# **Commodity Price Outlook & Risks**

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

**Outlook**. Oil spot prices keep declining, but futures markets expect oil prices to increase, as supply is expected to be curtailed and volatility is expected to decrease. Metal commodity prices are expected to remain broadly unchanged, but with greater uncertainty around the baseline price. Gasoline prices are still expected to follow seasonal patterns, as they will rise through the summer and decline in the colder months. U.S. natural gas prices are projected to follow seasonal patterns as well, as they are expected to remain broadly unchanged and then rise in the next winter. Agricultural commodities have mixed projections for the next year, as rice, wheat, corn and coffee prices are expected to increase, while soybean and soybean meal prices are expected to decline.

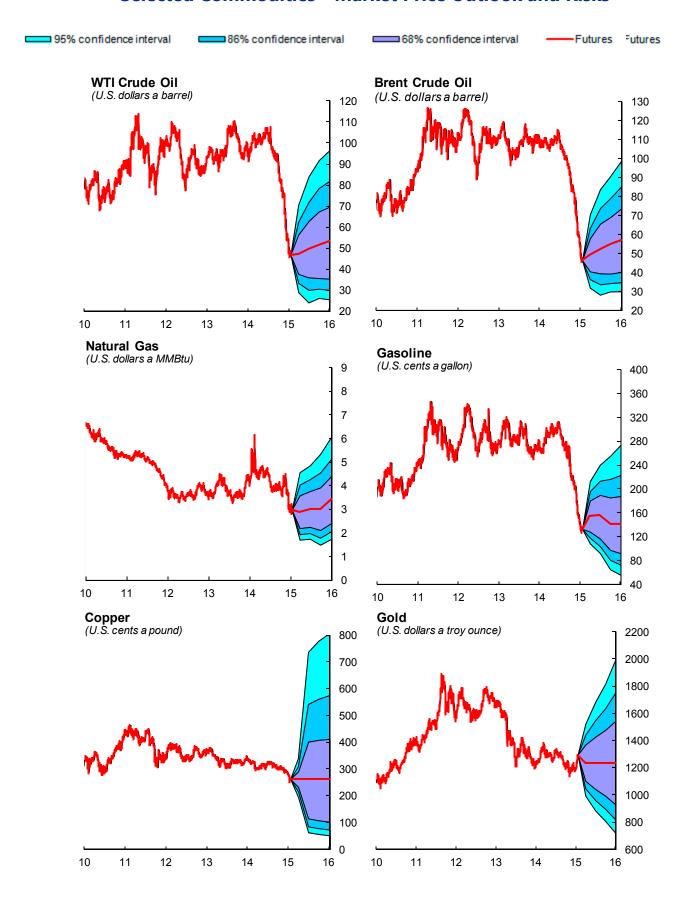
**Risks**. The likelihood of per-barrel prices for WTI falling below \$50 in the next 12 months is about 65 percent, around 28 percentage points higher than last month. The likelihood of Brent falling below \$50 is around 53 percent, around 30 percentage points higher than last month. The likelihood of WTI and Brent oil prices rising above \$100 decreased, signaling a downward shift in the balance of risks for both.

The likelihood of per-MMBtu U.S. natural gas prices below \$3 (12 months forward) increased to 51 percent from 35 percent, while the probability of prices rising above \$7 remained unchanged at 0.1 percent from last month, reflecting an expected decrease in natural gas prices in the coming year. The risk of copper prices falling below \$2 a pound jumped to 48 percent, while the probability of prices increasing above \$4 a pound slightly decreased to 4.9 percent. The probability of gold prices falling below \$1000 a troy ounce increased to 27 percent, while the probability of a price rise above \$1500 increased to 11 percent.

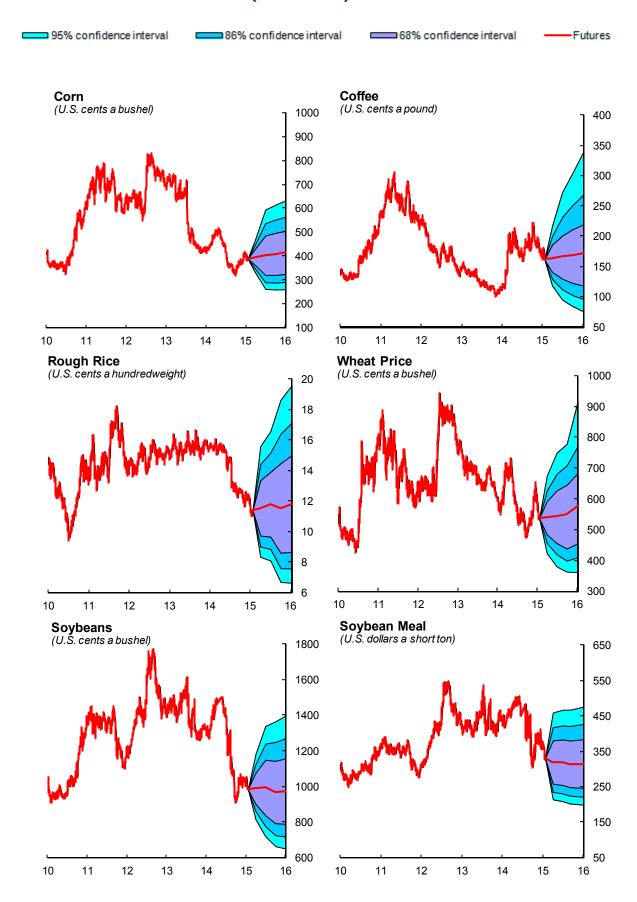
The likelihood of per-bushel soybean prices below \$8 rose to 20 percent from 14 percent, while prices above \$14 decreased to 1.1 percent from 2.5 percent in December. Similarly, the likelihood of soybean meal prices rising above \$450 a short ton declined to 2.1 percent from 5.3 percent previously. Meanwhile, the likelihood of per-bushel corn prices below \$3 slightly increased to 11.1 percent from 10.1 percent, while prices above \$7 decreased to 0.2 percent from 0.5 percent, reflecting stable supply and demand forecasts.

**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 January 21, 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).

### **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	Months Forward			
Prices	3	6	9	12
< 20	0.1	0.4	0.1	0.2
< 30	3.2	6.7	6.8	7.6
< 40	27.4	30.5	33.4	34.0
< 50	72.8	66.1	65.5	64.8
< 60	94.4	88.7	86.0	84.8
> 70	1.0	3.1	5.0	5.8
> 80	0.2	8.0	1.6	2.0
> 90	0.1	0.2	0.5	0.7
> 100	0.0	0.1	0.1	0.2
> 110	0.0	0.0	0.0	0.1
> 120	0.0	0.0	0.0	0.0

**Brent Crude Oil** 

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

	•	•		
Threshold	Months Forward			
Prices	3	6	9	12
< 20	0.0	0.1	0.0	0.0
< 30	1.5	3.8	2.9	3.0
< 40	17.5	21.6	23.2	21.7
< 50	64.0	55.6	56.7	52.8
< 60	92.8	83.6	81.8	78.0
> 70	1.1	4.5	6.3	8.7
> 80	0.2	1.1	1.9	3.1
> 90	0.0	0.3	0.5	1.0
> 100	0.0	0.1	0.1	0.3
> 110	0.0	0.0	0.0	0.1
> 120	0.0	0.0	0.0	0.0

U.S. Natural Gas

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

Threshold	Months Forward			
Prices	3	6	9	12
< 2.50	36.1	32.8	37.1	24.7
< 3.00	68.2	63.7	64.5	51.0
< 3.50	0.88	84.6	83.4	73.5
> 4.00	3.8	5.5	6.9	12.4
> 4.50	1.1	1.8	2.6	5.4
> 5.00	0.3	0.5	1.0	2.2
> 5.50	0.1	0.2	0.4	0.9
> 6.00	0.0	0.0	0.1	0.4
> 6.50	0.0	0.0	0.1	0.2
> 7.00	0.0	0.0	0.0	0.1
> 7.50	0.0	0.0	0.0	0.0

Gasoline

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

Threshold	Months Forward			
Prices	3	6	9	12
< 1.00	1.1	7.1	20.7	23.6
< 1.25	17.7	32.6	49.5	50.9
< 1.50	57.5	64.6	75.0	75.2
< 1.75	87.2	85.9	89.6	89.5
< 2.00	97.5	95.4	96.1	95.9
> 2.25	0.4	1.3	1.4	1.6
> 2.50	0.0	0.4	0.5	0.6
> 2.75	0.0	0.1	0.2	0.3
> 3.00	0.0	0.0	0.1	0.1
> 3.25	0.0	0.0	0.0	0.0
> 3.50	0.0	0.0	0.0	0.0

Copper

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

Threshold	Months Forward			
Prices	3	6	9	12
< 1.0	0.0	3.1	3.6	4.0
< 1.5	0.1	20.5	21.7	22.6
< 2.0	3.9	46.3	47.4	48.1
< 2.5	40.1	68.3	8.88	69.2
> 3.0	7.5	17.3	17.2	17.1
> 3.5	1.0	9.1	9.2	9.2
> 4.0	0.1	4.7	4.8	4.9
> 4.5	0.0	2.4	2.5	2.6
> 5.0	0.0	1.2	1.3	1.4
> 5.5	0.0	0.6	0.7	0.7
> 6.0	0.0	0.3	0.4	0.4

Gold

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

Threshold		Months F	orward	
Prices	3	6	9	12
< 900	0.2	3.6	8.2	14.8
< 1000	3.4	12.5	19.6	27.4
< 1100	17.6	28.8	35.8	42.6
< 1200	45.5	50.7	54.4	58.0
< 1300	73.8	71.7	71.2	71.3
> 1400	9.0	14.2	16.7	18.5
> 1500	2.4	6.6	9.2	11.6
> 1600	0.5	2.8	4.9	7.0
> 1700	0.1	1.1	2.5	4.1
> 1800	0.0	0.4	1.2	2.4
> 1900	0.0	0.1	0.6	1.4

### **Options-based Price Thresholds (concluded)**

Corr

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

Threshold	Months Forward			
Prices	3	6	9	12
< 2.5	0.0	1.6	1.9	1.8
< 3.0	0.4	11.5	11.9	11.1
< 3.5	10.7	34.3	33.9	32.0
< 4.0	60.4	61.3	59.7	57.5
> 4.5	5.6	18.5	20.4	22.2
> 5.0	0.4	7.5	8.9	9.9
> 5.5	0.0	2.7	3.5	4.0
> 6.0	0.0	0.9	1.2	1.5
> 6.5	0.0	0.3	0.4	0.5
> 7.0	0.0	0.1	0.1	0.2

#### Coffe

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

Threshold	Months Forward			
Prices	3	6	9	12
< 1.0	0.2	3.3	5.6	7.2
< 1.2	3.4	11.4	15.9	18.3
< 1.4	17.7	29.1	34.4	37.0
< 1.6	49.4	56.1	58.0	58.7
< 1.8	82.4	78.7	77.2	76.3
> 2.0	4.6	9.4	11.4	12.7
> 2.2	1.2	4.3	5.8	6.7
> 2.4	0.3	2.1	3.0	3.6
> 2.6	0.1	1.0	1.6	2.0
> 2.8	0.0	0.5	0.9	1.2
> 3.0	0.0	0.2	0.5	0.7

#### **Rough Rice**

0.0

0.0

0.1

0.0

> 7.5

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

Ī	Threshold	Months Forward			
	Prices	3	6	9	12
•	< 0.10	24.6	25.7	40.5	39.1
	< 0.11	47.5	46.0	56.7	54.6
	< 0.12	69.6	65.9	70.7	68.3
	< 0.13	84.9	80.8	81.3	78.9
	> 0.14	6.4	9.6	11.3	13.3
	> 0.15	2.4	4.4	6.6	8.1
	> 0.16	8.0	1.9	3.7	4.8
	> 0.17	0.3	0.7	2.0	2.8
	> 0.18	0.1	0.3	1.1	1.6
	> 0.19	0.0	0.1	0.6	0.9
	> 0.20	0.0	0.0	0.3	0.5

#### Wheat

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

Threshold	Months Forward			
Prices	3	6	9	12
< 2	0.0	0.0	0.0	0.0
< 3	0.0	0.2	0.1	0.6
< 4	1.3	4.7	8.1	6.5
> 5	72.8	61.6	56.5	63.9
> 6	10.5	17.9	20.0	26.0
> 7	0.9	2.9	4.5	7.3
> 8	0.1	0.5	8.0	1.9
> 9	0.0	0.1	0.1	0.6
> 10	0.0	0.0	0.0	0.3
> 11	0.0	0.0	0.0	0.1
> 12	0.0	0.0	0.0	0.0

#### Soybeans

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

Threshold	Months Forward			
Prices	3	6	9	12
< 7	0.3	2.0	5.3	6.0
< 8	2.1	11.8	19.9	20.5
< 9	17.7	34.2	43.5	43.3
< 10	60.9	61.2	67.2	66.1
< 11	91.4	81.9	84.0	82.8
> 12	1.3	6.9	6.7	7.7
> 13	0.2	2.2	2.5	3.1
> 14	0.1	0.6	8.0	1.1
> 15	0.0	0.2	0.3	0.4
> 16	0.0	0.0	0.1	0.1
> 17	0.0	0.0	0.0	0.1

#### Soybean Meal

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

Threshold	Months Forward			
Prices	3	6	9	12
< 100	0.0	0.0	0.0	0.0
< 150	0.0	0.0	0.0	0.0
< 200	1.0	1.5	2.1	2.5
< 250	13.9	15.7	18.5	19.6
< 300	46.6	48.0	51.2	51.5
> 350	22.4	22.5	20.9	21.5
> 400	6.8	7.3	6.8	7.4
> 450	1.6	1.9	1.8	2.1
> 500	0.3	0.4	0.4	0.5
> 550	0.1	0.1	0.1	0.1
> 600	0.0	0.0	0.0	0.0

## **Options-based Probabilities of Price Changes**

(in percent)

#### WTI Crude Oil

#### **Brent Crude Oil**

Price		Months	Forward	
changes	3	6	9	12
-50%	62.7	57.8	58.3	57.9
-30%	98.2	95.0	92.8	91.8
-10%	99.9	99.6	99.2	98.9
+10%	0.0	0.0	0.1	0.1
+30%	0.0	0.0	0.0	0.0
+50%	0.0	0.0	0.0	0.0
+100%	0.0	0.0	0.0	0.0

Price	Months Forward				
changes	3	6	9	12	
-50%	80.2	69.2	68.9	64.7	
-30%	99.6	98.0	96.8	95.2	
-10%	100.0	99.9	99.8	99.6	
+10%	0.0	0.0	0.0	0.0	
+30%	0.0	0.0	0.0	0.0	
+50%	0.0	0.0	0.0	0.0	
+100%	0.0	0.0	0.0	0.0	

#### U.S. Natural Gas

#### Gasoline

Price	Months Forward				
changes	3	6	9	12	
-50%	18.4	16.6	21.8	12.8	
-30%	73.4	69.0	69.2	56.2	
-10%	96.1	94.4	93.0	87.3	
+10%	0.4	0.7	1.3	2.8	
+30%	0.0	0.1	0.2	0.6	
+50%	0.0	0.0	0.0	0.1	
+100%	0.0	0.0	0.0	0.0	

Price	Months Forward				
changes	3	6	9	12	
-50%	26.1	40.6	56.5	57.5	
-30%	92.3	90.1	92.5	92.3	
-10%	99.8	99.2	99.1	99.0	
+10%	0.0	0.0	0.1	0.2	
+30%	0.0	0.0	0.0	0.0	
+50%	0.0	0.0	0.0	0.0	
+100%	0.0	0.0	0.0	0.0	

#### Copper

#### Gold

Price		Months I	Forward	
changes	3	6	9	12
-50%	0.4	29.4	30.6	31.5
-30%	20.8	62.4	63.0	63.5
-10%	93.0	83.0	83.1	83.2
+10%	0.5	7.1	7.2	7.3
+30%	0.0	2.9	3.0	3.1
+50%	0.0	1.2	1.3	1.3
+100%	0.0	0.1	0.2	0.2
		•	•	

Price	Months Forward				
changes	3	6	9	12	
-50%	0.0	0.0	0.1	0.4	
-30%	0.1	2.2	5.8	11.6	
-10%	21.8	32.4	39.1	45.4	
+10%	13.5	18.2	20.3	21.6	
+30%	0.4	2.5	4.4	6.5	
+50%	0.0	0.2	8.0	1.7	
+100%	0.0	0.0	0.0	0.0	

### **Options-based Probabilities of Price Changes (concluded)**

(in percent)

#### Corn

6

0.1

10.6

52.2

13.7

2.5

0.4

0.0

3

0.0

0.4

40.1

2.2

0.0

0.0

0.0

Price

changes

-50%

-30%

-10%

+10%

+30% +50%

+100%

Months Forward

9

0.2

11.1

50.9

15.5

3.3

0.5

0.0

	_
12	
0.3	=
10.3	
48.7	
17.0	
3.8	
0.7	

0.0

#### Coffee

Price	Months Forward				
changes	3	6	9	12	
-50%	0.0	0.0	0.0	0.2	
-30%	0.0	0.5	1.3	2.2	
-10%	0.4	4.6	7.4	9.1	
+10%	92.8	83.2	78.0	75.2	
+30%	67.0	56.4	52.7	50.9	
+50%	24.9	26.6	27.4	28.0	
+100%	0.5	2.7	3.9	4.6	

#### Rough Rice

Price	Months Forward				
changes	3	6	9	12	
-50%	0.9	1.6	8.8	9.0	
-30%	43.1	42.1	53.8	51.8	
-10%	93.0	89.7	88.1	86.1	
+10%	0.3	0.7	2.0	2.8	
+30%	0.0	0.0	0.3	0.5	
+50%	0.0	0.0	0.0	0.1	
+100%	0.0	0.0	0.0	0.0	

#### Wheat

Price	Months Forward				
changes	3	6	9	12	
-50%	0.0	0.1	0.0	0.3	
-30%	1.0	4.0	6.9	5.7	
-10%	31.4	41.5	46.1	38.5	
+10%	6.4	13.1	15.6	20.9	
+30%	0.4	1.6	2.7	4.7	
+50%	0.0	0.3	0.3	1.2	
+100%	0.0	0.0	0.0	0.1	

#### Soybeans

Price Months Forward	Months Forward				
changes 3 6 9	12				
-50% 0.1 0.4 1.7	2.1				
-30% 16.5 33.1 42.5	42.3				
-10% 96.9 88.9 89.7	88.6				
+10% 0.1 0.6 0.8	1.0				
+30% 0.0 0.0 0.0	0.1				
+50% 0.0 0.0 0.0	0.0				
+100% 0.0 0.0 0.0	0.0				

#### Soybean Meal

Price	Months Forward				
changes	3	6	9	12	
-50%	1.8	2.5	3.4	4.0	
-30%	40.4	42.0	45.4	45.9	
-10%	87.2	86.8	87.7	87.0	
+10%	1.2	1.5	1.5	1.7	
+30%	0.1	0.1	0.1	0.2	
+50%	0.0	0.0	0.0	0.0	
+100%	0.0	0.0	0.0	0.0	

### **Commodity Derivative Contract Specifications**

Commodity	Exchange	Contract	Physical Characteristics	Contract Size	Pricing Unit	Months Traded
		Futures	Light sweet crude oil	1,000 barrels	U.S. dollars per barrel	
Brent crude oil	ICE Europe	Options		One crude oil futures contract of 1,000 barrels		Consecutive months up to and including February 2020
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.



INTERNATIONAL MONETARY FUND