The Goods

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A monthly commodity watch November 2017

Oil, Wood Products Keep Commodities On a Roll

Index poised for largest gain in 11 months in November

Aaron Goertzen (Agriculture)
416-359-8229
aaron.goertzen@bmo.com

Sarah Howcroft (Metals & Minerals, Editor)
416-359-8458
sarah.howcroft@bmo.com

Alexandros Koustas (Forest Products)
416-359-4624
alexandros.koustas@bmo.com

Earl Sweet (Oil & Gas)
416-359-4407
earl.sweet@bmo.com

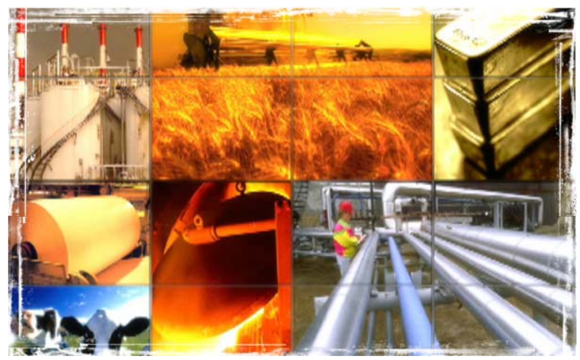
The **BMO Capital Markets Commodity Price Index** remained on the upswing in October, rising 1.5% on further signs of acceleration in the global economy and rebalancing in the oil market. The rally gathered pace in November, driving the index toward its highest level since December 2014. We continue to anticipate some loss of momentum in the first half of 2018.

The **Oil & Gas Index** rose for the fourth consecutive month in October, climbing 3.2% on higher crude oil prices. And, the uptrend remained on track in November, with West Texas Intermediate surging by an estimated 9% (see our focus on oil on page 2). Natural gas has been oscillating around the US$3.00 per million British thermal unit mark, though with U.S. inventories now below their five-year average, normal winter weather could see prices rise over the next few months.

The **Metals & Minerals Index** edged down 0.5% in October as ongoing strength in base metals was countered by a moderation in gold and silver prices, which have since stabilized. The recent wave of investor bullishness related to electric vehicles, most evident in the nickel market, was likely premature. More important for the near-term outlook is the direction of Chinese economic policy in the wake of last month's National Party Congress. This five-yearly event is typically followed by a surge in infrastructure projects, but spending may be tempered by structural reform and deleveraging objectives.

The **Forest Products Index** surged 3.1% in October as the rally in wood products continued unabated. The trifecta of forest fires, tariffs and hurricanes has created one of the most volatile pricing environments in memory. Spruce-Pine-Fir prices surged to a cyclical high of US$446/mbf, with upward momentum carrying into November. OSB advanced to US$454/msf, also a cyclical high, but prices softened considerably in November as hurricane-related demand fell off. We have downgraded our lumber price forecast for 2018 to reflect the lower duties in the U.S. Commerce Department's final determination. The combined countervailing and anti-dumping duty rate is set at 20.83%, a decrease from the preliminary rate of 26.75%.

The **Agriculture Index** edged up 0.2% in October as solid gains in livestock were offset by a modest step down in heavily-weighted crop components. In the crop space, both wheat and canola moved lower during the month as farmers brought in yet another large harvest in North America. In the livestock space, hogs posted an impressive 5.5% counter-seasonal advance in October, only to see it fizzle in the opening weeks of November.



BMO CAPITAL MARKETS COMMODITY PRICE INDEX
(2003 = 100)

All Commodities Index

	Oct. Level (2003=100)	% Change from Mth. Ago	Yr. Ago
All Commodities	181.0	1.5	7.2
Oil & Gas	151.2	3.2	3.3
Metals & Minerals	259.5	-0.5	9.0
Forest Products	156.5	3.1	17.8
Agriculture	139.1	0.2	7.9

Oil markets are rebalancing

Pricing has begun to respond

Earl Sweet, Head, Economic Risk • earl.sweet@bmo.com • 416-359-4407

Crude oil prices have rallied sharply since the last week of October, with West Texas Intermediate (WTI) breaking above the upper end of the US$40-$55 trading range it had been in since early-2016 (Chart 1). By the end of November, WTI reached the $58 mark, with Brent at $64. In part, this reflects ongoing, if incomplete, rebalancing of supply and demand in the global market. Outside of the United States, crude oil inventories have already been pared down to 'normal' levels. While U.S. inventories are still on the high side, their per cent deviation from their five-year average has plunged from 38% in mid-2016 to under 10% recently (Chart 2).

Global oil market rebalancing has been supported by brisk growth in consumption of crude. The International Energy Agency (IEA) estimates that, when the full-year is in, global demand for oil will have increased 1.5 million barrels per day (mmb/d) in 2017 and projects a further 1.3 mmb/d rise in 2018, considerably faster than the longer-term trend of 1.1-1.2 mmb/d.

Production restraint by OPEC, Russia, and 11 other oil exporters (OPEC+) which, in late-2016, agreed to cut aggregate output by 1.8 mmb/d, has also played a crucial role. The agreement originally was intended to last through the first half of 2017 but was subsequently extended to the end of the first quarter of 2018 due to slower-than-expected progress in inventory reductions and now has been extended even further. Aggregate compliance with the agreement has been high, though Saudi Arabia and Mexico have done the heavy lifting, with larger-than-agreed-upon cuts offsetting slippage by several other participants. Production has also been much weaker than intended in Venezuela, reflecting the political and economic crisis in that country. This has offset rising output in Nigeria and Libya, two members of OPEC that were not included in the original restraint agreement due to output being suppressed by insurgencies.

Despite good aggregate compliance by OPEC+ with its agreement, the progress toward oil market rebalancing has been tempered by the snap-back in U.S. production of crude, which rose from a recent low of 8.6 mmb/d in September 2016 to an estimated 9.6 mmb/d in November 2017 (Chart 3). Growth has been particularly brisk in the prolific, low-cost Permian Basin in the western part of Texas and southeast New Mexico, where horizontal drilling is revealing a much larger resource than previously estimated. If the price of WTI

CHART 1: CRUDE OIL PRICES
(US$/barrel)

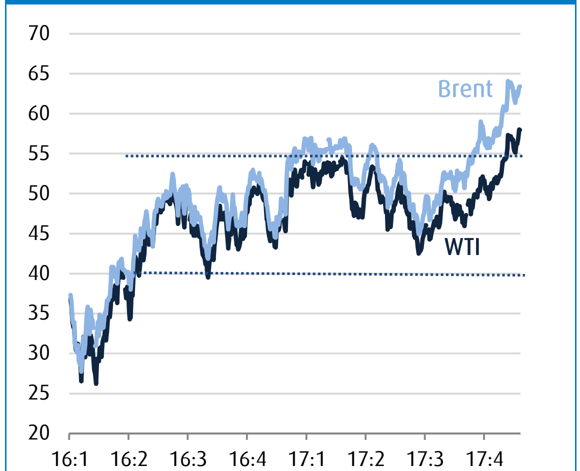
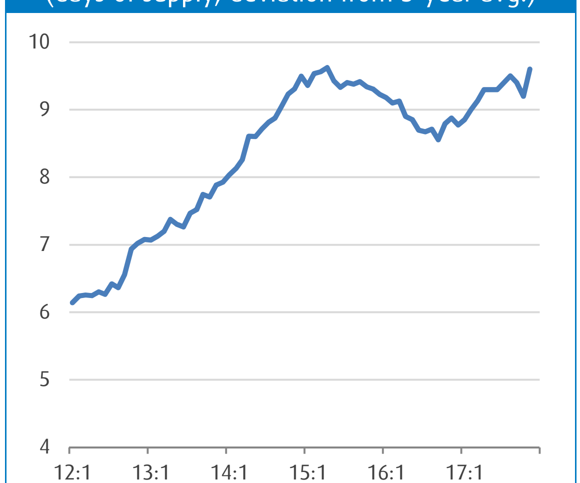


CHART 2: U.S. CRUDE OIL INVENTORIES
(% deviation from five-year average)

CHART 3: U.S. CRUDE OIL PRODUCTION
(days of supply; deviation from 5-year avg.)



were to continue in the US$55-$65 range, U.S. oil production would likely continue to grow through the middle of the next decade, leading to ongoing market-share tensions with traditional major players in the Middle East and Russia.

In the face of slow progress in the process of rebalancing global demand and supply of oil, OPEC+ met in Vienna on November 30th and decided to extend the agreement through the end of 2018. Saudi Arabia expressed concern that the eventual winding down of production restraint be done in such a way as to not cause a significant decline in prices. While the Saudis stated that market conditions would be reassessed at its June 2018 meeting, they appear to have a strong preference to maintain cuts through the end of next year. Russia expressed a different concern – namely, that output cuts, if maintained too long, could cause a supply deficit, forcing prices up too quickly and incenting accelerated drilling and market-share gains by U.S. producers of shale oil. Consequently, Russia would prefer a more flexible mechanism to wind down restraint if justified by market conditions. Clearly, the OPEC+ participants will be treading a fine line over the next year. Consequently, shifting market expectations about the degree of compliance, as well as weekly and monthly data on U.S. production and inventories, could generate considerable price volatility.

In light of continued production restraint by OPEC+, we project that WTI will rise from an average of US$50.90/barrel in 2017 to $57 in 2018 (up $2 from last month's outlook) and $60 in 2019. When markets eventually reach equilibrium, the 'normal' price of oil will be considerably lower than expectations prior to 2015, capped by efficiency gains by drillers and the falling cost of alternative energy sources and storage. In its recent World Energy Outlook 2018, the IEA estimates that the longer-term equilibrium price for oil will be in the range of $50-$70. The relatively large width of this range reflects considerable uncertainty about the impact of technology on crude oil resource development and the cost and pace of adoption of alternative energy sources. The IEA anticipates 50 million electric vehicles on the road by the middle of the next decade and 300 million by 2040 and estimates that that would cut global demand by 2.5 mmb/d or approximately 2% by that time. However, the agency expects an offset from rising demand in other forms of transportation and by the petrochemical industry.

Energy and Materials

		Crude Oil (WTI)		Natural Gas (Henry Hub)		Natural Gas (Alta. Empress)		Lumber		Pulp	Newsprint
		US$/bbl		US$/mmbtu				US$/mbf		US$/tonne	
	2004	41.44		5.90		5.25		386		632	534
	2005	56.46		8.81		7.51		347		631	594
	2006	66.10		6.74		5.92		290		713	654
	2007	72.36		6.98		6.32		245		816	588
	2008	99.57		8.86		8.09		215		844	666
	2009	61.69		3.95		3.46		177		707	589
	2010	79.43		4.39		3.59		255		926	583
	2011	95.08		4.00		3.28		255		968	623
	2012	94.20		2.75		2.19		299		862	619
	2013	97.93		3.73		2.98		356		895	601
	2014	93.26		4.39		4.56		349		965	571
	2015	48.69		2.63		2.33		277		946	542
	2016	43.21		2.52		1.68		305		938	540
	y-t-d 2017	50.14		3.00		1.93		394		938	540
2016	November	45.73		2.55		1.94		306		938	540
	December	52.06		3.59		2.56		320		938	540
2017	January	52.56		3.30		2.17		310		938	540
	February	53.46		2.85		1.92		375		938	540
	March	49.48		2.88		1.90		359		938	540
	April	51.08		3.10		2.09		407		938	540
	May	48.51		3.15		2.14		388		938	540
	June	45.19		2.98		1.87		368		938	540
	July	46.61		2.98		2.05		403		938	540
	August	48.05		2.90		1.53		395		938	540
	September	49.83		2.98		1.68		419		938	540
	October	51.60		2.88		1.99		446		938	540
	m-t-d November	56.59		3.02		2.26		485		n.a.	n.a.
Forecast	2017 Avg.	**50.90**	↑	**3.00**		**2.01**	↑	**400**	↑	**938**	**538**
	2018 Avg.	**57.00**	↑	**3.25**		**2.55**		**365**	↓	**925**	**520**

Commodity price forecasts are by BMO Capital Markets Economics and are independent of those used by BMO Capital Markets Equity Research.
↑ and ↓ indicate annual forecast changes from last month.

Base and Precious Metals

		Copper	Aluminum	Zinc	Nickel	Gold	Silver
		US$/lb				US$/oz	
	2004	1.30	0.78	0.48	6.27	409	6.65
	2005	1.67	0.86	0.63	6.69	445	7.31
	2006	3.05	1.17	1.48	11.00	605	11.58
	2007	3.23	1.20	1.47	16.89	697	13.40
	2008	3.15	1.17	0.85	9.57	872	15.01
	2009	2.34	0.75	0.75	6.64	973	14.67
	2010	3.42	0.99	0.98	9.89	1225	20.16
	2011	4.00	1.09	0.99	10.38	1570	35.11
	2012	3.61	0.92	0.88	7.96	1668	31.15
	2013	3.32	0.84	0.87	6.81	1411	23.83
	2014	3.11	0.85	0.98	7.65	1266	19.08
	2015	2.50	0.75	0.88	5.37	1160	15.70
	2016	2.21	0.73	0.95	4.35	1248	17.10
	y-t-d 2017	2.77	0.89	1.30	4.68	1257	17.13
2016	November	2.47	0.79	1.17	5.05	1240	17.48
	December	2.57	0.78	1.21	4.99	1153	16.37
2017	January	2.60	0.81	1.23	4.53	1193	16.85
	February	2.69	0.84	1.29	4.82	1233	17.88
	March	2.64	0.86	1.26	4.64	1231	17.61
	April	2.58	0.88	1.19	4.38	1267	18.08
	May	2.54	0.87	1.17	4.15	1245	16.76
	June	2.59	0.86	1.17	4.05	1261	16.96
	July	2.71	0.86	1.26	4.30	1235	16.16
	August	2.94	0.92	1.35	4.92	1282	16.90
	September	2.99	0.95	1.41	5.09	1317	17.46
	October	3.08	0.97	1.48	5.13	1281	16.94
	m-t-d November	3.10	0.96	1.47	5.47	1283	17.04
Forecast	2017 Avg.	**2.78** ↑	**0.90**	**1.31** ↑	**4.65** ↑	**1257** ↑	**17.10**
	2018 Avg.	**2.75**	**0.92**	**1.40**	**4.80**	**1280**	**17.60**

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Agriculture

		Wheat	Canola	Cattle	Hogs
		US$/bushel	US$/tonne	US$/cwt	
	2004	3.46	271	n.a.	n.a.
	2005	3.19	224	87.34	68.58
	2006	4.02	257	86.23	64.08
	2007	6.38	378	93.92	65.56
	2008	7.98	527	93.60	66.05
	2009	5.30	371	83.85	58.11
	2010	5.81	429	94.95	75.60
	2011	7.10	566	114.54	90.34
	2012	7.50	601	122.65	84.93
	2013	6.84	545	126.40	89.33
	2014	5.88	400	151.50	105.83
	2015	5.08	371	146.49	69.40
	2016	4.36	366	118.61	65.60
	y-t-d 2017	4.38	393	117.77	70.29
2016	November	4.03	382	106.63	48.12
	December	3.97	386	112.09	59.81
2017	January	4.24	383	118.07	65.57
	February	4.37	396	118.85	70.83
	March	4.27	382	118.66	67.92
	April	4.20	377	125.99	64.21
	May	4.30	382	124.69	75.12
	June	4.54	385	124.42	84.08
	July	5.04	419	115.15	86.65
	August	4.29	398	108.94	72.50
	September	4.37	399	107.80	59.14
	October	4.35	398	112.56	62.39
	m-t-d November	4.23	403	121.32	63.08
Forecast	2017 Avg.	**4.38** ↓	**394**	**117.70** ↑	**69.40** ↑
	2018 Avg.	**5.00**	**420**	**113.00** ↑	**67.00**

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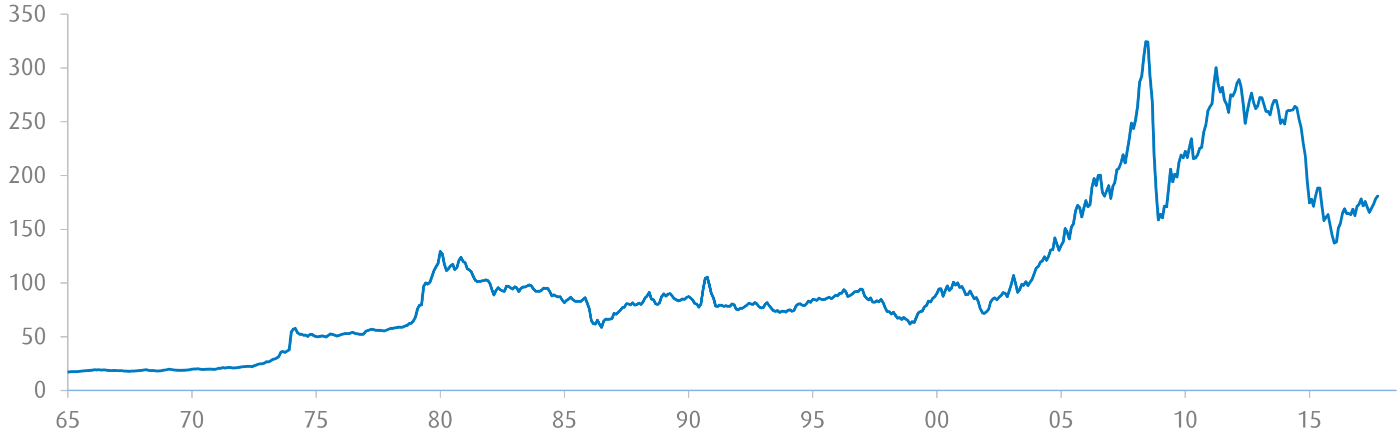
Commodity Indices and Forecasts

US$-terms : 2003 = 100		All Commodities	Oil & Gas	Metals & Minerals	Forest Products	Agricultural Products	All Commodities C$-terms
Annual							
	2008	264.9	299.5	287.2	113.5	208.5	198.8
	2009	191.8	182.0	267.1	97.1	145.2	155.5
	2010	229.1	232.7	291.0	122.3	163.4	168.4
	2011	275.5	275.6	364.8	125.6	205.3	194.5
	2012	271.0	270.3	353.8	128.1	216.9	193.3
	2013	262.8	283.0	300.6	139.4	200.1	193.1
	2014	246.3	271.4	272.2	138.8	170.0	193.9
	2015	169.7	142.5	245.2	125.6	151.3	154.4
	2016	159.3	126.9	239.0	130.3	135.9	150.5
Forecast	2017	**176.3**	**149.6**	**249.6**	**147.0**	**140.2**	**163.7**
	2018	**187.5**	**167.2**	**257.5**	**139.3**	**152.2**	**175.6**
Quarterly							
2016	Q1	142.1	98.0	231.9	124.3	139.1	139.2
	Q2	163.1	132.3	239.5	131.2	145.4	150.1
	Q3	164.4	132.4	247.9	133.7	128.7	153.1
	Q4	167.6	144.9	236.7	132.2	130.5	159.7
2017	Q1	174.5	152.2	243.3	137.4	138.0	164.7
	Q2	170.7	142.3	244.4	144.4	139.2	164.0
	Q3	173.8	141.8	252.9	149.1	143.8	155.7
Forecast	Q4	**186.1**	**161.9**	**257.9**	**156.9**	**139.6**	**170.4**
2018	Q1	**188.5**	**170.2**	**254.5**	**146.1**	**145.0**	**176.0**
	Q2	**184.2**	**161.4**	**255.4**	**139.8**	**154.3**	**172.7**
Monthly							
2016	Oct	168.8	146.4	238.1	132.9	128.9	159.5
	Nov	162.8	134.0	240.0	130.9	130.7	156.2
	Dec	171.3	154.2	232.0	132.9	131.8	163.3
2017	Jan	173.4	154.9	237.8	131.2	136.5	163.6
	Feb	178.3	156.4	246.6	141.4	140.7	166.7
	Mar	171.7	145.3	245.5	139.5	136.9	163.9
	Apr	175.7	150.3	247.5	147.2	136.0	168.5
	May	170.5	143.2	242.3	144.4	138.7	165.8
	Jun	165.9	133.5	243.4	141.5	143.0	157.7
	Jul	169.6	137.5	243.1	148.0	154.1	153.9
	Aug	173.4	141.3	254.6	147.6	138.4	156.2
	Sep	178.3	146.5	260.9	151.8	138.8	156.9
	Oct	181.0	151.2	259.5	156.5	139.1	162.4

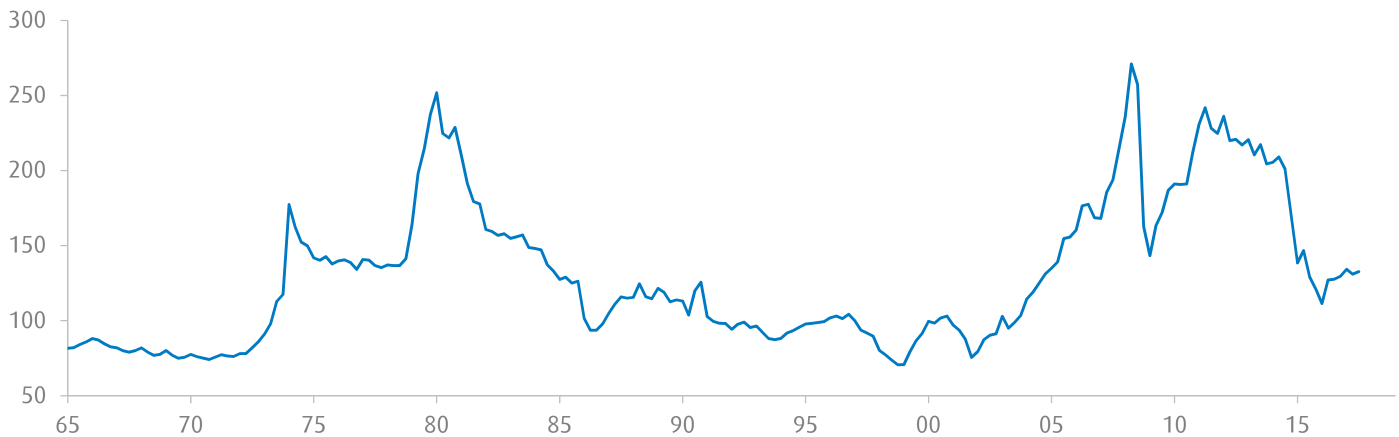
Commodity price indices and forecasts are by BMO Capital Markets Economics.
Forecasts are independent of those used by BMO Capital Markets Equity Research.

Historical Charts: All-Commodity Index

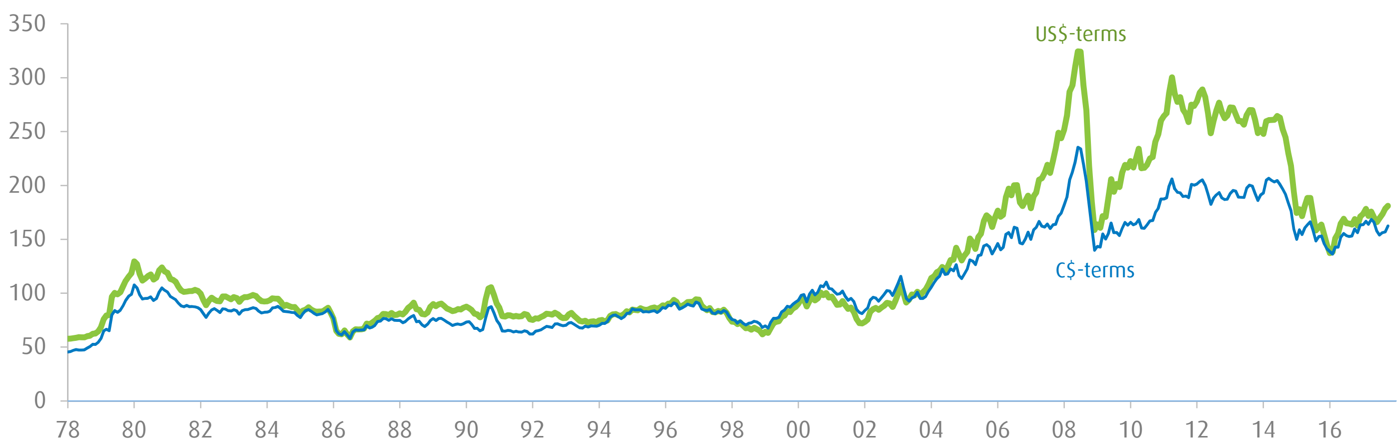
Nominal US$-Terms (2003 = 100)



Real US$-Terms (2003 = 100)



Nominal (2003 = 100)



Technical Note

The BMO Capital Markets Commodity Price Index is a fixed-weight, export-based index that encompasses the price movement of 19 commodities key to Canadian exports. Weights are each commodity's average share of the total value of exports of the 19 commodities during the period 2012-16. Similarly, weights of sub-index components reflect the relative importance of commodities within their respective product group.

The all-commodities index and sub-indices consist of the following:

Percent	Weight in All-Commodities Index	Weight in Sub-Index		Weight in All-Commodities Index	Weight in Sub-Index
Metals & Minerals	**27.8**	**100.0**	**Forest Products**	**12.6**	**100.0**
Gold	9.9	35.5	Newsprint	1.4	11.5
Silver	1.3	4.6	Market Pulp	3.8	30.5
Aluminum	5.9	21.4	Supercalendered Paper	1.2	9.8
Copper	2.2	7.8	Lumber	5.1	40.6
Nickel	3.0	10.8	OSB	1.0	7.6
Zinc	0.8	3.0			
Uranium	1.2	4.4	**Agricultural Products**	**8.5**	**100.0**
Potash	3.5	12.7	Wheat	4.2	49.5
			Canola	3.1	36.6
Oil and Gas	**51.1**	**100.0**	Hogs	0.3	3.0
Crude Oil	44.5	87.2	Beef Cattle	0.9	10.9
Canadian Natural Gas	6.5	12.8			
			All Commodities	**100.0**	

Unless otherwise specified, all indices reported in this publication correspond to prices in U.S. dollars.