

ENERGY & METALS CONSENSUS FORECASTS®

Commodity Price
Surveys Since 1995

WTI Al Cu Ni Pb Zn Sn Fe Au Ag Pt \$

Survey Date
February 19, 2018

Energy & Metals Consensus Forecasts surveys more than 40 energy and metals analysts every month for a range of commodity price forecasts. The results covering over 30 commodities – together with reference data, analysis, special surveys, and the underlying global macroeconomic outlook – are sent to subscribers by express mail and e-mail.

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Commodity Price Volatility – A Special Survey

In addition to their point forecasts, we asked the panellists for their estimates of the high and low ranges within which a number of major commodities are likely to trade between now and the first quarter of 2019. The survey results, together with historical volatilities for selected **commodities** and **currencies** (where we also feature consensus range estimates over the next 12 months), are presented on pages 26-27.

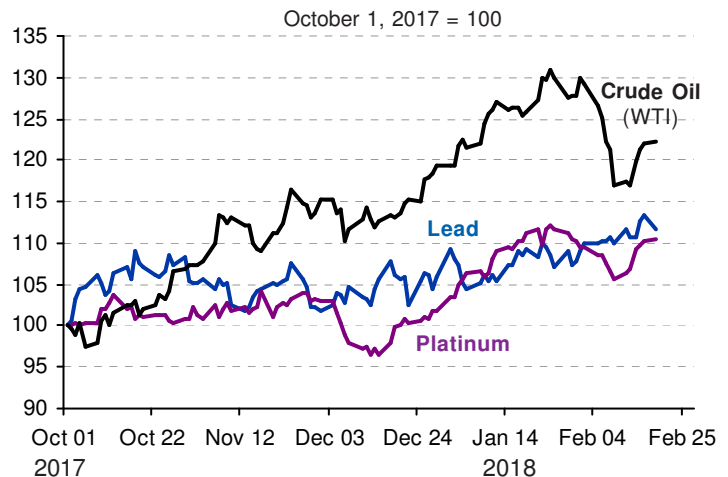
Overview

Despite losses in early February, which were triggered by higher US interest rates and a selloff in global stock indices in a risk-off environment, most commodities have started to recover. **WTI** (page 7) rose 4.1% last week and is now back above US\$60/bbl, half way between its Q4 2017 average and late January peak of US\$66.67/bbl. Likewise, **Base Metals** have rebounded (**Lead** in chart below and on page 16), as demand fundamentals offset fears about future price instability (macro forecasts on page 3). **Coking Coal** (page 10) and **Iron Ore** (page 19) defied the slide

(continued on page 2)

Our next issue of **Energy & Metals Consensus Forecasts** will be available end of the day **March 23, 2018** (GMT).

Selected Commodities Price Changes



(continued from front page)

in equities and futures altogether, due to supply disruptions that included a halt to output during the week long Chinese Lunar New Year. That magnified the impact of winter restrictions on **Steel** (page 18) output in China until March, as part of government efforts to tackle industrial overcapacity and improve air quality. Certainly, the near 23% surge in the price of Chinese HRC (from US\$443/tonne in December 2016 to US\$546 in the same month in 2017) can almost be entirely attributed to output control of the hard metal. At the same

time, poor weather in Queensland Australia undermined transport links and supply from major coal Basins, a key raw material. In terms of the Precious Metals, **Gold** (page 22) has benefited from asset price deflation and a reduced appeal of alternative investments like Bitcoin, which tanked last month. On page 5, we feature updated **Long-Term Forecasts** for over 25 commodities, covering the years 2018 to 2027. Individual and Consensus Forecasts for all horizons and commodities are available in the Excel spreadsheet.

SUMMARY OF SELECT ENERGY & METALS CONSENSUS FORECASTS

See individual commodity pages for mineral specifications	See page	% change since end Dec. 2016	Spot Price Feb. 19 2018	(Nominal, Quarterly Averages) Consensus Forecasts			Forecast % Change to Dec. 2018 Quarter
				Jun. 2018	Sep. 2018	Dec. 2018	
Crude Oil - Brent (US\$/bbl)	6	+14.8%	65.28	63.59	62.89	62.75	-3.9%
- WTI (US\$/bbl)	7	+15.0%	61.83	58.87	58.40	58.21	-5.9%
Natural Gas (US, US\$/MMBtu)	9	-29.1%	2.610	2.965	2.996	3.112	+19.2%
Coal (Steaming, US\$/tonne)	10	+51.0%	90.62 ¹	83.83	80.11	79.26	-12.5%
Uranium (US\$/lb)	11	+6.2%	21.50	24.82	26.35	26.52	+23.3%
Aluminium (US\$/tonne)	12	+32.2%	2266	2110	2089	2121	-6.4%
Alumina (US\$/tonne)	13	+9.4%	382.3	344.4	340.9	351.7	-8.0%
Copper (US\$/tonne)	14	+28.9%	7093	6812	6769	6719	-5.3%
Nickel (US\$/tonne)	15	+35.9%	13600	11984	11986	12084	-11.1%
Lead (US\$/tonne)	16	+29.9%	2608	2465	2414	2369	-9.2%
Zinc (US\$/tonne)	17	+40.1%	3590	3280	3200	3119	-13.1%
Tin (US\$/tonne)	20	+3.5%	21830	20688	20599	20823	-4.6%
Steel (HRC, Europe, US\$/tonne)	18	+22.9%	713.0	616.9	566.0	549.1	-23.0%
Iron Ore (N. China. Fine, US\$/tonne)	19	+23.0%	69.46 ¹	65.88	61.73	61.89	-10.9%
Gold (US\$/oz.)	22	+17.2%	1345	1294	1299	1297	-3.6%
Silver (US\$/oz.)	23	+2.3%	16.62	17.34	17.53	17.47	+5.1%
Platinum (US\$/oz.)	24	+10.6%	1004	979	1000	1010	+0.6%
Palladium (US\$/oz.)	25	+51.0%	1030	1004	1021	1026	-0.4%

¹ Consensus Forecasts for Q1 2018

NOTES, ABBREVIATIONS, WEIGHTS AND MEASURES

- EIA – Energy Information Agency (USA)
- LME – London Metal Exchange
- LBMA – London Bullion Market Association
- LPPM – London Platinum and Palladium Market
- NYMEX – New York Mercantile Exchange
- COMEX – New York Commodities Exchange
- ICE – Intercontinental Exchange
- e – Estimate
- na – Not Available
- fob – Free On Board
- bbl – Barrel
- dltu – Dry long tonne unit (1/100 of a dry long tonne)
- dmtu – Dry metric tonne unit (1/100 of a dry metric tonne)
- MMBtu – Millions of British Thermal Units (Btu)
- All individual commodity forecasts on pages 6-25 (pages 4-23 in abridged versions) are listed in descending order of their approximate 1-year percentage change estimates. Consensus forecasts are mean averages of individual quarterly average forecasts.
- Historical price data in this publication has been provided by Commodity Research Bureau and other sources.
- Gross Domestic Product (GDP) is expressed in real (i.e. inflation-adjusted) terms. GDP and Industrial Production are expressed as average percentage changes over the previous calendar year unless otherwise indicated.
- 1 kilogram = 32.1507 troy ounces
- 1 short ton = 0.907 metric tonnes = 2000 pounds
- 1 kilogram (kg) = 2.2046 pounds
- 1 barrel = 42 US gallons
- 1,000 kilograms = 1 metric tonne = 2204.6 pounds
- 10 Therms of Natural Gas = 1 million Btu = 1MMBtu
- 1 long tonne = 1.016 metric tonnes = 2240 pounds
- 1 metric/long tonne unit (MTU/LTU) = 1/100 of a metric/long tonne

Economic growth rates provide a valuable insight into the behaviour of energy and metals prices, with industrial production growth forecasts in particular giving an overview of the likely demand for many commodities. The forecasts below are taken from the current issues of our publications *Consensus Forecasts – G7 & Western Europe*, *Asia Pacific Consensus Forecasts*, *Eastern Europe Consensus Forecasts* and *Latin American Consensus Forecasts*.

REAL GDP GROWTH

(% change on previous year)

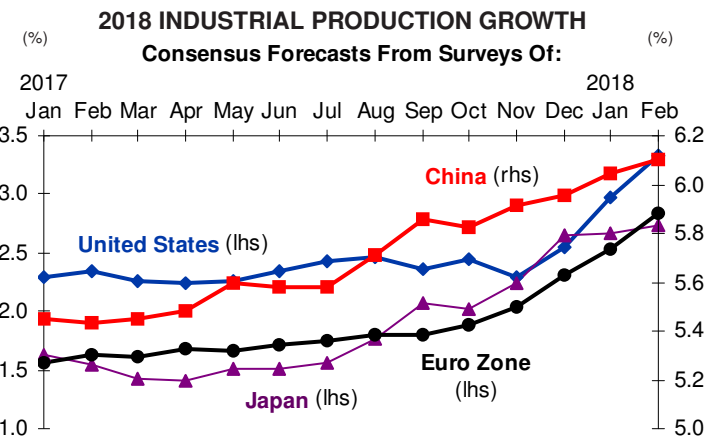
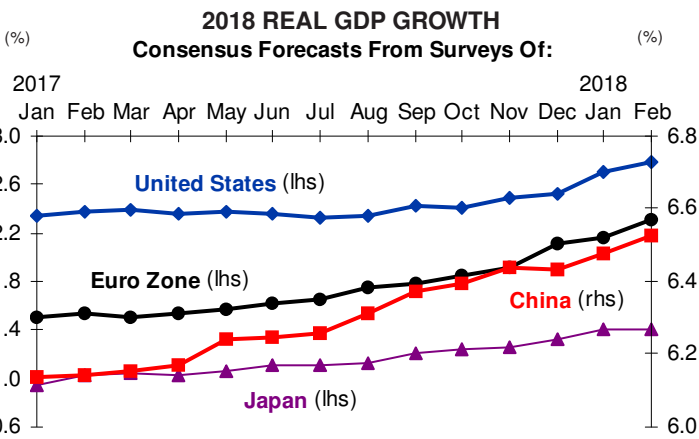
	2015	2016	2017	Consensus Forecasts	
				2018	2019
United States	2.9	1.5	2.3	2.8	2.4
China	6.9	6.7	6.9	6.5	6.3
Japan	1.4	0.9	1.6	1.4	1.1
Euro zone	2.0	1.8	2.5	2.3	1.9
World¹	2.8	2.5	3.2	3.3	3.1

¹ Country weights available to qualified subscribers upon request.

INDUSTRIAL PRODUCTION GROWTH

(% change on previous year)

	2015	2016	2017	Consensus Forecasts	
				2018	2019
United States	-0.7	-1.2	2.0	3.3	2.5
China	6.1	6.0	6.6	6.1	5.8
Japan	-1.2	-0.2	4.7	2.7	2.1
Euro zone	2.1	1.5	2.9	2.8	1.8
World	1.5	1.7	3.6	3.5	3.1



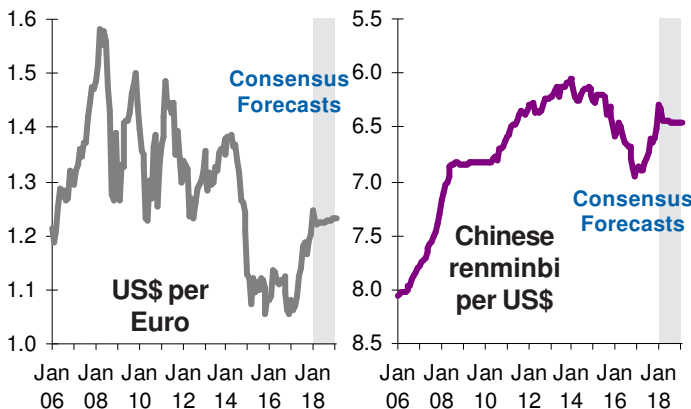
Growth Optimism Despite Inflation Threat

The range of probabilities attached to alternative outcomes may have widened in recent weeks, following the dramatic events of early February. Yet the central forecasts of most panellists continue to suggest resilience in the global economy (charts above and table right). The 2017 GDP expansion in the euro zone (+2.5%) exceeded that of the US (+2.3%), while China's accelerated to 6.9%, higher than 6.7% in 2016. Growth in the US should accelerate in the current year, as households and business benefit from significant tax cuts and the tailwinds of the global upturn. Sadly, though, higher deficits raise the risk of higher inflation, which in turn, increase the likelihood of higher interest rates.

Changes to Consensus GDP Growth Forecasts

	Jul. 10, 2017 Survey		Feb. 12, 2018 Survey		% -point Change	
	2018	2019	2018	2019	2018	2019
United States	2.3	2.1	2.8	2.4	+0.5	+0.3
Euro zone	1.7	1.5	2.3	1.9	+0.6	+0.4
China	6.3	5.9	6.5	6.3	+0.2	+0.4
Japan	1.1	0.8	1.4	1.1	+0.3	+0.3
United Kingdom	1.4	1.6	1.5	1.5	+0.1	-0.1
World	3.0	-	3.3	3.1	+0.3	-

Source: Consensus Economics



US Dollar Retraces Losses in Risk off Environment

A contagious fear of higher US inflation and interest rates sent the NASDAQ and S&P500 stock indices into a tailspin at the start of February. The US dollar, which slumped in December and January, has begun to recover as a consequence, reflecting its safe haven status and a sense that it

EXCHANGE RATES

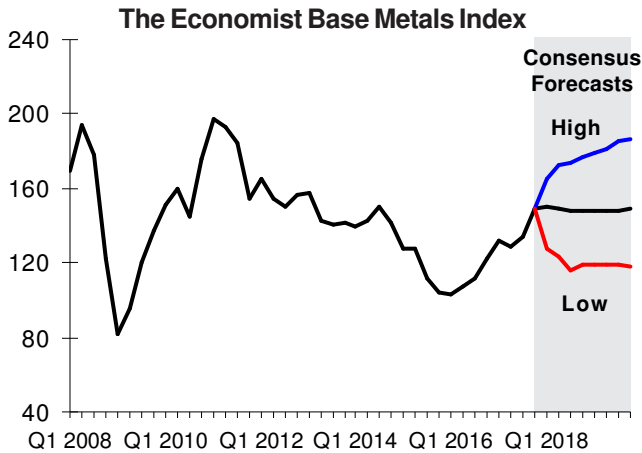
(per US dollar)

Source: Foreign Exchange Consensus Forecasts, February 12, 2018

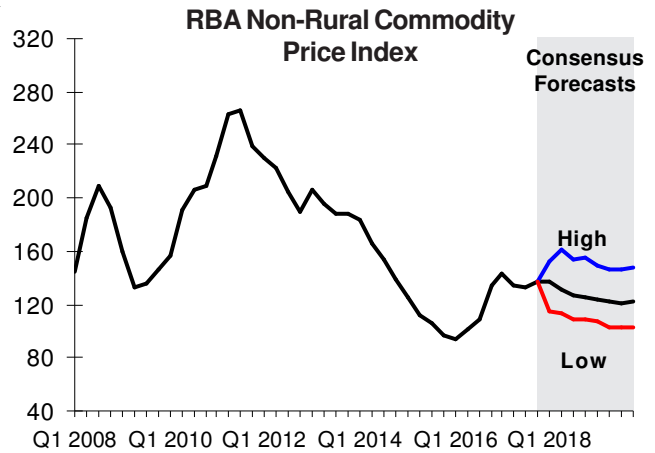
	Spot Rate Feb. 12, 2018	Consensus Forecasts		% change from spot	End Feb 2020
		May 2018	End Feb 2019		
Euro¹	1.228	1.224	1.232	+0.4	1.233
Japanese yen	108.5	111.0	111.4	-2.6	110.6
Australian dollar¹	0.783	0.782	0.769	-1.7	0.748
Chinese renminbi	6.329	6.446	6.465	-2.1	6.441
Canadian dollar	1.261	1.250	1.237	+1.9	1.239
Brazilian real	3.296	3.264	3.304	-0.3	3.488
Indian rupee	64.32	63.94	64.03	+0.5	64.98

has been oversold. Its future trend will hinge on the extent of US protectionism (note the recent tariffs on solar panels and washing machines) and relative growth and rate expectations in the face of inflation risks. The expansion in Asia and Europe has thus far narrowed the US yield advantage and curbed the appeal of the US dollar.

Commodity price indices are useful aggregates of individual commodity price trends. We focus here on two commodity price indices: **The Economist Base Metals Index** (which weights the prices of major base metals according to their share of world trade in 2005) and the **Reserve Bank of Australia (RBA) Non-Rural Commodity Price Index** (which weights the prices of major minerals according to their share of Australian exports in 2015/2016). Both indices are expressed as US\$ prices in a given base year and track the performance of their particular subset of commodities. In addition to showing historical data from the two indices, we also show consensus forecasts for both over the next eight quarters. These are calculated from weighting consensus commodity price forecasts from this edition's survey. In the first two charts below, we also show the highest and lowest projections over the forecast horizon in order to illustrate the range of forecasts.



Weights By Share of World Trade:
 Aluminium (47%), Copper (32%), Nickel (8%), Zinc (7%), Lead (3%), Tin (3%)



Weights By Share of Australia Export Values:
 Coking Coal (21%), Thermal Coal (14%), Gold (13%), Iron Ore Lump (13%), Aluminium (11%), Alumina (10%), LNG (7%), Copper (4%), Nickel (4%), Zinc (2%), Lead (1%)

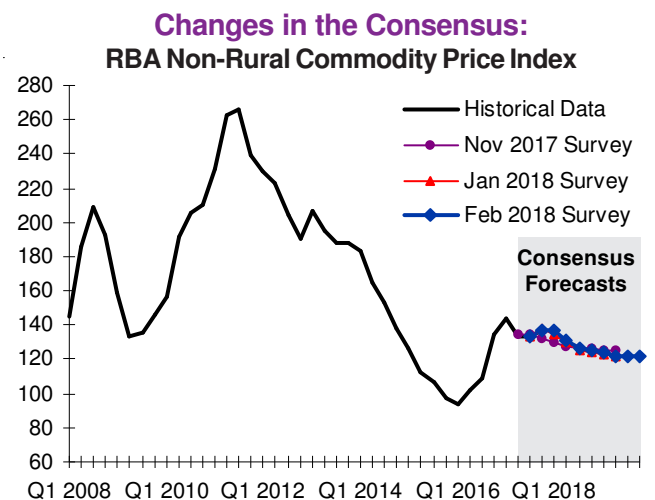
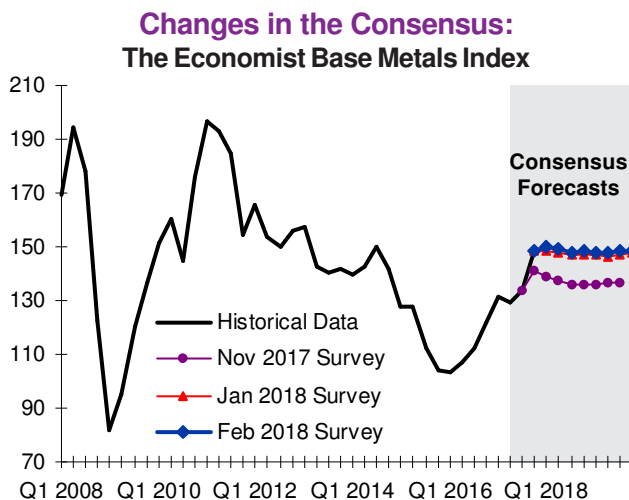
The Economist Base Metals Index is a sub-index of the headline Economist Commodity Price Index, containing six base metals: Aluminium, Copper, Lead, Nickel, Tin and Zinc. The index base year is **2005 = 100**, and the headline index is available in sterling and euros, as well as US dollars. It is published on a weekly basis. *Energy & Metals Consensus Forecasts* then converts this week-by-week data into quarterly averages and calculates the index forecasts by using our panellists' projections for the individual metals.

The RBA Non-Rural Commodity Price Index is a sub-index of the RBA's Headline Index of Commodity Prices. The index uses an Australian fiscal base year **2015/2016** (July to June) and weights major minerals (listed above) according to their share of Australian export values. Oil is excluded while liquefied natural gas (LNG) is included (it is some 7% of the index, but is not included in *Energy & Metals Consensus Forecasts* calculations, as we do not survey for LNG forecasts).

Recent Historical Data and Projections Using Consensus Forecasts

	2017			2018				2019			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Economist Base Metals Index	128.9	140.4	148.8	150.0	149.1	147.6	148.2	148.1	147.7	148.3	148.9
RBA Non-Rural Commodity Price Index	133.7	137.2	137.5	136.7	131.5	126.3	125.0	123.5	121.8	121.4	122.1

(all index values are quarterly averages)

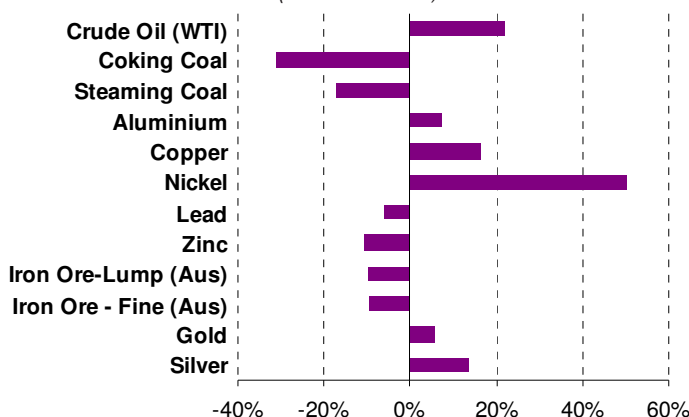


Individual nominal forecasts available in the Excel spreadsheet.

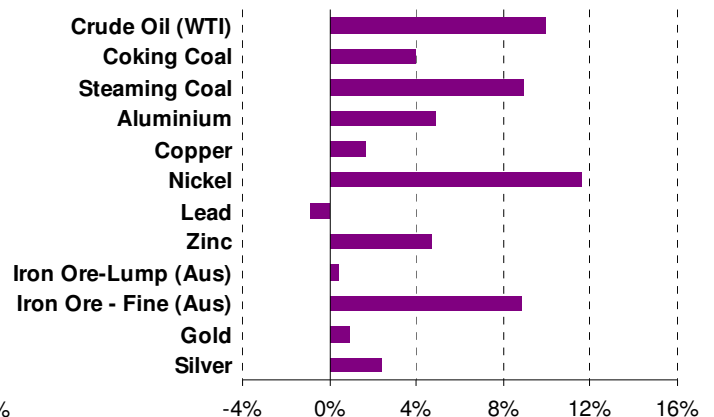
Long-term price forecasts provide a foundation for expected returns from both existing production facilities and those under development. In addition to their annual forecasts for the years 2018 to 2022, the table below summarises our panel's Long-Term 5-10 year average estimates (2023-2027) in **nominal** and **real** (inflation adjusted) 2018 dollar terms.

See individual commodity pages for mineral specifications	US\$ Average		Consensus Forecasts						
	2016	2017	(US\$ Nominal, Annual Averages)					Long-Term (2023-2027 Average)	
			2018	2019	2020	2021	2022	Nominal	Real
Crude Oil - Brent	43.74	54.22	63.33	62.26	63.76	65.44	66.89	73.51	67.76
- WTI	43.21	50.81	58.67	57.85	59.72	61.05	62.05	68.23	63.65
RBOB Gas (US)	1.453	1.712	1.789	1.783	1.878	1.961	2.068	2.300	2.100
Gas Oil (Europe)	396.5	491.4	559.6	558.7	555.2	578.2	616.9	na	na
Natural Gas - US, \$	2.511	2.985	3.037	3.109	3.265	3.270	3.327	3.581	3.137
- UK, pence	35.27	45.43	46.45	43.94	44.00	49.50	55.00	na	na
Coking Coal - Contract	119.4	190.2	166.2	138.1	130.0	129.8	130.7	135.9	121.1
Thermal Coal - Contract	66.09	84.57	88.56	82.28	75.72	72.89	69.87	76.09	64.97
- Spot	54.42	74.63	83.45	74.52	71.03	70.59	70.07	74.01	64.07
Uranium	26.77	21.89	25.41	30.37	35.13	39.31	41.42	43.25	38.25
Aluminium	1605	1970	2114	2106	2085	2074	2115	2219	1971
Alumina	253.8	356.2	353.1	336.6	330.3	326.6	328.1	353.2	310.8
Copper	4863	6164	6780	6812	6993	7087	7172	7292	6499
Nickel	9587	10402	12002	12369	13650	14599	15640	17447	15378
Lead	1870	2316	2432	2286	2205	2175	2171	2153	1943
Zinc	2093	2895	3223	2955	2691	2633	2587	2708	2361
Cobalt	11.87	27.04	30.11	28.16	27.52	23.03	24.58	21.35	18.65
Tin	18002	20106	20635	21117	21586	21241	21301	23277	20140
Manganese	4.338	5.966	5.477	4.421	4.100	4.070	4.031	3.974	3.520
Molybdenum	6.507	8.076	8.774	8.708	8.761	8.876	9.057	9.747	8.588
Rutile	709.8	739.7	903.8	976.3	1035	1083	1115	1109	982.5
Ilmenite	104.5	151.5	159.2	180.0	180.0	180.6	183.1	174.9	155.0
Zircon	1032	1041	1217	1254	1250	1276	1291	1206	1069
Steel - HRC, Europe	458.3	601.8	593.0	531.4	529.2	526.5	536.3	536.0	464.5
HRC, USA	545.5	653.9	656.6	625.0	643.2	641.9	662.8	709.6	634.1
HRC, China	337.4	466.4	518.4	469.1	476.8	468.3	477.0	494.8	429.6
Iron Ore - Lump (Aust)	54.27	70.79	65.94	64.38	63.32	64.14	63.64	63.91	58.14
Fine (Aust)	48.08	59.39	56.22	53.33	52.67	53.64	53.91	58.66	50.93
Fine (Brz)	49.82	57.70	60.51	60.16	62.76	64.27	66.24	na	na
Gold	1248	1258	1297	1303	1320	1327	1331	1343	1175
Silver	17.08	17.03	17.43	18.02	18.49	19.23	19.38	19.86	17.38
Platinum	986.3	947.5	990.5	1047	1120	1156	1197	1381	1208
Palladium	612.2	867.0	1018	1004	1026	1009	942.9	932.5	828.7

% Change Between 2017 and 2022 (Nominal Prices)



% Change Between 2022 and Long-Term Average (Nominal Prices)



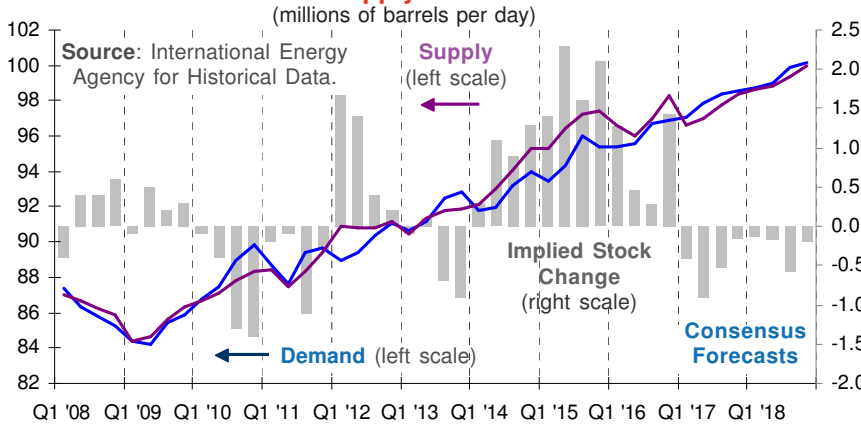
Brent Crude Oil Forecasts, US\$/barrel

Nominal, Quarterly Averages, Annual Price Forecasts on Page 5

Survey Date Spot (Feb. 19): US\$ 65.28	Mar-18	Jun-18	Sep-18	Dec-18	% change from spot	Mar-19	Jun-19	Sep-19	Dec-19
Pezco Economics	68.05	75.49	82.13	87.62	34.2%	91.43	93.57	95.63	97.64
ABN Amro	65.00	70.00	70.00	75.00	14.9%	80.00	80.00	75.00	75.00
Lloyds Bank	72.00	74.00	74.00	75.00	14.9%	na	na	na	na
Euromonitor International	72.63	76.36	75.23	73.50	12.6%	69.80	67.13	63.44	61.62
Morgan Stanley	70.00	72.00	75.00	72.50	11.1%	65.00	65.00	65.00	65.00
P K Verleger	67.70	69.00	70.00	71.50	9.5%	73.00	75.00	77.00	78.50
JP Morgan	70.00	75.00	70.00	65.00	-0.4%	na	na	na	na
Oxford Economics	72.00	69.00	65.00	65.00	-0.4%	65.00	65.00	65.00	65.00
Moody's Analytics	67.39	67.55	66.22	64.40	-1.3%	63.07	62.58	62.28	62.05
Investec	66.00	66.00	64.00	64.00	-2.0%	61.00	61.00	61.00	61.00
Deloitte Access Economics	64.80	64.32	63.84	63.83	-2.2%	63.81	64.32	64.83	65.54
UBS	57.00	60.00	60.00	63.00	-3.5%	65.00	65.00	65.00	65.00
BNP Paribas	69.00	67.00	63.00	62.00	-5.0%	na	na	na	na
BoA Merrill Lynch	66.00	65.00	63.00	62.00	-5.0%	na	na	na	na
China Int'l Capital Corp	55.00	57.00	59.00	62.00	-5.0%	na	na	na	na
Credit Suisse	58.00	58.00	62.00	62.00	-5.0%	58.00	60.00	62.00	63.00
Societe Generale	62.00	60.00	64.00	62.00	-5.0%	60.00	60.00	60.00	60.00
Standard Chartered	62.00	59.00	59.00	62.00	-5.0%	65.00	63.00	59.00	61.00
Ecoanalitica	60.10	58.50	59.00	61.20	-6.3%	na	na	na	na
Capital Economics	65.50	63.50	62.50	61.00	-6.6%	59.50	58.50	57.00	55.50
Econ Intelligence Unit	68.00	64.00	59.00	61.00	-6.6%	60.00	57.00	61.00	62.00
Bank of China International	62.00	64.00	64.00	60.00	-8.1%	na	na	na	na
Deutsche Bank	65.00	63.00	60.00	60.00	-8.1%	62.00	62.00	62.00	62.00
RBC Capital Markets	59.93	59.05	58.51	58.54	-10.3%	58.56	59.69	60.58	61.12
BMO	60.00	55.00	57.00	57.00	-12.7%	58.00	58.00	58.00	58.00
Scotiabank	54.00	56.00	57.00	56.95	-12.8%	59.00	60.00	60.00	59.99
GKI Research	63.00	60.00	58.00	56.00	-14.2%	56.00	60.00	62.00	62.00
Australia Dept of Industry	58.07	57.90	55.50	54.30	-16.8%	58.00	57.20	59.60	60.70
Commonwealth Bank	67.00	60.00	55.00	53.00	-18.8%	50.00	50.00	50.00	50.00
Macquarie	58.40	56.18	55.50	52.75	-19.2%	51.75	52.75	55.00	56.50
Citigroup	65.00	58.00	54.00	52.00	-20.3%	49.00	49.00	49.00	49.00
ING Bank	60.00	55.00	52.00	52.00	-20.3%	45.00	47.00	50.00	50.00
Consensus (Mean)	64.08	63.59	62.89	62.75	-3.9%	61.88	62.11	62.37	62.69
High	72.63	76.36	82.13	87.62		91.43	93.57	95.63	97.64
Low	54.00	55.00	52.00	52.00		45.00	47.00	49.00	49.00
Standard Deviation	5.05	6.39	7.01	7.78		9.66	9.73	9.43	9.79

Survey of Dec. 11, 2017		Crude Oil Volumes - Supply and Demand Consensus Forecasts							
		2017 Q1	Q2	Q3	Q4	2018 Q1	Q2	Q3	Q4
World	(millions of barrels per day)								
Supply		96.64	96.98	97.81	98.40	98.62	98.87	99.34	99.95
Demand		97.05	97.89	98.35	98.56	98.75	99.04	99.91	100.15
Balance		-0.41	-0.91	-0.54	-0.16	-0.13	-0.17	-0.57	-0.20

Global Crude Oil Supply and Demand Balances

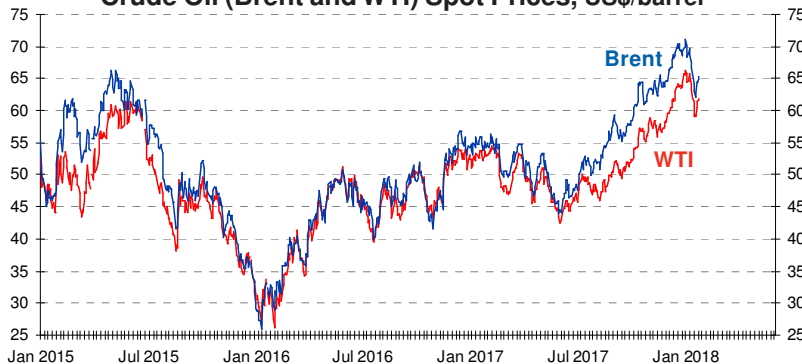


Bullish Despite Price Wobble

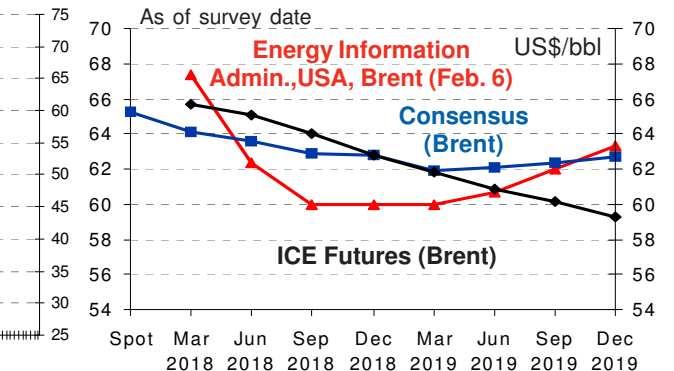
- ◆ As expected, the quick surge in Brent in the New Year was not sustainable and it succumbed to a spike in global risk aversion in early February.
- ◆ A key factor affecting the spot price of Brent is the dynamics between supply and demand. The latter has proven to be more resilient than first thought (macro outlook, page 3). However, it is unclear whether OPEC output discipline will hold in the face of accelerated US oil production and exports to Asia.

(Continued on page 7)

Crude Oil (Brent and WTI) Spot Prices, US\$/barrel



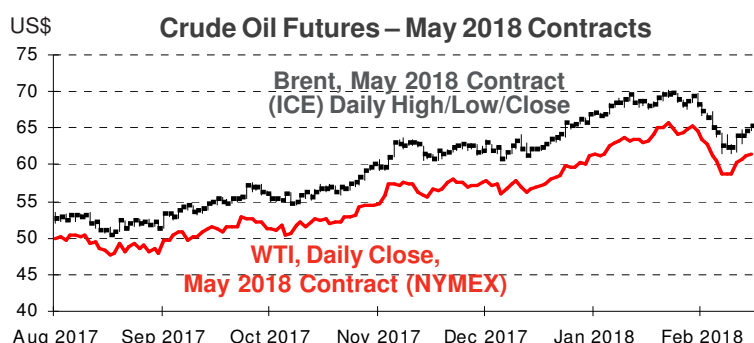
Brent Consensus Forecasts v Futures Prices



WTI Crude Oil Forecasts, US\$/barrel

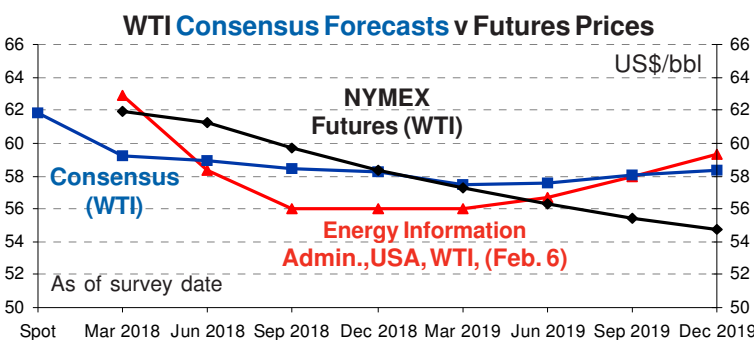
Nominal, Quarterly Averages, Annual Price Forecasts on Page 5

Survey Date Spot (Feb. 19): US\$ 61.83	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Pezco Economics	64.41	71.31	77.44	82.45	33.3%	85.86	87.70	89.45	91.15
Lloyds Bank	70.00	72.00	72.00	73.00	18.1%	na	na	na	na
ABN Amro	62.00	65.00	66.00	70.00	13.2%	73.00	74.00	70.00	70.00
Euromonitor International	66.68	70.62	69.62	67.74	9.6%	64.45	61.98	59.07	57.89
Morgan Stanley	65.00	67.50	70.00	67.50	9.2%	62.00	62.00	62.00	62.00
P K Verleger	62.00	63.50	65.00	66.50	7.6%	68.00	70.00	72.00	73.50
Moody's Analytics	62.89	63.55	62.52	61.00	-1.3%	59.97	59.68	59.53	59.30
China Int'l Capital Corp	50.00	53.00	55.00	59.00	-4.6%	na	na	na	na
Credit Suisse	53.00	53.00	59.00	59.00	-4.6%	54.00	55.00	60.00	60.00
Investec	61.00	61.00	59.00	59.00	-4.6%	56.00	56.00	56.00	56.00
Standard Chartered	60.00	56.00	56.00	59.00	-4.6%	62.00	59.00	55.00	57.00
Oxford Economics	64.81	62.11	58.51	58.51	-5.4%	58.51	58.51	58.51	58.51
UBS	52.00	55.50	55.50	58.50	-5.4%	61.00	61.00	61.00	61.00
BoA Merrill Lynch	62.00	61.00	59.00	58.00	-6.2%	na	na	na	na
JP Morgan	66.00	71.50	67.00	58.00	-6.2%	na	na	na	na
Societe Generale	57.00	56.00	60.00	58.00	-6.2%	56.00	56.00	56.00	56.00
Bank of China International	59.00	61.00	61.00	57.00	-7.8%	na	na	na	na
BNP Paribas	63.00	61.00	58.00	57.00	-7.8%	na	na	na	na
CIBC	57.00	57.00	57.00	57.00	-7.8%	59.00	59.00	59.00	59.00
Capital Economics	60.00	59.50	58.50	56.50	-8.6%	54.50	53.50	52.50	52.00
Econ Intelligence Unit	63.75	59.67	54.60	56.37	-8.8%	55.79	52.89	56.54	57.49
Deutsche Bank	59.00	57.00	54.00	54.00	-12.7%	56.00	56.00	56.00	56.00
RBC Capital Markets	54.68	53.85	53.51	53.99	-12.7%	54.56	55.69	56.58	57.12
Ecoanalitica	51.70	48.30	51.02	53.40	-13.6%	na	na	na	na
GKI Research	58.00	56.00	53.00	53.00	-14.3%	52.00	56.00	58.00	58.00
Scotiabank	50.00	52.00	53.00	52.95	-14.4%	55.00	56.00	56.00	55.99
BMO	55.00	50.00	52.00	52.00	-15.9%	54.00	54.00	54.00	54.00
ING Bank	56.00	53.00	50.00	50.00	-19.1%	44.00	46.00	49.00	49.00
Australia Dept of Industry	54.56	54.10	51.25	49.88	-19.3%	54.00	53.08	55.40	57.38
Commonwealth Bank	61.00	55.00	50.00	49.00	-20.8%	46.00	46.00	46.00	46.00
Citigroup	60.00	53.00	50.00	48.00	-22.4%	43.00	43.00	43.00	43.00
Macquarie	53.15	50.93	50.25	47.50	-23.2%	46.81	47.81	50.06	51.31
Consensus (Mean)	59.21	58.87	58.40	58.21	-5.9%	57.42	57.59	58.03	58.35
High	70.00	72.00	77.44	82.45		85.86	87.70	89.45	91.15
Low	50.00	48.30	50.00	47.50		43.00	43.00	43.00	43.00
Standard Deviation	5.16	6.61	7.14	7.63		9.14	9.27	9.03	9.30



Oil Boom Gives US Energy Edge

- ◆ WTI posted its worst week in two years as it slumped to US\$59.2 on February 13, from US\$65.8/bbl. Its slide followed a spike in risk aversion and sell off in global stock indices, which also lifted the US dollar. Losses, though, were retraced in the run-up to our survey date, due to tensions in the Middle East. The WTI-Brent spread has narrowed.
- ◆ A surge in US shale production (which has transformed energy trading around the world) continues to cast doubt over how quickly US stockpiles of crude oil will be run down, despite an extension to output restraint from OPEC and Russia.
- ◆ The WTI contract has become a more important benchmark, but remains constrained by its link to landlocked storage in Cushing, Oklahoma. For international prominence, an adjustment may be needed to better reflect the price at export hubs, like Houston.



US Crack Spread

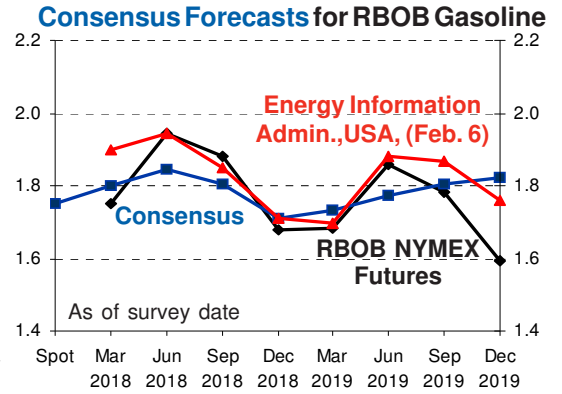
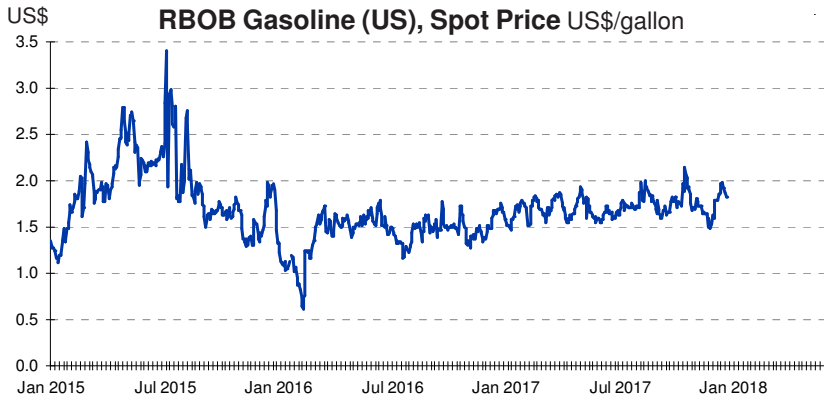
Crude oil is refined into numerous saleable products including gasoline and Gas Oil (or heating oil). The crack spread is used to estimate the profitability of refining the raw material. When the spread is positive, the price of the refined products is above that of crude oil, helping profitability. The chart opposite shows a commonly used 3:2:1 crack spread, reflecting a ratio of refinery output of 2 barrels of RBOB gasoline and 1 barrel of US heating oil from 3 barrels of WTI crude oil.



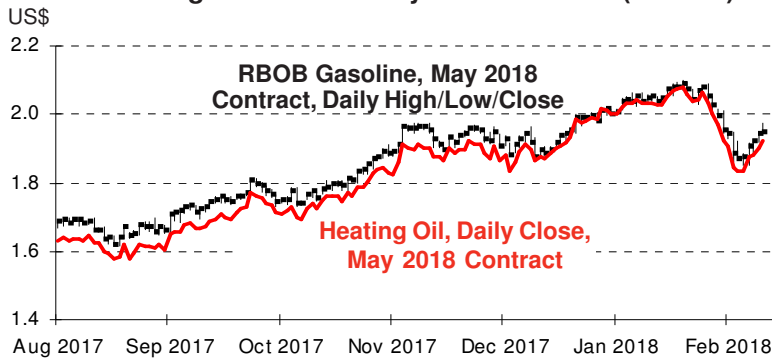
RBOB Gasoline (US) Forecasts, US\$/gallon, fob

Nominal, Quarterly Averages, Annual Price Forecasts on Page 5

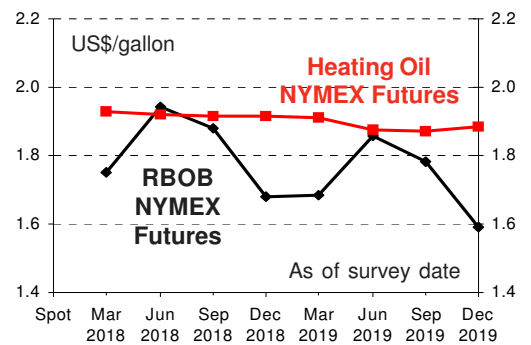
Survey Date Spot (Feb. 19): US\$ 1.753	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
P K Verleger	1.890	1.880	1.920	1.950	11.3%	1.940	2.030	2.080	2.120
BoA Merrill Lynch	1.881	1.917	1.893	1.738	-0.8%	na	na	na	na
Societe Generale	1.800	1.850	1.870	1.730	-1.3%	1.750	1.750	1.750	1.750
BNP Paribas	1.860	1.930	1.860	1.710	-2.4%	na	na	na	na
GKI Research	1.700	1.680	1.680	1.700	-3.0%	1.750	1.800	1.900	2.000
Deutsche Bank	1.723	1.885	1.841	1.676	-4.4%	1.783	1.783	1.783	1.783
ING Bank	1.850	1.700	1.500	1.650	-5.9%	1.450	1.500	1.500	1.450
Bank of China International	1.679	1.924	1.860	1.535	-12.4%	na	na	na	na
Consensus (Mean)	1.798	1.846	1.803	1.711	-2.4%	1.735	1.773	1.803	1.821
High	1.890	1.930	1.920	1.950		1.940	2.030	2.080	2.120
Low	1.679	1.680	1.500	1.535		1.450	1.500	1.500	1.450
Standard Deviation	0.086	0.100	0.142	0.116		0.177	0.188	0.213	0.258



RBOB/Heating Oil Futures – May 2018 Contracts (NYMEX)



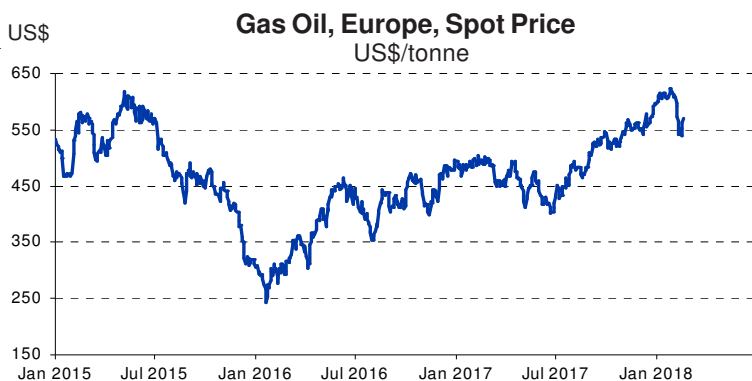
Futures Prices For RBOB and Heating Oil



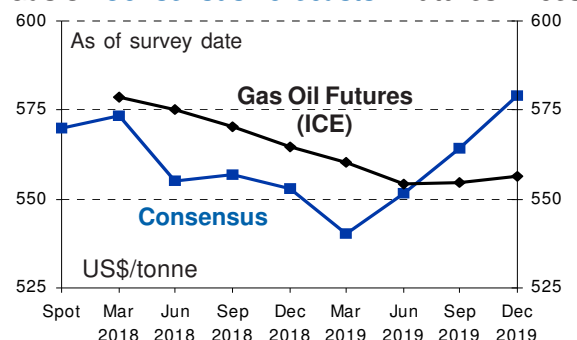
European Gas Oil Forecasts, US\$/tonne, fob

Nominal, Quarterly Averages, Annual Price Forecasts on Page 5

Survey Date Spot (Feb. 19): US\$ 570.0	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
P K Verleger	573.0	585.0	594.0	613.0	7.5%	611.0	628.0	645.0	664.0
BoA Merrill Lynch	596.8	555.8	563.2	567.0	-0.5%	na	na	na	na
BNP Paribas	611.0	581.0	566.0	559.0	-1.9%	na	na	na	na
Deutsche Bank	581.8	563.3	554.3	558.3	-2.1%	569.5	569.5	569.5	569.5
Bank of China International	563.2	566.2	568.4	552.0	-3.2%	na	na	na	na
GKI Research	580.0	560.0	560.0	550.0	-3.5%	560.0	580.0	600.0	650.0
Societe Generale	548.0	529.0	559.0	548.0	-3.9%	566.0	566.0	566.0	566.0
ING Bank	535.0	500.0	490.0	475.0	-16.7%	395.0	415.0	440.0	445.0
Consensus (Mean)	573.6	555.0	556.9	552.8	-3.0%	540.3	551.7	564.1	578.9
High	611.0	585.0	594.0	613.0		611.0	628.0	645.0	664.0
Low	535.0	500.0	490.0	475.0		395.0	415.0	440.0	445.0
Standard Deviation	24.8	28.0	29.6	37.8		83.7	80.4	76.3	87.3



Gas Oil Consensus Forecasts v Futures Prices



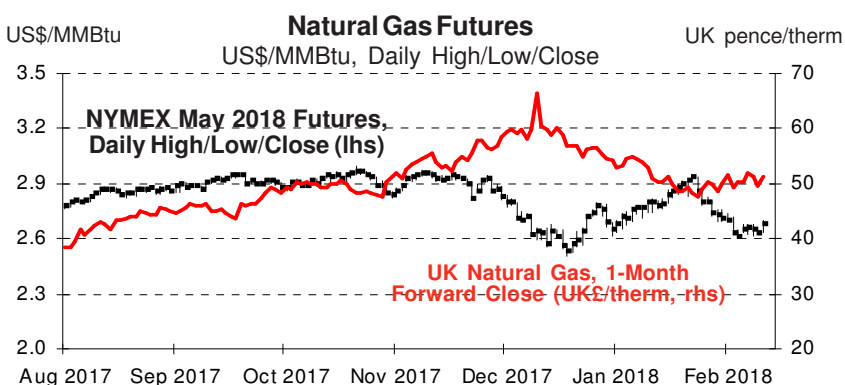
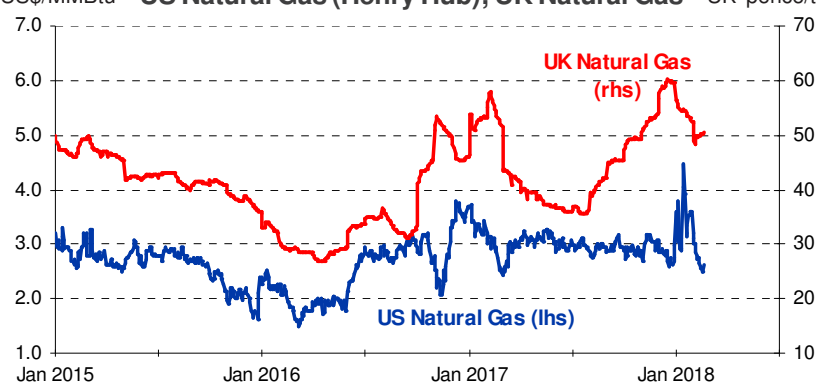
Natural Gas (US, Henry Hub) Forecasts, US\$/MMBtu Nominal, Quarterly Averages, Annual Price Forecasts on Page 5

Survey Date Spot (Feb. 19): US\$ 2.610	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Euromonitor International	3.651	3.841	3.881	3.880	48.7%	3.806	3.754	3.677	3.656
ABN Amro	3.250	3.000	3.250	3.500	34.1%	3.500	3.500	3.250	3.000
Capital Economics	2.975	2.875	3.000	3.375	29.3%	3.500	3.250	3.125	3.500
Moody's Analytics	3.120	3.200	3.330	3.370	29.1%	3.410	3.470	3.510	3.560
BoA Merrill Lynch	3.280	2.950	2.850	3.300	26.4%	na	na	na	na
Econ Intelligence Unit	3.480	3.120	2.960	3.280	25.7%	3.400	3.190	3.270	3.540
Deutsche Bank	2.900	2.900	2.900	3.200	22.6%	3.100	3.100	3.100	3.100
GKI Research	2.800	2.900	3.000	3.100	18.8%	3.200	3.300	3.400	3.600
Lloyds Bank	3.100	3.000	3.000	3.100	18.8%	na	na	na	na
Scotiabank	3.100	2.650	2.600	3.050	16.9%	3.100	2.750	2.850	3.300
Oxford Economics	2.900	2.958	2.988	3.018	15.6%	3.048	3.078	3.109	3.140
Credit Suisse	3.149	3.004	2.859	3.004	15.1%	2.907	2.907	2.907	2.907
Citigroup	3.200	3.100	3.100	3.000	14.9%	3.000	3.000	3.000	3.000
Liberum Capital	3.000	3.000	3.000	3.000	14.9%	3.000	3.000	3.000	3.000
RBC Capital Markets	3.000	3.000	3.000	3.000	14.9%	3.000	3.000	3.000	3.000
Societe Generale	3.060	3.000	3.080	3.000	14.9%	2.820	2.820	2.820	2.820
UBS	3.000	3.000	3.000	3.000	14.9%	3.250	3.250	3.250	3.250
Investec	2.850	2.850	2.950	2.950	13.0%	2.900	2.900	2.900	2.900
Commonwealth Bank	3.263	2.826	2.856	2.936	12.5%	3.091	2.707	2.758	2.875
CIBC	2.800	2.800	2.800	2.800	7.3%	2.900	2.900	2.900	2.900
ING Bank	3.000	2.600	2.800	2.800	7.3%	2.800	2.900	2.700	2.900
Standard Chartered	2.750	2.650	2.700	2.800	7.3%	3.000	2.800	2.700	3.200
Consensus (Mean)	3.074	2.965	2.996	3.112	19.2%	3.137	3.079	3.061	3.157
High	3.651	3.841	3.881	3.880		3.806	3.754	3.677	3.656
Low	2.750	2.600	2.600	2.800		2.800	2.707	2.700	2.820
Standard Deviation	0.221	0.247	0.256	0.257		0.265	0.275	0.268	0.277

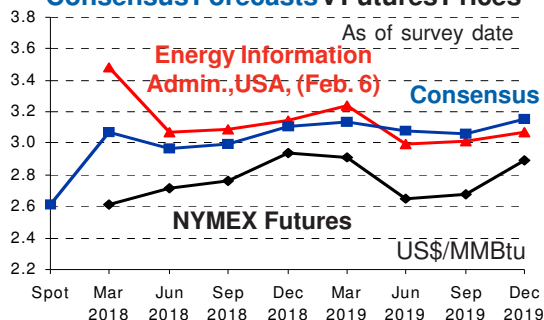
UK Natural Gas Forecasts, UK pence/therm Nominal, Quarterly Averages, Annual Price Forecasts on Page 5

Survey Date Spot (Feb. 19): 50.48 pence	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
GKI Research	53.00	55.00	55.00	56.00	10.9%	56.00	56.00	55.00	55.00
Capital Economics	51.50	48.50	46.50	45.50	-9.9%	40.00	35.00	35.00	35.00
ABN Amro	50.00	45.00	40.00	45.00	-10.9%	50.00	40.00	40.00	45.00
Lloyds Bank	45.00	42.00	40.00	45.00	-10.9%	na	na	na	na
ING Bank	52.00	40.00	37.00	37.00	-26.7%	38.00	40.00	40.00	43.00
Consensus (Mean)	50.30	46.10	43.70	45.70	-9.5%	46.00	42.75	42.50	44.50
High	53.00	55.00	55.00	56.00		56.00	56.00	55.00	55.00
Low	45.00	40.00	37.00	37.00		38.00	35.00	35.00	35.00
Standard Deviation	3.15	5.92	7.21	6.76		8.49	9.14	8.66	8.23

US\$/MMBtu US Natural Gas (Henry Hub); UK Natural Gas UK pence/therm



US Natural Gas Consensus Forecasts v Futures Prices



Downward Price Correction

- ◆ US Henry Hub slipped back to around US\$2.60/MMBtu, following a temporary spike in early January that was triggered by winter storms, inventory withdrawals and major supply disruptions.
- ◆ The retreat was expected, due to rising production and investment in the shale industry, as well as a drop in demand and the forecast of warmer weather.
- ◆ The US Natural Gas price has not rebounded alongside that of WTI, but is expected to average US\$3.037 in 2018 (consensus).

Consensus Price for
Q1 2018: US\$187.5e

Australian Coking Coal Forecasts, US\$/metric tonne, Contract Price

	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19
Investec	240.0	240.0	210.0	210.0	12.0%	180.0	180.0	175.0	175.0
Commonwealth Bank	230.0	200.0	175.0	170.0	-9.3%	160.0	150.0	150.0	140.0
Credit Suisse	200.0	180.0	160.0	160.0	-14.7%	150.0	150.0	150.0	150.0
Deutsche Bank	230.0	200.0	180.0	160.0	-14.7%	170.0	150.0	140.0	140.0
UBS	202.0	180.0	163.3	153.3	-18.2%	156.7	153.3	143.3	146.7
Macquarie	230.0	180.0	175.0	150.0	-20.0%	150.0	150.0	150.0	150.0
RBC Capital Markets	140.0	155.0	155.0	150.0	-20.0%	135.0	135.0	135.0	135.0
Scotiabank	150.0	150.0	150.0	150.0	-20.0%	130.0	130.0	130.0	130.0
BMO	180.0	175.0	150.0	140.0	-25.3%	130.0	130.0	130.0	140.0
BoA Merrill Lynch	150.0	140.0	130.0	140.0	-25.3%	130.0	130.0	na	na
Citigroup	170.0	160.0	150.0	140.0	-25.3%	128.0	128.0	128.0	128.0
Australia Dept of Industry	175.0	160.0	145.0	138.0	-26.4%	132.0	127.0	123.0	120.0
Morgan Stanley	165.0	160.0	140.0	130.0	-30.7%	115.0	110.0	110.0	115.0
Societe Generale	150.0	145.0	135.0	130.0	-30.7%	130.0	130.0	130.0	130.0
ING Bank	200.0	150.0	125.0	120.0	-36.0%	120.0	115.0	115.0	120.0
Consensus (Mean)	187.5	171.7	156.2	149.4	-20.3%	141.1	137.9	136.4	137.1
High	240.0	240.0	210.0	210.0		180.0	180.0	175.0	175.0
Low	140.0	140.0	125.0	120.0		115.0	110.0	110.0	115.0
Standard Deviation	34.0	26.5	22.1	21.3		18.9	17.7	16.7	15.6

Consensus Price for
Q1 2018: US\$90.62e

Australian Steaming Coal Forecasts, US\$/metric tonne, Spot Price

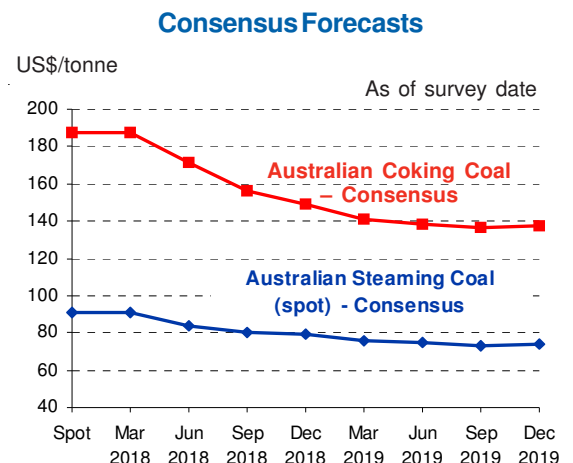
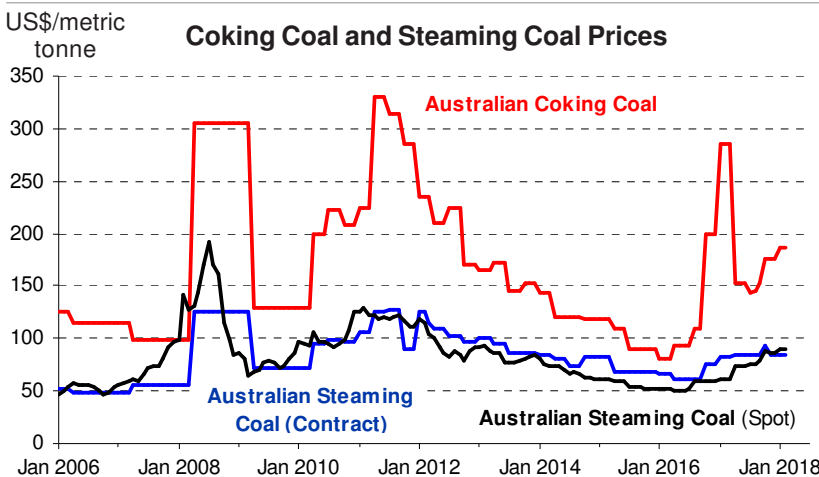
	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19
Investec	97.75	97.75	91.84	91.84	1.3%	89.10	89.10	84.24	84.24
Deutsche Bank	100.00	90.00	90.00	90.00	-0.7%	88.00	88.00	82.00	82.00
Econ Intelligence Unit	95.00	93.00	92.00	90.00	-0.7%	87.50	87.20	87.00	86.50
Macquarie	105.00	100.00	95.00	90.00	-0.7%	80.00	80.00	80.00	80.00
Credit Suisse	94.00	79.00	82.00	85.00	-6.2%	79.00	79.00	82.00	82.00
UBS	85.00	80.00	85.00	85.00	-6.2%	80.00	80.00	75.00	80.00
Citigroup	80.00	75.00	76.00	80.00	-11.7%	75.00	75.00	75.00	75.00
BoA Merrill Lynch	88.00	80.00	75.00	77.00	-15.0%	na	na	na	na
Commonwealth Bank	90.00	83.00	79.00	77.00	-15.0%	77.00	77.00	77.00	77.00
Euromonitor International	106.14	98.49	86.89	76.81	-15.2%	69.31	64.96	62.96	63.27
RBC Capital Markets	80.00	80.00	75.00	75.00	-17.2%	70.00	70.00	70.00	70.00
ING Bank	94.00	79.00	69.00	74.00	-18.3%	76.00	71.00	69.00	71.00
Australia Dept of Industry	85.00	76.00	74.00	72.00	-20.5%	71.00	70.00	69.00	68.00
Capital Economics	90.00	80.00	74.00	71.50	-21.1%	69.00	66.50	64.00	61.50
Morgan Stanley	85.00	75.00	72.00	68.00	-25.0%	65.00	60.00	60.00	60.00
Liberum Capital	75.00	75.00	65.00	65.00	-28.3%	65.00	65.00	65.00	65.00
Consensus (Mean)	90.62	83.83	80.11	79.26	-12.5%	76.06	74.85	73.48	73.70
High	106.14	100.00	95.00	91.84		89.10	89.10	87.00	86.50
Low	75.00	75.00	65.00	65.00		65.00	60.00	60.00	60.00
Standard Deviation	8.95	8.92	9.07	8.47		7.96	9.07	8.49	8.78

Consensus Price for
Q1 2018: US\$84.99e

Australian Steaming Coal Forecasts, US\$/metric tonne, Contract Price

¹ Individual forecasts available in the Excel spreadsheet.

	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19
Consensus (Mean)¹	84.99	90.00	89.63	89.63	5.5%	89.50	80.13	79.75	79.75
High	86.00	112.00	112.00	112.00		112.00	90.00	90.00	90.00
Low	84.00	75.00	75.00	75.00		75.00	64.00	64.00	64.00
Standard Deviation	0.53	11.56	11.80	11.80		11.89	8.61	8.63	8.63

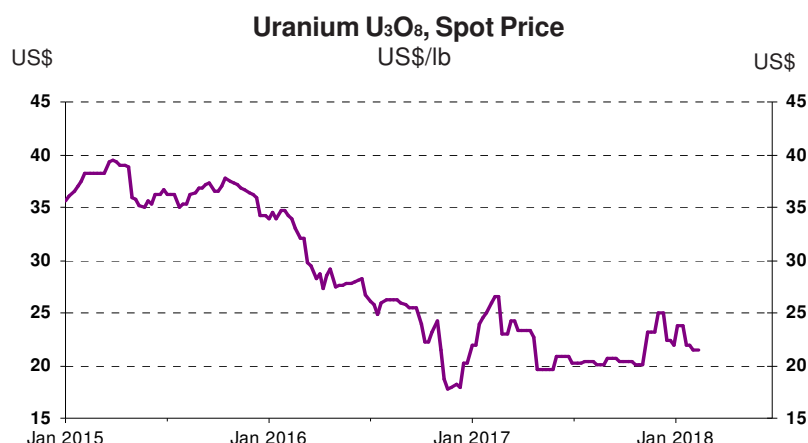


Survey Date Spot
(Feb. 19): **US\$ 21.50**

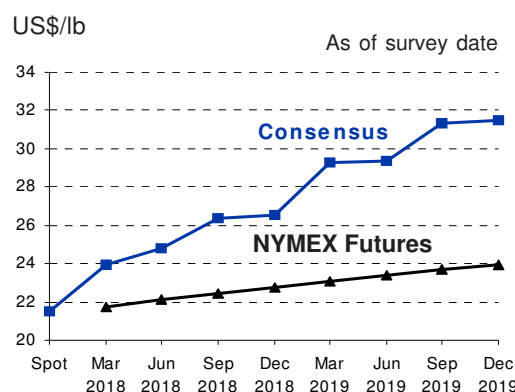
Uranium U₃O₈ Forecasts, US\$/lb

Nominal, Quarterly Averages

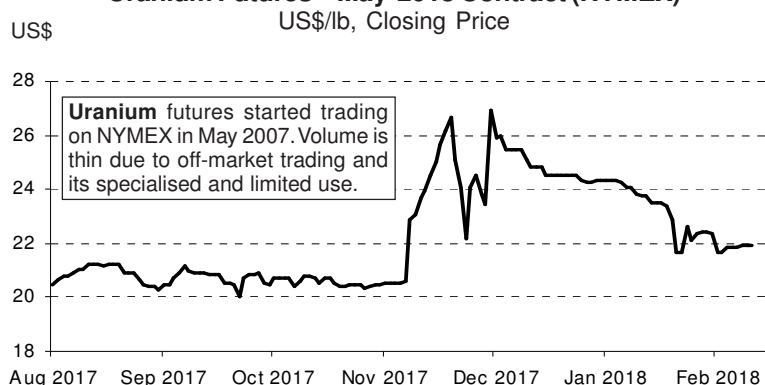
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
UBS	25.00	28.00	32.00	35.00	62.8%	40.00	40.00	40.00	40.00
BMO	25.00	25.00	27.50	30.00	39.5%	35.00	35.00	35.00	35.00
Credit Suisse	25.00	25.00	30.00	30.00	39.5%	30.00	30.00	30.00	30.00
Liberum Capital	25.00	25.00	30.00	30.00	39.5%	35.00	35.00	40.00	40.00
Australia Dept of Industry	25.00	27.50	27.90	28.20	31.2%	28.20	28.20	29.00	30.00
Investec	24.00	24.00	26.00	26.00	20.9%	28.00	28.00	30.00	30.00
Commonwealth Bank	22.00	23.00	24.00	25.00	16.3%	26.00	27.00	28.00	29.00
Macquarie	24.00	24.00	24.00	24.00	11.6%	27.00	27.00	27.00	27.00
RBC Capital Markets	22.50	22.50	22.50	22.50	4.7%	30.00	30.00	30.00	30.00
Morgan Stanley	21.00	21.00	21.00	21.00	-2.3%	24.00	24.00	24.00	24.00
BoA Merrill Lynch	25.00	28.00	25.00	20.00	-7.0%	19.00	19.00	na	na
Consensus (Mean)	23.95	24.82	26.35	26.52	23.3%	29.29	29.38	31.30	31.50
High	25.00	28.00	32.00	35.00		40.00	40.00	40.00	40.00
Low	21.00	21.00	21.00	20.00		19.00	19.00	24.00	24.00
Standard Deviation	1.46	2.28	3.45	4.57		5.78	5.73	5.36	5.25



Consensus Forecasts v Futures Prices



Uranium Futures – May 2018 Contract (NYMEX)



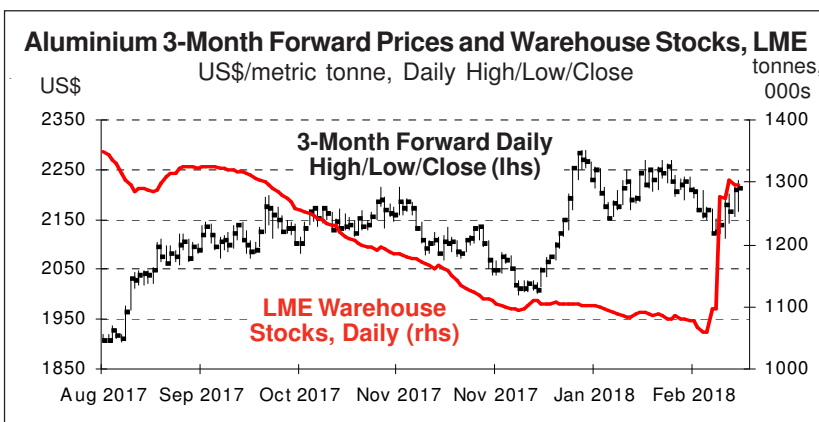
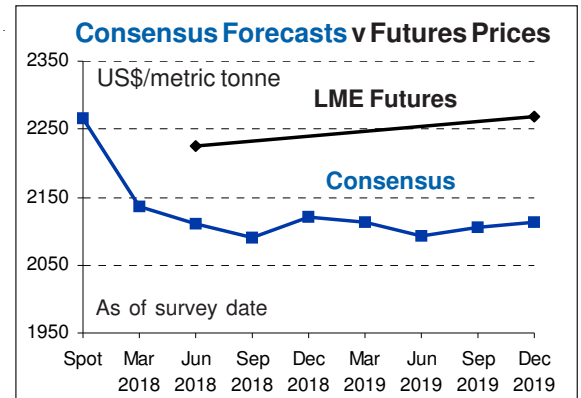
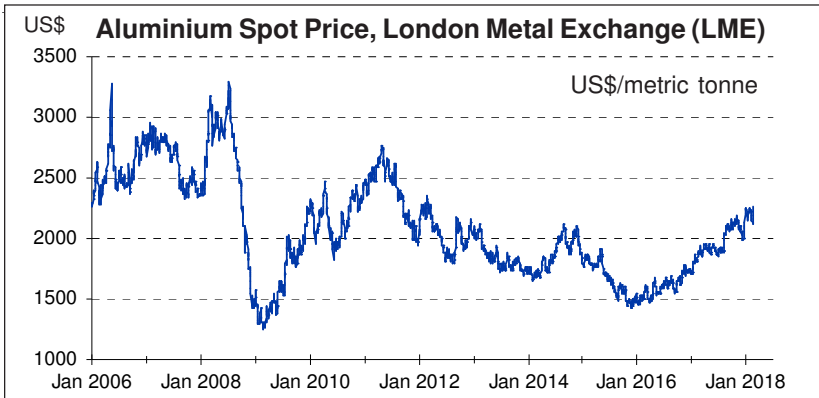
- ◆ **High Reserves Hold Down Spot Price**
Owing to the small number of transactions and pool of buyers, deliberate efforts to slash Uranium production by Cameco and Kazatomprom have thus far not had the desired impact on the spot price. Most of the late 2017/early 2018 gains have been reversed in recent weeks, alongside the pull back in other major commodities.
- ◆ Reserves of the atomic fuel remain relatively high but should begin to diminish over 2018/2019. The negotiation of new long-term contracts by nuclear utilities in a more competitive supply environment should exert upward pressure on the value of the rare metal.

World Nuclear Electricity Production (2010)

Producers (% share of World)	Installed Capacity (Gigawatts)	Nuclear power as a % of total domestic electricity
USA 30.4%	USA 101	France 75.9%
France 15.6%	France 63	Ukraine 47.3%
Japan 10.4%	Japan 49	South Korea 29.9%
Russia 6.2%	Russia 24	Japan 26.0%
S. Korea 5.4%	Germany 20	Germany 22.6%

Uranium futures began trading on NYMEX in May 2007 in an attempt to introduce greater price transparency. Volumes and liquidity are currently very low (see chart above left).
Futures Market: NYMEX Pricing: US\$/lb Contract Size: 250lbs Trading Months: 60 consecutive months. Settlement price: The final settlement price is the spot-month end price published by UxC.

Survey Date Spot Price (Feb. 19): US\$ 2266	Aluminium Forecasts, US\$/metric tonne, fob									
	Nominal, Quarterly Averages					Nominal, Quarterly Averages				
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19	
BoA Merrill Lynch	2250	2500	2250	2500	10.3%	2250	2000	na	na	
Investec	2425	2425	2480	2480	9.5%	2535	2535	2646	2646	
Bank of China International	2280	2300	2300	2350	3.7%	na	na	na	na	
Deutsche Bank	2200	2250	2300	2300	1.5%	2300	2300	2300	2300	
Standard Chartered	2300	2250	2150	2300	1.5%	2300	2300	2300	2301	
Pezco Economics	2222	2246	2269	2292	1.2%	2333	2383	2433	2483	
ABN Amro	2215	2207	2126	2287	0.9%	2340	2340	2340	2340	
Euromonitor International	2254	2291	2258	2229	-1.6%	2206	2195	2183	2191	
BMO	2094	2094	2205	2205	-2.7%	2094	2205	2425	2205	
Prometeia	2240	2180	2200	2180	-3.8%	2200	2220	2250	2270	
IHS Markit	2174	2114	2092	2161	-4.6%	2179	2130	2127	2156	
Morgan Stanley	2050	2094	2094	2116	-6.6%	2138	2138	2161	2161	
Citigroup	2100	2100	2100	2100	-7.3%	2200	2200	2200	2200	
Macquarie	2050	1950	2050	2100	-7.3%	2050	1950	1850	1900	
Societe Generale	2050	2075	2075	2100	-7.3%	2100	2100	2100	2100	
CIBC	2094	2094	2094	2094	-7.6%	2050	2050	2050	2050	
Australia Dept of Industry	2093	2072	2030	2091	-7.7%	2154	2143	2133	2154	
BIPE	2090	2050	2030	2050	-9.5%	2060	2060	2080	2090	
Econ Intelligence Unit	2200	2200	2100	2050	-9.5%	2075	2050	1950	1950	
CPM Group	2193	2113	2015	2040	-10.0%	2080	2030	2040	2075	
China Int'l Capital Corp	2020	2047	2025	2015	-11.1%	2060	2080	2070	2060	
ING Bank	2200	2050	2000	2000	-11.7%	2200	2050	2050	2100	
Oxford Economics	2100	1965	1980	1990	-12.2%	1993	1964	1980	1970	
Scotiabank	1984	1984	1984	1984	-12.4%	1984	1984	1984	1984	
Commonwealth Bank	2116	2072	2028	1984	-12.4%	1984	1984	1984	1984	
RBC Capital Markets	1874	1940	1984	1984	-12.4%	1874	1874	1874	1874	
UBS	2094	1874	1874	1984	-12.4%	1984	1874	1874	1984	
Capital Economics	2155	2015	1965	1925	-15.0%	1890	1890	1915	1940	
Liberum Capital	1984	1984	1873	1873	-17.3%	1763	1763	1763	1763	
Credit Suisse	1950	1750	1750	1850	-18.4%	1900	1900	1900	1950	
Consensus (Mean)	2135	2110	2089	2121	-6.4%	2113	2093	2106	2114	
High	2425	2500	2480	2500		2535	2535	2646	2646	
Low	1874	1750	1750	1850		1763	1763	1763	1763	
Standard Deviation	117	157	149	164		165	174	204	191	



Prices May Lose Ground

- Aluminium rebounded last week, from US\$2138 on February 14 to US\$2266 on our survey date. However, support could wane as winter output restrictions of the metal are soon to be lifted in China and as new capacity comes online.
- Beijing's war on pollution is crucial to long-term supply dynamics. Greater cutbacks will be needed to halt overproduction.
- Trade protectionism between the US and China could act as a source of price volatility, as the Trump-led administration is considering implementing tariffs on some metal imports, including Aluminium.

World Aluminium Supply and Demand					May 2017 Consensus Forecasts	
(in millions of tonnes)	2013	2014	2015	2016	2017	2018
World Supply	52.3	53.9	57.9	58.2	60.3	61.7
World Demand	46.5	54.0	57.4	57.8	60.9	63.1
Balance	5.8	-0.1	0.5	0.4	-0.6	-1.4

Historical Estimates Source: Australian Government Department of Industry

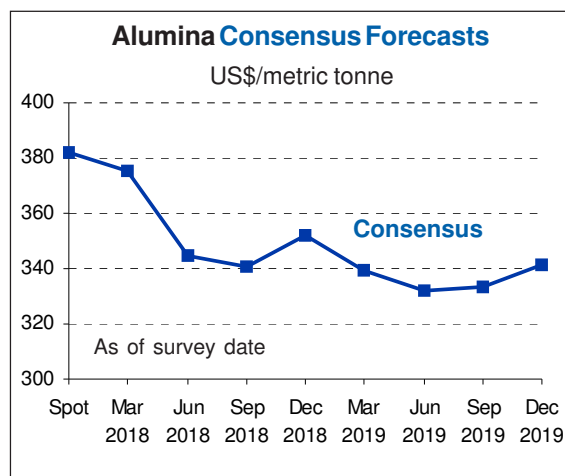
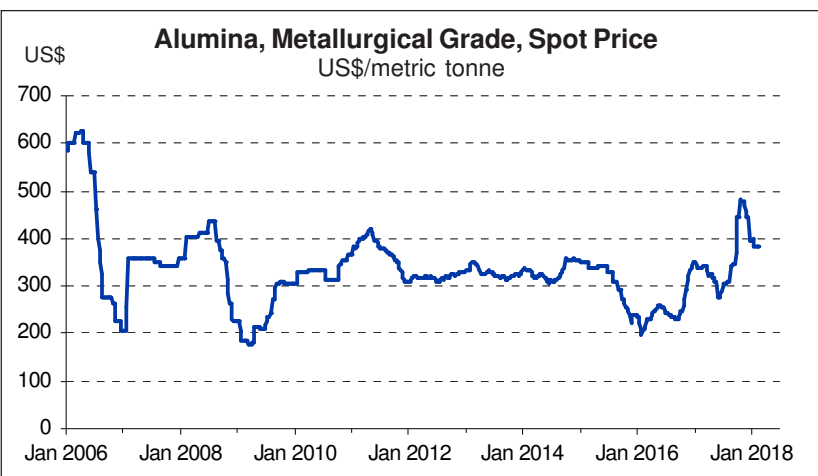
Aluminium: Futures Market: LME Pricing: US\$/tonne Contract Size: 25 tonnes Delivery Dates: Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 123 months. **Contracts Traded:** 51,429,383 (2017).

Survey Date Spot Price
(Feb. 19): US\$ 382.3

Alumina Forecasts, US\$/metric tonne, fob

Nominal, Quarterly Averages

	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
BMO	390.0	320.0	330.0	410.0	7.2%	370.0	320.0	350.0	390.0
BoA Merrill Lynch	400.0	400.0	400.0	400.0	4.6%	350.0	350.0	na	na
Investec	358.8	358.8	374.5	374.5	-2.0%	388.0	388.0	413.3	413.3
Morgan Stanley	400.0	340.0	330.0	370.0	-3.2%	380.0	360.0	340.0	340.0
China Int'l Capital Corp	386.7	373.7	365.0	355.0	-7.1%	350.0	360.0	365.0	360.0
Macquarie	380.0	350.0	330.0	350.0	-8.4%	340.0	340.0	330.0	340.0
RBC Capital Markets	375.0	300.0	350.0	350.0	-8.4%	325.0	325.0	325.0	325.0
UBS	400.0	325.0	325.0	350.0	-8.4%	350.0	320.0	320.0	350.0
Commonwealth Bank	400.0	360.0	350.0	340.0	-11.1%	340.0	340.0	335.0	335.0
Liberum Capital	380.0	380.0	330.0	330.0	-13.7%	300.0	300.0	300.0	300.0
Capital Economics	405.0	365.0	340.0	325.0	-15.0%	325.0	325.0	330.0	335.0
Credit Suisse	290.0	290.0	290.0	310.0	-18.9%	290.0	290.0	290.0	310.0
Australia Dept of Industry	311.5	314.6	317.7	308.2	-19.4%	305.1	302.1	302.1	299.0
Consensus (Mean)	375.1	344.4	340.9	351.7	-8.0%	339.5	332.3	333.4	341.4
High	405.0	400.0	400.0	410.0		388.0	388.0	413.3	413.3
Low	290.0	290.0	290.0	308.2		290.0	290.0	290.0	299.0
Standard Deviation	35.7	32.8	27.7	31.0		30.1	27.7	33.0	34.1

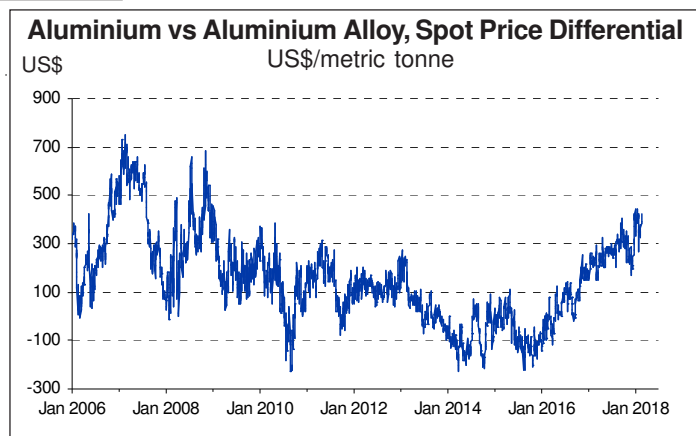
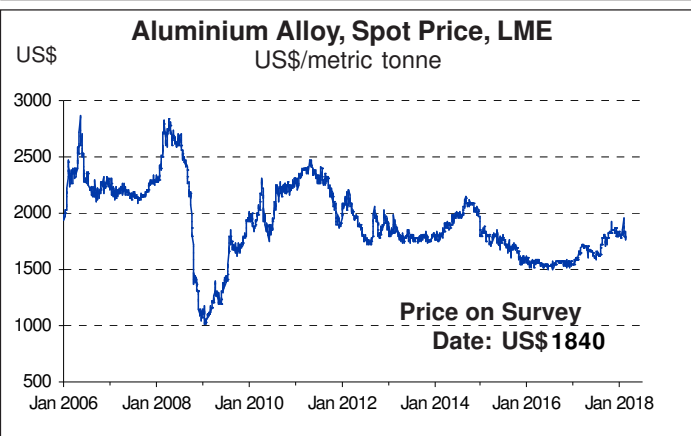


Alumina is derived from bauxite ore and is used to produce primary aluminium at a ratio of two tonnes of alumina per tonne of aluminium. Prices can be linked to the LME primary aluminium price.

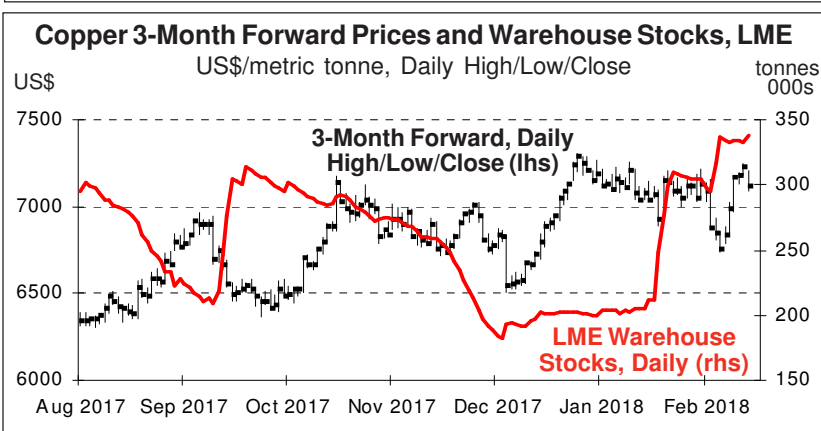
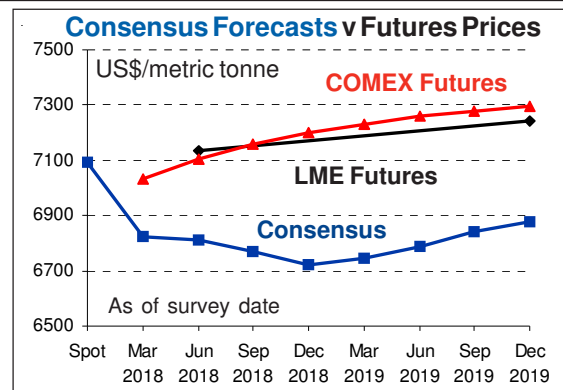
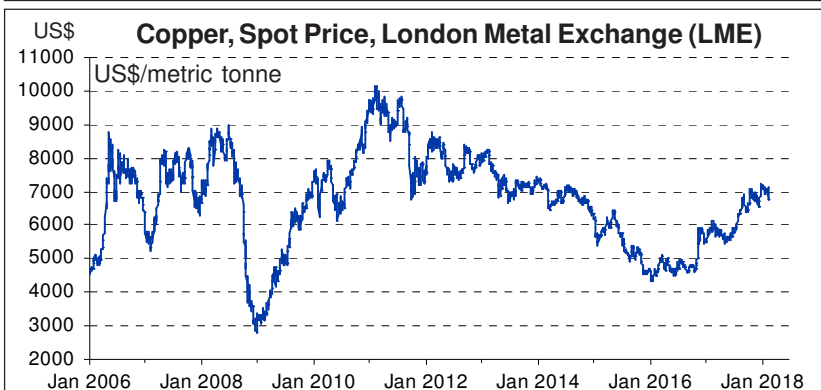
Aluminium Alloy prices provide a reference basis for the secondary aluminium market. **Futures Market:** LME **Pricing:** US\$/tonne **Contract Size:** 20 tonnes **Delivery Dates:** Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 27 months. **Contracts Traded:** 61,723 (2017).

World Production of Alumina (108.0 million tonnes, 2014)

Producer	% of world total
1. China	44.3%
2. Australia	19.0%
3. Brazil	9.8%
4. India	4.7%



Survey Date Spot Price (Feb. 19): US\$ 7093	Copper, Grade A, Forecasts, US\$/metric tonne, fob					Nominal, Quarterly Averages			
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Pezco Economics	7164	7415	7666	7916	11.6%	8083	8208	8333	8458
Bank of China International	7050	7200	7400	7500	5.7%	na	na	na	na
Standard Chartered	7000	7000	7200	7400	4.3%	7250	7250	7250	7250
Deutsche Bank	7000	7100	7300	7300	2.9%	7500	7500	7500	7500
Investec	7055	7055	7275	7275	2.6%	7496	7496	7937	7937
ABN Amro	7205	7152	6902	7163	1.0%	7350	7350	7350	7350
BoA Merrill Lynch	7000	7700	7400	7000	-1.3%	7050	7050	na	na
Citigroup	7100	7200	7200	7000	-1.3%	7000	7000	7000	7000
Econ Intelligence Unit	7050	6800	6950	7000	-1.3%	7100	7000	7200	7350
Prometeia	6950	6929	6917	6901	-2.7%	6910	6940	6955	6967
Societe Generale	6900	6800	6800	6900	-2.7%	7000	7000	7000	7000
CPM Group	7063	6865	6750	6850	-3.4%	6815	7025	6785	6915
Capital Economics	7005	6525	6425	6800	-4.1%	7125	7300	7375	7450
Euromonitor International	7167	7185	6938	6727	-5.2%	6545	6427	6313	6280
BMO	6393	6504	6393	6614	-6.8%	6283	6834	7496	7496
Morgan Stanley	6349	6283	6283	6614	-6.8%	6614	6504	6393	6504
UBS	6614	6614	6614	6614	-6.8%	6614	6614	6614	6614
ING Bank	6800	6500	6800	6600	-7.0%	6400	6500	6700	6600
Macquarie	7150	7100	6800	6600	-7.0%	6550	6500	6700	6900
China Int'l Capital Corp	6400	6500	6600	6500	-8.4%	6650	6800	6850	6800
IHS Markit	6953	6737	6659	6493	-8.5%	6465	6483	6508	6604
RBC Capital Markets	6393	6834	6834	6393	-9.9%	7165	7165	7165	7165
CIBC	6305	6305	6305	6305	-11.1%	6019	6019	6019	6019
Scotiabank	6283	6283	6283	6283	-11.4%	6614	6614	6614	6614
Oxford Economics	7000	6750	6490	6258	-11.8%	6450	6315	6283	6331
Commonwealth Bank	6945	6614	6283	5952	-16.1%	5842	5842	5842	5842
Australia Dept of Industry	6664	6505	6324	5868	-17.3%	6223	6397	6602	6737
Credit Suisse	6060	6280	5740	5300	-25.3%	5060	5060	5060	5060
Consensus (Mean)	6822	6812	6769	6719	-5.3%	6747	6785	6840	6875
High	7205	7700	7666	7916		8083	8208	8333	8458
Low	6060	6280	5740	5300		5060	5060	5060	5060
Standard Deviation	332	367	439	539		599	608	671	683



Price Correction Predicted

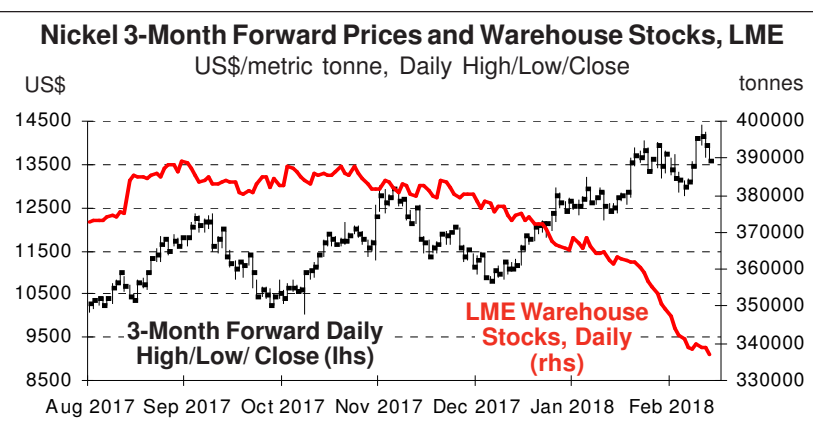
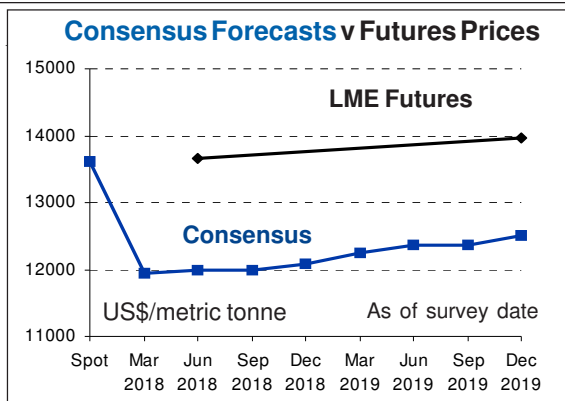
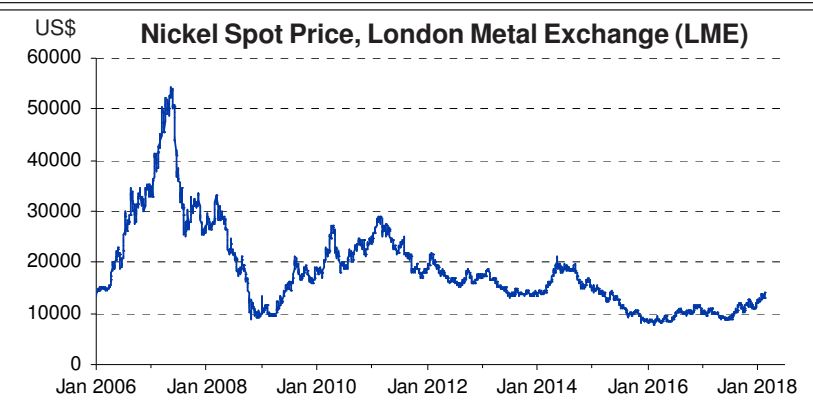
- While Copper may not perform as well as in 2017 when its price surged by 30.1%, its 2018 prospects have thus far been protected by confidence in the global economy.
- A sharp jump in LME stocks, partly due to lower Chinese demand, has not unnerved investors. Mine capacity is likely to be squeezed by declining ore grades and sporadic labour disputes in key producers Chile and Peru. A lack of new investments, due to earlier years of weak prices, could add to near term supply constraints. However, prices above US\$7000/T will be hard to sustain.

World Copper Supply and Demand (in millions of tonnes)	May 2017 Consensus Forecasts					
	2013	2014	2015	2016	2017	2018
World Supply	21.1	22.5	22.9	23.3	22.9	23.6
World Demand	21.4	22.9	23.0	23.4	23.8	24.3
Balance	-0.3	-0.4	-0.1	-0.1	-0.9	-0.7

Historical Estimates Source: International Copper Study Group (ICSG)

Copper: Futures Market: LME Pricing: US\$/tonne
Contract Size: 25 tonnes Delivery Dates: Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 123 months. Contracts Traded: 33,885,081 (2017). US Futures Market: COMEX Pricing: US\$/lb Lot Size: 25,000lbs Deliverability: 24 consecutive months.

Survey Date Spot Price (Feb. 19): US\$ 13600	Nickel Forecasts, US\$/metric tonne, fob					Nominal, Quarterly Averages			
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Societe Generale	12000	13000	13000	14000	2.9%	14000	14000	14000	14000
Credit Suisse	13120	13560	14000	14000	2.9%	14330	14330	14770	14770
Bank of China International	12800	12500	13000	13500	-0.7%	na	na	na	na
BIPE	11900	12100	12730	13350	-1.8%	13800	13850	13900	13900
Pezco Economics	12914	13015	13116	13216	-2.8%	13417	13667	13917	14167
Euromonitor International	13386	13818	13433	13094	-3.7%	12804	12642	12474	12485
BoA Merrill Lynch	12500	13500	15000	13000	-4.4%	14500	14500	na	na
Oxford Economics	11500	11500	12000	13000	-4.4%	12500	13200	13500	13750
ABN Amro	12718	12982	12432	12990	-4.5%	13525	13525	13525	13525
Investec	12456	12456	12787	12787	-6.0%	13669	13669	14109	14109
Macquarie	13000	12750	12250	12500	-8.1%	13500	13500	13500	14000
IHS Markit	12626	12085	12200	12434	-8.6%	13567	13505	13537	13643
Deutsche Bank	12103	11751	11949	12280	-9.7%	12000	13054	13054	13054
Prometeia	11565	11300	11693	12090	-11.1%	12386	12496	12632	12768
Citigroup	12000	12000	12000	12000	-11.8%	12000	12000	12000	12000
Standard Chartered	12000	11750	12000	12000	-11.8%	12250	12250	12250	12250
UBS	10472	10692	11243	11684	-14.1%	12125	12676	13779	14330
CPM Group	12588	12050	11600	11680	-14.1%	11740	11830	11975	12175
Econ Intelligence Unit	13213	12994	12185	11598	-14.7%	11414	11230	10863	11046
RBC Capital Markets	10472	11023	11023	11574	-14.9%	11023	11023	11023	11023
China Int'l Capital Corp	11097	11684	11170	11427	-16.0%	11427	11831	11464	13228
Morgan Stanley	10913	11023	11244	11354	-16.5%	11464	11464	11574	11684
Australia Dept of Industry	11320	12100	11180	11150	-18.0%	11090	11070	11050	11000
Scotiabank	11023	11023	11023	11023	-18.9%	12125	12125	12125	12125
Capital Economics	12355	11750	11125	10625	-21.9%	10375	10375	10625	10875
Commonwealth Bank	11795	11244	10803	10582	-22.2%	10582	10582	10582	10582
BMO	10362	10472	10472	10582	-22.2%	10472	10472	10472	10472
ING Bank	12000	11000	10500	10500	-22.8%	10700	10800	10500	10500
CIBC	10428	10428	10428	10428	-23.3%	10340	10340	10340	10340
Consensus (Mean)	11953	11984	11986	12084	-11.1%	12254	12357	12353	12511
High	13386	13818	15000	14000		14500	14500	14770	14770
Low	10362	10428	10428	10428		10340	10340	10340	10340
Standard Deviation	899	945	1097	1073		1281	1300	1374	1414



Price Drop Expected

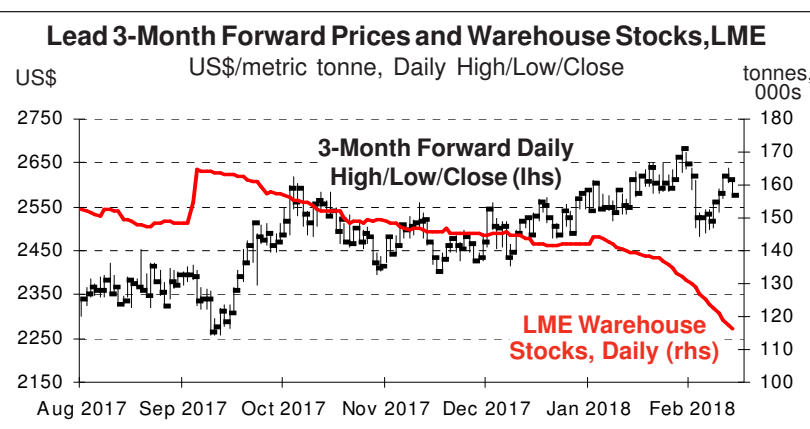
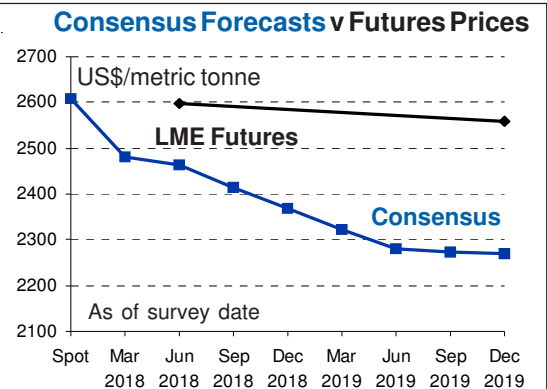
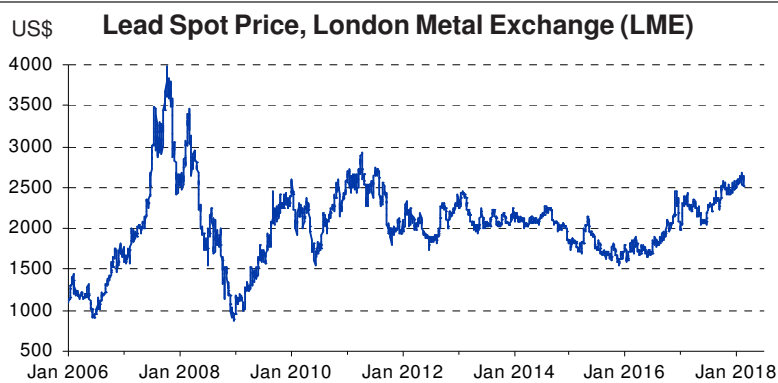
- Prices have increased 10.9% in the year to date, supported by speculative trades and supply concerns. Chinese output has been curbed by Beijing's stricter anti-pollution tuck, while the world's largest Nickel producer Vale plans to reduce capacity by 15 percent this year. That said, a revival in Indonesian exports could plug much of the gap and exert downward pressure on price.
- The upturn in the global economic outlook should bolster demand. The electric vehicle revolution also bodes well for Nickel, as it is an important component of lithium batteries.

World Nickel Supply and Demand (in thousands of tonnes)	May 2017 Consensus Forecasts					
	2013	2014	2015	2016	2017	2018
World Supply	1963	1994	1973	1916 e	2049	2242
World Demand	1785	1869	1881	1948 e	2069	2142
Balance	178	125	92	-32	-20	100

Historical Estimates Source: International Nickel Study Group (INSG)

Nickel prices are closely related to demand from stainless steel producers who account for about two-thirds of total demand. **Futures Market:** LME **Pricing:** US\$/tonne **Contract Size:** 6 tonnes **Delivery Dates:** Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 63 months. **Contracts Traded:** 21,080,574 (2017).

Survey Date Spot Price (Feb. 19): US\$ 2608	Lead Forecasts, US\$/metric tonne, fob									
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19	Nominal, Quarterly Averages
Societe Generale	2600	2700	2700	2800	7.4%	2700	2700	2700	2700	
Econ Intelligence Unit	2550	2500	2620	2650	1.6%	2700	2720	2760	2800	
Pezco Economics	2593	2601	2609	2617	0.4%	2683	2778	2873	2968	
Bank of China International	2600	2500	2500	2600	-0.3%	na	na	na	na	
Standard Chartered	2500	2600	2500	2600	-0.3%	2700	2300	2300	2300	
ING Bank	2510	2700	2650	2550	-2.2%	2460	2260	2330	2290	
Investec	2513	2513	2535	2535	-2.8%	2557	2557	2535	2535	
RBC Capital Markets	2519	2519	2519	2519	-3.4%	2527	2527	2527	2527	
Citigroup	2600	2600	2500	2500	-4.1%	2300	2300	2300	2300	
China Int'l Capital Corp	2525	2425	2400	2450	-6.1%	2375	2275	2225	2325	
CPM Group	2563	2505	2410	2450	-6.1%	2490	2500	2400	2450	
BMO	2425	2646	2646	2425	-7.0%	2425	2425	2425	2425	
Macquarie	2600	2550	2450	2350	-9.9%	2300	2200	2150	2000	
UBS	2315	2315	2315	2315	-11.2%	2205	2205	2205	2205	
Euromonitor International	2593	2531	2408	2305	-11.6%	2219	2155	2096	2059	
BoA Merrill Lynch	2500	2500	2650	2300	-11.8%	2129	2129	na	na	
Capital Economics	2490	2475	2400	2300	-11.8%	2225	2175	2125	2050	
IHS Markit	2537	2344	2282	2249	-13.8%	2226	2195	2151	2162	
Commonwealth Bank	2315	2469	2315	2205	-15.5%	2094	1984	1874	1764	
Oxford Economics	2450	2300	2180	2140	-17.9%	2275	2169	2180	2150	
Morgan Stanley	2425	2315	2205	2094	-19.7%	2094	2094	2094	2094	
Prometeia	2524	2345	2260	2076	-20.4%	2083	2092	2115	2138	
Liberum Capital	2204	2204	1984	1984	-23.9%	1873	1873	1873	1873	
Deutsche Bank	2100	2000	1900	1850	-29.1%	1800	1800	1800	1800	
Consensus (Mean)	2481	2465	2414	2369	-9.2%	2324	2279	2274	2269	
High	2600	2700	2700	2800		2700	2778	2873	2968	
Low	2100	2000	1900	1850		1800	1800	1800	1764	
Standard Deviation	130	163	207	232		255	258	281	311	



Price Advance May Not Last

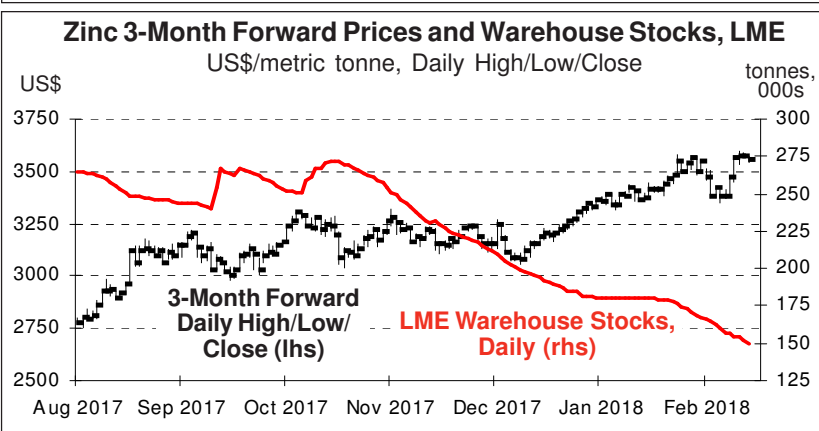
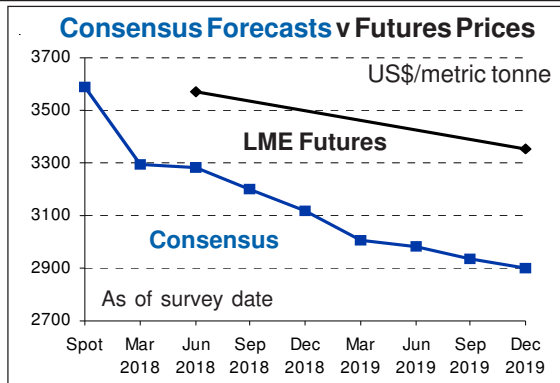
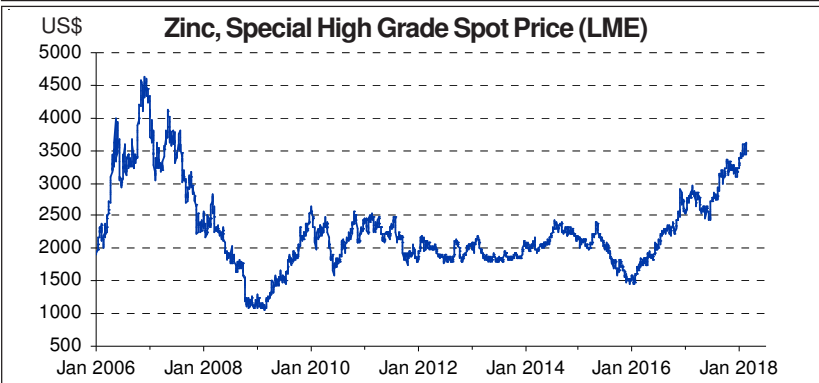
- ◆ The spread between Lead and Zinc spot prices has edged toward US\$1000/T, due to the outperformance of the latter. However, Lead should not be overlooked as it reached a six-and-a-half year high in early February. Demand has been boosted by a harsh US winter, which raised lead battery sales.
- ◆ International Lead and Zinc Study Group data showed that world refined lead usage climbed by 4.9% (y-o-y) in the eleven months to November 2017.
- ◆ Some of the 2017 appreciation in Lead is expected to be reversed in 2018.

World Lead Supply and Demand (in millions of tonnes)	May 2017 Consensus Forecasts					
	2013	2014	2015	2016	2017	2018
World Supply	11.2	11.0	10.8	11.1	11.8	12.0
World Demand	11.1	10.9	10.9	11.1	11.8	12.0
Balance	0.1	0.1	-0.1	0.0	0.0	0.0

Historical Estimates Source: International Lead and Zinc Study Group (ILZSG)

The price of Lead, which is used mainly for batteries, can be related to that of zinc as the metals are co-produced. **Futures Market:** LME Pricing: US\$/tonne **Contract Size:** 25 tonnes **Delivery Dates:** Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 63 months. **Contracts Traded:** 10,920,001 (2017).

Survey Date Spot Price (Feb. 19): US\$ 3590	Zinc, Special High Grade, Forecasts, US\$/MT, fob					Nominal, Quarterly Averages			
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
China Int'l Capital Corp	3417	3500	4000	4100	14.2%	4100	4300	4000	3700
Pezco Economics	3493	3630	3767	3906	8.8%	3992	4054	4117	4179
RBC Capital Markets	3086	3086	3527	3527	-1.7%	3307	3307	3307	3307
Bank of China International	3350	3400	3450	3450	-3.9%	na	na	na	na
Investec	3307	3307	3417	3417	-4.8%	3472	3472	3351	3351
Scotiabank	3307	3307	3307	3307	-7.9%	3527	3527	3527	3527
Societe Generale	3100	3200	3200	3300	-8.1%	3100	3100	3100	3100
BIPE	3340	3230	3270	3260	-9.2%	3250	3260	3260	3280
ABN Amro	3405	3304	3200	3250	-9.5%	2935	2935	2935	2935
Econ Intelligence Unit	3280	3320	3350	3250	-9.5%	3300	3200	3100	3100
CIBC	3241	3241	3241	3241	-9.7%	3153	3153	3153	3153
Credit Suisse	3500	3500	3200	3200	-10.9%	2800	2800	2800	2800
CPM Group	3398	3355	3255	3150	-12.3%	3200	3100	3000	3050
Euromonitor International	3498	3457	3284	3136	-12.7%	3009	2915	2829	2779
BoA Merrill Lynch	3150	3450	3250	3000	-16.4%	2975	2975	na	na
Citigroup	3500	3600	3200	3000	-16.4%	2650	2650	2650	2650
ING Bank	3090	3250	3090	3000	-16.4%	2670	2710	2790	2750
Standard Chartered	3300	3400	3200	3000	-16.4%	2450	2450	2450	2450
Australia Dept of Industry	3060	3000	2950	2950	-17.8%	2850	2850	2850	2800
Prometeia	3300	3175	2958	2927	-18.5%	2918	2914	2913	2913
Capital Economics	3395	3375	3150	2925	-18.5%	2775	2650	2550	2450
BMO	3197	3307	3086	2866	-20.2%	3086	3086	2866	2866
Morgan Stanley	3086	2976	2976	2866	-20.2%	2866	2646	2425	2315
Macquarie	3300	3200	3100	2850	-20.6%	2750	2600	2550	2400
IHS Markit	3479	3193	2920	2803	-21.9%	2755	2717	2673	2648
Deutsche Bank	3300	3300	3000	2800	-22.0%	2700	2700	2700	2700
Oxford Economics	3200	3050	2850	2750	-23.4%	2770	2770	2770	2770
UBS	3086	2910	2800	2690	-25.1%	2535	2425	2425	2315
Commonwealth Bank	3307	3086	2800	2535	-29.4%	2315	2205	2094	1984
Consensus (Mean)	3292	3280	3200	3119	-13.1%	3008	2981	2933	2899
High	3500	3630	4000	4100		4100	4300	4117	4179
Low	3060	2910	2800	2535		2315	2205	2094	1984
Standard Deviation	141	179	267	344		415	461	458	471



Supply Concerns Lift Price

- ◆ Zinc (at its highest price levels for a decade) has been further lifted by a soft US dollar. Expectations of higher US inflation and sharper rate hikes sparked the recent bout of global volatility, but demand for commodities (including Zinc) remains buoyant.
- ◆ Declining LME warehouse stocks (left chart) have supported price, especially as investment in new mines and restarted capacity are not yet able to fill the void left by big mine closures in previous years.
- ◆ Prices are expected to decline as imbalances between supply/demand narrow.

World Zinc Supply and Demand (in millions of tonnes)	May 2017 Consensus Forecasts					
	2013	2014	2015	2016	2017	2018
World Supply	13.0	13.5	13.7	13.7	14.0	14.5
World Demand	13.2	13.7	13.5	13.9	14.4	14.7
Balance	-0.2	-0.2	0.2	-0.2	-0.4	-0.2

Historical Estimates Source: International Lead and Zinc Study Group (ILZSG)

Zinc's primary use is in galvanising steel. Futures Market: LME Pricing: US\$/tonne Contract Size: 25 tonnes (+/- 2%) Delivery Dates: Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 63 months. Contracts Traded: 29,642,110 (2017).

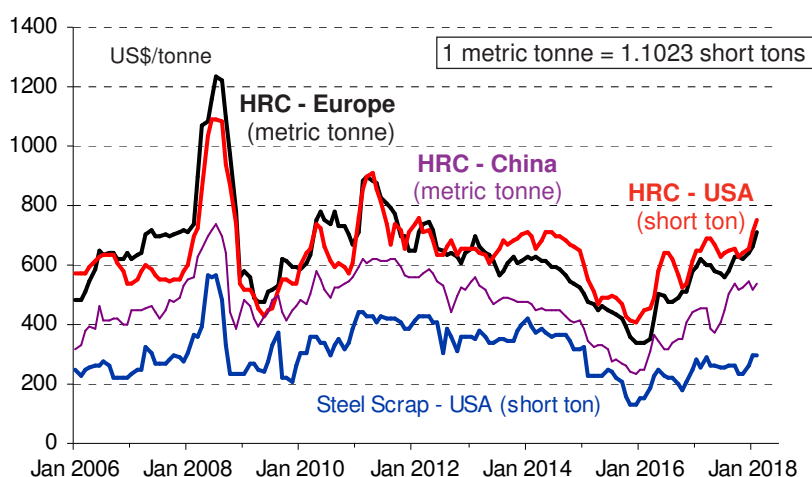
Survey Date Spot Price (Feb. 19): US\$ 713.0e		Hot Rolled Coil (Europe, Domestic) Forecasts, US\$/metric tonne, fob							
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
MEPS	700.0	720.0	670.0	620.0	-13.0%	620.0	610.0	590.0	570.0
Econ Intelligence Unit	670.0	623.3	560.0	598.3	-16.1%	610.0	556.7	546.7	485.0
IHS Markit	690.0	695.0	618.0	558.0	-21.7%	579.0	572.0	567.0	568.0
Oxford Economics	641.5	612.5	571.5	554.7	-22.2%	547.4	548.4	549.4	550.3
Societe Generale	623.0	600.0	574.0	541.0	-24.1%	550.0	550.0	550.0	550.0
Morgan Stanley	603.9	580.0	549.6	517.5	-27.4%	497.0	487.0	471.2	447.5
Macquarie	670.0	590.0	485.0	505.0	-29.2%	465.0	465.0	465.0	465.0
RBC Capital Markets	519.3	514.6	500.1	498.5	-30.1%	496.5	494.4	492.2	489.9
Consensus (Mean)	639.7	616.9	566.0	549.1	-23.0%	545.6	535.4	528.9	515.7
High	700.0	720.0	670.0	620.0		620.0	610.0	590.0	570.0
Low	519.3	514.6	485.0	498.5		465.0	465.0	465.0	447.5
Standard Deviation	58.6	65.0	59.5	43.3		56.2	48.9	46.5	49.1

Survey Date Spot Price (Feb. 19): US\$ 750.2e		Hot Rolled Coil (USA, Domestic) Forecasts, US\$/short ton, fob							
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Consensus (Mean) ¹	674.8	672.0	644.4	635.2	-15.3%	630.0	627.8	624.5	617.9
High	760.0	790.0	757.3	796.1		817.6	830.4	843.2	856.0
Low	578.9	575.6	545.1	563.1		527.1	527.1	527.1	527.1
Standard Deviation	54.5	69.6	74.5	75.6		86.8	90.0	93.4	96.2

Survey Date Spot Price (Feb. 19): US\$ 540.0e		Hot Rolled Coil (China, Domestic) Forecasts, US\$/metric tonne, fob							
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Consensus (Mean) ¹	563.8	538.4	485.2	486.3	-9.9%	473.0	469.7	467.4	466.4
High	632.8	612.0	584.9	571.5		560.9	557.7	556.9	560.9
Low	526.0	490.0	395.0	405.0		375.0	375.0	375.0	375.0
Standard Deviation	43.6	49.4	81.8	73.2		72.0	70.6	69.9	70.8

¹ Individual forecasts available in the Excel spreadsheet.

Steel – Hot Rolled Coil (HRC) Prices (MEPS)



Price Supported in Short-Term

- ◆ Steel appears to have bucked the trend of global asset and commodity price deflation in recent weeks, as its price rose to multi year highs in February (chart left).
- ◆ The high cost of imported raw materials coking coal (page 10) and iron ore (page 19), as well as controls by China to restrict steel production over the winter, have been supportive of its value.
- ◆ The Trump-led US administration continues to explore ways to address the impact of foreign steel imports, even though US HRC climbed to US\$750 per short ton in February, a near seven year high.
- ◆ The price of Chinese steel may strengthen in the short-term, as construction activity recovers post Lunar New Year.

Steel Production and Consumption (2013)

Producers	% of world total	Consumers	% of world total
1. China	48.2	1. China	46.0
2. Japan	6.9	2. United States	6.5
3. United States	5.4	3. India	5.0
4. India	5.0	4. Japan	4.4
EU	10.4	EU	9.6

Steel Prices are generally set in contracts between major producers and their clients. However, the London Metal Exchange offers a number of steel billet contracts for delivery to locations across Europe, Asia and North America. While there are many varieties of steel, Hot Rolled Coil (HRC) is a commonly referenced price, but regional complexities prevent the emergence of a clear benchmark at present.

Consensus Price for Q1 2018: US\$69.46e	North China Fines Iron Ore Forecasts, US\$/dry metric tonne, cfr									
	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19	
Pezco Economics	74.34	75.58	79.66	83.74	20.6%	86.00	87.35	88.69	90.04	
Euromonitor International	78.30	80.41	79.32	78.36	12.8%	77.49	77.20	76.82	77.34	
BoA Merrill Lynch	75.00	65.00	50.00	70.00	0.8%	67.00	67.00	na	na	
Investec	71.00	71.00	69.00	69.00	-0.7%	68.00	68.00	67.00	67.00	
Citigroup	68.00	65.00	60.00	62.00	-10.7%	60.00	60.00	60.00	60.00	
Macquarie	75.00	61.00	65.00	62.00	-10.7%	68.00	55.00	60.00	63.00	
CIBC	60.00	60.00	60.00	60.00	-13.6%	56.00	56.00	56.00	56.00	
Deutsche Bank	75.00	65.00	65.00	60.00	-13.6%	58.00	58.00	58.00	58.00	
RBC Capital Markets	60.00	80.00	60.00	60.00	-13.6%	70.00	70.00	70.00	70.00	
UBS	70.00	65.00	60.00	60.00	-13.6%	62.00	64.00	60.00	62.00	
ABN Amro	75.00	63.00	58.00	56.00	-19.4%	55.00	55.00	55.00	55.00	
Capital Economics	71.22	64.00	58.50	56.00	-19.4%	56.00	57.50	58.50	59.50	
BMO	65.00	60.00	55.00	55.00	-20.8%	55.00	55.00	55.00	55.00	
Commonwealth Bank	68.00	60.00	57.00	55.00	-20.8%	55.00	55.00	55.00	55.00	
Credit Suisse	70.00	70.00	60.00	55.00	-20.8%	58.00	60.00	55.00	55.00	
ING Bank	65.00	55.00	55.00	55.00	-20.8%	50.00	60.00	55.00	55.00	
Morgan Stanley	60.00	60.00	58.00	55.00	-20.8%	55.00	56.00	55.00	50.00	
Consensus (Mean)	69.46	65.88	61.73	61.89	-10.9%	62.15	62.41	61.56	61.74	
High	78.30	80.41	79.66	83.74		86.00	87.35	88.69	90.04	
Low	60.00	55.00	50.00	55.00		50.00	55.00	55.00	50.00	
Standard Deviation	5.83	7.26	7.94	8.61		9.44	9.07	9.62	10.20	

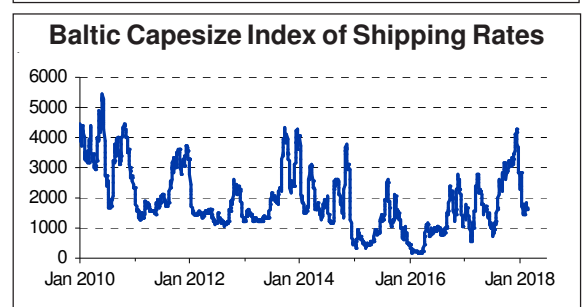
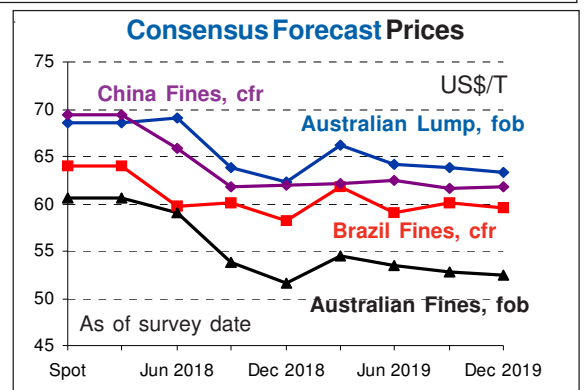
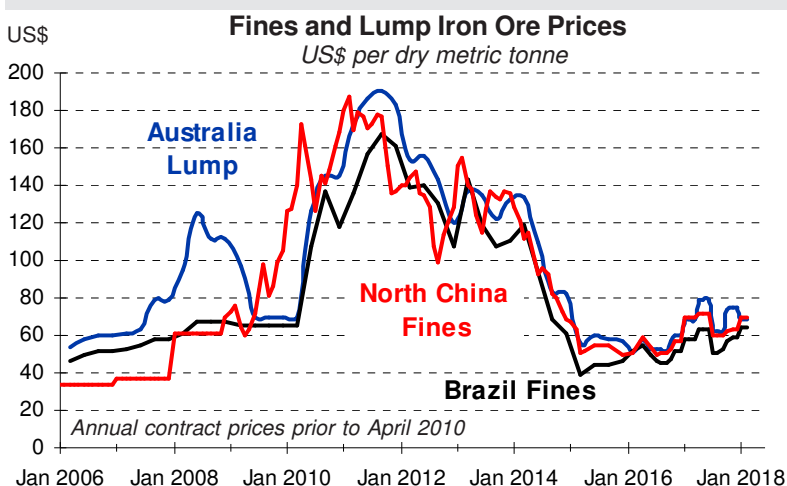
Consensus Price for Q1 2018: US\$60.60e	Australian Fines Iron Ore Forecasts, US\$/dry metric tonne, fob								
	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19
Consensus (Mean)¹	60.60	58.99	53.73	51.56	-14.9%	54.50	53.52	52.80	52.51
High	73.00	71.30	64.00	63.00		66.00	65.00	65.00	65.00
Low	51.30	51.50	49.30	46.00		46.50	47.30	47.00	42.00
Standard Deviation	7.02	7.05	5.23	5.79		7.01	6.32	6.48	7.17

Q1 2018: US\$68.56e	Australian Lump Iron Ore Forecasts, US\$/dry metric tonne, fob								
	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19
Consensus (Mean)¹	68.56	69.14	63.80	62.27	-9.2%	66.16	64.23	63.81	63.33
High	76.54	80.60	71.42	71.42		70.56	70.56	69.39	69.39
Low	57.50	61.80	57.50	57.50		58.13	55.61	58.28	53.76
Standard Deviation	8.24	7.46	5.10	5.43		4.93	6.33	4.95	6.46

Consensus Price for Q1 2018: US\$64.06e	Brazilian Fines Iron Ore Forecasts, US\$/dry metric tonne, cfr									
	Mar '18	Jun '18	Sep '18	Dec '18	% change from Q1	Mar '19	Jun '19	Sep '19	Dec '19	
Consensus (Mean)¹	64.06	59.79	60.04	58.14	-9.2%	61.86	59.02	60.16	59.59	
High	68.06	64.24	67.71	71.18		73.10	74.24	75.39	76.53	
Low	60.00	54.90	55.00	48.37		53.00	48.84	52.25	48.84	
Standard Deviation	3.37	3.82	5.51	9.92		8.34	11.14	10.74	12.20	

¹ Individual forecasts available in the Excel spreadsheet service.

Until April 2014, Iron ore was traded in world markets under contracts, with prices set by negotiation between iron ore producers and steel manufacturers. Three suppliers, Vale, Rio Tinto and BHP Billiton account for most ocean trade in iron ore, of which China remains by far the largest consumer. Fines are the most heavily traded category, while lump has generally traded at a premium price. The annual benchmark price system has been dropped in favour of quarterly prices based on prior average daily spot prices.



Forecasts for the metals shown on this and the next page were provided by the following leading forecasters:

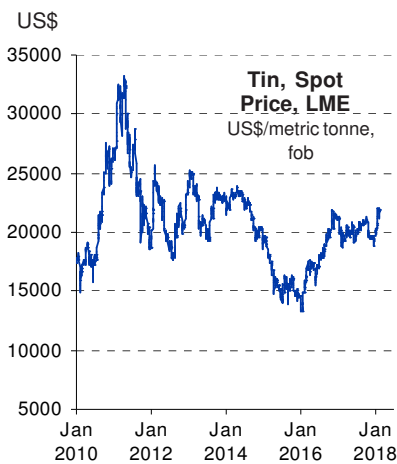
ANZ	ABN Amro	Bank of America – Merrill Lynch
BMO	BNP Paribas	Capital Economics
Citigroup	Commonwealth Bank	CPM International
China International Capital Corp.	Credit Suisse	Deutsche Bank
Euromonitor	Economist Intelligence Unit	HWWI
IHS Markit	ING Bank	Investec
Liberum Capital	Macquarie	Morgan Stanley
Numis Securities	Oxford Economics	Pezco Economics
Prometeia	SG Commodity Research	UBS

Individual panellist forecasts for these minerals are available as part of our Excel spreadsheet service. Please enquire at editors@consensuseconomics.com.

TIN

(Nominal, Quarterly Averages)

US\$/metric tonne	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	21830			
Mar 2018	20428	-6.4%	21750	19841
Jun 2018	20688	-5.2%	22500	19841
Sep 2018	20599	-5.6%	22500	19775
Dec 2018	20823	-4.6%	23250	19675
Mar 2019	21027	-3.7%	25000	19061
Jun 2019	21149	-3.1%	25000	18598
Sep 2019	21130	-3.2%	25000	18155
Dec 2019	21161	-3.1%	25000	17896



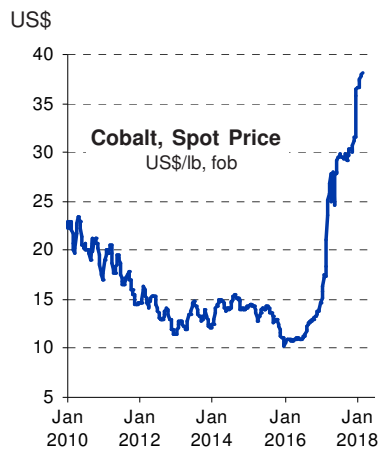
Tin has its physical spot market centred in Kuala Lumpur with the LME recognised as the principal hedging market.

Futures Market: LME Pricing: US\$/tonne **Contract Size:** 5 tonnes (+/- 2%) **Delivery Options:** Daily for cash to 3 month contracts, Wednesdays for 3 month to 6 month contracts; then every third Wednesday for 7 months out to 15 months. **Contracts Traded:** 1,215,432 (2017).

COBALT

(Nominal, Quarterly Averages)

US\$/lb	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	38.13			
Mar 2018	31.89	-16.4%	36.33	27.32
Jun 2018	31.35	-17.8%	39.69	27.30
Sep 2018	28.98	-24.0%	41.96	20.00
Dec 2018	28.23	-26.0%	44.23	20.00
Mar 2019	27.73	-27.3%	46.95	18.00
Jun 2019	28.53	-25.2%	49.67	16.00
Sep 2019	28.02	-26.5%	51.71	13.00
Dec 2019	28.34	-25.7%	53.52	13.00



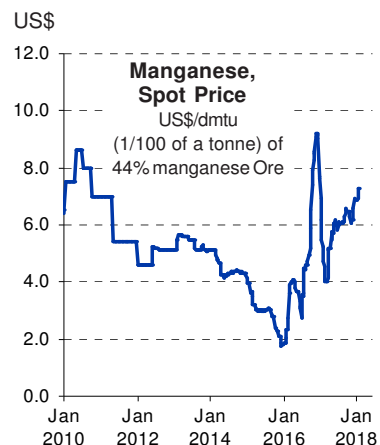
Cobalt is principally used as a super alloying agent because of its anti-corrosive properties. It is commonly a by-product of nickel and used in the production of alloys, catalysts and batteries. Recent high demand has come from electric car makers. The LME launched futures contracts in cobalt in February 2010.

Futures Market: LME Pricing: US\$/tonne **Contract Size:** 1 tonne **Delivery Options:** 1 tonne lots in 100-500kg drums of uniform size and weight.

MANGANESE

(Nominal, Quarterly Averages)

US\$/metric tonne unit	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	7.280			
Mar 2018	6.267	-13.9%	7.000	5.750
Jun 2018	5.783	-20.6%	6.500	5.000
Sep 2018	5.092	-30.1%	6.000	4.500
Dec 2018	4.767	-34.5%	5.500	4.000
Mar 2019	4.533	-37.7%	5.000	3.600
Jun 2019	4.450	-38.9%	5.000	3.800
Sep 2019	4.367	-40.0%	5.000	3.800
Dec 2019	4.333	-40.5%	5.000	3.600



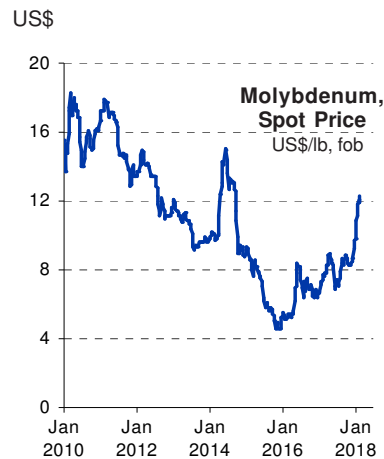
Manganese is not exchange-traded so prices are established by negotiation between buyers and sellers. Negotiations occur in line with the beginning of the Japanese fiscal year in April. Following the setting of prices with Japanese manufacturing companies, similar settlement prices are set worldwide.

The price is based upon a benchmark ore of 44% manganese content, Cif, Tianjin, China.

MOLYBDENUM

(Nominal, Quarterly Averages)

US\$/lb	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	12.30			
Mar 2018	9.009	-26.8%	11.54	7.141
Jun 2018	8.915	-27.5%	12.19	7.141
Sep 2018	8.629	-29.8%	11.53	6.800
Dec 2018	8.543	-30.5%	11.05	7.000
Mar 2019	8.673	-29.5%	10.78	7.000
Jun 2019	8.727	-29.1%	10.76	7.500
Sep 2019	8.744	-28.9%	10.67	7.500
Dec 2019	8.688	-29.4%	10.72	7.000



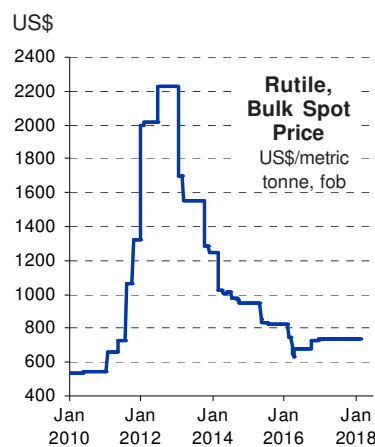
Molybdenum is principally used as an alloying agent in steel because of its anti-corrosive properties. As a by-product of copper, production costs are low and prices can be influenced by the price and demand for nickel and stainless steel, as well as molybdenum roasting capacity.

Futures Market: LME (since February 2010) **Pricing:** US\$/tonne **Contract Size:** 6 tonnes Mo (+/-5% (Mo content 57-63%) **Delivery Options:** 10 tonnes (RMC), deliverable in 200 or 250kg drums.

RUTILE

(Nominal, Quarterly Averages)

US\$/metric tonne	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	740.0 e			
Mar 2018	890.0	20.3%	1000	780.0
Jun 2018	895.0	20.9%	1000	780.0
Sep 2018	915.0	23.6%	1000	780.0
Dec 2018	915.0	23.6%	1000	780.0
Mar 2019	970.0	31.1%	1100	780.0
Jun 2019	970.0	31.1%	1100	780.0
Sep 2019	982.5	32.8%	1100	780.0
Dec 2019	982.5	32.8%	1100	780.0



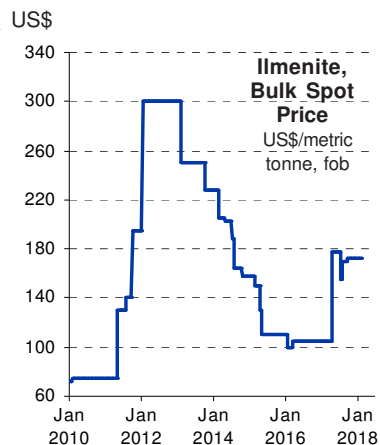
Mineral sand prices are principally determined by derived demand. Rutile is used to make titanium dioxide (it is approximately 95% TiO₂ in its mineral form), which can be used to make titanium or as a white pigment in papers, plastics and paints and cosmetics.

Prices are set under long-term contracts between producers (many of which will produce from mine to end use) and consumers.

ILMENITE

(Nominal, Quarterly Averages)

US\$/metric tonne	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	172.5e			
Mar 2018	150.0	-13.0%	160.0	130.0
Jun 2018	153.3	-11.1%	180.0	120.0
Sep 2018	166.7	-3.4%	200.0	120.0
Dec 2018	166.7	-3.4%	200.0	120.0
Mar 2019	180.0	4.3%	220.0	120.0
Jun 2019	180.0	4.3%	220.0	120.0
Sep 2019	180.0	4.3%	220.0	120.0
Dec 2019	180.0	4.3%	220.0	120.0



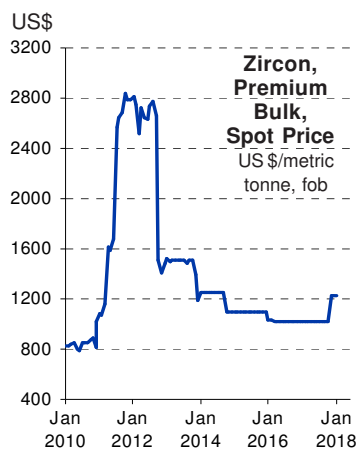
Ilmenite is mined alongside rutile and is also used to make titanium dioxide (it is approximately 54% TiO₂ in its mineral form). Prices are set under long-term contracts. The value of ilmenite is substantially lower than that of rutile and is therefore often used to produce synthetic rutile. 90% of titanium metal is sourced from ilmenite.

Australia is the world's largest producer (55%) of ilmenite and rutile followed by South Africa (24%) and Ukraine (16%).

ZIRCON

(Nominal, Quarterly Averages)

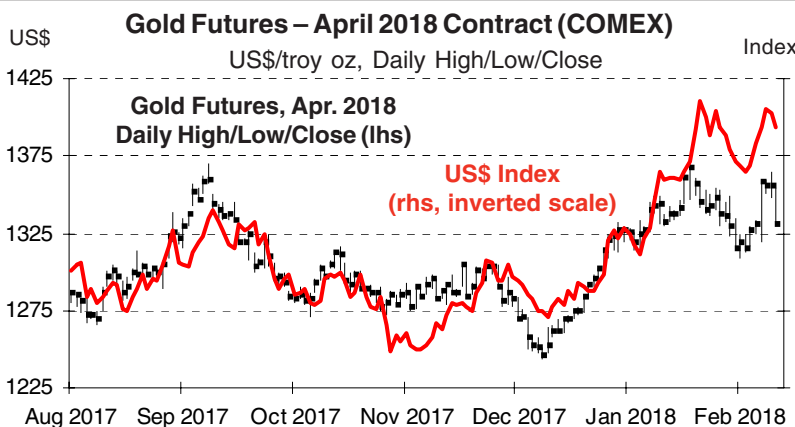
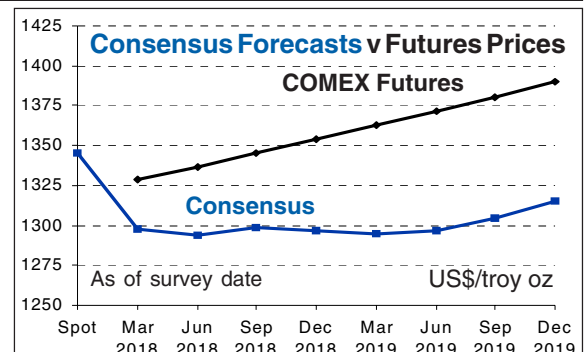
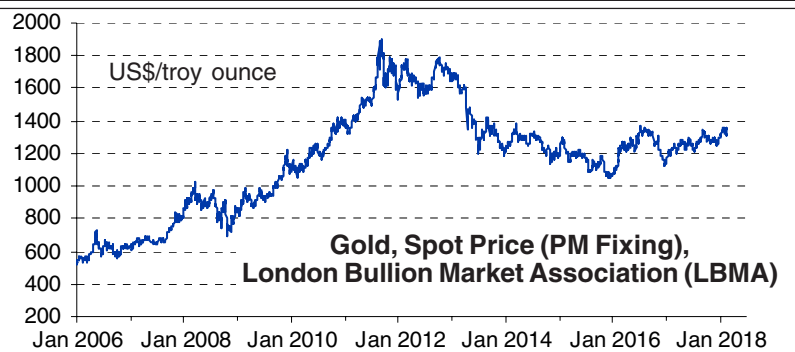
US\$/metric tonne	Consensus (Mean)	% change from spot	Forecast Range	
			High	Low
Spot price	1220 e			
Mar 2018	1163	-4.7%	1250	1040
Jun 2018	1223	0.2%	1300	1040
Sep 2018	1235	1.2%	1350	1040
Dec 2018	1248	2.3%	1350	1040
Mar 2019	1248	2.3%	1350	1040
Jun 2019	1248	2.3%	1350	1040
Sep 2019	1260	3.3%	1400	1040
Dec 2019	1260	3.3%	1400	1040



The price of Zircon (which is mainly used in ceramics and tiles) is set under long-term contracts between producers and consumers. It has risen sharply in recent years following the move from spot-trading to contract-trading.

Iluka is the world's largest zircon miner and as a result the most influential in setting a benchmark price. Its Eucla basin in Australia is mined principally for zircon unlike the majority of other mines, for which zircon is a coproduct of rutile and ilmenite.

Survey Date Spot Price (Feb. 19): US\$ 1345	Gold Forecasts, US\$/Troy Ounce					Nominal, Quarterly Averages			
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
ING Bank	1350	1350	1400	1450	7.8%	1400	1400	1450	1500
Bank of China International	1325	1350	1375	1400	4.1%	na	na	na	na
Macquarie	1300	1325	1375	1400	4.1%	1375	1350	1375	1400
Pezco Economics	1337	1373	1382	1391	3.4%	1402	1415	1429	1445
Credit Suisse	1375	1375	1375	1375	2.2%	1350	1350	1350	1350
Standard Chartered	1300	1280	1340	1375	2.2%	1320	1320	1320	1320
Moody's Analytics	1302	1276	1289	1352	0.5%	1403	1455	1482	1497
BoA Merrill Lynch	1280	1325	1350	1350	0.4%	1300	1300	na	na
ICBC Standard Bank	1275	1300	1325	1350	0.4%	na	na	na	na
Euromonitor International	1340	1347	1341	1334	-0.9%	1326	1320	1315	1311
Investec	1315	1315	1330	1330	-1.1%	1340	1340	1360	1360
Oxford Economics	1300	1310	1315	1318	-2.0%	1320	1322	1324	1326
RBC Capital Markets	1315	1291	1324	1281	-4.8%	1355	1338	1364	1347
Capital Economics	1305	1305	1295	1280	-4.9%	1260	1275	1325	1375
Econ Intelligence Unit	1310	1300	1310	1280	-4.9%	1280	1260	1240	1220
UBS	1295	1265	1300	1280	-4.9%	1310	1310	1310	1310
CPM Group	1316	1309	1283	1277	-5.1%	1328	1357	1354	1442
BMO	1260	1310	1280	1270	-5.6%	1250	1250	1250	1250
Commonwealth Bank	1300	1290	1275	1265	-6.0%	1255	1250	1253	1260
BNP Paribas	1345	1325	1325	1260	-6.3%	1155	1150	1165	1200
Deutsche Bank	1310	1280	1280	1260	-6.3%	1266	1266	1266	1266
ABN Amro	1298	1263	1250	1250	-7.1%	1275	1313	1338	1375
CIBC	1250	1250	1250	1250	-7.1%	1225	1225	1225	1225
Citigroup	1300	1275	1250	1250	-7.1%	1350	1350	1350	1350
Liberum Capital	1250	1250	1250	1250	-7.1%	1250	1250	1250	1250
Morgan Stanley	1285	1280	1260	1250	-7.1%	1260	1260	1260	1280
Scotiabank	1250	1250	1250	1250	-7.1%	1300	1300	1300	1300
China Int'l Capital Corp	1230	1180	1200	1230	-8.6%	na	na	na	na
Australia Dept of Industry	1253	1268	1258	1223	-9.1%	1216	1196	1205	1203
IHS Markit	1308	1263	1235	1200	-10.8%	1190	1172	1151	1154
Societe Generale	1250	1225	1200	1175	-12.7%	1200	1200	1200	1200
Consensus (Mean)	1298	1294	1299	1297	-3.6%	1295	1296	1304	1315
High	1375	1375	1400	1450		1403	1455	1482	1500
Low	1230	1180	1200	1175		1155	1150	1151	1154
Standard Deviation	33.9	42.6	53.0	66.0		65.6	72.0	82.0	91.6



Supportive Fundamentals

- ◆ Gold has remained above US\$1300/troy ounce, buoyed partly by US dollar weakness and a spike in risk aversion, as well as an earlier precipitous slide in crypto-currencies.
- ◆ Higher US rates may reduce support for non-yielding assets, but much will depend upon debt fears and price stability. The precious metal is often bought as an inflation hedge.
- ◆ According to the annual figures from the World Gold Council, global demand slumped 6.7% in 2017 to an eight-year low, with investment in Gold down by 22.8%.

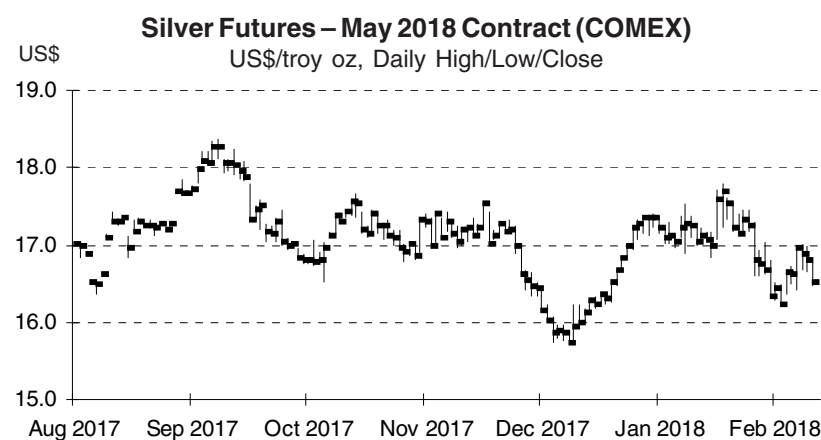
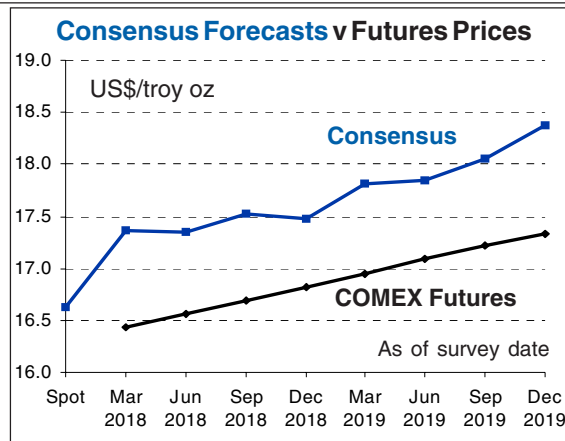
World Gold Supply and Demand (in tonnes)		¹ Total Gold Supply			
		² Total Gold Demand			
	2013	2014	2015	2016	
World Supply ¹	4311	4451	4363	4571	
Demand ²	4454	4269	4216	4309	
Balance	-143.0	182.0	147.0	262.0	

Source: World Gold Council

Gold prices are fixed twice daily by the LBMA providing a benchmark price for trades on various exchanges and over-the-counter trades.

US Futures Market: COMEX Pricing: US\$/troy ounce
Contract Size: 100 troy ounces **Deliverability:** Next 3 calendar months; any February, April, August and October within 23 months; and any June and December within 72 months. **Contracts Traded:** 72,802,171 (2017).

Survey Date Spot Price (Feb. 19): US\$ 16.62	Silver Forecasts, US\$/Troy Ounce									
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19	Nominal, Quarterly Averages
ING Bank	18.50	19.00	20.00	20.50	23.3%	20.50	21.00	21.50	22.00	
Macquarie	17.50	18.50	20.00	20.50	23.3%	21.50	21.50	21.50	22.00	
Standard Chartered	17.90	17.70	18.60	19.00	14.3%	17.50	17.50	17.50	17.50	
Credit Suisse	18.50	18.50	18.50	18.50	11.3%	18.50	18.50	18.50	18.50	
Scotiabank	18.50	18.50	18.50	18.50	11.3%	20.00	20.00	20.00	20.00	
Bank of China International	17.00	17.50	18.00	18.30	10.1%	na	na	na	na	
CPM Group	17.04	17.25	17.20	18.22	9.6%	22.00	20.50	20.25	23.00	
CIBC	18.10	18.00	18.10	18.10	8.9%	18.00	18.00	18.00	18.00	
BoA Merrill Lynch	17.00	17.11	17.76	17.76	6.9%	17.11	17.11	na	na	
Investec	17.30	17.30	17.73	17.73	6.7%	18.11	18.11	18.89	18.89	
BMO	17.50	18.20	17.80	17.60	5.9%	17.90	17.90	17.90	17.90	
Commonwealth Bank	17.00	17.50	17.50	17.50	5.3%	17.80	18.20	18.60	19.00	
ICBC Standard Bank	17.35	17.35	17.35	17.35	4.4%	na	na	na	na	
UBS	17.60	17.10	17.70	17.30	4.1%	17.80	17.80	17.80	17.80	
RBC Capital Markets	17.50	17.20	17.65	17.10	2.9%	18.05	17.85	18.20	17.95	
Liberum Capital	17.00	17.00	17.00	17.00	2.3%	17.00	17.00	17.00	17.00	
Pezco Economics	16.78	16.84	16.90	16.98	2.2%	17.06	17.17	17.29	17.45	
BNP Paribas	17.55	17.00	17.50	16.80	1.1%	15.25	15.05	15.50	16.00	
Deutsche Bank	17.20	16.90	16.90	16.80	1.1%	17.70	17.70	17.70	17.70	
Morgan Stanley	16.95	17.00	16.80	16.75	0.8%	16.75	16.75	16.75	17.20	
Citigroup	17.00	16.75	16.50	16.50	-0.7%	17.80	17.80	17.80	17.80	
ABN Amro	16.90	16.60	16.40	16.20	-2.5%	16.50	17.50	18.50	19.50	
Capital Economics	16.72	16.25	15.88	15.63	-6.0%	15.75	16.50	17.50	18.50	
IHS Markit	16.62	16.05	15.86	15.23	-8.4%	15.11	14.99	14.57	14.54	
Societe Generale	17.00	16.50	16.00	15.00	-9.8%	16.00	16.00	16.00	16.00	
Consensus (Mean)	17.36	17.34	17.53	17.47	5.1%	17.81	17.84	18.06	18.37	
High	18.50	19.00	20.00	20.50		22.00	21.50	21.50	23.00	
Low	16.62	16.05	15.86	15.00		15.11	14.99	14.57	14.54	
Standard Deviation	0.56	0.75	1.08	1.35		1.78	1.65	1.70	2.01	



- Silver to Outperform Gold in 2018**
- Whereas the price of Gold has increased, Silver has declined and the price ratio between the two has risen to 81, from 77 a month ago (chart, middle left).
 - The Silver Institute expects demand to increase, due to electrification of the auto industry and greater solar energy usage. At the same time, it anticipates a contraction in supply, as less of the metal is mined as a by-product of other operations.
 - The ratio between Gold and Silver is expected to drop to 74 in Q4 2018 (consensus).

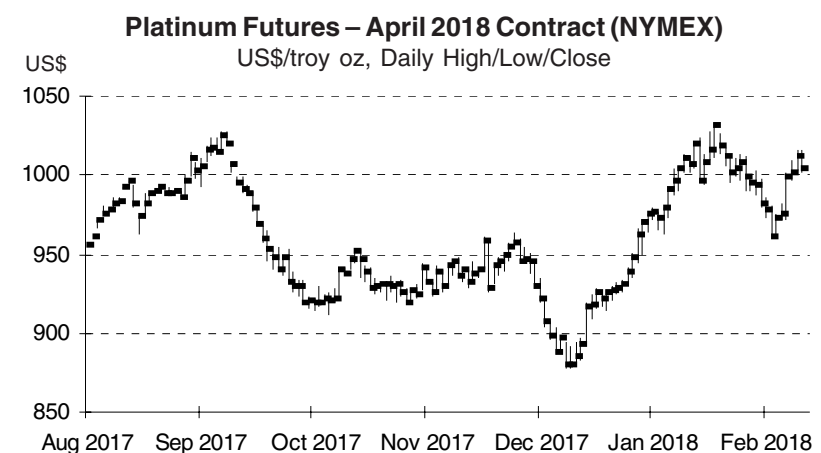
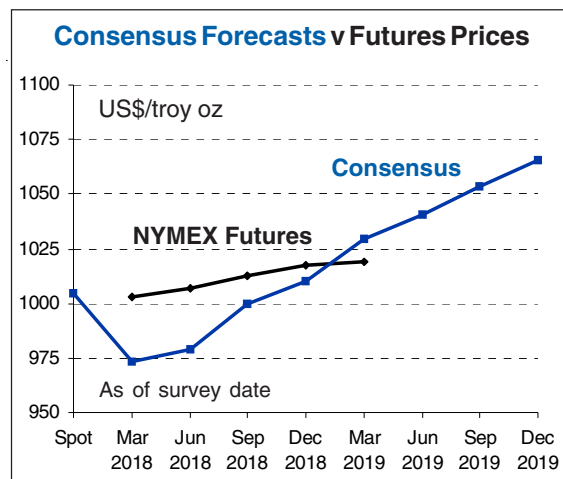
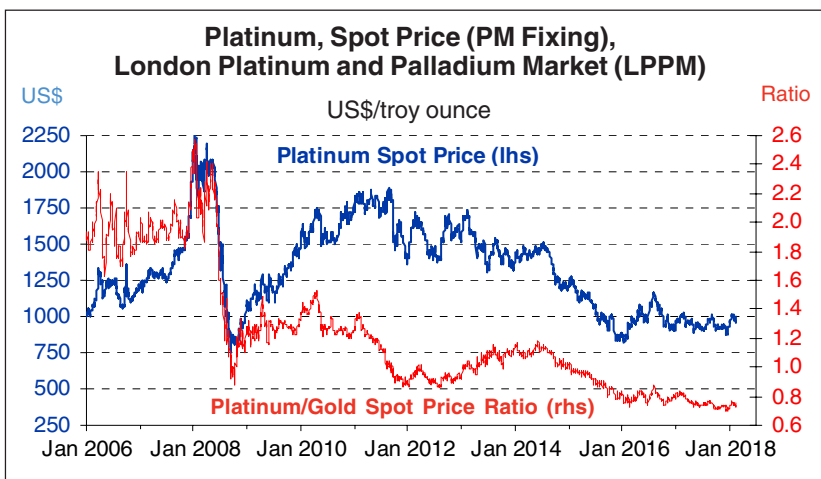
Silver, like gold, has a price set by members of the LBMA which is used as a benchmark for over-the-counter trades.

US Futures Market: COMEX Pricing: US\$/troy ounce
Contract Size: 5,000 troy ounces **Deliverability:** Next 3 calendar months; any January, March, May and September within 23 months; and any July and December within 60 months. **Contracts Traded:** 23,034,989 (2017).

World Silver Supply and Demand (in million ounces)	Total Silver Supply Total Physical Silver Demand			
	2013	2014	2015	2016
World Supply¹	987.8	1050.7	1039.7	1007.1
Demand²	1125.8	1118.3	1151.5	1027.8
Balance	-149.2	-63.8	-106.7	-147.5

Source: World Silver Survey 2017, Thomson Reuters/The Silver Institute

Survey Date Spot Price (Feb. 19): US\$ 1004	Platinum Forecasts, US\$/Troy Ounce								
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Macquarie	975	1050	1100	1125	12.0%	1150	1150	1150	1200
ING Bank	960	960	1080	1120	11.5%	1000	1080	1040	1000
Deutsche Bank	971	1020	1055	1090	8.5%	1090	1090	1090	1090
Scotiabank	1065	1065	1065	1065	6.0%	1150	1150	1150	1150
Standard Chartered	970	950	1000	1050	4.5%	1100	1100	1100	1100
Commonwealth Bank	1001	1013	1020	1031	2.6%	1042	1056	1078	1103
Liberum Capital	980	980	1030	1030	2.5%	1080	1080	1130	1130
ICBC Standard Bank	1025	1025	1025	1025	2.1%	na	na	na	na
IHS Markit	989	993	1009	1024	2.0%	1041	1049	1056	1075
Citigroup	1000	1000	1000	1000	-0.4%	1000	1000	1000	1000
UBS	970	955	1000	995	-0.9%	1050	1050	1060	1100
CPM Group	975	967	975	985	-1.9%	990	1000	965	980
Investec	973	973	984	984	-2.0%	1005	1005	1034	1034
Bank of China International	950	960	970	980	-2.4%	na	na	na	na
BMO	950	950	975	980	-2.4%	1000	1000	1025	1025
Capital Economics	955	985	980	975	-2.9%	990	1040	1100	1140
RBC Capital Markets	950	950	975	975	-2.9%	1000	1000	1000	1000
Societe Generale	925	950	950	975	-2.9%	975	975	975	975
Morgan Stanley	950	952	954	956	-4.8%	967	979	991	1003
BoA Merrill Lynch	950	950	950	950	-5.4%	1000	1000	na	na
ABN Amro	948	913	900	900	-10.4%	925	975	1025	1075
Consensus (Mean)	973	979	1000	1010	0.6%	1029	1041	1054	1066
High	1065	1065	1100	1125		1150	1150	1150	1200
Low	925	913	900	900		925	975	965	975
Standard Deviation	30.9	38.0	48.1	56.3		60.9	55.5	57.7	66.2



Demand Up, Supply Down

- ◆ Platinum rose back above US\$1000/troy ounce in the run-up to our survey date, after a decline to US\$960 on February 9.
- ◆ A recovery in the rand has reduced US dollar margins for South African producers, leading to concerns about future supply and investment in the industry.
- ◆ The increase in the price of Palladium has raised the appeal of Platinum as a substitute in the production of catalytic converters. However, time and investment would be required by manufacturers to adjust production lines and make a switch.

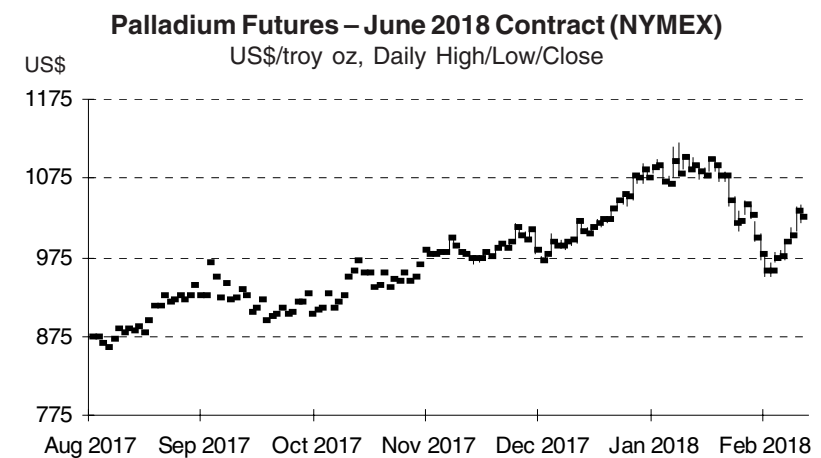
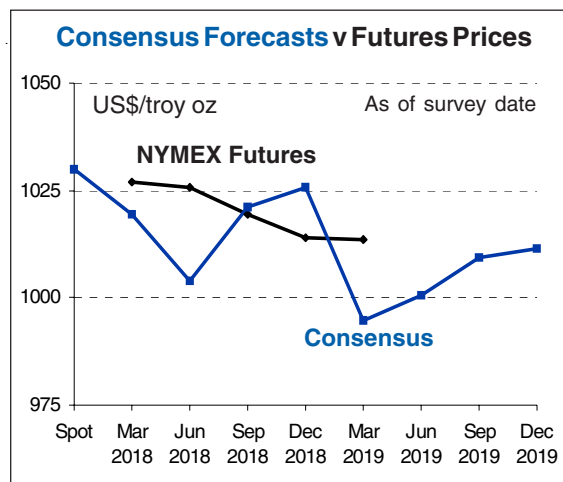
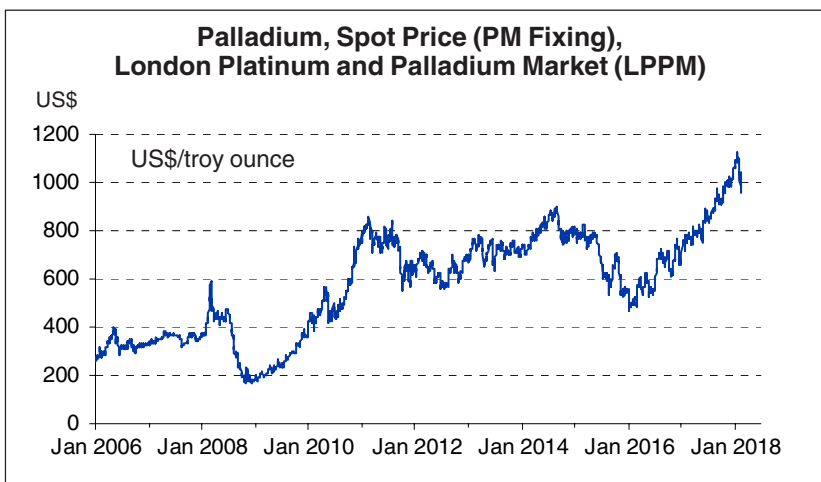
World Platinum Supply and Demand (in thousands of ounces)		¹ Total Platinum Supply ² Total Platinum Demand		
	2013	2014	2015	2016
World Supply ¹	7835	7265	7905	7965
World Demand ²	8570	7995	8240	8235
Balance	-735.0	-730.0	-335.0	-270.0

Source: World Platinum Investment Council

Platinum prices are fixed twice daily by the LPPM to provide a benchmark price in a practice similar to that used for gold and silver.

US Futures Market: NYMEX Pricing: US\$/troy ounce **Lot Size:** 50 troy ounces **Deliverability:** Over 15 months including the next 3 calendar months; then a January, April, June and October cycle. **Contracts Traded:** 4,852,160 (2017).

Survey Date Spot Price (Feb. 19): US\$ 1030	Palladium Forecasts, US\$/Troy Ounce								
	Mar '18	Jun '18	Sep '18	Dec '18	% change from spot	Mar '19	Jun '19	Sep '19	Dec '19
Deutsche Bank	1098	1145	1195	1235	19.9%	1045	1045	1045	1045
ICBC Standard Bank	1180	1180	1180	1180	14.6%	na	na	na	na
ING Bank	1010	1010	1140	1180	14.6%	1110	1200	1160	1110
Citigroup	1100	1150	1200	1150	11.7%	1000	1000	1000	1000
Investec	1093	1093	1131	1131	9.8%	1182	1182	1188	1188
Macquarie	1200	1000	1100	1125	9.2%	1125	1125	1150	1150
Bank of China International	1050	1070	1090	1110	7.8%	na	na	na	na
Morgan Stanley	1020	1022	1076	1103	7.1%	1143	1184	1228	1199
Standard Chartered	1010	990	1050	1100	6.8%	1020	1020	1020	1020
Liberum Capital	980	980	1030	1030	0.0%	1080	1080	1130	1130
Societe Generale	975	980	975	1010	-1.9%	1000	1000	1000	1000
UBS	980	960	1000	1000	-2.9%	1050	1050	1055	1085
RBC Capital Markets	980	980	950	950	-7.8%	950	950	950	950
IHS Markit	1026	1010	975	935	-9.2%	870	812	744	733
ABN Amro	1026	963	938	913	-11.3%	913	938	963	988
CPM Group	1022	967	900	905	-12.1%	920	885	870	890
Capital Economics	1030	990	955	900	-12.6%	890	925	975	1025
BMO	950	950	875	875	-15.0%	880	880	850	850
BoA Merrill Lynch	850	825	850	875	-15.0%	900	900	na	na
Scotiabank	810	810	810	810	-21.3%	830	830	830	830
Consensus (Mean)	1020	1004	1021	1026	-0.4%	995	1000	1009	1011
High	1200	1180	1200	1235		1182	1200	1228	1199
Low	810	810	810	810		830	812	744	733
Standard Deviation	92.3	93.1	116.9	124.9		106.0	120.8	135.7	130.4



Prices Retreat After Steep Climb

- After a peak of US\$1122/troy ounce on January 15, Palladium has suffered some volatility and is currently down -2.7% in the year to date (middle chart, left).
- The price outlook is highly dependent upon the auto industry, which accounts for nearly 80% of global demand. The near 50% climb in the metal over 2017 has encouraged manufacturers to consider alternatives in the production of catalytic converters.
- Palladium recovered somewhat last week but further significant price gains over the next few quarters will be difficult.

World Palladium Supply and Demand		Total Palladium Supply and Demand			
(in thousands of ounces)					
	2013	2014	2015	2016	
World Supply ¹	8286	8197	8584	8557	
World Demand ²	9349	9515	9540	9757	
Balance	-1063	-1318	-956	-1200	

Palladium prices are fixed twice daily by the LPPM to provide a benchmark price in a practice used for other precious metals. Most palladium is used in catalytic converters. **US Futures Market: NYMEX Pricing:** US\$/troy ounce **Lot Size:** 100 troy ounces **Deliverability:** Over 15 months including the next 3 calendar months; then a March, June, September and December cycle. **Contracts Traded:** 1,402,740 (2017).

The consensus projections for commodity prices shown throughout this publication represent a mean average of our panellists' central, or most likely, forecasts of where prices will be at specified periods in the future. However, the prices of commodities traded on global markets can fluctuate erratically, even when trending higher or lower, rather than move smoothly from one point to another over time. Furthermore, different commodities exhibit varying degrees of volatility, often due to inherent differences in demand and supply characteristics. As a result, in addition to their central forecasts, this month we also asked our panellists for their predictions of the likely high-low ranges within which they expect certain commodities to trade over the coming year. These ranges can be viewed as one measure of volatility or risk associ-

ated with individual commodities. Another is the standard deviation of individual central forecasts calculated as a % of the consensus (mean). Both of these methods are shown in the table below for Q1 2019. A measure of historical volatility (for the past 12 months) is also featured. These three indicators are not directly comparable but are included to give the reader an insight into past and possible future differences in volatility across a number of selected commodities. Trading range forecasts and volatility measures for five important currency pairs are also shown below the table for comparison. Readers should note that in relation to the graphs on page 27, the consensus lines may not relate directly to the high or low lines since the groups of survey respondents may be different.

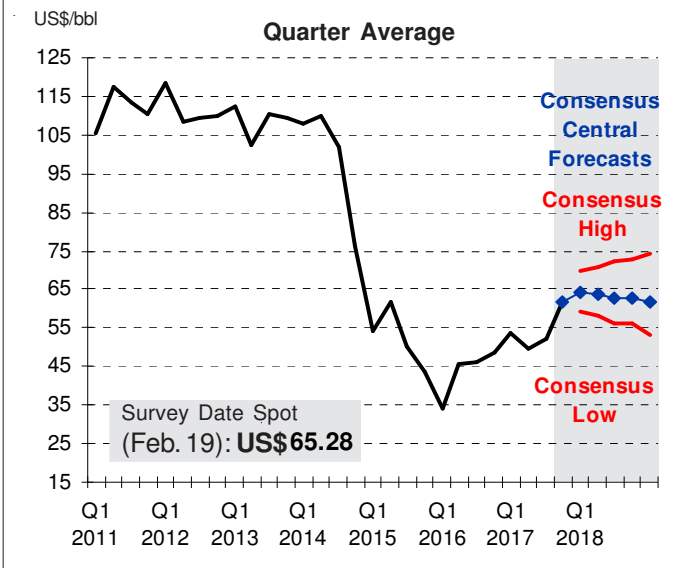
		Actual 2017 Q4	Consensus Forecasts of Ranges				2019 Q1	Q1 2019 Forecast Range (as % of mean forecast)	Stand. Dev. of Q1 2019 central forecasts as % of mean ²	Historical Volatility (%, Jan- Dec 2017) ³
		2018 Q1	Q2	Q3	Q4	2019 Q1				
Crude Oil - Brent (US\$/bbl)	High	66.78	69.57	70.81	72.07	72.90	74.17	33.6	15.6	27.3
	Low	52.60	59.07	58.40	56.40	56.40	53.40			
- WTI (US\$/bbl)	High	60.36	64.42	65.09	68.24	69.57	74.04	41.8	15.9	24.6
	Low	47.32	54.73	53.17	53.07	51.90	50.07			
US Natural Gas (US\$/MMBtu)	High	3.580	3.704	3.507	3.554	3.587	3.629	27.7	8.5	45.8
	Low	2.600	2.643	2.627	2.627	2.727	2.760			
Aluminium (US\$/tonne)	High	1777	2349	2355	2365	2355	2384	18.5	7.8	15.8
	Low	1992	1962	1942	1963	1955	1992			
Copper (US\$/tonne)	High	7216	7228	7427	7415	7482	7534	21.7	8.9	16.4
	Low	6447	6473	6545	6365	6185	6072			
Nickel (US\$/tonne)	High	12830	13227	13323	13817	13617	13883	19.6	10.5	28.5
	Low	10375	11259	11198	11314	11414	11485			
Lead (US\$/tonne)	High	2590	2644	2628	2594	2561	2511	18.0	11.0	21.6
	Low	2409	2336	2246	2186	2111	2094			
Zinc (US\$/tonne)	High	3350	3523	3549	3606	3656	3673	29.4	13.8	23.2
	Low	3095	3170	3087	2983	2889	2788			
Gold (US\$/oz)	High	1348	1368	1368	1377	1393	1378	11.2	5.1	10.0
	Low	1242	1257	1240	1247	1239	1232			
Silver (US\$/oz)	High	18.10	18.41	18.57	18.91	19.07	19.57	21.8	10.0	17.0
	Low	15.70	16.19	16.00	15.94	15.65	15.69			
Exchange Rates vs US Dollar¹										
Euro (US\$/€)	High	1.201	1.223	1.233	1.233	1.252	1.259	7.6		7.6
	Low	1.158	1.162	1.166	1.161	1.169	1.169			
Japanese Yen (Yen/US\$)	High	111.0	110.3	110.3	110.6	109.9	109.9	5.7		9.1
	Low	114.3	115.7	116.4	116.1	116.8	116.4			
Australian Dollar (US\$/A\$)	High	0.782	0.801	0.806	0.811	0.816	0.816	12.5		7.7
	Low	0.754	0.751	0.739	0.732	0.726	0.720			
UK Pound (US\$/UK£)	High	1.354	1.380	1.388	1.398	1.402	1.402	7.7		8.7
	Low	1.306	1.318	1.301	1.305	1.305	1.301			
Canadian Dollar (C\$/US\$)	High	1.246	1.219	1.214	1.209	1.204	1.204	7.1		7.1
	Low	1.290	1.297	1.297	1.293	1.285	1.293			

¹ Currency data taken from January 2018 survey of Foreign Exchange Consensus Forecasts.

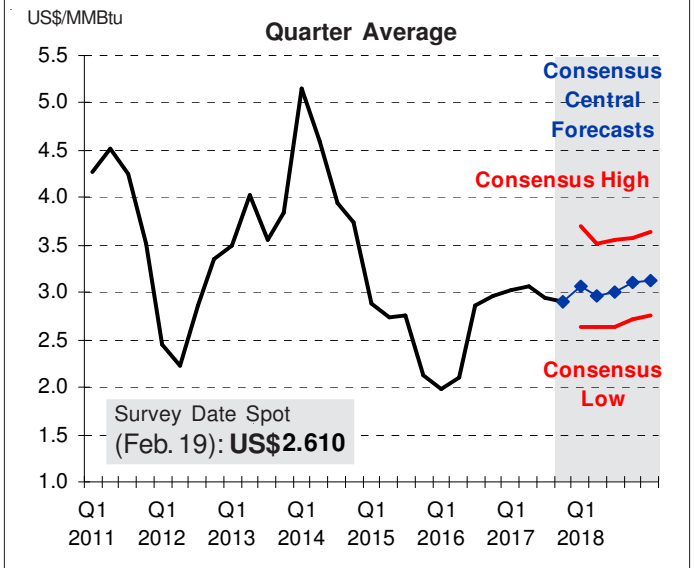
² Commodity standard deviations are for Q1 2019 average forecasts.

³ More technically, historical volatility is calculated as the annualised standard deviation of daily commodity/currency movements over a given historical period, in this case the twelve months ended December 29, 2017.

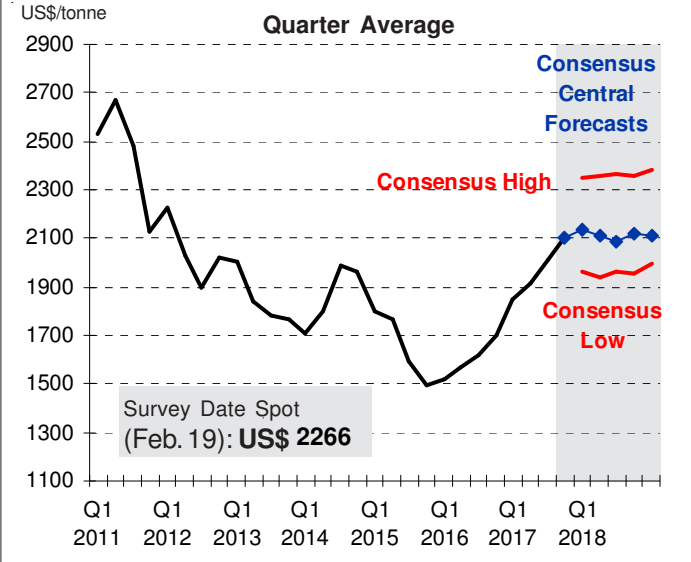
Crude Oil (Brent) Central Forecasts and Trading Ranges



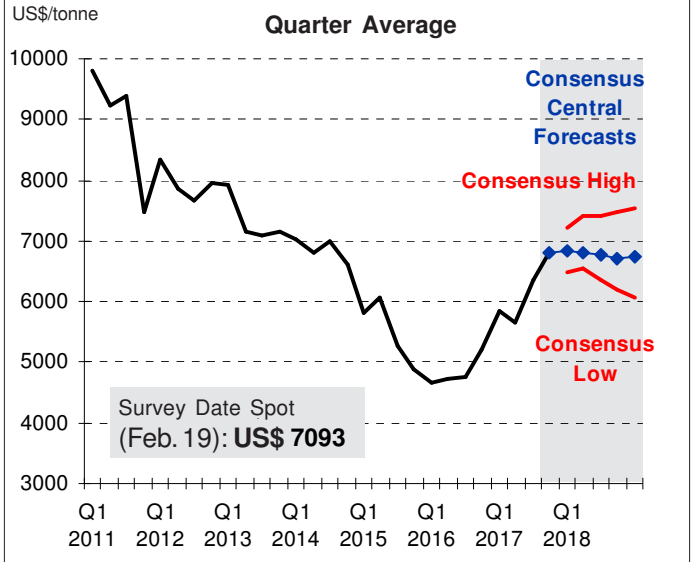
US Natural Gas Central Forecasts and Trading Ranges



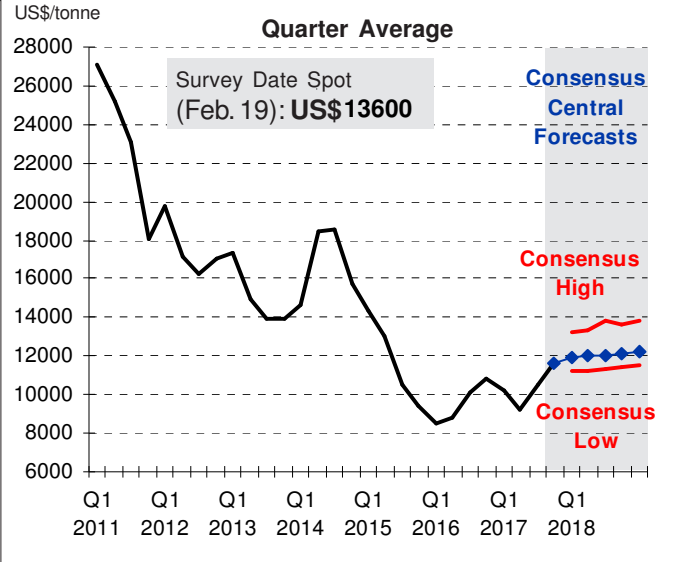
Aluminium Central Forecasts and Trading Ranges



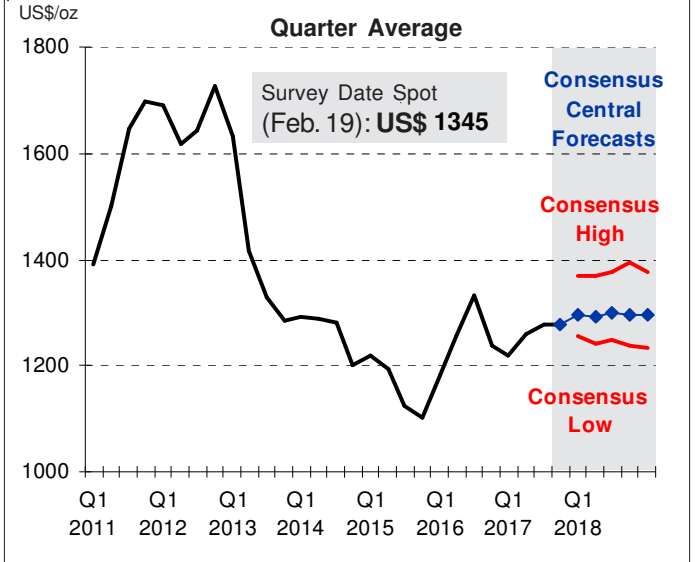
Copper Central Forecasts and Trading Ranges



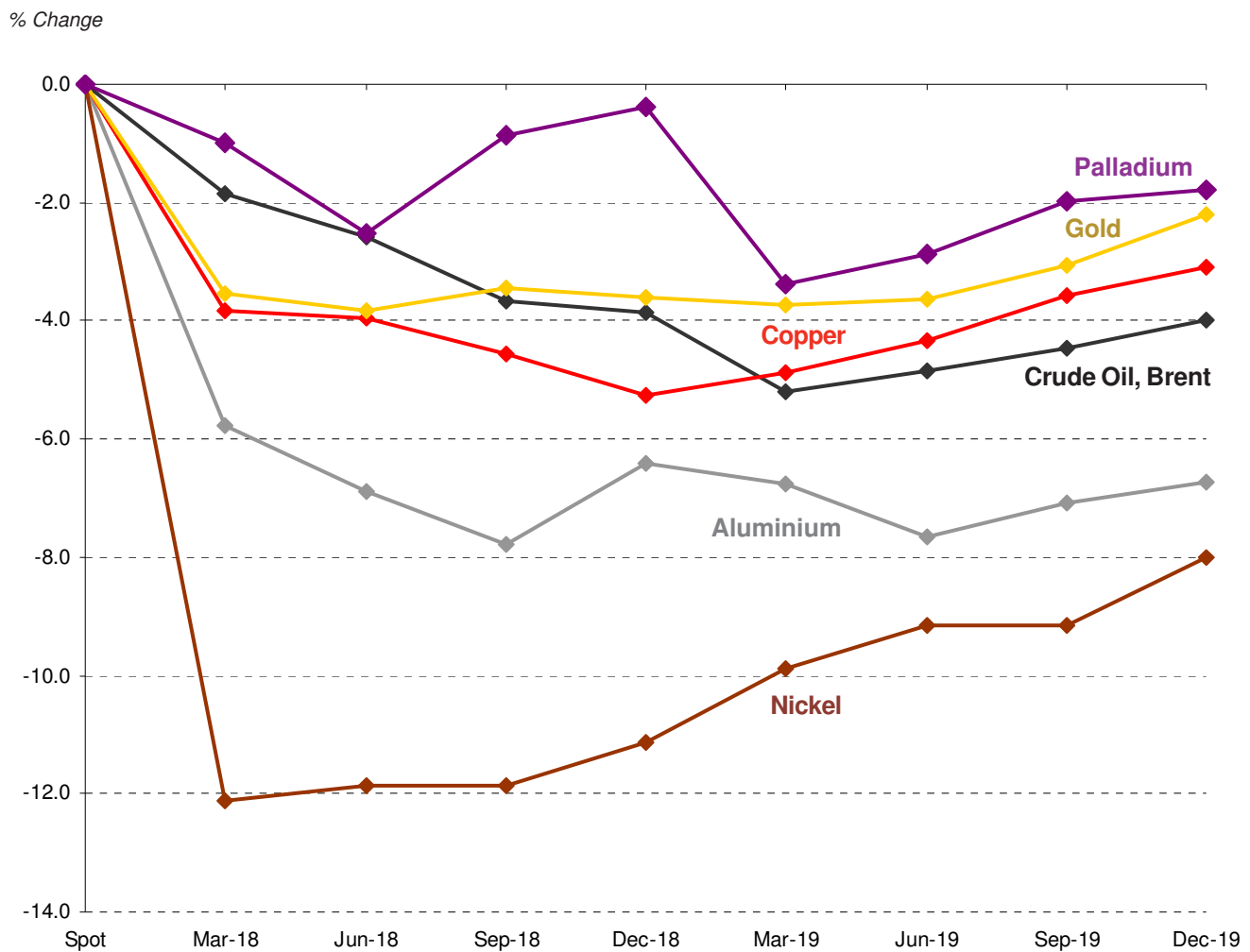
Nickel Central Forecasts and Trading Ranges



Gold Central Forecasts and Trading Ranges



Consensus Forecasts Percentage Changes From Spot Price During the Next Eight Quarters



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Consensus Economics Inc.

53 Upper Brook Street, London, W1K 2LT, United Kingdom. Tel (44 20) 7491 3211; Fax (44 20) 7409 2331.