A. Lunde (2005). "A forecast comparison of volatility models: Does anything beat a GARCH (1, 1)?" *Journal of Applied Econometric,* 20, 873-889.

Kaletsky, A. (2015). "A new ceiling for oil prices." Project Syndicate, January 14.

Sharpe, W.F. (1964). "Capital asset prices: A theory of market equilibrium under conditions of risk." *Journal of Finance*, 19, 425-442.

Tsay, R. (2010). *Analysis of financial time series*. John Wiley & Sons.

Zhang, Y. Y. Fan, H. Tsai, and Y. Wei (2008). "Spillover Effect of U.S. Dollar Exchange Rate on Oil Prices." *Journal of Policy Modelling*, 30, pp. 973-991.

DEVELOPMENTS

Energy
Metals
Precious metals
Fertilizers
Agriculture

Energy

Energy prices, as measured by the World Bank Energy Index, dropped 28 percent in 2015Q1, the largest quarterly decline since 2008Q4 (Figure 3). The fall mainly reflected a 31 percent plunge in crude oil prices, while natural gas and coal prices fell by 16 and 2 percent, respectively, due to surplus supply conditions for all fuels.

Recent developments

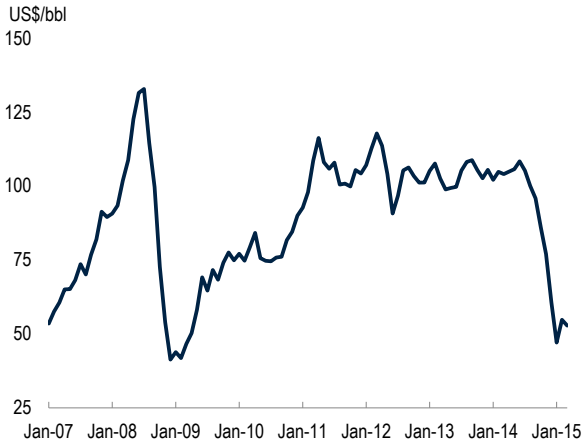
Crude oil prices averaged $51.6/bbl in 2015Q1, down from $74.6/bbl the previous quarter, as the global market remained oversupplied with high stocks, particularly in the U.S. Prices appeared to stabilize during the quarter and averaged $57/bbl during the first half of April 2015, as markets began to rebalance. Demand growth in the quarter was higher than expected, partly due to the effects of lower prices and cold weather. Production continued to grow, both outside and inside OPEC, and the organization continued to pursue a market share strategy.

For the last three-and-a-half years, rapid expansion of unconventional oil production in North America was essentially offset by supply disruptions in the Middle East and North Africa (Figure 4). The outages helped keep the global oil market broadly in balance and prices in the $100-110/bbl range. However, in 2014H2 the market tipped into surplus amid slowing demand and the return to the market of disrupted supplies, notably from Libya. Meanwhile, production in the United States continued its steady growth of more than 1 mb/d year-on-year.

The differential between West Texas Intermediate (WTI) and Brent widened to more than $10/bbl in early April due to the build-up of crude oil stocks, particularly in Cushing, Oklahoma, a delivery point for WTI futures contracts (Figure 5). The gap in prices had nearly been eliminated in 2014Q4. It had fallen from a 30 percent spread in late 2011, as new pipelines were built and others reversed to transport the crude to refineries on the Gulf coast. There is also new pipeline capacity coming into Cushing, and stocks built from the unrelenting growth in U.S. production and imports from Canada. Refinery production runs remained high due to strong demand. Refineries are able to export refined products, unlike crude oil which remains under an export ban.

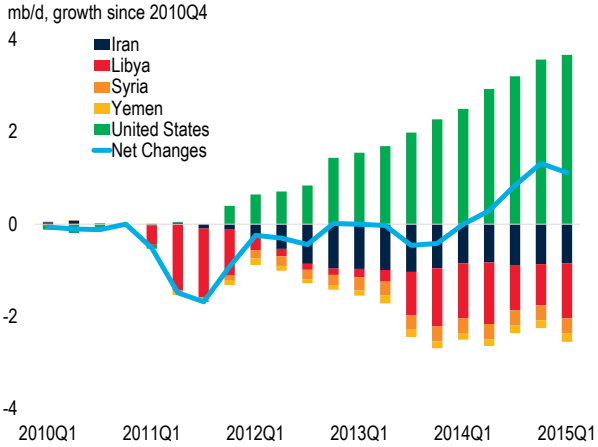
Global oil supply averaged 94.5 mb/d in 2015Q1, up 2.4 mb/d from the same quarter in 2014, with nearly three-quarters of the gains from non-OPEC countries, mainly the United States. Non-OPEC oil output grew 1.7 mb/d year-on-year on continued large expansion of production

FIGURE 3 Oil prices (average of Brent, WTI, and Dubai)



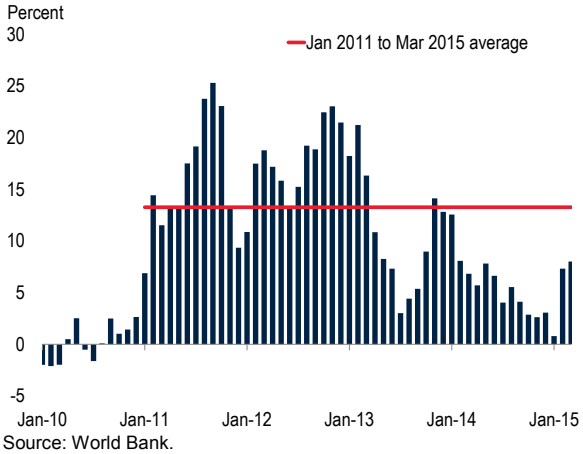
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 4 U.S. crude oil supply growth and disruptions elsewhere



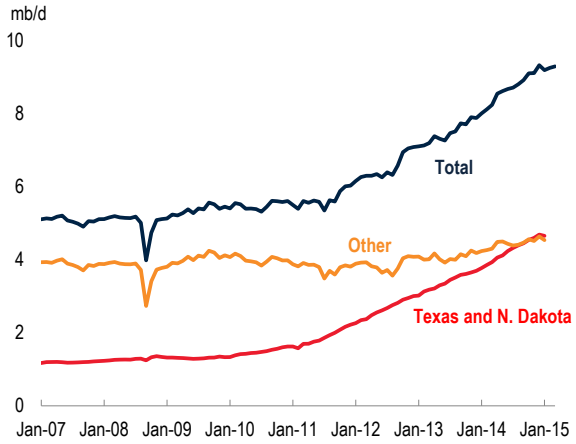
Source: : World Bank, International Energy Agency.
Note: Last observation is 2015Q1.

FIGURE 5 Brent/WTI price differential



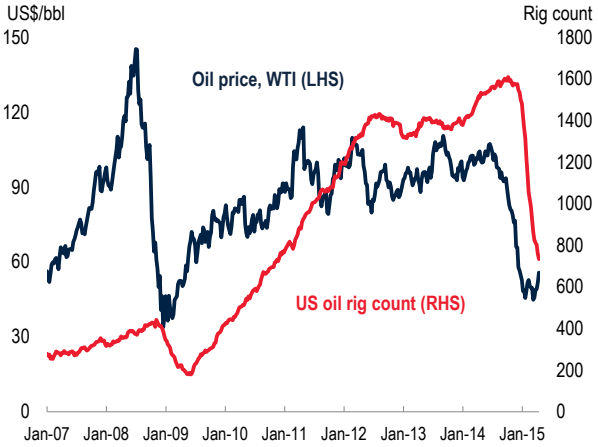
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 6 U.S. crude oil production



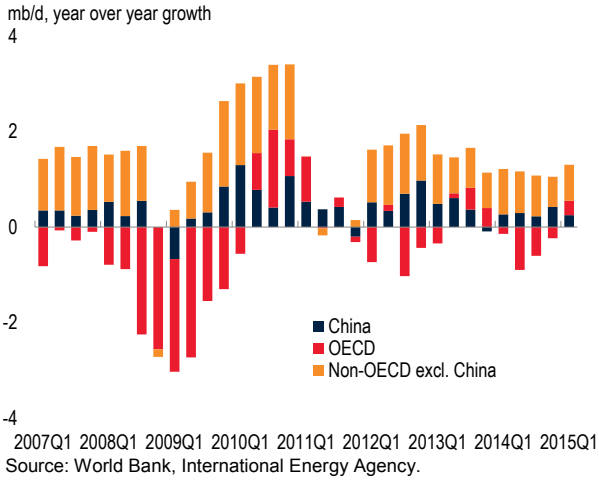
Source: U.S. Energy Information Administration, International Energy Agency.
Note: Last observation is March 2015.

FIGURE 7 U.S. oil rig count and WTI



Source: Baker Hughes.
Note: Last observation is April 17, 2015.

FIGURE 8 World oil demand growth



Source: World Bank, International Energy Agency.
Note: Last observation is 2015Q1

in the U.S. (1.6 mb/d), but there were also gains in Brazil (0.3 mb/d) and Canada (0.1 mb/d). These were partly offset by small net declines in other regions. The United States has added some 3.5 mb/d to global crude oil supplies since the beginning of 2011, largely reflecting growing shale oil production (Figure 6). The growth in shale oil is a result of earlier large investments amid high prices, and deployment of hydro fracking and horizontal drilling technologies first used on U.S. natural gas shale deposits. However, sharply falling oil prices is curtailing investment, and the rapid growth in U.S. production is expected to begin moderating significantly in the second quarter. The U.S. oil rig count is down over 50 percent since its October 2014 with large reductions in the main shale oil producing basins (Figure 7).

OPEC oil supply rose by 0.7 mb/d to a total of 37.0 mb/d, with gains of 0.2 mb/d in natural gas liquids and 0.5 mb/d for crude. Saudi Arabia's crude production rose by 0.3 mb/d, with increases of 0.2 mb/d for each of Angola, Iraq, and Kuwait. These were partly offset a decline in the Neutral Zone—shared jointly by Saudi Arabia and Kuwait—due to the extended closure of the offshore Khafji field. Iraq's production averaged 3.7 mb/d and exports nearly reached 3 mb/d, the highest level in almost three decades. March was the 11th straight month in which OPEC crude oil output exceeded its 30 mb/d target.

World oil demand increased by 1.3 mb/d year-on-year in 2015Q1 to 93 mb/d, with growth of 1.0 mb/d in non-OECD countries and 0.3 mb/d in the OECD (Figure 8). Lower prices, colder temperatures across northern countries, and a pick-up in economic activity led to the largest quarterly growth since 2013Q3. For 2015 as a whole, global oil demand is projected to grow 1.1 mb/d, up from a 0.7 mb/d increase in 2014. Non-OECD demand continues to remain the main driver of growth, with nearly half coming from China and India.

The supply-demand imbalance in 2015Q1 resulted in a 1.5 mb/d implied OECD stock-building, a fifth consecutive quarterly increase in oil inventories. OECD industry stocks expanded to 2,740 million barrels at end-March and exceeded its five-year average. The build-up in stocks has been near continuous from a nine-year low at the end of 2013. OPEC's spare capacity slipped to 3.5 mb/b in 2015Q1 on increased output, after peaking at almost 5 mb/d at the end of 2013 (Figure 9).

Natural gas and coal prices dropped in 20151Q by 16 and 2 percent, respectively, on surplus supply for both fuels (Figure 10). The seaborne coal market has been affected by weak import demand and chronic oversupply. Natural gas prices fell in all regions, led by a 24

percent drop in the U.S. to below $3/mmbtu due to continued growth in shale gas production, mainly from the Marcellus basin in the northeast (Figure 11). Delivered natural gas prices in Asia, which remain largely linked to oil prices, fell 9 percent to $14/mmbtu due to lower oil prices and weak demand. Spot LNG prices have plunged to around $7/mmbtu. Natural gas prices in Europe—which reflect a mixture of spot and oil-linked contracts—declined 10 percent to under $9/mmbtu. LNG spot prices there are also at the $7 level.

Outlook and risks

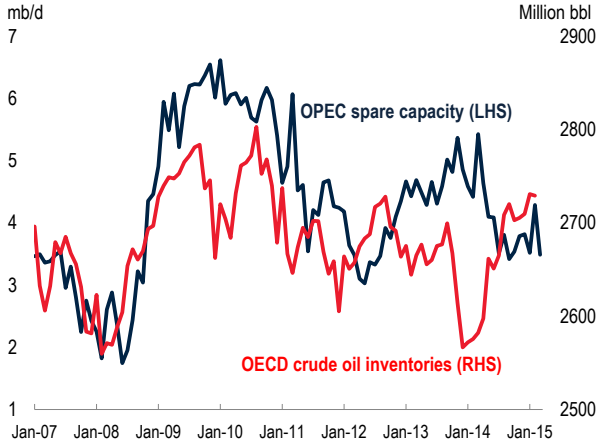
Energy prices in 2015 are projected to fall 42 percent, largely reflecting a 45 percent drop in oil prices, which remain projected to average $53/bbl. Most of the decline has already occurred implying flat oil prices the rest of the year as the industry reduces the current large supply overhang. The U.S. Energy Information Administration expects the country's large oil production growth to moderate in the second quarter and record zero growth in 20154Q. Oil prices are expected to recover only modestly, by $3/bbl, in 2016 as supplies are expected to remain ample.

Natural gas prices are expected to decline significantly, partly reflecting the drop in oil prices, especially for Europe (down 15 percent) and Japan LNG (down 25 percent) which are linked to oil—partially in the case of Europe. U.S gas prices are projected to fall 15 percent amid continued growth in shale gas production. Coal prices are projected to decline 12 percent due to weak import demand and surplus supply.

Downside risks to the price forecast include higher-than-expected production and more limited supply rebalancing, either from voluntary cutbacks or market forces. Upside risks include higher growth in demand, accelerated closure of high-cost production, supply restraint by major producers, and unexpected outages—geopolitical risks continue to hover over the market.

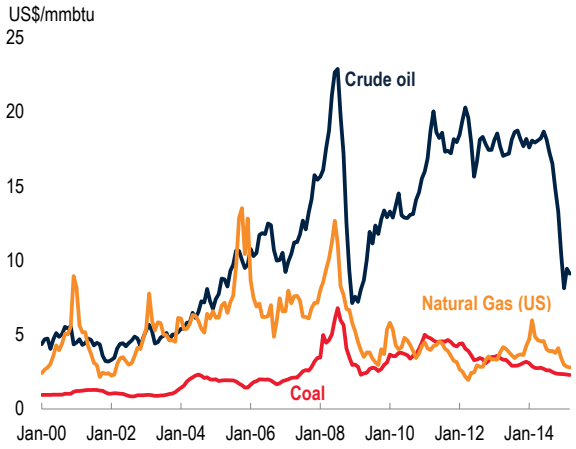
Another important downside risk is a potential agreement between Iran and permanent members of the U.N. Security Council plus Germany on Iran's nuclear program in exchange for removal of sanctions. A framework agreement on April 2, 2015, paves the way for a comprehensive pact by end-June. If enacted, Iran would be able to lift production from the current 2.8 mb/d to 3.5 mb/d within a few months of sanctions being lifted. In addition, Iran has 30 mb of oil in floating storage that could be immediately shipped, adding further pressure on the market.

FIGURE 9 Spare capacity and inventories



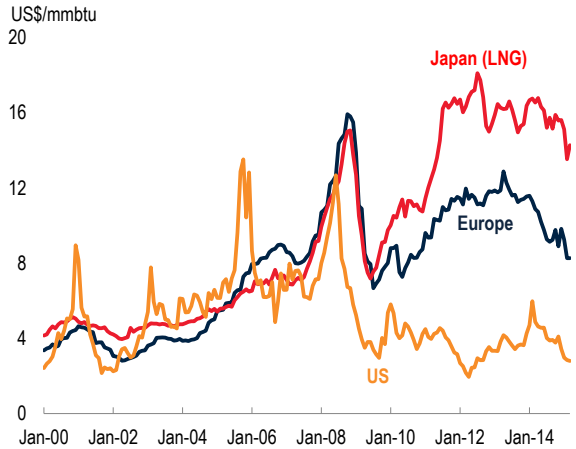
Source: International Energy Agency.
Note: Last observation is March 2015.

FIGURE 10 Energy prices



Source: World Bank.
Note: Last observation is March 2015.

FIGURE 11 Natural gas prices



Source: World Bank.
Note: Last observation is March 2015.

Metals

Metals prices fell 11 percent in 2015Q1 (Figure 12), down for a second straight quarter, on weak demand, continued gains in supply, and high stocks for a number of metals. All metals prices fell, particularly iron ore and nickel. The World Bank Metals price index in March was 43 percent below its recent February 2011 high as virtually all metal markets tipped into surplus over this 4-year period.

China's import demand was noticeably weak in the first quarter partly due to a late new year's holiday in February. But the typical post-holiday rebound did not appear to materialize in March. China, which accounts for nearly half of global metal consumption (Figure 13), has seen its industrial activity and metal demand growth moderate in recent years as it transforms from an investment-led to consumer-driven economy, and one that is also less polluting. China has also accounted for much of the net growth in global demand in recent years, although the OECD rebounded in 2014 to capture nearly half of the increase (Figure 14).

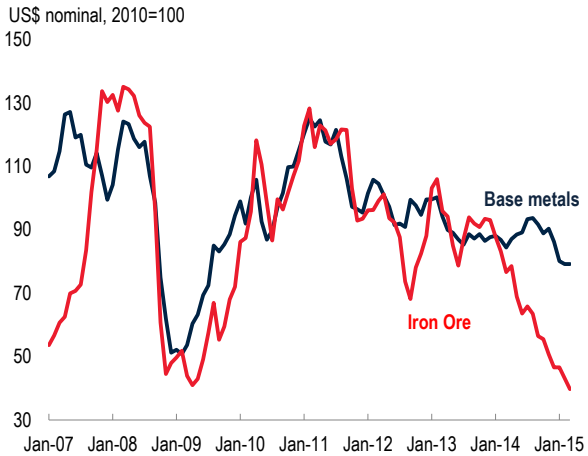
On the supply side, record high prices and large investments in earlier years has brought significant capacity on line, notably for iron ore and nickel, but also copper. Additional supply increases are expected in the near-to-medium term. For a number of metals, prices have slid to where high-cost production is being closed. Depreciation of producer currencies and falling production costs (e.g., energy), however, are helping support profitability and sustain production in some cases. Capital investments are declining in response to falling prices/revenues, a trend that will negatively affect production levels in coming years. There are other supply concerns: large zinc mines are closing due to resource exhaustion, and Indonesia's ore export ban is impacting nickel and bauxite markets in particular.

Iron ore prices fell 15 percent in 2015Q1—the fifth consecutive decline. March prices stood at just a third of their 2011 highs due to new low-cost supplies, primarily from Australia, but also from Brazil. The new supplies led high-cost production in China and elsewhere to close. However, more new low-cost capacity is coming online in the next two years and further displacement of high-cost supply will likely be required to rebalance the market. Demand from the steel industry, which consumes nearly all iron ore output, was weak in the first quarter, continuing a year-long trend. Output growth in China, which produces half of the world's steel, is slowing due to weak domestic demand. However, China's finished steel exports continue to rise as steel prices have declined sharply.

Copper prices fell 12 percent in 2015Q1, owing to rising stocks, weak demand, and new supplies. March prices were about 40 percent below their all-time high in 2011. Demand has been weak, notably in China's property market, and there are concerns about slower investment in its construction and infrastructure sectors where much of copper consumption is concentrated. There are also ongoing threats from substitutes, notably from much lower-priced aluminum. New capacity is coming on-line in the next few years, mainly from a number of mid-size mines in the Americas.

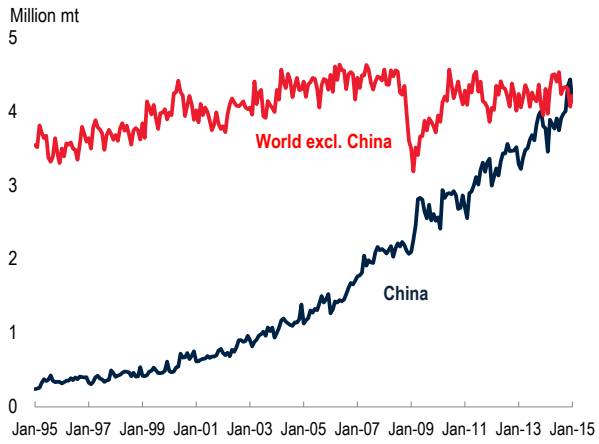
Nickel prices fell 9 percent in 2015Q1, with March prices half of their 2011 high and little more than a quarter of their all-time high in 2007. High prices and large invest-

FIGURE 12 Metal prices



Source: World Bank.
Note: Last observation is March 2015.

FIGURE 13 World refined metal consumption



Source: World Bureau of Metal Statistics.
Note: Total of aluminum, copper, lead, nickel, tin, zinc.

ments led to significant new capacity and resulted in substantial surpluses in recent years. LME inventories continue to climb to record highs (Figure 15) in part because of weakness in the stainless steel sector (which consumes about 70 percent of the world's refined nickel). Indonesia's ore export ban in January 2014—instituted to encourage domestic processing—looks set to tighten the market by 2016. China, which imports significant quantities of nickel ore from Indonesia to produce nickel pig iron (NPI), has been drawing down its stocks and partly replacing them with lower grade ore imports from the Philippines. Once inventories are drawn the nickel market is expected to tighten, as the Philippines cannot fully replace the losses from Indonesia.

Aluminum prices fell 9 percent in 2015Q1, despite falling LME inventories, on weaker demand and higher exports from China. The market outside China has been in deficit for some time because of a number smelter closures, but China's smelting capacity continues to expand and has created a global surplus. Aluminum demand remains broadly robust due to its diversified use in multiple sectors (notably transport, construction, packaging, electrical, and machinery), and recent strong demand outside of China.

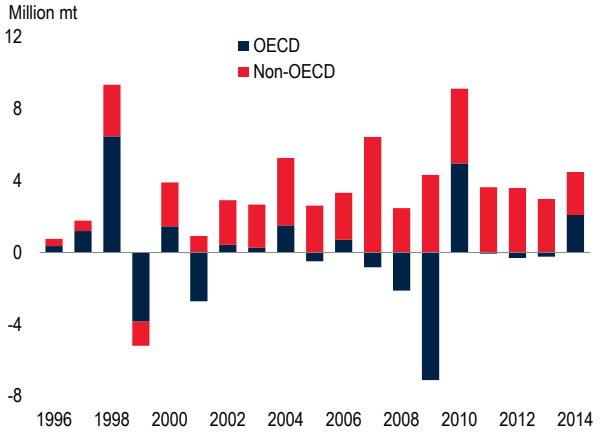
Zinc prices fell 7 percent in 2015Q1, despite falling LME inventories, due to weak demand to galvanize steel, which accounts for over half of global zinc consumption. The zinc market is facing supply constraints from closure of several large mines due to exhaustion. Closures began in 2013 with two large mines in Canada. Other mines have or are scheduled to shut, including the large Century mine in Australia in the third quarter of 2015. Replacement zinc will mainly come several mid-size mines that are scheduled to open soon and from expansions at existing facilities. Assuming reasonably strong demand, the zinc market is expected to move into deficit later this year or in 2016. Key uncertainties center on how China will develop its zinc mining/smelting and steel production sectors.

Lead prices fell 10 percent due to rising stocks and weak demand, notably in China and particularly in its maturing electric bike ("e-bike") sector. Lead supply—often a by-product of zinc mine production—will also be affected by zinc mine closures. Much will depend on China, where mine supply output has risen strongly in the past, but fell in 2014 due to environmental and profitability issues. The majority of lead supply will continue to come from battery recycling.

Looking ahead, metals prices are forecasted to decline by 11 percent in 2015 due to new supplies and slowing demand growth in China. The largest decline is for iron ore, projected to fall by 30 percent due to significant increases in new capacity. Most other prices are also expected to decline as many markets remain in surplus and with high stocks. Markets are expected to tighten in the medium term due to reduced capital investment, stronger global demand, and some special factors, including Indonesia's export ban and upcoming closures of a number of large zinc mines.

Downside risks to the forecast include slower demand in China and tightening environmental constraints to reduce pollution. On the supply side, lower costs and further producer currency depreciation could sustain surplus output and delay supply rebalancing. Upside risks are centered on production from project delays, Indonesia's export ban, environmental constraints, falling ore grades, and extensive closure of high cost capacity.

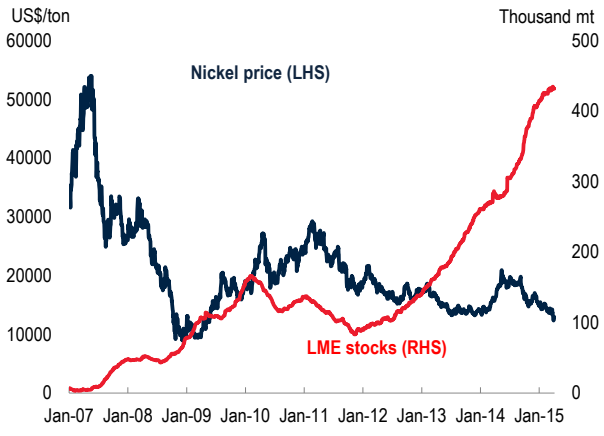
FIGURE 14 World metal consumption growth



Source: World Bureau of Metal Statistics.

Note: Consumption reflects the sum of aluminum, zinc, lead, nickel and copper.

FIGURE 15 Nickel price and LME stocks



Source: Bloomberg.

Note: Last observation is April 6, 2015.

Precious metals

The World Bank Precious Metals Index rose 2 percent in 20151Q, with increases of 2 percent for gold and silver (Figure 16). The exception was platinum, which fell 3 percent. Prices fell in February and March, however, as the appreciation of the U.S. dollar, expectations of a U.S. interest rate hike, and lower financial risks associated with declining oil prices reduced investor demand.

Gold prices rose at the start of the year on safe-haven buying fueled by uncertainty over the impact of the European Central Bank's (ECB) quantitative easing, Greece's election and debt sustainability prospects, and the Swiss National Bank's decision to abandon its ceiling exchange rate with the euro. After touching $1,300/toz in January, prices fell after the ECB announced that it would buy 60 billion euros per month until September 2016. Attention turned to U.S. dollar strength and speculation over when the U.S. Federal Reserve Bank would raise interest rates, which contributed to lower investment demand. Typically, rising interest rates have negative implications for gold prices, as investors seek yield-bearing assets.

Festival-related consumption—in India and Dubai in January and China in February—was less than anticipated and inventories remained high. Demand is expected to rise in the second quarter, bolstered by more festivity buying in India.

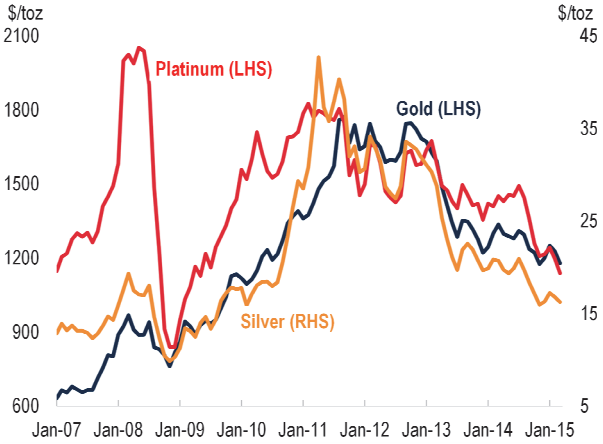
Gold mine output continues to grow strongly, aided by falling costs and weakening currencies in a number of producing countries. In 2014, global mine production rose by 3 percent, with most of the net growth in Asia and Africa as well as Canada and China (Figure 17). Scrap supplies fell last year owing to lower gold prices, and the trend is expected to continue this year.

Silver prices trended similar to gold on reduced investment demand, with the gold/silver ratio hovering near 73 over the quarter. This compares with 63 in 2014Q1, as silver prices dropped more sharply than gold last year. Industrial demand continues to grow, particularly in China. Demand for the metal is solid in a number of sectors, including renewable solar applications. Mine supply continues its robust expansion, with gains mainly in the Americas and Asia, both from new mines and as by-product from new base metal production.

Platinum prices fell 3 percent for the quarter, owing to large stocks and weak import demand from the jewelry sector in China. Demand from the auto sector has been lackluster as well, especially in Europe. Furthermore, proposals to discourage use of diesel fuel—in major European cities such as London and Paris—pose a risk to platinum. Meanwhile, platinum mine production is rebounding from a five-month strike in South Africa in 2014H1.

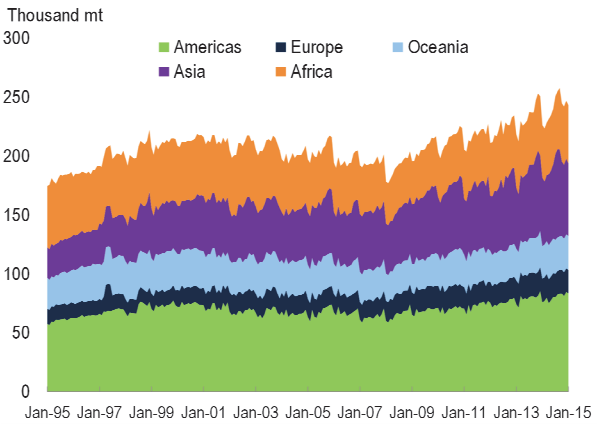
Precious metals prices are projected to decline 3 percent in 2015, mainly due to reduced investment demand, led by a 13 percent drop in platinum prices over excess supply concerns. Silver prices are expected to fall 8 percent, as the metal is generally thought to be more vulnerable than gold to lower investment demand. Gold prices are projected to fall 2 percent, largely driven by expectations of a rising U.S. dollar and interest rate hikes by the U.S. Federal Reserve. Geopolitical and financial risks remain, and are likely to continue their influence on investor sentiment.

FIGURE 16 Precious metal prices



Source: World Bank.
Note: Last observation is March 2015.

FIGURE 17 Global gold mine* production



Source: World Bureau of Metal Statistics.
Notes: Last observation is January 2015.
*Recoverable gold content of ores and concentrates.

Fertilizers

Fertilizer prices fell 3 percent in 2015Q1 amid weak demand, destocking, and falling supply costs. Urea prices led the drop, declining 6 percent, while phosphate and potassium prices increased (Figure 18). Buyers were cautious due to lower crop values and currency depreciation, and destocked in anticipation of even lower prices.

The large decline in urea prices was due to oversupply amid weak seasonal demand in Brazil and a slow start to the fertilizer application season in the U.S. Increases in new capacity—notably from Algeria, Saudi Arabia, Egypt, and Indonesia—and lower production costs helped contribute to excess supply. Costs fell due to lower natural gas prices and other energy costs, including coal prices in China. Demand is expected to pick up in the second quarter, but near-term supplies appear ample.

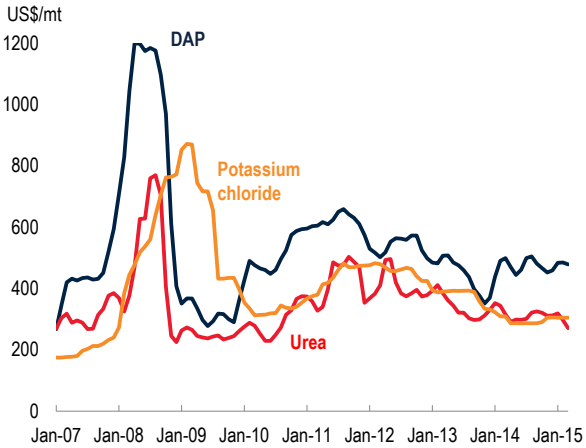
Potash (potassium chloride) prices rose slightly in the first quarter due to weak demand and destocking. Prices were supported by outages in Russia from flooding and a strike in Israel. In late March, China, which consumes a fifth of global potash production, concluded a 2015H1 contract to purchase potash from the Belarus Potash Company (BPC). China agreed to pay $315/ton, up $10/ton; other suppliers are expected to settle at or near this level. This is the first time BPC has signed a major Chinese import contract ahead of its competitors. The price was less than the expected, reflecting increased competitiveness in global potash markets. Once a contract with India is settled (expected sometime in April, at $10-$20/ton more than the BPC deal), demand is expected to pick up in 2015Q2, reflecting less uncertainty over prices and supplemented by consumer restocking.

Phosphate (DAP) prices increased 5 percent in the second quarter, despite a drop in March due to weak demand in the Americas (particularly Brazil), Europe and Australia. Some unsold cargoes still at sea at the quarter's end depressed prices. In late March, Morocco's OCP signed a 2015H1 phosphoric acid contract with India for $805/ton, up $40/ton from 2014H2. DAP prices are expected to rise in line with this increase. Given that India's phosphate stocks are at record lows, demand seems poised to grow in the second quarter, However, that may but may be tempered by the rupee's depreciation.

Fertilizer prices are projected to decline 4 percent in 2015, owing to weak demand, ample supply, and the effects of destocking. While farmers may continue to increase fertilizer application (Figure 19) following record harvests, cutting fertilizer use to reduce costs and offset falling crop prices and currency depreciation is another possibility. Prices are expected to increase beyond 2015 owing to higher demand, higher energy costs, and required new capacity. For potash, however, significant new capacity is expected on stream in the next few years, and lower prices may be needed to rebalance supply.

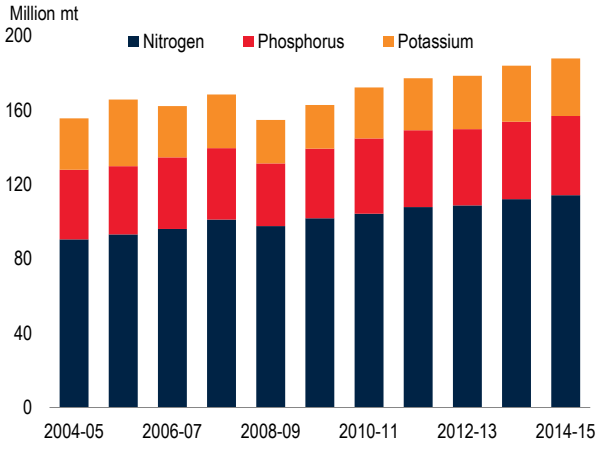
Price risks are skewed to the downside owing to weaker agriculture prices following two years of bumper harvests, which may cause farmers to reduce fertilizer application rates. Possible subsidy reform in large consuming countries would further reduce demand, and also adjust imbalances in fertilizer use, notably in India where phosphate application is favored over potash. Lower energy costs would also tend to expand potential supply and keep markets in surplus.

FIGURE 18 Fertilizer prices



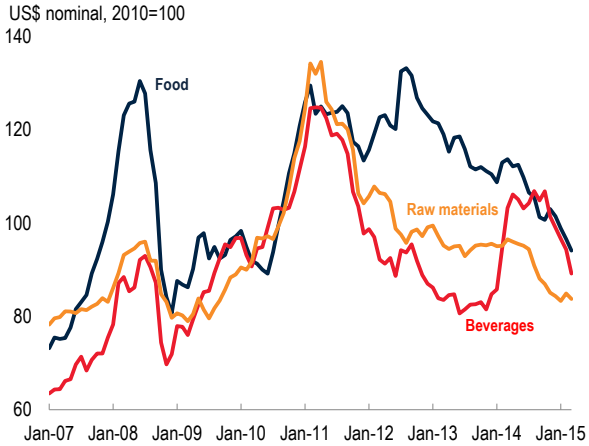
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 19 Global fertilizer consumption



Source: Agrium Fact Book, International Fertilizer Association
Note: Consumption does not include industrial use.

FIGURE 20 Agriculture price indices



Source: World Bank.

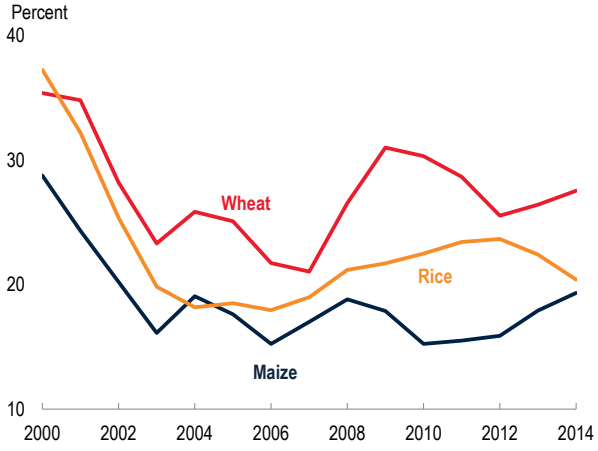
Note: Last observation is March 2015.

TABLE 2 Global production of agricultural commodities (million mt)

	Maize	Rice	Wheat	Soybeans	Palm oil
1960/61	199.6	150.8	233.5	-	-
1970/71	268.1	213.0	306.5	42.1	1.9
1980/81	408.7	269.9	435.9	80.9	4.9
1990/91	482.0	351.4	588.8	104.3	11.0
2000/01	591.8	399.3	583.3	175.8	24.2
2005/06	700.7	417.9	618.9	220.9	36.0
2006/07	716.6	420.5	596.5	236.3	37.6
2007/08	795.5	432.9	612.7	219.0	41.4
2008/09	799.7	449.1	683.9	212.1	44.5
2009/10	824.9	440.9	686.8	260.6	46.4
2010/11	835.3	450.0	649.7	264.2	49.1
2011/12	888.1	467.0	696.0	240.5	52.4
2012/13	868.0	471.9	658.7	268.8	56.5
2013/14	988.7	476.9	716.8	283.6	59.5
2014/15	991.9	474.6	726.5	315.5	61.6

Source: U.S. Department of Agriculture (April 2015 update).

FIGURE 21 Stocks-to-use ratios for wheat, maize, and rice



Source: U.S. Department of Agriculture (April 2015 update).

Agriculture

Agricultural prices continued their broad-based declines in 2015Q1, with the overall agricultural price index down almost 5 percent for the quarter and almost 12 percent lower than a year prior (Figure 20). The three key food sub-indices—grains, edible oils and meals, and other food items—declined by 1.5, 6.2, and 6.9 percent for the quarter, respectively. Beverage prices declined 8.8 percent in 2015Q1, very similar level to a year prior. Agricultural raw materials were marginally down for the quarter.

In its April 2015 assessment (the last for the current crop season), the U.S. Department of Agriculture maintained its comfortable outlook, with global production of wheat projected to increase 1.3 percent while output of maize and rice remains at roughly the 2013/14 levels (Table 2). The stocks-to-use (S/U) ratios are expected to increase in maize and wheat but decline for rice (Figure 21). The edible oil and oilseed outlook is comfortable as well, with global supplies of the 17 most consumed edible oils set to reach a record 202 million tons in 2014/15, up 1 percent from the previous season's 200 million tons. Global production of the 10 major oilseeds is expected to increase as well, from 495 million tons in 2013/14 to 523 tons in 2014/15, a 5.5 percent increase.

Recent developments

Among key grains, the wheat and maize markets are well-supplied—the former much better than anticipated earlier in the year, while the latter will approach last year's high. Wheat prices declined more than 7 percent in 2015Q1 (in March they averaged almost 30 percent lower than a year ago) on favorable growing condition, for the key wheat producers, including the EU, Russian Federation, China, and India (Figure 22). News that dry conditions may affect the U.S. crop are not of a concern at this stage. Maize prices did not change much during the quarter but they are down 17 percent compared to a year prior, as growing conditions in the Southern Hemisphere (including Argentina, Brazil, and South Africa) are favorable. In the Northern Hemisphere, conditions are favorable as well for both the newly planted crops in China and Mexico, and in India, where harvest is almost complete.

Rice prices averaged $417/ton during 2015Q1, down just 1 percent for the quarter but more than 6 percent lower than a year before. The U.S. Department of Agriculture outlook assessed global rice production for the 2014/15 season at 474.6 million tons (slightly lower

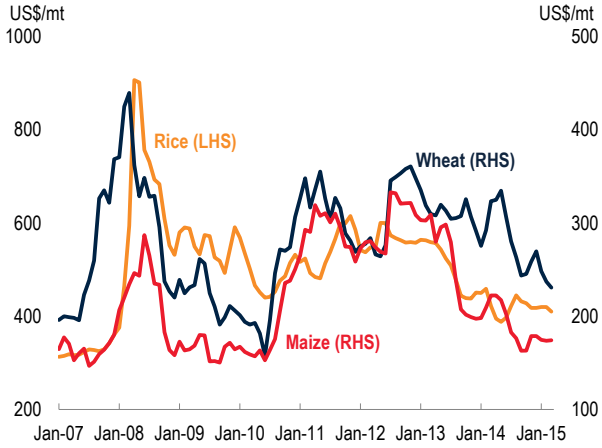
than last season's 476.9 million tons), consistent with an S/U ratio of 20.4 percent, lower than last season's 22.4 percent but well above the 2006/07 lows. Production declines are expected to take place in most of Asia's key rice producers, including, China, Philippines, and Thailand.

Most edible oils and meals declined in 2015Q1 (Figure 23). Palm and soybean oil are down 4.4 and 6.4 for the quarter and 20 and 15 percent lower than year ago. Soybean prices are down as well, 6.4 percent for the quarter and 55 lower than a year ago. This broad-based weakness reflects record area expansion in soybeans, with global production projected to reach an all-time peak (11 percent higher than last season), supported by large increases in the United States and South America, where yields will also reach a record high.

The beverage price index declined almost 9 percent in 2015Q1, very close to 2014Q1 levels. The decline has been driven by Arabica coffee, whose prices average 3.54 /kg, down from almost 5/kg a year earlier (Figure 24). The spike in Arabica prices was caused by last year's drought in Brazil. But favorable weather conditions in Brazil, also aided by a sufficient level of consumer stocks point to a rebalancing in the coffee market. Robusta coffee prices have been range-bound at round 2.20/kg for more than a year as production from key suppliers (Vietnam and Indonesia) is expected to be the same as last season. Tea prices (3-auction average), which had been remarkably stable until January, fell slightly in February-March on good supplies, especially by India.

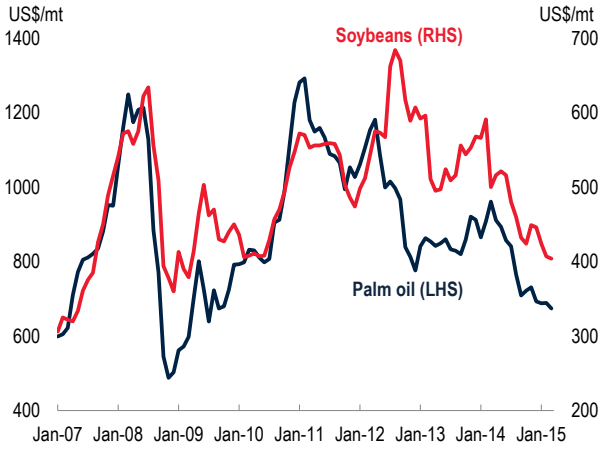
The raw material price index has been somewhat stable during 2015Q1 (declining less than 2 percent versus 2014Q4), but it is more than 12 percent down than a year ago and 35 percent lower than its early 2011 peak (Figure 25). By comparison, the other two industrial commodity indices—energy and metals—have declined by comparable magnitudes since early 2011: 45 and 41 percent. Both natural rubber and cotton markets (key components of the agricultural price index) are well supplied. The former due to high stocks as production has outpaced consumption for the past three years and the latter as 2014/15 will mark the fifth consecutive year in which production exceeds consumption. Global cotton stocks are projected to reach 21.8 million tons this season, close to the expected consumption of 24.1 million tons—most cotton stocks have been accumulated by China. In addition to well-supplied markets, the weakness in the raw material markets reflects the fragile recovery of the global economy, a factor which is also behind the price weakness in the metals and energy markets.

FIGURE 22 Grain prices



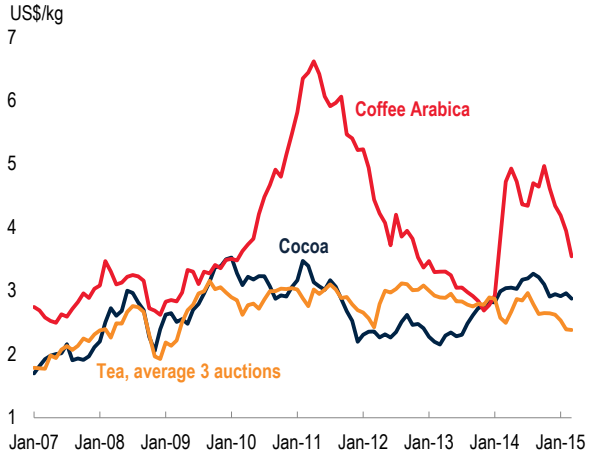
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 23 Edible oil prices



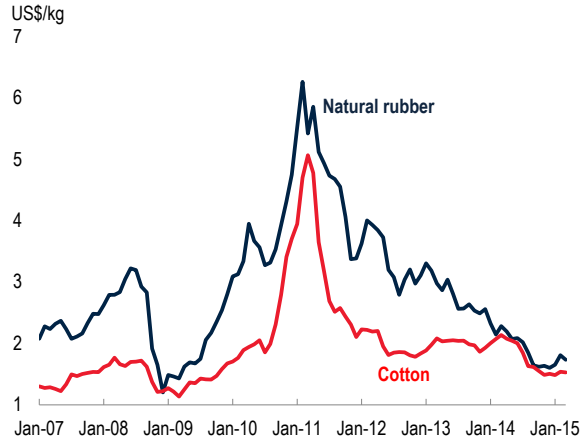
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 24 Beverage prices



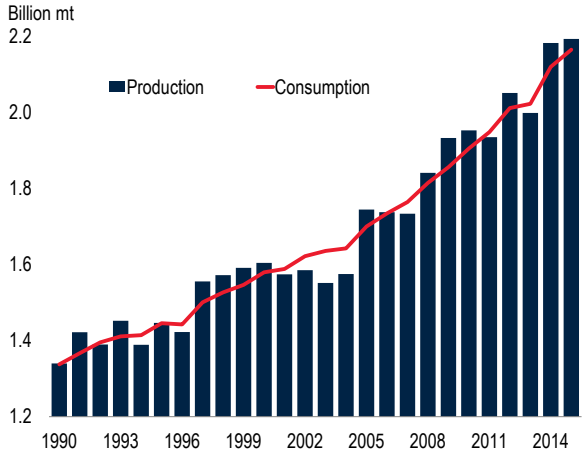
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 25 Raw material prices



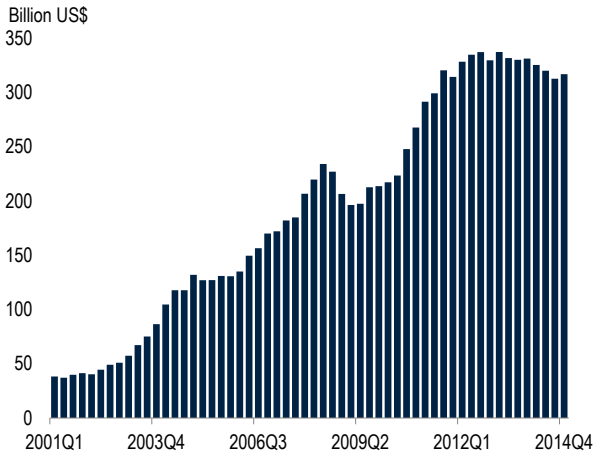
Source: World Bank.
Note: Last observation is March 2015.

FIGURE 26 Global grain production and consumption



Source: U.S. Department of Agriculture (April 2015 update.)

FIGURE 27 Assets under management



Source: Barclayhedge.
Note: Last observation is 2014Q4.

Outlook and risks

Agricultural prices are expected to experience a 9.3 percent decline in 2015, on top of the 3.4 percent decline in 2014. Food commodity prices are expected to decline 7.1 percent. Edible oils and meals are expected to decline the most (15.3 percent down), followed by grains (-7.3 percent), and other food items (-4.5 percent). Among grains, the largest decline will be in wheat (15.8 percent down in 2015) followed by maize (-6.7 percent) and rice (-1.9 percent). Among edible oils and meals, palm oil, soybean oil, and soybeans will decline about 14 percent each. Raw material prices are expected to decline as well, cotton and natural rubber by 13 percent each, and timber by 8 percent.

A number of assumptions, along with associated risks, underpin the agricultural commodity outlook. On crop conditions, it is assumed that the 2014/15 season (which is about to end) will be along normal trends, while no weather surprises will materialize in the next season. In its April assessment (the last for the season), the U.S. Department of Agriculture estimated the 2014/15 season's grain supplies (production plus stocks of maize, wheat, and rice) at 2.68 billion tons, marginally higher than last season's 2.65 billion tons (Figure 26). This level of supplies is deemed adequate to maintain S/U ratios at normal levels, after the historical lows reached a few years ago.

Oil prices are expected to average $53/bbl in 2015 before increasing to $57/bbl in 2016. Fertilizer prices are expected to fall 3.5 percent in 2015 (on top of last year's 11.6 percent decline). Given the high energy intensity of agriculture, low oil prices will hold back the input price pressure that most food commodities experienced during the post-2005 price boom.

The outlook for agricultural prices also assumes that biofuels will continue to play a key role in the behavior of agricultural commodity markets but that the role will become less important than in the recent past. Currently, biofuels account close 1.5 mb/d in energy-equivalent terms, up from 0.4 mb/d a decade ago. Although biofuels will grow over the projection period, the growth will be much slower than earlier assessments, as policy makers are increasingly realizing that their environmental and energy independence benefits may not necessarily outweigh their costs. Lastly, investment fund activity, which was on the rise for almost 15 years, has stabilized at about $320 billion according to Barclayhedge, which tracks developments in the hedge fund industry (Figure 27). The weakness in commodity prices is likely to perpetuate the outflow of funds invested in commodities.

APPENDIX

Historical commodity prices and price forecasts

TABLE A.1 World Bank commodities price data

Commodity	Unit		Annual Averages			Quarterly Averages					Monthly Averages		
			Jan-Dec 2012	Jan-Dec 2013	Jan-Dec 2014	Jan-Mar 2014	Apr-Jun 2014	Jul-Sep 2014	Oct-Dec 2014	Jan-Mar 2015	Jan 2015	Feb 2015	Mar 2015
Energy													
Coal, Australia	$/mt	a/	96.4	84.6	70.1	77.1	72.7	67.9	62.9	61.4	62.1	61.4	60.6
Coal, Colombia	$/mt		84.0	71.9	65.9	68.4	64.8	66.8	63.7	57.3	56.7	57.8	57.6
Coal, South Africa	$/mt		92.9	80.2	72.3	78.4	75.0	70.2	65.8	62.2	62.2	63.3	61.0
Crude oil, average	$/bbl		105.0	104.1	96.2	103.7	106.3	100.4	74.6	51.6	47.1	54.8	52.8
Crude oil, Brent	$/bbl	a/	112.0	108.9	98.9	107.9	109.8	102.1	76.0	53.9	48.1	57.9	55.8
Crude oil, Dubai	$/bbl	a/	108.9	105.4	96.7	104.4	106.1	101.5	74.6	52.2	46.0	55.8	54.9
Crude oil, WTI	$/bbl	a/	94.2	97.9	93.1	98.7	103.1	97.5	73.2	48.6	47.3	50.6	47.8
Natural gas, Index	2010=100		99.2	112.1	111.7	127.8	115.5	102.0	101.6	85.5	90.3	83.1	83.0
Natural gas, Europe	$/mmbtu	a/	11.5	11.8	10.1	11.3	10.2	9.2	9.5	8.6	9.3	8.3	8.3
Natural gas, US	$/mmbtu	a/	2.8	3.7	4.4	5.2	4.6	3.9	3.8	2.9	3.0	2.8	2.8
Natural gas, LNG Japan	$/mmbtu	a/	16.6	16.0	16.0	16.7	16.4	15.4	15.7	14.3	15.1	13.5	14.3
Non Energy Commodities													
Agriculture													
Beverages													
Cocoa	$/kg	b/	2.39	2.44	3.06	2.95	3.08	3.23	2.99	2.92	2.92	2.96	2.88
Coffee, arabica	$/kg	b/	4.11	3.08	4.42	3.82	4.67	4.56	4.64	3.89	4.19	3.94	3.54
Coffee, robusta	$/kg	b/	2.27	2.08	2.22	2.12	2.26	2.22	2.26	2.12	2.16	2.17	2.03
Tea, average	$/kg		2.90	2.86	2.72	2.65	2.80	2.80	2.64	2.44	2.53	2.39	2.38
Tea, Colombo auctions	$/kg	b/	3.06	3.45	3.54	3.72	3.60	3.45	3.38	3.16	3.21	3.14	3.11
Tea, Kolkata auctions	$/kg	b/	2.75	2.73	2.58	1.94	2.81	2.93	2.65	1.83	2.26	1.78	1.46
Tea, Mombasa auctions	$/kg	b/	2.88	2.40	2.05	2.29	1.98	2.01	1.90	2.32	2.13	2.26	2.57
Food													
Oils and Meals													
Coconut oil	$/mt	b/	1,111	941	1,280	1,343	1,387	1,204	1,185	1,147	1,159	1,187	1,096
Copra	$/mt		741	627	854	896	923	805	792	760	764	794	721
Fishmeal	$/mt		1,558	1,747	1,709	1,583	1,693	1,767	1,792	1,715	1,792	1,715	1,638
Groundnuts	$/mt		2,175	1,378	1,296	1,329	1,224	1,276	1,356	1,333	1,350	1,350	1,300
Groundnut oil	$/mt	b/	2,436	1,773	1,313	1,311	1,228	1,345	1,368	1,372	1,391	1,366	1,358
Palm oil	$/mt	b/	999	857	821	911	887	772	715	684	688	689	674
Palmkernel oil	$/mt		1,110	897	1,121	1,278	1,262	988	958	1,048	1,023	1,079	1,043
Soybean meal	$/mt	b/	524	545	528	582	566	493	471	432	452	438	407
Soybean oil	$/mt	b/	1,226	1,057	909	977	967	865	828	774	802	773	747
Soybeans	$/mt	b/	591	538	492	552	518	457	440	412	424	407	404
Grains													
Barley	$/mt	b/	240.3	202.2	137.6	129.5	137.9	130.1	152.8	188.8	188.1	189.1	189.4
Maize	$/mt	b/	298.4	259.4	192.9	209.9	214.0	174.1	173.5	174.2	174.7	173.7	174.2
Rice, Thailand 5%	$/mt	b/	563.0	505.9	422.8	443.7	393.3	433.0	421.3	416.7	420.0	420.0	410.0
Rice, Thailand 25%	$/mt		543.8	473.0	382.2	375.0	351.3	400.0	402.3	397.3	400.0	400.0	392.0
Rice, Thailand A1	$/mt		525.1	474.0	425.1	426.7	397.8	448.6	427.5	415.5	418.6	417.0	411.0
Rice, Vietnam 5%	$/mt		434.4	392.4	407.2	391.2	388.6	435.2	413.8	362.9	374.4	353.5	360.7
Sorghum	$/mt		271.9	243.3	207.2	224.2	219.4	184.3	201.0	237.4	229.6	236.0	246.6
Wheat, US HRW	$/mt	b/	313.2	312.2	284.9	297.1	322.1	262.5	257.9	238.8	248.5	237.2	230.8
Wheat, US SRW	$/mt		295.4	276.7	245.2	264.0	263.7	213.8	239.3	223.4	231.5	219.8	218.8
Other Food													
Bananas, EU	$/kg		1.10	1.02	1.04	1.05	1.14	0.99	0.99	0.92	0.89	0.94	0.93
Bananas, US	$/kg	b/	0.98	0.92	0.93	0.95	0.92	0.94	0.90	0.98	0.91	1.00	1.04
Meat, beef	$/kg	b/	4.14	4.07	4.95	4.23	4.30	5.58	5.68	4.76	5.10	4.63	4.56
Meat, chicken	$/kg	b/	2.08	2.29	2.43	2.31	2.40	2.49	2.51	2.51	2.52	2.51	2.52
Meat, sheep	$/kg		6.09	5.17	6.39	6.32	6.70	6.49	6.05	5.60	5.69	5.71	5.42
Oranges	$/kg	b/	0.87	0.97	0.78	0.78	0.84	0.77	0.74	0.70	0.76	0.70	0.63
Shrimp, Mexico	$/kg		10.06	13.84	17.25	17.09	17.75	18.08	16.08	15.84	16.09	15.76	15.65
Sugar, EU domestic	$/kg	b/	0.42	0.43	0.43	0.45	0.45	0.43	0.41	0.37	0.38	0.37	0.35
Sugar, US domestic	$/kg	b/	0.64	0.45	0.53	0.47	0.55	0.56	0.55	0.54	0.56	0.54	0.53
Sugar, World	$/kg	b/	0.47	0.39	0.37	0.37	0.40	0.38	0.35	0.32	0.34	0.32	0.29

Commodity	Unit		Annual Averages Jan-Dec 2012	Jan-Dec 2013	Jan-Dec 2014	Quarterly Averages Jan-Mar 2014	Apr-Jun 2014	Jul-Sep 2014	Oct-Dec 2014	Jan-Mar 2015	Monthly Averages Jan 2015	Feb 2015	Mar 2015
Raw Materials													
Timber													
Logs, Cameroon	$/cum		451.4	463.5	465.2	479.6	480.0	464.0	437.1	394.8	407.6	397.5	379.2
Logs, Malaysia	$/cum	b/	360.5	305.4	282.0	289.8	291.5	286.5	260.4	249.4	249.4	249.4	249.4
Plywood	¢/sheets		610.3	560.2	517.3	531.5	534.7	525.5	477.6	458.4	461.3	460.2	453.6
Sawnwood, Cameroo	$/cum		759.3	749.2	789.5	792.9	806.5	800.0	758.4	726.3	726.8	734.3	717.9
Sawnwood, Malaysia	$/cum	b/	876.3	852.8	897.9	901.9	917.3	910.0	862.6	826.2	826.7	835.2	816.6
Woodpulp	$/mt		762.8	823.1	876.9	870.2	887.5	875.0	875.0	875.0	875.0	875.0	875.0
Other Raw Materials													
Cotton, A Index	$/kg	b/	1.97	1.99	1.83	2.07	2.04	1.70	1.52	1.52	1.48	1.54	1.53
Rubber, RSS3	$/kg	b/	3.38	2.79	1.96	2.25	2.12	1.84	1.62	1.73	1.65	1.81	1.74
Rubber, TSR20	$/kg		3.16	2.52	1.71	1.98	1.73	1.63	1.51	1.42	1.42	1.41	1.43
Fertilizers													
DAP	$/mt	b/	539.8	444.9	472.5	476.1	458.9	495.3	459.6	482.8	484.3	485.3	479.0
Phosphate rock	$/mt	b/	185.9	148.1	110.2	104.4	109.8	111.7	115.0	115.0	115.0	115.0	115.0
Potassium chloride	$/mt	b/	459.0	379.2	297.2	314.0	287.0	287.0	300.6	305.1	305.2	305.0	305.0
TSP	$/mt	b/	462.0	382.1	388.3	365.9	369.2	413.0	405.3	400.0	400.0	400.0	400.0
Urea, E. Europe	$/mt	b/	405.4	340.1	316.2	337.5	296.0	316.4	314.9	295.7	319.2	297.0	271.0
Metals and Minerals													
Aluminum	$/mt	b/	2,023	1,847	1,867	1,709	1,800	1,990	1,970	1,802	1,815	1,818	1,774
Copper	$/mt	b/	7,962	7,332	6,863	7,030	6,795	6,996	6,632	5,833	5,831	5,729	5,940
Iron ore	$/dmt	b/	128	135	97	120	103	90	74	63	68	63	58
Lead	$/mt	b/	2,065	2,140	2,095	2,101	2,097	2,182	2,001	1,810	1,843	1,796	1,792
Nickel	$/mt	b/	17,548	15,032	16,893	14,661	18,468	18,584	15,860	14,393	14,849	14,574	13,756
Tin	$/mt	b/	21,126	22,283	21,899	22,636	23,146	21,915	19,898	18,370	19,454	18,234	17,422
Zinc	$/mt	b/	1,950	1,910	2,161	2,026	2,071	2,311	2,235	2,080	2,113	2,098	2,029
Precious Metals													
Gold	$/toz	c/	1,670	1,411	1,266	1,293	1,289	1,281	1,199	1,219	1,251	1,227	1,179
Platinum	$/toz	c/	1,551	1,487	1,384	1,427	1,446	1,433	1,228	1,193	1,242	1,197	1,139
Silver	$/toz	c/	31.1	23.8	19.1	20.5	19.7	19.7	16.5	16.8	17.2	16.8	16.2
World Bank commodity price indices for low and middle income countries (2010=100)													
Energy			127.6	127.4	118.3	128.3	129.6	121.6	93.7	67.3	63.1	70.5	68.3
Non Energy Commodities			109.5	101.7	97.0	99.1	99.3	96.8	92.7	86.8	88.3	86.9	85.0
Agriculture			114.5	106.3	102.7	105.5	106.6	101.2	97.7	92.9	94.6	93.3	90.8
Beverages			92.6	83.3	101.8	94.5	104.8	105.3	102.4	93.4	96.7	94.3	89.2
Food			124.5	115.6	107.4	111.8	111.5	104.5	101.7	96.5	98.9	96.6	94.1
Fats and Oils			126.1	115.9	109.0	120.1	116.1	102.3	97.5	91.4	94.0	91.8	88.4
Grains			141.3	128.2	103.9	110.1	110.9	97.7	96.9	95.4	96.8	95.3	94.1
Other Food			107.1	103.9	108.4	102.4	105.9	113.4	111.7	104.3	107.2	104.0	101.6
Raw Materials			101.3	95.4	91.9	95.6	95.6	91.1	85.5	84.0	83.3	84.9	83.7
Timber			109.1	102.6	104.9	105.8	107.4	106.3	99.9	95.7	95.7	96.5	94.8
Other Raw Materials			92.8	87.6	77.8	84.3	82.6	74.5	69.7	71.2	69.7	72.2	71.7
Fertilizers			137.6	113.7	100.5	102.5	95.8	101.5	102.1	99.3	102.7	99.5	95.8
Metals and Minerals			96.1	90.8	84.8	85.7	84.9	87.1	81.4	72.7	73.8	72.4	71.8
Base Metals		d/	98.0	90.3	89.0	86.5	88.3	92.9	88.5	79.5	80.1	79.2	79.2
Precious Metals			138.5	115.1	101.1	104.3	103.3	102.8	94.2	95.6	98.2	96.2	92.4

Sources: Bloomberg, Cotton Outlook, Datastream, Fertilizer Week, INFOFISH, INTERFEL Fel Actualités hebdo, International Cocoa Organization, International Coffee Organization, International Rubber Study Group, International Tea Committee, International Tropical Timber Organization, Internatonal Sugar Organization, ISTA Mielke GmbH Oil World, Japan Lumber Journal, MLA Meat & Livestock Weekly, Platts International Coal Report, Singapore Commodity Exchange, Sopisco News, Sri Lanka Tea Board, US Department of Agriculture, US NOAA Fisheries Service, World Gas Intelligence.

Notes: a/ Included in the energy index, b/ Included in the non-energy index, c/ Included in the precious metals index, d/ Metals and Minerals exluding iron ore.

Abbreviations: $ = US dollar bbl = barrel cum = cubic meter dmt = dry metric ton kg = kilogram mmbtu = million British thermal units
mt = metric ton toz = troy oz .. = not available

TABLE A.2 World Bank commodities price forecast in nominal U.S. dollars

Commodity	Unit	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Energy														
Coal, Australia	$/mt	84.6	70.1	62.0	64.4	66.8	69.3	72.0	74.7	77.5	80.5	83.5	86.7	90.0
Crude oil, avg, spot	$/bbl	104.1	96.2	53.2	57.2	61.1	65.2	69.6	74.3	79.3	84.7	90.5	96.8	103.4
Natural gas, Europe	$/mmbtu	11.8	10.1	8.5	8.6	8.8	8.9	9.1	9.2	9.4	9.5	9.7	9.8	10.0
Natural gas, US	$/mmbtu	3.7	4.4	3.0	3.2	3.5	3.8	4.1	4.4	4.8	5.2	5.6	6.0	6.5
Natural gas LNG, Japan	$/mmbtu	16.0	16.0	12.0	12.2	12.4	12.6	12.8	13.0	13.2	13.4	13.6	13.8	14.0
Non Energy Commodities														
Agriculture														
Beverages														
Cocoa	$/kg	2.4	3.1	2.9	2.8	2.7	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.2
Coffee, Arabica	$/kg	3.1	4.4	3.8	3.8	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.5	3.5
Coffee, robusta	$/kg	2.1	2.2	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8
Tea, avg, 3 auctions	$/kg	2.9	2.7	2.7	2.7	2.8	2.8	2.9	2.9	3.0	3.0	3.1	3.1	3.2
Food														
Oils and Meals														
Coconut oil	$/mt	941	1,280	1,150	1,122	1,095	1,068	1,043	1,017	993	969	945	922	900
Groundnut oil	$/mt	1,773	1,313	1,400	1,440	1,480	1,522	1,565	1,609	1,655	1,702	1,750	1,799	1,850
Palm oil	$/mt	857	821	700	709	719	729	738	748	758	769	779	789	800
Soybean meal	$/mt	545	528	430	435	440	444	449	454	459	464	470	475	480
Soybean oil	$/mt	1,057	909	780	800	820	840	862	883	905	928	952	975	1,000
Soybeans	$/mt	538	492	420	429	438	448	457	467	477	488	498	509	520
Grains														
Barley	$/mt	202.2	137.6	170.0	171.0	172.0	172.9	173.9	174.9	175.9	176.9	178.0	179.0	180.0
Maize	$/mt	259.4	192.9	180.0	183.6	187.4	191.2	195.0	199.0	203.0	207.1	211.3	215.6	220.0
Rice, Thailand, 5%	$/mt	505.9	422.8	415.0	411.4	407.8	404.2	400.6	397.1	393.6	390.2	386.8	383.4	380.0
Wheat, US, HRW	$/mt	312.2	284.9	240.0	243.3	246.6	250.0	253.4	256.9	260.4	264.0	267.6	271.3	275.0
Other Food														
Bananas, EU	$/kg	0.92	0.93	0.98	0.97	0.97	0.96	0.96	0.95	0.94	0.94	0.93	0.93	0.92
Meat, beef	$/kg	4.07	4.95	4.70	4.65	4.60	4.54	4.49	4.44	4.39	4.34	4.30	4.25	4.20
Meat, chicken	$/kg	2.29	2.43	2.40	2.36	2.31	2.27	2.23	2.19	2.15	2.11	2.07	2.04	2.00
Oranges	$/kg	0.97	0.78	0.70	0.72	0.74	0.77	0.79	0.82	0.84	0.87	0.89	0.92	0.95
Shrimp, Mexico	$/kg	13.84	17.25	16.00	15.67	15.35	15.03	14.72	14.42	14.13	13.84	13.55	13.27	13.00
Sugar, World	$/kg	0.39	0.37	0.33	0.33	0.34	0.34	0.35	0.35	0.36	0.36	0.37	0.37	0.38
Raw Materials														
Timber														
Logs, Cameroon	$/cum	463.5	465.2	400.0	411.4	423.2	435.2	447.7	460.4	473.6	487.1	501.0	515.3	530.0
Logs, Malaysia	$/cum	305.4	282.0	255.0	263.9	273.2	282.8	292.7	303.0	313.6	324.6	336.0	347.8	360.0
Sawnwood, Malaysia	$/cum	852.8	897.9	830.0	852.1	874.9	898.2	922.2	946.8	972.0	998.0	1,024.6	1,051.9	1,080.0
Other Raw Materials														
Cotton A Index	$/kg	1.99	1.83	1.60	1.65	1.71	1.76	1.82	1.88	1.94	2.00	2.06	2.13	2.20
Rubber, Malaysian	$/kg	2.79	1.96	1.70	1.77	1.85	1.93	2.01	2.10	2.19	2.29	2.39	2.49	2.60
Tobacco	$/mt	4,589	4,991	4,800	4,747	4,696	4,644	4,593	4,543	4,493	4,444	4,396	4,348	4,300
Fertilizers														
DAP	$/mt	444.9	472.5	470.0	466.9	463.8	460.8	457.8	454.8	451.8	448.8	445.8	442.9	440.0
Phosphate rock	$/mt	148.1	110.2	110.0	107.8	105.7	103.6	101.5	99.5	97.5	95.6	93.7	91.8	90.0
Potassium chloride	$/mt	379.2	297.2	300.0	301.0	302.0	303.0	304.0	305.0	306.0	307.0	308.0	309.0	310.0
TSP	$/mt	382.1	388.3	390.0	385.8	381.7	377.5	373.5	369.5	365.5	361.5	357.7	353.8	350.0
Urea, E. Europe, bulk	$/mt	340.1	316.2	290.0	289.0	288.0	287.0	286.0	285.0	284.0	283.0	282.0	281.0	280.0
Metals and Minerals														
Aluminum	$/mt	1,847	1,867	1,850	1,878	1,906	1,935	1,965	1,994	2,025	2,055	2,086	2,118	2,150
Copper	$/mt	7,332	6,863	5,900	5,984	6,070	6,157	6,245	6,334	6,425	6,516	6,610	6,704	6,800
Iron ore	$/dmt	135.4	96.9	63.0	66.6	70.4	74.5	78.7	83.2	88.0	93.1	98.4	104.0	110.0
Lead	$/mt	2,140	2,095	1,800	1,853	1,907	1,962	2,020	2,078	2,139	2,202	2,266	2,332	2,400
Nickel	$/mt	15,032	16,893	14,200	14,541	14,890	15,247	15,613	15,987	16,371	16,764	17,166	17,578	18,000
Tin	$/mt	22,283	21,899	18,400	18,815	19,240	19,674	20,118	20,572	21,036	21,511	21,996	22,492	23,000
Zinc	$/mt	1,910	2,161	2,010	2,054	2,100	2,146	2,193	2,242	2,291	2,342	2,393	2,446	2,500
Precious Metals														
Gold	$/toz	1,411	1,266	1,240	1,225	1,211	1,196	1,182	1,168	1,154	1,140	1,127	1,113	1,100
Silver	$/toz	23.8	19.1	17.5	17.8	18.1	18.5	18.8	19.2	19.5	19.9	20.2	20.6	21.0
Platinum	$/toz	1,487	1,384	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

Next update: July 2015.

TABLE A.3 World Bank commodities price forecast in real 2010 U.S. dollars

Commodity	Unit	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Energy														
Coal, Australia	$/mt	79.7	66.2	58.7	59.8	61.0	62.4	63.7	65.1	66.5	67.9	69.3	70.7	72.2
Crude oil, avg, spot	$/bbl	98.1	90.9	50.3	53.1	55.8	58.6	61.6	64.8	68.0	71.5	75.1	79.0	83.0
Natural gas, Europe	$/mmbtu	11.1	9.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Natural gas, US	$/mmbtu	3.5	4.1	2.8	3.0	3.2	3.4	3.6	3.8	4.1	4.3	4.6	4.9	5.2
Natural gas LNG, Japan	$/mmbtu	15.0	15.1	11.4	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.2	11.2
Non Energy Commodities														
Agriculture														
Beverages														
Cocoa	$/kg	2.30	2.89	2.70	2.58	2.47	2.37	2.28	2.18	2.09	2.01	1.92	1.84	1.76
Coffee, Arabica	$/kg	2.90	4.18	3.60	3.50	3.42	3.33	3.26	3.18	3.10	3.03	2.95	2.88	2.81
Coffee, robusta	$/kg	1.96	2.09	1.99	1.92	1.86	1.80	1.75	1.69	1.64	1.59	1.54	1.49	1.44
Tea, avg, 3 auctions	$/kg	2.70	2.57	2.51	2.51	2.52	2.52	2.53	2.54	2.55	2.55	2.56	2.56	2.57
Food														
Fats and Oils														
Coconut oil	$/mt	887	1,209	1,088	1,043	1,001	961	923	887	851	817	784	753	722
Groundnut oil	$/mt	1,672	1,240	1,325	1,337	1,353	1,369	1,386	1,402	1,419	1,436	1,452	1,468	1,484
Palm oil	$/mt	808	776	663	659	657	655	654	652	650	649	646	644	642
Soybean meal	$/mt	514	499	407	404	402	400	398	396	394	392	390	387	385
Soybean oil	$/mt	996	859	738	743	749	756	763	770	777	783	790	796	802
Soybeans	$/mt	508	464	398	399	401	403	405	407	409	412	413	415	417
Grains														
Barley	$/mt	190.6	129.9	160.9	158.8	157.2	155.6	154.0	152.4	150.9	149.3	147.7	146.0	144.4
Maize	$/mt	244.6	182.2	170.4	170.6	171.2	172.0	172.7	173.4	174.1	174.8	175.4	175.9	176.4
Rice, Thailand, 5%	$/mt	477.0	399.4	392.8	382.2	372.7	363.6	354.7	346.1	337.6	329.2	320.9	312.8	304.8
Wheat, US, HRW	$/mt	294.4	269.1	227.2	226.0	225.4	224.9	224.4	223.9	223.4	222.8	222.1	221.3	220.6
Other Food														
Bananas, EU	$/kg	0.87	0.88	0.93	0.90	0.88	0.86	0.85	0.83	0.81	0.79	0.77	0.76	0.74
Meat, beef	$/kg	3.84	4.67	4.45	4.32	4.20	4.09	3.98	3.87	3.77	3.67	3.56	3.47	3.37
Meat, chicken	$/kg	2.16	2.29	2.27	2.19	2.11	2.04	1.98	1.91	1.85	1.78	1.72	1.66	1.60
Oranges	$/kg	0.91	0.74	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76
Shrimp, Mexico	$/kg	13.05	16.29	15.14	14.56	14.03	13.52	13.04	12.57	12.12	11.67	11.25	10.83	10.43
Sugar, World	$/kg	0.37	0.35	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.30
Raw Materials														
Timber														
Logs, Cameroon	$/cum	437.1	439.3	378.6	382.2	386.7	391.5	396.3	401.2	406.2	411.0	415.7	420.4	425.1
Logs, Malaysia	$/cum	288.0	266.4	241.4	245.2	249.7	254.4	259.2	264.0	269.0	273.9	278.8	283.8	288.7
Sawnwood, Malaysia	$/cum	804.1	848.1	785.6	791.7	799.6	807.9	816.5	825.1	833.7	842.1	850.3	858.3	866.2
Other Raw Materials														
Cotton A Index	$/kg	1.88	1.73	1.51	1.53	1.56	1.58	1.61	1.63	1.66	1.69	1.71	1.74	1.76
Rubber, Malaysian	$/kg	2.63	1.85	1.61	1.65	1.69	1.74	1.78	1.83	1.88	1.93	1.98	2.03	2.09
Tobacco	$/mt	4,327	4,714	4,543	4,411	4,291	4,177	4,067	3,959	3,854	3,750	3,648	3,547	3,449
Fertilizers														
DAP	$/mt	419.5	446.3	444.9	433.8	423.9	414.5	405.3	396.3	387.5	378.7	370.0	361.4	352.9
Phosphate rock	$/mt	139.7	104.1	104.1	100.2	96.6	93.2	89.9	86.7	83.6	80.7	77.7	74.9	72.2
Potassium chloride	$/mt	357.5	280.7	284.0	279.6	276.0	272.5	269.1	265.8	262.4	259.0	255.6	252.1	248.6
TSP	$/mt	360.2	366.8	369.1	358.4	348.8	339.6	330.7	322.0	313.5	305.1	296.8	288.7	280.7
Urea, E. Europe, bulk	$/mt	320.7	298.7	274.5	268.5	263.2	258.1	253.2	248.3	243.5	238.8	234.0	229.3	224.6
Metals and Minerals														
Aluminum	$/mt	1,741	1,764	1,751	1,745	1,742	1,741	1,739	1,738	1,736	1,734	1,731	1,728	1,724
Copper	$/mt	6,913	6,482	5,584	5,560	5,548	5,538	5,529	5,520	5,510	5,498	5,485	5,470	5,454
Iron ore	$/dmt	127.6	91.6	59.6	61.9	64.4	67.0	69.7	72.5	75.5	78.5	81.7	84.9	88.2
Lead	$/mt	2,018	1,979	1,704	1,721	1,743	1,765	1,788	1,811	1,835	1,858	1,880	1,903	1,925
Nickel	$/mt	14,173	15,955	13,441	13,509	13,608	13,715	13,823	13,932	14,041	14,145	14,245	14,342	14,437
Tin	$/mt	21,010	20,683	17,416	17,480	17,584	17,697	17,812	17,927	18,042	18,150	18,253	18,352	18,447
Zinc	$/mt	1,801	2,041	1,902	1,909	1,919	1,930	1,942	1,953	1,965	1,976	1,986	1,996	2,005
Precious Metals														
Gold	$/toz	1,331	1,195	1,174	1,138	1,106	1,076	1,046	1,018	990	962	935	908	882
Silver	$/toz	22.5	18.0	16.6	16.6	16.6	16.6	16.7	16.7	16.7	16.8	16.8	16.8	16.8
Platinum	$/toz	1,402	1,307	1,136	1,115	1,097	1,079	1,062	1,046	1,029	1,013	996	979	962

Next update: July 2015.

TABLE A.4 World Bank indices of commodity prices and inflation, 2010 = 100

Commodity	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Price indices in nominal US dollars (2010=100)													
Energy	127.4	118.3	69.0	73.7	78.5	83.5	88.8	94.5	100.5	107.0	114.0	121.5	129.6
Non-energy commodities	101.7	97.0	87.1	88.1	89.1	90.2	91.4	92.6	93.8	95.0	96.3	97.7	99.1
Agriculture	106.3	102.7	93.2	94.0	94.9	95.9	96.8	97.9	98.9	100.0	101.1	102.2	103.4
Beverages	83.3	101.8	93.0	92.0	91.0	90.1	89.2	88.4	87.5	86.7	85.9	85.2	84.5
Food	115.6	107.4	96.9	97.7	98.5	99.3	100.2	101.1	102.0	102.9	103.8	104.7	105.7
Fats and oils	115.9	109.0	92.4	93.8	95.2	96.7	98.1	99.7	101.2	102.8	104.4	106.1	107.7
Grains	128.2	103.9	96.3	97.2	98.2	99.2	100.3	101.4	102.5	103.6	104.7	105.9	107.1
Other food	103.9	108.4	103.5	103.3	103.1	102.9	102.8	102.8	102.5	102.3	102.1	101.9	101.8
Raw materials	95.4	91.9	84.2	86.2	88.2	90.4	92.6	94.9	97.2	99.7	102.2	104.8	107.5
Timber	102.6	104.9	96.5	99.2	102.1	105.0	107.9	111.0	114.2	117.4	120.8	124.2	127.8
Other Raw Materials	87.6	77.8	70.7	71.9	73.1	74.4	75.8	77.2	78.7	80.2	81.9	83.6	85.4
Fertilizers	113.7	100.5	96.9	96.3	95.7	95.1	94.5	93.9	93.3	92.8	92.2	91.7	91.1
Metals and minerals a/	90.8	84.8	73.4	74.9	76.5	78.1	79.8	81.5	83.3	85.2	87.1	89.0	91.0
Base Metals b/	90.3	89.0	80.4	81.7	83.1	84.4	85.8	87.2	88.7	90.1	91.6	93.1	94.7
Precious Metals	115.1	101.1	97.6	97.0	96.4	95.8	95.2	94.6	94.1	93.5	93.0	92.5	92.0
Price indices in real 2010 US dollars (2010=100) c/													
Energy	120.1	111.7	65.3	68.5	71.7	75.1	78.6	82.3	86.2	90.3	94.6	99.2	103.9
Non-energy commodities	95.9	91.6	82.4	81.8	81.5	81.2	80.9	80.7	80.4	80.2	79.9	79.7	79.5
Agriculture	100.2	97.0	88.2	87.4	86.8	86.2	85.7	85.3	84.8	84.3	83.9	83.4	82.9
Beverages	78.5	96.1	88.0	85.5	83.2	81.1	79.0	77.0	75.1	73.2	71.3	69.5	67.8
Food	109.0	101.4	91.7	90.8	90.0	89.4	88.7	88.1	87.4	86.8	86.1	85.4	84.8
Fats and oils	109.3	103.0	87.4	87.1	87.0	86.9	86.9	86.8	86.8	86.7	86.6	86.5	86.4
Grains	120.9	98.1	91.1	90.3	89.8	89.3	88.8	88.3	87.9	87.4	86.9	86.4	85.9
Other food	98.0	102.4	97.9	95.9	94.2	92.6	91.0	89.5	87.9	86.3	84.7	83.1	81.6
Raw materials	90.0	86.8	79.7	80.1	80.6	81.3	82.0	82.7	83.4	84.1	84.8	85.5	86.3
Timber	96.7	99.0	91.3	92.2	93.3	94.4	95.6	96.7	97.9	99.1	100.2	101.4	102.5
Other Raw Materials	82.6	73.5	67.0	66.8	66.8	66.9	67.1	67.3	67.5	67.7	67.9	68.2	68.5
Fertilizers	107.2	94.9	91.8	89.5	87.5	85.5	83.7	81.8	80.1	78.3	76.5	74.8	73.1
Metals and minerals a/	85.6	80.1	69.5	69.6	69.9	70.3	70.7	71.1	71.5	71.9	72.2	72.6	73.0
Base Metals b/	85.2	84.1	76.1	75.9	75.9	75.9	76.0	76.0	76.0	76.1	76.0	76.0	75.9
Precious Metals	108.5	95.5	92.4	90.1	88.1	86.2	84.3	82.5	80.7	78.9	77.2	75.5	73.8
Inflation indices, 2010=100 d/													
MUV index e/	106.1	105.9	105.7	107.6	109.4	111.2	112.9	114.8	116.6	118.5	120.5	122.6	124.7
% change per annum	-1.4	-0.2	-0.2	1.9	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7
US GDP deflator	105.4	106.9	108.5	110.7	113.0	115.3	117.6	120.0	122.4	124.9	127.4	130.0	132.6
% change per annum	1.5	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Notes:
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 2013-2025 are projections
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).

Next update: July 2015.

Description of Price Series

ENERGY

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 kc/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.

NON ENERGY COMMODITIES

BEVERAGES

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.

OILS AND MEALS

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.

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

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.

GRAINS

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 (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.

OTHER FOOD

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.

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.

TIMBER

Logs (West Africa), sapele, high quality (loyal and marchand), 80 centimeter or more, f.o.b. Douala, Cameroon beginning January 1996; previously of unspecified dimension.

Logs (Malaysia), meranti, Sarawak, sale price charged by importers, Tokyo beginning February 1993; previously average of Sabah and Sarawak weighted by Japanese import volumes.

Plywood (Africa and Southeast Asia), Lauan, 3-ply, extra, 91 cm x 182 cm x 4 mm, wholesale price, spot Tokyo.

Sawnwood (Cameroon), sapele, width 6 inches or more, length 6 feet or more, f.a.s. Cameroonian ports.

Sawnwood (Malaysia), dark red seraya/meranti, select and better quality, average 7 to 8 inches; length average 12 to 14 inches; thickness 1 to 2 inch(es); kiln dry, c. & f. UK ports, with 5% agents commission including premium for products

of certified sustainable forest beginning January 2005; previously excluding the premium.

Woodpulp (Sweden), softwood, sulphate, bleached, air-dry weight, c.i.f. North Sea ports.

OTHER RAW MATERIALS

Cotton (Cotton Outlook "CotlookA index"), middling 1-3/32 inch, traded in Far East, C/F beginning 2006; previously Northern Europe, c.i.f.

Rubber (Asia), RSS3 grade, Singapore Commodity Exchange Ltd (SICOM) nearby contract beginning 2004; during 2000 to 2003, Singapore RSS1; previously Malaysia RSS1.

Rubber (Asia), TSR 20, Technically Specified Rubber, SICOM nearby contract.

FERTILIZERS

DAP (diammonium phosphate), standard size, bulk, spot, f.o.b. US Gulf.

Phosphate rock (Morocco), 70% BPL, contract, f.a.s. Casablanca.

Potassium chloride (muriate of potash), standard grade, spot, f.o.b. Vancouver.

TSP (triple superphosphate), bulk, spot, beginning October 2006, Tunisian origin, granular, fob; previously US origin, f.o.b. US Gulf.

Urea (Black Sea), bulk, spot, f.o.b. Black Sea (primarily Yuzhnyy) beginning July 1991; for 1985-91 (June) f.o.b. Eastern Europe.

METALS AND MINERALS

Aluminum (LME) London Metal Exchange, unalloyed primary ingots, high grade, minimum 99.7% purity, settlement price beginning 2005; previously cash price.

Copper (LME), grade A, minimum 99.9935% purity, cathodes and wire bar shapes, settlement price.

Iron ore (any origin) fines, spot price, c.f.r. China, 62% Fe beginning December 2008; previously 63.5%.

Lead (LME), refined, 99.97% purity, settlement price.

Nickel (LME), cathodes, minimum 99.8% purity, settlement price beginning 2005; previously cash price.

Tin (LME), refined, 99.85% purity, settlement price.

Zinc (LME), high grade, minimum 99.95% purity, settlement price beginning April 1990; previously special high grade, minimum 99.995%, cash prices.

PRECIOUS METALS

Gold (UK), 99.5% fine, London afternoon fixing, average of daily rates.

Platinum (UK), 99.9% refined, London afternoon fixing.

Silver (UK), 99.9% refined, London afternoon fixing; prior to July 1976 Handy & Harman. Grade prior to 1962 unrefined silver.

The decline in commodity prices that began with metals and agriculture four years ago—joined by crude oil in mid-2014—continued in 2015Q1. Increasing supplies, bumper harvests, weak demand and a stronger U.S. dollar contributed to the declines. The weakness is expected to continue for the rest of the year with all key price indices registering declines in 2015 before recovering moderately in 2016. This issue's *Special Focus* section examines the four episodes of oil price crashes since 1970 and finds that the 2014-15 and 1985-86 crashes were driven mostly by supply related factors, while the other two were associated with the First Gulf War and 2008 financial crises, respectively.

The World Bank's Commodity Markets Outlook is published quarterly, in January, April, July, and October. The report provides detailed market analysis for major commodity groups, including energy, metals, agriculture, precious metals, and fertilizers. Price forecasts to 2025 for 46 commodities are also presented, together with historical price data. Commodity price data updates are published separately at the beginning of each month.

The report and data can be accessed at:

www.worldbank.org/commodities.

WORLD BANK GROUP