Commodity Market Monthly

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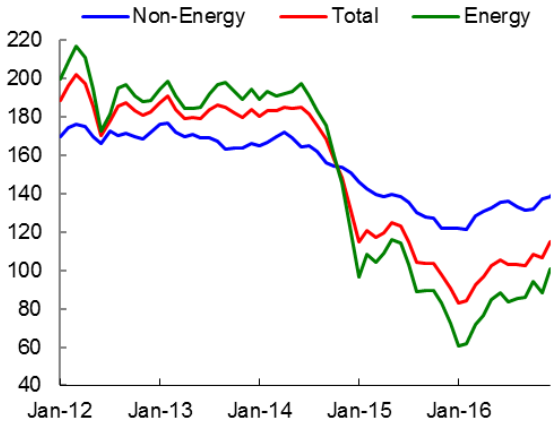
Commodity prices increased by 2.3 percent in January 2017. (Figure 1.) This increase in the IMF's commodity price index was largely driven by food and beverage prices, which increased 4.8 and 2.5 percent, respectively. Energy, metal, and agricultural raw materials saw more modest increases, at 1.5, 1.8, and 1.8 percent respectively. Throughout 2016, commodity prices climbed 26 percent, led by a 44 percent surge in crude oil prices, followed by increases in metals and agricultural prices of 34 and 7 percent, respectively. Global nominal investment in renewable energies fell by 18 percent in 2016.

Figure 1

IMF Commodity Price Indices

(2005 = 100)

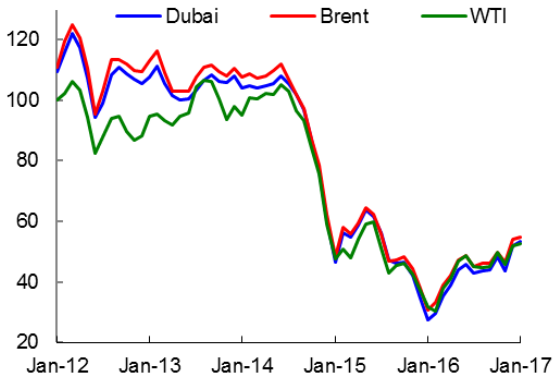


Energy

Monthly average crude oil prices increased 1.9 percent in December to $53.63/bbl. During the month of January (from the end of December to the end of January), Average Petroleum Spot Price (simple average of U.K. Brent, Dubai Fateh, and West Texas Intermediate; APSP) decreased 1.6 percent. The APSP was extremely stable throughout January, remaining between $52/bbl and $55/bbl. (Figure 2.)

Figure 2

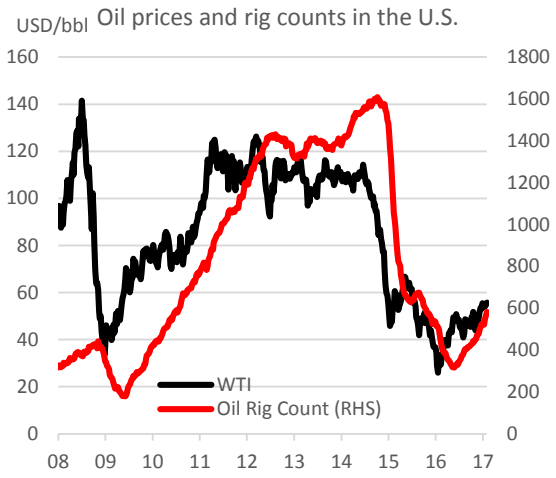
Crude Oil Prices ($/barrel)



After OPEC members agreed to cut production in November 2016, spot oil prices increased while the future curve flattened. This implies that shale producers sold within the $50-55/bbl range to lock in the profit. After hitting a trough in January 2016, oil prices increased 79 percent by January 2017. The U.S. rig count, which responds to oil prices with a delay, had hit bottom in May 2016

and has since recovered. The lag between oil prices and investment by U.S. shale producers is shrinking, and actual production is responding quickly as well. (Figure 3.) The U.S. Energy Information Administration has been continuously revising upwards its crude oil production of the U.S. for 2017.

Figure 3

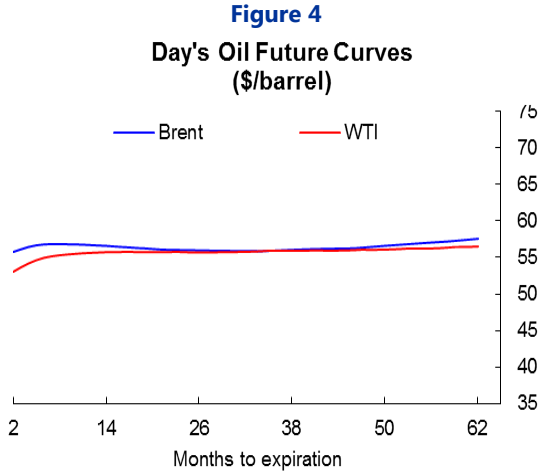


OPEC oil production in January has indeed decreased by more than 1 million barrels per day (mbd), but fell short of reaching the agreed-upon cut by third. This is partly because many countries did not meet their target (over producing by 10 percent) and partly because Libya and Nigeria, exempt from the agreement, increased their production significantly. In addition, non-OPEC producers who agreed to limit their production will do so more slowly, complying at the end of the first half of 2017.

On the demand side, the International Energy Agency (IEA) revised its oil demand growth projection/estimate for 2016 upwards, three months in a row, to 1.6 mbd on account of strong Q4 data. With strong consumption in Q4, the oil market was temporarily in deficit (with demand exceeding supply). The IEA forecasts that growth will slow to 1.4 mbd in 2017. A slowdown in China or India may have significant effects on oil demand as they account for roughly a quarter of overall demand growth.

After hitting a record low of $42.84 in 2016, futures contracts point to oil prices (APSP) increasing very gradually to $55.19 in 2017 (compared to the current IMF baseline of $54.92) and $55.60 in 2018 (compared to current IMF baseline of $55.66). Future curves are almost flat for the next 5 years. (Figure 4.)

Figure 4



Average monthly natural gas prices in the U.S. decreased by 9.8 percent from an average of $3.58/MMBtu in December 2016 to an average of $3.26/MMBtu in January 2017. Daily prices decreased 2.8 percent from $3.68 at the end of December to $3.00 at the end of January due to milder than forecasted weather. In Europe, long-term contract prices (Russian Natural Gas border price in Germany) have marginally decreased 0.4 percent to $5.16/MMBtu; however, spot prices have increased sharply by 15.5 percent in January due to cold weather. LNG spot prices in Asia have decreased in January as winter needs have mostly been met in December.

Coal prices in Australia have decreased by 2.6 percent as the supply disruptions have resolved and demand from China seems to have stabilized.

Coal prices are expected to decline further in 2017. While the U.S. administration plans to relax regulation regarding coal usage in power plants, power companies seem to be taking the long view and so are sticking to natural gas and renewables. Thus, coal demand is expected to stay weak in the U.S. On the other hand, the recent rebound of natural gas prices make it potentially cheaper to use coal in the short run.

Metals

Base Metals

The IMF metal price index (based on 8 base metals in Table 1) increased 1.8 percent from December 2016 to January 2017. This increase was largely driven by uranium, which surged 15.8 percent month-on-month. Except for tin and nickel, which fell 2.4 and 8.9 percent respectively, base metals saw modest increases ranging from 1.5 percent (lead) to 3.5 percent (aluminum).

Table 1
Current Base Metal Prices and % changes
(as of January 31, 2017)

Metal	Price ($)	% change	
		Month-on-Month	Year-to-Date
Copper	5,994	1.7	8.5
Aluminum	1,815	3.5	6.5
Tin	19,783	-2.4	-6.7
Nickel	9,900	-8.9	-0.6
Zinc	2,853	2.0	11.5
Lead	2,371	1.5	18.6
Iron Ore	83.5	1.8	4.4
Uranium	24.65	15.8	20.8

Sources: London Metal Exchange (Copper, aluminum, tin, nickel, zinc, and lead); DataStream CIF China United States (FE63.5%, iron ore); and New York Mercantile Exchange (uranium).

On the demand side, China—which accounts for half of global metal demand—is a major driver behind metal prices. For example, during the Chinese New Year holiday, which this year fell on Saturday, January 28, marked a lull in metal trading that was visible on Monday, January 30, when turnover in benchmark three-month copper futures fell to less than half of the daily average trading volume of last year.

The announcement following the U.S. election by then President-elect Trump of a $1 trillion infrastructure plan (over 10 years) provided a further boost to metal prices. However, in the global context, the impact on world metal demand is likely to be modest. In 2015, the US accounted for only 8 percent of global refined copper demand (World Bureau of Metal Statistics) and 3 percent of iron ore demand (World Steel Association).

On the supply side, various constraints, declining investment and closure of high-cost and high-polluting mines have driven price increases in iron ore, nickel, tin, zinc and copper; however, overall excess capacity will probably put downward pressure on prices in many base metals. In January 2017, Indonesia—one of the world's largest nickel producers—relaxed its export ban on nickel ore and bauxite. This partly offsets the drop in supply due to the Philippines' closure of its mines over environmental concerns. On February 2, the Philippines ordered the closure of 21 mines and an additional 7 others could be suspended. The recently closed nickel mines constitute half of the Philippines' annual output. Nickel prices rose sharply following news of this latest round of closures.

Copper prices have continued their upward trajectory in January 2017, increasing 1.7 percent month-on-month. Daily prices increased 8.5 percent from the end of December 2016 to the end of January 2016. This price increase was driven by falling inventories and expectations of higher demand. Nonetheless, the market remains

in surplus, mainly due to increases in new capacity especially in Peru. On February 9, 2017, workers at Chile's Escondida, the world's largest copper mine supplying 5 percent of the world's copper production, went on strike. This, together with a supply disruption at Indonesia's Grasberg (the world's second largest mine), has the potential to erode supplies just as prices recover to the highest level since June 2015. With stockpiles tracked by the London Metal Exchange shrinking, disruptions at Escondida and Grasberg may be enough to push the copper market into deficit.

In January 2017, the US filed a complaint against China at the WTO alleging that loans and subsidized energy in China have let their companies sell aluminum at artificially low prices. The US used to be one of the world's largest exporters of aluminum, at its peak with 22 smelters. Its smelters have fallen from 14 in 2011 to 5 today (Reuters). Today China accounts for half of global aluminum exports. Even the most pessimistic estimates put the annual demand growth rate at about 4 percent. The automotive sector, a large source of aluminum demand continues to look strong. However, the market is expected to remain oversupplied as idle capacity restarts and low-capacity comes online in China and elsewhere.

Most metal prices are expected to stay around the current level except that of iron ore, which is expected to decline sharply. The IMF metal price index is projected to decline from the current level but the 2017 average is expected to increase by 15.4 percent from 2016 reflecting the surge during 2016 and to decrease by 4.3 percent between 2017 and 2018. Upside risks to prices include stronger global demand, slower buildup of new capacity, and environmental policies limiting supply. Downside risks include slower demand from China, as its stimulus nears its end, and higher-than-expected production including restarting of idle capacity.

Table 2
Current Precious Metal Prices and % changes
(as of January 31, 2017)

Metal	Price ($)	% change	
		Month-on-Month	Year-to-Date
Gold	1,213	3.5	5.8
Silver	17.3	2.7	6.5
Platinum	991	5.4	10.4
Palladium	756	5.1	12.8

Sources: ICE Benchmark Administration (gold), London Bullion Metal Association (silver), and London Metal Exchange (platinum and palladium).

Precious Metals

Precious metal prices have increased in January 2017, reversing the negative trend seen in December 2016. Gold and silver grew 5.8 and 6.5 percent, respectively, from the end of December 2016 to the end of January 2017. The uptick in precious metals is partly explained by the weakening U.S. dollar. The US dollar index (DXY, US dollar value relative to a basket of foreign currencies) depreciated 2.6 percent from the end of December 2016 to the end of January 2017. The weakening US dollar may be a response to President Trump's recent rhetoric that the dollar is "too strong." The futures suggest that gold prices will remain stable. Downside risks are stronger economic growth and faster than expected increases in US interest rates. Upside risks include geopolitical tension, stronger demand in China and India, delayed interest rate hikes, and mine supply shortfall.

Agriculture

The IMF agricultural price index increased substantially in January 2017, by 3.9 percent. This increase was primarily the result of higher food prices, which rose 4.8 percent. The indices of beverages and agricultural raw materials also

increased 2.5 percent and 1.8 percent, respectively. As for individual commodities, we note that strong gains were recorded for wheat (+11.6 percent), pork (+14.8 percent) and rubber (+14.7 percent) in particular.

After two years of decline, the IMF's agricultural price index bottomed out in January 2016 and has been steadily increasing ever since; mainly supported by a surge in the prices of sugar and pork, as well as substantial increases for barley, oranges, palm oil and soybeans. Annual food prices increased by roughly 2 percent in 2016, and are expected to increase at a somewhat slower pace (1 percent) in 2017. The IMF agricultural price index now stands at its highest value in two years. In 2017, prices of cereals, meats and beverages are expected to decline, while vegetable oils and sugar are expected to increase.

As usual, weather variability constitutes upside risks to the price forecast. Another large source of uncertainty in this market is China, which has huge stocks of many agricultural commodities. Some estimates suggest that it holds more than 50 percent and 40 percent of corn and wheat, respectively. Trade conflicts between the US on the one side and China and Mexico on the other, could also have substantial effects on agricultural prices, as bilateral trade flows between these countries tend to be large. For example, for 2016-2017 we estimate US exports of soybeans to China at 32 million metric tons (mmt), which equals 23 percent and 9.5 percent of global soybean exports and global soybean production respectively.

After falling for 5 consecutive years, the price of wheat increased by 11.6 percent month-on-month in January 2017. Early forecasts for the 2017 harvest indicate that supply from Europe and the U.S. may be disappointing, on account of less-than-ideal weather and American farmers cutting back on winter wheat seeding to one of the lowest levels on record. Despite these risks, global stocks continue to be high, putting downward pressure on prices. With total supplies continuing to outpace consumption growth, the stock-to-use ratio (a measure of abundance of supply relative to demand) is expected to reach 34 percent in the 2016-2017 season, a 17-year high.

The price of soybean increased by 1.1 percent, month-on-month, in January 2017. While the global soybean area harvested only grew 1 percent in 2016 (far below the 10-year average growth rate of 3.3 percent) yield growth has been very strong, in particular in the United States. As it is unlikely that the US yield will be repeated this year, the stock-to-use ratio may be peaking, also because of strong demand growth. The size of the upcoming harvest in Latin America also constitutes an important unknown. While the recent rally in palm oil prices may have been supportive of other vegetable oils such as soybean, the soybean stocks-to-use ratio stands at 24.92 percent, well above the 5-year average, which indicates that markets are well-supplied. Last year, production and consumption grew by 7.8 percent and 4.7 percent respectively. Fueled by strong growth in the demand for meat (a complement), growth in soybean consumption is expected to be even higher this year.

The price of lean hogs increased by a staggering 14.8 percent in January 2017. Strength in pork markets continues to support hog prices and futures. Increased import demand from China was the big story for pork markets last year, and provided a boost to exporters in the European Union and North America. While global exports increased by 1.6 percent, this was not sufficient to stall the upward pressure on prices. This is not surprising: China is by far the biggest consumer

of pork in the world. While pork imports rose substantially on the back of a 6 percent cutback of domestic production induced by environmental regulations, these imports still only account for 3 percent of domestic pork consumption in 2016. Currently, sow inventories in China are growing at a slow pace, roughly 2 percent, so it will take some time before global production levels for pork, which peaked in 2014, recover.

In the month of January 2017, free market prices of sugar increased by 9.1 percent month-on-month, indicating that the sugar rally of 2016, which lost some steam in November and December last year, maybe back on track. For one, money managers have increased their net long, reflecting a recovery in sentiment on New York-traded soft commodities, such as cocoa and sugar. In addition, at the end of January 2017, sugar futures curves remained about 3 percent in backwardation, indicating tightening supply-and-demand conditions. With output in 2016 below the 5-year average and consumption last year above the 5-year average, higher prices maybe necessary this year to achieve balance.

The price of Arabica coffee increased by 3.5 percent on a month-to-month basis in January 2017, mostly on account of fears of a decline in Brazilian production. Brazilian exporter Terra Forte expects the 2017-2018 harvest to be down by 12 percent year-on-year due to drought damage. The 2016-2017 stocks-to-use ratio, a measure of the abundance of supply relative to demand, is expected to equal 20.9 percent, which is below the 10-year average. Rabobank forecasts a fourth consecutive global deficit in 2017-2018, which implies that the supply side of the market continues to lead prices upwards. According to IMF projections, in 2017 the price of coffee is expected to increase by 12 percent.

The price of cotton increased by 3.6 percent month-on-month in January 2017. At the end of January 2017, future curves for cotton were about 3 percent in backwardation, indicating tightening supply-to-demand conditions. While demand for imports from China is weakening, as the government is bringing more of its inventories to the market, demand in the rest of the world has been stronger, supporting prices. The expected stocks-to-use ratio for the 2016-2017 season is 79 percent, well below the 5-year average of 89 percent. The stocks-to-use ratio has fallen over the last two years; prices increased over this deficit period. In 2017 the price of cotton is expected to increase by 7 percent.

Renewable Energy

According to figures from Bloomberg New Energy Finance (BNEF), nominal investment in renewable energy in 2016 fell for the first time in three years. Whereas global investment in renewable energy equaled $315 billion (bn) and $348.5 bn in 2014 and 2015 respectively, it fell to $287.5 bn in 2016, down by 18 percent year-on-year, mostly on account of reductions in China, Japan and the United States. This reduction partially reflected a decrease in the costs of wind and solar energy. Over the last twelve months alone, solar PV fell by 17.5, while onshore and offshore wind recorded cost reductions of 17.0 and 27.5 percent, respectively. As a result, the annual growth in renewable capacity was still slightly higher last year than in previous years.

Moving forward, the IEA predicts the share of renewables in world electricity production to increase to 43 percent by 2040 under their current policies scenario. The BNEF New Energy Outlook 2016 forecast, which assumes a similar set of policies, is more optimistic and predicts a share of 67 percent.

Over the next few years, higher risk free interest rates constitute a global risk to the clean energy investment outlook. To understand this risk, note that in contrast to coal and gas, renewable energies are characterized by large upfront investment costs, but fewer or no costs related to operations, maintenance and fuel inputs. Hence, a rise in interest rates favors investment in coal and gas relative to renewables. The January 2017 update of the IMF's World Economic Outlook (WEO) noted that long-term interest rates have risen substantially since August (the reference period for the October 2016 WEO), particularly in the United Kingdom and in the United States since the November election. Looking forward, greater government commitment to support renewables and to tax carbon-intensive energy may drive down the risk premium for renewable energy investment, thereby countering higher risk-free interest rates

Figure 5

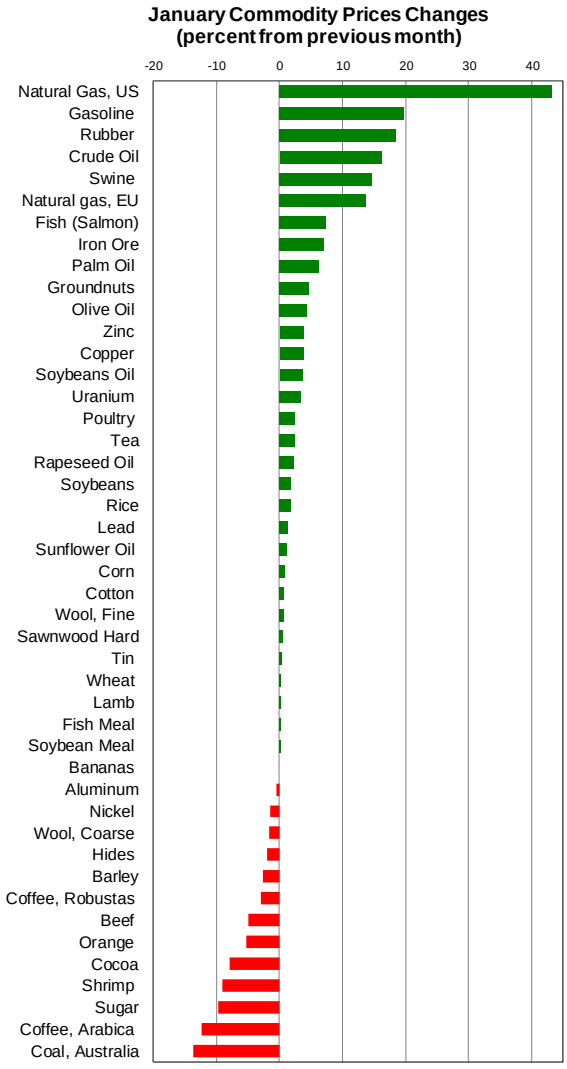


Table 1. Market Prices for Non-Fuel and Fuel Commodities

	Units	2014	2015	2016	2016Q1	2016Q2	2016Q3	2016Q4	Dec-16	Jan-17
Food										
Cereals										
Wheat	**$/MT**	242.5	185.6	143.2	162.6	159.2	128.2	122.6	122.8	137.1
Maize	**$/MT**	192.9	169.8	159.2	159.9	171.1	153.4	152.2	152.7	160.0
Rice	**$/MT**	426.5	380.0	388.3	367.7	401.8	418.2	365.3	367.5	372.5
Barley	**$/MT**	146.1	127.9	129.4	119.7	137.4	131.1	129.3	128.1	132.1
Vegetable oils and protein meals										
Soybeans	**$/MT**	457.8	347.4	362.7	323.4	387.8	372.2	367.3	375.3	379.6
Soybean meal	**$/MT**	467.0	352.7	350.2	294.9	392.9	370.0	342.9	345.8	364.7
Soybean oil	**$/MT**	812.7	672.2	721.2	686.9	719.7	701.4	776.6	800.3	771.9
Palm oil	**$/MT**	739.4	565.1	639.8	586.9	647.8	647.0	677.7	711.8	726.5
Fish meal	**$/MT**	1921.5	1759.2	1418.5	1466.4	1511.5	1409.7	1286.2	1281.7	1224.7
Sunflower Oil	**$/MT**	1080.3	1022.2	1009.7	1024.5	1028.6	982.0	1003.7	1012.2	980.9
Olive oil	**$/MT**	3911.8	4927.1	4059.7	4418.8	4125.3	3903.4	3791.4	3937.1	4018.7
Groundnuts	**$/MT**	2148.3	1946.2	1798.3	1821.3	1855.4	1804.7	1711.8	1743.2	1818.3
Rapeseed oil	**$/MT**	904.4	774.6	822.0	774.7	797.7	810.6	904.7	917.3	917.4
Meat										
Beef	**cts/lb**	224.1	200.5	178.2	168.9	179.3	185.4	179.3	174.0	176.8
Lamb	**cts/lb**	130.6	107.9	106.9	95.5	100.6	110.8	120.8	122.2	122.2
Swine Meat	**cts/lb**	102.8	67.9	62.4	60.3	72.6	66.6	50.1	53.4	61.4
Poultry	**cts/lb**	110.1	114.7	111.5	112.1	111.8	110.9	111.1	113.0	114.5
Seafood										
Fish	**$/kg**	6.6	5.3	7.1	6.5	7.3	7.2	7.5	7.9	8.6
Shrimp	**$/kg**	16.6	14.1	11.0	11.0	10.6	10.7	11.8	11.0	12.1
Sugar										
Free market	**cts/lb**	17.1	13.2	18.5	14.8	17.6	20.8	20.9	18.8	20.5
United States	**cts/lb**	24.9	24.8	27.0	25.6	26.4	27.2	28.9	29.3	29.0
EU	**cts/lb**	27.4	25.4	22.5	23.8	23.9	21.8	20.7	20.8	20.5
Bananas	**$/MT**	931.9	958.7	1002.4	1028.2	993.0	1023.2	965.4	959.9	974.0
Oranges	**$/MT**	782.5	675.0	889.1	686.2	784.7	992.5	1093.1	1077.0	935.0
Beverages										
Coffee										
Other milds	**cts/lb**	202.8	160.5	164.5	150.7	158.5	173.6	175.3	162.2	167.8
Robusta	**cts/lb**	105.6	94.2	94.3	82.1	90.4	98.5	106.1	103.7	111.3
Cocoa Beans	**$/MT**	3062.8	3135.2	2892.0	2980.8	3099.9	2987.9	2499.6	2295.3	2195.1
Tea	**cts/kg**	237.9	340.4	287.4	290.3	251.4	284.7	323.4	336.7	368.7
Agricultural raw materials										
Timber										
Hardwood										
Logs 1/	**$/M3**	282.0	246.0	274.4	258.2	275.7	290.7	272.8	256.4	258.6
Sawnwood 1/	**$/M3**	897.9	833.3	738.9	780.3	782.3	716.2	676.8	680.3	671.8
Softwood										
Logs 1/	**$/M3**	174.3	162.0	158.3	168.4	143.5	151.7	169.8	174.4	174.4
Sawnwood 1/	**$/M3**	307.3	308.7	296.3	267.2	309.2	307.6	301.1	299.5	299.5
Cotton	**cts/lb**	83.1	70.4	74.2	66.9	71.2	79.7	79.0	79.5	82.3
Wool										
Fine	**cts/kg**	1074.4	1005.8	1112.0	1023.4	1092.8	1140.3	1191.4	1197.0	1290.0
Coarse	**cts/kg**	1034.6	927.8	1016.4	959.1	1009.0	1082.2	1015.1	1002.6	1027.7
Rubber	**cts/lb**	88.8	70.7	74.5	59.3	75.2	76.1	87.3	101.0	115.9
Hides	**cts/lb**	110.2	87.7	74.1	72.8	73.5	74.2	75.9	75.7	75.1

1/ Provisional.
2/ Average Petroleum Spot Price (APSP). Average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

Table 1. Market Prices for Non-Fuel and Fuel Commodities (Continued)

	Units	2014	2015	2016	2016Q1	2016Q2	2016Q3	2016Q4	Dec-16	Jan-17
Metals										
Copper	**$/MT**	6863.4	5510.5	4867.9	4674.7	4736.4	4779.6	5280.8	5660.4	5754.6
Aluminum	**$/MT**	1867.4	1664.7	1604.2	1514.5	1571.8	1620.2	1710.3	1727.7	1791.2
Iron Ore	**$/MT**	97.4	56.1	58.6	48.4	56.4	58.6	70.8	79.4	80.8
Tin	**$/MT**	21898.9	16066.6	17933.8	15438.6	16902.1	18584.3	20810.1	21204.4	20691.8
Nickel	**$/MT**	16893.4	11862.6	9595.2	8507.7	8822.5	10263.5	10787.0	10972.3	9971.5
Zinc	**$/MT**	2161.0	1931.7	2090.0	1677.3	1916.9	2251.6	2514.2	2664.8	2714.8
Lead	**$/MT**	2095.5	1787.8	1866.7	1738.0	1717.6	1872.7	2138.3	2209.8	2242.6
Uranium	**$/lb**	33.5	36.8	26.3	32.6	27.5	25.5	19.6	19.1	22.1
Energy										
Spot Crude 2/	**$/bbl**	96.2	50.8	42.8	32.8	44.8	44.7	49.1	52.6	53.6
U.K. Brent	**$/bbl**	98.9	52.4	44.0	34.4	46.0	45.8	50.1	54.1	54.9
Dubai	**$/bbl**	96.7	51.2	41.2	30.7	42.9	43.4	47.9	51.8	53.4
West Texas Intermediate	**$/bbl**	93.1	48.7	43.2	33.3	45.5	44.9	49.2	52.0	52.6
Natural Gas										
Russian in Germany	**$/mmbtu**	10.5	7.3	4.4	4.7	4.0	4.2	4.6	5.2	5.1
Indonesian in Japan (LNG)	**$/mmbtu**	17.0	11.0	7.5	8.2	6.9	7.4	7.7	8.0	8.3
US, domestic market	**$/mmbtu**	4.4	2.6	2.5	2.0	2.1	2.8	3.0	3.6	3.3
Coal										
Australian, export markets	**$/MT**	75.1	61.6	70.6	54.5	55.6	72.3	99.8	92.5	90.1

1/ Provisional.
2/ Average Petroleum Spot Price (APSP). Average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

Table 2. Indices of Market Prices for Non-Fuel and Fuel Commodities, 2014-2016

(2005=100, in terms of U.S. dollars) 1/

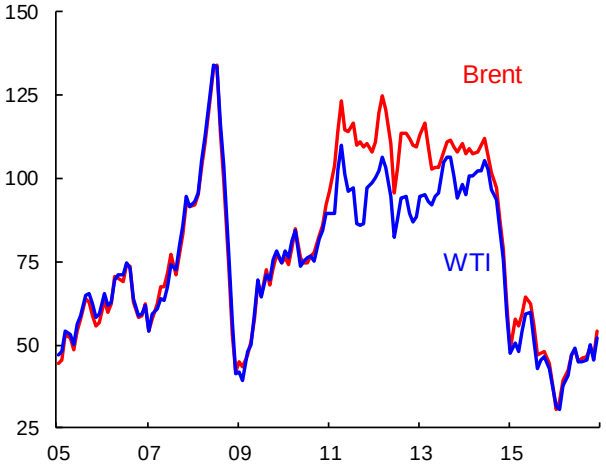
	(weights) 1/	2014	2015	2016	2016Q1	2016Q2	2016Q3	2016Q4	Dec-16	Jan-17
All Primary Commodities 2/	100.0	171.9	111.2	100.1	86.5	101.4	102.7	109.7	114.5	117.2
Non-Fuel Commodities	36.9	162.3	134.0	131.5	123.8	132.8	133.4	135.9	138.6	143.1
Agriculture	26.2	161.5	137.1	136.3	129.5	139.8	138.6	137.1	137.8	143.1
Food	16.7	170.2	141.0	143.9	136.4	149.3	145.9	143.8	145.3	152.3
Cereals	3.6	180.2	149.0	131.4	136.5	142.0	126.4	120.6	120.9	128.7
Vegetable oils and protein meals	4.4	190.7	153.6	156.0	143.5	164.1	158.5	157.8	161.5	164.0
Meat	3.7	160.5	137.4	126.6	122.3	131.4	130.9	121.9	122.3	127.3
Seafood	3.2	162.0	131.7	161.6	149.1	164.8	163.0	169.5	175.7	193.1
Beverages	1.8	178.0	172.6	163.9	158.7	163.5	169.8	163.8	155.7	159.5
Agricultural raw materials 3/	7.7	138.8	120.1	113.2	107.6	113.7	115.5	116.2	117.2	119.4
Timber	3.4	109.3	104.5	100.1	96.7	103.0	101.6	99.2	98.5	98.3
Metals	10.7	164.4	126.6	119.7	109.9	115.6	120.6	132.9	140.7	143.2
Edibles 4/	18.5	171.0	144.1	145.8	138.6	150.7	148.2	145.8	146.3	153.0
Industrial Inputs 5/	18.4	153.7	123.9	117.0	108.9	114.8	118.5	125.9	130.9	133.2
Energy 6/	63.1	177.4	97.9	81.7	64.7	83.0	84.8	94.4	100.4	102.0
Petroleum 7/	53.6	181.1	95.6	80.4	61.5	84.1	84.0	92.2	98.9	100.9
Natural Gas	6.9	159.9	106.8	70.3	73.5	64.1	69.3	74.3	81.8	81.6
Coal	2.6	149.1	121.3	138.4	107.8	110.8	141.7	193.3	180.5	177.9

1/ Weights based on 2002-2004 average world export earnings.
2/ Non-Fuel Primary Commodities and Energy Index.
3/ Includes Forestry Products.
4/ Edibles comprised of Food and Beverages
5/ Industrial (Non-Fuel) Inputs comprised of Agriculture and Metals
6/ Includes Petroleum, Natural Gas and Coal
7/ Average Petroleum Spot Price (APSP). Average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

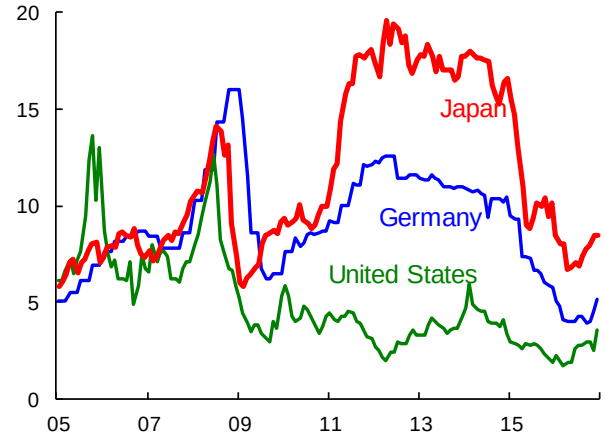
Commodity Prices Movements

Monthly (from 2005)

Crude oil ($/bbl)

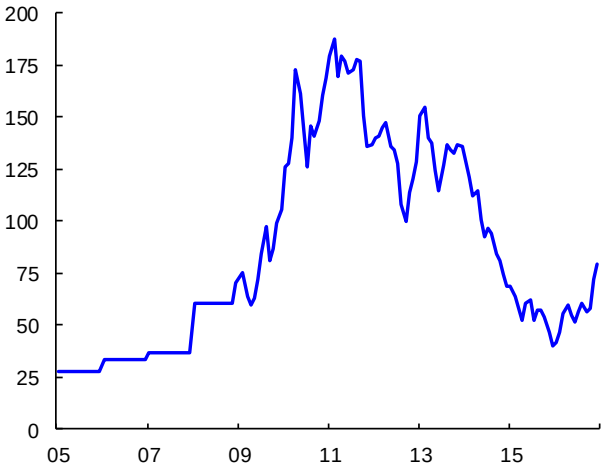


Natural Gas ($/mmbtu)



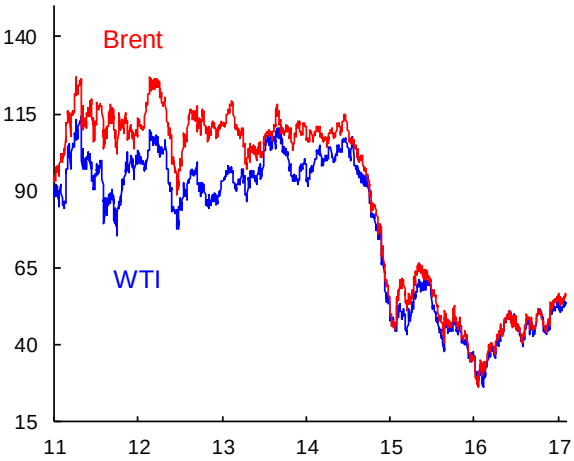
Sources: Energy Intelligence; Bloomberg, L.P.

Iron Ore ($/ton)

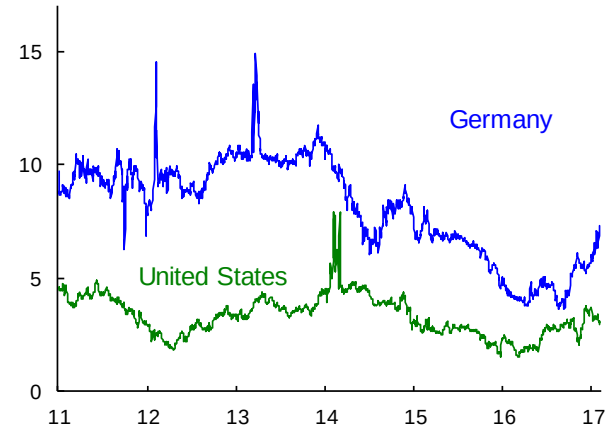


Daily (from 2011)

Crude oil ($/bbl)



Natural Gas ($/mmbtu)



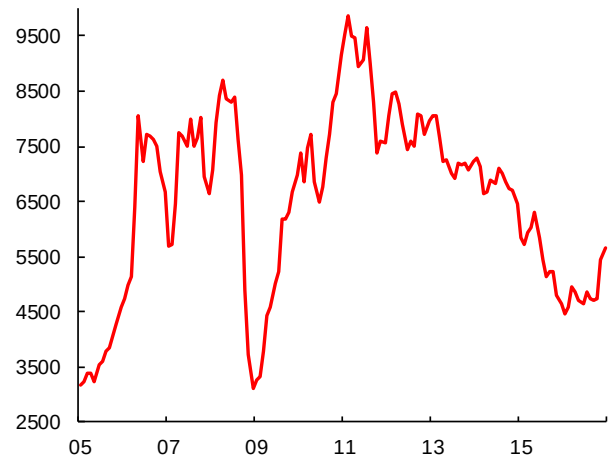
Source: Bloomberg, L.P.

Iron Ore ($/ton)

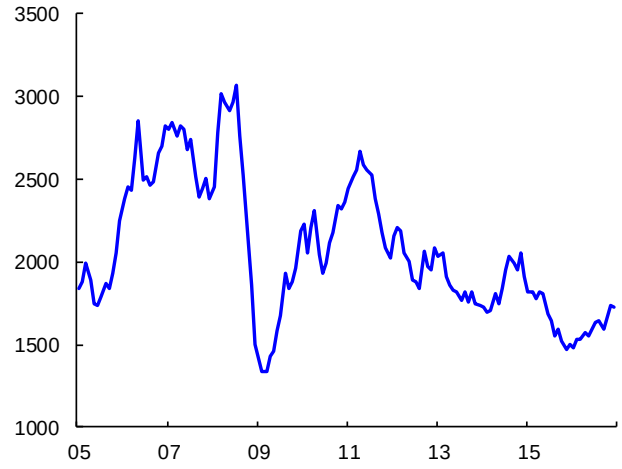
Commodity Prices Movements (Continued)

Monthly (from 2005)

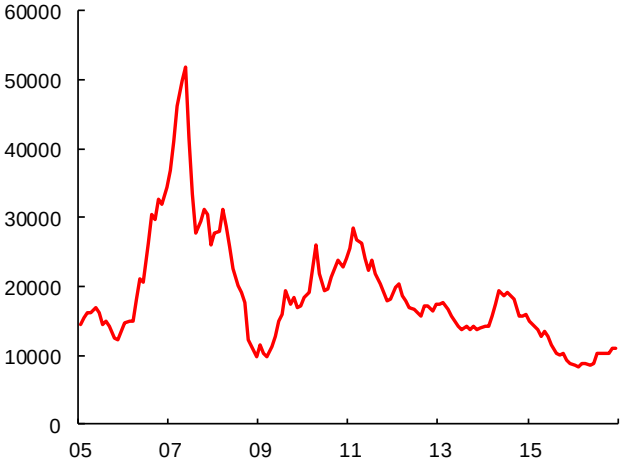
Copper ($/ton)



Aluminium ($/ton)

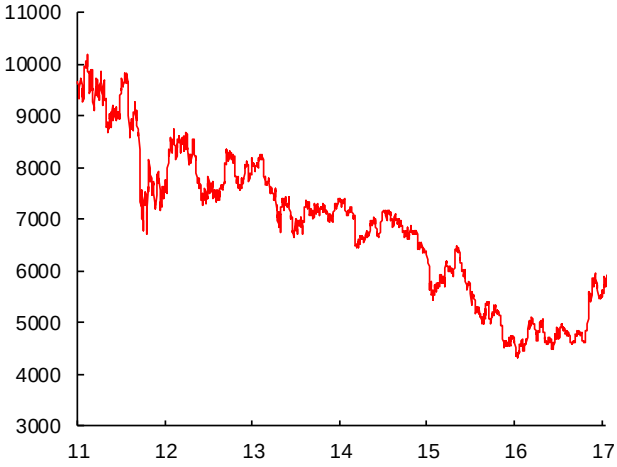


Nickel ($/ton)



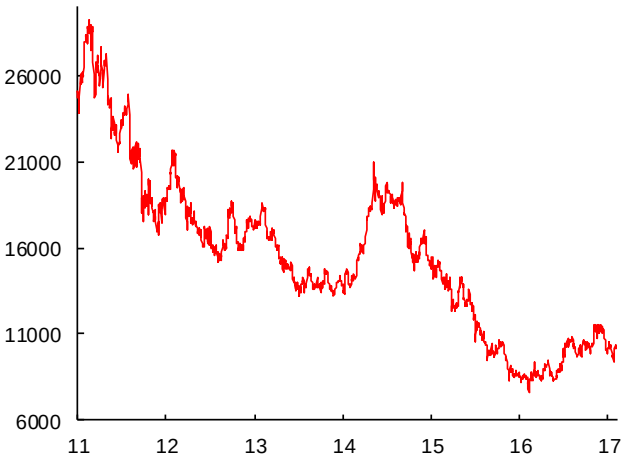
Daily (from 2011)

Copper ($/ton)



Aluminium ($/ton)

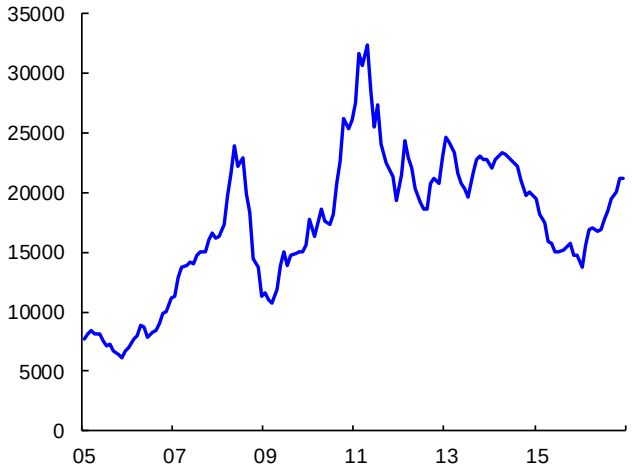
Nickel ($/ton)



Commodity Prices Movements (Continued)

Monthly (from 2005)

Tin ($/ton)

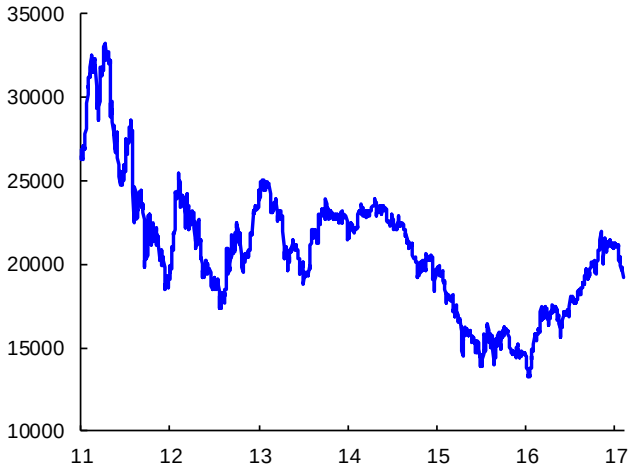


Wheat ($/ton)

Corn ($/ton)

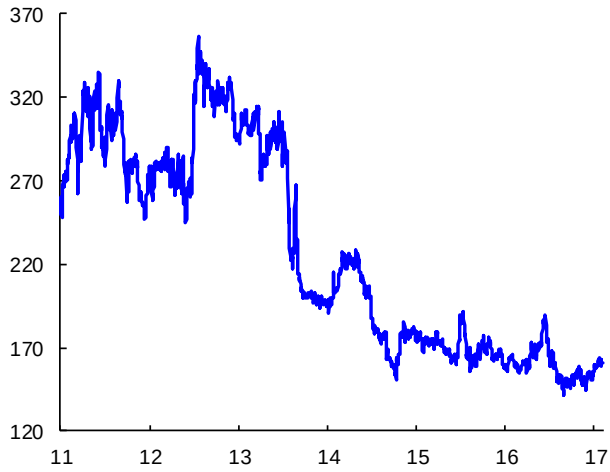
Daily (from 2011)

Tin ($/ton)



Wheat ($/ton)

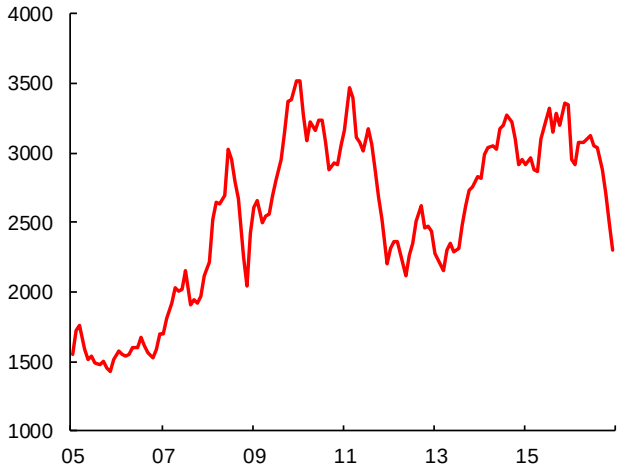
Corn ($/ton)



Commodity Prices Movements (Continued)

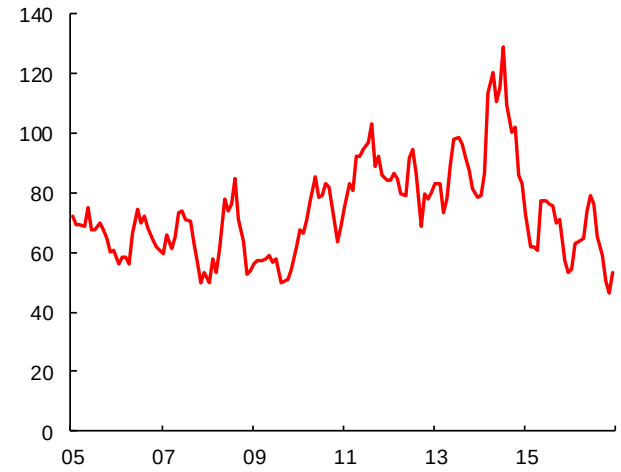
Monthly (from 2005)

Cocoa ($/ton)



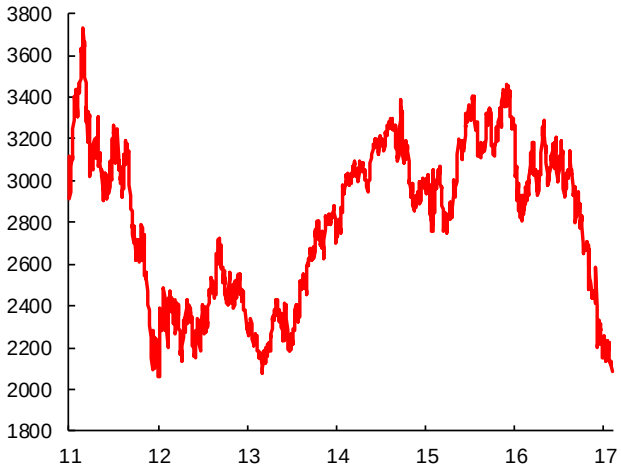
Coffee (cents/lb)

Swine (cents/lb)

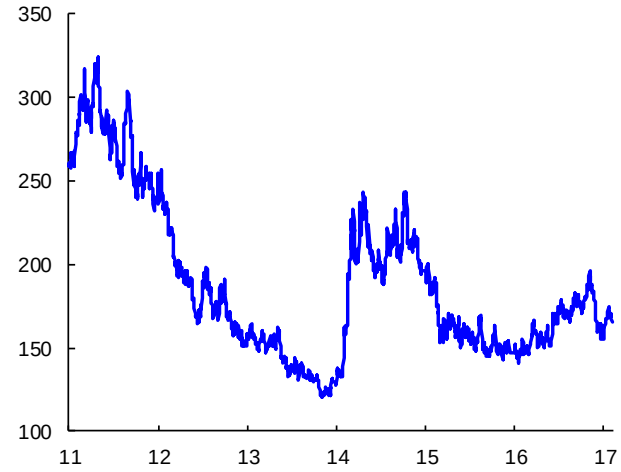


Daily (from 2011)

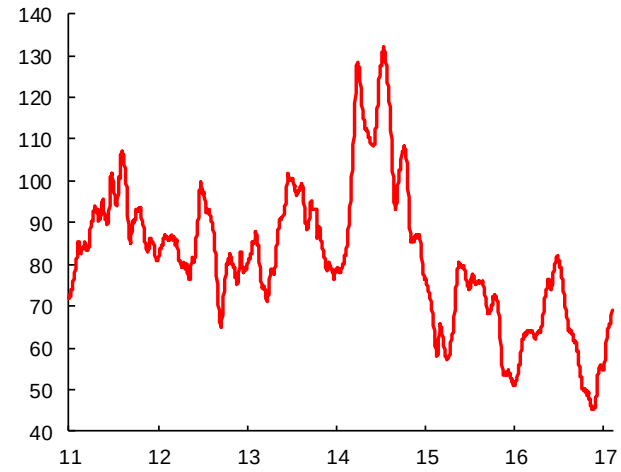
Cocoa ($/ton)



Coffee (cents/lb)



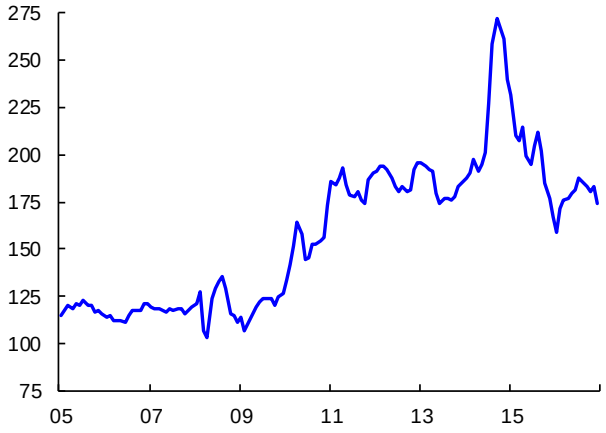
Swine (cents/lb)



Commodity Prices Movements (Continued)

Monthly (from 2005)

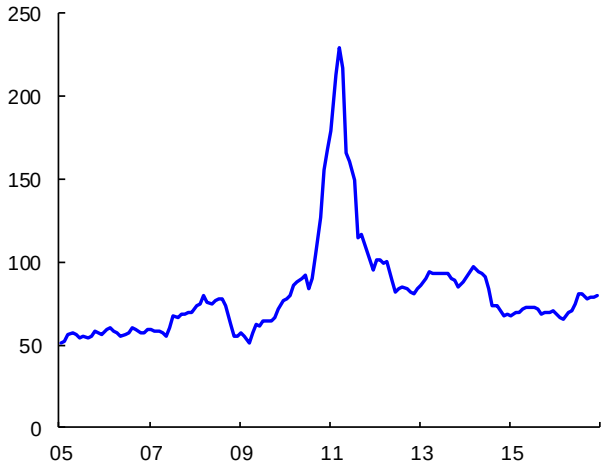
Beef (cents/pound)



Source: Meat & Livestock Australia.

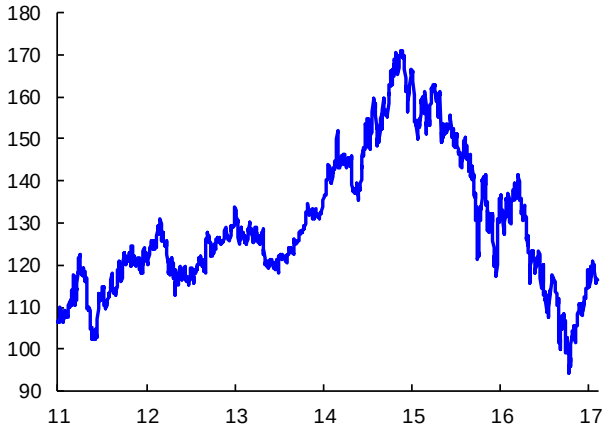
Soybeans ($/ton)

Cotton (cents/pound)



Daily (from 2011)

Beef (cents/lb)



Source: Bloomberg, L.P.

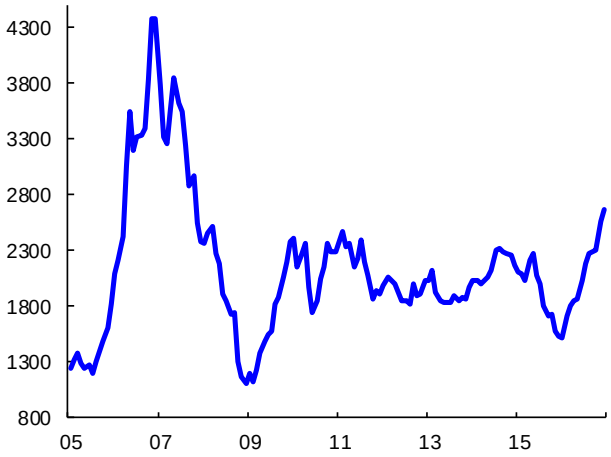
Soybeans ($/ton)

Cotton (cents/lb)

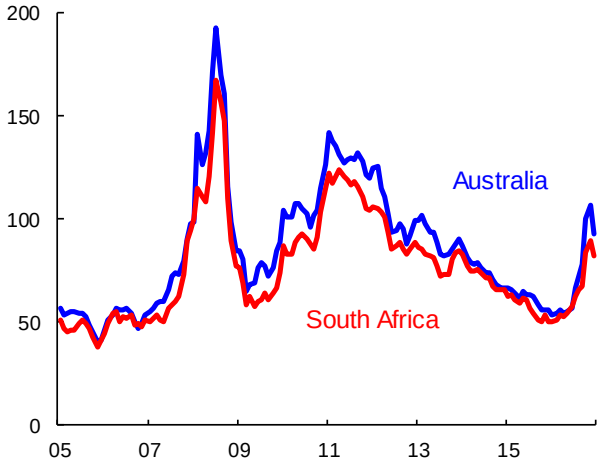
Commodity Prices Movements (Continued)
Monthly (from 2005)

Uranium($/lb)

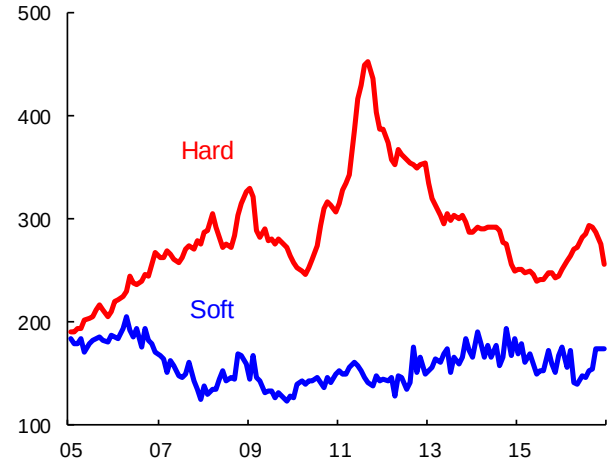
Zinc ($/ton)



Coal ($/ton)

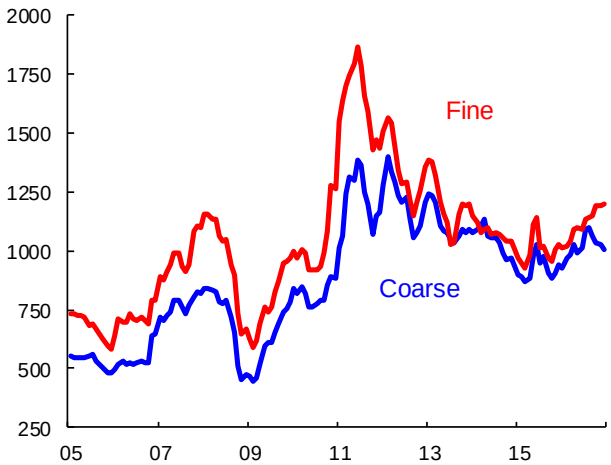


Logs ($/cubic meter)

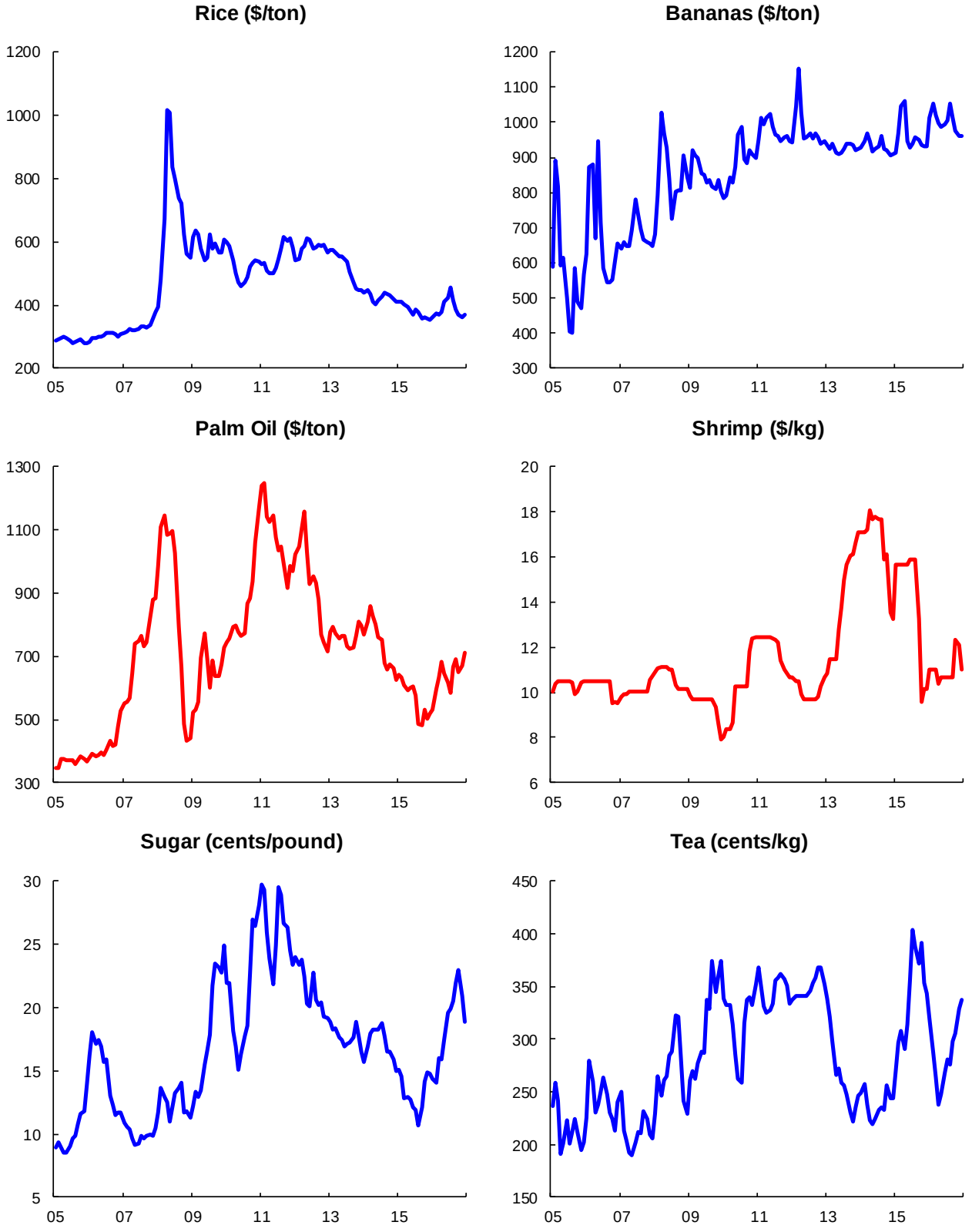


Rubber ($/lb)

Wool (cents/kg)



Commodity Prices Movements (Continued)
Monthly (from 2005)

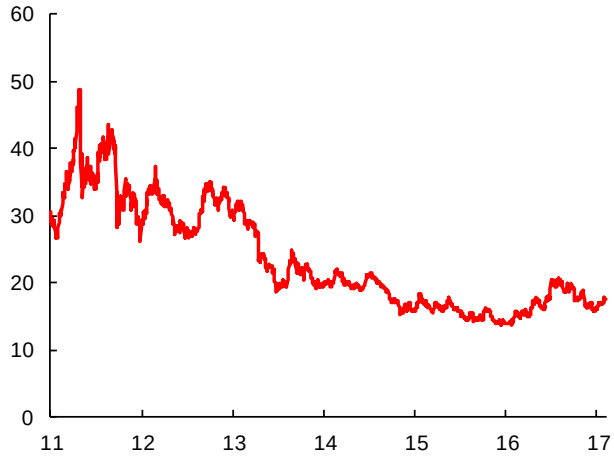


Commodity Prices Movements (Continued)

Daily (from 2011)

Gold ($/troy ounce)

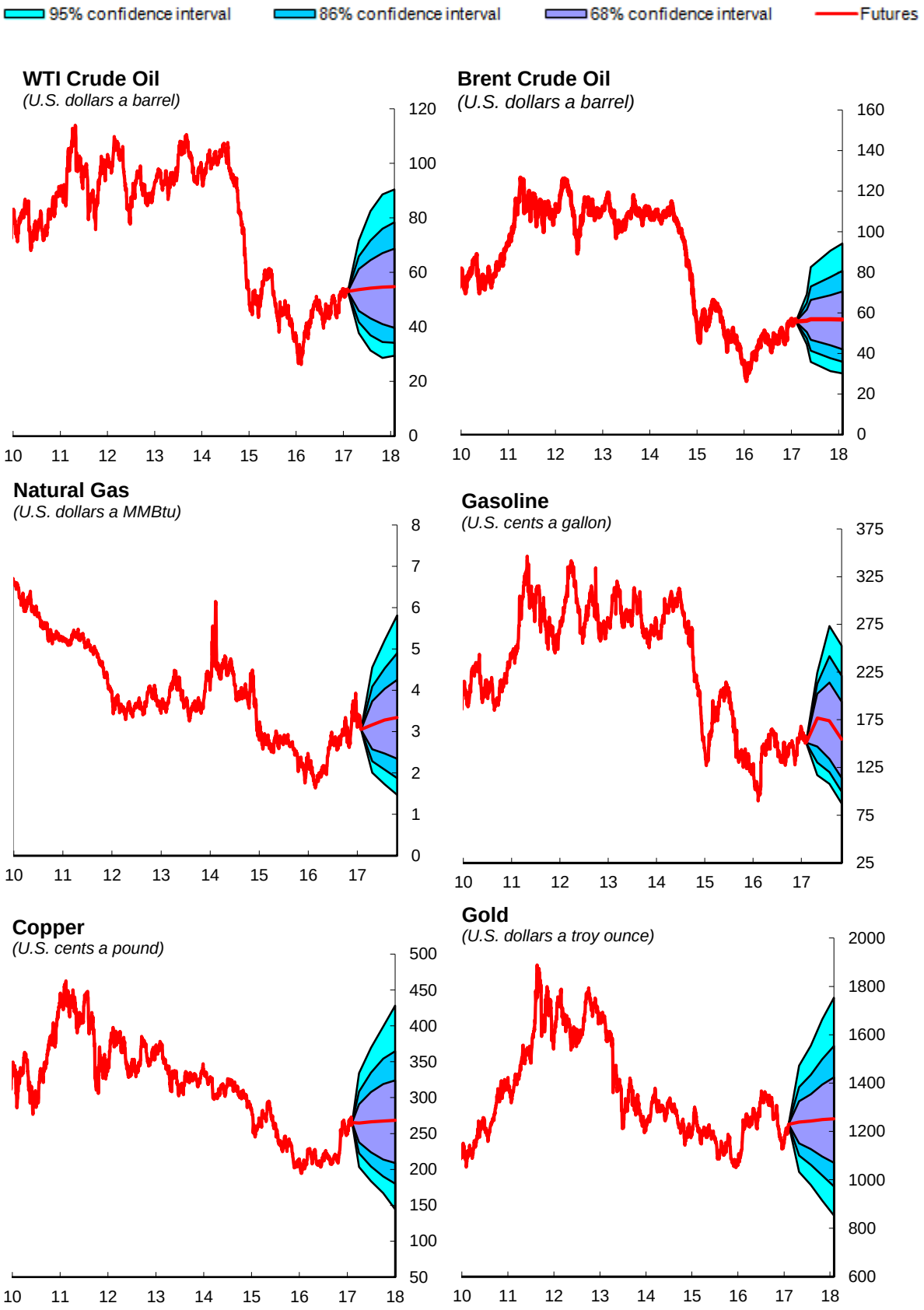
Silver ($/troy ounce)



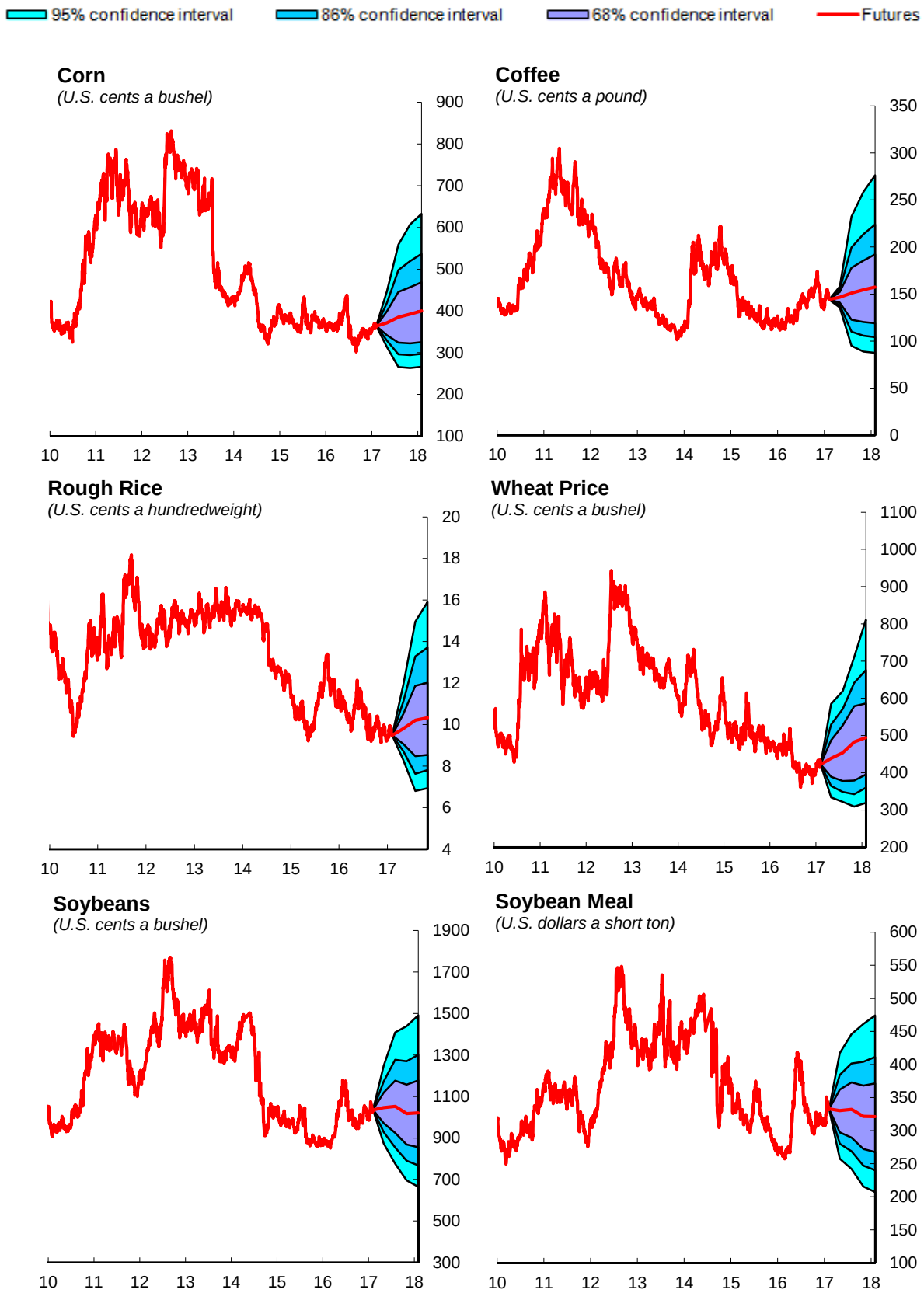
Platinum ($/ounce)

Palladium ($/ounce)

Selected Commodities—Market Price Outlook and Risks



Selected Commodities—Market Price Outlook and Risks (concluded)



Options-based Price Thresholds

WTI Crude Oil

(probabilities in percent; prices in U.S. dollars a barrel)

Threshold Prices	Months Forward			
	3	6	9	12
< 20	0.0	0.0	0.1	0.0
< 25	0.0	0.2	0.6	0.4
< 30	0.1	1.6	2.8	2.6
< 35	1.1	5.3	7.7	8.6
< 40	5.3	12.2	15.9	19.3
< 45	15.9	23.7	28.7	33.3
> 50	63.5	58.3	54.3	51.3
> 55	35.8	36.8	36.3	35.9
> 60	15.0	19.4	21.5	22.7
> 65	5.3	9.2	11.7	13.2
> 70	1.9	4.3	6.1	7.3

Brent Crude Oil

(probabilities in percent; prices in U.S. dollars a barrel)

Threshold Prices	Months Forward			
	3	6	9	12
< 20	0.0	0.0	0.0	0.0
< 25	0.0	0.0	0.3	0.3
< 30	0.0	0.4	1.4	1.8
< 35	0.0	2.0	4.4	5.7
< 40	0.4	6.1	10.1	13.2
< 45	3.5	14.2	20.1	25.1
> 50	84.1	70.7	64.0	59.0
> 55	53.1	48.8	45.0	42.1
> 60	19.3	27.4	27.7	27.3
> 65	5.2	13.2	15.4	16.5
> 70	1.4	6.0	8.2	9.5

U.S. Natural Gas

(probabilities in percent; prices in U.S. dollars an MMBtu)

Threshold Prices	Months Forward		
	3	6	9
< 1.00	0.0	0.0	0.1
< 1.50	0.1	0.7	1.7
< 2.00	2.5	5.8	8.8
< 2.50	15.5	20.1	23.8
< 3.00	46.6	46.3	48.0
> 3.50	19.6	25.9	27.8
> 4.00	4.9	9.5	12.1
> 4.50	1.2	3.1	4.7
> 5.00	0.3	1.0	1.8
> 5.50	0.1	0.4	0.7
> 6.00	0.0	0.1	0.3

Gasoline

(probabilities in percent; prices in U.S. dollars a gallon)

Threshold Prices	Months Forward		
	3	6	9
< 0.25	0.0	0.0	0.0
< 0.50	0.0	0.0	0.0
< 0.75	0.0	0.0	0.4
< 1.00	0.4	1.3	7.4
< 1.25	6.7	13.1	29.5
> 1.50	75.9	59.3	41.3
> 1.75	49.7	30.9	18.4
> 2.00	13.2	13.3	7.0
> 2.25	1.2	5.0	2.4
> 2.50	0.1	1.7	0.8
> 2.75	0.0	0.6	0.3

Copper

(probabilities in percent; prices in U.S. dollars a pound)

Threshold Prices	Months Forward			
	3	6	9	12
< 1.00	0.0	0.0	0.0	0.1
< 1.50	0.0	0.2	0.8	2.2
< 1.75	0.3	1.5	3.8	5.6
< 2.00	2.3	6.6	11.3	13.1
< 2.25	9.1	19.3	25.7	27.6
< 2.50	32.8	42.0	46.1	47.3
> 2.75	28.7	32.6	33.1	33.1
> 3.00	7.9	14.9	17.7	18.5
> 3.25	2.3	6.1	8.7	9.5
> 3.50	0.8	2.5	4.1	4.7
> 4.00	0.1	0.4	0.9	1.3

Gold

(probabilities in percent; prices in U.S. dollars a troy ounce)

Threshold Prices	Months Forward			
	3	6	9	12
< 700	0.0	0.1	0.2	0.7
< 800	0.0	0.5	1.2	2.6
< 900	0.1	2.3	3.9	6.5
< 1000	1.4	7.2	10.2	15.0
< 1100	9.3	22.3	26.5	32.4
< 1200	54.2	54.2	54.6	56.2
> 1300	7.2	17.3	20.3	23.1
> 1400	1.2	5.3	7.5	10.6
> 1500	0.3	1.9	2.9	4.9
> 1600	0.0	0.8	1.3	2.4
> 1700	0.0	0.3	0.6	1.3

Options-based Price Thresholds (concluded)

Corn

(probabilities in percent; prices in U.S. dollars a bushel)

Threshold Prices	Months Forward			
	3	6	9	12
< 2.0	0.0	0.1	0.2	0.2
< 2.5	0.0	1.5	1.8	1.7
< 3.0	1.2	9.5	10.2	9.5
> 3.5	73.2	63.2	62.7	64.9
> 4.0	12.9	26.4	29.1	32.1
> 4.5	1.6	9.4	10.8	12.7
> 5.0	0.2	3.4	4.2	5.1
> 5.5	0.0	1.2	1.8	2.2
> 6.0	0.0	0.4	0.8	1.0
> 6.5	0.0	0.1	0.3	0.5
> 7.0	0.0	0.0	0.1	0.2

Coffee

(probabilities in percent; prices in U.S. dollars a pound)

Threshold Prices	Months Forward			
	3	6	9	12
< 0.6	0.0	0.0	0.1	0.1
< 0.8	0.0	0.6	1.0	1.1
< 1.0	0.0	3.7	5.1	5.7
< 1.2	0.0	15.8	18.4	20.1
> 1.4	86.8	55.2	54.6	54.2
> 1.6	1.1	25.0	27.3	29.2
> 1.8	0.0	9.0	11.3	13.3
> 2.0	0.0	3.2	4.6	5.8
> 2.2	0.0	1.3	2.0	2.6
> 2.4	0.0	0.6	1.0	1.2
> 2.6	0.0	0.2	0.5	0.6

Rough Rice

(probabilities in percent; prices in U.S. dollars a hundredweight)

Threshold Prices	Months Forward			
	3	6	9	12
< 0.05	0.0	0.0	0.1	0.4
< 0.06	0.0	0.7	0.7	2.4
< 0.07	0.1	3.8	3.2	8.2
< 0.08	1.5	12.4	10.8	20.2
< 0.09	15.4	30.3	30.3	40.0
> 0.10	31.4	42.2	41.6	37.3
> 0.11	6.2	20.0	20.1	20.5
> 0.12	1.5	9.1	9.5	11.0
> 0.13	0.3	4.3	4.7	6.0
> 0.14	0.0	2.0	2.5	3.2
> 0.15	0.0	0.9	1.3	1.7

Wheat

(probabilities in percent; prices in U.S. dollars a bushel)

Threshold Prices	Months Forward			
	3	6	9	12
< 2.5	0.0	0.0	0.2	0.4
< 3.0	0.7	1.0	2.2	1.9
< 3.5	5.1	9.0	11.1	7.2
< 4.0	25.7	30.8	29.5	23.2
< 4.5	68.9	59.4	52.5	49.0
> 5.0	8.7	18.4	27.4	27.6
> 5.5	2.8	6.6	13.8	13.3
> 6.0	0.9	2.0	6.3	6.4
> 6.5	0.3	0.5	2.6	3.1
> 7.0	0.1	0.1	1.0	1.6
> 7.5	0.0	0.0	0.4	0.9

Soybeans

(probabilities in percent; prices in U.S. dollars a bushel)

Threshold Prices	Months Forward			
	3	6	9	12
< 5	0.0	0.0	0.0	0.1
< 6	0.0	0.1	0.5	0.9
< 7	0.0	0.7	2.6	3.6
< 8	0.5	4.0	8.5	10.3
< 9	4.7	13.9	24.7	26.8
> 10	70.4	59.6	45.8	46.0
> 11	19.2	26.5	20.3	22.2
> 12	3.7	9.4	7.9	9.3
> 13	0.8	3.7	3.3	4.0
> 14	0.1	1.4	1.5	1.9
> 15	0.0	0.5	0.7	1.0

Soybean Meal

(probabilities in percent; prices in U.S. dollars a short ton)

Threshold Prices	Months Forward			
	3	6	9	12
< 100	0.0	0.0	0.0	0.0
< 150	0.0	0.0	0.0	0.1
< 200	0.1	0.4	1.2	1.7
< 250	2.0	3.8	8.4	10.1
> 300	79.5	73.3	60.7	58.5
> 350	21.3	25.1	19.5	20.1
> 400	2.8	4.7	4.6	5.2
> 450	0.5	1.1	1.4	1.6
> 500	0.1	0.3	0.5	0.6
> 550	0.0	0.1	0.1	0.2
> 600	0.0	0.0	0.0	0.1

Options-based Probabilities of Price Changes

(in percent)

WTI Crude Oil

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.4	1.0	0.7
-30%	2.1	7.3	10.2	11.9
-10%	23.9	31.1	36.0	40.3
+10%	22.7	26.2	27.4	28.1
+30%	2.7	5.6	7.7	9.0
+50%	0.3	1.3	2.0	2.5
+100%	0.0	0.0	0.1	0.1

Brent Crude Oil

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.1	0.7	0.9
-30%	0.2	4.6	8.1	10.6
-10%	14.2	27.7	34.5	39.6
+10%	16.6	25.2	25.9	25.7
+30%	0.9	4.7	6.6	8.0
+50%	0.0	1.0	1.7	2.3
+100%	0.0	0.0	0.1	0.1

U.S. Natural Gas

Price changes	Months Forward		
	3	6	9
-50%	0.4	1.8	3.6
-30%	10.6	15.2	19.0
-10%	50.2	49.1	50.4
+10%	10.8	16.9	19.5
+30%	1.6	3.8	5.7
+50%	0.2	0.8	1.5
+100%	0.0	0.0	0.1

Gasoline

Price changes	Months Forward		
	3	6	9
-50%	0.0	0.0	1.0
-30%	2.2	5.1	16.9
-10%	20.1	34.5	53.0
+10%	46.4	28.9	17.0
+30%	5.9	9.3	4.7
+50%	0.2	2.5	1.2
+100%	0.0	0.1	0.0

Copper

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.2	1.0
-30%	0.9	3.3	6.6	8.5
-10%	20.8	32.4	37.9	39.5
+10%	10.9	18.3	20.8	21.5
+30%	0.9	2.7	4.5	5.1
+50%	0.1	0.4	0.9	1.2
+100%	0.0	0.0	0.0	0.1

Gold

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.1
-30%	0.0	1.0	2.0	3.8
-10%	6.1	17.8	22.1	28.1
+10%	4.8	13.7	16.7	19.9
+30%	0.1	1.1	1.8	3.2
+50%	0.0	0.1	0.3	0.7
+100%	0.0	0.0	0.0	0.0

Options-based Probabilities of Price Changes (concluded)

(in percent)

Corn

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.1
-30%	0.0	1.5	1.8	1.7
-10%	5.2	18.5	19.8	18.6
+10%	17.0	30.0	32.5	35.6
+30%	0.8	6.8	7.9	9.4
+50%	0.0	1.5	2.2	2.7
+100%	0.0	0.0	0.1	0.2

Coffee

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.3	0.6	0.7
-30%	0.0	5.3	7.0	7.9
-10%	1.7	35.8	37.4	38.4
+10%	0.1	20.0	22.6	24.6
+30%	0.0	4.2	5.9	7.3
+50%	0.0	1.1	1.7	2.2
+100%	0.0	0.0	0.1	0.2

Rough Rice

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.1	0.3
-30%	0.0	3.0	2.6	7.0
-10%	9.5	25.5	25.1	35.4
+10%	9.2	24.5	24.5	24.0
+30%	0.5	5.3	5.8	7.1
+50%	0.0	1.2	1.6	2.2
+100%	0.0	0.0	0.1	0.1

Wheat

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.1
-30%	0.7	0.9	2.1	1.8
-10%	15.5	22.1	22.6	16.4
+10%	19.2	30.9	39.3	41.2
+30%	2.6	6.1	13.0	12.6
+50%	0.3	0.7	3.2	3.6
+100%	0.0	0.0	0.0	0.3

Soybeans

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.1	0.2
-30%	0.0	1.1	3.5	4.7
-10%	7.9	19.4	32.3	34.0
+10%	10.3	18.4	14.5	16.4
+30%	0.4	2.5	2.4	2.9
+50%	0.0	0.3	0.5	0.7
+100%	0.0	0.0	0.0	0.0

Soybean Meal

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.1	0.2
-30%	0.5	1.5	3.7	4.7
-10%	14.1	20.2	32.0	34.6
+10%	16.3	20.6	16.2	16.9
+30%	1.3	2.4	2.7	3.1
+50%	0.1	0.5	0.6	0.8
+100%	0.0	0.0	0.0	0.0

Commodity Derivative Contract Specifications

Commodity	Exchange	Contract	Physical Characteristics	Contract Size	Pricing Unit	Months Traded
Brent crude oil	ICE Europe	Futures	Light sweet crude oil	1,000 barrels	U.S. dollars per barrel	Consecutive months up to and including February 2020
		Options		One crude oil futures contract of 1,000 barrels		
WTI crude oil	New York Mercantile Exchange	Futures	Light sweet crude oil	1,000 barrels	U.S. dollars per barrel	Consecutive months are listed for the current year and the next five years; in addition, the Jun and Dec contract months are listed beyond the sixth year.
		Options		One crude oil futures contract of 1,000 barrels		
Natural Gas	New York Mercantile Exchange	Futures	Natural gas delivered at Henry Hub, LA	10,000 MMBtu	U.S. dollars per MMBtu	Consecutive months for the current year plus the next twelve full calendar years.
		Options		One natural gas futures contract of 10,000 MMBtu		
Gasoline	New York Mercantile Exchange	Futures	New York Harbor RBOB	42,000 gallons	U.S. cents per gallon	Consecutive months for 36 months
		Options		One gasoline futures contract of 42,000 gallons		
Gold	Chicago Mercantile Exchange	Futures	Gold (a minimum of 995 fineness)	100 troy ounces	U.S. dollars per troy ounce	Current calendar month; the next two calendar months; any Feb, Apr, Aug, and Oct falling within a 23-month period; and any Jun and Dec falling within a 72-month period beginning with the current month.
		Options		One COMEX Gold futures contract		
Corn	Chicago Mercantile Exchange	Futures	Yellow corn grade #2	5,000 bushels (127 MT)	U.S. cents per bushel	Mar, May, Jul, Sep, Dec. The monthly option contract exercises into the nearby futures contract.
		Options		One corn futures contract (of a specified month) of 5,000 bushels		
Coffee	ICE	Futures	Arabica coffee from 19 countries of origin	37,500 lbs	U.S. cents per pound	Mar, May, Jul, Sep, Dec. The monthly option contract exercises into the nearby futures contract.
		Options		One coffee futures contract (of a specified month) of 37,500 lbs		
Rough rice	Chicago Mercantile Exchange	Futures	U.S. #2 long grain rough rice with a total milling yield of 65%+	2,000 hundredweights (CWT)	U.S. cents per hundredweight	Jan, Mar, May, Jul, Sep, Nov. The monthly option contract exercises into the nearby futures contract.
		Options		One rough rice futures contract of 2,000 hundredweights (CWT)		
Wheat	Chicago Mercantile Exchange	Futures	#2 soft red winter wheat	5,000 bushels (136 MT)	U.S. cents per bushel	Mar, May, July, Sep, Dec. The monthly option contract exercises into the nearby futures contract.
		Options		One Wheat futures contract (of a specified month) of 5,000 bushels		
Soybean meal	Chicago Mercantile Exchange	Futures	Meal with minimum protein of 48%	100 short tons	U.S. dollars per ton	Jan, Mar, May, Jul, Aug, Sep, Oct, Dec. The monthly option contract exercises into the nearby futures contract.
		Options		One soybean meal futures contract (of a specified month) of 100 short tons		
Soybeans	Chicago Mercantile Exchange	Futures	Yellow soybean grade #2	5,000 bushels (136 MT)	U.S. cents per bushel	Jan, Mar, May, Jul, Aug, Sep, Nov. The monthly option contract exercises into the nearby futures contract.
		Options		One soybean futures contract (of a specified month) of 5,000 bushels		

Sources: Chicago Board of Trade, ICE, Bloomberg, L.P.