

Tuesday, February 04, 2020 | weekly publication

## Tuesday Espresso

### Weekly Commodity Roundup

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#### Utilities

Power prices in Germany keep sliding, with the year-ahead contract down by about 2 euro to ca. EUR 40, driven by falling carbon allowances (-1 euro at EUR 23/t) and coal (-5% w/w). Nevertheless sentiment towards the sector remains positive, as reflected in 9% gains so far this year in the utilities index. In Poland, power for 2021 delivery has edged 4 zloty lower to PLN 246/MWh, tracing the declines in EUAs, but this has not affected much the clean-dark spread for a vertically integrated power plant. It is worth noting at the current price levels the cross-border spread between Polish coal and 1Y FWD ARA makes imports borderline unprofitable at PLN 3 PLN/GJ.

#### Gas & Oil

After holding at \$2/bbl for most of the week, the benchmark refining margin rebounded over \$4 yesterday after a sharp downward shift in crude oil (-\$3). We see this as a temporary improvement amid persistent oversupply pressures while demand remains weak (warm temperatures, the coronavirus, JET). The Urals/Brent differential has declined to \$1/bbl. Conditions in petrochemicals have not changed much in the last seven days. The gas market also remains subdued, with capacity utilization at EU gas storages at 71% vs. 51% this time last year. As we watch the coronavirus situation unfold, we thought it would be interesting to point out that China accounts for 14% of global oil consumption and 7% of the total gas use against respective shares of 4% each in total supply.

#### Soda Ash

Prices of soda ash agreed in contracts for 2020 deliveries have increased by several percent according to market insiders. In addition, Solvay-based producers are capitalizing on low prices of coking coal and natural gas—all trends which are benefitting Ciech.

#### Metals

Temporary production stoppages in China in the wake of the coronavirus outbreak are raising concerns over global metals demand in Q1 2020. Copper is set to take the biggest hit in our view considering that China accounts for 50% of its global consumption against a 9% share in supply—a disparity which is likely to cause a temporary buildup in world copper stocks, with implications for prices. In fact, the monitored reserves have already started to rise. A similar asymmetry between China's demand/supply proportions also affects aluminum (67% vs. 54%) and zinc (45% vs. 34%).

#### Agricultural Commodities

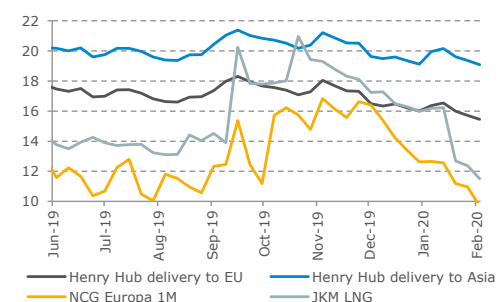
As prices of natural gas fall, this is driving the margins of nitrogen fertilizer producers like Grupa Azoty. In addition, we are seeing a recovery in prices of DAP. Reports of potash capacity closures indicate a chance for an upward shift in prices of multi-nutrient fertilizers.

Global sugar markets continue to move upward, reaching their highest levels since 2017, fueled by concerns over reduced supply from India and Brazil, compounded by predictions of a global shortage in 2020 (this is positive for Astarta, SuedZucker).

#### Coking Coal

China's steel reserves remain high due to curbed domestic manufacturing and construction activity, and demand concerns are putting downward pressure on the prices of iron ore and, to a lesser extent, metallurgical coal. China is responsible for 60% of global met coal consumption, but accounts for only 45% of the total supply. There is fear that reduced orders will cause a build-up in coal stocks, for example in Australia.

#### Chart of the Week



#### EU offers cheapest gas in the world

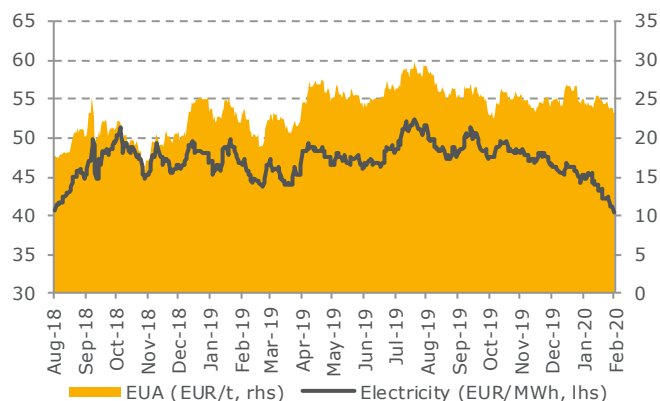
Prices of gas for next month's delivery in EU markets have plunged below EUR 10/MWh, making them noticeably cheaper than the US counterparts, trading at EUR 15/MWh. This shows that the persistent downward price push experienced in the EU does not come from imports, but, rather, is a consequence of the huge local glut caused by an unseasonably warm winter.

#### 1-Week & YTD Performance

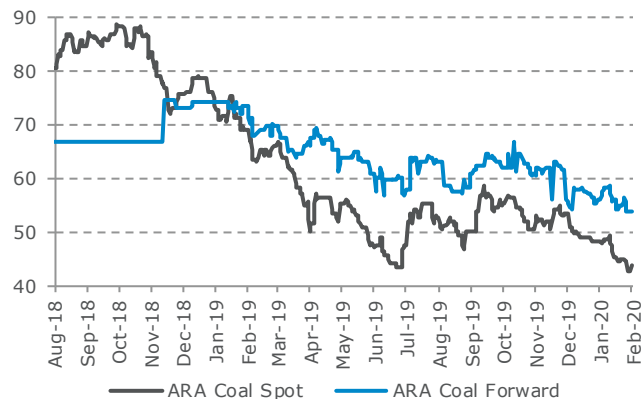
Company	1W	YTD
PKN Orlen	-11.6%	-15%
Lotos	-10.9%	-11%
LW Bogdanka	-9.9%	-14%
PGNiG	-7.8%	-18%
PGE	-6.0%	-16%
Grupa Azoty	-4.7%	-14%
OMV	-4.3%	-12%
Energa	-4.2%	+1%
Boryszew	-4.0%	+4%
MOL	-3.5%	-13%
IMC	-3.4%	+2%
Tupras	-3.2%	-12%
ZE PAK	-2.9%	-4%
CEZ	-2.5%	-1%
Kernel	-2.5%	+4%
Tauron	-2.2%	-10%
Astarta	-2.1%	+3%
Enea	-1.6%	-9%
ZCh Police	-1.0%	-3%
Orzeł Biały	-0.9%	+1%
KGHM	-0.6%	-3%
PCC Rokita	+0.0%	+4%
Kruszwica	+2.3%	+11%
JSW	+2.7%	-8%
ZA Puławy	+2.9%	+3%
Ciech	+3.5%	+1%
Alumetal	+4.7%	+11%
Tarczyński	+5.4%	-3%
Kęty	+6.1%	+6%
WIG Indices	1W	YTD
WIG	-0.5%	-2%
Chemicals	-1.0%	-7%
Energy	-3.9%	-10%
Oil & Gas	-10.6%	-15%
Food Industry	-0.6%	+5%
Basic Material	-0.6%	-4%
Ukraine	-0.1%	+5%
Sector Indices	1W	YTD
Mining	-1.8%	-8%
Oil & Gas E&P	-5.0%	-12%
Refining EU	-5.6%	-9%
Refining US	-5.1%	-16%
Agri & Food	-0.7%	+2%
Rubber	-2.2%	-10%
Fertilizers	+2.0%	-8%
Chemicals EU	+0.8%	-4%
Industrials EU	-0.6%	-0%
Petchem World	-3.5%	-10%
Utilities EU	+0.9%	+9%
Utilities US	+1.5%	+7%

## Utilities

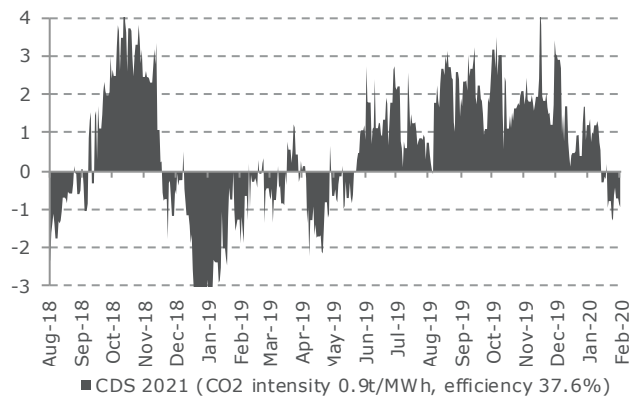
**EU Prices of Electricity (EUR/MWh) & EUAs (EUR/t)**



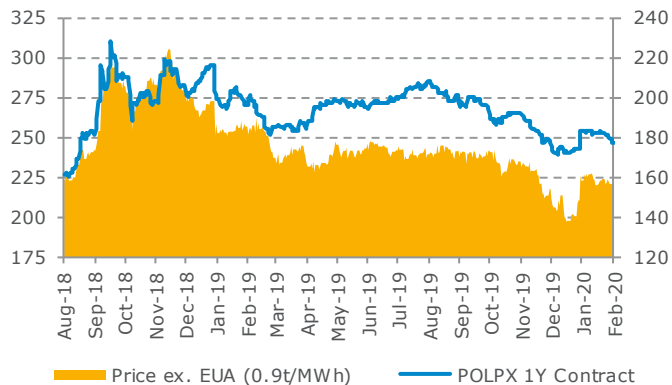
**ARA Coal Spot and Forward Prices (EUR/t)**



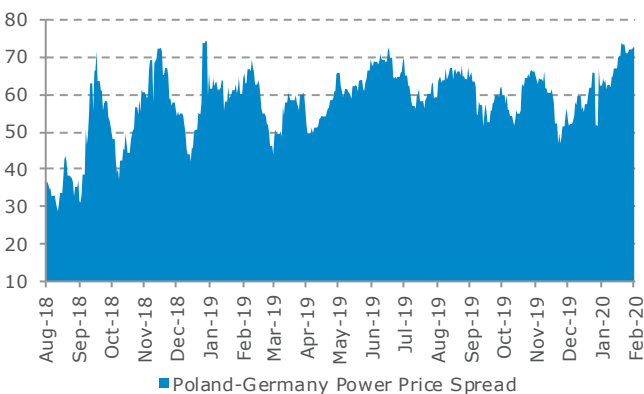
**Clean-Dark Spread, Germany (EUR/MWh)**



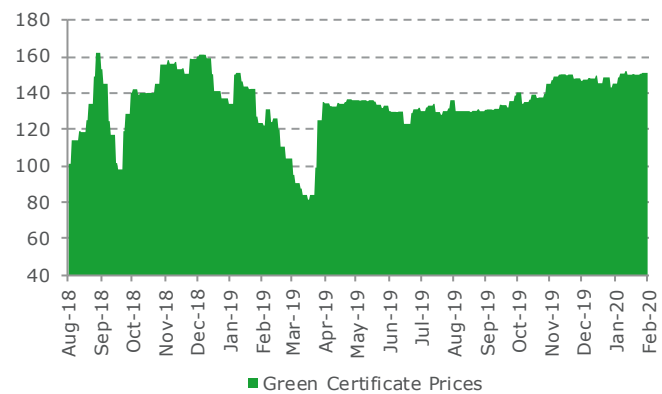
**Polish Electricity Prices (1Y) (PLN/MWh)**



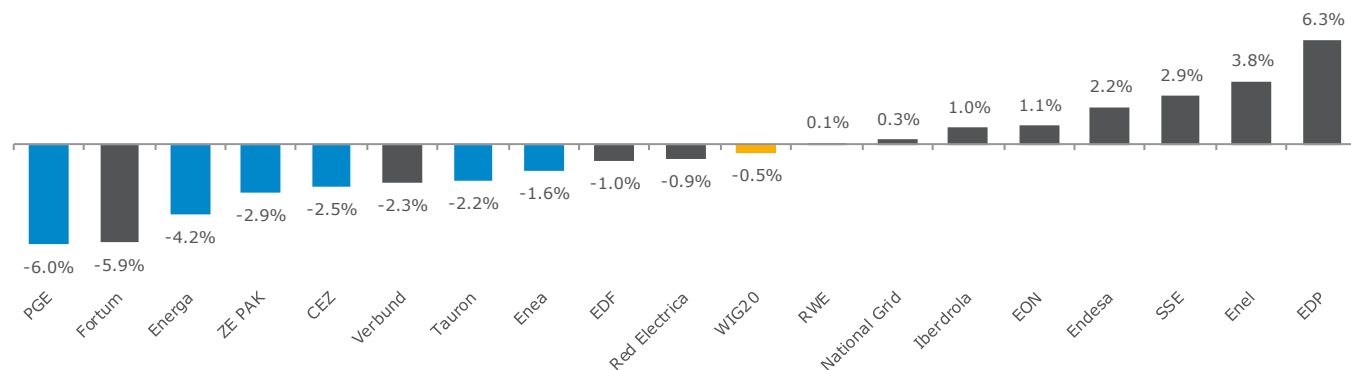
**Poland-Germany Power Price Spread (PLN/MWh)**



**Polish Green Certificate Prices (PLN/MWh)**



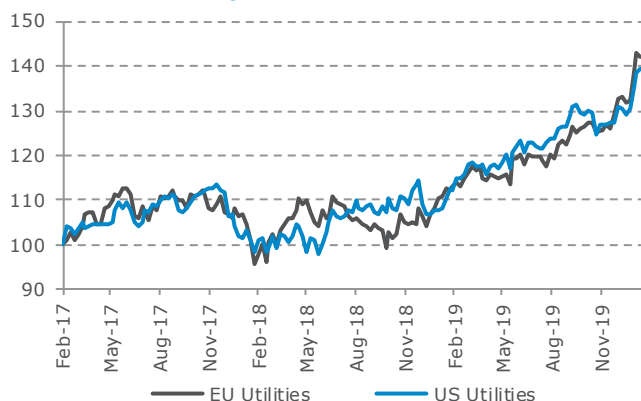
## Weekly Returns of Utility Stocks



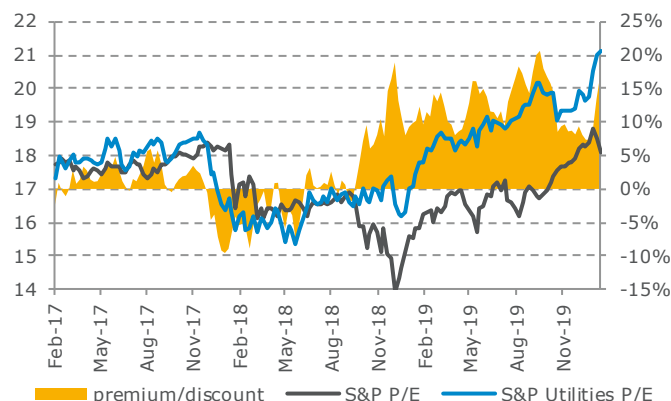
Source: Bloomberg, mBank

## Utilities

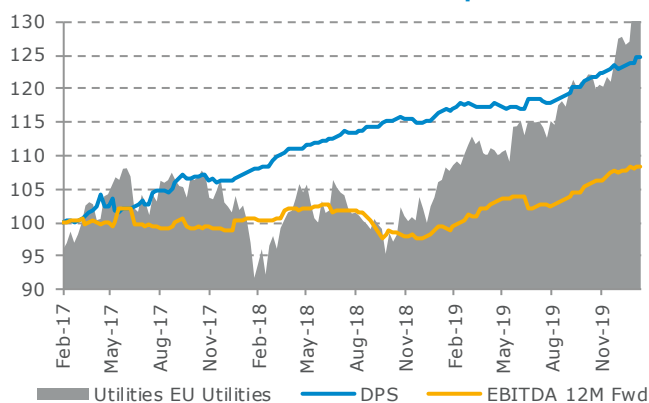
### MSCI Utilities Europe vs. S&P Utilities



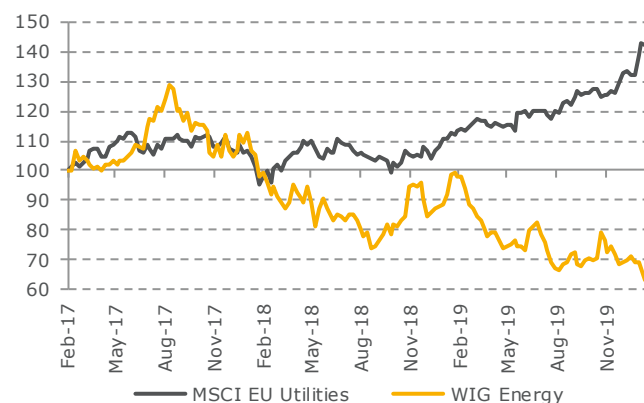
### S&P Utilities vs. S&P 500 P/E



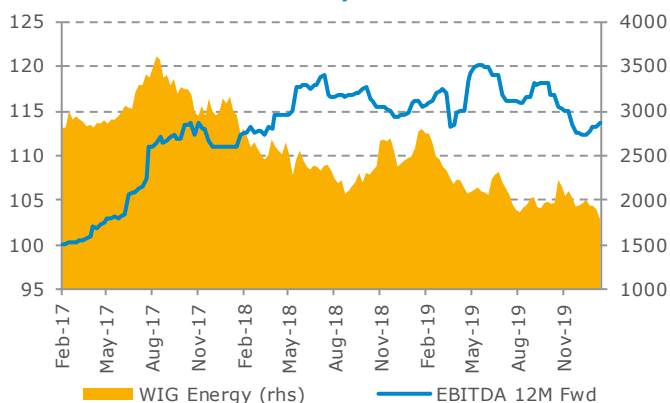
### MSCI Utilities EU vs. DPS & EBITDA Expectations



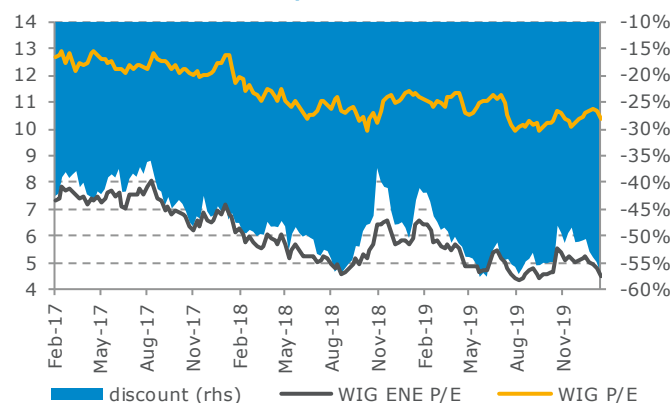
### MSCI Utilities EU vs. WIG-ENERGY



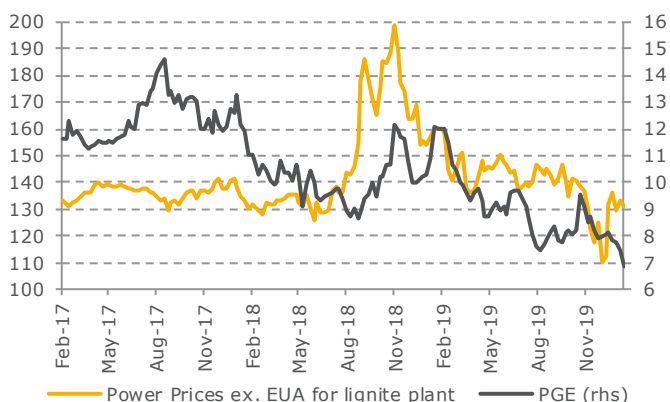
### WIG-ENERGY vs. EBITDA Expectations



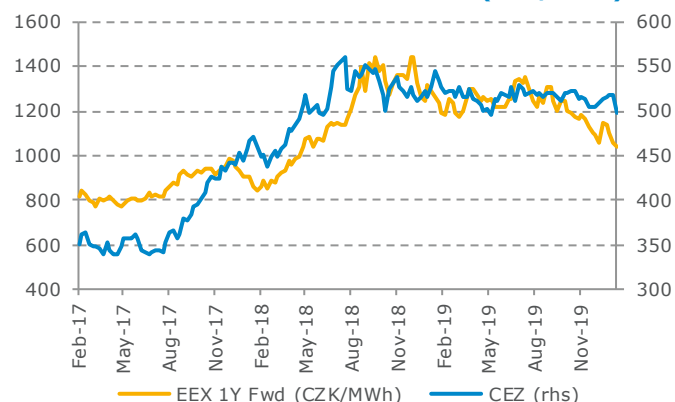
### WIG-ENERGY vs. WIG P/E



### PGE Performance vs. Power Prices ex. EUA



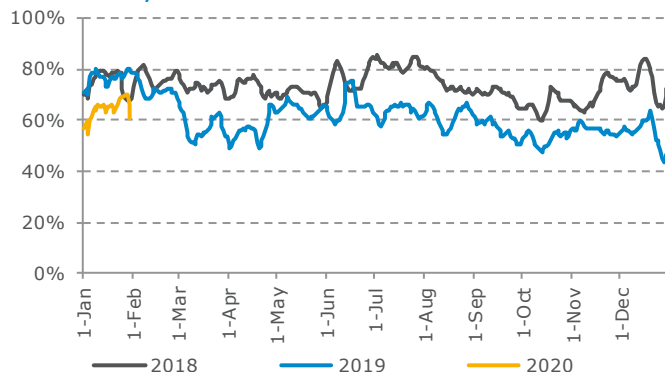
### CEZ Performance vs. EEX Power Prices (CZK/MWh)



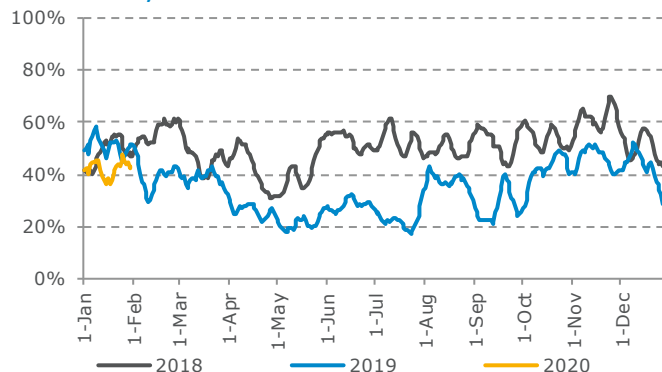
Source: Bloomberg, mBank

## Utilities

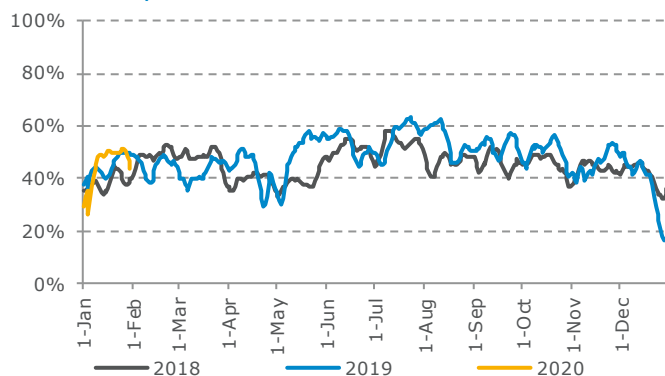
**Load Factor, Bełchatów Power Station**



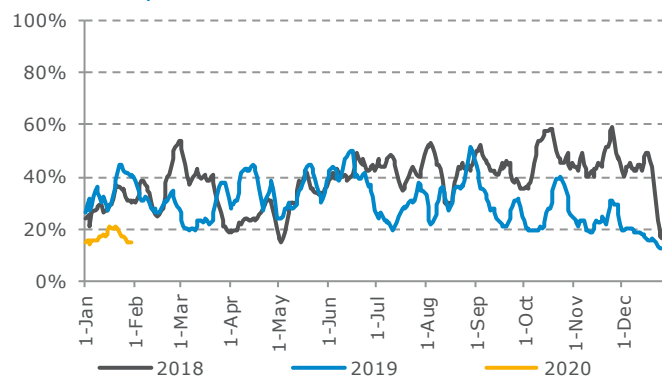
**Load Factor, Turów Power Station**



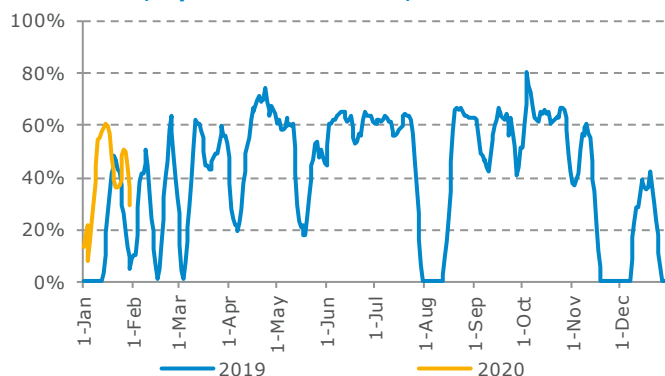
**Load Factor, Kozienice Power Station**



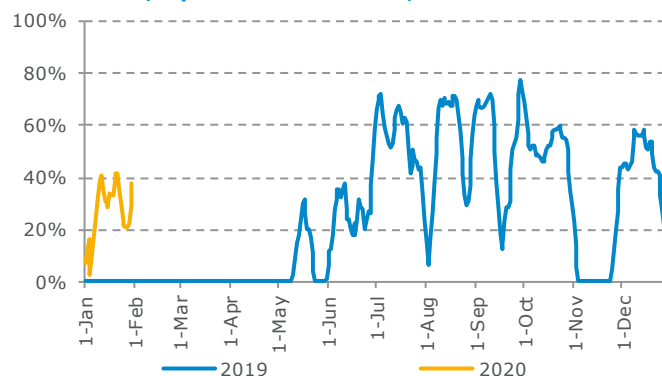
**Load Factor, Jaworzno Power Station**



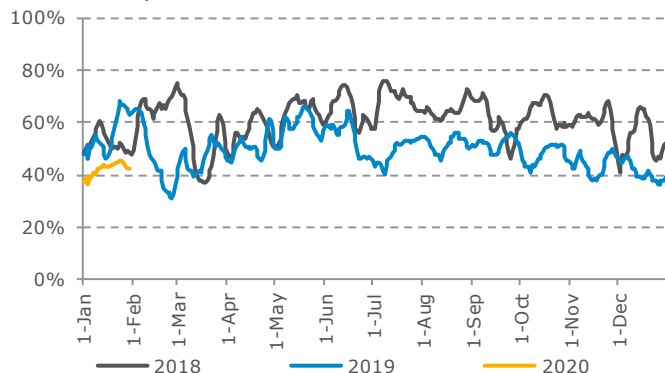
**Load Factor, Opole Power Station, Block B5**



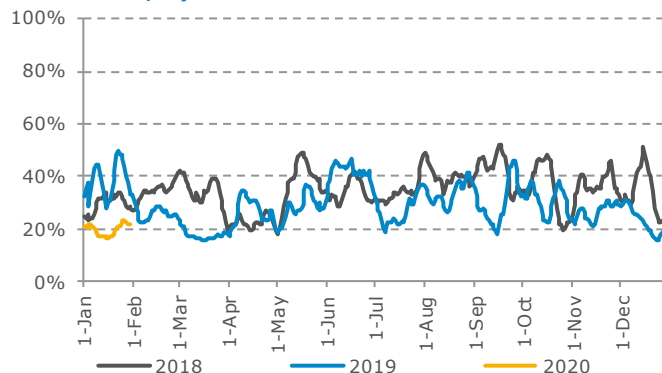
**Load Factor, Opole Power Station, Block B6**



**Load Factor, Połaniec Power Station**



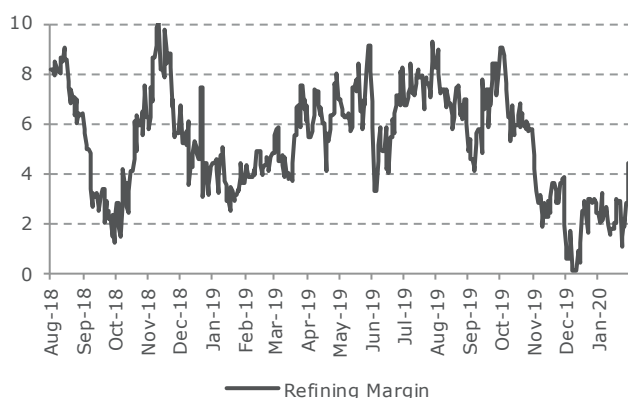
**Load Factor, Rybnik Power Station**



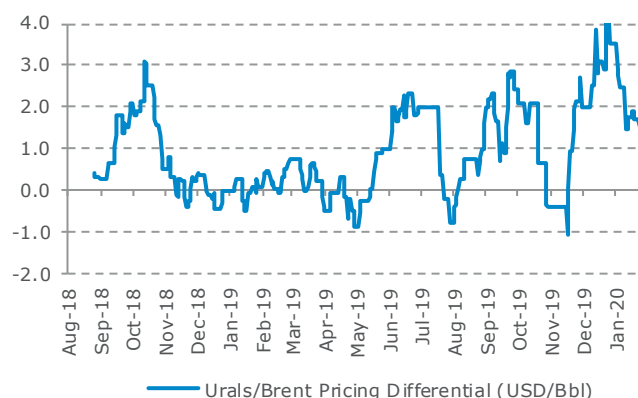
Source: PSE, mBank; Load factor = actual generation (7-day average) as a percentage of available capacity

## Gas & Oil

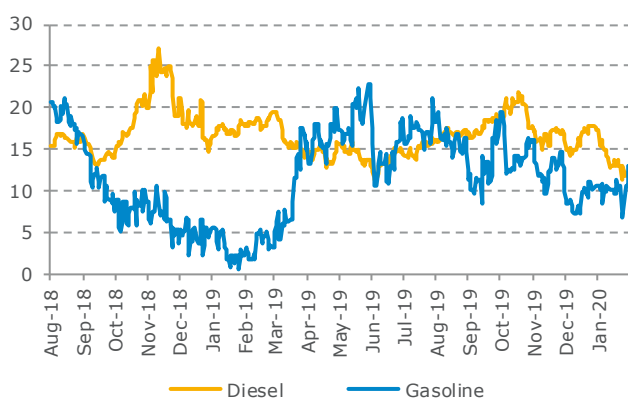
### Refining Margins (US\$/bbl)



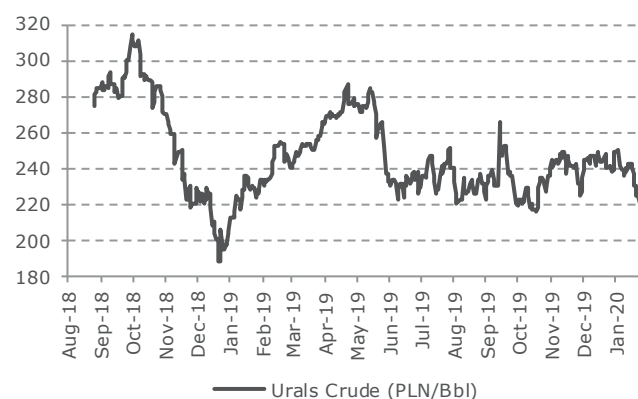
### Urals/Brent Pricing Differential (US\$/bbl)



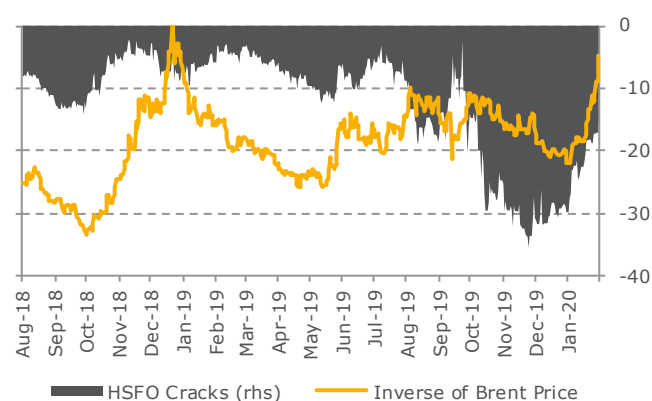
### Cracking Margins on Diesel & Gasoline (US\$/bbl)



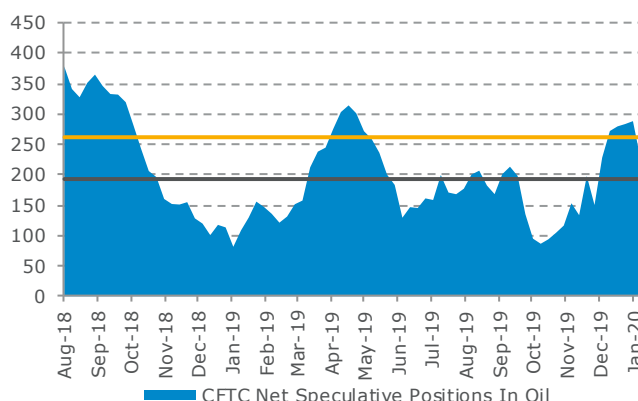
### Price of Urals Crude (PLN/bbl)



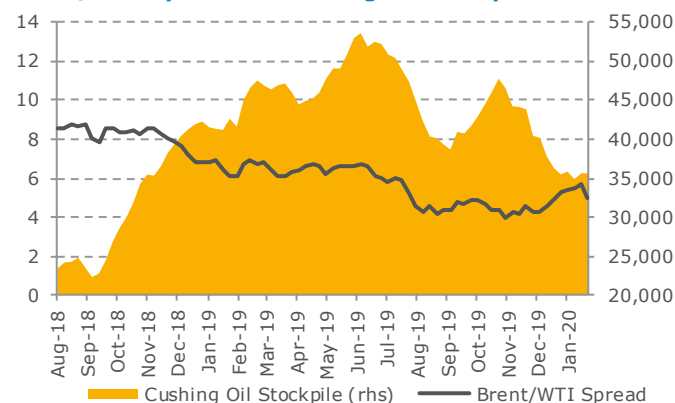
### HSFO Cracks (US\$/bbl) vs. Inverse of Brent Price



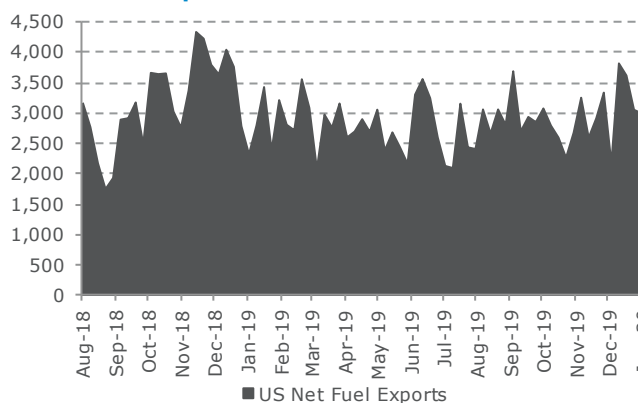
### CFTC Net Speculative Positions In Oil



### Brent/WTI Spread vs. Cushing Oil Stockpile



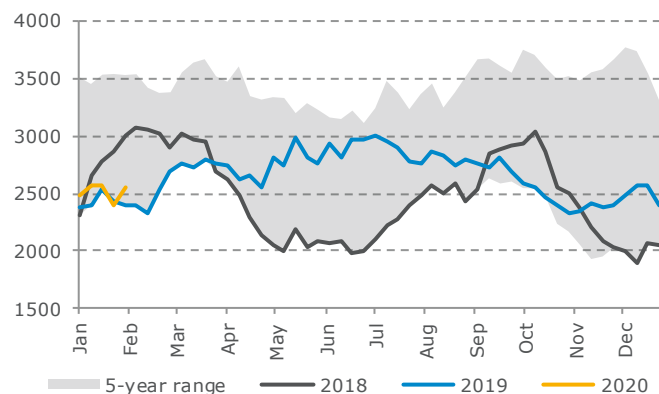
### US Net Fuel Exports



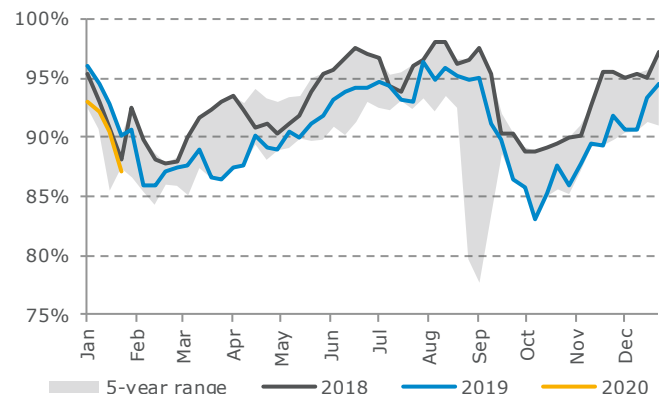
Source: Bloomberg, mBank

## Gas & Oil

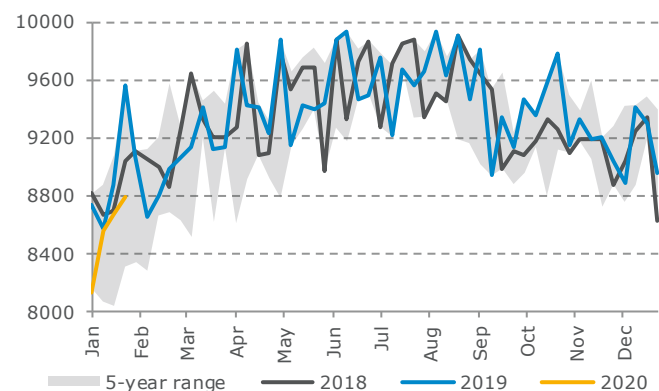
**Diesel Inventories @ARA**



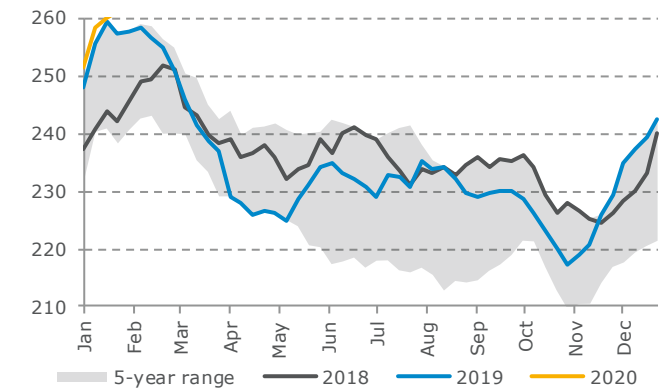
**US Refinery Utilization Rates**



**US Gasoline Demand**



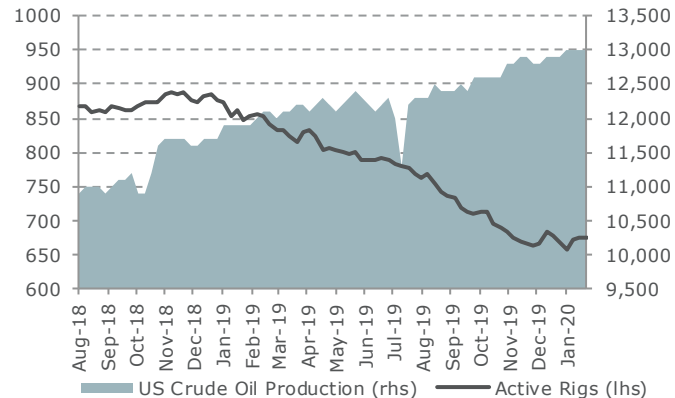
**US Gasoline Inventories**



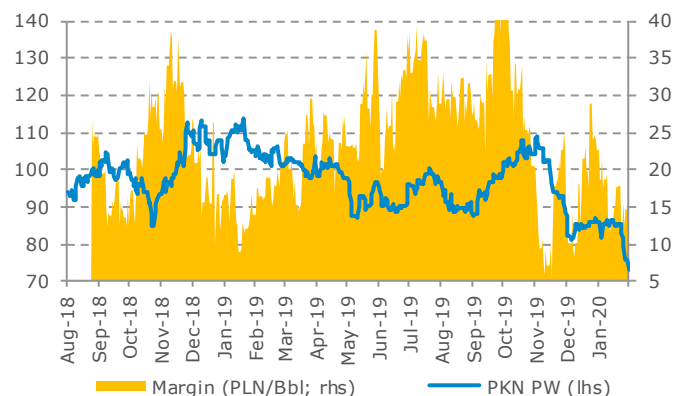
**Global Refinery Outages (mbbl/d)**



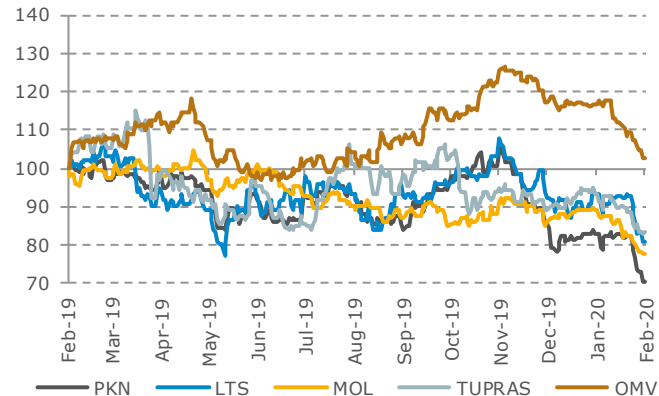
**US Crude Oil Production (mboe/d) vs. Active Rigs**



**PKN Performance vs. Benchmark Margins**



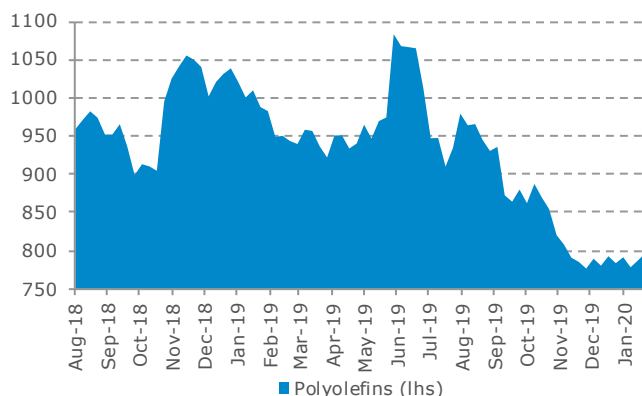
**Normalized Oil Stock Chart**



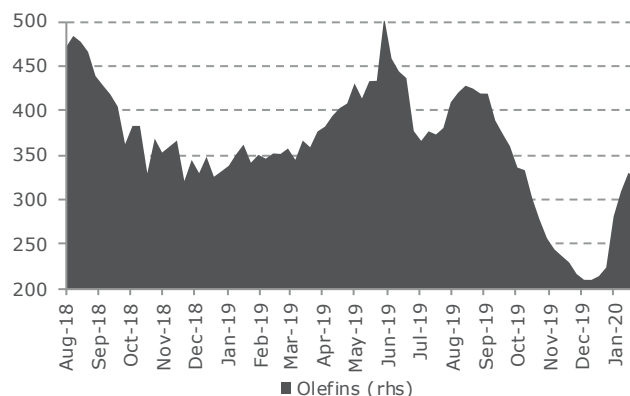
Source: Bloomberg, mBank

## Petrochemicals & NatGas

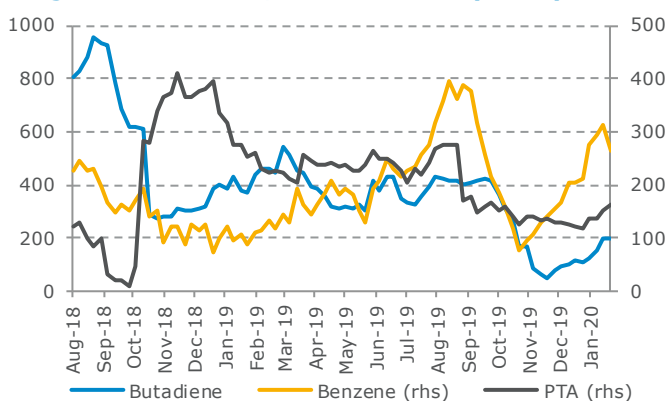
### Margins on Polyolefins



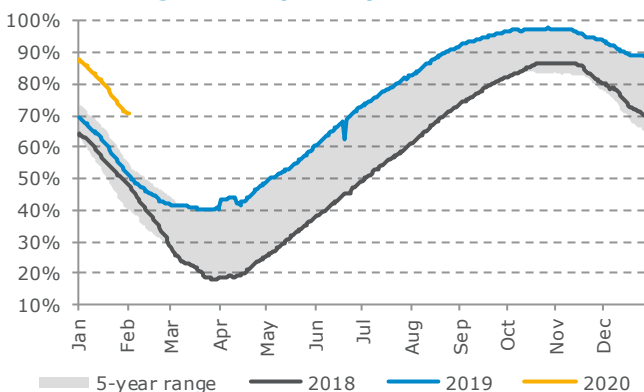
### Margins on Olefins



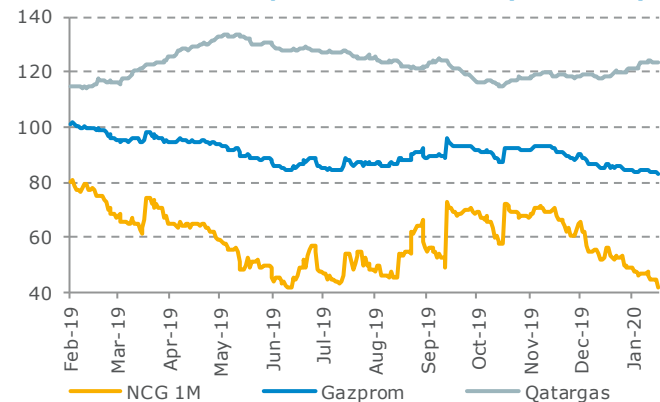
### Margins on Butadiene, Benzene & PTA (US\$/t)



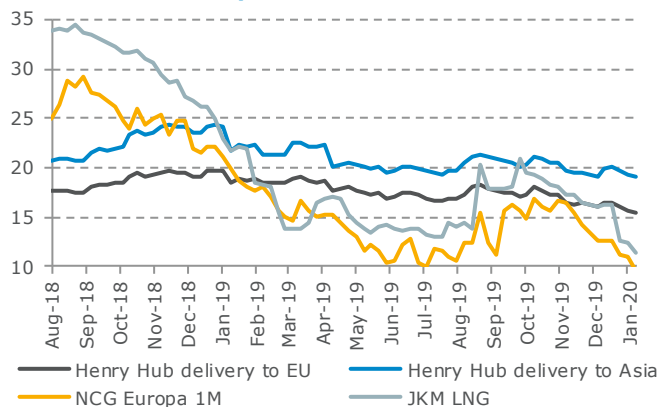
### EU Gas Storage Levels (% Full)



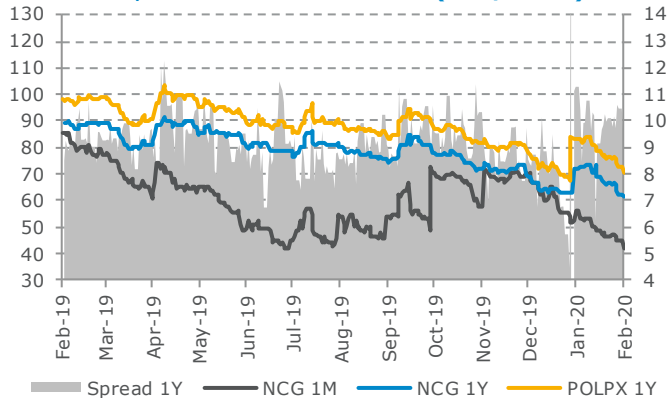
### Estimated Costs of Imported Natural Gas (PLN/MWh)



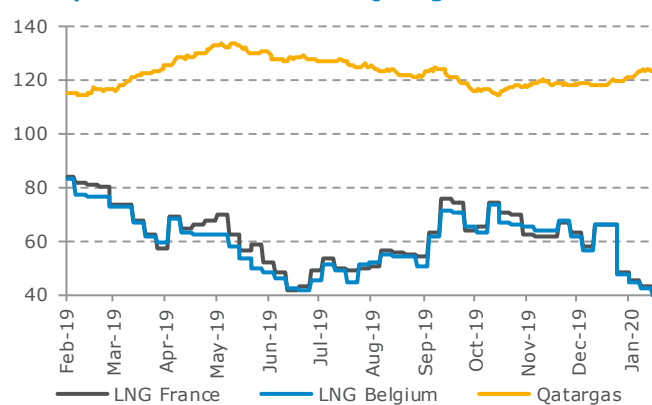
### Prices of US LNG Exports to EU and Asia



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



### LNG Spot Rates vs. Estimated Qatargas rates

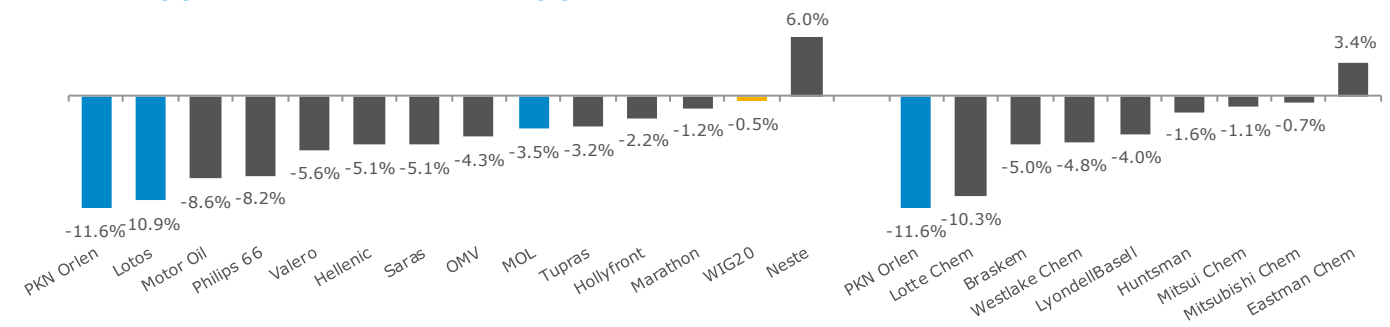


Source: Bloomberg, mBank

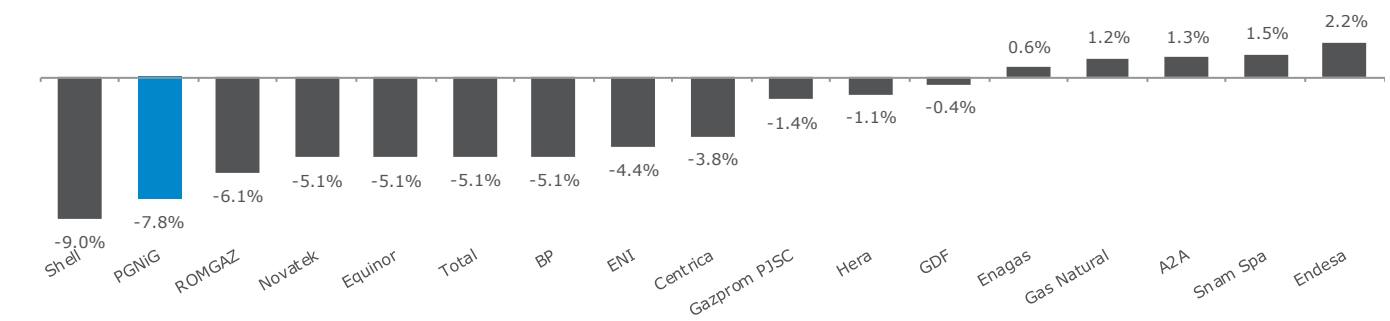


## Weekly Performance Charts

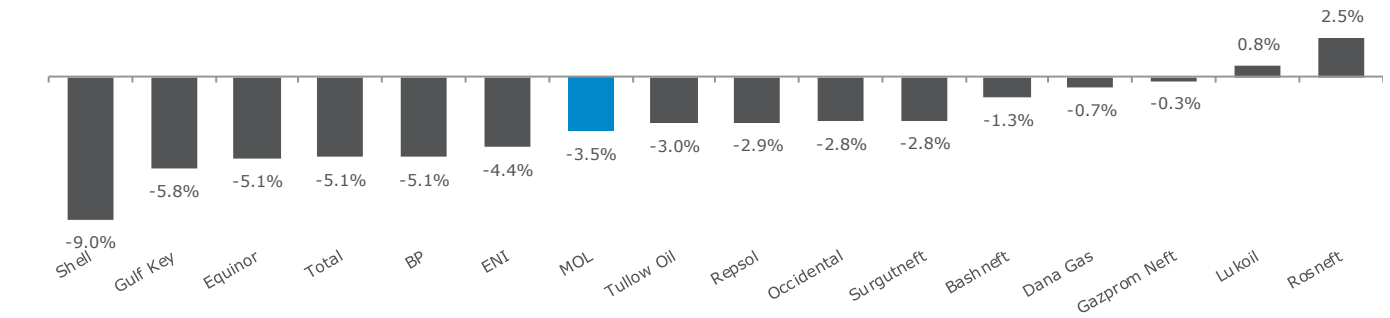
### Oil Refiners (L) & Petrochemical Producers (R)



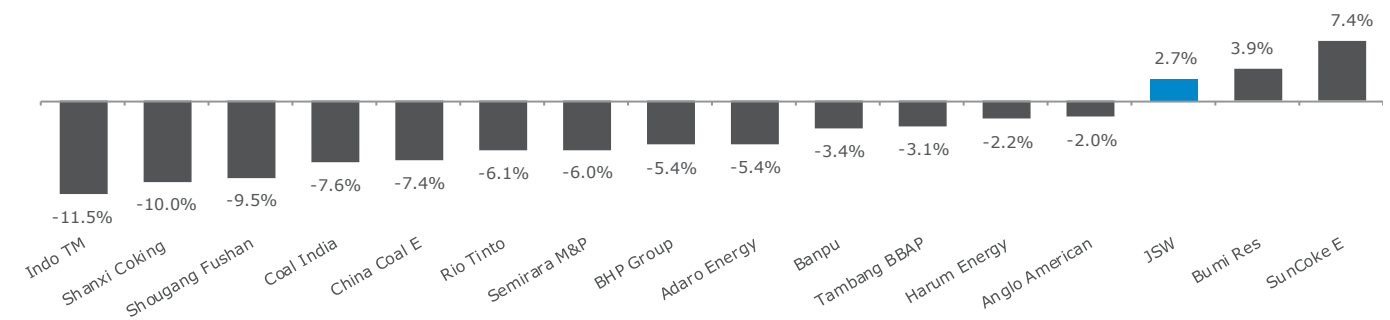
### Natural Gas Companies



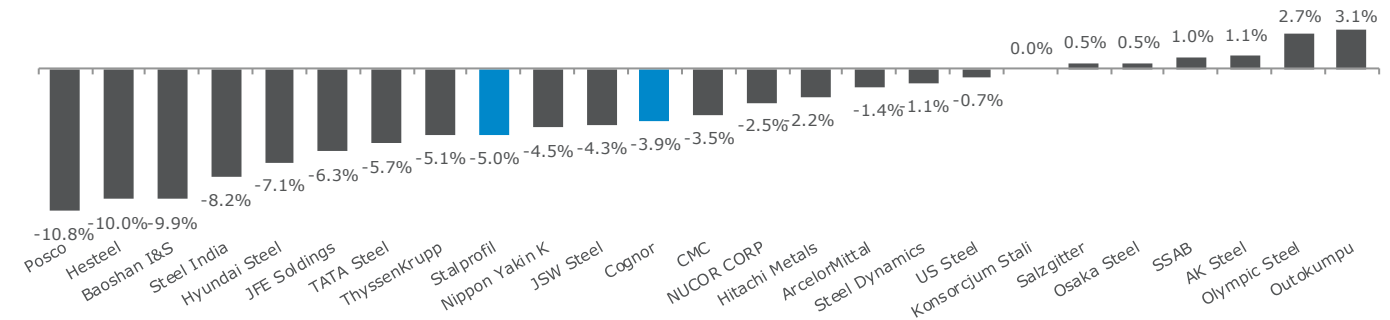
### Exploration & Production Companies



### Coal Producers



### Steel Producers & Distributors

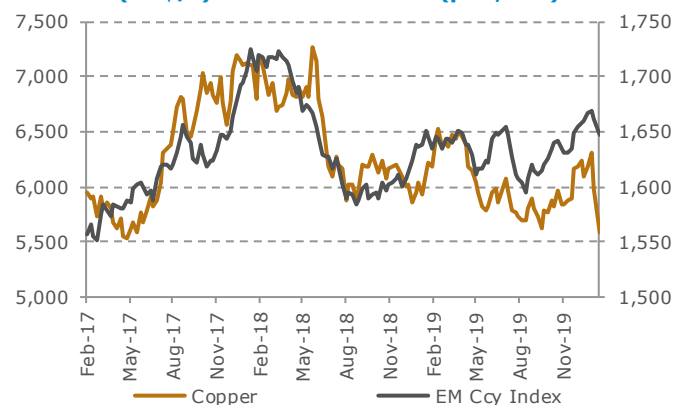


Source: Bloomberg, mBank

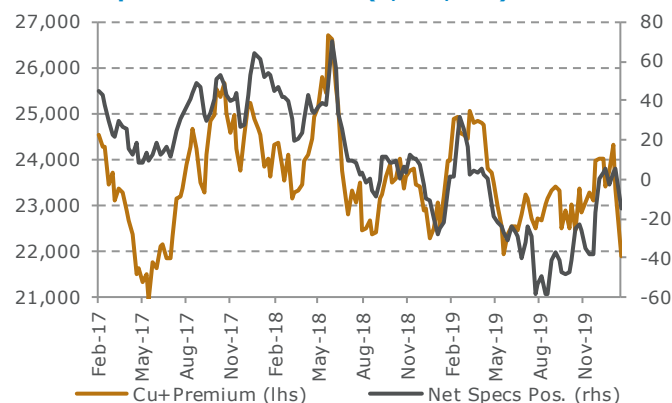


## Copper Charts

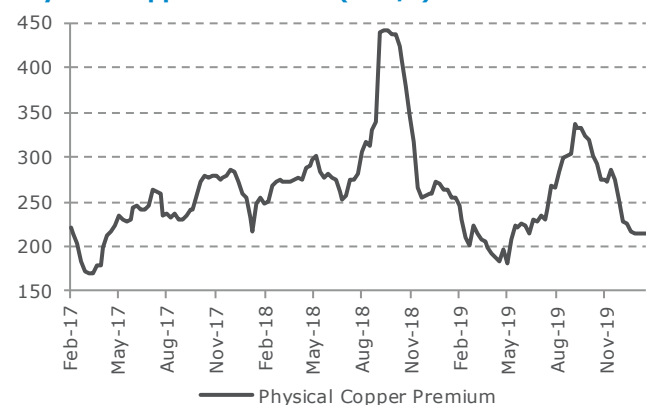
Cu Price (US\$/t) vs. EM Currencies (pts.; rhs)



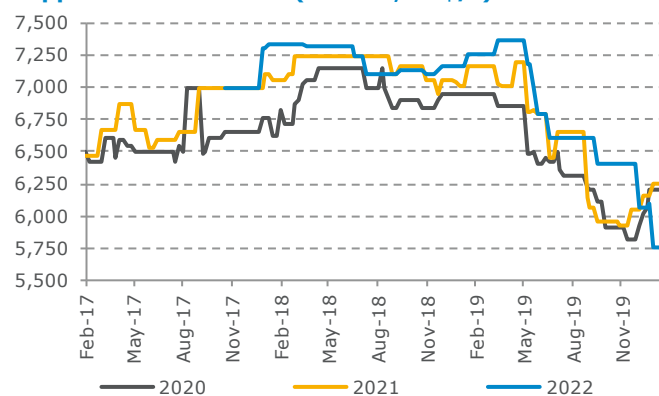
CU Price incl. Supplier Premium (PLN 1,000/t; lhs) vs. Net Speculative Positions (1,000, rhs)



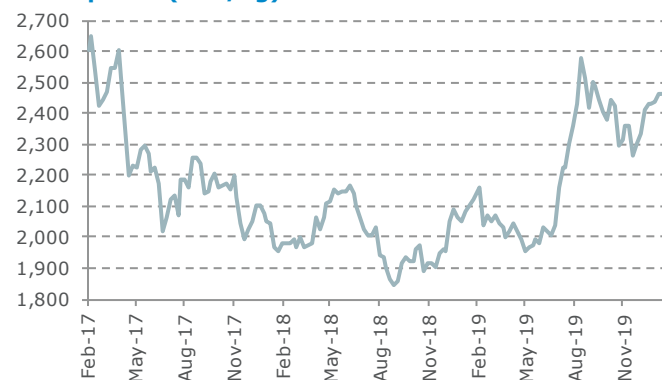
Physical Copper Premiums (PLN/t)



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



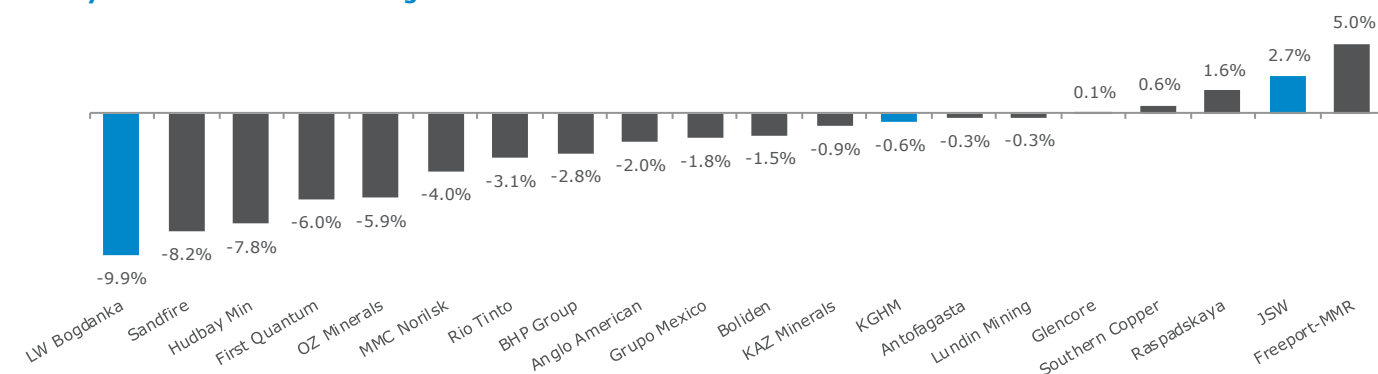
Silver prices (PLN/kg)



Prices of gold (PLN/oz)



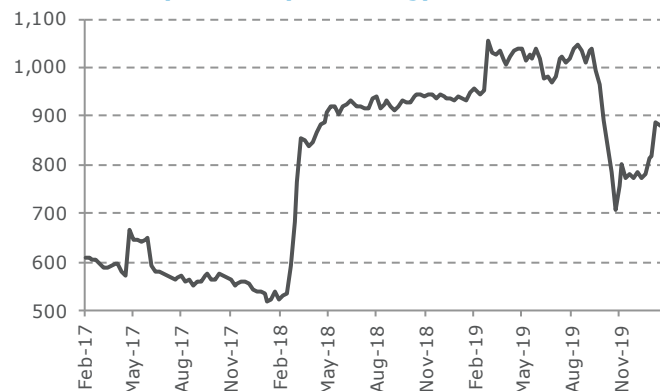
## Weekly Returns of Metal & Mining Stocks



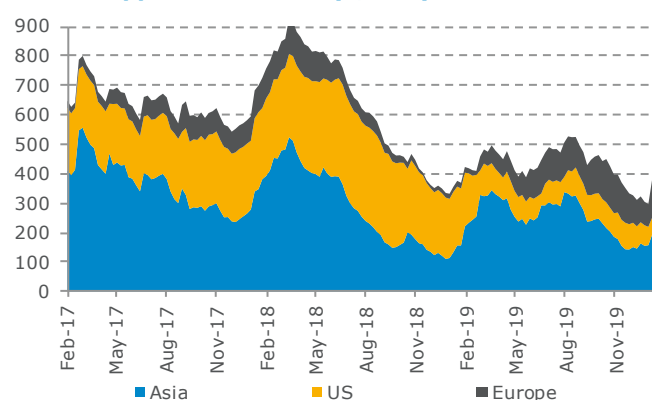
Source: Bloomberg, mBank

## More Copper Charts

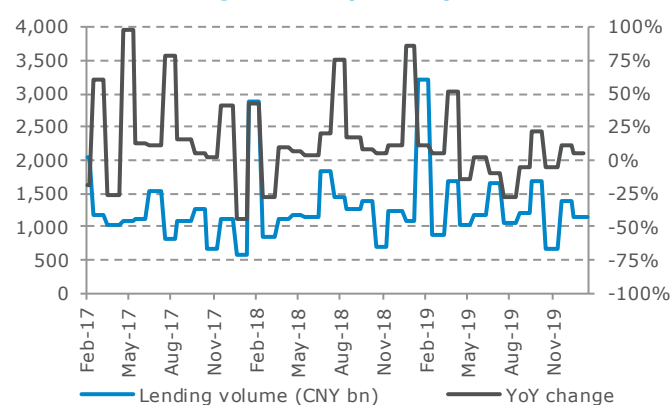
Prices of molybdenum (PLN/10 kg)



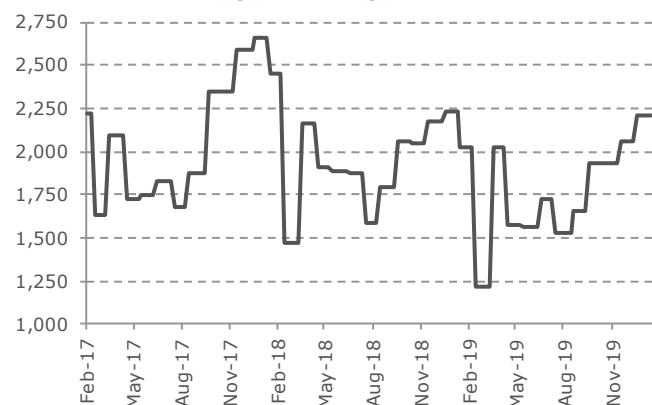
Global Copper Inventories (1,000t)



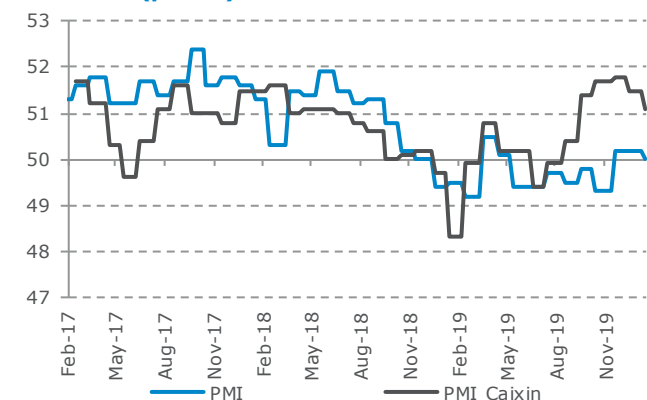
New Bank Lending in China (CNY bn)



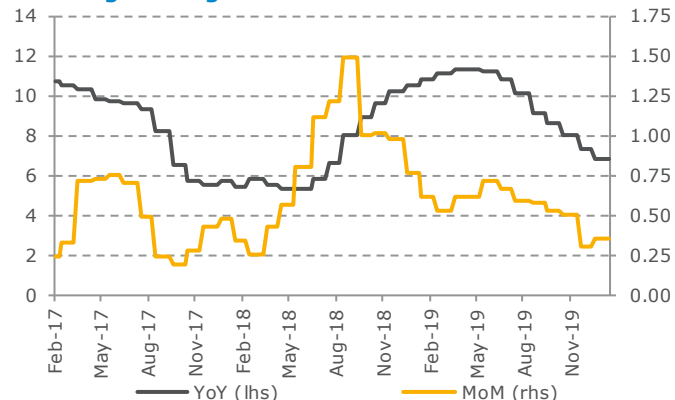
Car Sales in China (thousands)



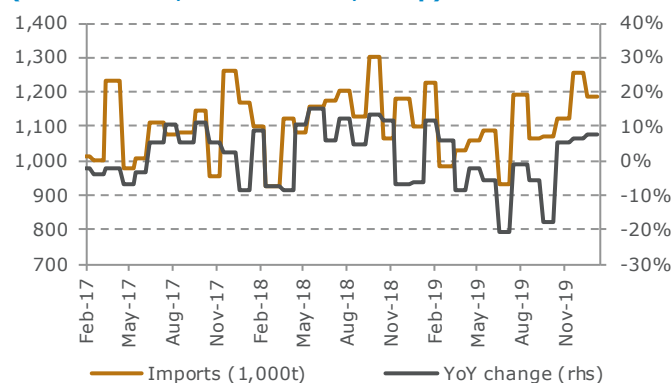
China PMI (points)



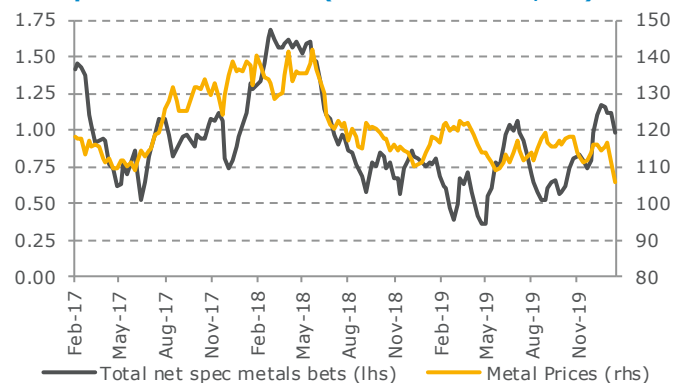
% Change In Avg. New Home Prices In 70 CN Cities



China Copper Imports (concentrates, refined metal, scrap)



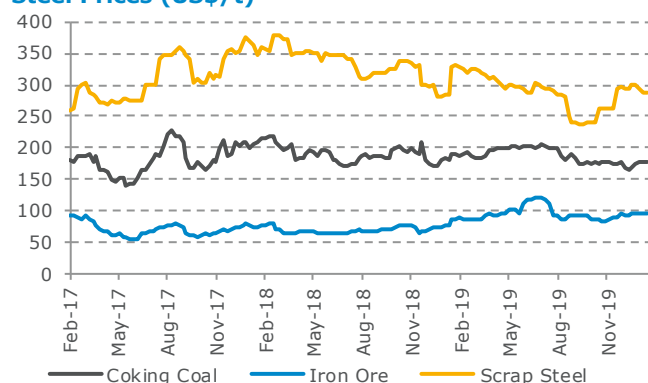
Metal Price Index (pts, rhs) vs. Net Speculative Positions (million contracts, lhs)



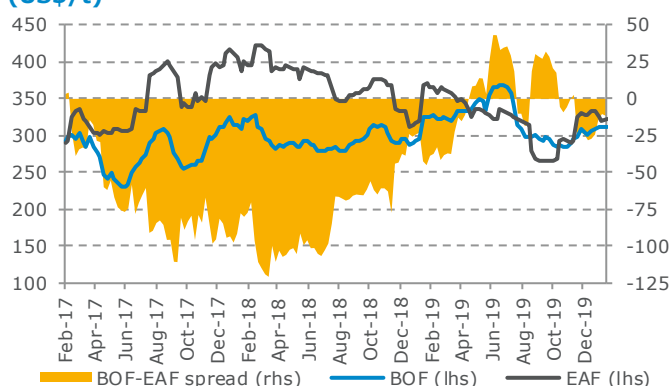
Source: Bloomberg, mBank

## Steel Charts

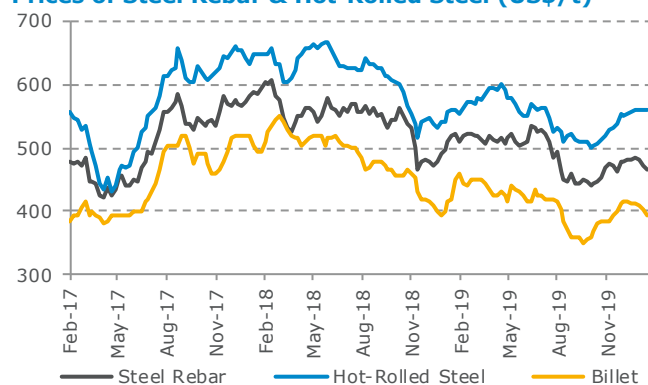
**China Coking Coal & Iron Ore Prices, Rotterdam Scrap Steel Prices (US\$/t)**



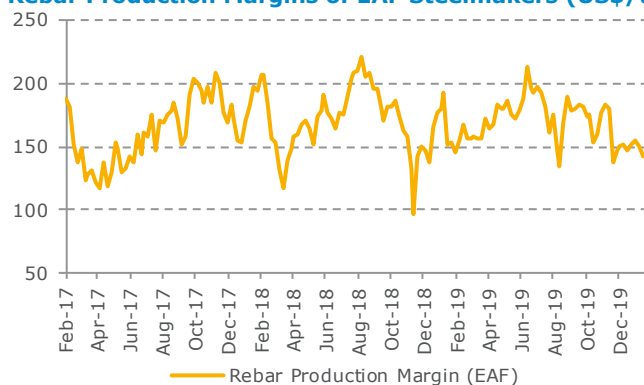
**Production Costs of BOF vs. EAF Steel Producers (US\$/t)**



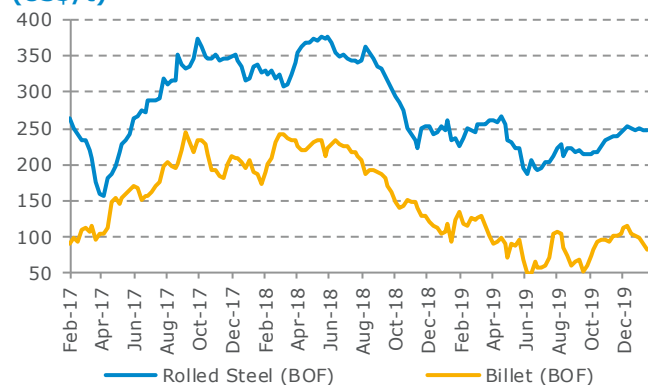
**Prices of Steel Rebar & Hot-Rolled Steel (US\$/t)**



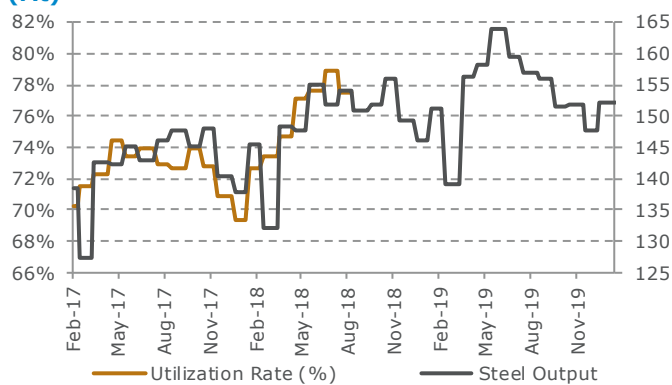
**Rebar Production Margins of EAF Steelmakers (US\$/t)**



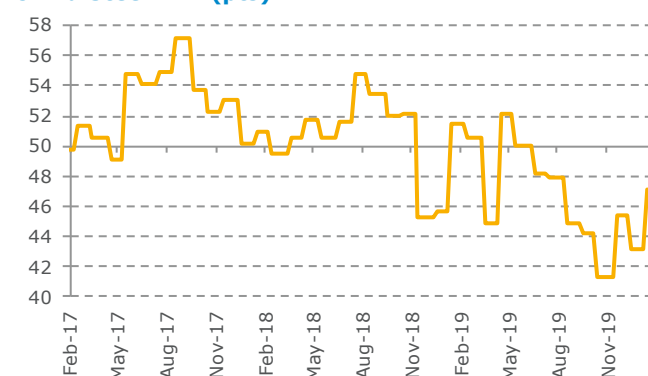
**Rolled Steel & Billet Margins of BOF Steelmakers (US\$/t)**



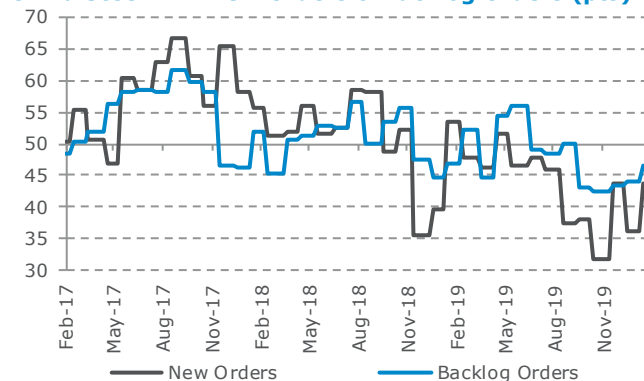
**Global Steel Plant Capacity Utilization Rates & Output (Mt)**



**China Steel PMI (pts)**



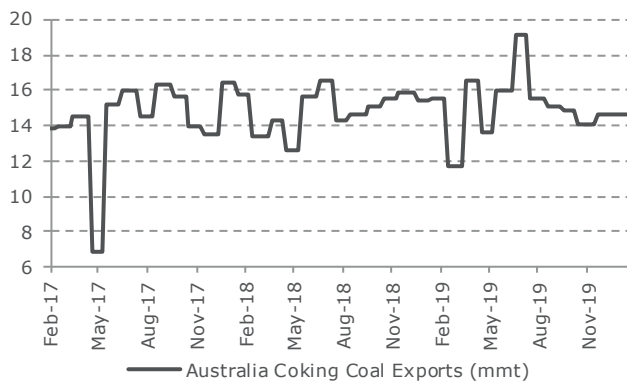
**China Steel PMI New Orders & Backlog Orders (pts)**



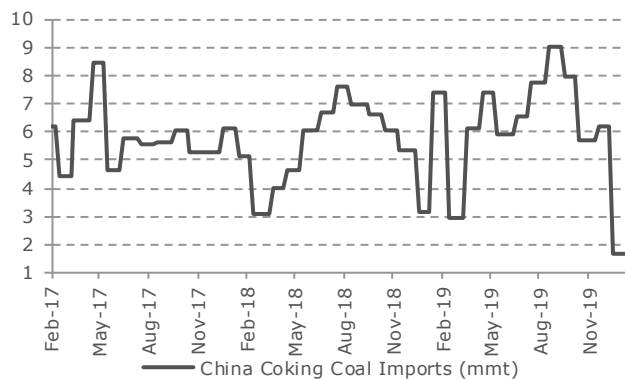
Source: Bloomberg, mBank

## More Steel Charts

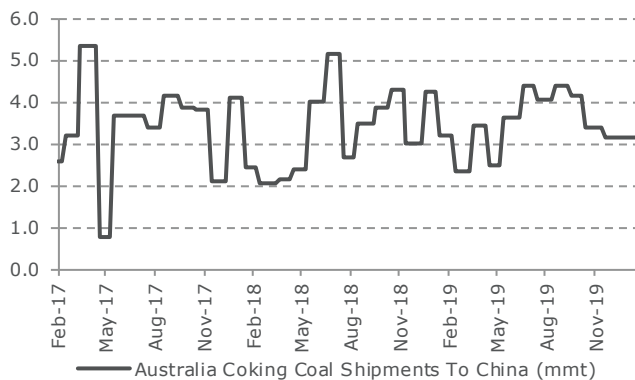
**Australia Coking Coal Exports (mmt)**



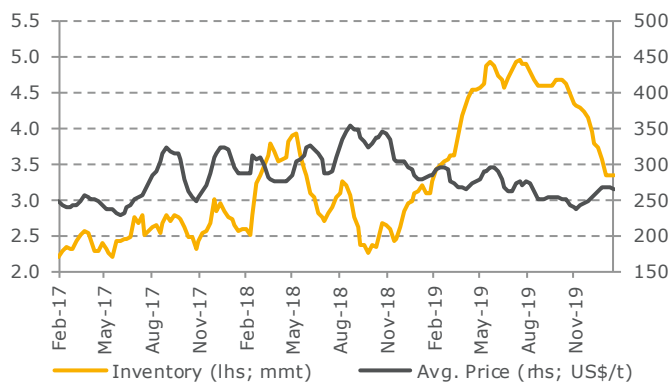
**China Coking Coal Imports (mmt)**



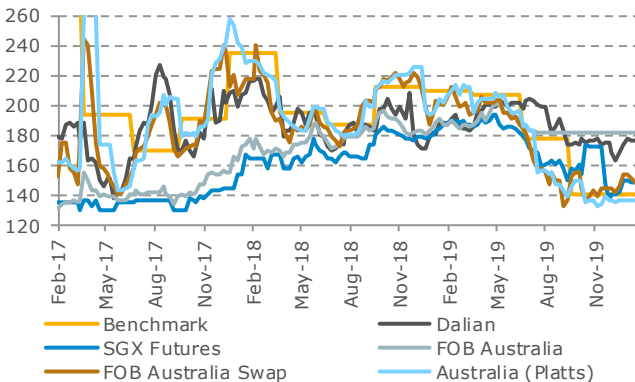
**Australia Coking Coal Shipments To China (mmt)**



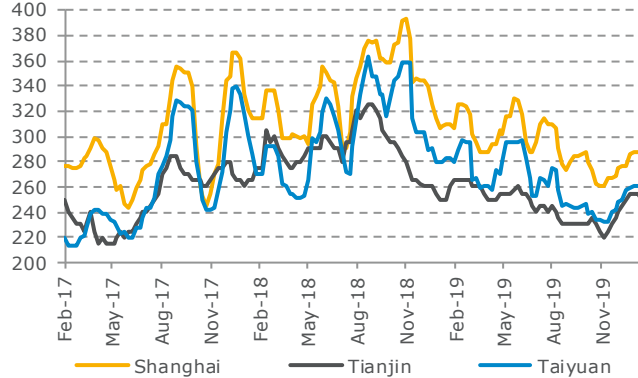
**China Coke Inventories (lhs; mmt) & Average Prices (rhs; US\$/t)**



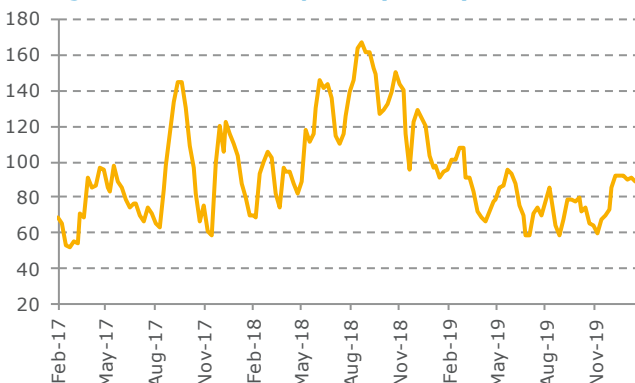
**China Coking Coal Prices vs. Benchmark (US\$/t)**



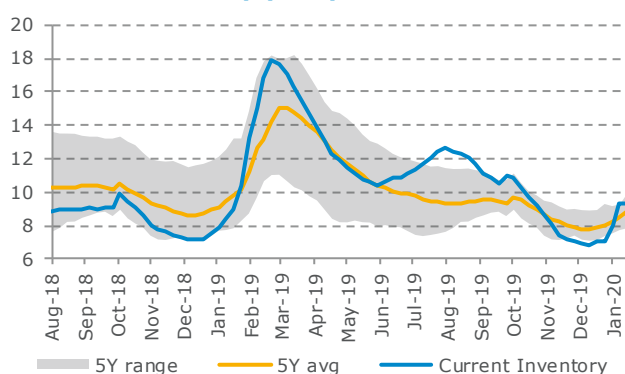
**China Coke Prices (US\$/t)**



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



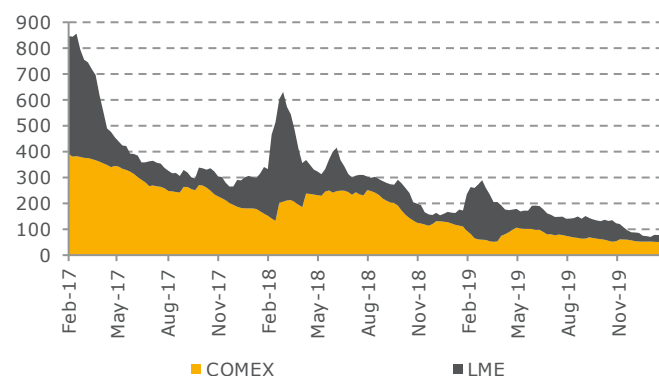
**China Steel Inventory (mmt)**



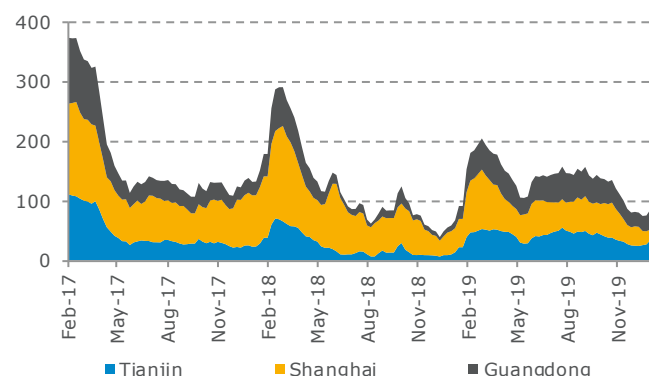
Source: Bloomberg, mBank

## Zinc and Electrical Steel Charts

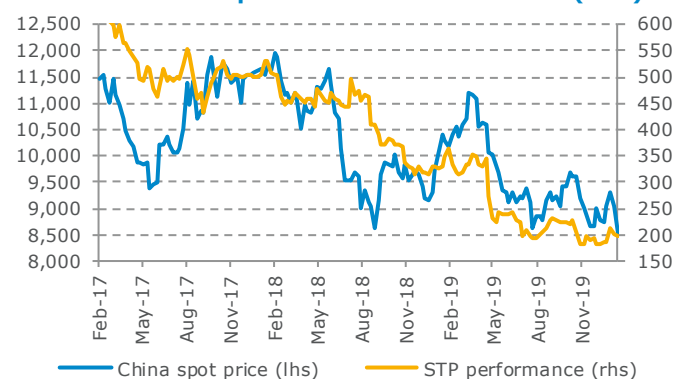
### Exchange-Monitored Zinc Inventories (1,000t)



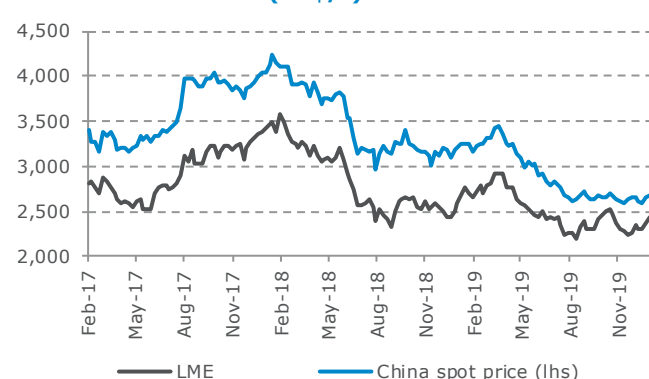
### Zinc Inventories in Three Chinese Regions (1,000t)



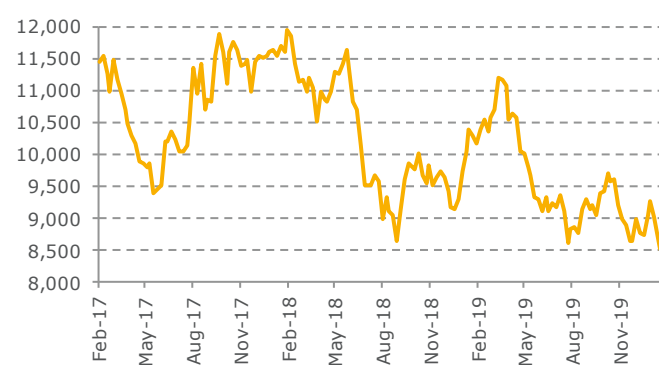
### Zinc Prices vs. Stalprodukt Stock Performance (PLN)



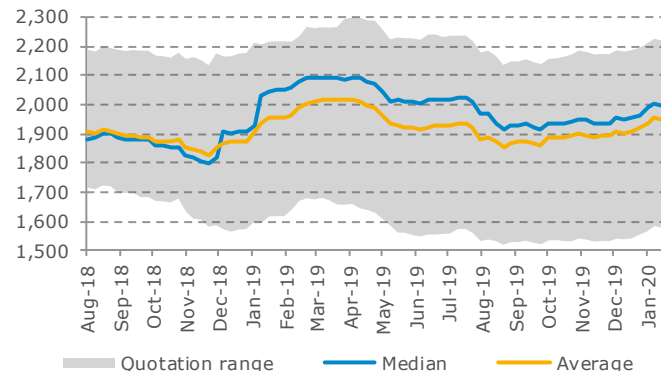
### US Dollar Zinc Prices (US\$/t)



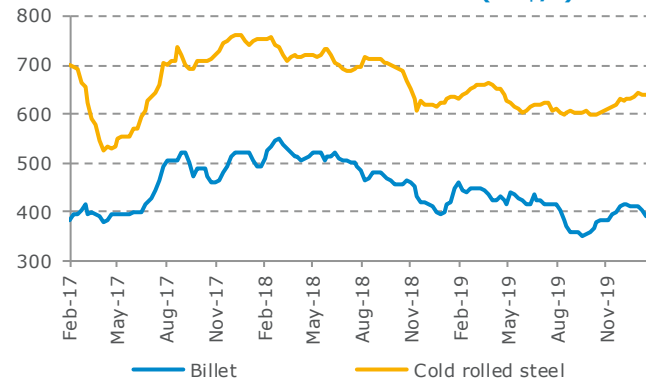
### Polish Zloty Zinc Prices (PLN/t)



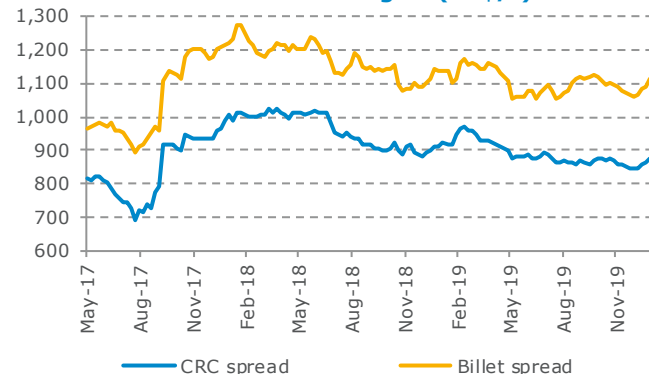
### China Electrical Steel Prices (US\$/t)



### Prices of Steel Billet & Cold Rolled Coil (US\$/t)



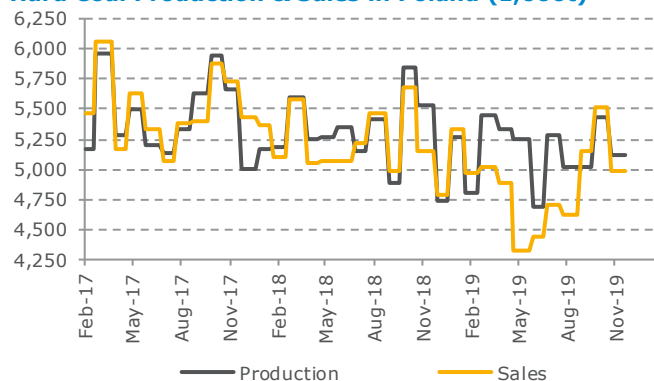
### Electrical Steel Production Margins (US\$/t)



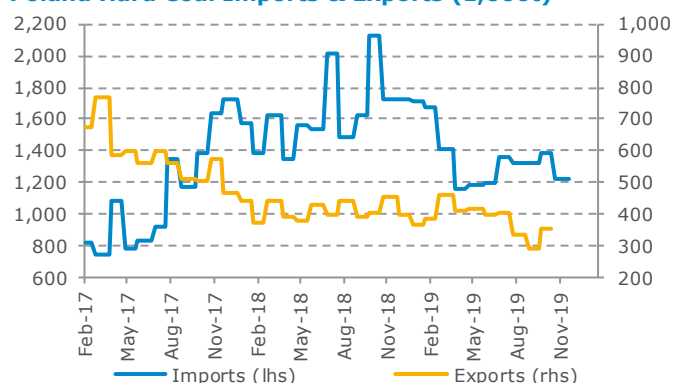
Source: Bloomberg, mBank

## Thermal Coal Charts

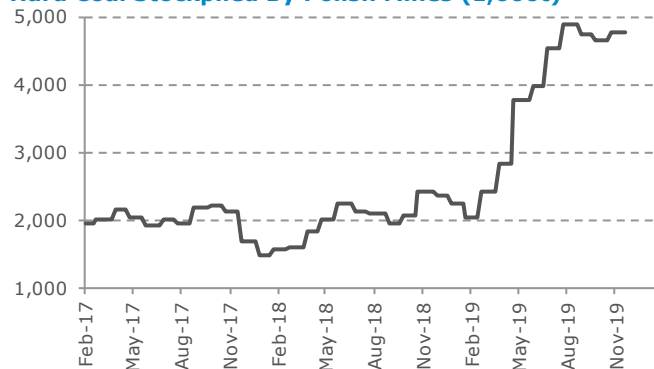
**Hard Coal Production & Sales in Poland (1,000t)**



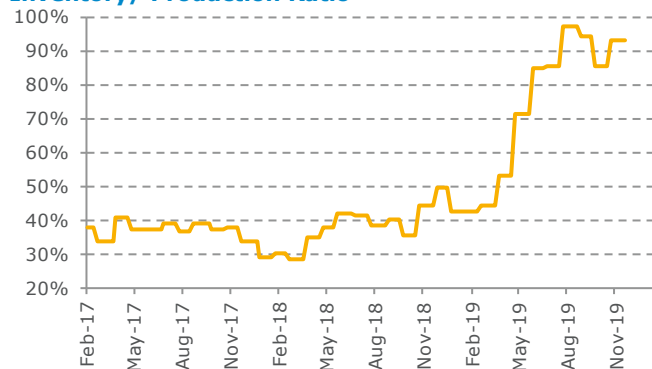
**Poland Hard Coal Imports & Exports (1,000t)**



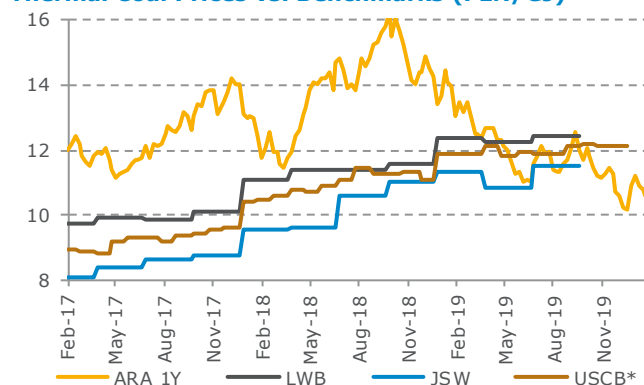
**Hard Coal Stockpiled By Polish Mines (1,000t)**



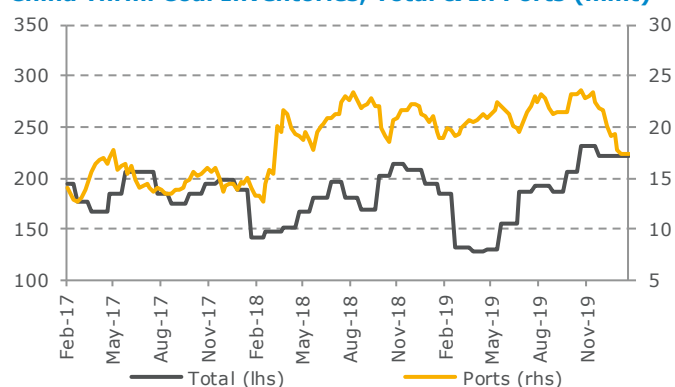
**Inventory/ Production Ratio**



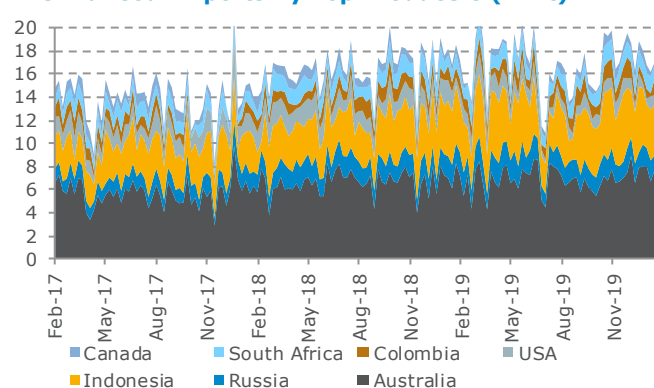
**Thermal Coal Prices vs. Benchmarks (PLN/GJ)**



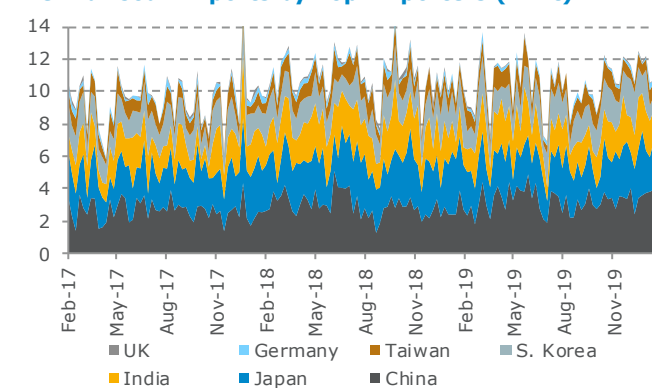
**China Thrml Coal Inventories, Total & In Ports (mmt)**



**Thermal Coal Exports By Top Producers (mmt)**



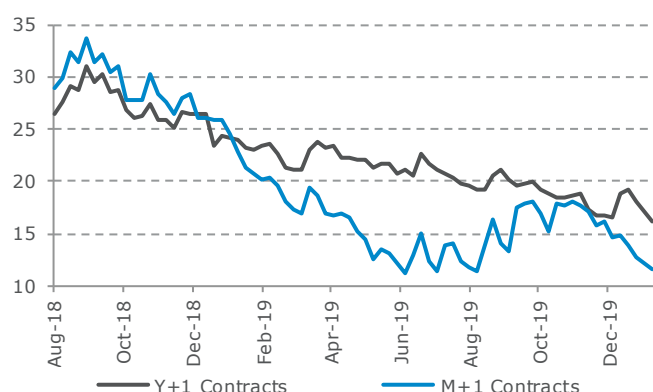
**Thermal Coal Imports by Top Importers (mmt)**



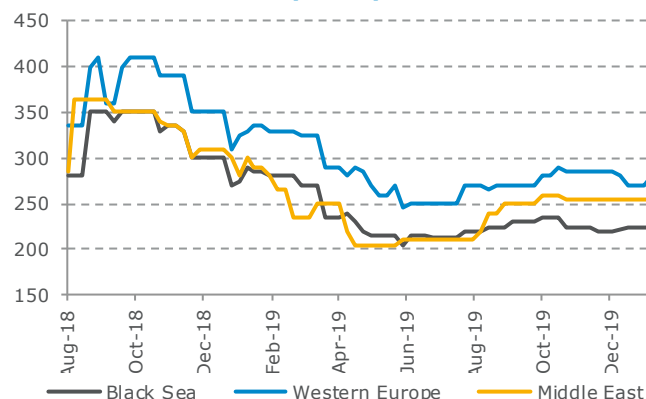
Source: Bloomberg, ARP, Eurostat, mBank \*Upper Silesian Coal Basin

## Fertilizer Charts

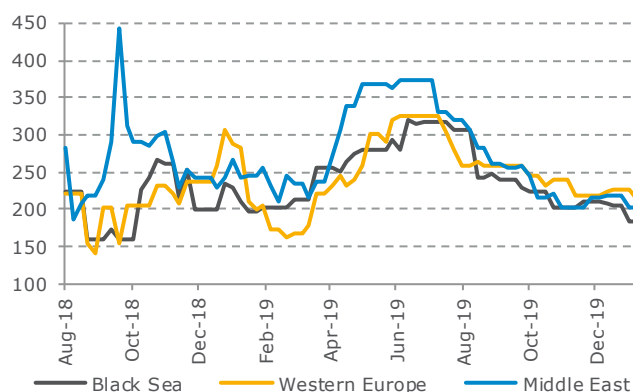
German NatGas Prices (US\$/MWh)



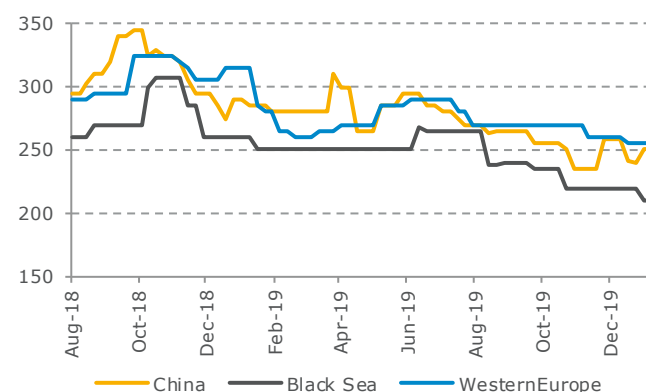
World Ammonia Prices (US\$/t)



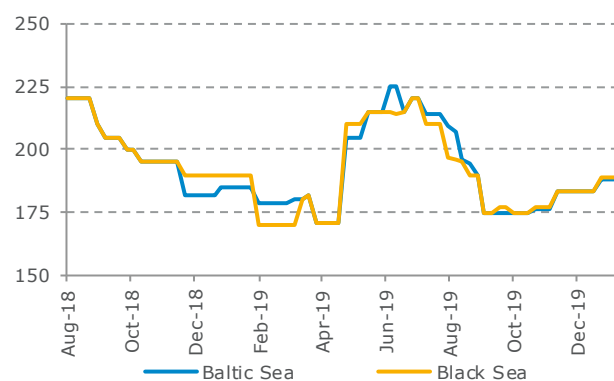
Urea-Ammonia Price Difference



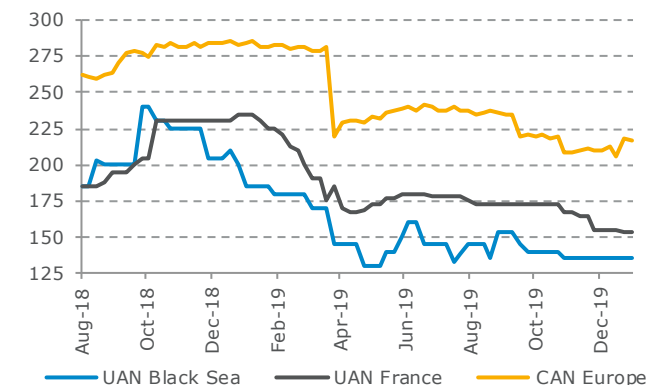
World Urea Prices (US\$/t)



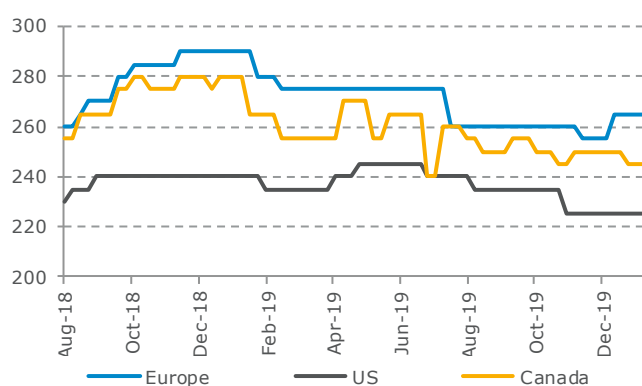
World Ammonium Nitrate Prices (US\$/t)



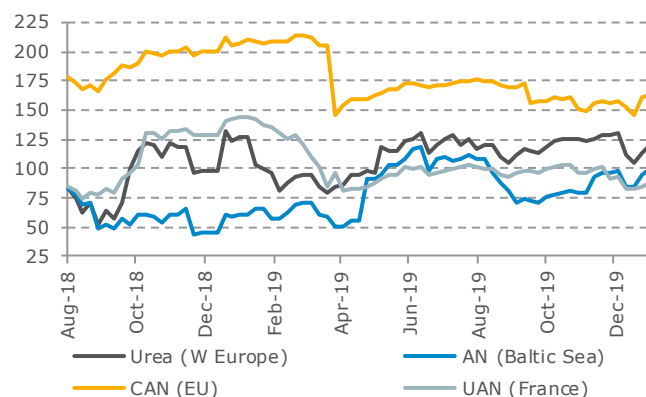
CAN & UAN prices (US\$/t)



World Ammonium Sulfate Prices (US\$/t)



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

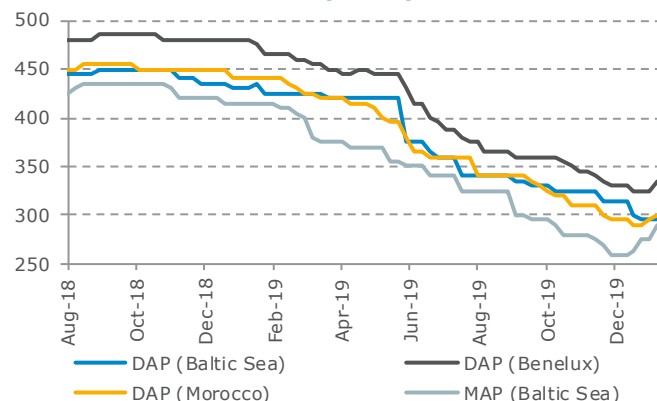


Source: Bloomberg, mBank

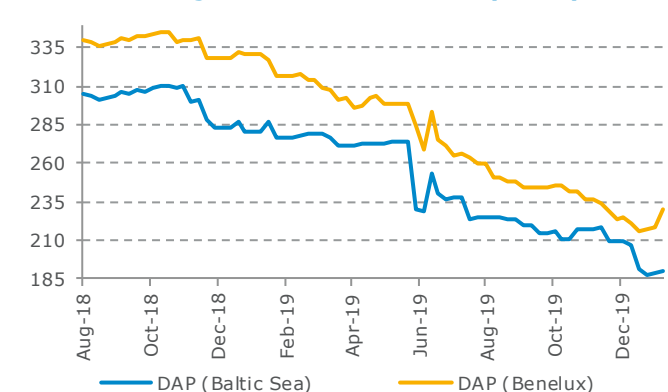


## Fertilizer Charts

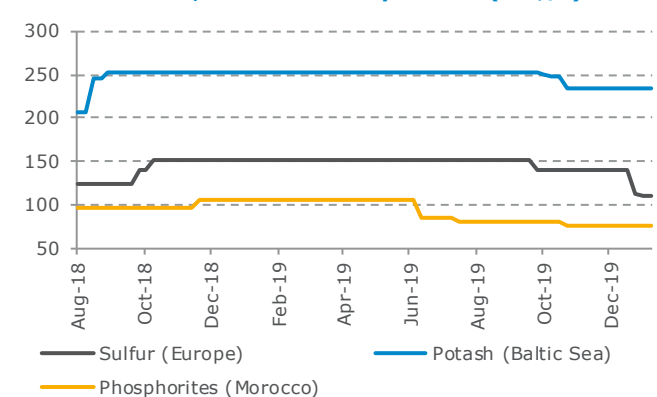
Prices of P & K Fertilizers (US\$/t)



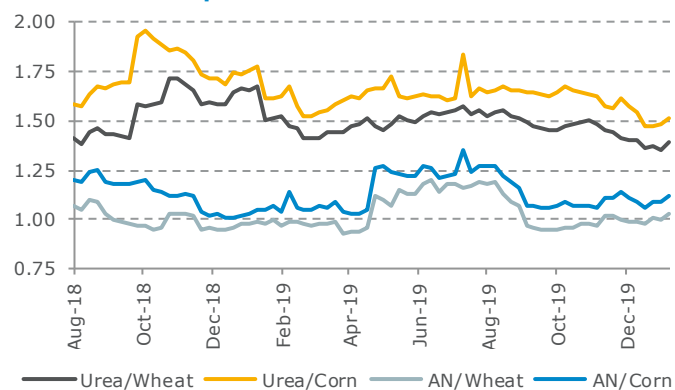
Production Margins on P & K Fertilizers (US\$/t)



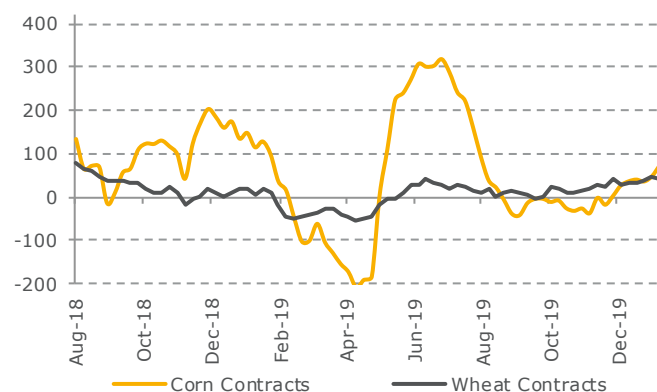
Prices of Sulfur, Potash & Phosphorites (US\$/t)



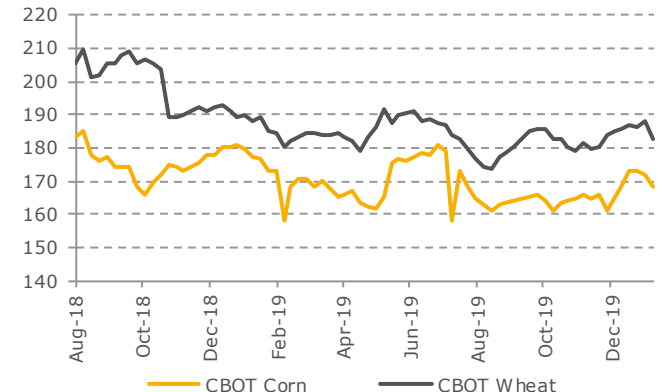
Fertilizer-to-Crop Price Ratios



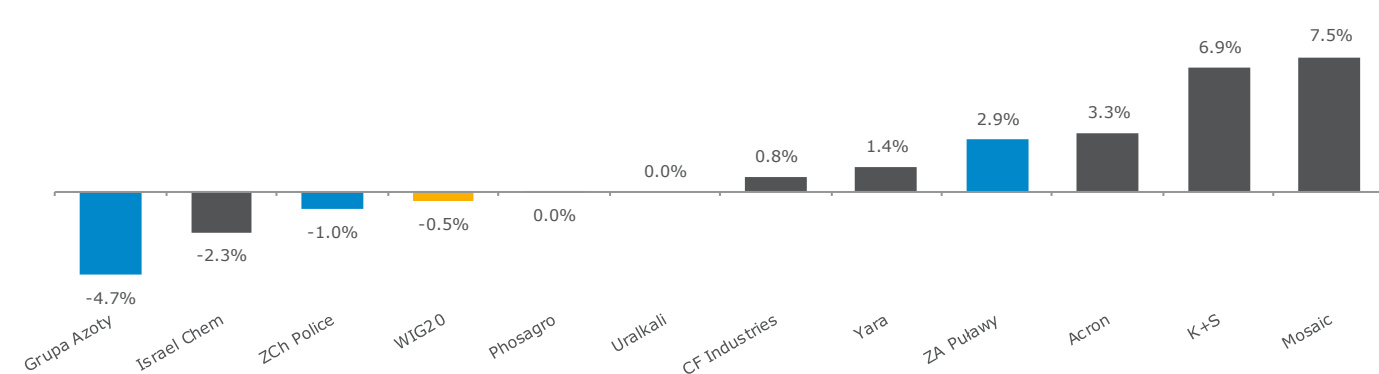
CBOT Open Positions In Corn and Wheat CBT



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



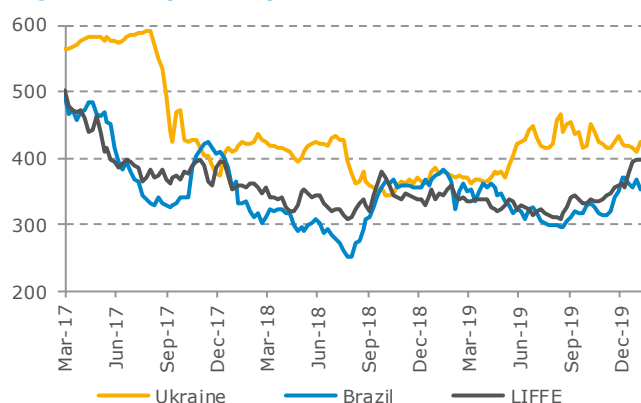
Weekly Returns of Fertilizer Stocks



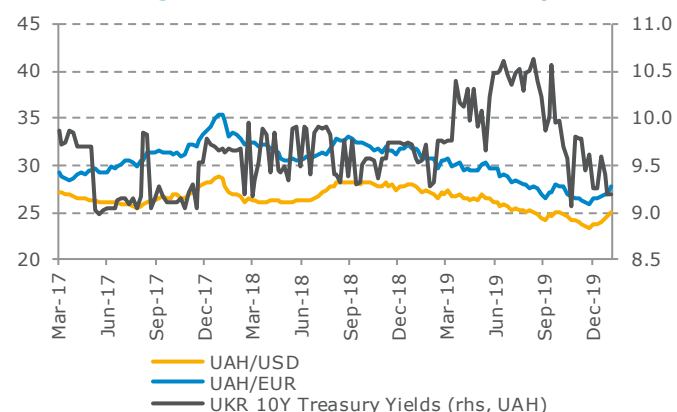
Source: Bloomberg, mBank

## Agricultural Commodities

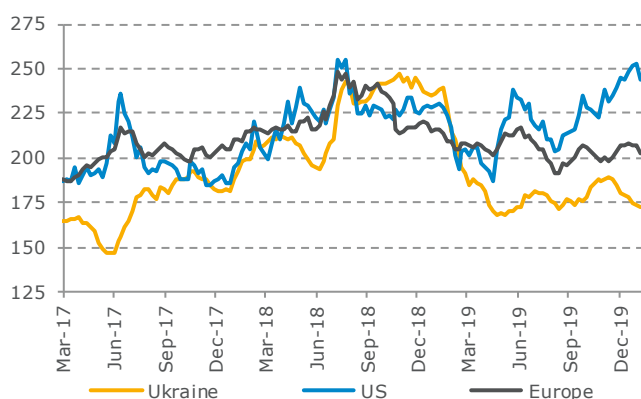
### Sugar Prices (US\$/Mt)



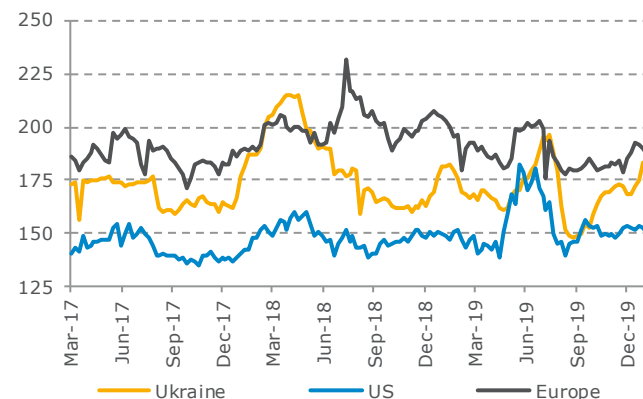
### UAH Exchange Rates & Ukraine 10Y Treasury Yields



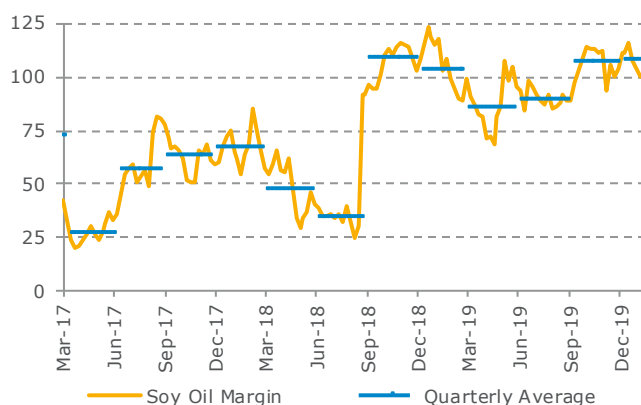
### Wheat Prices (US\$/Mt)



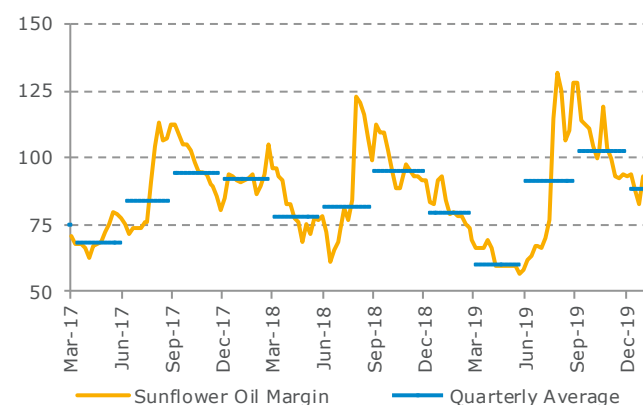
### Corn Prices (US\$/Mt)



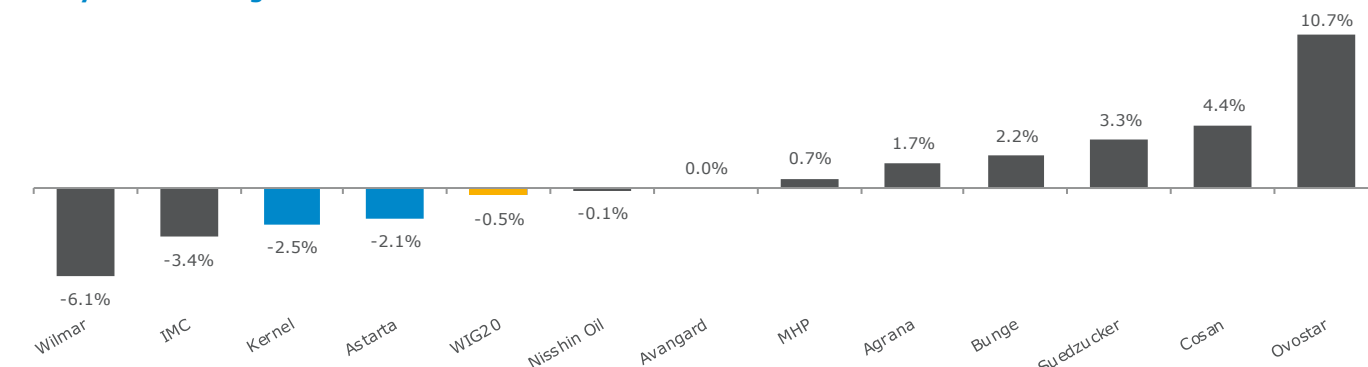
### Model Margins on Soy Oil (US\$/Mt)



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



## Weekly Returns of Agricultural Stocks



Source: Bloomberg, mBank

### 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
UTILITIES																
CEZ	504.5	7.3	6.8	6.6	2.1	1.9	1.8	15.0	13.1	13.2	29%	28%	27%	4.8%	6.0%	6.9%
Enea	7.2	3.1	3.0	2.7	0.6	0.5	0.6	3.0	2.9	2.3	20%	18%	21%	0.0%	0.0%	3.4%
Energa	7.1	3.6	4.2	4.5	0.7	0.7	0.8	5.6	5.4	4.9	19%	17%	17%	0.0%	0.0%	0.0%
PGE	6.7	3.0	3.4	2.7	0.6	0.6	0.6	4.5	5.8	3.8	21%	17%	21%	0.0%	5.6%	4.3%
Tauron	1.5	4.0	3.7	3.2	0.7	0.6	0.6	2.9	2.4	1.9	18%	17%	19%	0.0%	0.0%	0.0%
ZE PAK*	7.4	0.7	0.9	0.9	0.1	0.1	0.1	4.0	4.2	3.2	12%	9%	11%	-	5.4%	8.1%
EDF	11.4	4.6	4.2	4.1	1.1	1.0	1.0	17.0	14.2	13.6	23%	24%	25%	2.8%	3.3%	3.5%
EDP	4.5	10.0	9.7	9.4	2.2	2.1	2.1	20.7	19.4	18.1	22%	22%	23%	4.2%	4.3%	4.4%
Endesa	24.8	8.7	8.4	8.1	1.6	1.6	1.6	16.9	16.1	15.4	19%	19%	19%	5.8%	6.2%	5.3%
Enel	8.0	8.5	8.1	7.8	1.9	1.9	1.9	16.7	15.2	14.3	23%	23%	24%	4.1%	4.6%	5.0%
EON	10.4	10.8	8.1	7.8	1.7	0.9	0.9	16.0	15.9	14.7	16%	12%	11%	4.4%	4.6%	4.9%
Fortum	21.6	14.4	12.3	12.3	4.3	4.3	4.2	14.8	13.9	13.8	30%	35%	34%	5.1%	5.1%	5.1%
Iberdola	9.9	11.4	10.7	10.2	3.1	2.9	2.8	18.7	17.5	16.7	27%	27%	28%	3.8%	4.1%	4.3%
National Grid	10.1	14.1	11.9	11.3	4.2	4.1	4.0	22.6	17.2	16.5	30%	34%	35%	4.6%	4.8%	5.0%
Red Electrica	18.0	9.6	9.4	9.5	7.5	7.4	7.4	13.6	14.5	14.7	78%	78%	78%	5.8%	5.7%	5.7%
RWE	31.6	9.2	6.2	5.3	1.4	1.2	1.1	20.0	19.0	14.0	16%	19%	21%	2.5%	2.9%	3.5%
SSE	15.4	11.7	13.3	12.2	1.0	3.3	3.2	11.2	18.1	15.7	9%	24%	26%	6.3%	5.2%	5.3%
Verbund	46.5	15.3	12.8	12.4	5.3	4.8	4.7	28.6	23.2	22.2	35%	37%	38%	1.6%	2.0%	2.2%
Median		8.9	8.1	7.8	1.7	1.7	1.7	15.5	14.9	14.1	21%	23%	23%	4.1%	4.6%	4.6%

### 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
OIL REFINERS																
Lotos	74.44	5.8	4.5	4.4	0.6	0.6	0.5	12.0	8.6	9.6	10%	12%	12%	4.0%	4.0%	4.0%
MOL	2570.00	4.1	4.5	4.1	0.5	0.6	0.6	8.6	7.8	7.2	13%	15%	15%	5.5%	5.8%	6.1%
PKN Orlen	73.00	4.2	5.0	5.2	0.3	0.4	0.4	7.0	10.7	11.1	8%	7%	7%	4.8%	4.8%	4.8%
Hellenic Petroleum	7.86	6.8	5.6	5.7	0.5	0.5	0.4	11.5	7.0	6.7	7%	8%	8%	5.9%	6.0%	6.4%
HollyFrontier	43.14	5.3	5.6	6.0	0.6	0.6	0.5	8.8	8.8	10.0	11%	10%	9%	3.1%	3.3%	3.4%
Marathon Petroleum	52.06	6.7	5.2	5.4	0.5	0.5	0.5	13.0	7.6	8.6	7%	9%	9%	4.1%	4.5%	4.9%
Motor Oil	18.65	5.1	4.3	4.6	0.3	0.3	0.3	8.3	6.2	7.0	5%	7%	6%	6.9%	7.3%	7.6%
Neste Oil	35.80	12.4	12.6	11.4	1.8	1.9	1.8	19.7	19.0	17.0	15%	15%	16%	2.6%	2.7%	3.0%
OMV	44.24	4.4	4.2	4.1	1.1	1.1	1.1	8.5	8.3	7.7	25%	26%	26%	4.4%	4.8%	5.2%
Phillips 66	88.97	16.7	7.8	7.7	0.6	0.6	0.5	13.1	9.3	9.0	3%	7%	7%	4.0%	4.3%	4.7%
Saras	1.22	3.3	2.2	2.9	0.1	0.1	0.1	12.8	4.7	7.1	4%	6%	4%	5.4%	9.5%	7.5%
Tupras	112.10	8.6	5.0	4.8	0.4	0.4	0.3	22.1	6.6	5.9	5%	7%	7%	5.8%	13.1%	15.0%
Valero Energy	80.25	6.6	5.3	5.8	0.4	0.3	0.3	13.7	8.8	9.8	6%	7%	6%	4.5%	4.9%	5.2%
Median		5.8	5.0	5.2	0.5	0.5	0.5	12.0	8.3	8.6	7%	8%	8%	4.5%	4.8%	5.2%

### 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
PETROCHEMICALS																
PKN Orlen	73.00	4.2	5.0	5.2	0.3	0.4	0.4	7.0	10.7	11.1	8%	7%	7%	4.8%	4.8%	4.8%
Axiall	60.80	7.2	6.7	6.5	1.3	1.3	1.2	16.3	13.8	12.7	18%	19%	19%	1.7%	1.8%	1.9%
Braskem	33.45	7.7	8.3	7.3	1.1	1.1	1.0	100+	-	92.9	15%	13%	14%	2.6%	0.8%	0.2%
Eastman Chemical	72.20	8.9	7.7	7.5	1.7	1.7	1.6	13.1	9.6	8.8	19%	22%	22%	3.1%	3.6%	4.0%
Huntsman Corp	20.65	7.9	8.1	7.4	1.0	1.0	1.0	12.1	11.0	9.2	12%	13%	13%	3.2%	3.2%	3.3%
Lotte Chemicals	187,500	4.4	4.6	4.1	0.5	0.5	0.5	7.9	7.7	6.7	12%	12%	13%	4.0%	4.0%	4.4%
LyondellBasell	78.82	7.1	6.3	6.0	1.1	1.1	1.1	8.2	7.5	6.8	16%	18%	18%	5.7%	5.7%	6.1%
Mitsubishi Chemical	791.70	7.2	7.1	6.9	0.9	0.9	0.9	6.6	8.7	8.8	12%	13%	13%	5.1%	5.1%	4.9%
Mitsui Chemicals	2426.00	6.5	7.2	6.7	0.6	0.7	0.7	6.3	12.1	8.9	10%	9%	10%	4.1%	4.1%	4.1%
Westlake Chemical	60.80	7.2	6.7	6.5	1.3	1.3	1.2	16.3	13.8	12.7	18%	19%	19%	1.7%	1.8%	1.9%
Median		7.2	6.9	6.6	1.0	1.1	1.0	8.2	10.7	9.0	13%	13%	14%	3.6%	3.8%	4.1%

Source: mBank 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
GAS COMPANIES																
PGNiG	3.56	4.4	4.4	3.4	0.5	0.6	0.6	11.8	13.8	9.1	12%	13%	16%	3.1%	3.4%	2.9%
A2A	1.81	7.7	7.5	7.1	1.4	1.4	1.3	16.5	16.1	15.1	19%	19%	19%	4.4%	4.4%	4.7%
BG Group	19.64	5.3	4.7	4.5	0.8	0.8	0.8	12.7	10.1	9.4	15%	17%	17%	7.5%	7.4%	7.5%
BP	4.53	5.3	4.9	4.8	0.7	0.7	0.7	29.1	10.9	10.4	13%	14%	14%	6.9%	7.2%	7.3%
Centrica	0.86	4.8	4.7	5.0	0.3	0.4	0.4	11.9	9.1	8.7	7%	7%	7%	5.8%	6.0%	6.1%
Enagas	24.25	10.7	10.8	11.3	9.0	9.2	10.0	13.4	13.0	13.2	84%	85%	88%	6.6%	6.9%	7.0%
Endesa	24.76	8.7	8.4	8.1	1.6	1.6	1.6	16.9	16.1	15.4	19%	19%	19%	5.8%	6.2%	5.3%
Engie	15.63	6.9	6.6	6.3	1.1	1.0	1.0	15.2	13.7	12.3	16%	16%	16%	5.0%	5.3%	5.8%
Eni	12.61	3.8	3.6	3.4	0.9	0.9	0.9	13.9	11.0	9.7	24%	25%	26%	6.8%	7.0%	7.1%
Equinor	166.85	3.2	2.7	2.5	1.1	1.0	1.0	12.6	10.5	9.4	35%	36%	37%	5.5%	6.1%	6.4%
Gas Natural SDG	23.59	9.3	9.0	8.7	1.6	1.6	1.6	17.3	16.1	15.1	17%	18%	18%	5.8%	6.1%	6.4%
Gazprom	227.64	3.9	4.0	3.6	1.0	1.1	1.0	4.1	4.8	4.3	27%	27%	28%	6.7%	7.7%	11.2%
Hera	4.11	8.4	8.0	7.9	1.4	1.3	1.2	18.9	19.3	18.7	16%	16%	15%	2.5%	2.7%	2.7%
NovaTek	176.90	13.2	10.7	10.1	3.9	3.9	3.6	3.6	10.4	10.8	30%	36%	36%	2.6%	3.2%	3.5%
ROMGAZ	34.65	4.8	5.2	5.0	2.3	2.5	2.5	8.6	9.3	9.1	48%	48%	49%	9.6%	9.0%	9.6%
Shell	23.15	5.5	4.7	4.5	0.8	0.8	0.8	13.2	10.1	9.4	15%	17%	17%	7.3%	7.4%	7.5%
Snam	4.88	13.2	13.0	12.6	10.7	10.5	10.2	15.0	14.8	14.1	81%	81%	81%	5.0%	5.2%	5.4%
Total	43.76	5.0	4.4	4.3	0.8	0.8	0.8	11.2	9.5	9.1	16%	18%	18%	6.0%	6.4%	6.7%
Median		5.4	5.0	5.0	1.1	1.0	1.0	13.3	10.9	10.1	18%	18%	19%	5.8%	6.1%	6.4%

## 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
E&P COMPANIES																
MOL	2570.00	4.6	4.2	4.0	0.6	0.6	0.6	7.4	6.6	6.2	13%	15%	15%	5.0%	5.3%	5.9%
Bashneft	1969.50	2.1	2.0	1.8	0.5	0.5	0.4	3.0	3.0	2.5	24%	24%	25%	10.9%	10.7%	11.7%
BP	4.53	5.3	4.9	4.8	0.7	0.7	0.7	29.1	10.9	10.4	13%	14%	14%	6.9%	7.2%	7.3%
Dana Gas	0.90	6.6	5.9	-	3.3	3.1	3.0	12.3	12.3	12.3	51%	53%	-	6.6%	6.6%	7.8%
Eni	12.61	3.8	3.6	3.4	0.9	0.9	0.9	13.9	11.0	9.7	24%	25%	26%	6.8%	7.0%	7.1%
Equinor	166.85	3.2	2.7	2.5	1.1	1.0	1.0	12.6	10.5	9.4	35%	36%	37%	5.5%	6.1%	6.4%
Gazprom Neft	442.80	4.4	4.4	4.1	1.1	1.1	1.0	5.3	5.4	5.0	25%	25%	25%	8.1%	9.0%	10.2%
Gulf Keystone	1.85	2.4	1.5	1.1	1.4	1.0	0.8	10.7	5.9	3.8	60%	66%	69%	8.1%	5.9%	7.2%
Lukoil	6594.50	4.0	4.1	4.1	0.6	0.7	0.6	7.1	7.3	7.3	16%	16%	16%	6.6%	11.0%	10.7%
Occidental Petroleum	40.08	10.1	8.0	7.5	4.7	4.0	3.8	20.8	38.3	23.0	46%	50%	51%	7.8%	7.9%	8.0%
Repsol	12.29	4.4	3.9	3.9	0.6	0.6	0.6	8.7	6.9	6.8	14%	16%	16%	7.9%	8.2%	8.4%
Rosneft Oil	479.95	4.4	4.3	4.0	1.1	1.1	1.0	7.0	6.2	5.5	24%	25%	26%	6.7%	7.8%	8.9%
Shell	23.15	5.5	4.7	4.5	0.8	0.8	0.8	13.2	10.1	9.4	15%	17%	17%	7.3%	7.4%	7.5%
Surgutneftegas	34.70	-	-	-	-	-	-	5.3	3.8	3.8	-	-	-	4.3%	8.2%	7.2%
Total	43.76	5.0	4.4	4.3	0.8	0.8	0.8	11.2	9.5	9.1	16%	18%	18%	6.0%	6.4%	6.7%
Tullow Oil	0.49	4.1	5.0	5.3	3.0	3.5	3.6	4.6	8.2	10.2	73%	69%	67%	5.5%	2.0%	2.9%
Median		4.4	4.3	4.0	0.9	0.9	0.8	9.7	7.7	8.2	24%	25%	25%	6.8%	7.3%	7.4%

## 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
MINING COMPANIES																
JSW	19.71	0.8	2.8	2.5	0.2	0.2	0.3	5.0	-	-	19%	9%	11%	8.7%	0.0%	0.0%
KGHM	92.60	4.7	5.1	5.3	1.1	1.1	1.1	9.1	9.7	11.3	24%	22%	20%	0.0%	1.6%	3.1%
LW Bogdanka*	29.90	1.0	1.0	1.2	0.4	0.3	0.4	3.3	4.4	5.9	36%	34%	31%	3.1%	7.0%	7.2%
Anglo American	19.92	4.3	4.3	4.6	1.5	1.5	1.5	9.3	9.4	10.6	34%	34%	32%	4.2%	4.3%	3.9%
Antofagasta	8.35	5.5	5.5	5.1	2.7	2.7	2.6	20.0	19.5	17.0	49%	49%	50%	2.4%	2.5%	3.4%
BHP Group	16.56	6.0	5.7	6.1	3.0	3.0	3.1	13.4	10.7	12.1	50%	53%	51%	6.2%	6.5%	5.9%
Freeport-McMoRan	11.44	13.0	9.0	5.2	2.3	2.2	1.8	-	26.2	9.5	17%	24%	34%	1.7%	1.7%	1.9%
Glencore	2.22	6.6	6.0	5.5	0.3	0.4	0.3	16.5	13.0	10.2	5%	6%	6%	6.5%	5.7%	5.7%
Grupo Mexico	50.46	5.9	5.6	5.3	2.7	2.6	2.4	12.9	11.7	11.0	46%	46%	47%	5.9%	5.9%	8.5%
Kazakhmys	4.42	4.6	4.6	4.4	2.5	2.4	2.3	5.8	5.6	5.5	54%	53%	53%	1.7%	1.8%	1.8%
Rio Tinto	40.84	4.9	5.4	6.0	2.4	2.5	2.6	8.6	9.4	11.6	48%	46%	44%	8.2%	6.6%	5.7%
Southern CC	38.20	9.9	9.4	9.1	4.9	4.7	4.6	18.9	17.4	16.6	50%	50%	50%	4.3%	4.2%	4.2%
Median		5.2	5.4	5.2	2.3	2.3	2.1	9.3	10.7	11.0	41%	40%	39%	4.2%	4.2%	4.1%
ALUMINUM PRODUCERS																
Grupa Kęty	368.00	8.5	9.2	9.5	1.4	1.4	1.4	12.5	14.4	14.8	16%	15%	15%	6.5%	6.4%	5.2%
Alcoa	14.24	9.6	3.9	3.2	0.5	0.5	0.5	-	-	29.9	5%	14%	15%	-	-	-
Constellium	11.72	6.4	6.1	5.5	0.6	0.6	0.6	26.0	11.1	7.9	10%	10%	11%	-	-	-
Kaiser Aluminum	100.49	8.3	7.8	7.6	1.2	1.2	1.2	14.9	13.4	12.6	14%	15%	15%	2.4%	2.5%	2.5%
Norsk Hydro	28.90	6.9	5.0	4.3	0.5	0.5	0.5	30.6	13.4	9.4	8%	10%	12%	4.3%	4.6%	5.1%
Rusal	4.18	15.0	11.4	9.4	1.5	1.5	1.4	6.4	5.0	4.7	10%	13%	15%	1.6%	3.6%	4.6%
Median		8.4	6.9	6.6	0.9	0.9	0.9	14.9	13.4	11.0	10%	14%	15%	3.4%	4.1%	4.8%

Source: mBank 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
FERTILIZER PRODUCERS																
Grupa Azoty	25.26	3.8	6.2	7.8	0.5	0.6	0.8	5.1	20.8	100+	14%	10%	10%	0.0%	0.0%	0.0%
ZA Police*	10.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acron	4890.00	8.8	7.7	7.4	2.7	2.5	2.2	9.9	8.1	8.0	31%	32%	30%	6.6%	6.8%	7.0%
CF Industries	39.75	9.3	9.0	8.6	3.3	3.3	3.2	18.8	17.0	14.6	36%	37%	37%	3.0%	3.1%	3.1%
Israel Chemicals	13.75	6.3	6.3	5.9	1.4	1.4	1.3	10.4	10.0	9.0	22%	22%	22%	5.1%	4.9%	5.3%
K+S	8.80	7.8	7.3	6.3	1.2	1.2	1.1	18.4	13.9	8.1	16%	16%	18%	2.7%	3.5%	4.7%
Phosagro	2425.00	5.7	6.1	5.6	1.8	1.8	1.7	8.0	10.3	10.3	31%	30%	31%	7.3%	4.9%	4.9%
The Mosaic Company	19.96	8.6	7.6	6.4	1.4	1.4	1.3	47.9	21.3	12.3	16%	18%	20%	1.0%	1.1%	1.3%
Yara International	336.30	7.1	6.0	5.6	1.1	1.0	1.0	13.2	10.7	9.3	16%	17%	17%	3.1%	4.8%	5.5%
Median		7.4	6.8	6.3	1.4	1.4	1.3	11.8	12.3	9.3	19%	20%	21%	3.1%	4.1%	4.8%

### 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
AGRI PRODUCERS																
Astarta*	16.45	6.4	3.9	3.8	0.8	0.8	0.7	-	3.0	2.6	13%	19%	19%	-	-	5.0%
Kemel	46.90	4.9	6.8	6.3	0.4	0.5	0.5	5.7	9.2	8.9	9%	8%	7%	1.9%	2.0%	1.9%
Agrana Beteiligungs	19.12	11.2	8.7	7.5	0.7	0.7	0.7	46.6	23.6	16.9	6%	8%	9%	5.2%	5.5%	5.8%
Bunge Limited	52.99	10.2	9.9	9.5	0.4	0.3	0.3	18.4	15.1	12.4	3%	3%	3%	3.8%	4.1%	4.5%
Cosan	82.24	6.8	6.6	6.1	0.6	0.6	0.5	16.1	16.1	14.8	8%	8%	9%	1.8%	1.9%	2.5%
MHP	8.78	5.3	5.0	4.6	1.2	1.2	1.1	6.1	6.5	4.9	23%	23%	24%	8.5%	8.5%	8.5%
Nisshin Oillio	3695.00	8.7	8.3	7.9	0.5	0.5	0.5	13.9	14.1	13.6	6%	6%	6%	2.2%	2.2%	2.2%
Suedzucker	15.56	-	12.1	7.6	0.8	0.8	0.8	-	-	15.5	-	7%	10%	1.3%	1.3%	2.0%
Wilmar Int.	3.85	13.9	12.7	12.0	0.8	0.7	0.7	15.5	13.6	12.3	6%	6%	6%	2.7%	2.9%	3.2%
Median		7.7	8.3	7.5	0.7	0.7	0.7	15.5	13.8	12.4	7%	8%	9%	2.4%	2.5%	3.2%

Source: mBank 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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**DCF** – acknowledged as the most methodologically correct method of valuation; it consists in discounting financial flows generated by a company; its weak point is the significant susceptibility to a change of forecast assumptions in the model.

**Relative** – based on a comparison of valuation multipliers of companies from a given sector; simple in construction, reflects the current state of the market better than DCF; weak points include substantial variability (fluctuations together with market indices) as well as difficulty in the selection of the group of comparable companies.

**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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