

Commodities Flat in March Amid Broad Market Volatility

Geopolitical uncertainty, trade tariffs, supply issues and weather all playing a role

The **BMO Capital Markets Commodity Price Index** was little-changed in March, inching up 0.1% as a retrenchment in metals was offset by modest gains elsewhere. Commodity markets are taking cues from myriad geopolitical/trade developments and we expect resultant price volatility over the coming months.

The **Oil & Gas Index**, while volatile over the past several weeks, rose 0.9% in March. It appears headed for a larger gain in April as prices for both crude oil and natural gas have broken above their trading ranges of the past three months. Oil is being supported by good adherence by OPEC and its partners to output quotas, the rebalancing of global inventories, and concerns that potential new sanctions against Iran and turmoil in Venezuela will further restrict global supply. Natural gas inventories in North America have also tightened considerably, though prices, while rising, are still weak.

The **Metals & Minerals Index** dipped 1.6% in March, with weakness across the spectrum but most pronounced in aluminum (-5.0%) and zinc (-7.3%). The former remained under pressure from building exchange inventories, dropping 13% between mid-February and early April, before vaulting to a six-year high after the U.S. announced sanctions on selected Russian entities, including the world's second-largest aluminum producer. Zinc was also hit by unexpected inventory additions as well as U.S. import tariffs (zinc is used to galvanize steel) and trade war fears.

The **Forest Products Index** advanced 1.8% in March, showing broad-based gains across all categories. Duties continue to be passed along to buyers of both newsprint and supercalendered paper, while wood product markets remain very tight. Spruce-Pine-Fir prices remained roughly steady at US\$524/mbf in March, but the figure belied market conditions as pricing data was extremely thin for the month amid shipping delays. Following a mid-month swoon, prices have since bounced back to record levels above \$540. Oriented Strand Board prices rose US\$28 to \$405/msf in March and remained lofty following the announcement of an indefinite shutdown at a major supplier's plant.

The **Agriculture Index** edged 0.9% higher in March on a mixed performance across products. Wheat was the only component to advance during the month, jumping 4.2% to an eight-month high as a cold snap delayed planting across parts of North America. On the other side of the ledger, cattle prices lost 5.9% and hogs plunged 10.9% amid increasing signs of oversupply. Key agricultural goods—most notably soybeans and hogs—dropped sharply in early April after China announced wide-ranging tariffs on U.S. goods.

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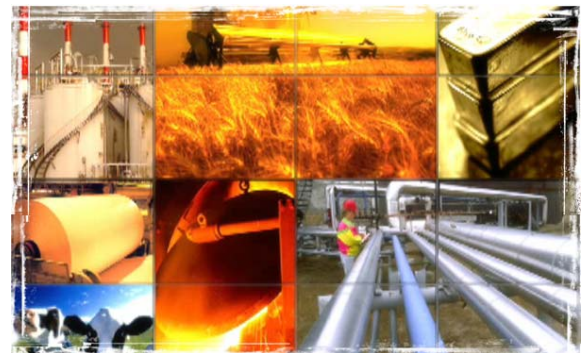
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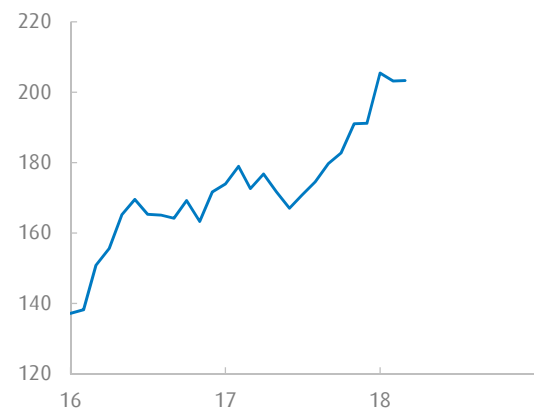
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**BMO CAPITAL MARKETS
COMMODITY PRICE INDEX
(2003 = 100)**

All Commodities Index



	Mar. Level (2003=100)	% Change from Mth. Ago	% Change from Yr. Ago
All Commodities	203.3	0.1	17.8
Oil & Gas	182.0	0.9	25.3
Metals & Minerals	266.2	-1.6	8.4
Forest Products	189.0	1.8	28.9
Agriculture	146.8	0.9	7.2



Commodity Focus: Natural Gas

Responsive shale production to restrain pricing

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Even with oil hitting its highest level since 2014, natural gas has simply not joined in the rebound and remains weak by historical standards. Despite a very cold start to the winter of 2017-18 in major heating regions in North America and the resulting sharp drawdown in underground storage of natural gas, pricing remains soft. Following a brief spike to close to US\$3.90 per million British thermal units (mmbtu) on a monthly average basis in January (and almost \$7 briefly at the beginning of the month), U.S. benchmark Henry Hub weakened notably, falling below the \$3 mark in early February and, since then, averaging just \$2.65 (*Chart 1*). While volatile, the discount on natural gas in western Canada has been larger than its historical norm, keeping prices there below the US\$2/mmbtu mark in March and first half of April, though more recently it has surged upward on falling inventories. The earlier build-up of supplies in Alberta stemmed from pipeline bottlenecks and increasing competition in traditional eastern Canada gas markets from the prolific Marcellus field in the Appalachian Basin.

For much of 2016 and the first half of 2017, highly elevated U.S. inventories of natural gas – which surged to almost 55% above their five-year seasonal average in early 2016 (*Chart 2*) – contributed to a downdraft in pricing. In turn, weak prices led to a notable decline in drilling activity, causing U.S. production of natural gas to drop 7.5% y/y in early 2017 (*Chart 3*). This, plus continued growth in natural gas net exports, helped reduce inventories, which have now fallen to approximately 20% below their five-year average for this time of year. While that would normally put upward pressure on pricing, this has not occurred to the same degree, as market participants are focusing on the rebound in domestic production from shale formations over the past six months and are anticipating a rapid inventory rebuild over the summer.

The swing in inventories from excess earlier in 2017 to deficit currently would have been even more pronounced had U.S. domestic consumption of natural gas continued to rise at its 10-year trend rate of 2.4%. However, demand actually slipped 1.4% last year (*Chart 4, next page*), largely due to a temporary, albeit sharp, reversal of rising utilization of natural gas by power utilities. Over the past two decades, as natural gas' share of power generation increased, largely at the expense of coal, utility consumption of the fuel rose at an average annual pace of 4%. Last year, however, utility demand for natural gas plunged 7.3% as relatively moderate summertime temperatures reduced air-conditioning-demand for power generation. With U.S. domestic production closing the gap with consumption in

CHART 1: NATURAL GAS PRICES
(US\$ per Million BTU)

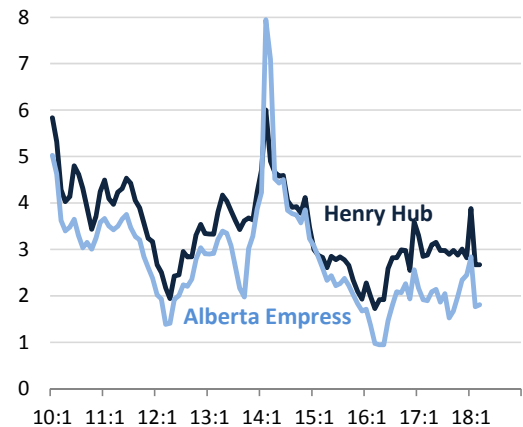


CHART 2: US NATURAL GAS INVENTORIES
(Per Cent Deviation From 5-year Average)

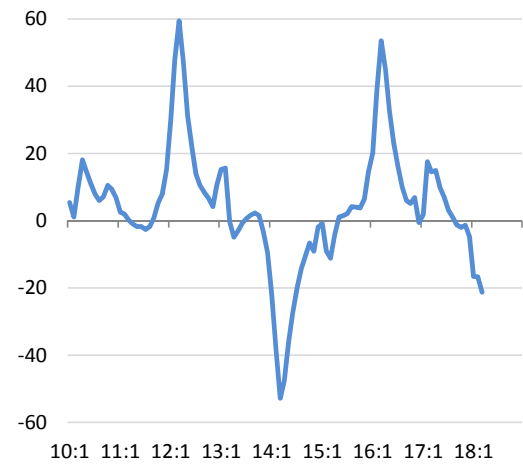
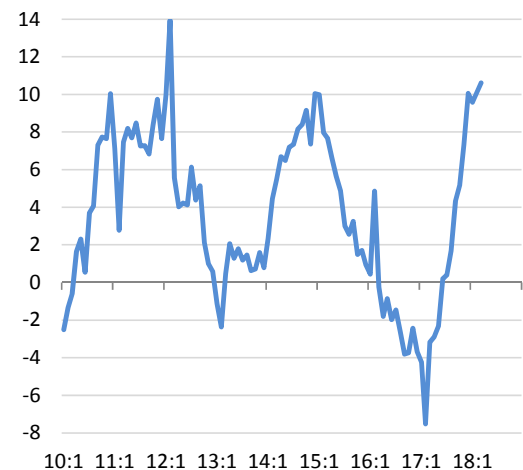


CHART 3: U.S. NATURAL GAS OUTPUT
(Growth: year/year % Change)



2017, the United States became a small net exporter of natural gas (*Chart 5*). Although the trend towards U.S. self-sufficiency in natural gas had earlier led to a notable decline in imports from Canada – from 10.4 billion cubic feet per day (bcf/d) in 2007 to 7.2 bcf/d during 2014-2015 – this trend has been subsequently reversed, with imports from Canada rising to 8.1 bcf/d in 2017. This highlights the increasing integration of the North American natural gas market and the beginning of its integration with global gas markets through liquefied natural gas (LNG) exports.

Although U.S. domestic production and consumption of natural gas are now closely aligned, rising exports to Mexico and eastern Canada and the acceleration in LNG exports (*Chart 6*) have opened up room for Canadian gas in western U.S. markets. With rising LNG export capacity and a gradual recovery in the demand and pricing for LNG in global markets, U.S. exports are likely to continue to grow briskly, further integrating the North American market with the generally higher-priced offshore market. The U.S. Energy Information Administration estimates that natural gas liquefaction capacity will increase from approximately 2.8 bcf/d at the end of 2017 to almost 4.5 bcf/d by the end of this year, followed by a more than doubling of capacity to 9.6 bcf/d by year-end 2019.

Overall, **natural gas pricing in North America is expected to improve modestly this year from its current level**, though gains are likely to be capped by robust growth in U.S. production. We expect Henry Hub to average US\$3.00/mmbtu in 2018 (almost identical to 2017) and US\$3.10 in 2019. **The risk to this forecast is skewed to the upside** and could stem from a number of factors. First, underground storage of natural gas has exited winter at a low level, requiring elevated injections to get it back to an adequate amount prior to the next heating season. This required inventory build could be challenged by the unusually cold April and current long-term weather projection of a warmer-than-average summer, which would generate a strong rebound in natural gas consumption by utilities. Even prior to the summer cooling season, demand by power generators started to strengthen on a seasonally-adjusted basis late in 2017. Second, and also on the demand side, utilization of natural gas by industry – second only to power generation in terms of quantity demanded on an annual basis – has accelerated in recent months and growth should speed up further in 2018 along with the overall economy and expanding petrochemical industry. In particular, the expansion of ethylene cracking capacity is leading to increased extraction of ethane that had previously been left in natural gas streams. Third, on the supply side, production growth may disappoint current expectations as intense drilling in highly prolific areas such as the Permian Basin may cause operational difficulties and a weakening in well productivity.

CHART 4: US NATURAL GAS MARKET
(Billion Cubic Feet Per Day)

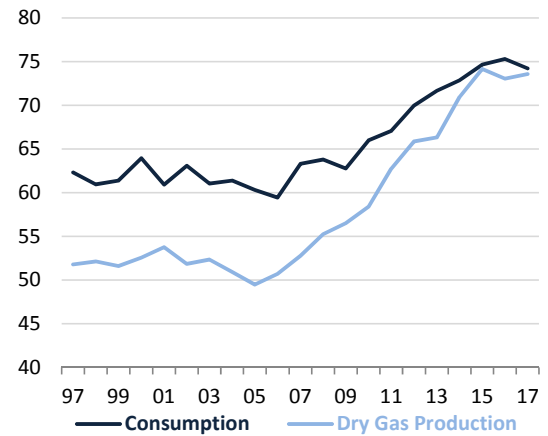


CHART 5: U.S. NATURAL GAS IMPORTS
(Billion Cubic Feet Per Day)

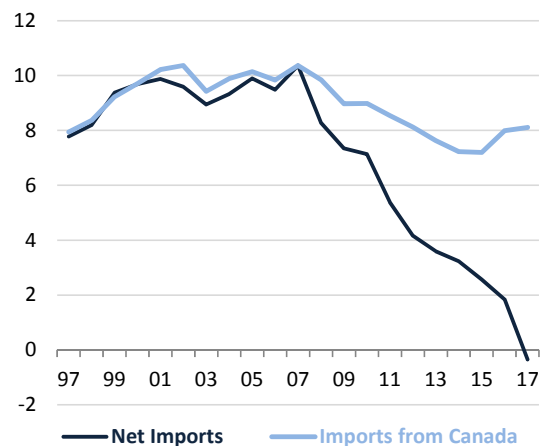
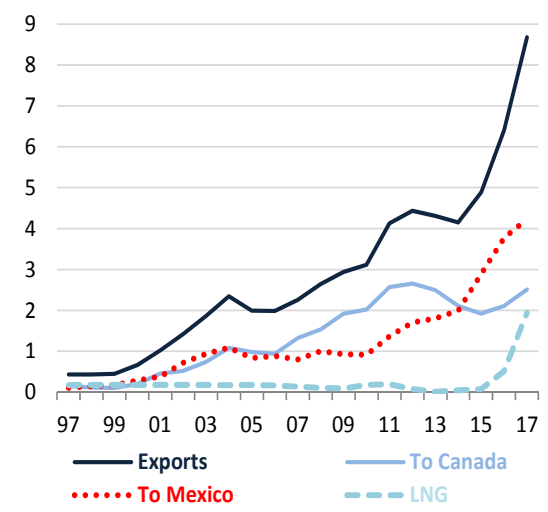


CHART 6: U.S. NATURAL GAS EXPORTS
(Billion Cubic Feet Per Day)



Energy and Materials

		Crude Oil	Natural Gas		Lumber	Pulp	Newsprint
		(WTI)	(Henry Hub)	(Alta. Empress)			
		US\$/bbl	US\$/mmbtu		US\$/mbf	US\$/tonne	
	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	980	561
	2017	50.91	2.99	2.01	401	1103	584
	y-t-d 2018	63.17	3.05	2.07	518	1242	642
2017	April	51.08	3.10	2.09	407	1080	575
	May	48.51	3.15	2.14	388	1100	575
	June	45.19	2.98	1.87	368	1100	575
	July	46.61	2.98	2.05	403	1100	575
	August	48.05	2.90	1.53	395	1100	575
	September	49.83	2.98	1.68	419	1130	575
	October	51.60	2.88	1.99	446	1160	605
	November	56.66	3.01	2.34	484	1160	605
	December	57.93	2.82	2.45	457	1215	620
2018	January	63.66	3.88	2.84	493	1215	635
	February	62.21	2.67	1.77	523	1240	635
	March	62.76	2.69	1.81	524	1270	655
	m-t-d April	64.71	2.79	1.78	543	n.a.	n.a.
Forecast	2018 Avg.	62.00 ↑	3.00	2.20	500 ↑	1215 ↑	650 ↑
	2019 Avg.	62.00 ↑	3.10 ↓	2.45 ↓	400 ↑	1100 ↑	640 ↑

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		
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
2017	2.80	0.89	1.31	4.72	1258	17.06
y-t-d 2018	3.15	0.98	1.54	6.04	1332	16.74
2017						
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
November	3.10	0.95	1.47	5.44	1283	17.02
December	3.08	0.94	1.45	5.17	1266	16.16
2018						
January	3.21	1.00	1.56	5.84	1333	17.19
February	3.18	0.99	1.61	6.16	1334	16.65
March	3.08	0.94	1.49	6.08	1326	16.47
m-t-d April	3.08	0.97	1.45	6.13	1337	16.49
Forecast						
2018 Avg.	3.00	0.98 ↑	1.40	5.40 ↑	1310 ↑	16.75 ↓
2019 Avg.	3.15	0.98	1.36	5.25	1300 ↑	17.75 ↓

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Agriculture

		Wheat	Canola	Cattle	Hogs
		US\$/bushel	US\$/tonne		US\$/cwt
	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
	2017	4.36	393	117.90	69.87
	y-t-d 2018	4.57	401	121.50	67.11
2017	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
	November	4.22	403	121.21	63.23
	December	4.11	390	118.46	66.83
2018	January	4.32	395	121.53	72.26
	February	4.56	403	127.54	71.99
	March	4.75	402	120.05	64.16
	m-t-d April	4.71	414	113.79	54.51
Forecast	2018 Avg.	4.80	405 ↓	115.00 ↓	67.00 ↓
	2019 Avg.	5.10	415	115.00	73.00

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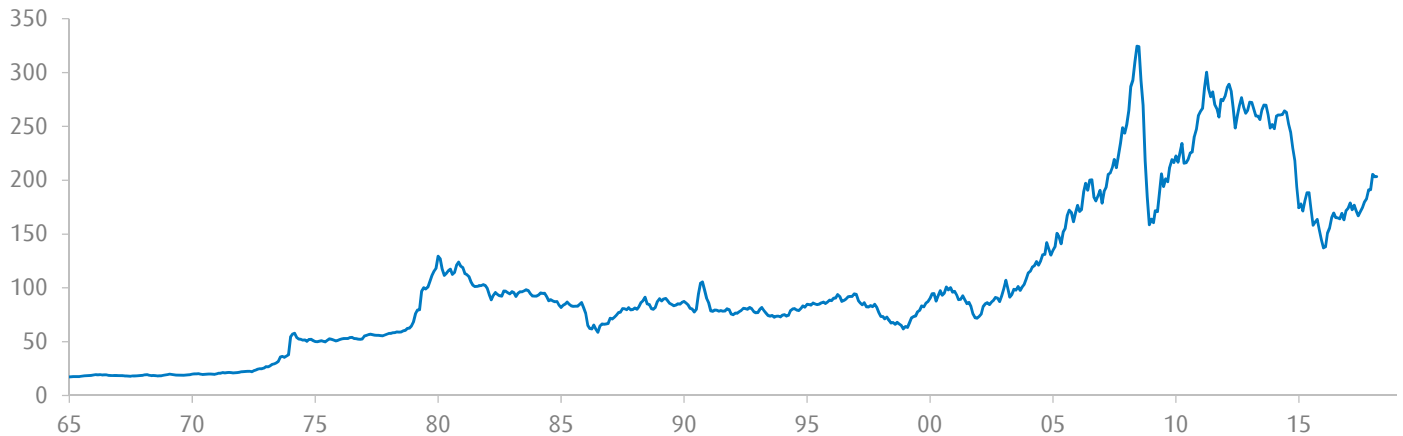
Commodity Indices and Forecasts

US\$-terms : 2003 = 100		All Commodities	Oil & Gas	Metals & Minerals	Forest Products	Agricultural Products	All Commodities C\$-terms
Annual							
	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	159.6	126.9	239.0	133.0	135.9	150.8
	2017	177.6	149.6	250.0	156.8	139.8	164.5
Forecast	2018	201.1	180.6	264.5	180.5	147.4	182.0
	2019	200.1	180.9	269.1	156.8	153.7	176.2
Quarterly							
2016	Q3	164.9	132.4	247.9	137.6	128.7	153.5
	Q4	168.1	144.9	236.7	135.9	130.5	160.1
2017	Q1	175.2	152.2	243.3	142.9	138.0	165.4
	Q2	171.9	142.3	244.4	153.4	139.2	165.1
	Q3	175.0	141.8	252.9	159.1	143.8	156.8
	Q4	188.3	161.9	259.6	171.9	138.0	170.8
2018	Q1	204.0	183.3	269.3	184.1	144.2	183.9
Forecast	Q2	206.4	187.2	265.8	189.8	152.0	189.1
	Q3	197.2	175.9	260.0	179.2	146.5	178.7
	Q4	196.8	176.2	262.7	168.8	146.8	176.3
Monthly							
2017	Mar	172.6	145.3	245.5	146.6	136.9	164.8
	Apr	176.8	150.3	247.5	155.5	136.0	169.5
	May	171.7	143.2	242.3	153.8	138.7	167.0
	Jun	167.1	133.5	243.4	150.9	143.0	158.9
	Jul	170.8	137.5	243.1	157.4	154.1	155.0
	Aug	174.6	141.3	254.6	157.0	138.4	157.2
	Sep	179.7	146.5	260.9	163.0	138.8	158.1
	Oct	182.7	151.2	259.5	170.3	139.1	164.0
	Nov	191.0	165.7	261.1	174.0	139.2	174.1
	Dec	191.2	168.8	258.1	171.4	135.6	174.2
2018	Jan	205.5	187.3	271.2	177.9	140.2	182.6
	Feb	203.2	180.5	270.6	185.5	145.5	181.7
	Mar	203.3	182.0	266.2	189.0	146.8	187.4

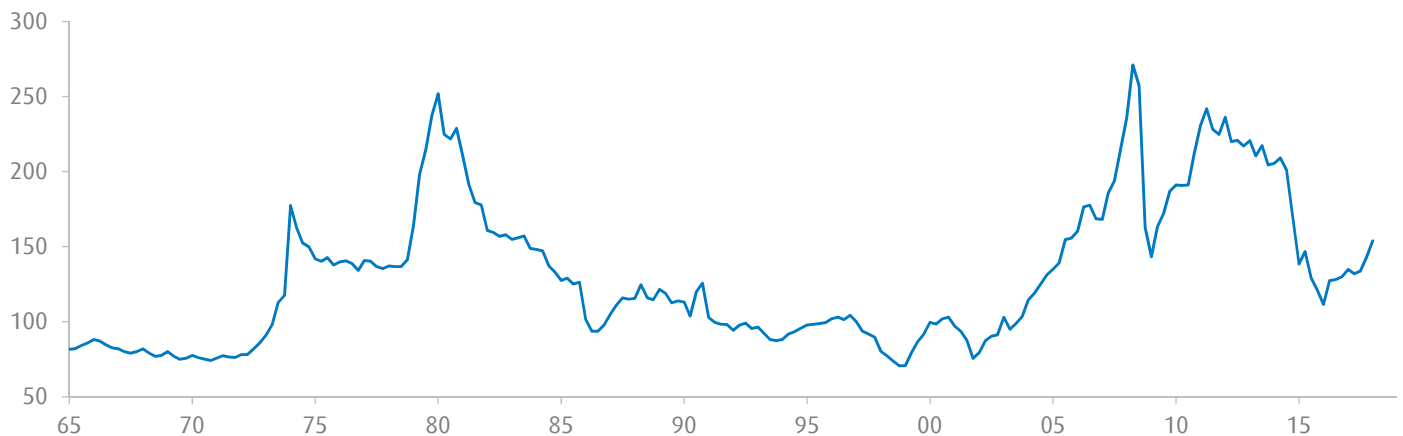
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Historical Charts: All-Commodity Index

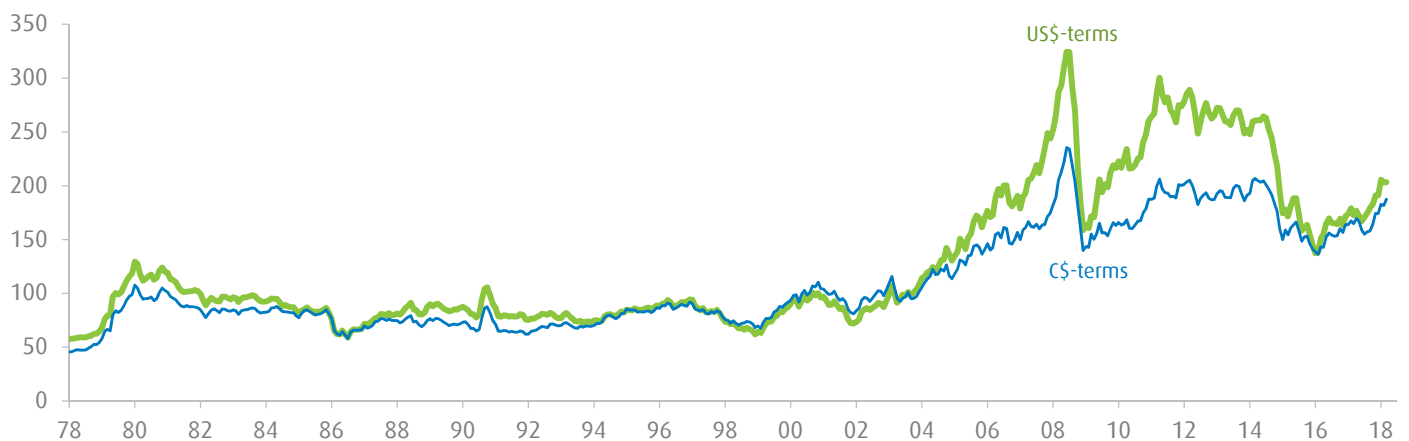
Nominal US\$-Terms (2003 = 100)



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.

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