

Commodity Price Outlook & Risks

Research Department, Commodities Team¹



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www.imf.org/commodities

commodities@imf.org

This monthly report presents a price outlook and risk assessment for selected commodities as depicted from futures and options markets.

Outlook. Futures markets show energy commodity prices with mixed projections over the next 12 months, while most agricultural commodity prices are expected to increase, and metal prices are expected to stay unchanged. Brent prices are expected to increase, reflecting continued concerns over political instability in a number of oil-producing regions, while WTI oil prices are expected to decline due to the continued growth in light crude production and export constraints. Natural gas prices are projected to rise slightly as winter approaches and decline thereafter on continued ample supply. Metals (copper and gold) futures prices are expected to remain stable in the next year. Despite a general decrease in spot prices of agricultural commodities, most show higher prices going forward, with wheat prices increasing 10 percent, rice prices rising 3 percent and corn prices increasing 11 percent.

Risks. The likelihood of per-barrel prices for WTI falling below \$90 and Brent below \$100 in the next 12 months is about 53 and 51 percent, respectively, a much higher probability than a month ago. The likelihood of WTI prices falling below \$60 has slightly increased to 2.5 percent since last month, while the probability of WTI prices rising above \$140 slightly decreased, indicating a small downward shift in the overall WTI balance of risks. Meanwhile, the likelihood of Brent prices falling below \$70 has decreased to 2.3 percent since last month, while the probability of Brent prices rising above \$150 increased, reflecting supply concerns.

The likelihood of per-MMBtu U.S. natural gas prices below \$3 (12 months forward) has risen to 17 percent from 15 percent, while the probability of prices rising above \$7 increased to 1.2 percent from 0.5 percent since August, reflecting offsetting price pressures of continuing growth U.S. supply from shale on the one hand, and below-trend stocks and uncertain winter demand on the other. Copper and gold tail risks remain broadly unchanged (12-months forward.)

The likelihood of per-bushel wheat prices below \$4 rose to 8 percent from 5 percent, while prices above \$10 decreased to 0.2 percent from 0.8 percent in August, reflecting favorable global harvest prospects. Meanwhile, the likelihood of per-bushel corn prices below \$3 increased to 16 percent from 10 percent, while prices above \$7 decreased to 0.8 percent from 1.1 percent in August, reflecting expectations of a record crop in the U.S. .

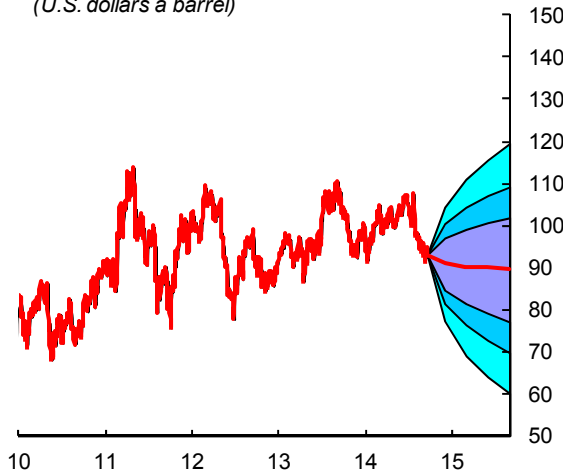
Contents. Fan charts (pages 2-3) show historical and forward futures prices (red line), with calculated confidence intervals of +/- 2 standard deviations (in purple/blue). Confidence intervals are derived from prices of options on September 18, 2014. Likelihoods of spot prices rising/falling from specified price thresholds occurring at the 3-, 6-, 9- and 12-month forward (or closest available) horizons for each commodity are shown in tabular form (pages 4-5). In addition to price thresholds, the probability of each commodity spot price rising/falling by a certain percentage is shown (pages 6-7). Relevant contract specifications for each commodity are also shown (page 8).

¹ Prepared by Marina Rousset and Daniel Rivera Greenwood, with assistance from Akito Matsumoto and Shane Streifel.

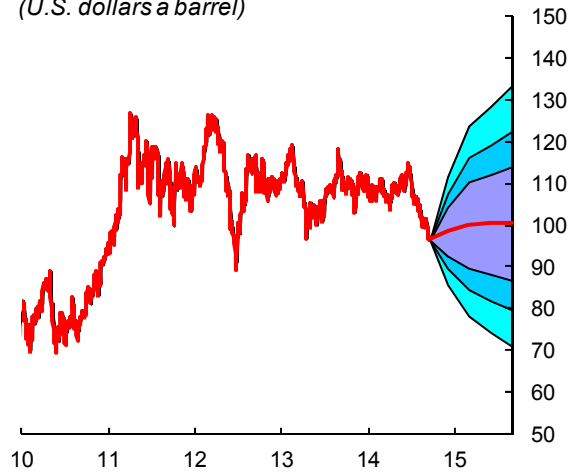
Selected Commodities—Market Price Outlook and Risks

95% confidence interval 86% confidence interval 68% confidence interval Futures

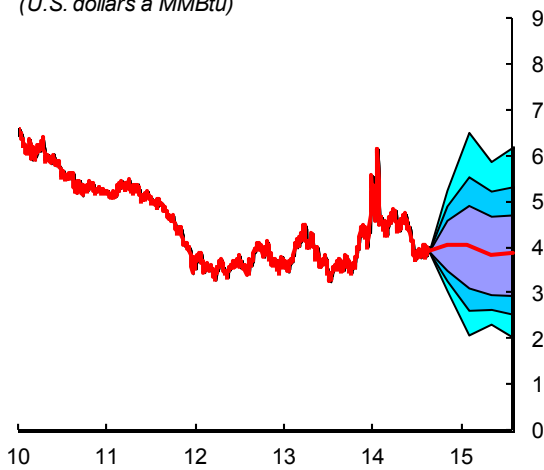
WTI Crude Oil
(U.S. dollars a barrel)



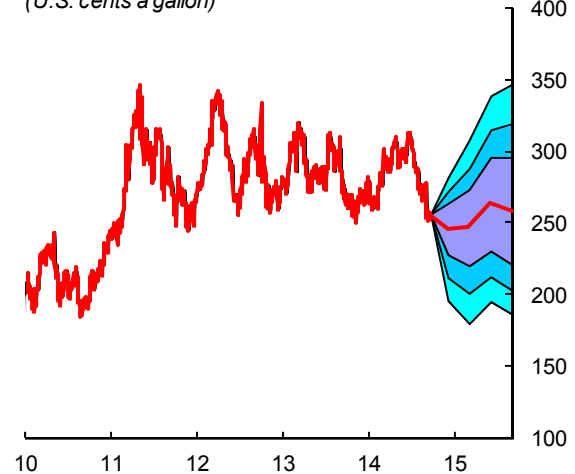
Brent Crude Oil
(U.S. dollars a barrel)



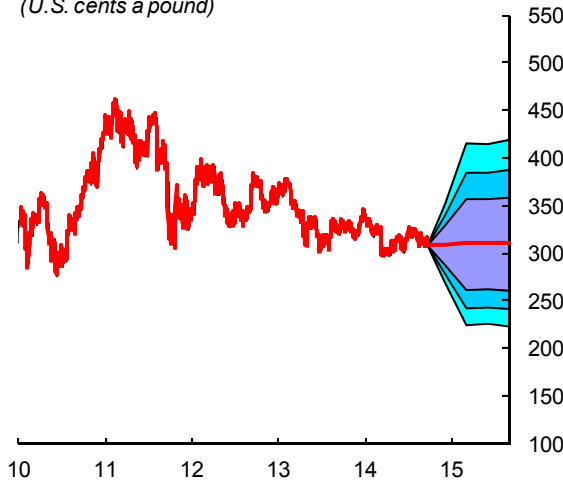
Natural Gas
(U.S. dollars a MMBtu)



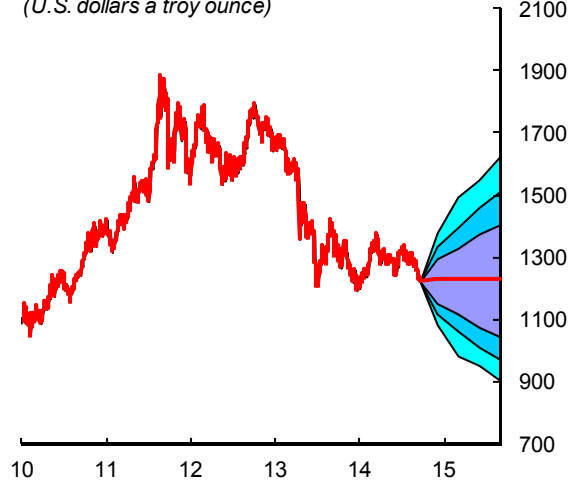
Gasoline
(U.S. cents a gallon)



Copper
(U.S. cents a pound)

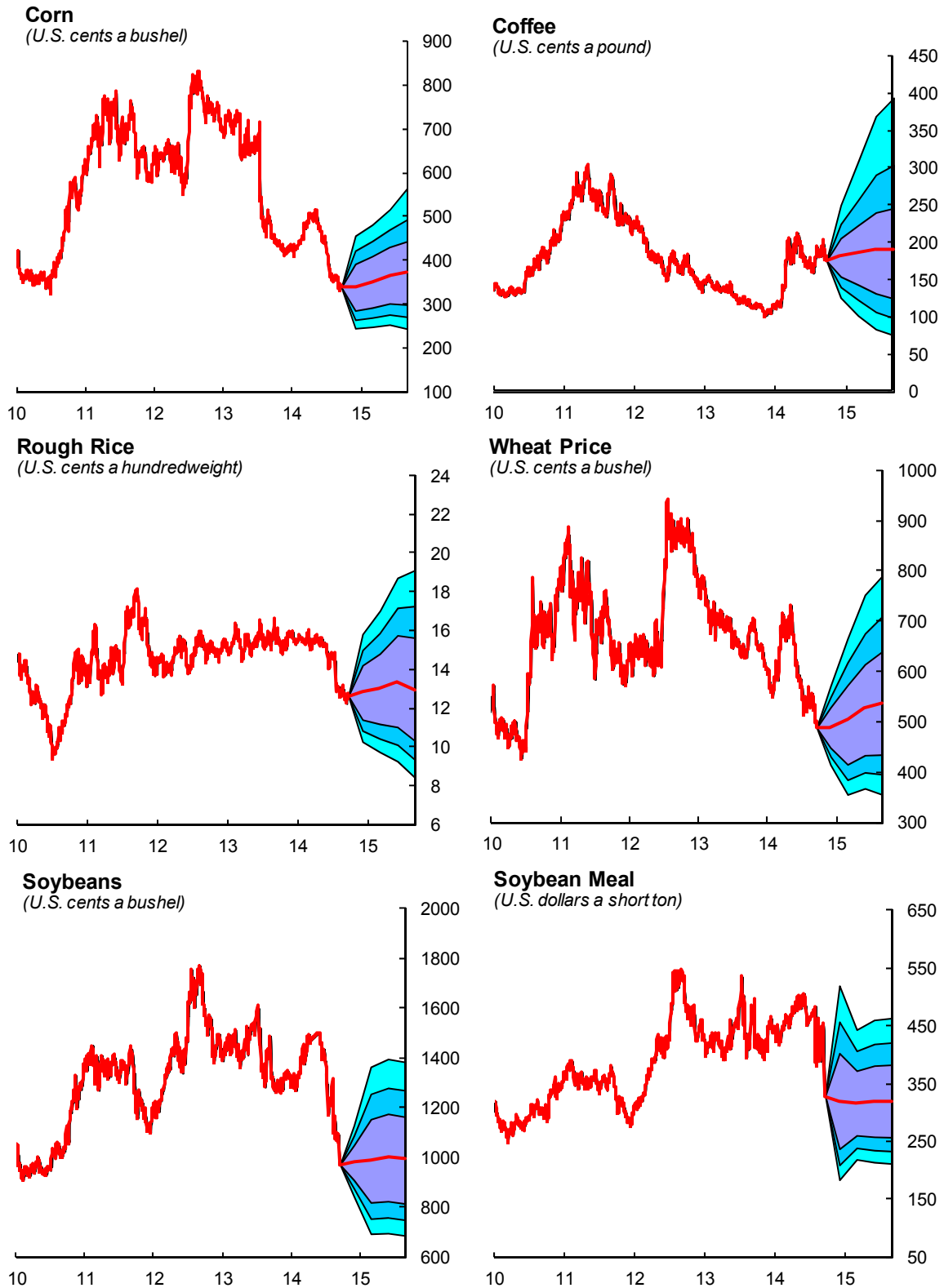


Gold
(U.S. dollars a troy ounce)



Selected Commodities—Market Price Outlook and Risks (concluded)

▬ 95% confidence interval
 ▬ 86% confidence interval
 ▬ 68% confidence interval
 ▬ Futures



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
< 60	0.0	0.6	1.5	2.5
< 70	0.6	2.9	5.0	7.2
< 80	4.7	12.7	18.0	22.1
< 90	45.9	49.7	51.7	53.1
< 100	92.0	85.7	82.4	80.5
> 110	0.7	2.9	4.8	6.5
> 120	0.1	0.9	1.7	2.4
> 130	0.0	0.3	0.7	1.1
> 140	0.0	0.1	0.3	0.6
> 150	0.0	0.0	0.1	0.3
> 160	0.0	0.0	0.1	0.1

Brent Crude Oil

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

Threshold Prices	Months Forward			
	3	6	9	12
< 60	0.0	0.2	0.1	0.6
< 70	0.0	0.9	1.3	2.3
< 80	0.7	3.3	5.6	7.2
< 90	8.0	16.8	19.6	22.9
< 100	62.2	51.6	50.3	50.8
> 110	3.6	16.6	20.1	23.3
> 120	0.5	4.1	6.4	9.0
> 130	0.1	1.2	2.1	3.5
> 140	0.0	0.5	0.8	1.5
> 150	0.0	0.2	0.3	0.7
> 160	0.0	0.1	0.1	0.4

U.S. Natural Gas

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

Threshold Prices	Months Forward			
	3	6	9	12
< 2.50	0.0	5.6	4.4	6.4
< 3.00	1.8	13.0	16.7	17.4
< 3.50	15.8	28.5	38.3	37.7
> 4.00	51.3	48.8	38.4	39.3
> 4.50	19.9	27.5	20.5	21.2
> 5.00	5.4	14.2	10.0	10.8
> 5.50	1.1	7.4	4.6	5.6
> 6.00	0.2	4.1	2.1	3.1
> 6.50	0.0	2.5	0.9	1.9
> 7.00	0.0	1.6	0.4	1.2
> 7.50	0.0	1.1	0.2	0.8

Gasoline

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

Threshold Prices	Months Forward			
	3	6	9	12
< 1.50	0.0	0.3	0.0	0.1
< 1.75	0.3	1.9	0.5	1.1
< 2.00	3.3	6.7	3.5	5.9
< 2.25	13.9	19.9	12.6	19.0
< 2.50	56.5	53.8	33.5	42.8
> 2.75	5.1	14.6	35.7	31.1
> 3.00	0.5	3.7	13.6	13.9
> 3.25	0.1	1.2	4.5	5.7
> 3.50	0.0	0.4	1.5	2.2
> 3.75	0.0	0.2	0.5	0.8
> 4.00	0.0	0.1	0.2	0.3

Copper

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

Threshold Prices	Months Forward			
	3	6	9	12
< 1.5	0.0	0.0	0.0	0.0
< 2.0	0.0	0.3	0.3	0.4
< 2.5	0.1	9.8	9.4	10.3
< 3.0	33.6	44.4	43.9	44.3
> 3.5	3.3	19.9	19.9	20.6
> 4.0	0.0	4.4	4.4	4.9
> 4.5	0.0	0.7	0.7	0.9
> 5.0	0.0	0.1	0.1	0.1
> 5.5	0.0	0.0	0.0	0.0
> 6.0	0.0	0.0	0.0	0.0
> 6.5	0.0	0.0	0.0	0.0

Gold

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

Threshold Prices	Months Forward			
	3	6	9	12
< 900	0.0	0.8	0.8	2.3
< 1000	0.1	3.0	5.6	9.6
< 1100	3.9	11.8	20.7	25.4
< 1200	37.2	41.3	45.8	47.0
< 1300	84.1	76.1	70.1	67.4
> 1400	1.5	6.9	12.9	17.1
> 1500	0.1	2.5	4.7	8.0
> 1600	0.0	1.1	1.4	3.3
> 1700	0.0	0.5	0.4	1.3
> 1800	0.0	0.2	0.1	0.4
> 1900	0.0	0.1	0.0	0.1

Options-based Price Thresholds (concluded)

Corn

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

Threshold Prices	Months Forward			
	3	6	9	12
< 2.5	3.5	2.8	2.2	3.2
< 3.0	25.0	20.0	15.6	16.5
< 3.5	61.5	52.8	43.9	42.4
< 4.0	87.0	80.4	72.2	68.6
> 4.5	3.1	6.0	10.8	14.5
> 5.0	0.6	1.5	3.6	6.3
> 5.5	0.1	0.3	1.2	3.0
> 6.0	0.0	0.1	0.5	1.7
> 6.5	0.0	0.0	0.2	1.1
> 7.0	0.0	0.0	0.2	0.8
> 7.5	0.0	0.0	0.1	0.6

Coffee

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

Threshold Prices	Months Forward			
	3	6	9	12
< 1.0	0.1	2.2	5.4	7.3
< 1.2	1.5	6.0	11.0	13.7
< 1.4	6.6	13.7	20.4	23.6
< 1.6	21.6	29.2	34.7	37.3
< 1.8	51.4	50.3	50.8	51.9
> 2.0	21.4	30.4	34.6	35.0
> 2.2	8.7	17.6	23.6	24.9
> 2.4	3.8	10.4	16.2	17.8
> 2.6	1.6	6.6	11.4	12.9
> 2.8	0.7	4.4	8.3	9.7
> 3.0	0.3	2.9	6.2	7.4

Rough Rice

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

Threshold Prices	Months Forward			
	3	6	9	12
< 0.10	1.4	3.8	6.3	12.8
< 0.11	9.3	13.6	15.9	24.9
< 0.12	29.9	31.5	30.6	39.8
< 0.13	57.2	52.7	47.1	54.6
> 0.14	19.5	27.6	36.6	31.8
> 0.15	6.8	13.9	23.2	21.0
> 0.16	2.0	6.3	13.9	13.4
> 0.17	0.4	2.5	7.7	8.1
> 0.18	0.1	0.9	4.1	4.7
> 0.19	0.0	0.3	2.1	2.7
> 0.20	0.0	0.1	1.0	1.5

Wheat

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

Threshold Prices	Months Forward			
	3	6	9	12
< 3	0.0	0.1	0.1	0.6
< 4	0.9	11.0	7.0	7.7
< 5	63.0	56.0	43.5	39.7
> 6	0.6	10.1	19.2	24.9
> 7	0.0	1.3	5.0	7.9
> 8	0.0	0.1	1.4	2.2
> 9	0.0	0.0	0.5	0.7
> 10	0.0	0.0	0.2	0.2
> 11	0.0	0.0	0.1	0.1
> 12	0.0	0.0	0.0	0.0
> 13	0.0	0.0	0.0	0.0

Soybeans

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

Threshold Prices	Months Forward			
	3	6	9	12
< 8	0.6	13.1	12.3	13.7
< 9	13.4	32.8	30.7	33.0
< 10	62.5	56.4	53.4	55.7
< 11	94.5	76.1	73.2	75.0
< 12	99.6	88.7	86.6	87.6
> 13	0.1	4.7	6.0	5.5
> 14	0.0	1.7	2.4	2.2
> 15	0.0	0.6	0.9	0.8
> 16	0.0	0.2	0.3	0.3
> 17	0.0	0.1	0.1	0.1
> 18	0.0	0.0	0.0	0.0

Soybean Meal

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

Threshold Prices	Months Forward			
	3	6	9	12
< 200	5.0	0.7	1.1	1.2
< 250	21.3	11.4	12.4	13.1
< 300	45.5	41.8	40.9	41.4
< 350	67.9	73.9	70.9	70.8
< 400	83.4	91.7	89.2	88.9
> 450	7.9	2.1	3.3	3.6
> 500	3.5	0.4	0.9	1.0
> 550	1.5	0.1	0.2	0.3
> 600	0.6	0.0	0.0	0.1
> 650	0.3	0.0	0.0	0.0
> 700	0.1	0.0	0.0	0.0

Options-based Probabilities of Price Changes

(in percent)

WTI Crude Oil

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.1	0.3
-30%	0.2	1.5	2.9	4.3
-10%	13.3	23.5	29.1	32.8
+10%	4.4	9.9	13.2	15.3
+30%	0.1	0.8	1.5	2.3
+50%	0.0	0.1	0.3	0.6
+100%	0.0	0.0	0.0	0.0

Brent Crude Oil

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.1
-30%	0.0	0.6	0.8	1.7
-10%	3.2	10.1	13.4	16.3
+10%	9.9	26.7	29.9	32.2
+30%	0.2	2.1	3.5	5.4
+50%	0.0	0.4	0.5	1.1
+100%	0.0	0.0	0.0	0.0

U.S. Natural Gas

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	1.7	0.6	2.1
-30%	0.3	8.4	8.9	10.4
-10%	17.3	29.7	39.7	39.1
+10%	30.1	34.9	26.5	27.2
+30%	4.1	12.6	8.7	9.6
+50%	0.3	4.8	2.5	3.6
+100%	0.0	0.8	0.1	0.7

Gasoline

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.0
-30%	0.5	2.5	0.7	1.6
-10%	19.3	25.9	16.2	23.6
+10%	2.5	9.9	28.0	25.1
+30%	0.0	0.8	3.2	4.2
+50%	0.0	0.1	0.3	0.6
+100%	0.0	0.0	0.0	0.0

Copper

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.0
-30%	0.0	1.3	1.2	1.5
-10%	6.5	26.8	26.2	27.1
+10%	7.8	25.4	25.6	26.2
+30%	0.0	4.2	4.2	4.7
+50%	0.0	0.4	0.4	0.5
+100%	0.0	0.0	0.0	0.0

Gold

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.0
-30%	0.0	0.4	0.2	1.0
-10%	4.3	12.4	21.4	26.0
+10%	5.9	13.7	21.0	24.7
+30%	0.0	1.1	1.6	3.6
+50%	0.0	0.1	0.0	0.3
+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%	1.5	1.2	1.0	1.8
-10%	27.9	22.4	17.6	18.3
+10%	25.0	33.4	42.6	45.3
+30%	4.2	7.8	13.3	17.1
+50%	0.4	1.2	3.1	5.6
+100%	0.0	0.0	0.2	0.9

Coffee

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	1.0	3.2	4.6
-30%	1.9	6.9	12.2	15.0
-10%	19.6	27.5	33.3	36.0
+10%	29.0	36.3	39.2	39.2
+30%	6.0	13.9	20.0	21.5
+50%	1.4	6.0	10.7	12.2
+100%	0.0	1.1	3.1	4.0

Rough Rice

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.0
-30%	0.0	0.4	1.3	4.2
-10%	14.9	18.9	20.5	29.8
+10%	21.9	29.8	38.5	33.4
+30%	1.1	4.4	11.1	11.0
+50%	0.0	0.3	2.2	2.8
+100%	0.0	0.0	0.0	0.1

Wheat

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.2
-30%	0.0	1.4	0.8	1.7
-10%	10.7	25.7	17.7	17.2
+10%	11.8	27.9	40.3	45.7
+30%	0.1	5.3	12.2	17.1
+50%	0.0	0.6	3.3	5.2
+100%	0.0	0.0	0.2	0.3

Soybeans

Price changes	Months Forward			
	3	6	9	12
-50%	0.0	0.0	0.0	0.0
-30%	0.0	1.9	1.9	2.2
-10%	6.6	26.8	25.1	27.1
+10%	11.3	29.4	32.4	30.5
+30%	0.1	6.6	8.2	7.5
+50%	0.0	1.0	1.4	1.3
+100%	0.0	0.0	0.0	0.0

Soybean Meal

Price changes	Months Forward			
	3	6	9	12
-50%	0.9	0.0	0.0	0.1
-30%	13.4	4.8	5.7	6.2
-10%	43.5	39.0	38.2	38.8
+10%	27.7	20.4	23.5	23.7
+30%	11.1	4.0	5.8	6.1
+50%	3.9	0.6	1.1	1.2
+100%	0.2	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		



INTERNATIONAL MONETARY FUND

Washington, D.C. 20431 • Telephone 202-623-7100 • Fax 202-623-6772 • www.imf.org