Oil Prices Steady & Copper Finally Rises, but Canadian Oil-by-Rail Hits a Bump on the Tracks

- **Global oil prices remain steady after recovering from late-2018's risk-off rout**. WTI crude is currently trading in the mid-$50s per barrel, supported by OPEC supply cutbacks, the crisis in Venezuela, and slower US shale growth, while lingering concerns about demand growth, the potential for renewed shale acceleration, and President Trump's tweet-based threats against OPEC serve as the main headwinds to breaking above $60/bbl.
- **Canadian heavy oil continues to trade tighter than expected to WTI**. The Alberta government's oil production curtailment program has dramatically improved WCS differentials but spot discounts have come in too far and the economics of necessary oil-by-rail egress have deteriorated. While WCS-WTI discounts around $10/bbl are certainly supporting near-term producer netbacks, differentials will need to rise to $15–20/bbl in order to re-incentivize necessary oil-by-rail growth through end-year. **The Alberta government's oil-by-rail plan** could begin as soon as this summer, but Canadian crude discounts need to rise further if the plan is to be profitable.
- **The National Energy Board reasserted its initial conclusion** that the Trans Mountain Pipeline Expansion was in Canada's national interest, finding that increased risks to maritime habitats did not outweigh the many economic benefits of the project now owned by Canadian taxpayers.
- **Copper prices have risen to nearly $3/lb** for the first time since contracts first collapsed in June 2018 on the back of US-China trade uncertainty; the red metal's rally is being sustained by a combination of cooler trade rhetoric and sinking inventories.

OIL FACES BULLISH RISKS AND SOFT $60/BBL SHALE CEILING

Crude prices have risen at a brisk pace through the first quarter of the year, with WTI currently trading around $55/bbl up from the low-$40s late last year. This V-shaped recovery in crude prices has progressed in line with our expectations, reversing the overly bearish sell-off that coincided with a late-2018 risk-off plunge in equity markets. There is plenty of bullish news on the supply side of the market to keep prices well-bid over the coming months including OPEC's production cutback and Venezuela's domestic political turmoil, but we expect that prices will struggle to sustainably rise above the psychological $60/bbl threshold that many assume would spur another bout of faster US shale production growth.

THERE'S ALWAYS A CATCH: ALBERTA OIL CURTAILMENT TIGHTENS MARKET BUT KNOCKS OIL-BY-RAIL OFF TRACK

The Alberta government's curtailment plan seems to have hit an early bump in the road. Canadian heavy oil discounts have tightened beyond the level that supports profitable oil-by-rail transportation and high-frequency corporate data as well as media reports indicate that producers and traders are cutting back rail shipments from the all-time high levels reached late last year (chart 1). The

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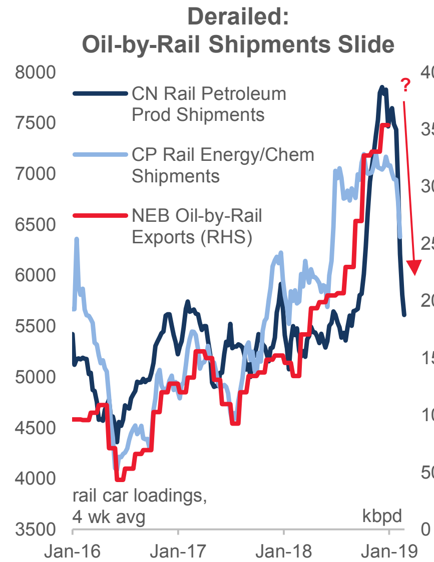
Chart 1



Source: Scotiabank Economics, NEB, CN, CP.

Scotiabank Commodity Price Index

January 2019	(% change)		
	M/M	Y/Y	YTD
All Commodity*	**3.7**	**-7.3**	**-7.3**
Industrials	**4.4**	**-7.6**	**-7.6**
Oil & Gas	13.1	-7.6	-7.6
Metal & Minerals	-0.5	-9.4	-9.4
Forest Products	0.3	-4.5	-4.5
Agriculture	**0.7**	**-5.7**	**-5.7**

	January 2007 = 100		
	2019 Jan	2018 Dec	2019 YTD avg.
All Commodity	**111.2**	**107.2**	**111.2**
Industrials	**108.3**	**103.7**	**108.3**
Oil & Gas	86.7	76.7	86.7
Metal & Minerals	118.8	119.5	118.8
Forest Products	145.5	145.0	145.5
Agriculture	**127.2**	**126.3**	**127.2**

* Weights: Oil & Gas (39.9%), Metal & Minerals (30.1%), Forest Products (14.7%), Agriculture (15.3%); Full technical note on page 7.

Western Canadian oil patch needs further growth in oil-by-rail capacity to substitute for insufficient pipeline capacity, but that growth is at risk if differentials remain artificially tight.

The initial plan was simple, in theory. The Alberta government began curtailing provincial oil production by 325 kbpd (8.7%) on January 1st in an effort to relieve overburdened pipelines and railcars. Newly available egress could be used to draw-down surplus oil inventories, which would allow the differential borne by Canadian heavy crude to narrow to a healthier level. Oil-by-rail capacity would continue to rise as producers and traders purchased or leased additional tank cars and locomotives, profiting as long as the difference between the price of crudes of similar quality in Alberta and the US price remained larger than the cost of transportation—roughly $5/bbl by pipe and $8–12/bbl by rail to get to Cushing, OK where WTI is priced. That spreads would remain wide enough to maintain this oil-by-rail trade seemed like the logical conclusion given the continuous delays suffered by new pipeline projects. The provincial government would gradually ease back on the curtailment once inventories had returned to a normal level and sufficient rail capacity entered service. Line 3 would enter service near the end of 2019 and the combined relief of Line 3 (370 kbpd) and bolstered oil-by-rail capacity (~500 kbpd) would help prevent further discount blowouts until either Keystone XL or the Trans Mountain Expansion Project were completed in the early 2020s.

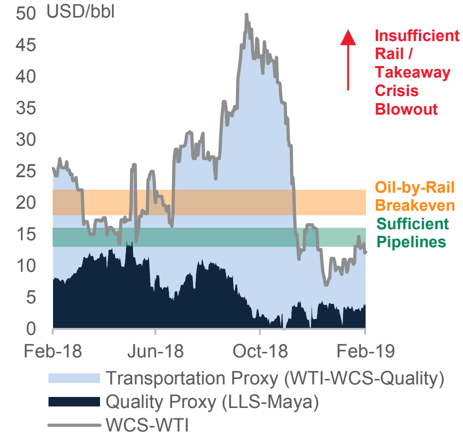
That was the plan.

The differential fell quickly after the curtailment was announced, spending a few weeks in the oil-by-rail sweet spot as expected—but then it kept falling. We expected that the presence of surplus crude inventories together with newly-available oil-by-rail capacity would keep the barrels rolling down the track and discounts around $15–20/bbl, but the supply of barrels seems to have tightened considerably. The most likely explanation is that production was cut by too much or too quickly for inventories to logistically compensate, or traders looking to profit from the previous arbitrage got ahead of themselves as the policy rolled out. The effect was a narrowing of the discount to as low as $7/bbl in January, which is less than half the level required to profitably ship the crude to the US (chart 2). In response to tighter spreads, high-frequency corporate data indicates that petroleum shipments by CN and CP Rail slipped by nearly 30% through January before stabilizing after oil-by-rail activity reached record levels in December. It's currently difficult to tell how much of the fallback was due to reduced intra-basin demand from the production cut versus falling international exports—which is the number that matters, filling in for pipeline deficits—but media reports corroborate that a least a few large producers are shipping significantly fewer barrels to US markets by rail since differentials narrowed. The provincial government has responded by easing the curtailment by 75 kbpd in February–March and differentials have since risen into the low-teens. A gradual emptying of inventories and further easing of the curtailment level is expected to increase the demand for oil-by-rail services and widen the differential back to the $15–20/bbl level required to grow that capacity further. We anticipate that at full un-curtailed capacity, Western Canadian demand for oil-by-rail export services will reach 500 kbpd by the end of 2019 before Enbridge's Line 3 comes online (chart 3).

On February 19th, the Alberta government announced updated details related to province's own oil-by-rail plan. The province expects that it will cost C$3.7B to

Chart 2

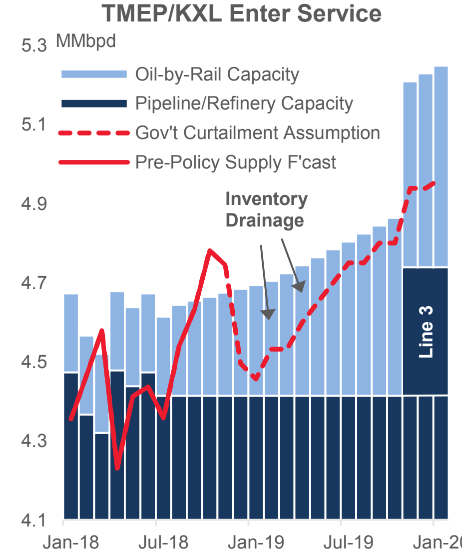
Too Much Of A Good Thing: WCS Price Improvements Undercut Necessary Oil-by-Rail Economics



Note: Breakeven ranges assume constant quality discount of $8-10/bbl.
Source: Scotiabank Economics, Bloomberg.

Chart 3

Oll-by-Rail Requirements to Peak Around End-2019, but Still Needed Until TMEP/KXL Enter Service



Sources: Scotiabank Economics, Scotiabank GBM, CAPP, AER.

lease the 4,400 necessary rail cars over the next three years from CN and CP Rail, yielding C$2.2B in profit off C$5.9B in revenue. This iteration of the plan is less than the 7,000 cars and 80 locomotives initially mentioned, with the lower number of cars made possible due to more efficient routes according to the government. The province's oil-by-rail service is expected to begin at around 20 kbpd as soon as July before reaching full planned capacity of 120 kbpd by mid-2020. However, this plan will only turn a profit if Canadian crude differentials widen further, giving the province a direct financial stake in the WCS-WTI spread.

The Trans Mountain Pipeline Expansion Project (TMEP) received good news from the National Energy Board (NEB) on February 22 when the agency reaffirmed its initial conclusion that the pipeline is in the national interest after broadening the scope of its consideration to include additional environmental and wildlife risks associated with the expected increase in TMEP-related marine traffic (i.e. oil tanker exports). While the regulatory agency found a "significant adverse impact" to orca populations in British Columbia's Salish Sea, these risks did not outweigh the many economic benefits of the pipeline including market diversification for Canadian oil exports, job creation, economic development in regional First Nations communities, and a material increase in government revenue.

DR. COPPER IN RECOVERY: TRADE FEARS EASE AND INVENTORIES CONTINUE TO EMPTY

Copper prices have been range bound between $2.65–2.85/lb the past six months following a rout that brought the so-called weather vein of the global industrial cycle crashing down from nearly 3.30/lb last summer on the back of rising US-China trade concerns. **This latest rally to around $3.00/lb brings copper back into our forecast range for the year and was sparked by a combination of cooler trade rhetoric and sinking inventories**, with other trade-risk exposed indicators including China's currency and equity markets showing similar improvement (chart 4). The White House delayed the March 1st deadline that would have seen tariffs on $200B in US-China trade rise from 10% to 25% given "substantial progress" in the negotiations between the world's two largest economies, and hinted that some kind of deal could be signed at a US-China summit later this year. Beyond the macro trade, copper-specific fundamentals also provide plenty ammunition for optimists. So-called on-warrant (i.e. available) copper inventories fell to the lowest level since 2005 and copper spreads flipped rapidly into backwardation for the first time since copper contracts last attempted a break above $2.85 last October. This latest rally was necessary but needs to go further over the coming months. Copper supply deficits are forecast to persist over the next five years and prices need to rise further in order to incentivize sufficient new mine capacity. Copper price are forecast to average $3.00/lb in 2019 and 3.20/lb in 2020.

Chart 4

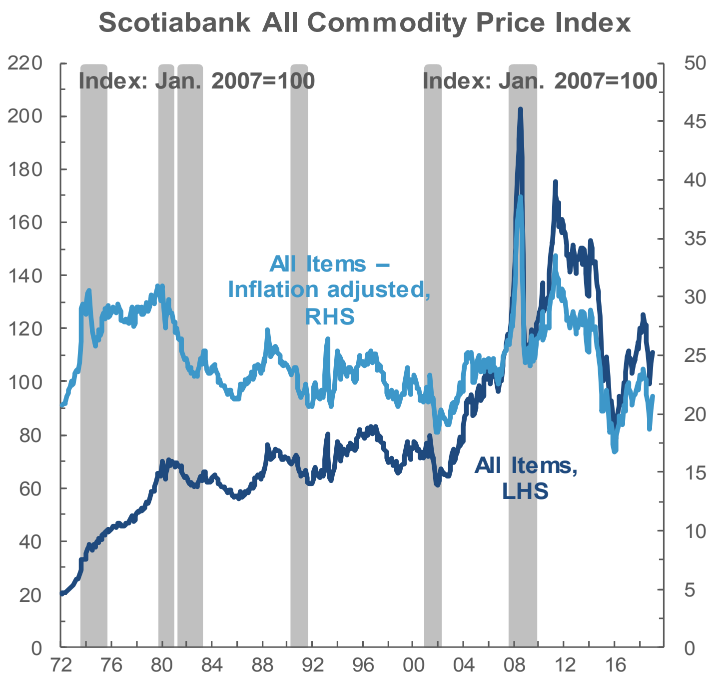
Source: Scotiabank Economics, Bloomberg.

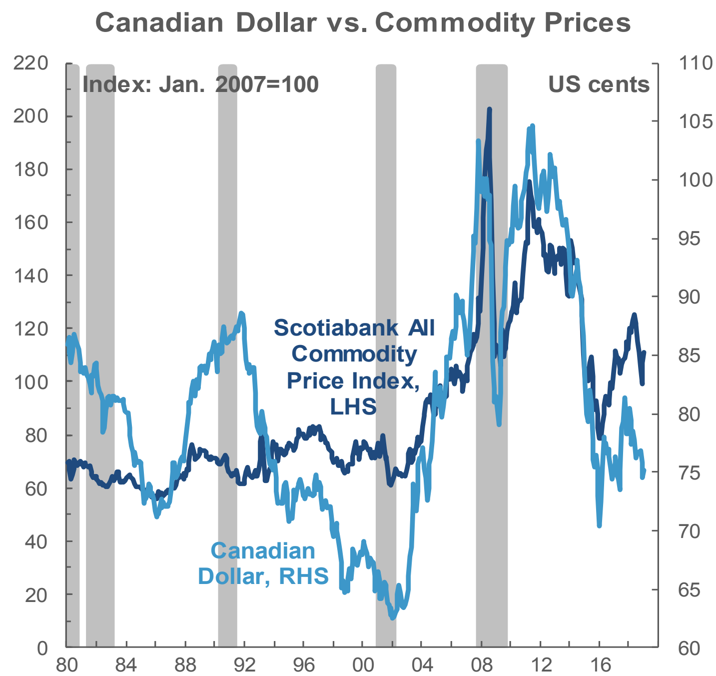
Necessary investments in new mine capacity may require even higher prices going forward as capital markets shy away from risky projects. The catastrophic failure of a Brazilian mine waste dam in January resulted in hundreds of deaths and prompted a ban of similar so-called upstream dams in February, with existing projects set to be decommissioned by 2021. Brazil joins Chile and Peru in banning upstream dams, which are a less expensive method of mine waste management that involves building up containment on top of hardened prior tailings. International mining groups have called for independent safety monitoring of tailings dams and are fighting for stricter global best practices. Effective standards will help ease the concerns of investors that are increasingly weary of the environmental and social risk profiles of mining companies. Mining projects are massive endeavours that require billions of dollars in outside financing and will be a necessary step in producing the metals needed to construct needed new energy systems including electric vehicles, smart grids, battery backups, and solar or wind installations. Unfortunately, the tailings dam question is only going to get larger as increasing volumes of earth must be displaced to counteract the effects of tumbling ore grades.

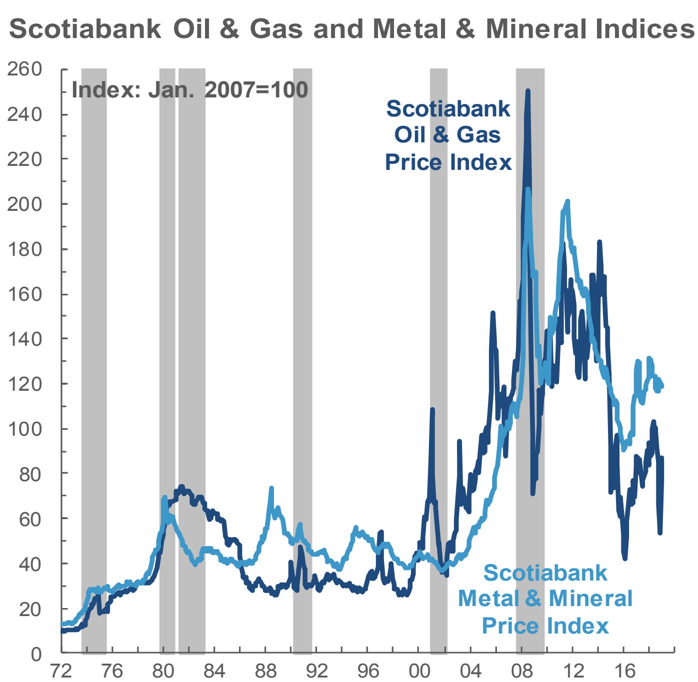
Price Outlook

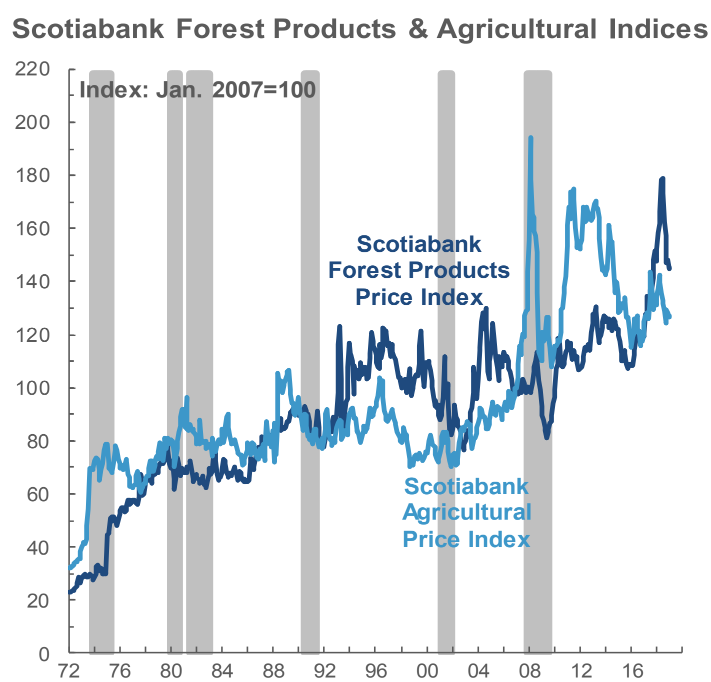
		2000–2017						
			Period		2018	2019ytd	2019F	2020F
Oil & Gas		Low	Avg.	High				
Crude Oils								
West Texas Intermediate	USD/bbl	17.45	62.05	145.29	64.90	52.98	58	62
North Sea Brent Blend	USD/bbl	17.68	64.93	146.08	71.69	62.04	67	69
WCS - WTI Discount*	USD/bbl	-42.50	-16.43	-5.50	-26.29	-10.49	-20	-20
Natural Gas								
Nymex Henry Hub	USD/MMBtu	1.64	4.83	15.38	3.07	2.91	3.25	2.80
Metals & Minerals								
Base Metals								
Copper	USD/lb	0.60	2.38	4.60	2.96	2.76	3.00	3.20
Nickel	USD/lb	2.00	7.12	24.58	5.95	5.43	5.50	6.00
Zinc	USD/lb	0.33	0.84	2.10	1.33	1.19	1.20	1.20
Aluminium	USD/lb	0.56	0.87	1.49	0.96	0.84	0.90	0.90
Bulk Commodities								
Iron Ore	USD/t	27	108	302	70	81	76	71
Metallurgical Coal	USD/t	39	131	330	208	202	175	160
Precious Metals								
Gold	USD/toz	256	890	1,895	1,268	1,304	1,300	1,300

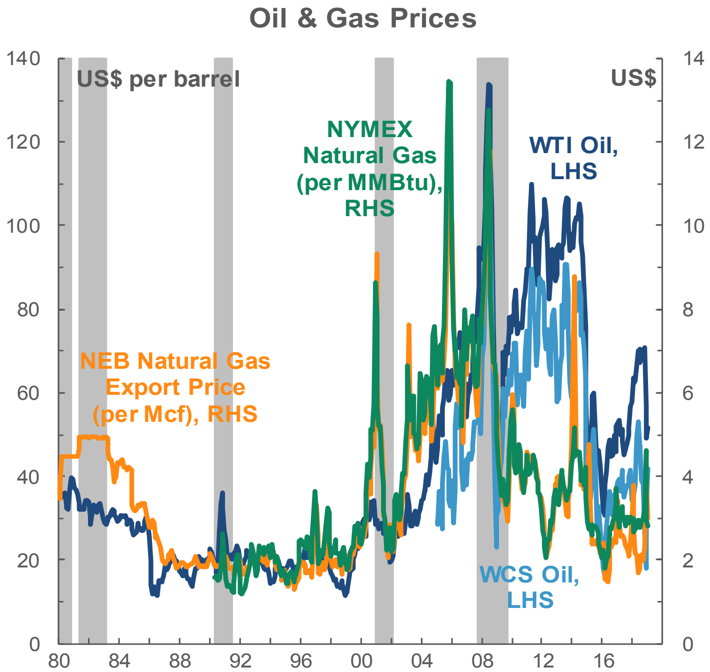
* 2008-17 average.

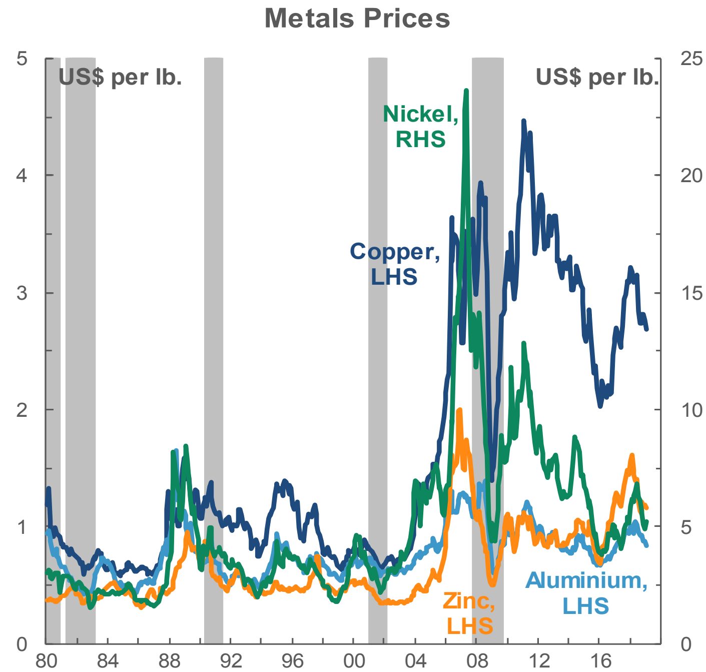

Scotiabank All Commodity Price Index
Index: Jan. 2007=100
Index: Jan. 2007=100
All Items – Inflation adjusted, RHS
All Items, LHS
220
200
180
160
140
120
100
80
60
40
20
0
50
45
40
35
30
25
20
15
10
5
0
72
76
80
84
88
92
96
00
04
08
12
16

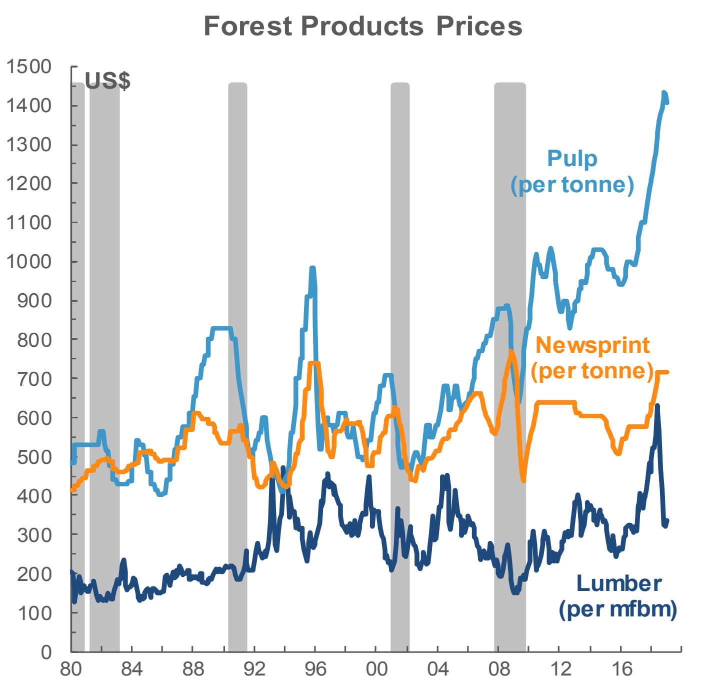

Canadian Dollar vs. Commodity Prices
Index: Jan. 2007=100
US cents
Scotiabank All Commodity Price Index, LHS
Canadian Dollar, RHS
220
200
180
160
140
120
100
80
60
40
20
0
110
105
100
95
90
85
80
75
70
65
60
80
84
88
92
96
00
04
08
12
16

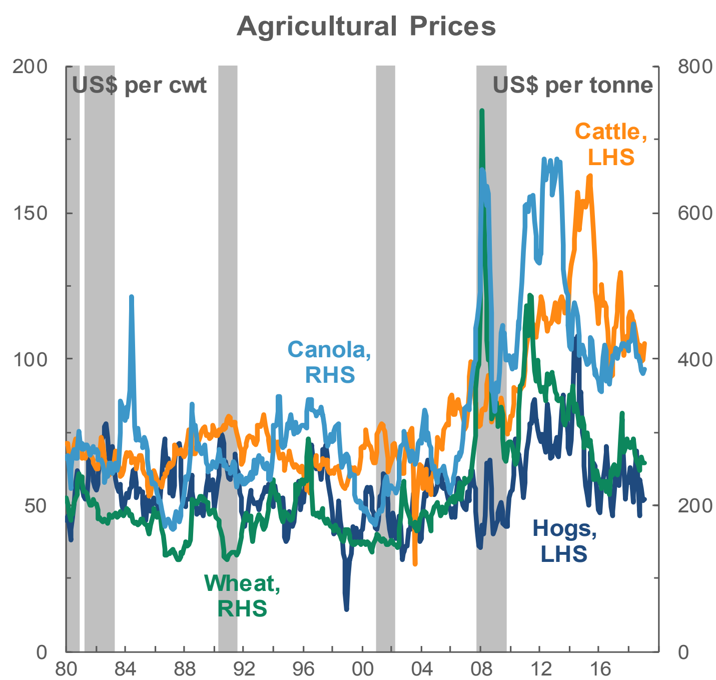

Scotiabank Oil & Gas and Metal & Mineral Indices
Index: Jan. 2007=100
Scotiabank Oil & Gas Price Index
Scotiabank Metal & Mineral Price Index
260
240
220
200
180
160
140
120
100
80
60
40
20
0
72
76
80
84
88
92
96
00
04
08
12
16


Scotiabank Forest Products & Agricultural Indices
Index: Jan. 2007=100
Scotiabank Forest Products Price Index
Scotiabank Agricultural Price Index
220
200
180
160
140
120
100
80
60
40
20
0
72
76
80
84
88
92
96
00
04
08
12
16


Oil & Gas Prices
US$ per barrel
US$
NYMEX Natural Gas (per MMBtu), RHS
WTI Oil, LHS
NEB Natural Gas Export Price (per Mcf), RHS
WCS Oil, LHS
140
120
100
80
60
40
20
0
14
12
10
8
6
4
2
0
80 84 88 92 96 00 04 08 12 16


Metals Prices
US$ per lb.
US$ per lb.
Nickel, RHS
Copper, LHS
Zinc, LHS
Aluminium, LHS
5
4
3
2
1
0
25
20
15
10
5
0
80 84 88 92 96 00 04 08 12 16


Forest Products Prices
US$
Pulp (per tonne)
Newsprint (per tonne)
Lumber (per mfbm)
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
80 84 88 92 96 00 04 08 12 16


Agricultural Prices
US$ per cwt
US$ per tonne
Cattle, LHS
Canola, RHS
Hogs, LHS
Wheat, RHS
200
150
100
50
0
800
600
400
200
0
80 84 88 92 96 00 04 08 12 16

Technical Note
Scotiabank Commodity Price Index — Principal Canadian Exports
January 2007 = 100

This Index has been designed to track the spot or transactions prices paid in U.S. dollars for key Canadian commodities and resource-based manufactured goods in export markets. The weight of each component is based upon its net export value in 2010. Prior to January 2007, the weight of each component was based on its export value in 1995-97, except for crude oil & refined petroleum products, uncoated freesheet paper and linerboard, where net exports were used. Canada imports a significant quantity of these products, and use of their export value alone would have overstated the importance in Canada's trade performance.

The following prices are included:

OIL & GAS

Crude Oil & Refined Petroleum Products (US$ per bbl) MSW light sweet crude oil at Edmonton (previously Edmonton Par crude) and Western Canadian Select heavy oil at Hardisty, Alberta; price differentials off WTI near-by futures from Bloomberg.

Natural Gas (US$ per mcf) Average export price quoted by the National Energy Board.

Natural Gas Liquids (NGLs – Propane, Butane, Ethane & Pentanes-Plus) (US$ per bbl), Propane at Edmonton & Sarnia.

METALS & MINERALS

Copper & Products (US$ per lb) LME official cash settlement price for grade A copper.

Zinc (US$ per lb) LME SHG cash settlement: prior to Sept 1990, U.S. producers' price for high-grade zinc delivered.

Lead (US$ per lb) LME official cash settlement price; prior to Jan. 1991, U.S. producers' price for common grade delivered.

Aluminium & Products (US$ per lb) since 1979, LME official cash settlement price.

Nickel (US$ per lb) since 1980, LME official cash settlement price.

Gold (US$ per oz) 'LBMA Gold Price PM' as of March 20, 2015.

Potash (US$ per tonne) Standard potassium chloride, spot price, FOB Vancouver.

Sulphur (US$ per tonne) Solid, spot price, FOB Vancouver.

Metallurgical Coal (US$ per tonne) Contract price for premium-grade hard coking coal, FOB Vancouver.

Iron Ore (US cents per dmtu) Spot price fines 62% Fe, CFR Qingdao, China; prior to Jan 2011, term-contract price for concentrates 66% Fe from Labrador/Quebec to Northern Europe (FOB Sept-Iles).

Uranium (US$ per lb) U_3O_8 near-by-futures from Bloomberg.

Molybdenum (US$ per lb) since March 1992, MW dealer oxide.

Cobalt (US$ per lb) MW dealer price.

FOREST PRODUCTS

Lumber & Wood Products, Western Spruce-Pine-Fir 2x4 No.2 & Btr (US$ per mfbm) FOB mill.

Oriented Strandboard (US$ per thousand sq. ft.), U.S. North Central region, 7/16 inch.

Pulp, Bleached Northern Softwood Kraft (US$ per tonne) Transactions price, delivery USA.

Newsprint (US$ per tonne) Average transactions price, 48.8 gsm, delivery Eastern USA.

Groundwood Specialty Papers (US$ per ton) Supercalendered-A paper, 35 lb., delivery USA.

Linerboard (US$ per ton), delivery Eastern USA with zone discounts.

AGRICULTURE

Wheat & Flour (US$ per tonne), DNS No 1 14% protein Duluth, Minn; prior to April 2011 No.1 CWRS, 13.5% protein at St. Lawrence.

Barley (US$ per tonne), since Dec.1994, No.1 at Lethbridge, Alberta.

Canola & Oilseeds (US$ per tonne) No.1 Canada, in store Vancouver.

Cattle & Beef (US$ per cwt) Steers over 1,051 pounds at Toronto; from Jan 1993, Ontario average.

Hogs & Pork (US$ per cwt) 100 Index Hogs at Toronto; from Jan 1993, Ontario average.

Fish & Seafood (US$ per lb) West Coast silver coho salmon; Atlantic lobster prices; prior to 1986 cod fillets & blocks.

Scotiabank Commodity Price Index — Components And Weights

Index Components	Net Export Value In 2010 (millions of dollars)	Index Weight (per cent)
OIL & GAS INDEX	**46,537**	**39.90**
Crude Oil & Refined Products	33,231	28.49
Natural Gas & LNG	11,741	10.07
NGLs	1,565	1.34
METAL & MINERAL INDEX	**35,109**	**30.10**
Copper	3,160	2.71
Zinc	1,255	1.08
Lead	579	0.50
Aluminium	6,045	5.18
Nickel	4,246	3.64
Gold	4,678	4.01
Coal	4,757	4.08
Iron Ore	3,346	2.87
Potash	5,161	4.42
Sulphur	457	0.39
Uranium	891	0.76
Cobalt	288	0.25
Molybdenum	246	0.21
FOREST PRODUCTS INDEX	**17,081**	**14.66**
Lumber & Wood Products	4,673	4.01
OSB	812	0.70
Pulp	6,818	5.85
Newsprint	2,734	2.34
Groundwood Spec. Papers	1,971	1.69
Linerboard	87	0.07
AGRICULTURAL INDEX	**17,901**	**15.35**
Wheat & Flour	4,693	4.02
Barley & Feedgrains	1,088	0.93
Canola & Oilseeds	5,398	4.63
Cattle & Beef	1,640	1.41
Hogs & Pork	2,378	2.04
Fish & Seafood	2,704	2.32
TOTAL INDEX	**116,643**	**100.00**