

Tuesday, July 30, 2019 | weekly publication

## Tuesday Espresso

### Weekly Commodity Roundup

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#### Utilities

German electricity prices have held close to the EUR 52/MWh mark amid low price volatility in coal and natural gas markets. It seems that EUA prices have broken their upward streak - a reasonable assumption looking at falling coal-fired power generation in Europe (-19% in 1H'19). Those hoping that the new European Commission will implement some kind of solution to lift EUA prices back up might be in for a disappointment. We ourselves are anticipating another EUA buildup in the ETS. In Poland, clean-dark spreads for vertically-integrated generators are seen to slowly but steadily widen in line with rising power prices, but so far this is not at all reflected in the performance of listed utilities.

#### Gas & Oil

Refining margins still hold above \$7 thanks to strong gasoline cracks and improving diesel margins, though low Rhine water levels are not yet registering (there is a noticeable rise in ARA stocks, due most likely to the reduced barge load capacities). On the other hand, the Urals-Brent price differential has turned negative to the tune of -\$0.2. The Brent-WTI is seen to be widening again. In Petrochemicals, we are seeing another squeeze on margins. Trends in the natural gas market are showing no signs of reversal.

#### Soda Ash

Soda prices in China are down to \$250-260 a tonne, the lowest level since the beginning of 2018. Stakeholders attribute the slump to increasing supply as units come back from maintenance. At the same time, soda demand remains relatively weak.

#### Metals

Speculative traders were closing short copper positions over the past week, with contracts reduced from -32k to -24k, but this has had no lifting effect on prices so far. Copper and precious metals have logged gains ahead of today's FOMC meeting, but if the Fed decides not to cut rates we will probably see a pullback in the latter part of the week, with negative implications for KGHM.

Industrial metals at the moment are trading under pressure from weak economic prints in China, including falling car sales, with registrations for June down for the 12th month straight, and down 8% y/y. New lending in China also fell 10% in June relative to the same month in 2018, and on top of that Chinese copper imports for July shrunk by 21% y/y to 930kt.

#### Agricultural Commodities

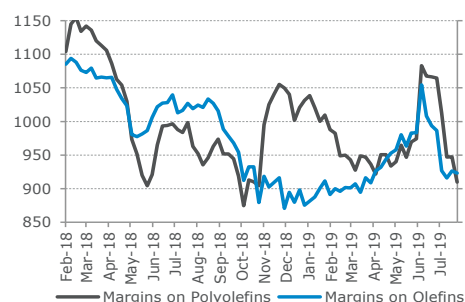
Natural gas prices have dropped close the lowest levels registered this year, indicating lower feedstock costs for fertilizer producers like Grupa Azoty.

#### Coking Coal

Coking coal in Australian markets is trading just upwards of \$170/t compared to China, where it is holding above \$200/t. China announced it would leave decisions on steel production curbs this winter to regional authorities. Moreover the restrictions will not apply to low-emission smelters, indicating higher local production and hence higher demand for coking coal and iron ore.

In Poland, Arcelor Mittal had a positive surprise for the market by putting on indefinite hold a planned steel plant closure in Krakow - a decision which benefits the plant's suppliers, including JSW, Stalprodukt, and PKP Cargo, but which puts greater competitive pressure on rival steelmaker Cognor.

#### Chart of the Week



Source: Bloomberg, Dom Maklerski mBanku

#### Crimped Petrochemical Margins

Model production margins on petrochemicals after weeks of downward pressure have narrowed close to their 2018 lows. The main culprit is an oversupply of polyethylene, driven by increasing production capacity. However a squeeze on margins is noticeable across the whole petechem slate except for aromatic compounds, underpinned by upward-shifting prices of naphtha inputs which move up despite lower prices of crude oil.

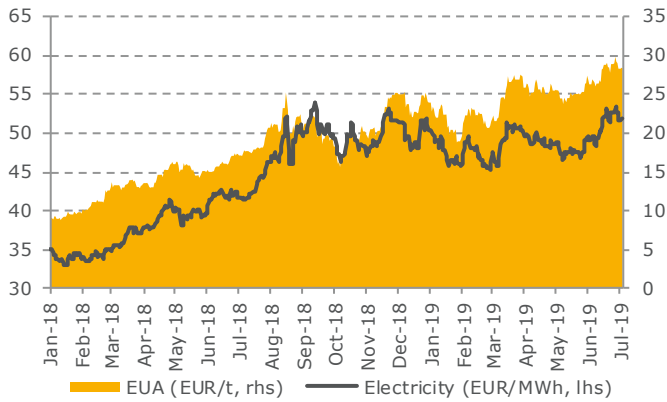
#### 1-Week & YTD Performance

Company	1W	YTD
PCC Rokita	-10.8%	-11%
Ciech	-10.7%	-13%
Enea	-9.2%	-16%
Tauron	-7.8%	-28%
PGE	-6.0%	-11%
Kernel	-2.8%	+1%
JSW	-2.6%	-39%
MOL	-2.5%	+3%
PKN Orlen	-2.2%	-7%
Energa	-2.1%	-17%
Lotos	-2.0%	-2%
Kruszwica	-1.9%	+15%
CEZ	-1.8%	+2%
LW Bogdanka	-1.4%	-27%
KGHM	-0.1%	+9%
Impexmetal	+0.0%	+35%
ZA Puławy	+0.0%	+49%
Boryszew	+0.7%	-5%
ZCh Police	+0.7%	+8%
Astarta	+0.8%	+4%
OMV	+0.9%	+18%
ZE PAK	+1.4%	-6%
PGNiG	+1.5%	-20%
Kęty	+2.4%	+3%
Tarczyński	+2.4%	-3%
Grupa Azoty	+3.3%	+47%
Orzeł Biały	+3.8%	+2%
IMC	+5.8%	+25%
Tupras	+5.8%	+31%
WIG Indices	1W	YTD
WIG	-2.1%	+3%
Chemicals	-2.0%	+17%
Energy	-5.6%	-13%
Oil & Gas	-1.3%	-9%
Food Industry	-1.2%	-1%
Basic Material	-0.5%	-3%
Ukraine	-0.1%	+1%
Sector Indices	1W	YTD
Mining	-1.3%	+24%
Oil & Gas E&P	-3.2%	+4%
Refining EU	-1.4%	+7%
Refining US	+0.7%	+10%
Agri & Food	+2.6%	+32%
Rubber	+0.8%	+8%
Fertilizers	-1.0%	+7%
Chemicals EU	+0.3%	+14%
Industrials EU	+1.2%	+24%
Petchem World	-1.7%	-1%
Utilities EU	+0.8%	+20%
Utilities US	+0.1%	+15%

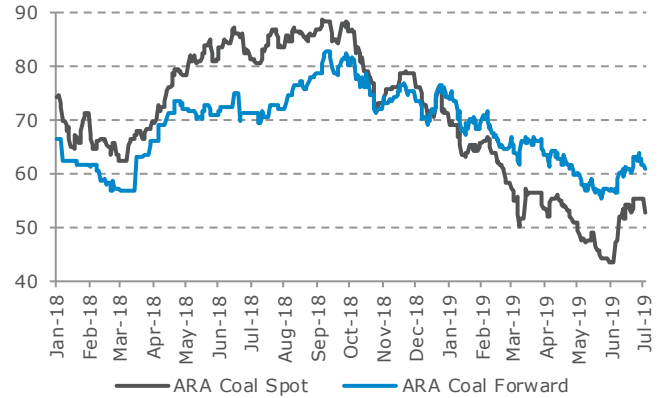


## Utilities

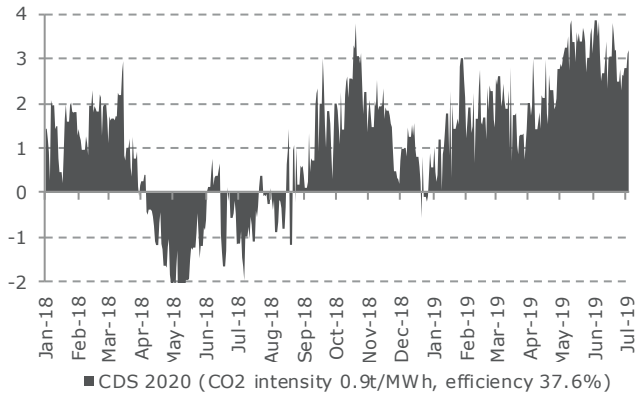
EU Prices of Electricity (EUR/MWh) & EUAs (EUR/t)



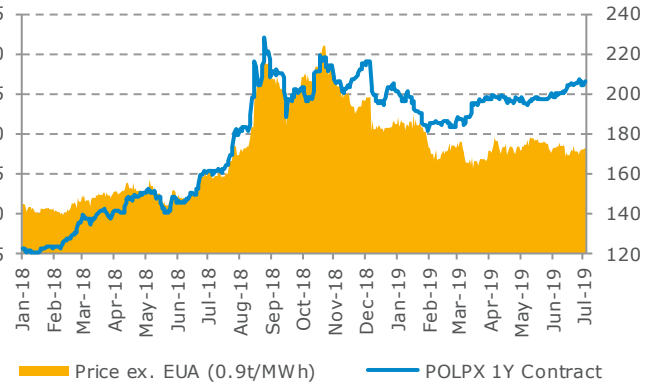
ARA Coal Spot and Forward Prices (EUR/t)



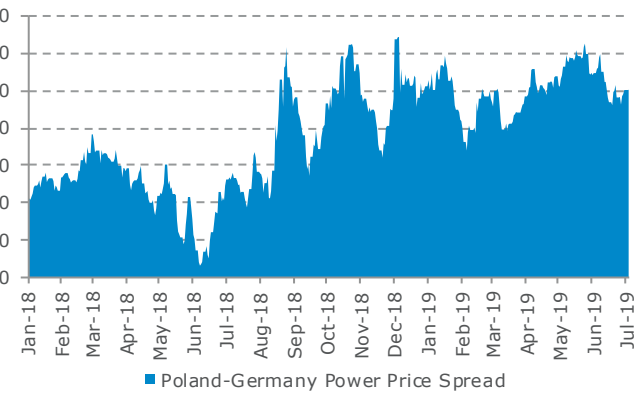
Clean-Dark Spread, Germany (EUR/MWh)



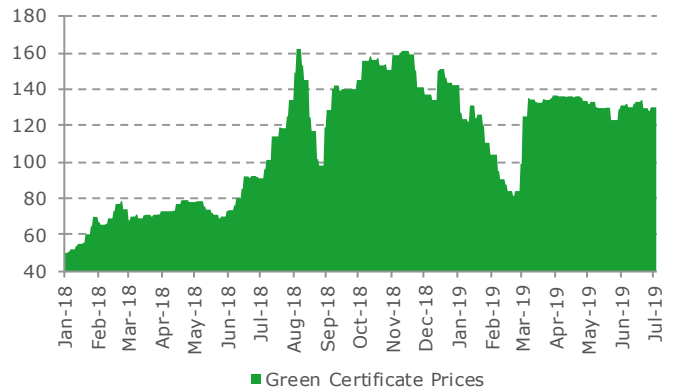
Polish Electricity Prices (1Y) (PLN/MWh)



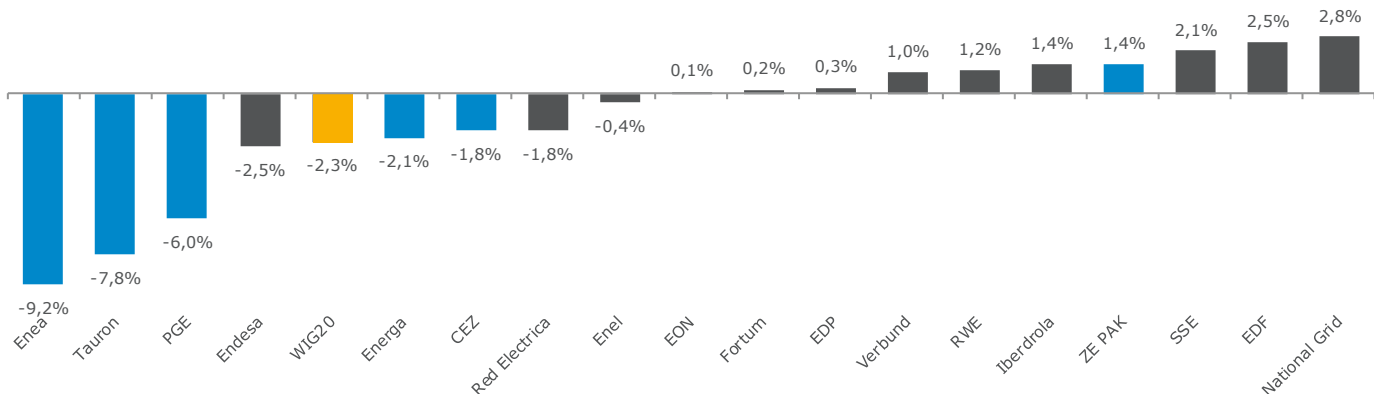
Poland-Germany Power Price Spread (PLN/MWh)



Polish Green Certificate Prices (PLN/MWh)



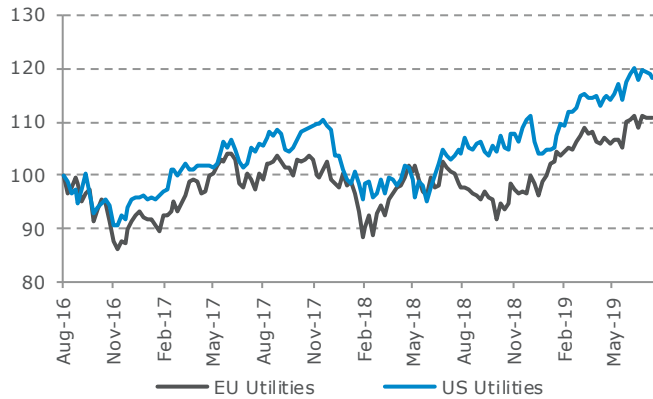
Weekly Returns of Utility Stocks



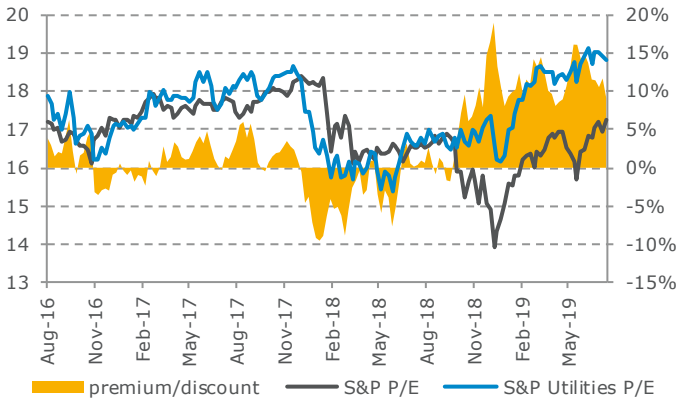
Source: Bloomberg, Dom Maklerski mBanku

Utilities

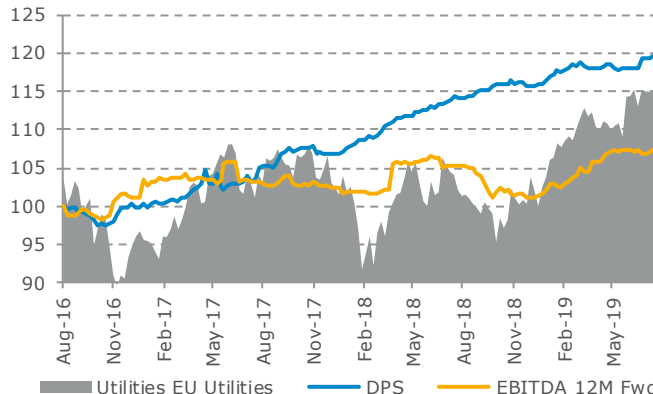
MSCI Utilities Europe vs. S&P Utilities



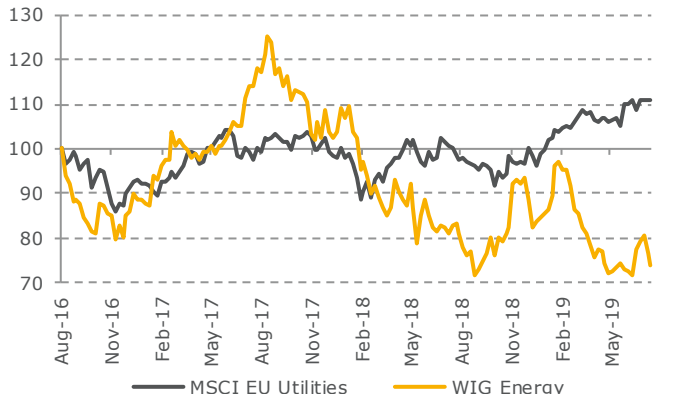
S&P Utilities vs. S&P 500 P/E



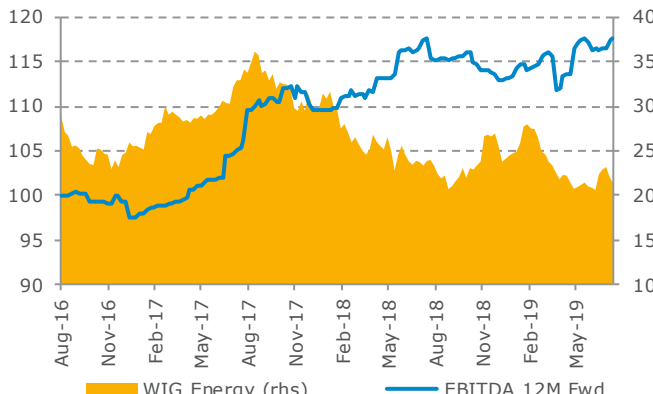
MSCI Utilities EU vs. DPS & EBITDA Expectations



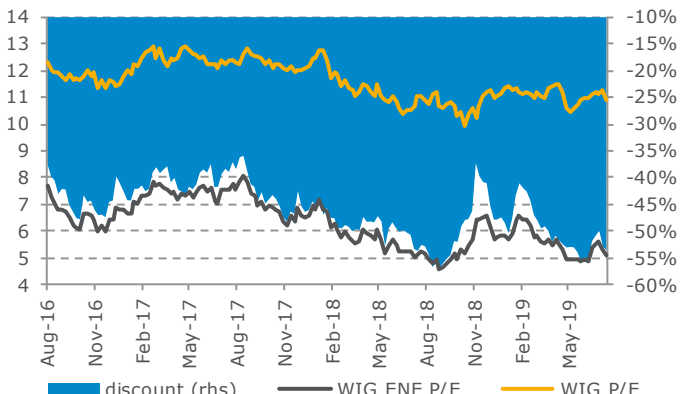
MSCI Utilities EU vs. WIG-ENERGY



WIG-ENERGY vs. EBITDA Expectations



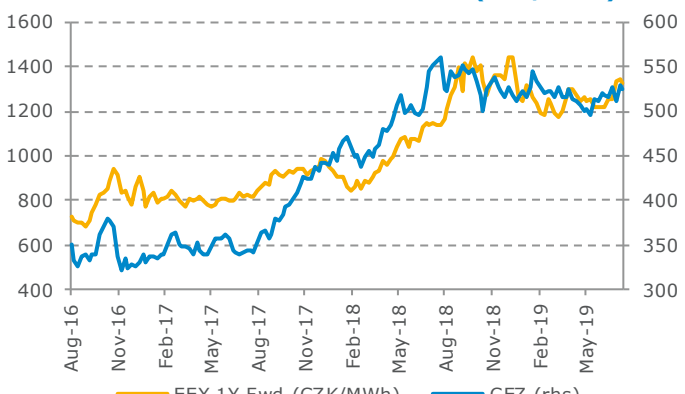
WIG-ENERGY vs. WIG P/E



PGE Performance vs. Power Prices ex. EUA



CEZ Performance vs. EEX Power Prices (CZK/MWh)

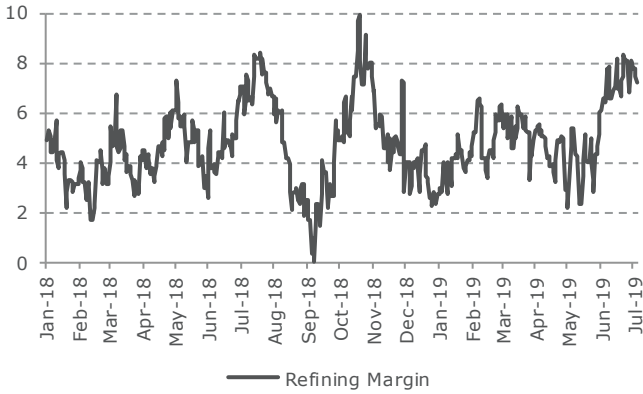


Source: Bloomberg, Dom Maklerski mBanku

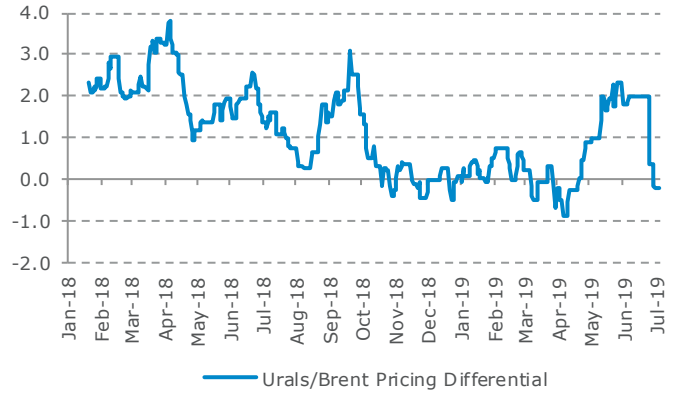


## Gas & Oil

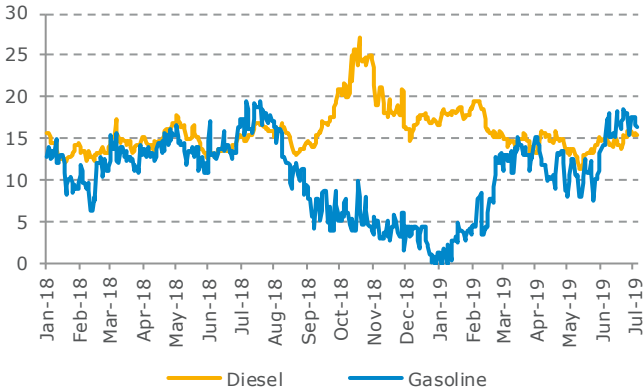
Refining Margins (US\$/bbl)



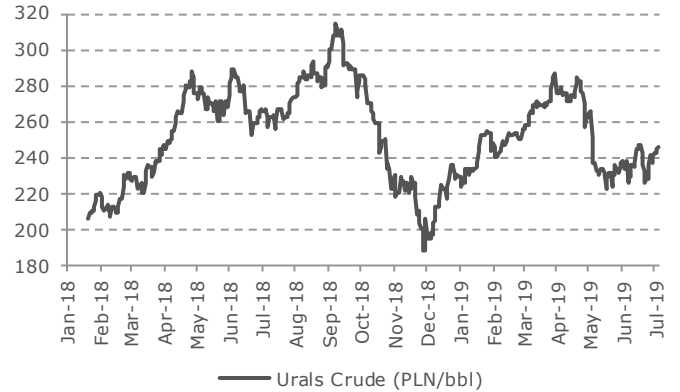
Urals/Brent Pricing Differential (US\$/bbl)



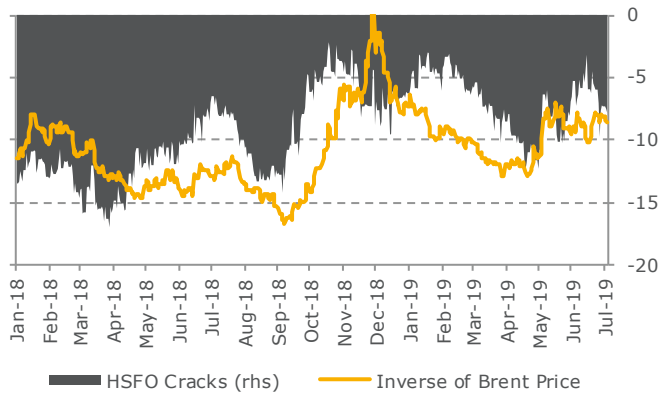
Cracking Margins on Diesel & Gasoline (US\$/bbl)



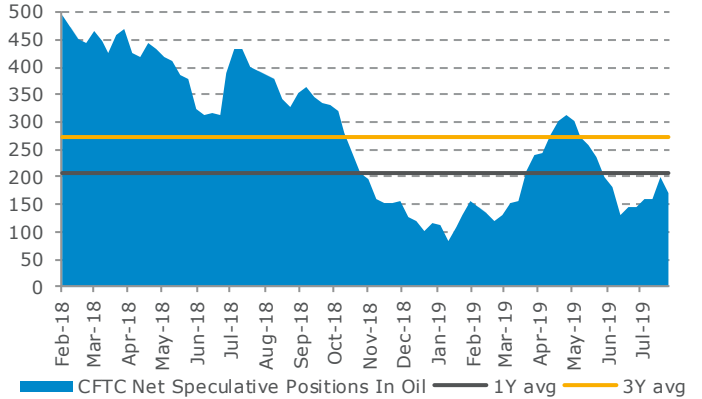
Price of Urals Crude (PLN/bbl)



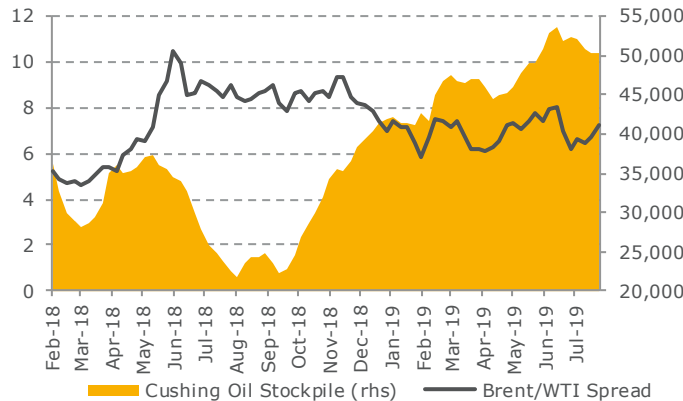
HSFO Cracks (US\$/bbl) vs. Inverse of Brent Price



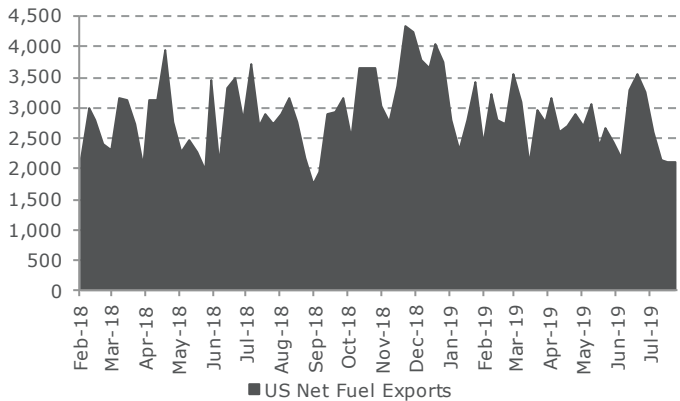
CFTC Net Speculative Positions In Oil



Brent/WTI Spread vs. Cushing Oil Stockpile



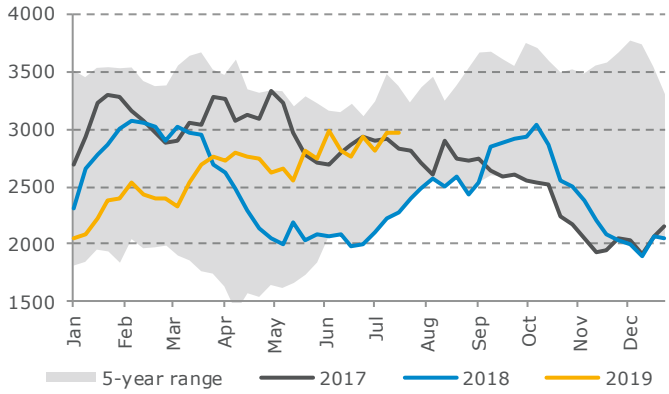
US Net Fuel Exports



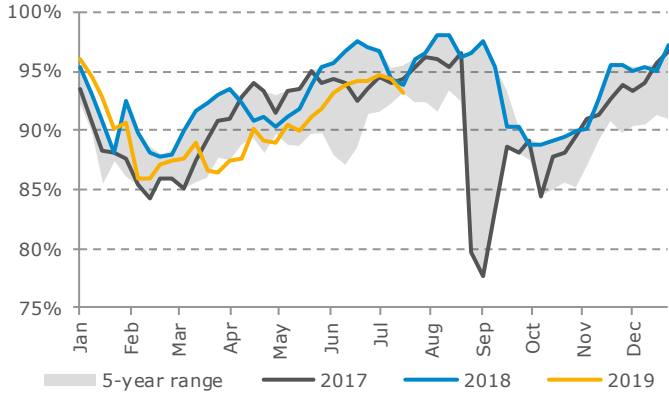
Source: Bloomberg, Dom Maklerski mBanku

Gas & Oil

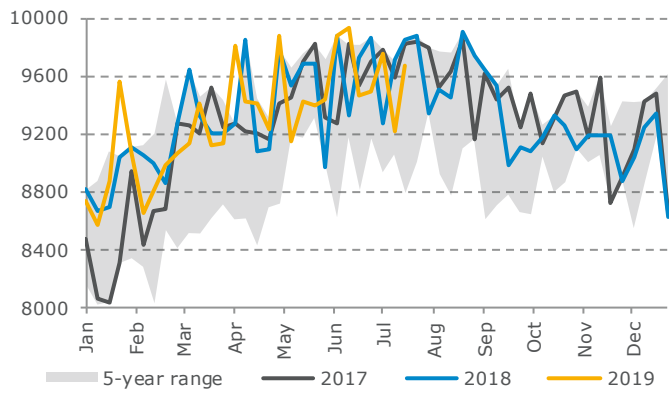
Diesel Inventories @ARA



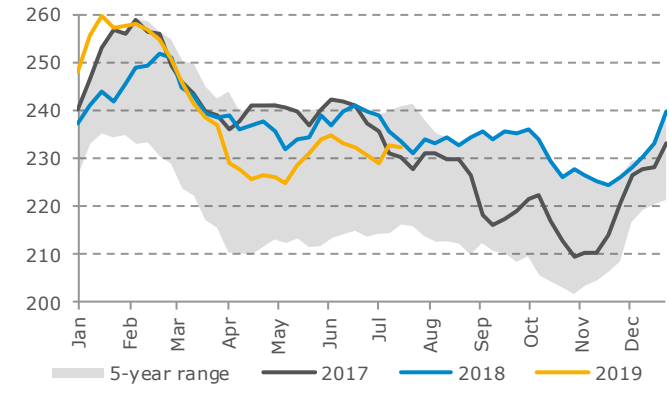
US Refinery Utilization Rates



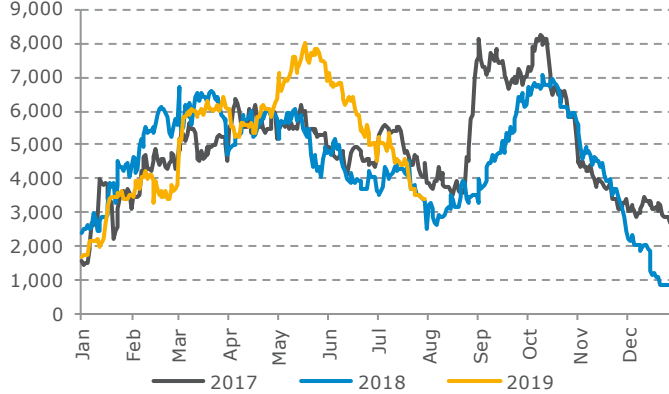
US Gasoline Demand



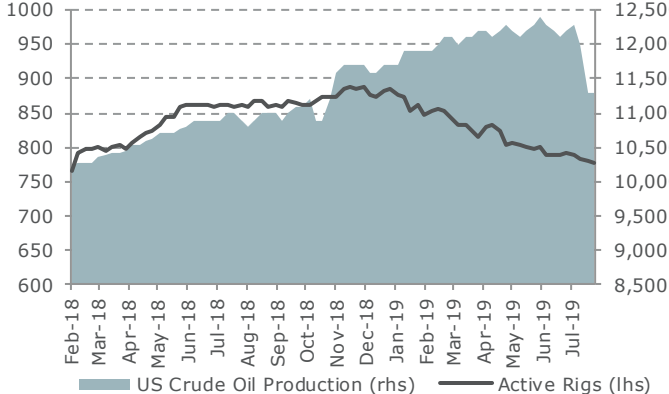
US Gasoline Inventories



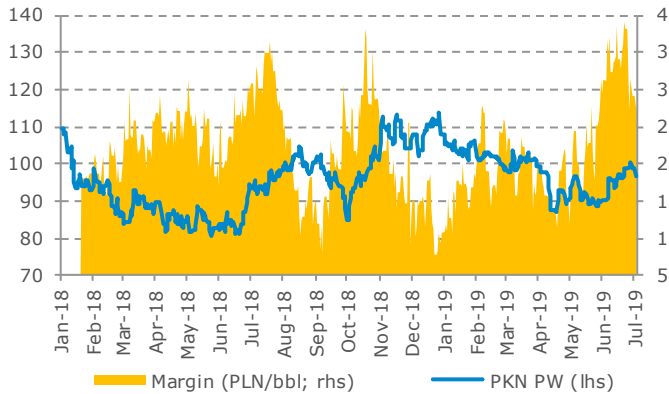
Global Refinery Outages (mmb/d)



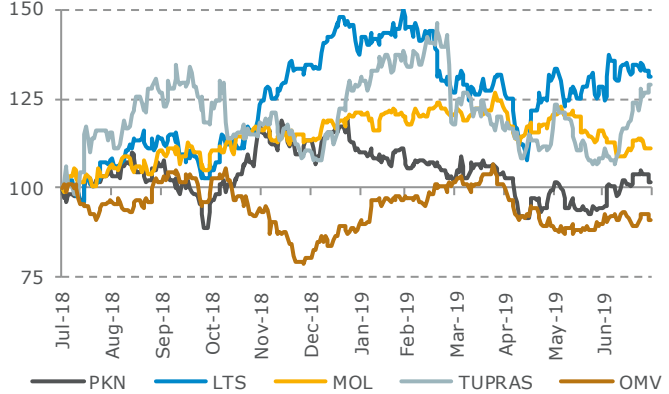
US Crude Oil Production (mboe/d) vs. Active Rigs



PKN Performance vs. Benchmark Margins



Normalized Oil Stock Chart

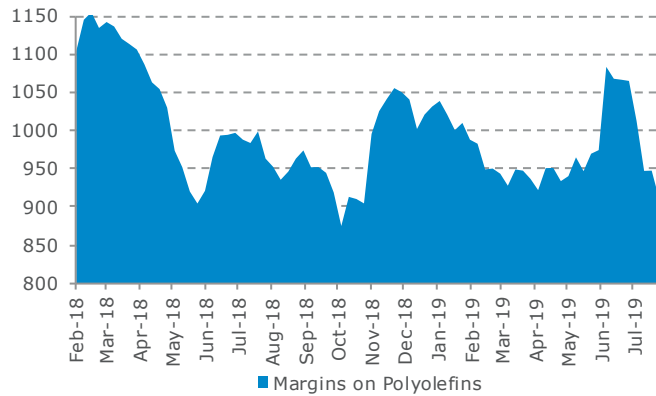


Source: Bloomberg, Dom Maklerski mBanku

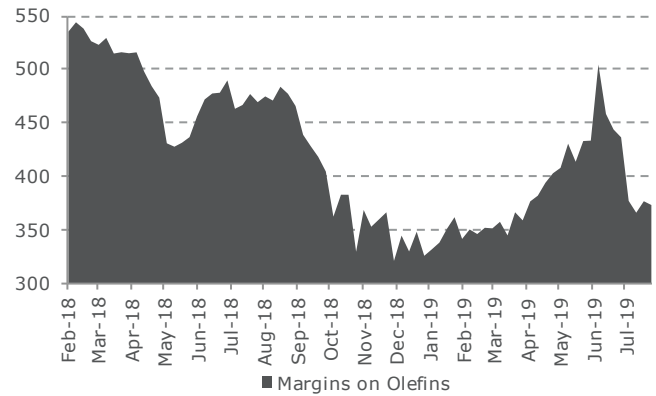


## Petrochemicals & NatGas

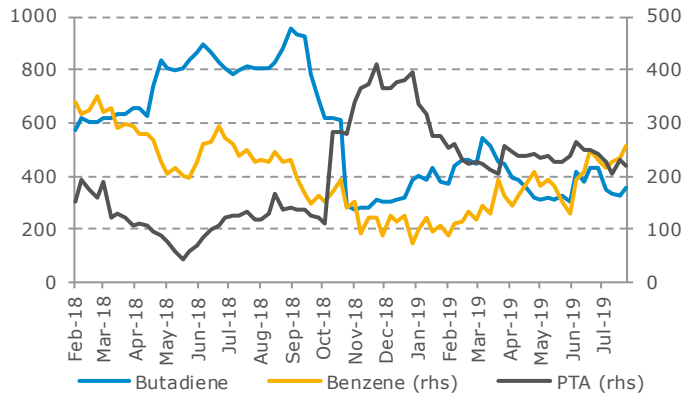
Margins on Polyolefins



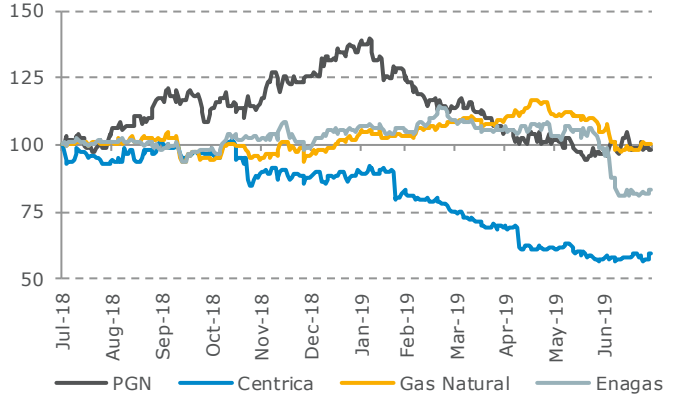
Margins on Olefins



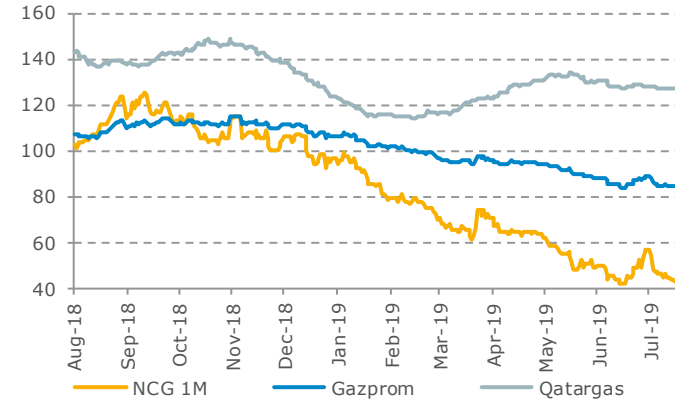
Margins on Butadiene, Benzene & PTA (US\$/t)



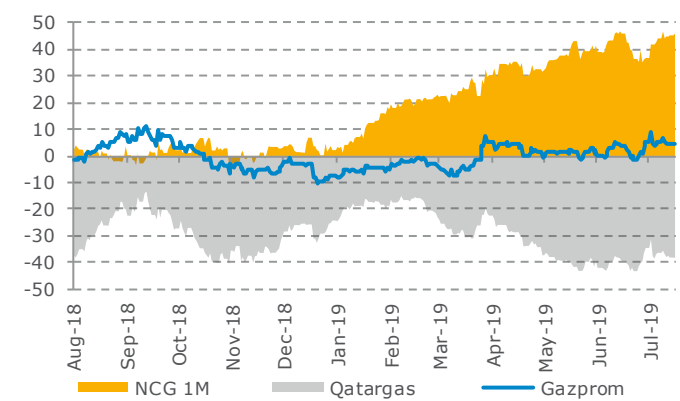
PGN Performance vs. Peers (Normalized)



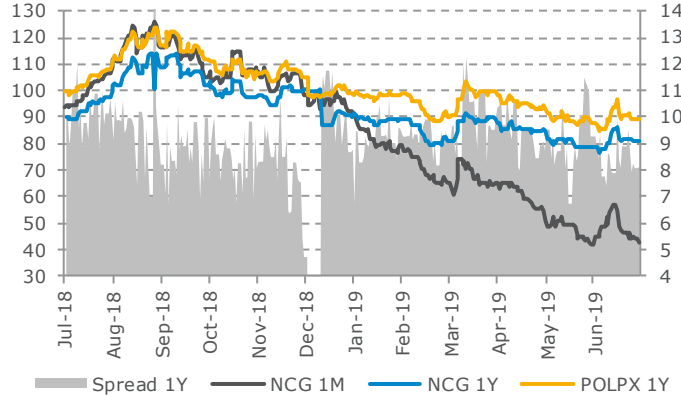
Estimated Costs of Imported Natural Gas (PLN/MWh)



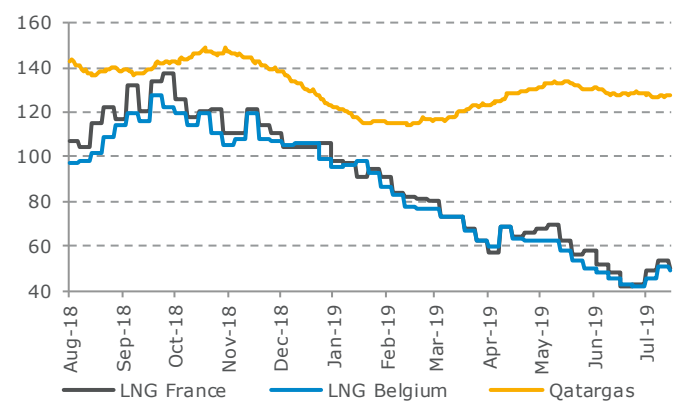
PGN Import Prices vs. POLPX NCG Prices (PLN/MWh)



NCG Prices, POLPX vs. Benchmarks (PLN/MWh)



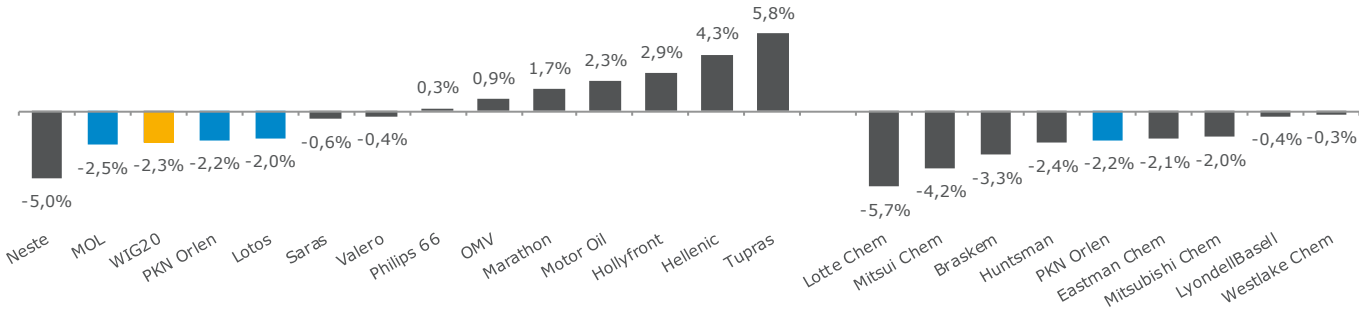
LNG Spot Rates vs. Estimated Qatargas rates



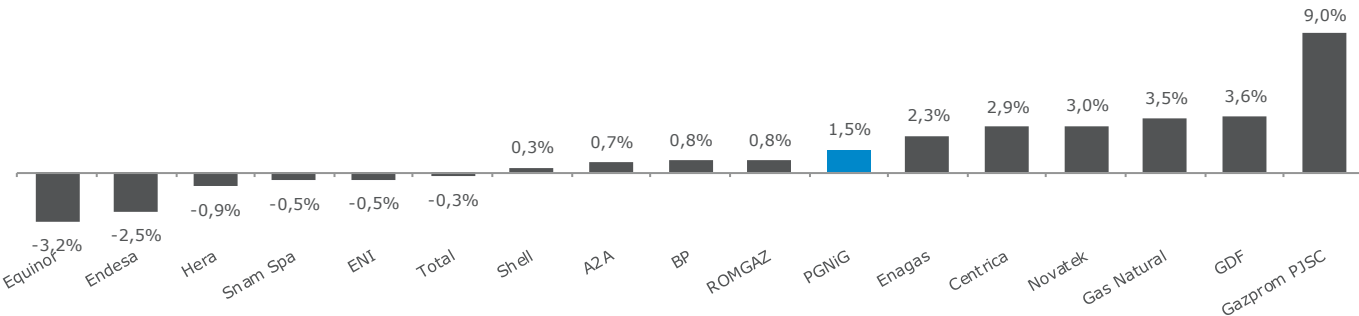
Source: Bloomberg, Dom Maklerski mBanku

### Weekly Performance Charts

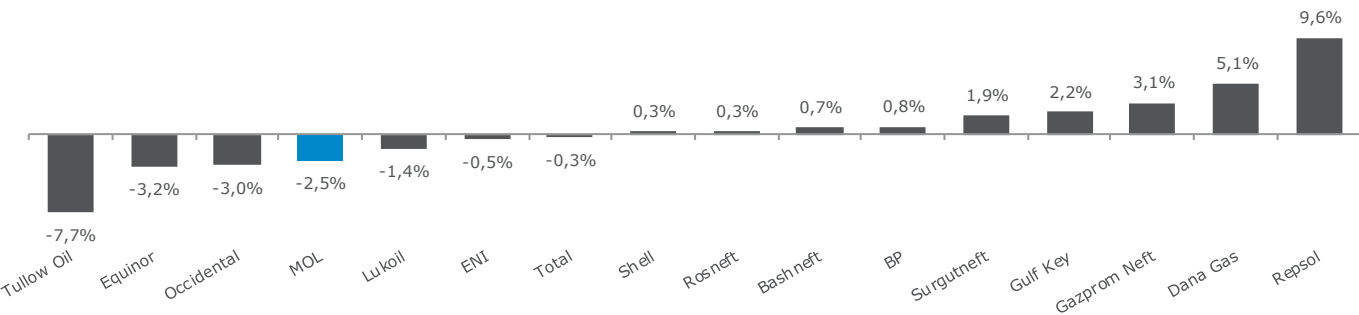
#### Oil Refiners (L) & Petrochemical Producers (R)



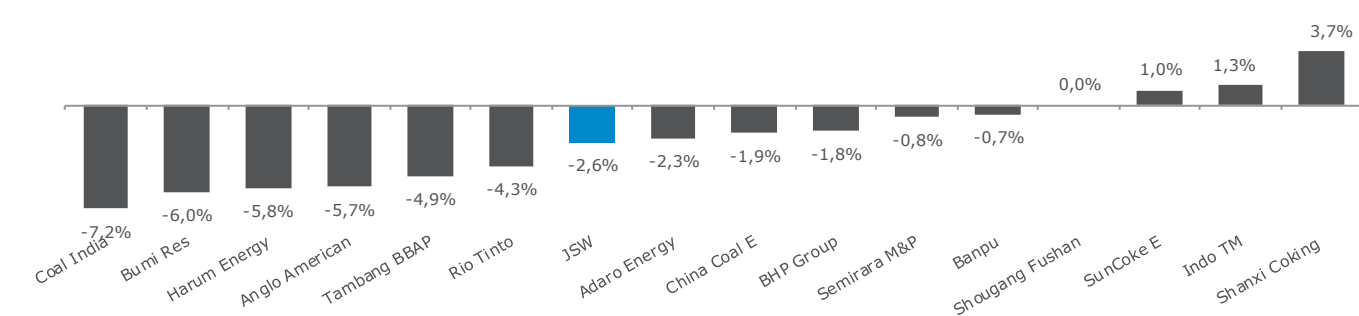
#### Natural Gas Companies



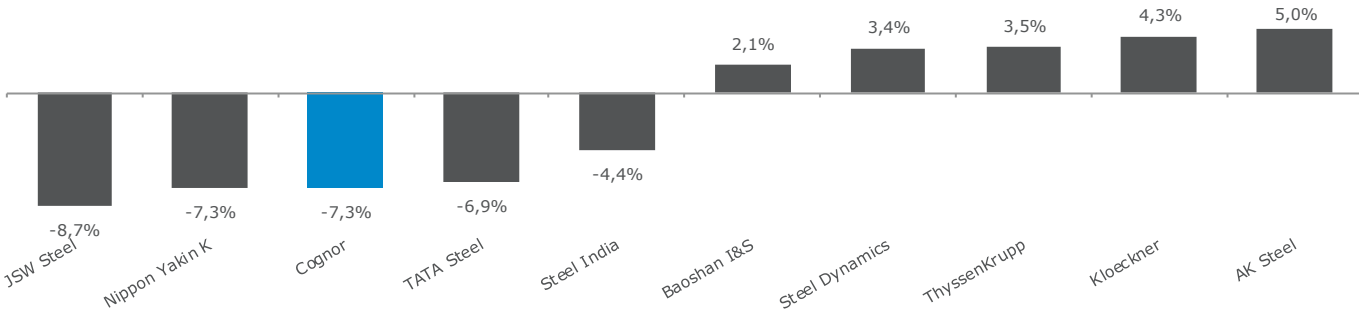
#### Exploration & Production Companies



#### Coal Producers



#### Steel Producers & Distributors



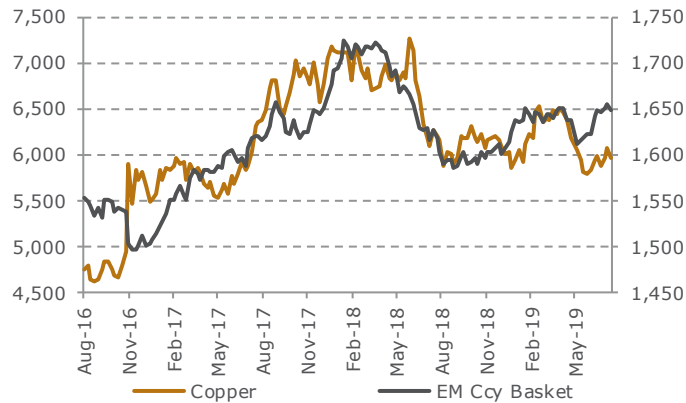
Source: Bloomberg, Dom Maklerski mBanku



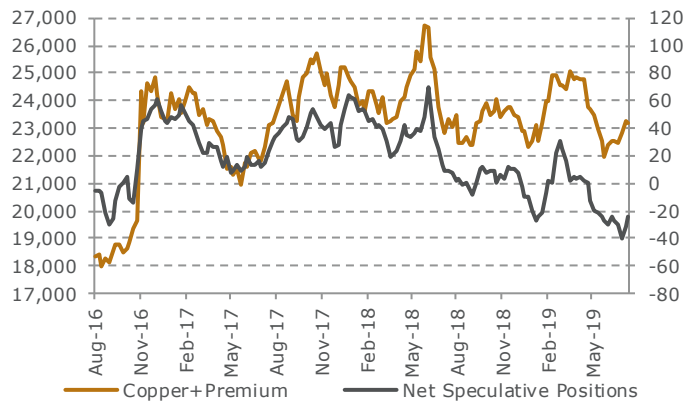


## Copper Charts

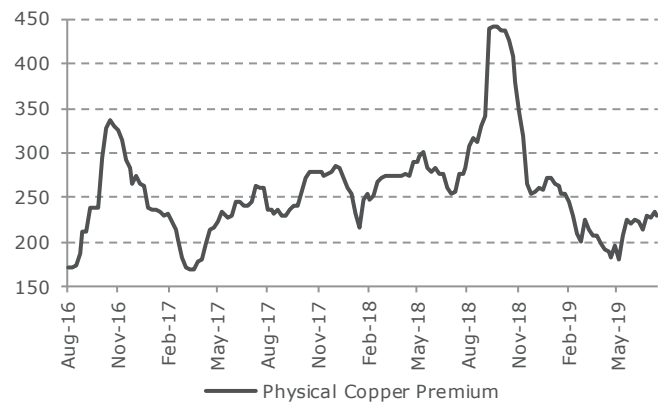
Cu Price (US\$/t) vs. EM Currencies (pts.; rhs)



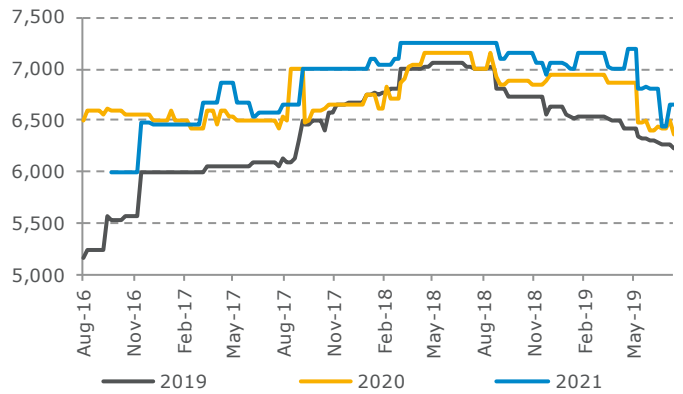
CU Price incl. Supplier Premium (PLN 1,000/t; lhs) vs. Net Speculative Positions (1,000, rhs)



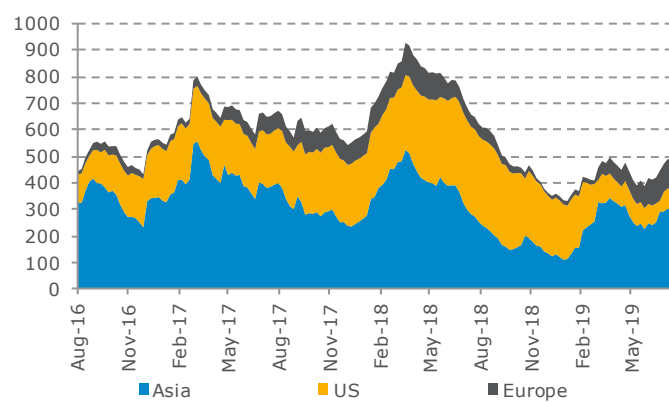
Physical Copper Premiums (PLN/t)



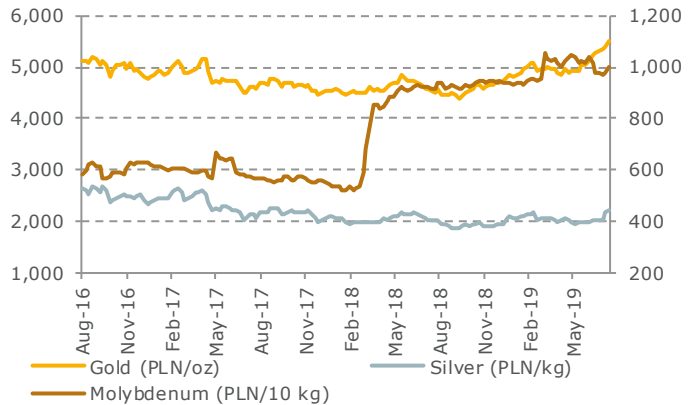
Copper Price Forecasts (median; US\$/t)



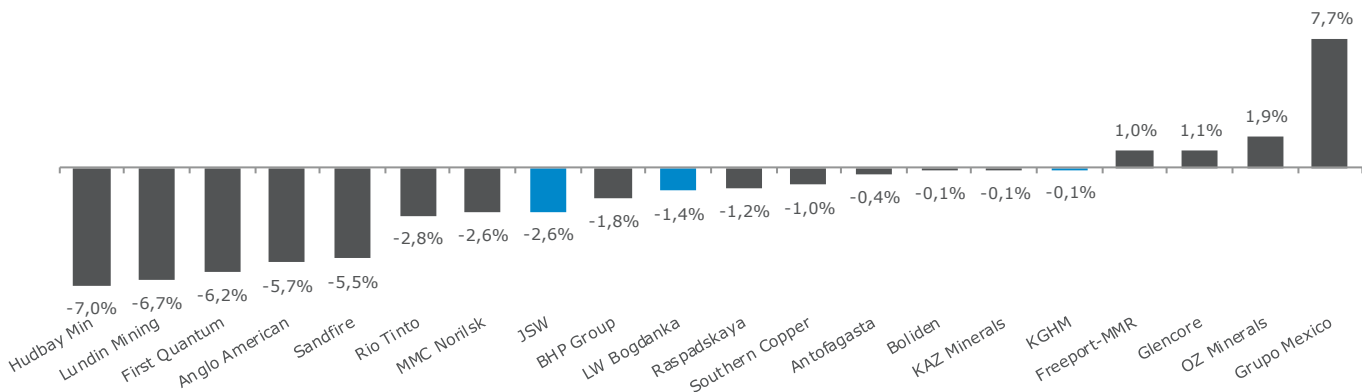
Global Copper Inventories (1,000t)



Prices of Gold (lhs), Silver (lhs), and Molybdenum (rhs)



Weekly Returns of Metal & Mining Stocks

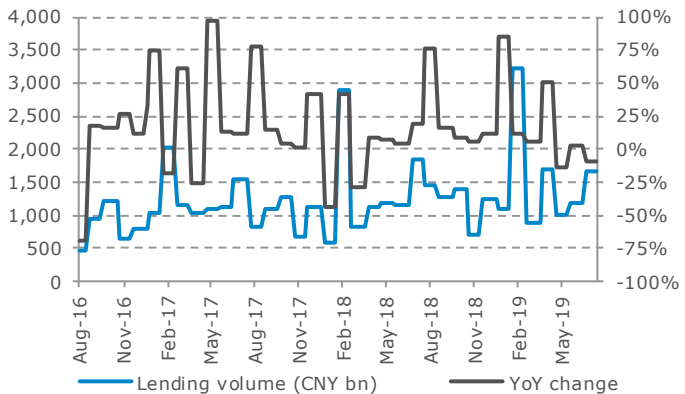


Source: Bloomberg, Dom Maklerski mBanku

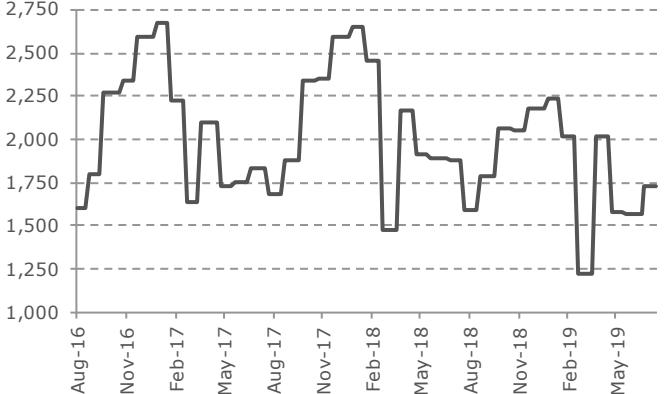


More Copper Charts

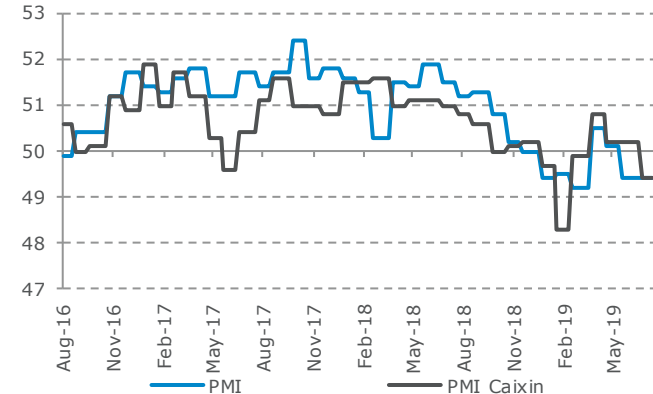
New Bank Lending in China (CNY bn)



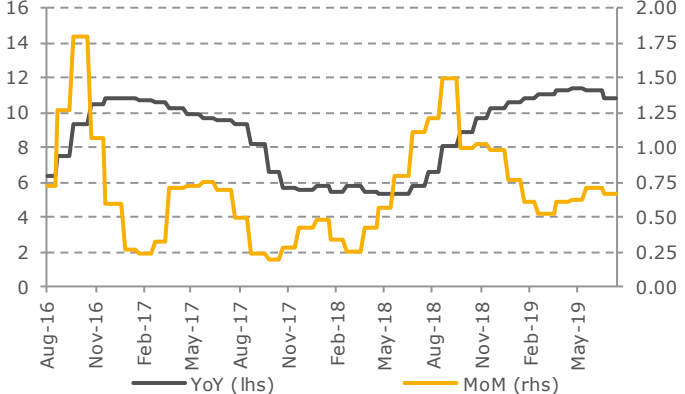
Car Sales in China (thousands)



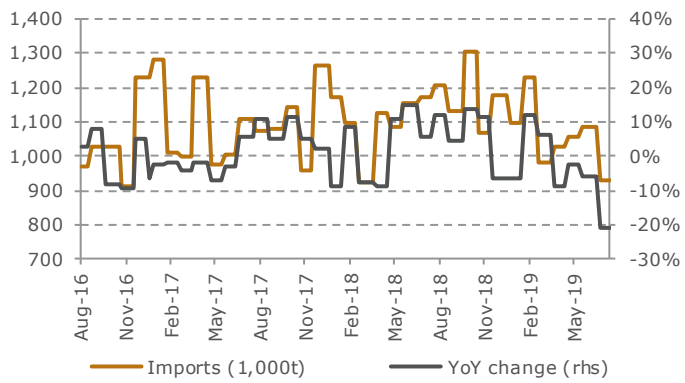
China PMI (points)



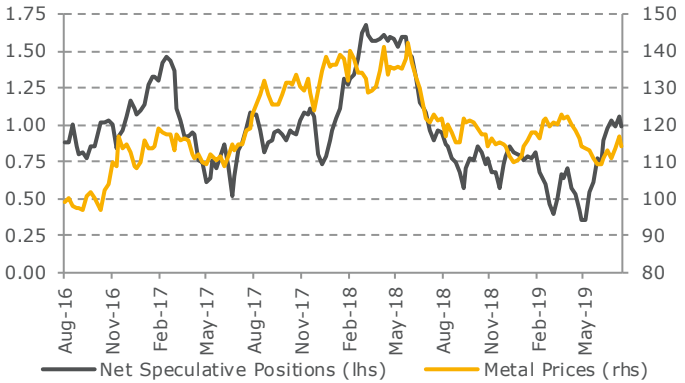
% Change In Avg. New Home Prices In 70 CN Cities



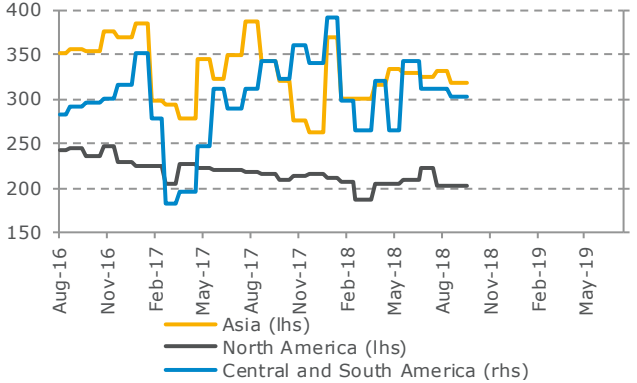
China Copper Imports (concentrates, refined metal, scrap)



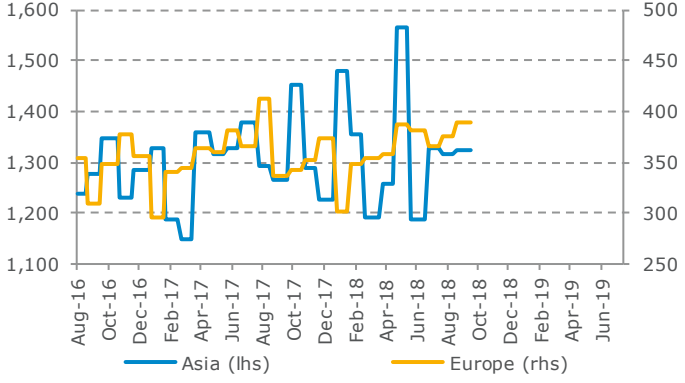
Metal Price Index (pts, rhs) vs. Net Speculative Positions (million contracts, lhs)



Monthly Production of Copper Concentrates in Asia & the Americas (1,000t)



Copper Consumption in Asia & Europe (1,000t)

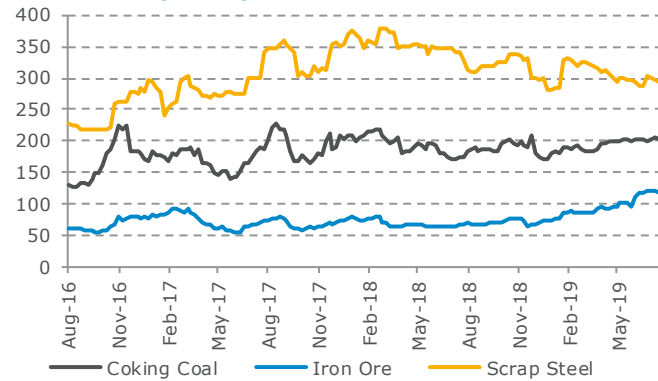


Source: Bloomberg, Dom Maklerski mBanku

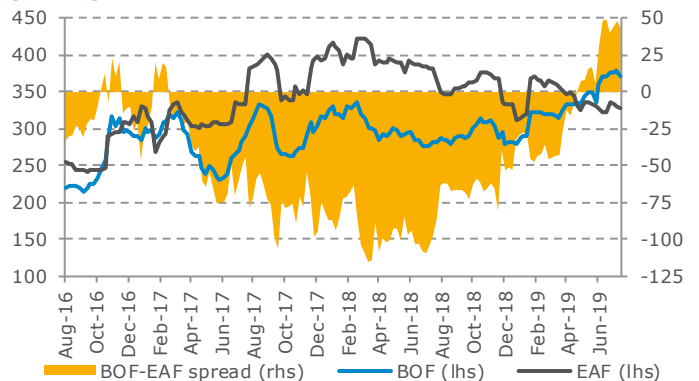


## Steel Charts

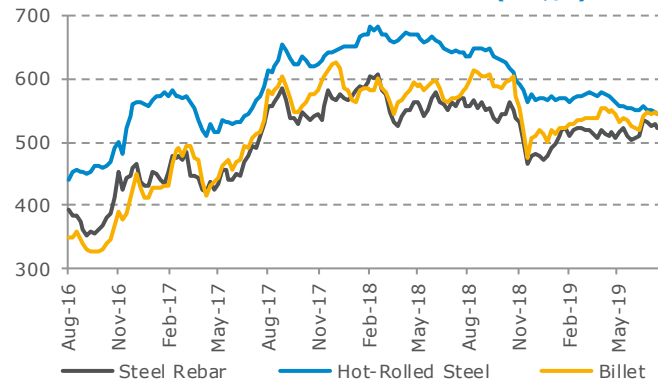
**China Coking Coal & Iron Ore Prices, Rotterdam Scrap Steel Prices (US\$/t)**



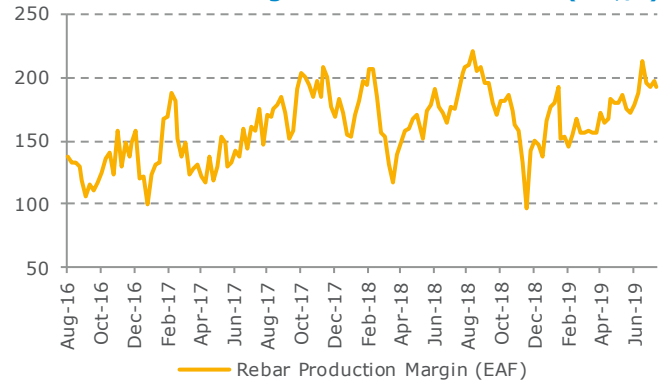
**Production Costs of BOF vs. EAF Steel Producers (US\$/t)**



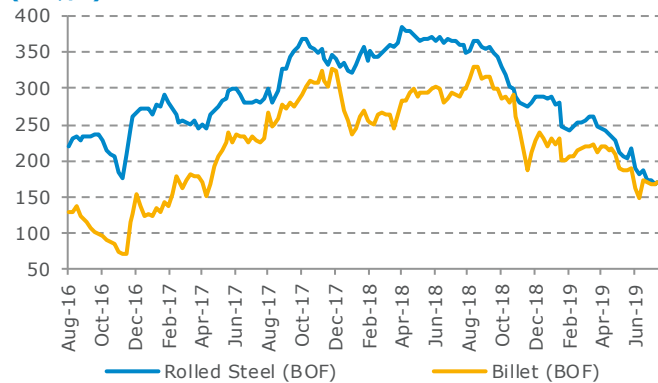
**Prices of Steel Rebar & Hot-Rolled Steel (US\$/t)**



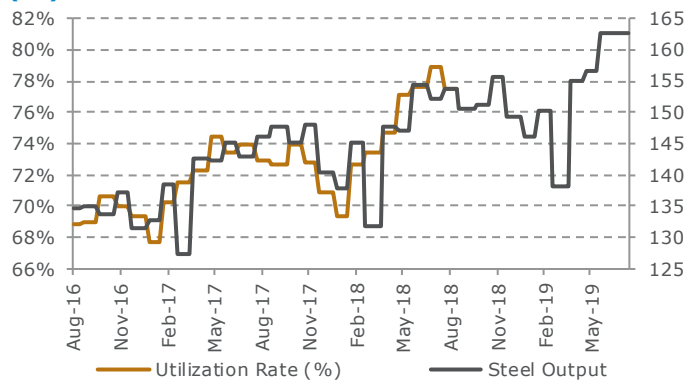
**Rebar Production Margins of EAF Steelmakers (US\$/t)**



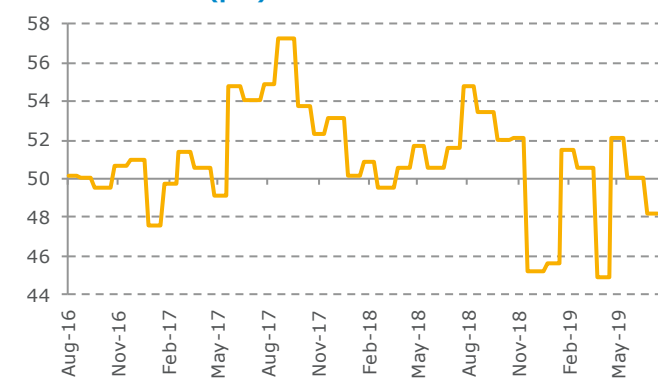
**Rolled Steel & Billet Margins of BOF Steelmakers (US\$/t)**



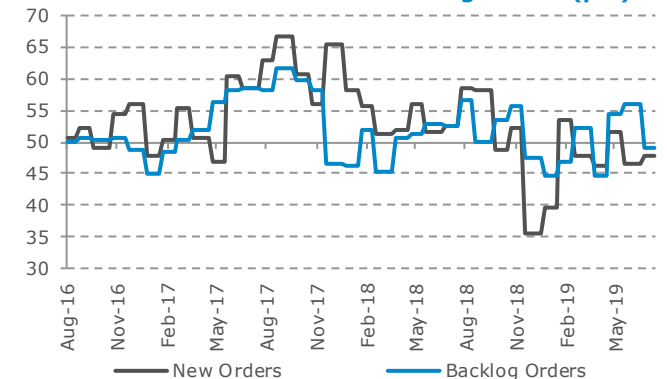
**Global Steel Plant Capacity Utilization Rates & Output (Mt)**



**China Steel PMI (pts)**



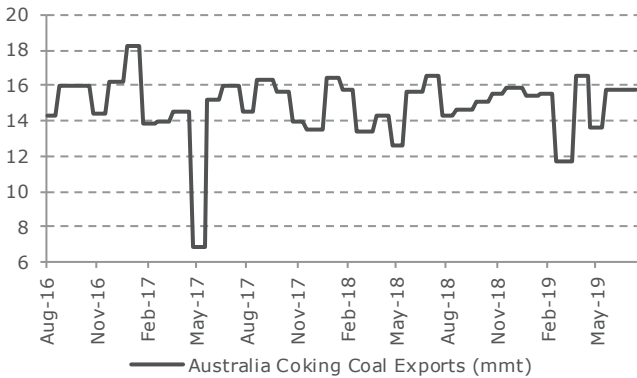
**China Steel PMI New Orders & Backlog Orders (pts)**



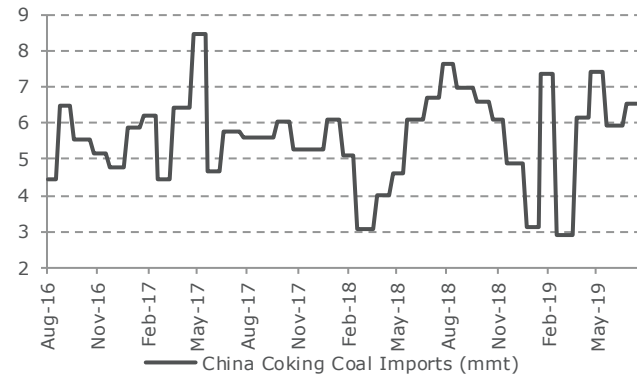
Source: Bloomberg, Dom Maklerski mBanku

More Steel Charts

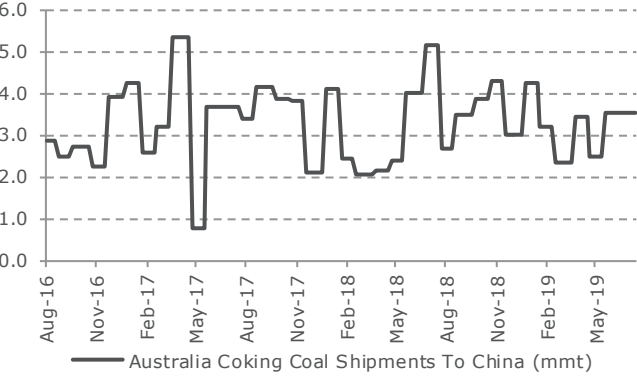
Australia Coking Coal Exports (mmt)



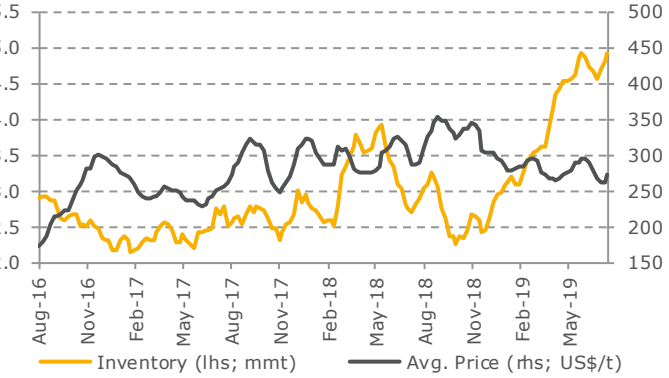
China Coking Coal Imports (mmt)



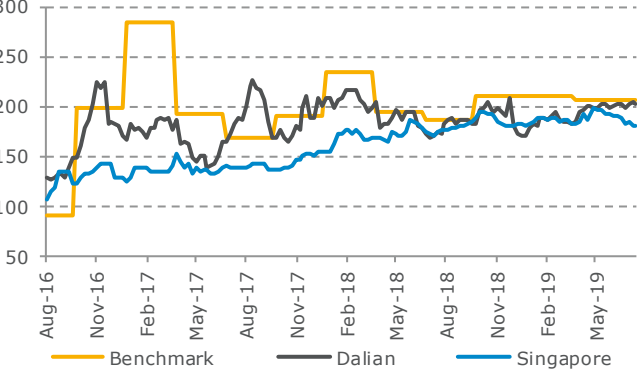
Australia Coking Coal Shipments To China (mmt)



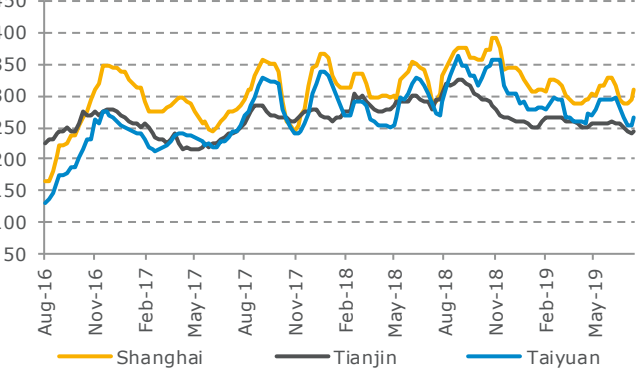
China Coke Inventories (lhs; mmt) & Average Prices (rhs; US\$/t)



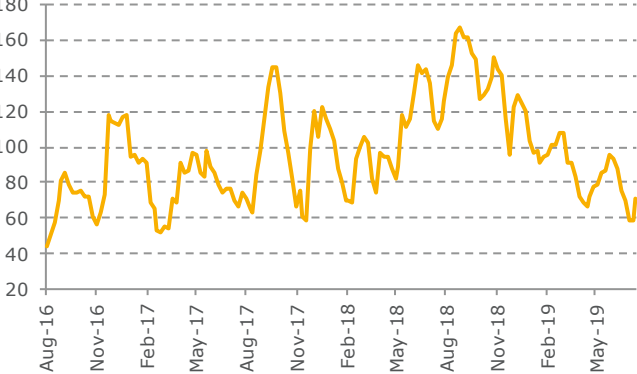
China Coking Coal Prices vs. Benchmark (US\$/t)



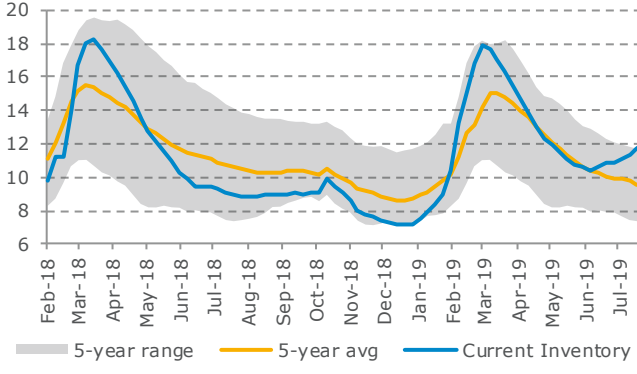
China Coke Prices (US\$/t)



Coking Coal-Coke Price Spread (US\$/t)



China Steel Inventory (mmt)

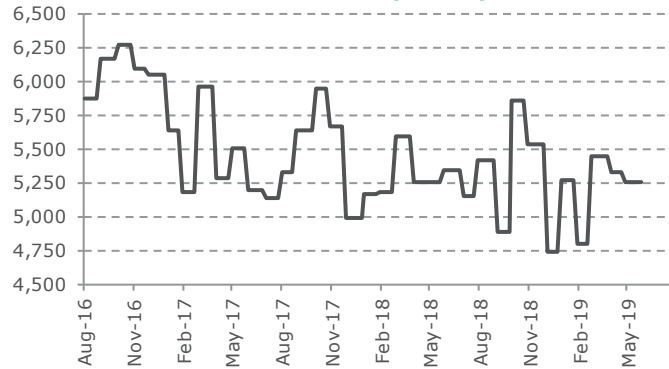


Source: Bloomberg, Dom Maklerski mBanku

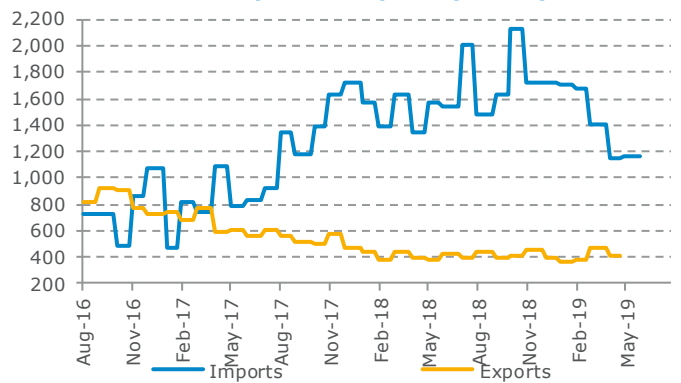


### Thermal Coal Charts

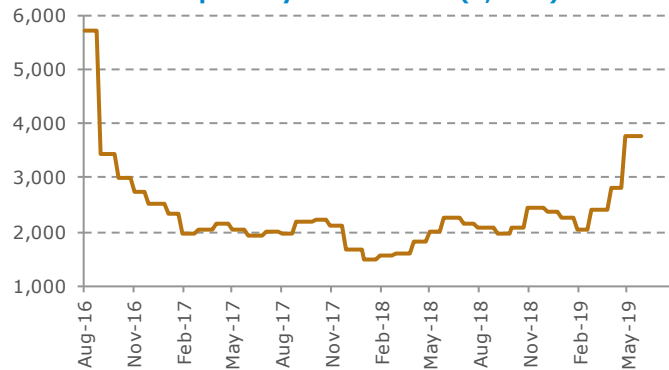
#### Hard Coal Production in Poland (1,000t)



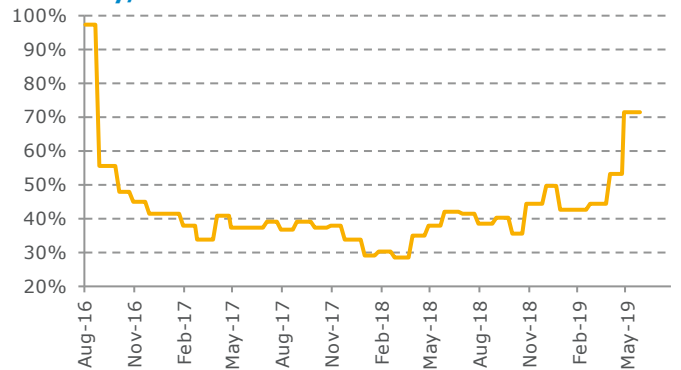
#### Poland Hard Coal Imports & Exports (1,000t)



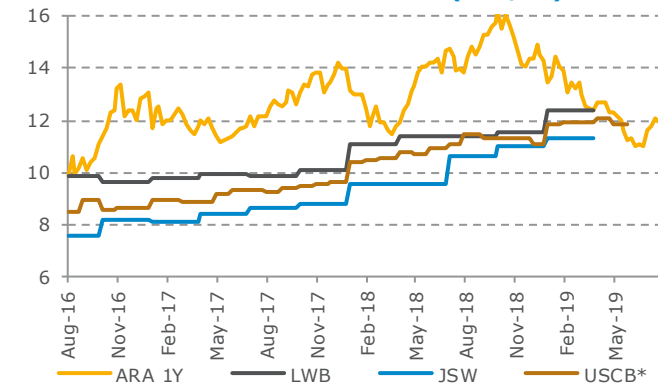
#### Hard Coal Stockpiled By Polish Mines (1,000t)



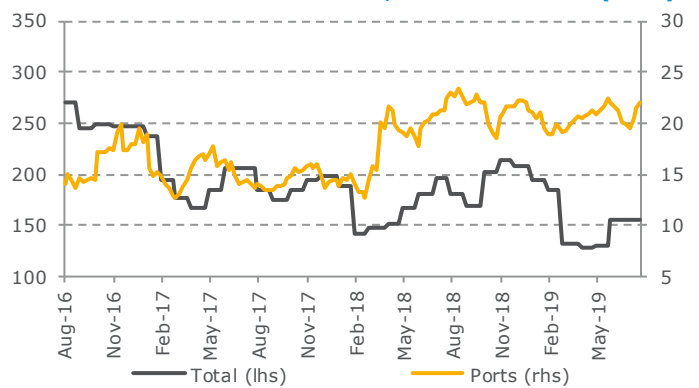
#### Inventory/ Production Ratio



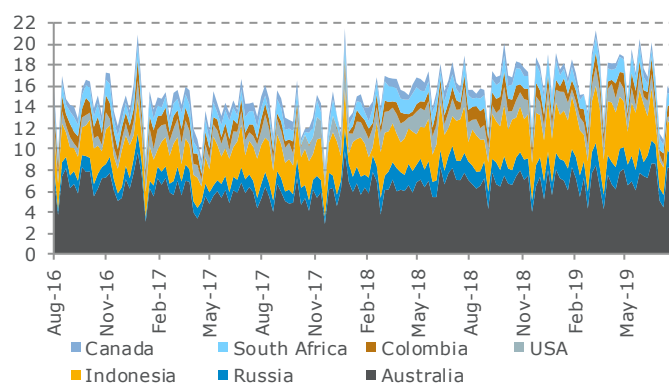
#### Thermal Coal Prices vs. Benchmarks (PLN/GJ)



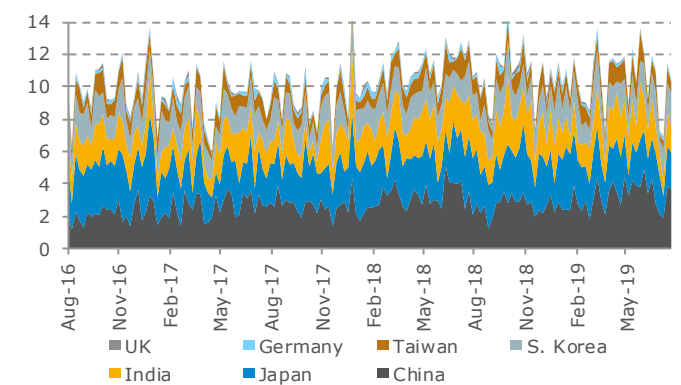
#### China Thermal Coal Inventories, Total & In Ports (mmt)



#### Thermal Coal Exports By Top Producing Countries (mmt)



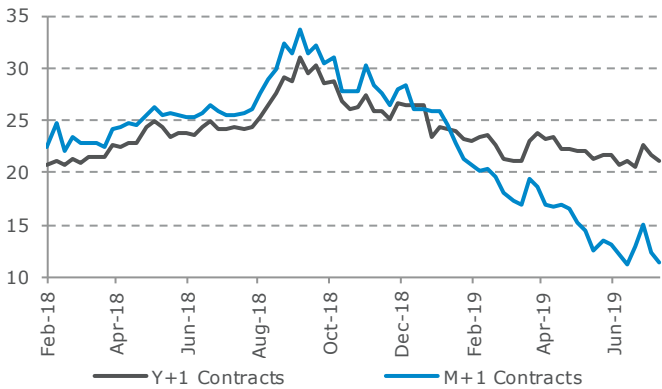
#### Thermal Coal Imports by Top Importers (mmt)



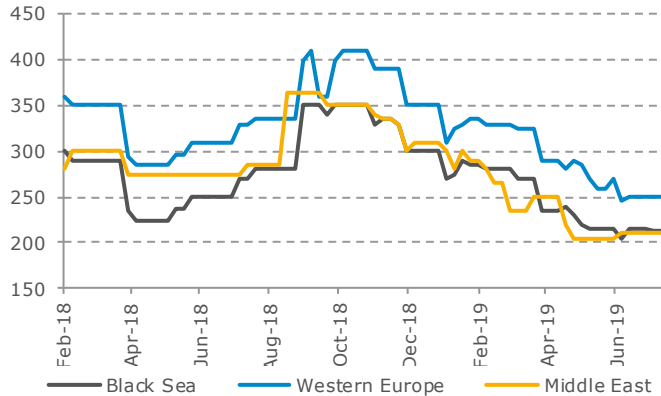
Source: Bloomberg, ARP, Eurostat, Dom Maklerski mBanku \*Upper Silesian Coal Basin

### Fertilizer Charts

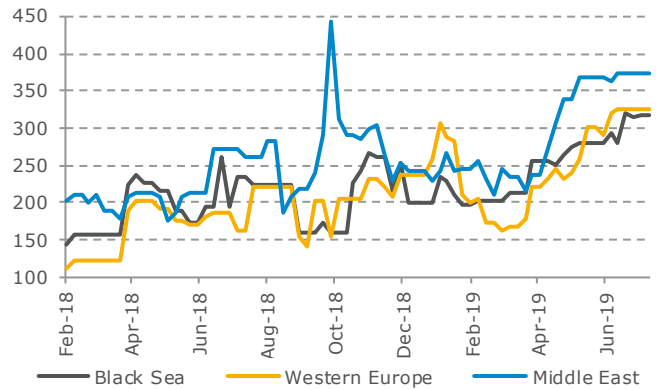
German NatGas Prices (US\$/MWh)



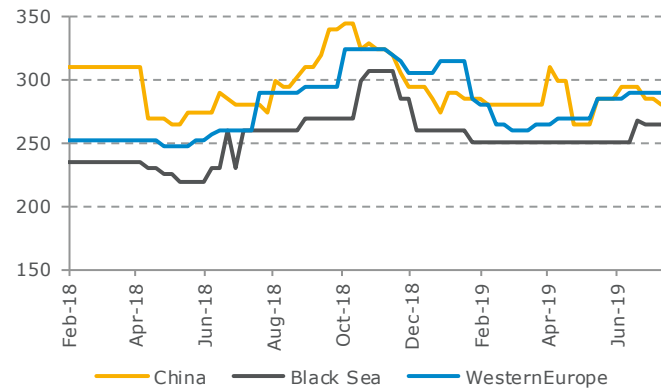
World Ammonia Prices (US\$/t)



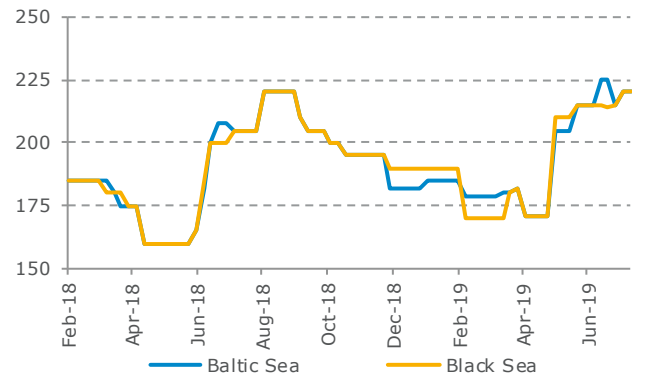
Urea-Ammonia Price Difference



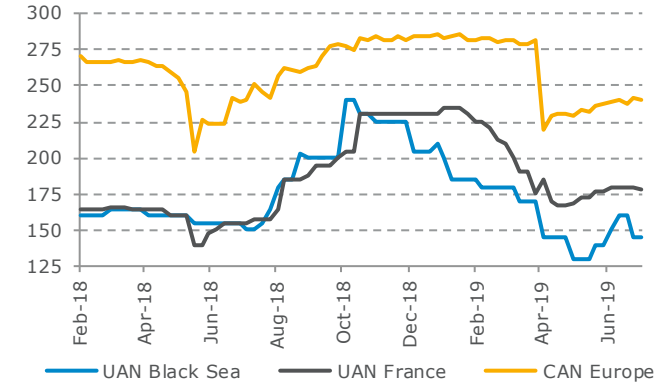
World Urea Prices (US\$/t)



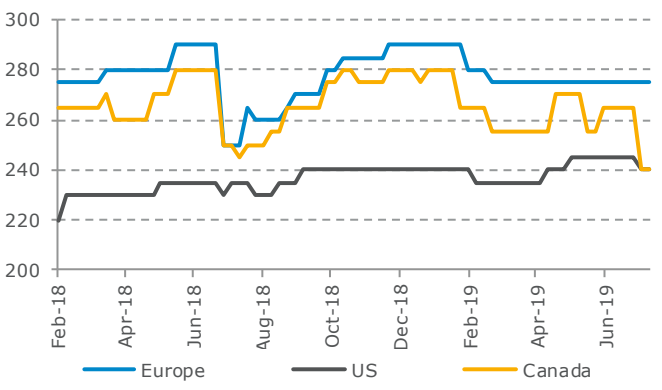
World Ammonium Nitrate Prices (US\$/t)



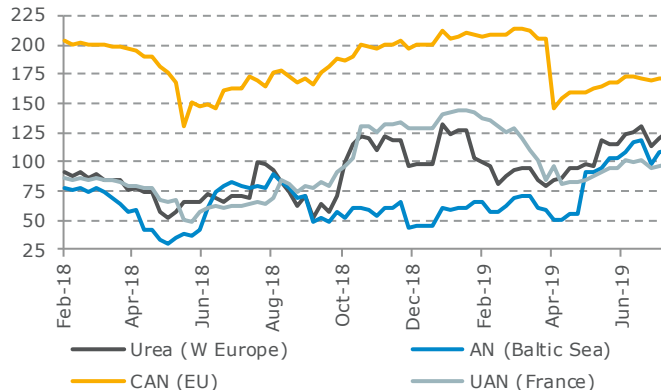
CAN & UAN prices (US\$/t)



World Ammonium Sulfate Prices (US\$/t)



Production Margins On Nitrogen Fertilizers (US\$/t)

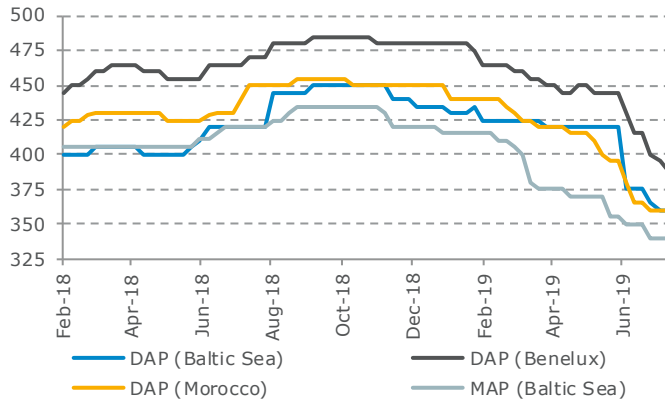


Source: Bloomberg, Dom Maklerski mBanku

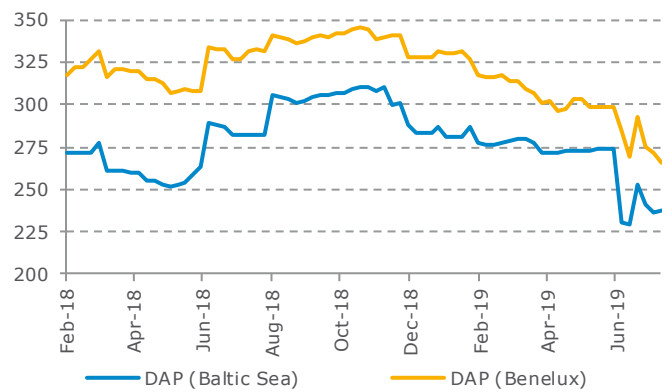


## Fertilizer Charts

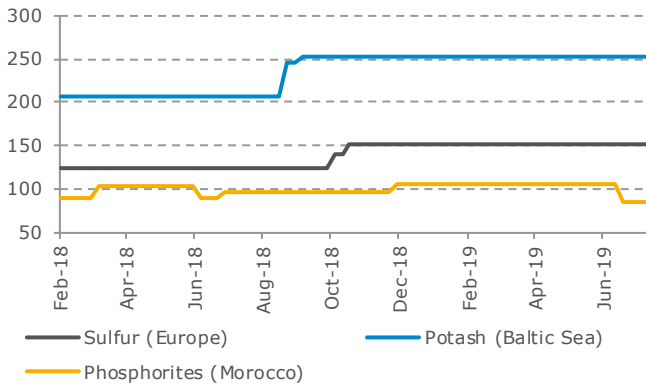
Prices of P & K Fertilizers (US\$/t)



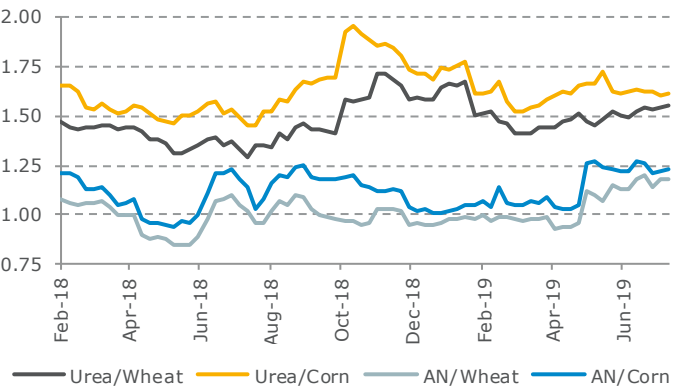
Production Margins on P & K Fertilizers (US\$/t)



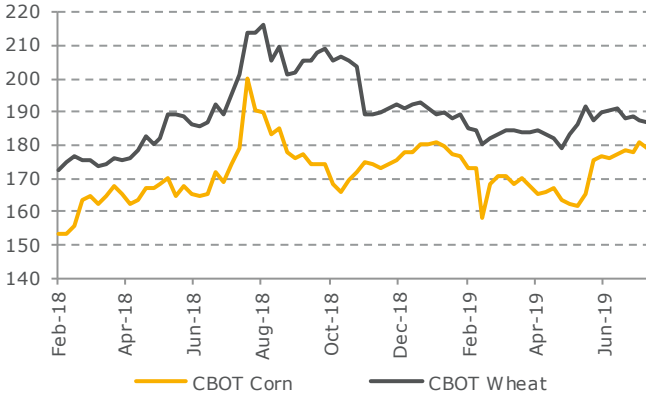
Prices of Sulfur, Potash & Phosphorites (US\$/t)



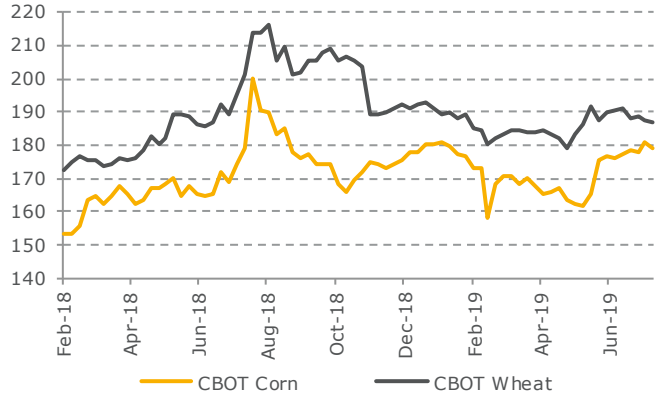
Fertilizer-to-Crop Price Ratios



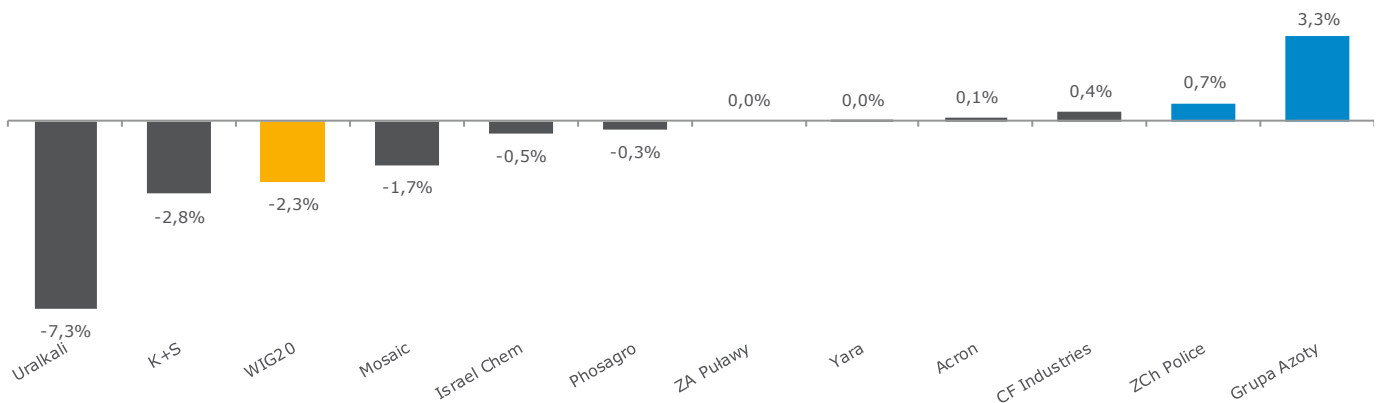
CBOT Open Positions In Corn and Wheat CBT



CBOT Corn and Wheat Prices (US\$/t)



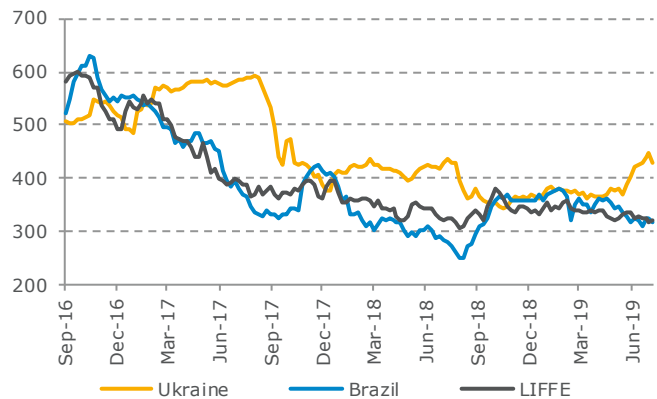
Weekly Returns of Fertilizer Stocks



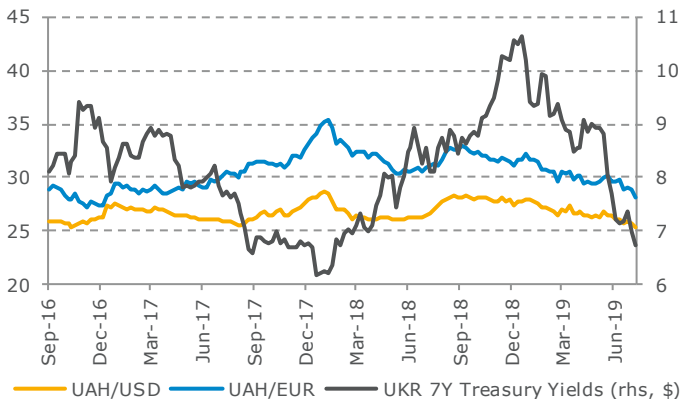
Source: Bloomberg, Dom Maklerski mBanku

### Agricultural Commodities

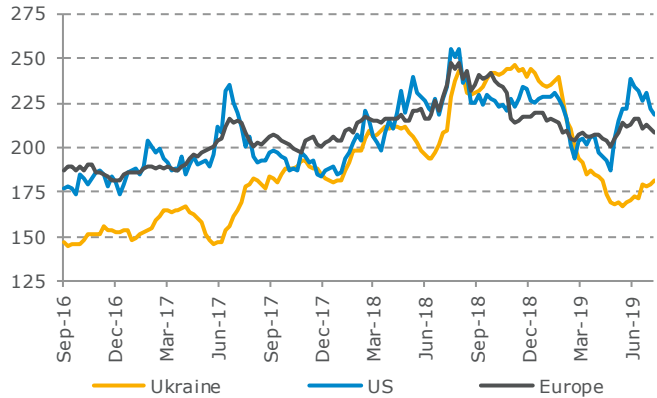
Sugar Prices (US\$/Mt)



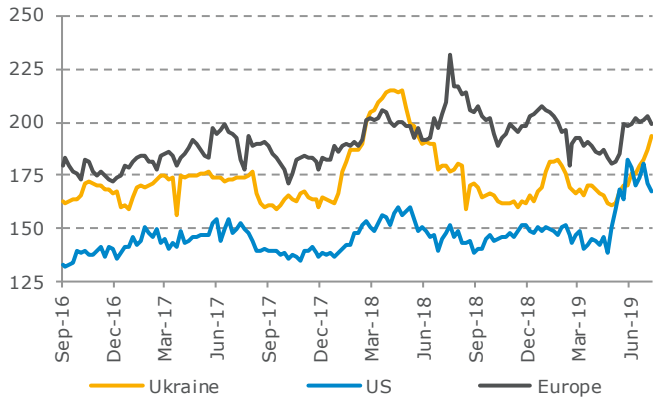
UAH Exchange Rates & Ukraine 7Y Treasury Yields



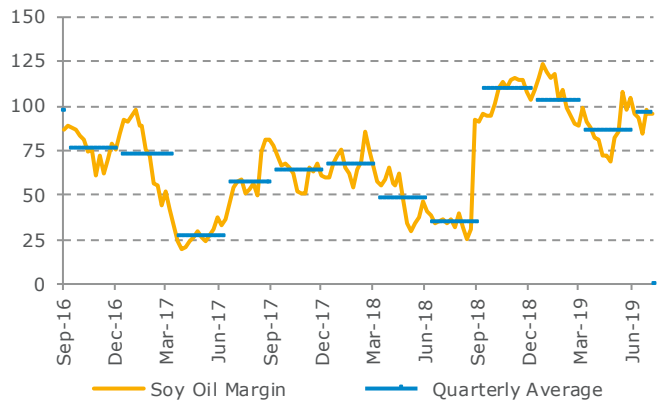
Wheat Prices (US\$/Mt)



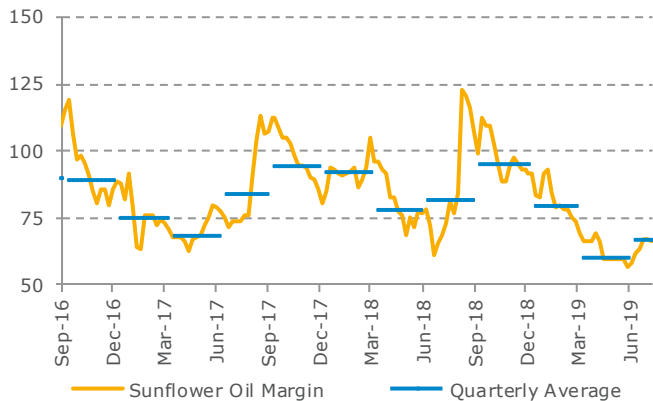
Corn Prices (US\$/Mt)



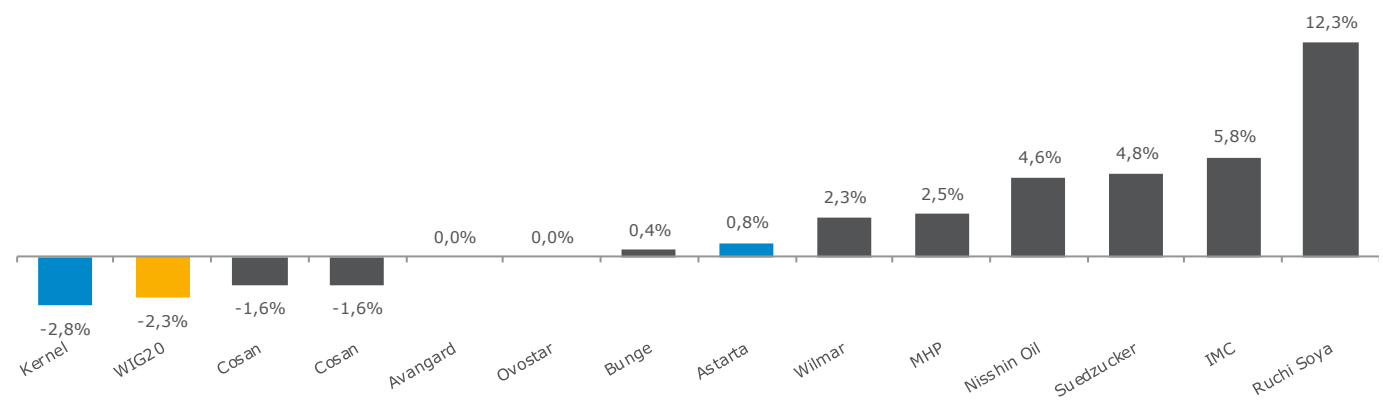
Model Margins on Soy Oil (US\$/Mt)



Model Margins on Sunflower Oil (US\$/Mt)



### Weekly Returns of Agricultural Stocks



Source: Bloomberg, Dom Maklerski mBanku



**Comparison of Utility Company Valuations**

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>UTILITIES</b>																
CEZ	524.0	7.5	6.9	6.8	2.1	1.9	1.8	15.6	13.6	13.7	29%	28%	27%	4.6%	5.8%	6.6%
Enea	8.3	3.2	3.0	2.7	0.6	0.6	0.6	3.1	2.9	2.3	20%	19%	22%	0.0%	0.0%	3.5%
Energa	7.4	3.9	4.2	4.4	0.7	0.7	0.8	4.2	4.7	4.6	18%	17%	18%	0.0%	0.0%	0.0%
PGE	8.9	3.4	3.5	2.6	0.7	0.6	0.6	5.4	6.1	4.2	21%	18%	22%	0.0%	4.6%	4.1%
Tauron	1.6	4.1	3.6	3.2	0.7	0.6	0.6	2.5	2.3	2.0	17%	17%	19%	0.0%	0.0%	0.0%
ZE PAK*	7.1	1.8	1.8	1.4	0.2	0.2	0.2	3.5	4.3	2.0	12%	12%	15%	11.3%	11.3%	17.0%
EDF	11.3	4.5	4.1	4.0	1.0	1.0	1.0	16.5	12.6	11.3	23%	24%	24%	2.9%	3.8%	4.1%
EDP	3.4	9.0	8.5	8.3	2.2	2.2	1.9	15.3	14.0	13.2	25%	25%	23%	5.6%	5.7%	5.9%
Endesa	22.6	8.0	7.8	7.7	1.4	1.4	1.3	15.7	15.4	14.9	18%	18%	18%	6.4%	6.5%	5.6%
Enel	6.2	7.6	7.3	7.0	1.7	1.7	1.6	13.3	12.3	11.6	22%	23%	23%	5.2%	5.7%	6.0%
EOAN	9.5	5.7	4.5	4.2	0.9	0.5	0.4	13.6	13.3	12.7	16%	11%	10%	4.9%	5.3%	5.6%
Fortum	21.2	14.4	13.1	12.5	4.4	4.2	4.1	15.8	14.3	13.0	30%	32%	33%	5.2%	5.2%	5.2%
Iberdola	8.6	9.4	8.8	8.3	2.5	2.4	2.3	16.5	15.4	14.5	27%	27%	28%	4.3%	4.6%	4.9%
National Grid	8.6	12.5	10.5	10.0	3.7	3.6	3.5	19.2	14.7	13.9	30%	34%	35%	5.4%	5.7%	5.9%
Red Electrica	17.2	9.5	9.7	9.8	7.4	7.6	7.5	13.0	13.8	14.1	78%	78%	77%	6.1%	6.0%	5.9%
RWE	24.4	12.7	6.4	5.7	1.5	1.2	1.2	24.0	14.0	10.4	12%	19%	21%	3.3%	3.9%	4.4%
SSE	11.1	9.3	9.9	9.2	0.8	1.3	1.3	8.0	12.3	10.7	9%	13%	14%	8.8%	7.2%	7.4%
Verbund	50.4	16.8	13.8	13.2	6.2	5.7	5.5	31.7	24.1	22.8	37%	41%	42%	1.4%	1.9%	2.2%
<b>Median</b>		<b>7.8</b>	<b>7.1</b>	<b>6.9</b>	<b>1.5</b>	<b>1.3</b>	<b>1.3</b>	<b>14.5</b>	<b>13.4</b>	<b>12.1</b>	<b>22%</b>	<b>21%</b>	<b>22%</b>	<b>4.7%</b>	<b>5.2%</b>	<b>5.4%</b>

**Comparison of Gas & Oil Company Valuations**

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>OIL REFINERS</b>																
Lotos	86.50	7.1	6.0	5.1	0.7	0.6	0.6	14.2	13.1	12.1	9%	10%	12%	3.5%	2.1%	2.3%
MOL	3024.00	4.9	4.1	3.8	0.6	0.6	0.6	15.0	9.7	8.8	13%	14%	15%	4.7%	5.0%	5.3%
PKN Orlen	96.66	6.1	6.2	5.6	0.5	0.4	0.4	11.5	12.9	11.9	7%	7%	7%	3.6%	3.1%	3.1%
Hellenic Petroleum	9.55	6.6	5.5	5.8	0.5	0.5	0.5	11.2	7.3	7.5	8%	9%	9%	5.6%	5.9%	5.9%
HollyFrontier	49.58	6.6	6.3	6.6	0.7	0.7	0.7	10.7	9.2	10.4	10%	11%	10%	2.7%	2.8%	2.8%
Marathon Petroleum	56.16	7.6	6.0	5.9	0.6	0.6	0.6	12.6	7.3	7.4	8%	10%	10%	3.8%	4.2%	4.7%
Motor Oil	22.72	5.3	4.8	5.2	0.3	0.3	0.3	8.3	7.3	8.0	6%	7%	7%	5.9%	6.2%	6.6%
Neste Oil	28.98	11.2	10.3	9.8	1.5	1.5	1.4	17.5	15.5	14.8	13%	15%	14%	3.0%	3.4%	3.6%
OMV	43.54	4.0	3.7	3.6	1.0	1.0	1.0	8.8	7.6	7.4	24%	26%	27%	4.3%	5.0%	5.3%
Phillips 66	102.81	8.3	7.0	7.4	0.6	0.5	0.5	13.0	9.8	10.5	7%	7%	7%	3.4%	3.6%	4.0%
Saras	1.45	3.7	2.3	3.2	0.1	0.1	0.1	12.4	4.8	8.2	4%	6%	4%	5.1%	9.5%	6.6%
Tesoro	153.50	8.1	7.0	8.2	0.7	0.7	-	12.3	9.6	14.1	9%	10%	-	1.7%	1.8%	1.6%
Tupras	136.60	6.8	4.8	4.5	0.4	0.4	0.4	10.8	5.9	5.4	7%	8%	8%	8.4%	14.3%	15.7%
Valero Energy	84.03	7.6	5.4	5.8	0.4	0.4	0.4	15.0	8.5	9.0	5%	7%	7%	4.3%	4.7%	4.9%
<b>Median</b>		<b>6.7</b>	<b>5.7</b>	<b>5.7</b>	<b>0.6</b>	<b>0.5</b>	<b>0.5</b>	<b>12.3</b>	<b>8.8</b>	<b>8.9</b>	<b>8%</b>	<b>10%</b>	<b>9%</b>	<b>4.1%</b>	<b>4.4%</b>	<b>4.8%</b>

**Comparison of Petrochemical Company Valuations**

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>PETROCHEMICALS</b>																
PKN Orlen	96.66	6.1	6.2	5.6	0.5	0.4	0.4	11.5	12.9	11.9	7%	7%	7%	3.6%	3.1%	3.1%
Axiall	67.30	7.8	6.4	6.2	1.4	1.3	1.3	15.7	10.3	10.2	18%	21%	21%	1.5%	1.6%	1.7%
Braskem	34.14	6.2	5.8	5.0	1.0	1.0	0.9	15.9	12.1	8.7	16%	17%	18%	4.3%	3.0%	4.2%
Eastman Chemical	77.04	7.9	7.5	7.3	1.8	1.7	1.7	9.9	8.9	8.0	22%	23%	23%	3.1%	3.3%	3.7%
Huntsman Corp	20.10	6.0	5.4	5.2	0.8	0.8	0.8	7.8	6.5	5.9	14%	15%	15%	3.3%	3.4%	3.6%
Lotte Chemicals	232,500	4.3	3.7	3.5	0.6	0.5	0.5	6.8	5.7	5.4	13%	15%	15%	4.4%	4.9%	4.9%
LyondellBasell	83.87	6.2	5.5	5.6	1.0	1.0	1.0	8.1	6.8	6.7	17%	18%	17%	5.1%	5.4%	5.6%
Mitsubishi Chemical	726.90	7.3	6.6	6.3	0.9	0.9	0.8	6.1	6.6	6.2	12%	13%	13%	5.5%	5.4%	5.5%
Mitsui Chemicals	2439.00	6.7	6.5	6.1	0.6	0.6	0.6	6.3	6.9	6.4	10%	10%	10%	4.1%	4.1%	4.3%
Westlake Chemical	67.30	7.8	6.4	6.2	1.4	1.3	1.3	15.7	10.3	10.2	18%	21%	21%	1.5%	1.6%	1.7%
<b>Median</b>		<b>6.5</b>	<b>6.3</b>	<b>5.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>9.0</b>	<b>7.9</b>	<b>7.3</b>	<b>15%</b>	<b>16%</b>	<b>16%</b>	<b>3.9%</b>	<b>3.4%</b>	<b>3.9%</b>

Source: Dom Maklerski mBanku for Polish companies, Bloomberg for foreign firms and companies marked with an asterisk

## Comparison of NatGas Company Valuations

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>GAS COMPANIES</b>																
PGNiG	5.40	4.6	3.8	3.5	0.9	0.8	0.7	10.8	8.4	7.7	19%	21%	20%	2.0%	3.7%	4.8%
A2A	1.61	7.3	6.7	6.5	1.3	1.3	1.2	15.9	13.2	13.2	18%	19%	19%	4.8%	5.0%	5.2%
BG Group	26.03	5.6	5.1	4.9	0.9	0.9	0.8	11.8	10.3	9.8	16%	17%	17%	5.9%	6.0%	6.1%
BP	5.27	4.9	4.6	4.5	0.7	0.7	0.7	12.1	10.5	10.0	14%	15%	15%	6.4%	6.5%	6.7%
Centrica	0.91	4.2	4.0	4.0	0.3	0.3	0.3	11.1	8.8	8.7	7%	8%	8%	7.5%	7.5%	7.3%
Enagas	19.72	10.7	10.4	11.2	8.6	8.6	9.1	11.1	10.3	11.1	80%	83%	81%	8.1%	8.3%	8.4%
Endesa	22.55	8.0	7.8	7.7	1.4	1.4	1.3	15.7	15.4	14.9	18%	18%	18%	6.4%	6.5%	5.6%
Engie	14.32	6.2	5.9	5.7	0.9	0.9	0.9	13.8	12.4	11.2	15%	16%	16%	5.4%	5.9%	6.3%
Eni	14.25	3.5	3.3	3.2	0.9	0.9	0.9	12.1	10.3	9.5	24%	26%	28%	6.0%	6.1%	6.3%
Equinor	158.00	2.8	2.5	2.3	1.0	0.9	0.9	10.7	9.1	8.5	36%	38%	39%	5.8%	6.1%	6.4%
Gas Natural SDG	23.13	9.1	8.8	8.6	1.6	1.6	1.6	16.5	15.3	14.3	17%	18%	18%	5.9%	6.2%	6.5%
Gazprom	236.73	3.8	3.8	3.5	1.1	1.1	1.0	3.7	3.9	3.6	28%	28%	29%	6.6%	7.3%	9.6%
Hera	3.43	7.7	7.5	7.3	1.3	1.2	1.2	16.6	16.8	16.7	17%	16%	16%	3.0%	3.2%	3.2%
NovaTek	212.20	12.9	12.5	13.6	4.8	4.6	4.2	5.1	7.7	6.3	37%	37%	31%	3.8%	4.5%	5.2%
ROMGAZ	32.50	4.8	4.3	4.0	2.2	2.0	1.9	9.7	8.6	7.9	45%	47%	48%	8.6%	9.7%	11.2%
Shell	28.54	5.6	5.2	5.0	0.9	0.9	0.9	11.8	10.3	9.8	16%	17%	17%	5.9%	6.0%	6.1%
Snam	4.56	12.4	12.1	11.8	10.0	9.8	9.6	14.6	14.3	13.7	81%	81%	81%	5.3%	5.5%	5.7%
Total	48.06	5.0	4.6	4.5	0.9	0.9	0.9	10.5	9.2	8.9	17%	19%	19%	5.5%	5.7%	5.8%
<b>Median</b>		<b>5.6</b>	<b>5.2</b>	<b>5.0</b>	<b>1.1</b>	<b>1.0</b>	<b>1.0</b>	<b>11.8</b>	<b>10.3</b>	<b>9.8</b>	<b>18%</b>	<b>19%</b>	<b>19%</b>	<b>5.9%</b>	<b>6.0%</b>	<b>6.2%</b>

## Comparison of E&amp;P Company Valuations

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>E&amp;P COMPANIES</b>																
MOL	3024.00	4.9	4.4	4.4	0.7	0.7	0.6	8.4	6.8	7.0	14%	15%	14%	4.3%	4.5%	4.9%
Bashneft	1877.50	1.9	1.8	1.7	0.5	0.5	0.4	2.9	2.8	2.4	24%	26%	25%	13.2%	11.7%	12.6%
BP	5.27	4.9	4.6	4.5	0.7	0.7	0.7	12.1	10.5	10.0	14%	15%	15%	6.4%	6.5%	6.7%
Dana Gas	1.04	8.6	8.4	6.2	5.0	4.9	4.0	31.5	22.6	13.5	58%	58%	64%	5.5%	5.5%	6.0%
Eni	14.25	3.5	3.3	3.2	0.9	0.9	0.9	12.1	10.3	9.5	24%	26%	28%	6.0%	6.1%	6.3%
Equinor	158.00	2.8	2.5	2.3	1.0	0.9	0.9	10.7	9.1	8.5	36%	38%	39%	5.8%	6.1%	6.4%
Gazprom Neft	415.15	4.2	4.3	4.0	1.0	1.0	1.0	4.8	5.0	4.8	25%	24%	25%	7.9%	8.4%	9.1%
Gulf Keystone	2.31	3.3	2.0	1.6	1.9	1.3	1.1	11.2	5.6	4.1	59%	67%	67%	7.8%	5.7%	7.4%
Lukoil	5094.50	3.5	3.4	3.3	0.5	0.5	0.5	5.9	5.6	5.5	15%	16%	16%	5.2%	5.5%	6.0%
Occidental Petroleum	50.91	5.6	4.4	4.2	3.0	2.9	2.2	14.6	16.7	14.7	54%	65%	52%	6.1%	6.3%	6.4%
Repsol	14.57	4.7	4.2	4.2	0.7	0.7	0.7	9.0	7.5	7.6	15%	16%	16%	6.6%	6.9%	7.0%
Rosneft Oil	421.90	4.0	3.8	3.5	1.0	0.9	0.9	6.6	5.2	4.9	24%	25%	25%	6.6%	8.8%	10.1%
Shell	28.54	5.6	5.2	5.0	0.9	0.9	0.9	11.8	10.3	9.8	16%	17%	17%	5.9%	6.0%	6.1%
Surgutneftegas	31.80	-	-	-	-	-	-	4.3	3.4	3.5	-	-	-	12.3%	8.4%	7.9%
Total	48.06	5.0	4.6	4.5	0.9	0.9	0.9	10.5	9.2	8.9	17%	19%	19%	5.5%	5.7%	5.8%
Tullow Oil	1.88	4.9	4.8	4.8	3.7	3.5	3.5	11.0	9.7	9.1	75%	72%	73%	3.3%	3.3%	3.6%
<b>Median</b>		<b>4.7</b>	<b>4.3</b>	<b>4.2</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>10.6</b>	<b>8.3</b>	<b>8.1</b>	<b>24%</b>	<b>25%</b>	<b>25%</b>	<b>6.1%</b>	<b>6.1%</b>	<b>6.4%</b>

## Comparison of Mining Company Valuations

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>MINING COMPANIES</b>																
JSW	41.24	1.0	1.8	2.3	0.2	0.3	0.4	4.6	12.1	28.4	23%	17%	15%	4.1%	4.3%	4.1%
KGHM	96.58	4.6	4.5	4.0	1.1	1.0	0.9	10.4	10.0	9.7	23%	22%	23%	0.0%	1.6%	3.3%
LW Bogdanka*	36.50	1.5	1.6	1.6	0.5	0.5	0.5	4.9	5.7	6.4	35%	33%	31%	3.6%	6.1%	6.2%
Anglo American	21.13	4.1	4.3	4.7	1.5	1.5	1.5	8.4	9.2	10.2	36%	35%	32%	4.8%	4.6%	4.6%
Antofagasta	9.42	5.6	5.3	4.9	2.7	2.7	2.6	18.3	17.9	15.6	49%	52%	54%	2.9%	2.8%	3.3%
BHP Group	19.94	6.5	5.6	6.3	3.5	3.1	3.3	13.3	10.6	12.4	53%	56%	53%	8.7%	6.9%	5.9%
Freeport-McMoRan	11.61	11.2	7.5	4.8	2.2	2.1	1.8	70.4	16.9	7.7	20%	28%	37%	1.7%	2.7%	2.9%
Glencore	2.75	5.8	5.1	4.9	0.4	0.4	0.3	12.0	9.7	8.5	6%	7%	7%	5.7%	6.0%	6.5%
Grupo Mexico	46.92	5.4	4.9	4.5	2.5	2.3	2.1	10.1	9.0	8.6	46%	47%	48%	5.5%	6.1%	7.5%
Kazakhmys	5.80	4.6	4.4	4.2	2.4	2.3	2.2	6.9	6.3	5.8	53%	53%	53%	1.4%	1.6%	1.9%
Rio Tinto	46.82	4.6	5.0	5.6	2.4	2.5	2.6	8.4	9.4	11.4	51%	49%	47%	7.5%	6.5%	5.3%
Southern CC	37.25	9.5	8.5	8.5	4.8	4.4	4.2	17.2	14.9	15.2	50%	52%	50%	3.8%	4.3%	4.0%
<b>Median</b>		<b>5.0</b>	<b>4.9</b>	<b>4.7</b>	<b>2.3</b>	<b>2.2</b>	<b>1.9</b>	<b>10.3</b>	<b>9.9</b>	<b>10.0</b>	<b>41%</b>	<b>41%</b>	<b>42%</b>	<b>4.0%</b>	<b>4.5%</b>	<b>4.4%</b>
<b>ALUMINUM PRODUCERS</b>																
Grupa Kęty	338.00	9.0	8.6	8.5	1.4	1.3	1.3	13.1	12.4	12.0	16%	15%	15%	7.1%	6.1%	6.9%
Alcoa	23.12	4.1	3.8	3.6	0.7	0.7	0.6	-	14.6	12.5	16%	17%	17%	-	0.1%	0.2%
Constellium	12.89	6.7	6.1	5.6	0.6	0.6	0.6	14.7	9.3	7.4	9%	10%	11%	-	-	-
Kaiser Aluminum	96.45	8.1	7.5	7.3	1.1	1.1	1.1	13.9	12.3	11.1	14%	15%	14%	2.5%	2.5%	2.6%
Norsk Hydro	31.73	7.1	4.9	4.5	0.6	0.5	0.5	28.4	12.0	10.0	8%	11%	11%	3.9%	4.4%	4.9%
Rusal	3.57	10.1	8.5	7.7	1.4	1.4	1.3	5.3	4.4	4.0	14%	16%	17%	2.3%	4.2%	5.0%
<b>Median</b>		<b>7.6</b>	<b>6.8</b>	<b>6.4</b>	<b>0.9</b>	<b>0.9</b>	<b>0.8</b>	<b>13.9</b>	<b>12.1</b>	<b>10.6</b>	<b>14%</b>	<b>15%</b>	<b>15%</b>	<b>3.2%</b>	<b>4.2%</b>	<b>4.9%</b>

Source: Dom Maklerski mBanku for Polish companies, Bloomberg for foreign firms and companies marked with an asterisk

**Comparison of Fertilizer Company Valuations**

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>FERTILIZER PRODUCERS</b>																
Grupa Azoty	45.70	5.0	7.9	9.0	0.6	0.7	0.8	8.2	20.8	20.9	13%	9%	9%	0.0%	0.0%	1.4%
ZA Police*	14.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acron	4656.00	8.0	7.4	7.2	2.6	2.4	2.3	9.5	8.9	8.5	33%	33%	32%	7.1%	7.2%	7.5%
CF Industries	47.52	10.5	9.3	8.8	3.8	3.6	3.5	24.3	17.6	14.6	36%	39%	40%	2.5%	2.6%	2.6%
Israel Chemicals	18.20	7.8	7.4	7.3	1.7	1.6	1.5	13.1	12.0	11.5	21%	21%	21%	3.8%	4.1%	4.2%
K+S	14.63	7.5	6.6	6.1	1.4	1.4	1.3	12.5	9.5	8.1	19%	21%	22%	2.9%	4.1%	4.8%
Phosagro	2366.00	5.8	5.4	5.1	1.8	1.7	1.6	10.6	10.8	8.7	31%	32%	32%	4.8%	5.1%	6.0%
The Mosaic Company	23.84	7.1	6.1	5.7	1.4	1.4	1.3	15.3	10.5	9.0	20%	23%	23%	0.8%	0.9%	1.2%
Yara International	415.00	8.0	6.9	6.5	1.3	1.2	1.2	14.6	11.8	10.8	16%	17%	18%	2.8%	4.3%	4.8%
<b>Median</b>		<b>7.7</b>	<b>7.2</b>	<b>6.8</b>	<b>1.6</b>	<b>1.5</b>	<b>1.4</b>	<b>12.8</b>	<b>11.3</b>	<b>9.9</b>	<b>21%</b>	<b>22%</b>	<b>23%</b>	<b>2.9%</b>	<b>4.1%</b>	<b>4.5%</b>

**Comparison of Agricultural Company Valuations**

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>AGRI PRODUCERS</b>																
Astarta*	23.90	6.1	5.1	4.0	1.1	0.9	0.8	-	12.7	12.7	18%	19%	21%	-	-	-
Kemel	48.60	5.7	4.9	4.1	0.6	0.4	0.4	5.7	5.5	4.6	10%	9%	9%	1.9%	7.4%	9.5%
Agrana Beteiligungs	17.48	10.7	8.8	7.7	0.7	0.6	0.6	42.6	19.4	14.0	6%	7%	8%	5.7%	5.7%	5.7%
Bunge Limited	56.58	10.0	9.2	8.6	0.3	0.3	0.3	19.9	14.6	12.6	3%	4%	4%	3.6%	3.9%	4.3%
Cosan	49.30	5.2	4.7	4.5	0.4	0.4	0.4	13.0	11.0	10.6	8%	9%	9%	2.0%	4.6%	3.9%
MHP	10.25	5.4	5.0	4.4	1.4	1.3	1.4	6.0	4.5	4.2	26%	26%	31%	7.3%	7.3%	7.3%
Nisshin Oillio	3200.00	7.6	8.0	7.5	0.4	0.4	0.4	12.1	14.8	13.8	6%	6%	6%	2.5%	2.5%	2.5%
Suedzucker	14.16	-	11.9	7.0	0.8	0.8	0.7	-	-	14.6	-	6%	10%	1.4%	1.4%	2.1%
Wilmar Int.	4.01	14.3	13.2	12.6	0.8	0.8	0.7	14.5	13.2	12.5	6%	6%	6%	2.8%	2.9%	3.1%
<b>Median</b>		<b>6.9</b>	<b>8.0</b>	<b>7.0</b>	<b>0.7</b>	<b>0.6</b>	<b>0.6</b>	<b>13.0</b>	<b>12.9</b>	<b>12.6</b>	<b>7%</b>	<b>7%</b>	<b>9%</b>	<b>2.6%</b>	<b>4.2%</b>	<b>4.1%</b>

Source: Dom Maklerski mBanku for Polish companies, Bloomberg for foreign firms and companies marked with an asterisk

**List of abbreviations and ratios contained in the report:**

**EV** – net debt + market value (EV – economic value)  
**EBIT** – Earnings Before Interest and Taxes  
**EBITDA** – EBIT + Depreciation and Amortisation  
**PBA** – Profit on Banking Activity  
**P/CE** – price to earnings with amortisation  
**MC/S** – market capitalisation to sales  
**EBIT/EV** – operating profit to economic value  
**P/E** – (Price/Earnings) – price divided by annual net profit per share  
**ROE** – (Return on Equity) – annual net profit divided by average equity  
**P/BV** – (Price/Book Value) – price divided by book value per share  
**Net debt** – credits + debt papers + interest bearing loans – cash and cash equivalents  
**EBITDA margin** – EBITDA/Sales

**OVERWEIGHT (OW)** – a rating which indicates that we expect a stock to outperform the broad market  
**NEUTRAL (N)** – a rating which indicates that we expect the stock to perform in line with the broad market  
**UNDERWEIGHT (UW)** – a rating which indicates that we expect the stock to underperform the broad market

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**BUY** – we expect that the rate of return from an investment will be at least 15%  
**ACCUMULATE** – we expect that the rate of return from an investment will range from 5% to 15%  
**HOLD** – we expect that the rate of return from an investment will range from -5% to +5%  
**REDUCE** – we expect that the rate of return from an investment will range from -5% to -15%  
**SELL** – we expect that an investment will bear a loss greater than 15%  
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**Economic profits** – discounting of future economic profits; the weak point is high sensitivity to changes in the assumptions made in the valuation model.

**Discounted Dividends (DDM)** – discounting of future dividends; the weak point is high sensitivity to changes in the assumptions as to future dividends made in the valuation model.

**NAV** – valuation based on equity value, one of the most frequently used method in case of developing companies; the weak point of the method is that it does not factor in future changes in revenue/profits of a company.

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