

Tuesday, January 28, 2020 | weekly publication

## Tuesday Espresso

### Weekly Commodity Roundup

Analysts: Kamil Kliszcz +48 22 438 24 02, Jakub Szkopek +48 22 438 24 03

#### Utilities

EEX power contracts have shed another euro over the week, currently at EUR 42/MWh, under pressure from a down gas market coupled with a small correction from EUR 25 to EUR 24/t in prices of carbon allowances. In Poland, power prices for 2021 delivery are holding above PLN 250/t, a positive indicator for next year's generation profits after the launch of capacity payments. The clean-dark spread for local lignite-burning plants is slowly climbing toward its 2019 averages, meanwhile shares in PGE keep hitting new all-time lows; in fact, all stocks in the WIG-Energy index are moving in the opposite direction to their upward-bound global counterparts.

#### Gas & Oil

The benchmark refining margin has dropped below \$1/bbl despite a downward shift in crude oil inputs, under pressure from high fuel supply not matched by demand. The crack spreads on diesel still look disappointing against the original post-IMO 2020 expectations. On top of that, the Urals-Brent pricing differential is seen to narrow (\$1.5/bbl) while the Brent-WTI spread holds above \$6/bbl. In petrochemicals, monomer margins continue to rise, led mainly by favorable trends in benzene, but margins on polyethylene and polypropylene remain close to medium-term lows. Gas prices keep trending downward amid unseasonably warm temperatures, with spot rates already below EUR 11/MWh. Capacity utilization at EU gas storages is currently 74% vs. 55% this time last year.

#### Soda Ash

Poland's Ciech has reported that it had raised prices for 2020 soda ash deliveries by several percent – a positive development from the point of view of earnings.

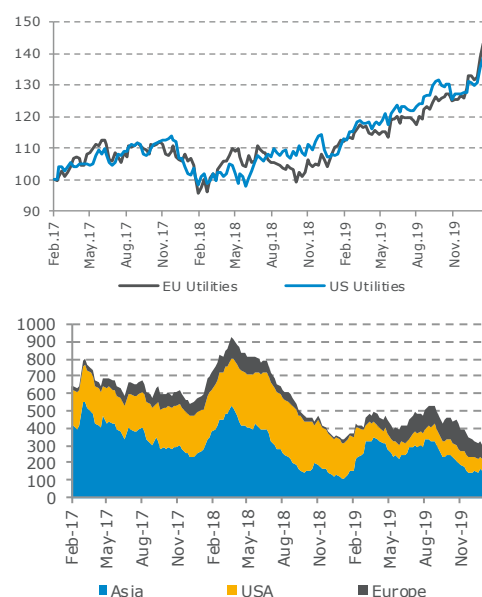
#### Metals

The coronavirus outbreak in China (with infections now up to over 4.5 thousand and a rising death toll) has pushed commodity markets lower on fears of disruptions in economic activity across Asia, resulting in lower demand growth. All industrial metals are trending down with the exception of precious metals.

#### Agricultural Commodities

As prices of natural gas fall, the profit margins of nitrogen fertilizer producers should be rising. When it comes to Grupa Azoty, however, the drop in production observed in December sends a negative signal (read today's [Morning Comments](#) for more).

#### Charts of the Week



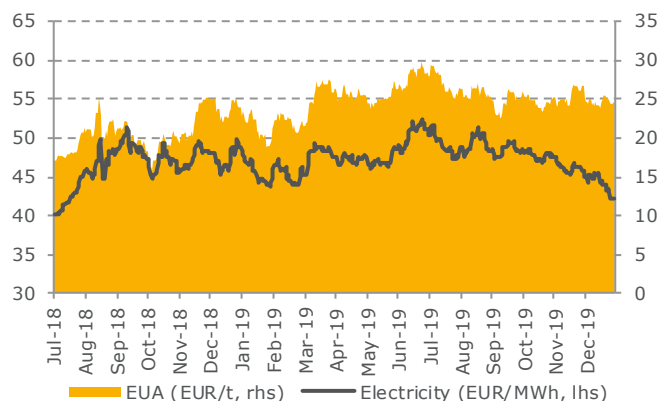
Source: Bloomberg, mBank

#### 1-Week & YTD Performance

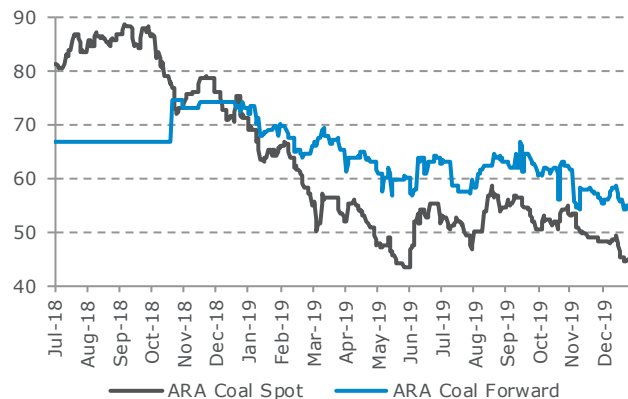
Company	1W	YTD
JSW	-11.3%	-10%
Astarta	-9.9%	+5%
PGNiG	-8.6%	-11%
Grupa Azoty	-8.6%	-9%
KGHM	-7.2%	-3%
PGE	-7.0%	-10%
MOL	-5.0%	-9%
Tupras	-4.8%	-9%
ZE PAK	-4.3%	-1%
Tauron	-4.1%	-8%
Enea	-4.1%	-8%
OMV	-3.9%	-8%
PKN Orlen	-3.7%	-4%
ZA Puławy	-3.7%	+0%
Orzeł Biały	-3.5%	+2%
PCC Rokita	-3.4%	+4%
ZCh Police	-2.8%	-2%
Energa	-2.7%	+5%
Lotos	-2.7%	-0%
Kęty	-2.5%	+0%
LW Bogdanka	-2.4%	-5%
IMC	-2.2%	+6%
Alumetal	-1.6%	+6%
Tarczyński	-0.7%	-8%
CEZ	-0.5%	+2%
Kruszwica	-0.4%	+8%
Kernel	+0.0%	+6%
Ciech	+4.3%	-3%
Boryszew	+4.8%	+8%
WIG Indices	1W	YTD
WIG	-3.5%	-1%
Chemicals	-3.3%	-6%
Energy	-5.2%	-6%
Oil & Gas	-4.3%	-4%
Food Industry	-0.7%	+6%
Basic Material	-7.4%	-3%
Ukraine	-1.6%	+5%
Sector Indices	1W	YTD
Mining	-9.6%	-6%
Oil & Gas E&P	-8.5%	-8%
Refining EU	-3.5%	-3%
Refining US	-6.7%	-12%
Agri & Food	+0.6%	+2%
Rubber	-4.7%	-8%
Fertilizers	-7.8%	-10%
Chemicals EU	-2.5%	-5%
Industrials EU	-2.0%	+0%
Petchem World	-6.3%	-6%
Utilities EU	+1.7%	+8%
Utilities US	+2.0%	+5%

## Utilities

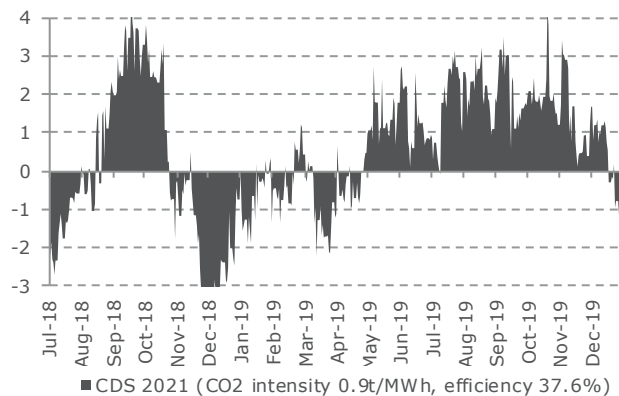
**EU Prices of Electricity (EUR/MWh) & EUAs (EUR/t)**



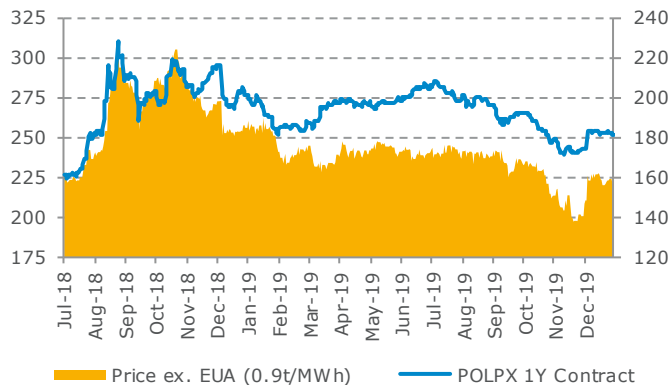
**ARA Coal Spot and Forward Prices (EUR/t)**



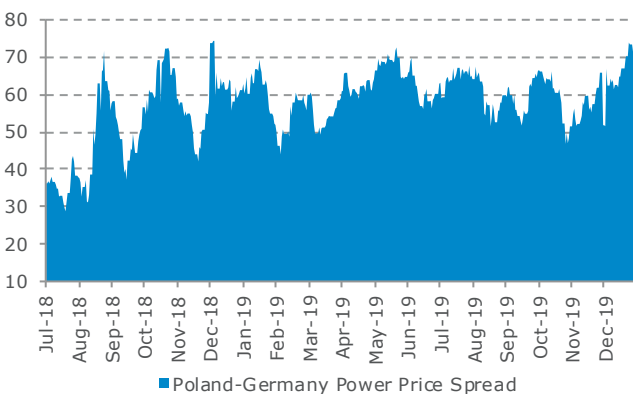
**Clean-Dark Spread, Germany (EUR/MWh)**



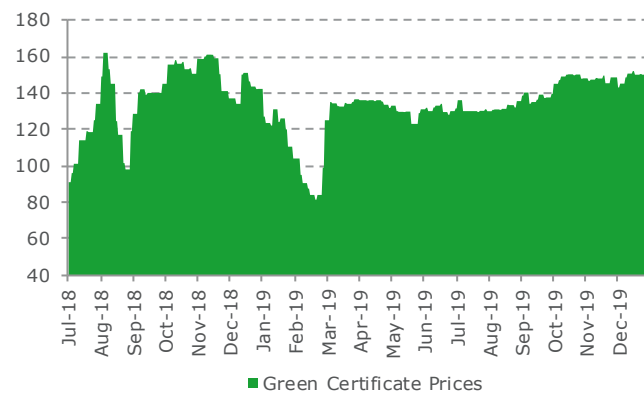
**Polish Electricity Prices (1Y) (PLN/MWh)**



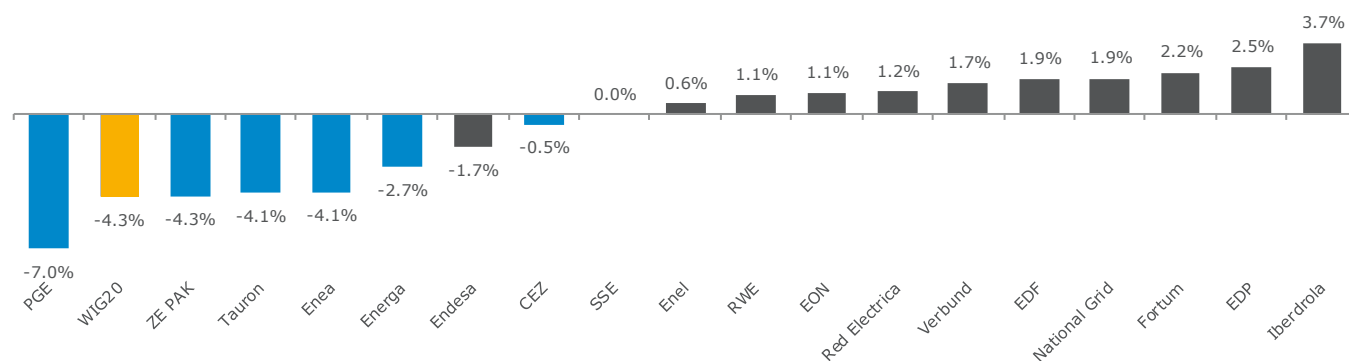
**Poland-Germany Power Price Spread (PLN/MWh)**



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



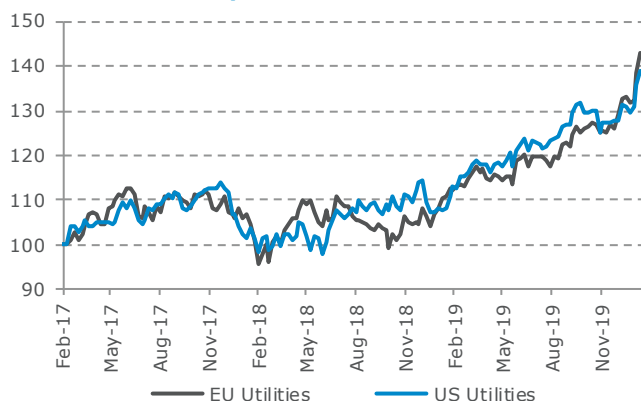
## Weekly Returns of Utility Stocks



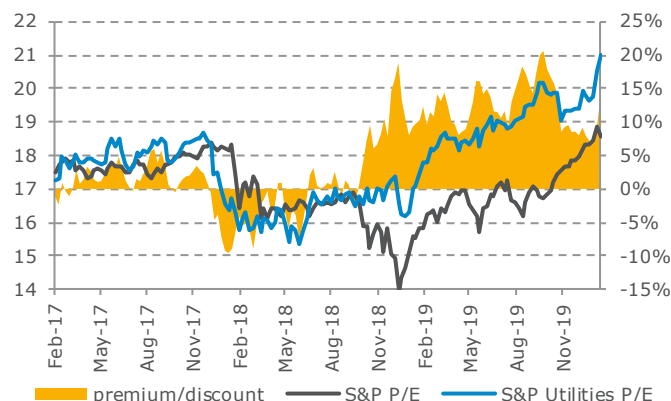
Source: Bloomberg, mBank

## Utilities

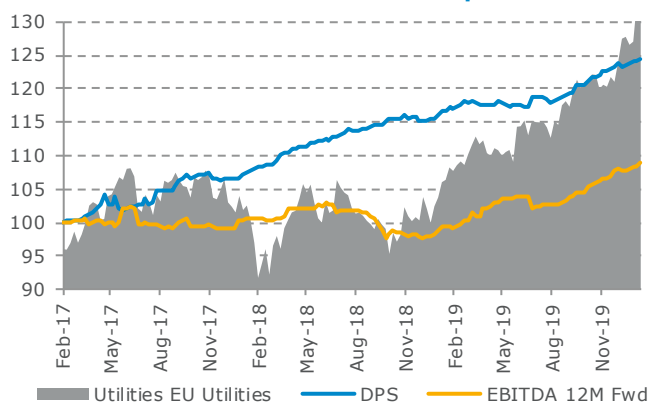
MSCI Utilities Europe vs. S&P Utilities



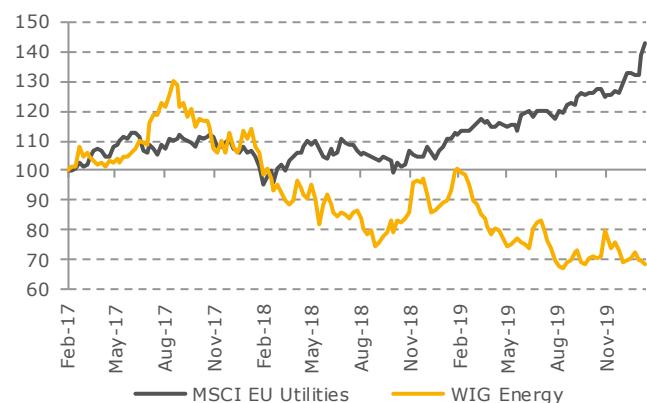
S&P Utilities vs. S&P 500 P/E



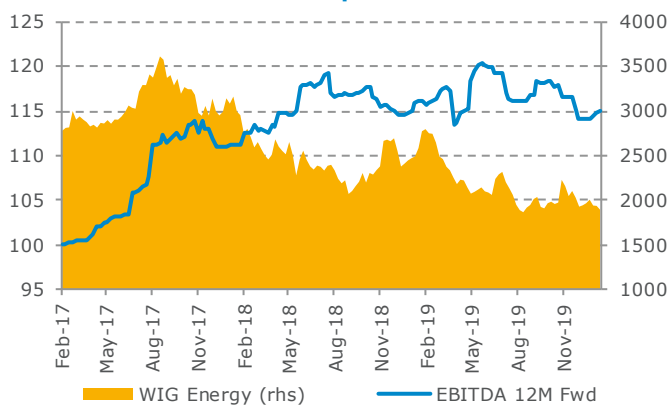
MSCI Utilities EU vs. DPS & EBITDA Expectations



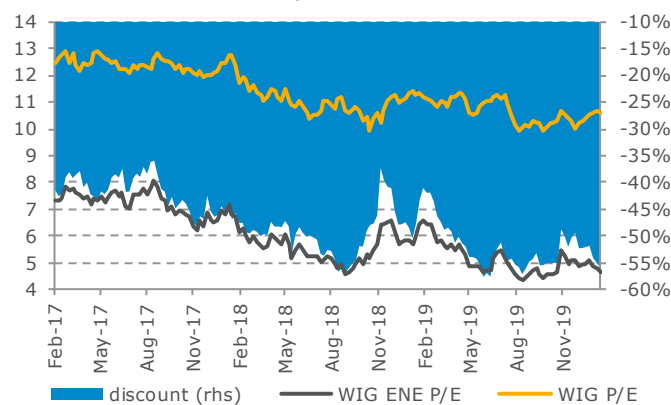
MSCI Utilities EU vs. WIG-ENERGY



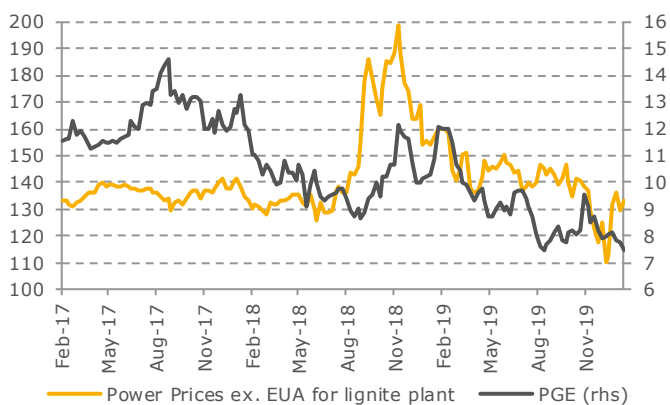
WIG-ENERGY vs. EBITDA Expectations



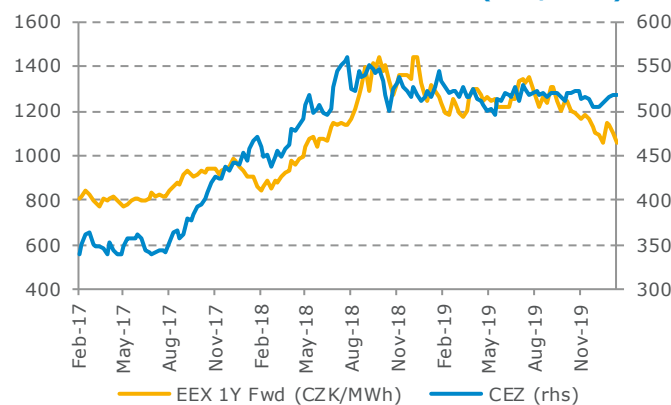
WIG-ENERGY vs. WIG P/E



PGE Performance vs. Power Prices ex. EUA



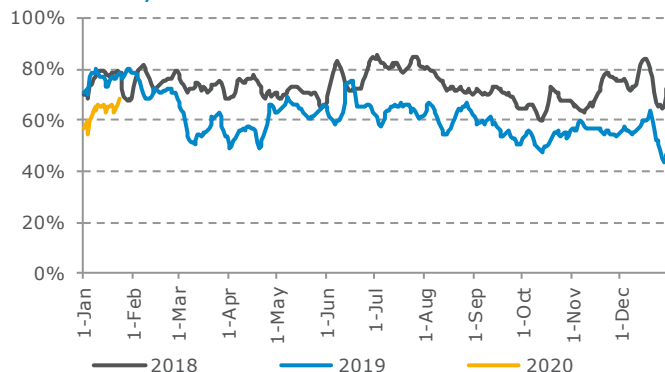
CEZ Performance vs. EEX Power Prices (CZK/MWh)



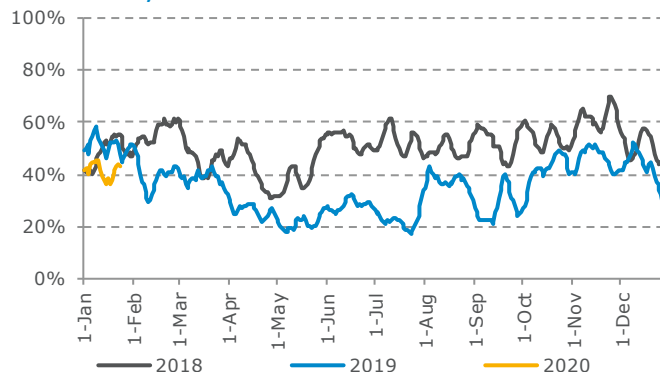
Source: Bloomberg, mBank

## Utilities

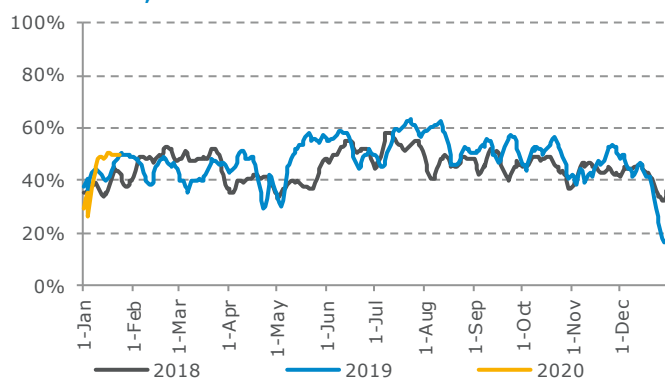
**Load Factor, Bełchatów Power Station**



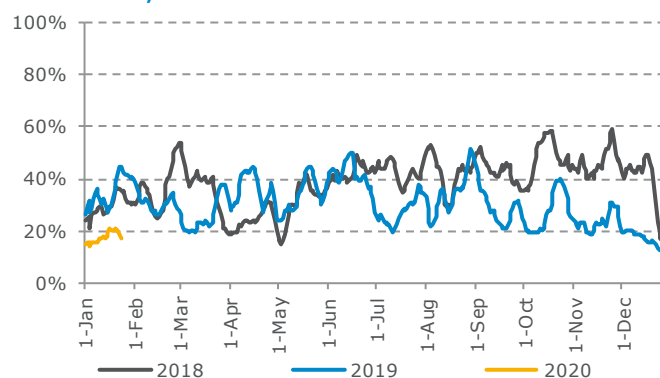
**Load Factor, Turów Power Station**



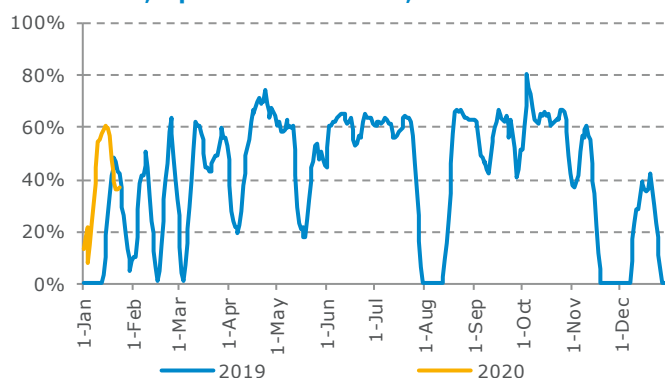
**Load Factor, Kozienice Power Station**



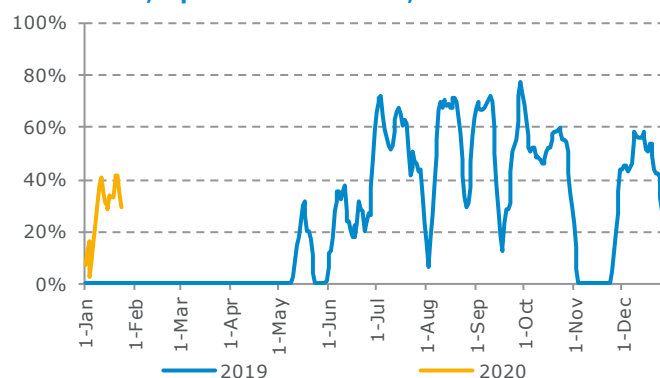
**Load Factor, Jaworzno Power Station**



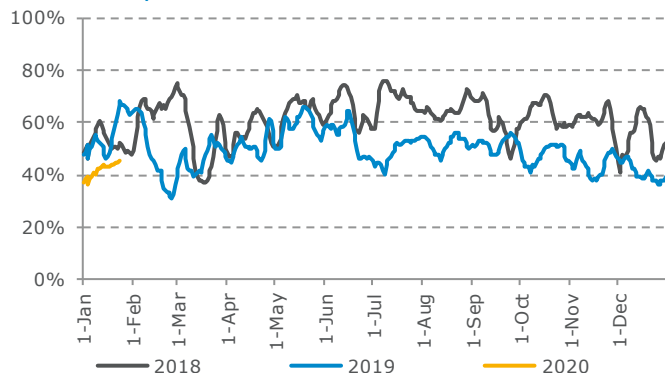
**Load Factor, Opole Power Station, Block B5**



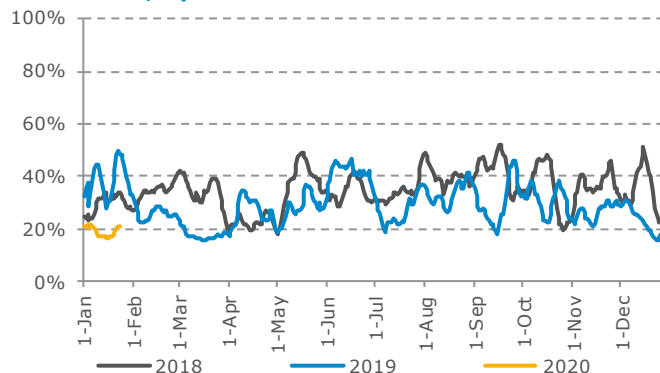
**Load Factor, Opole Power Station, Block B6**



**Load Factor, Połaniec Power Station**



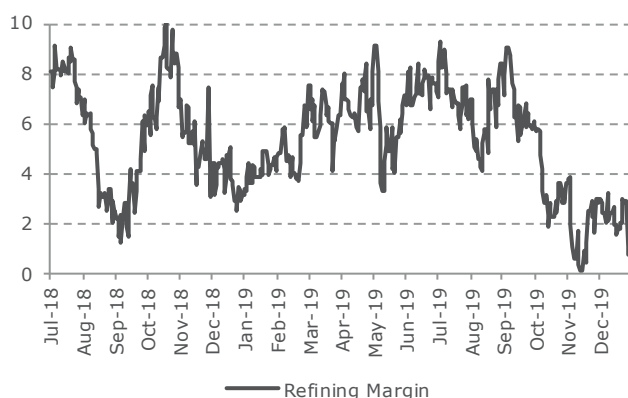
**Load Factor, Rybnik Power Station**



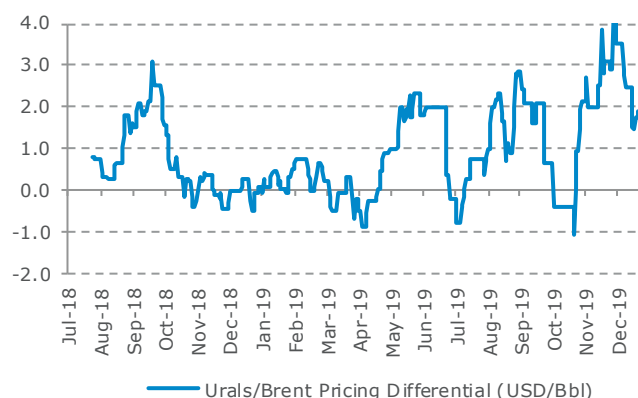
Source: PSE, mBank; Load factor = actual generation (7-day average) as a percentage of available capacity

## Gas & Oil

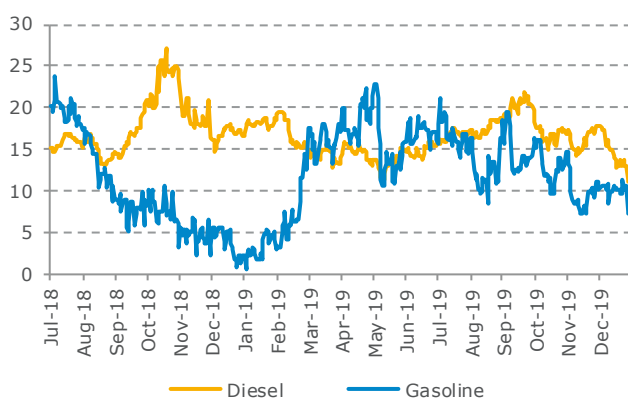
### Refining Margins (US\$/bbl)



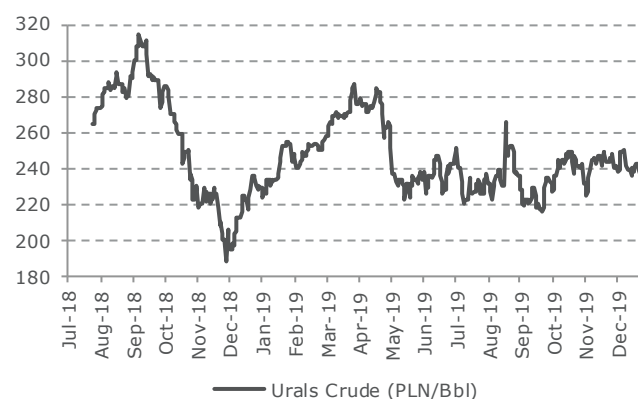
### Urals/Brent Pricing Differential (US\$/bbl)



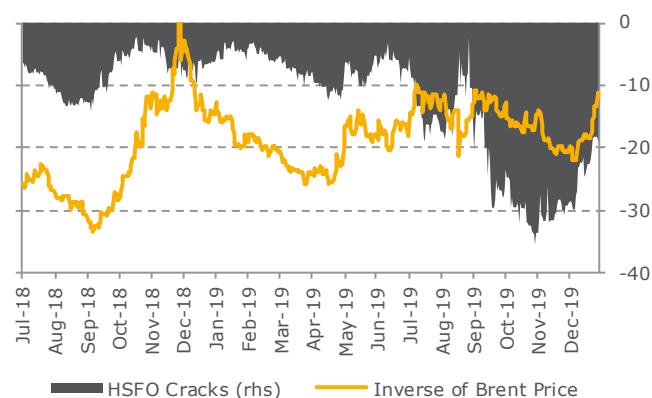
### Cracking Margins on Diesel & Gasoline (US\$/bbl)



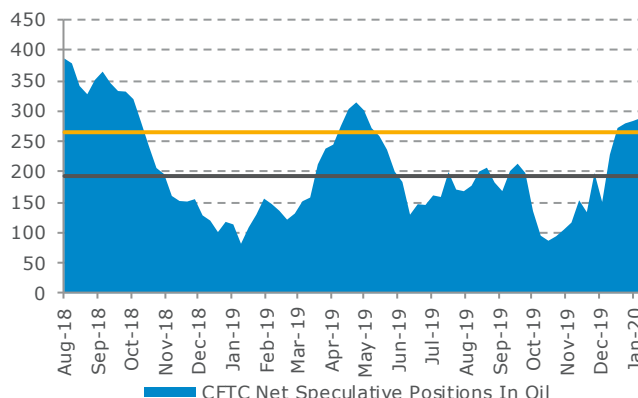
### Price of Urals Crude (PLN/bbl)



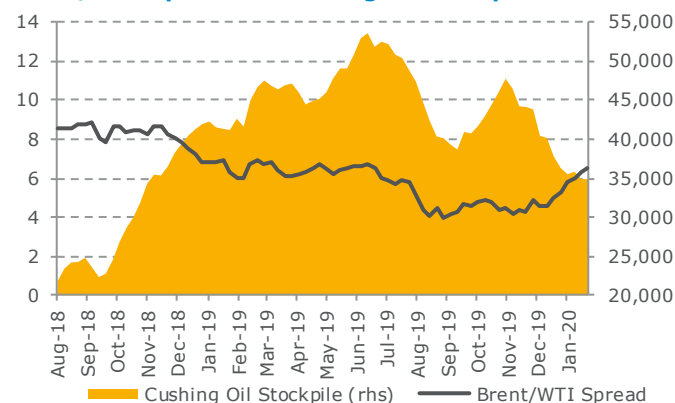
### HSFO Cracks (US\$/bbl) vs. Inverse of Brent Price



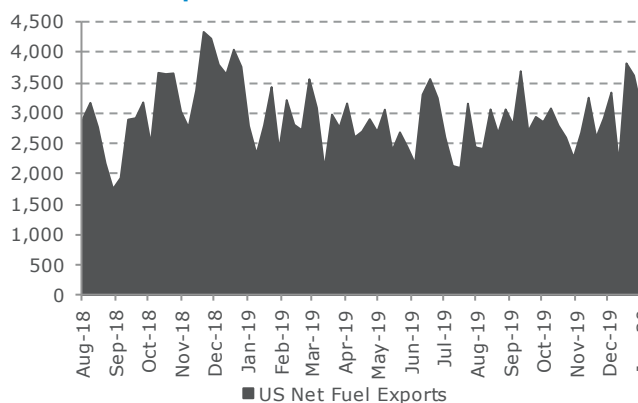
### CFTC Net Speculative Positions In Oil



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



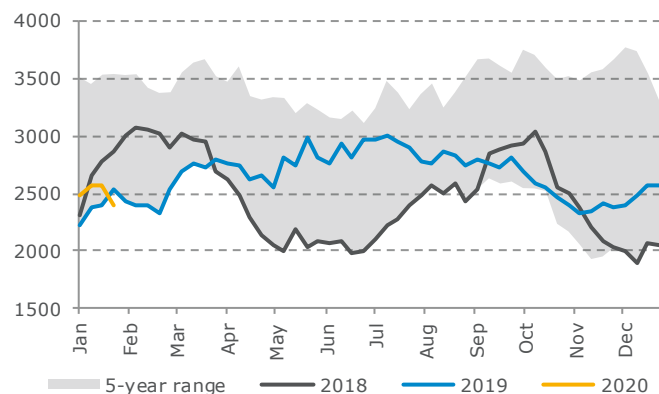
### US Net Fuel Exports



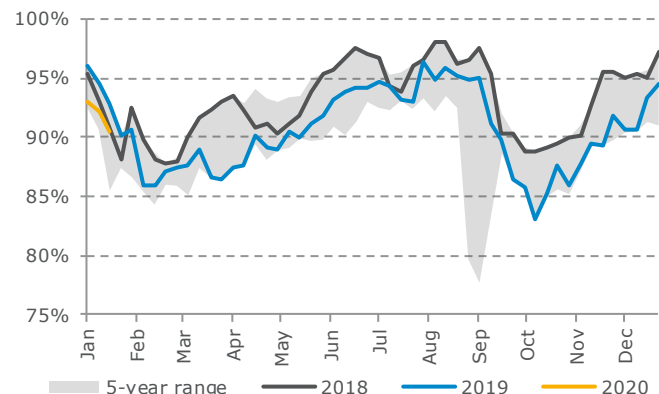
Source: Bloomberg, mBank

## Gas & Oil

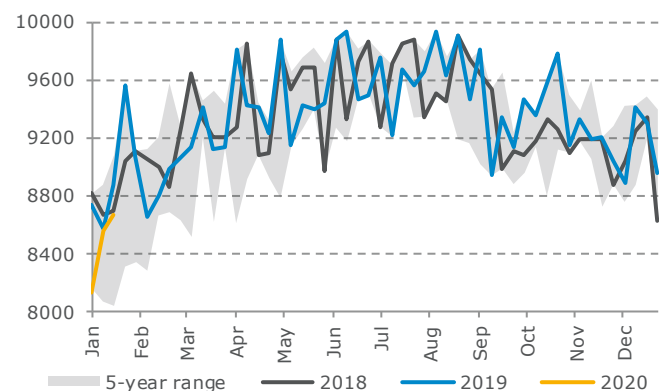
**Diesel Inventories @ARA**



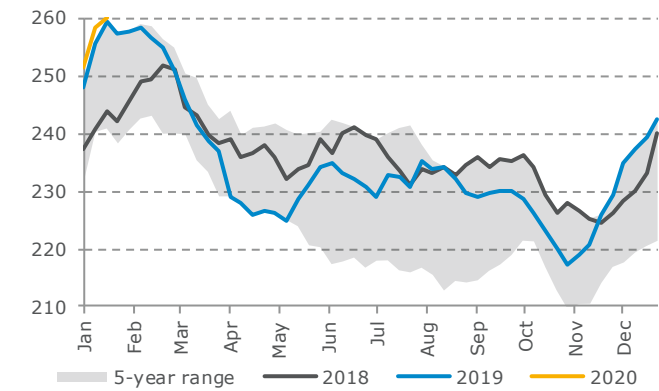
**US Refinery Utilization Rates**



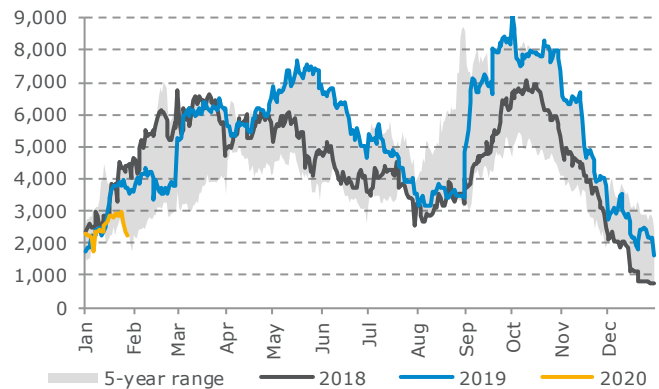
**US Gasoline Demand**



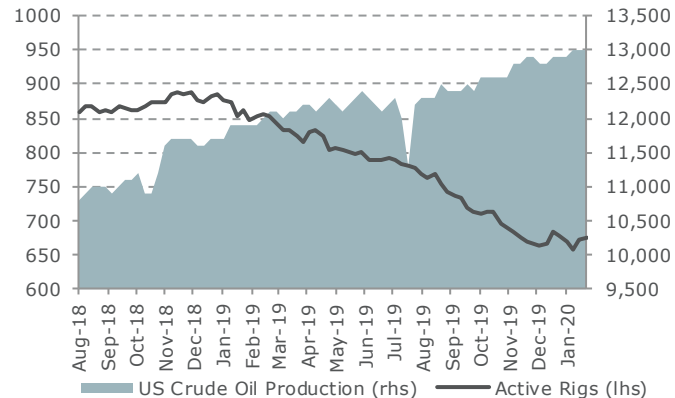
**US Gasoline Inventories**



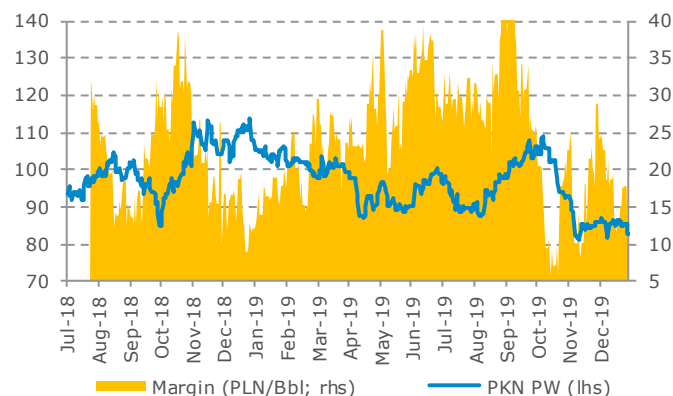
**Global Refinery Outages (mbbl/d)**



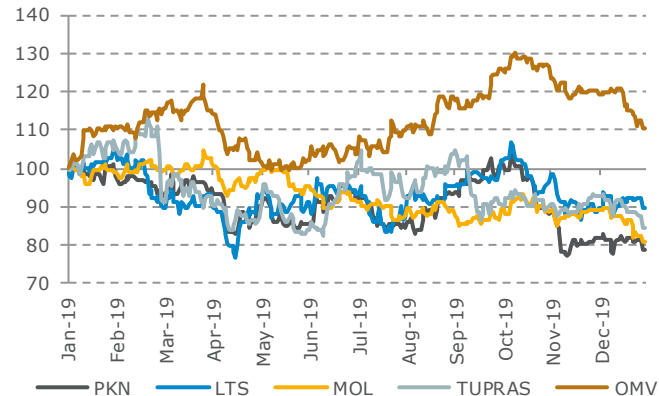
**US Crude Oil Production (mboe/d) vs. Active Rigs**



**PKN Performance vs. Benchmark Margins**



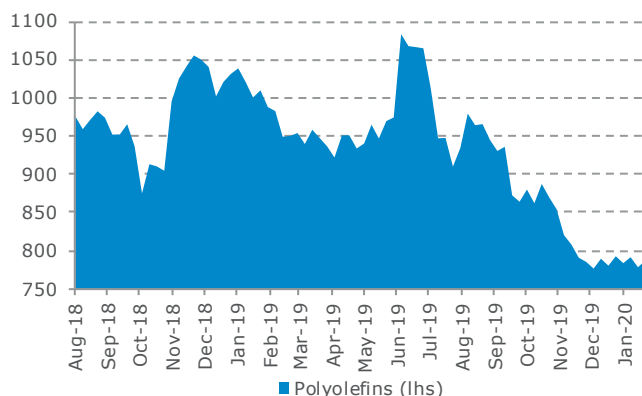
**Normalized Oil Stock Chart**



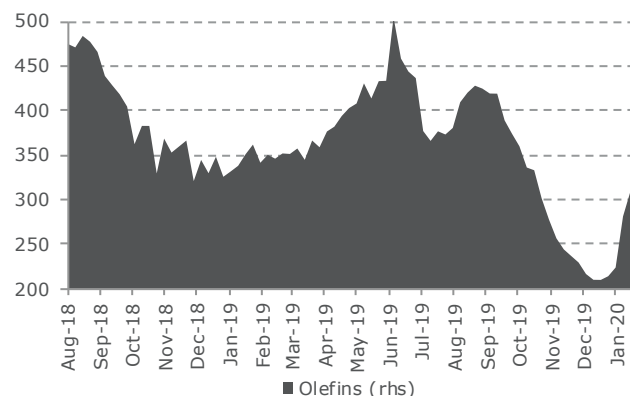
Source: Bloomberg, mBank

## Petrochemicals & NatGas

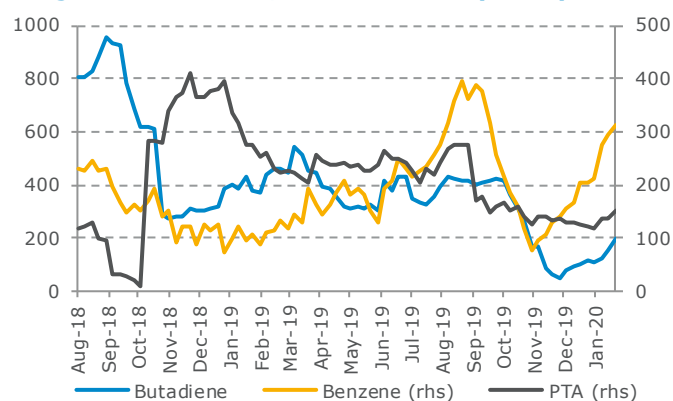
### Margins on Polyolefins



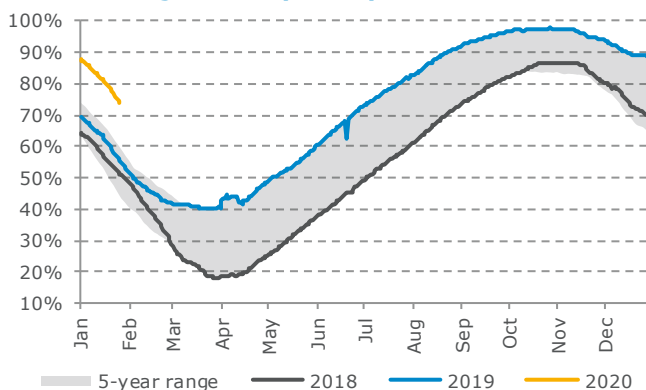
### Margins on Olefins



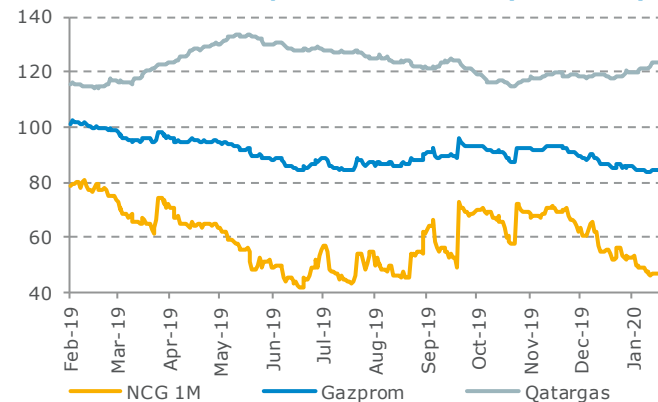
### Margins on Butadiene, Benzene & PTA (US\$/t)



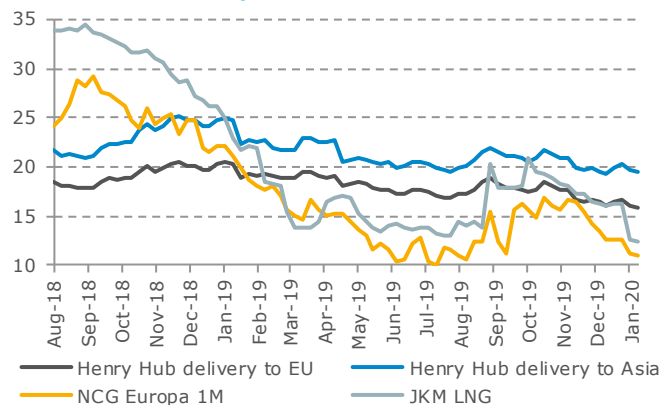
### EU Gas Storage Levels (% Full)



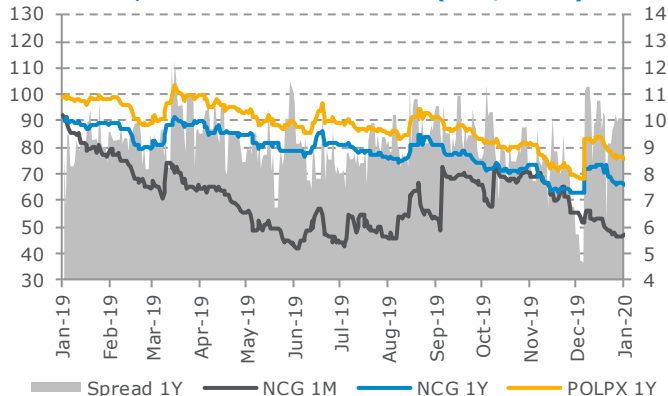
### Estimated Costs of Imported Natural Gas (PLN/MWh)



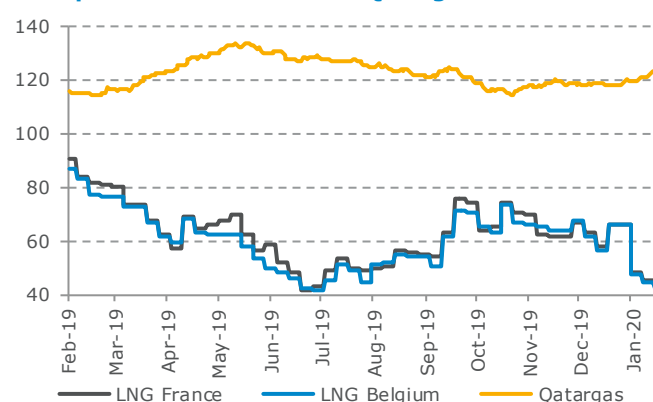
### Prices of US LNG Exports to EU and Asia



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



### LNG Spot Rates vs. Estimated Qatargas rates

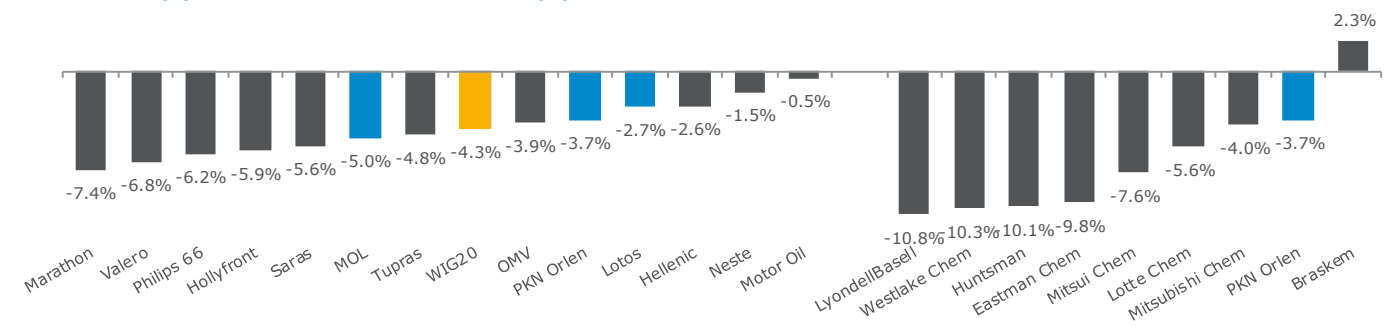


Source: Bloomberg, mBank

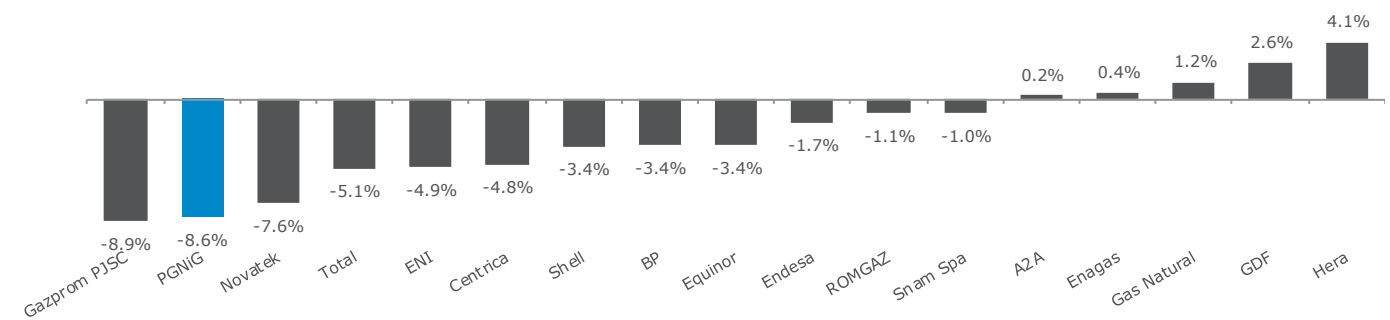


## Weekly Performance Charts

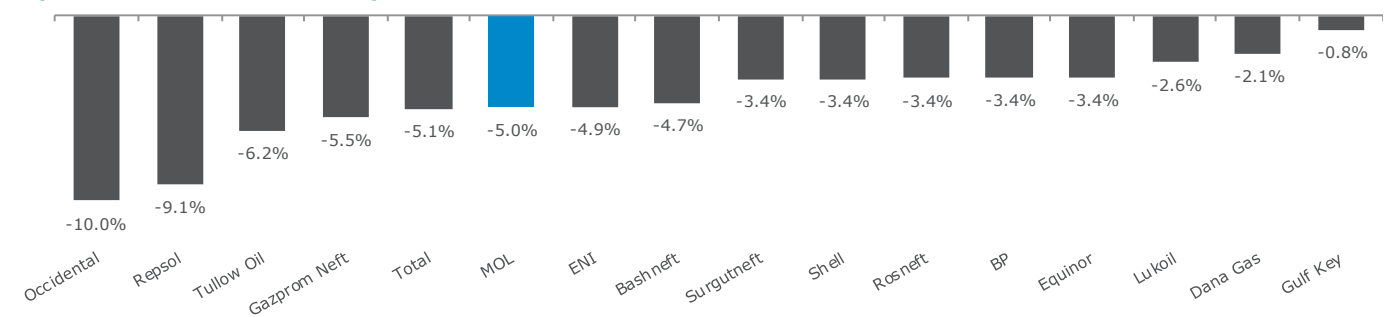
### Oil Refiners (L) & Petrochemical Producers (R)



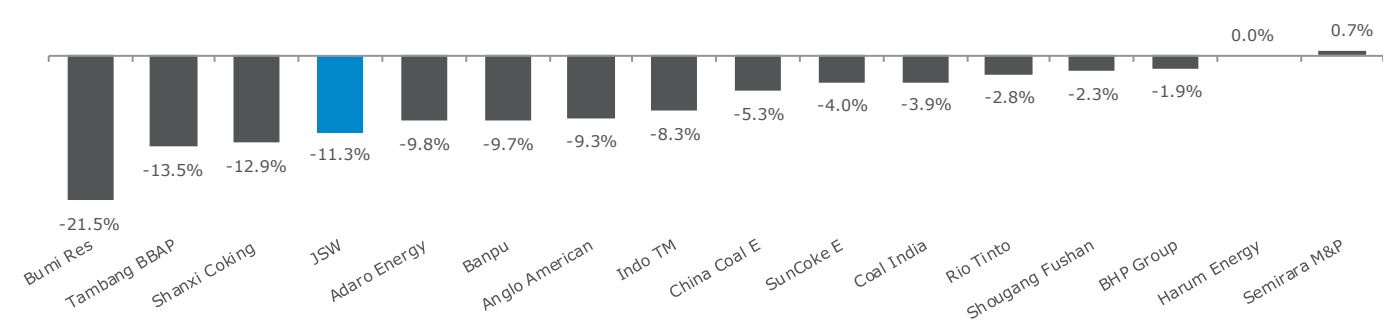
### Natural Gas Companies



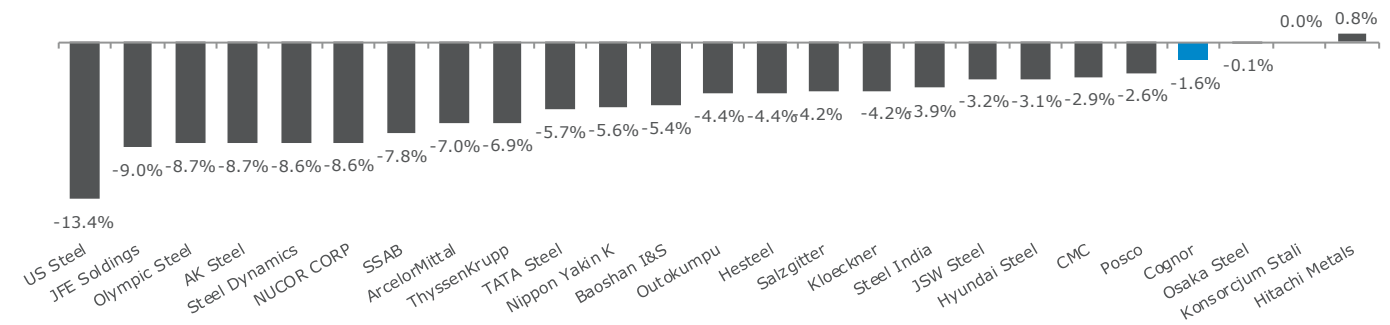
### Exploration & Production Companies



### Coal Producers



### Steel Producers & Distributors

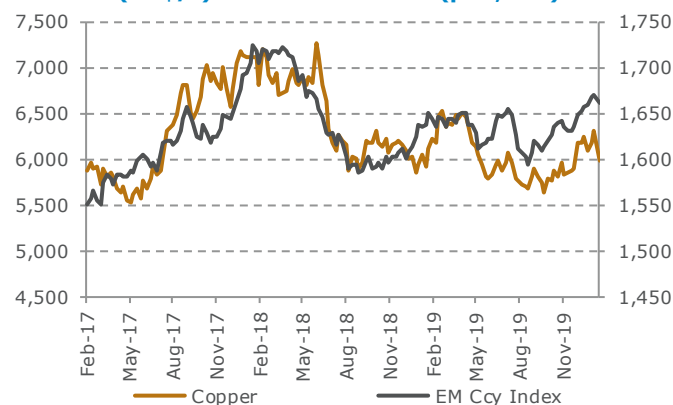


Source: Bloomberg, mBank

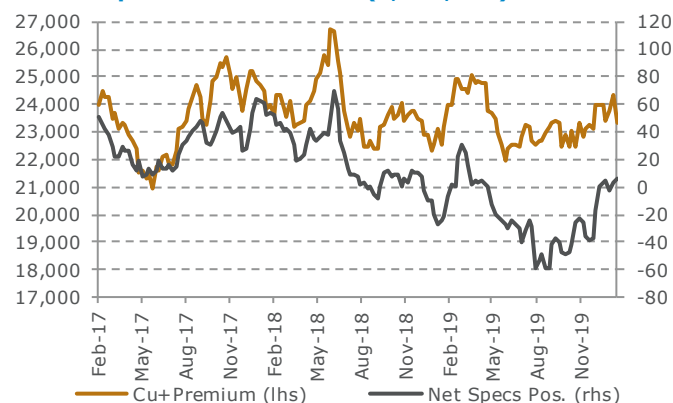


## Copper Charts

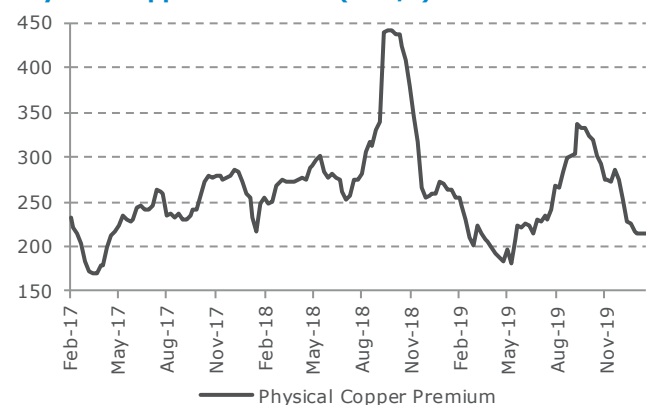
Cu Price (US\$/t) vs. EM Currencies (pts.; rhs)



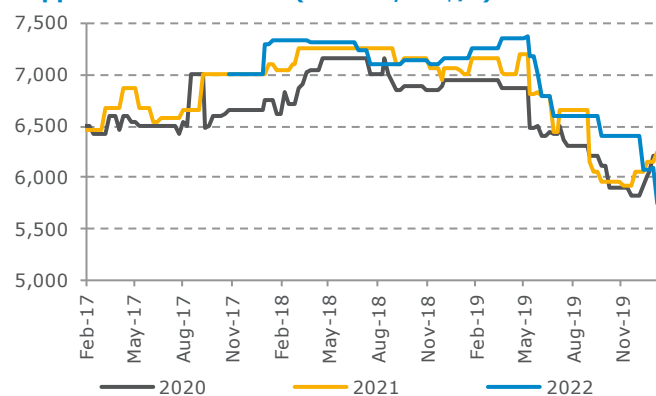
CU Price incl. Supplier Premium (PLN 1,000/t; lhs) vs. Net Speculative Positions (1,000, rhs)



Physical Copper Premiums (PLN/t)



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



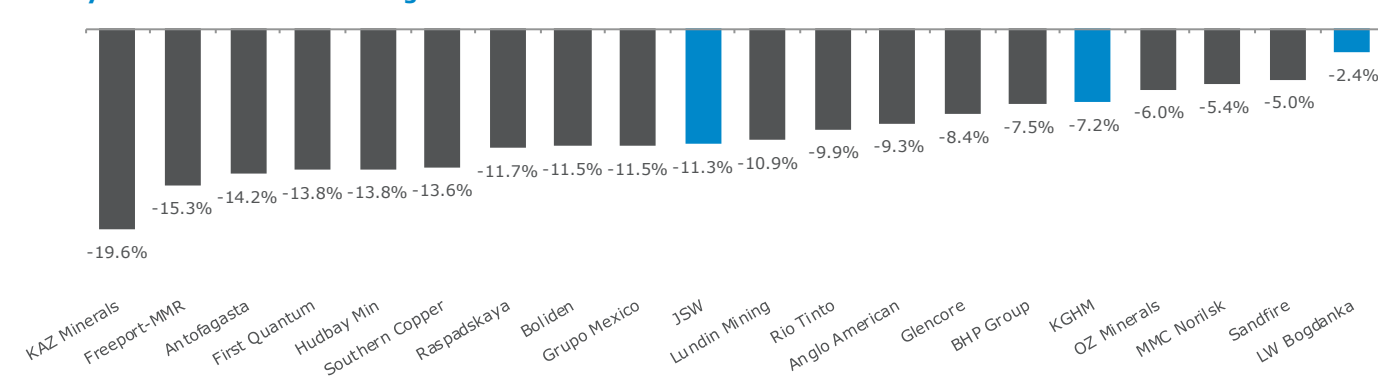
Silver prices (PLN/kg)



Prices of gold (PLN/oz)



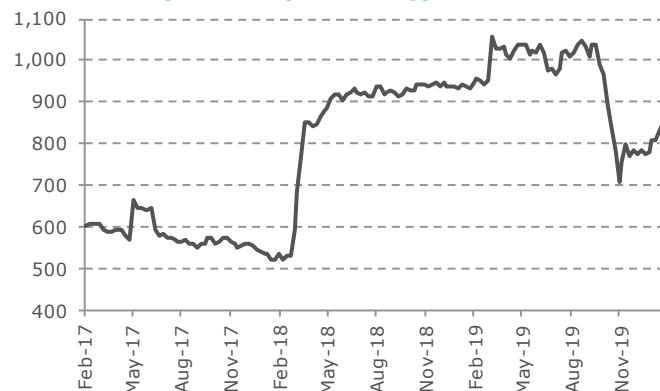
Weekly Returns of Metal & Mining Stocks



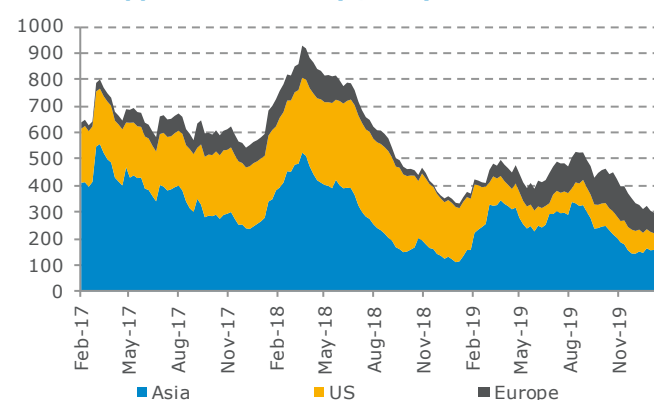
Source: Bloomberg, mBank

## More Copper Charts

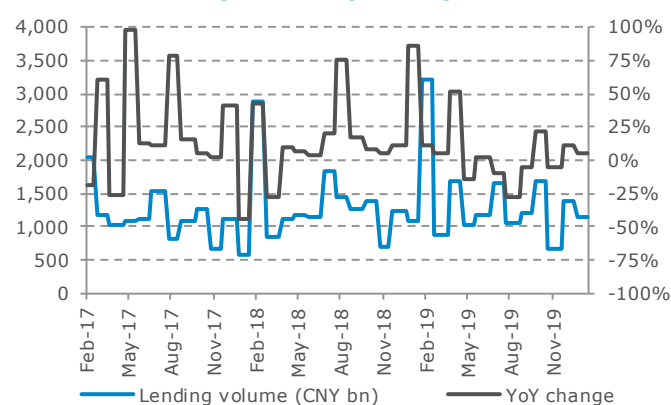
Prices of molybdenum (PLN/10 kg)



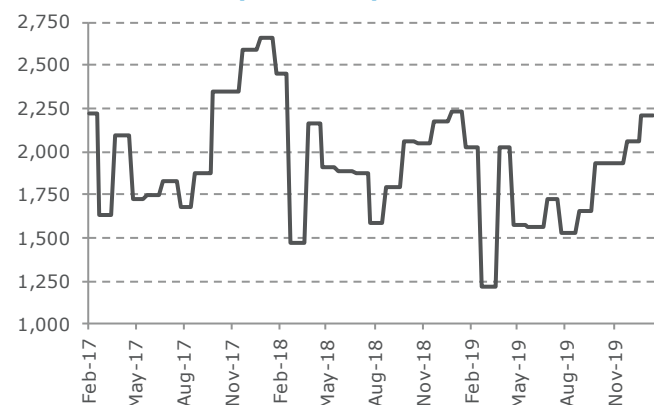
Global Copper Inventories (1,000t)



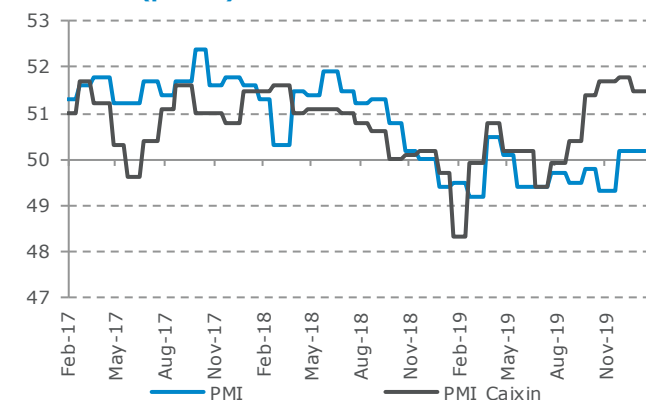
New Bank Lending in China (CNY bn)



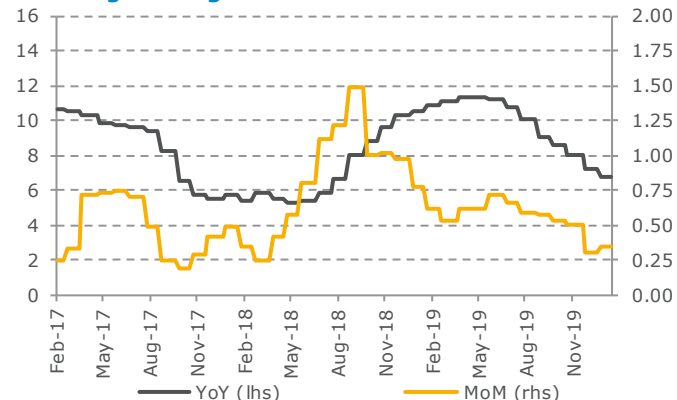
Car Sales in China (thousands)



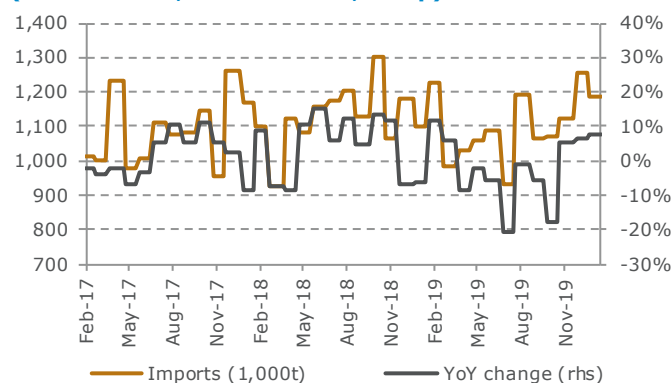
China PMI (points)



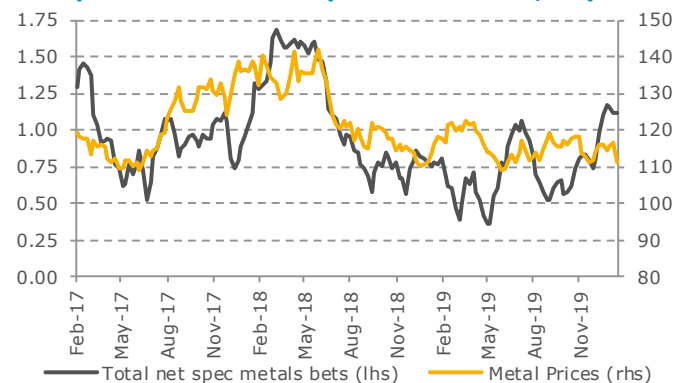
% Change In Avg. New Home Prices In 70 CN Cities



China Copper Imports (concentrates, refined metal, scrap)



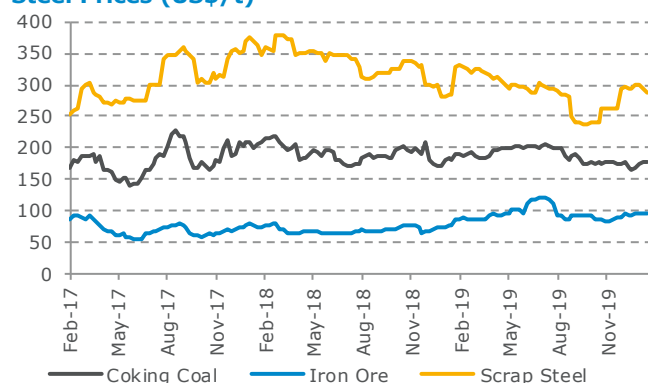
Metal Price Index (pts, rhs) vs. Net Speculative Positions (million contracts, lhs)



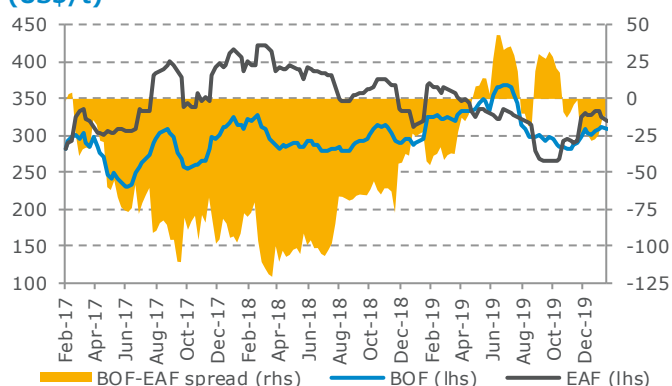
Source: Bloomberg, mBank

## Steel Charts

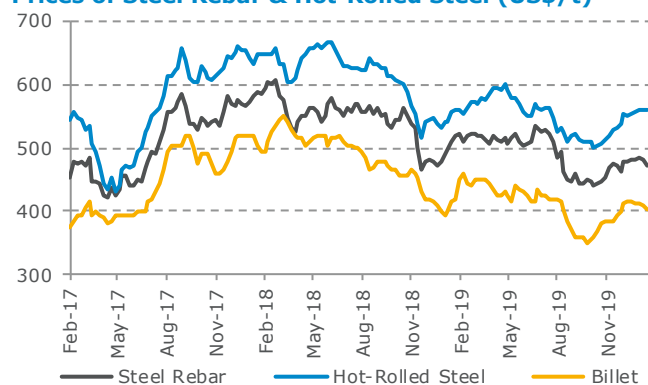
**China Coking Coal & Iron Ore Prices, Rotterdam Scrap Steel Prices (US\$/t)**



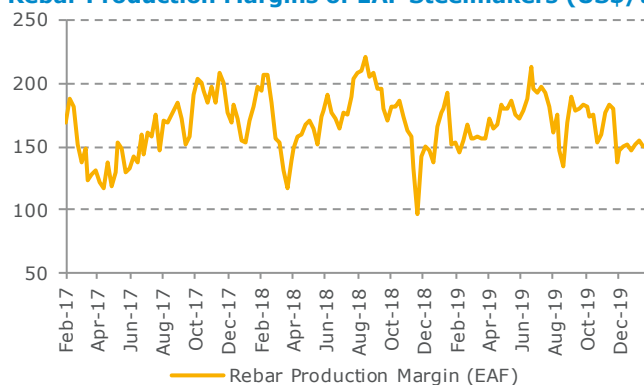
**Production Costs of BOF vs. EAF Steel Producers (US\$/t)**



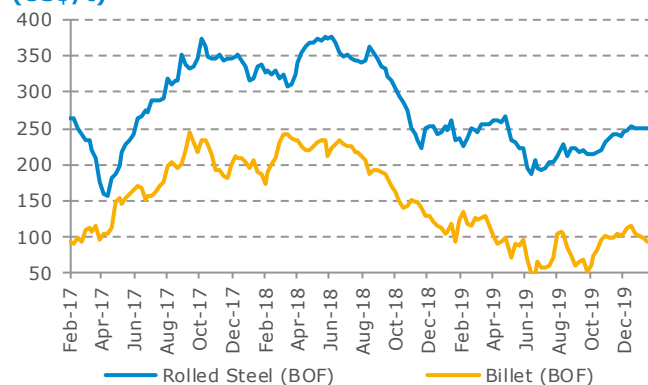
**Prices of Steel Rebar & Hot-Rolled Steel (US\$/t)**



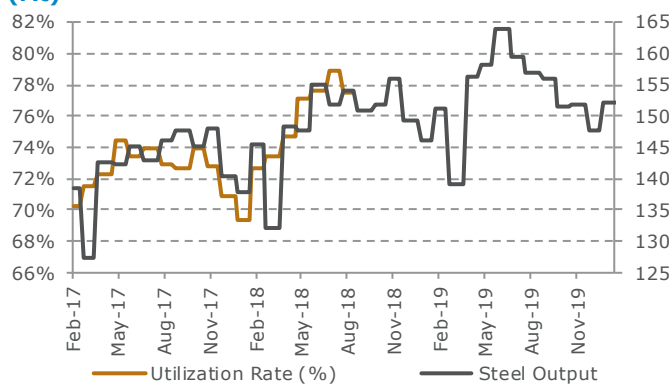
**Rebar Production Margins of EAF Steelmakers (US\$/t)**



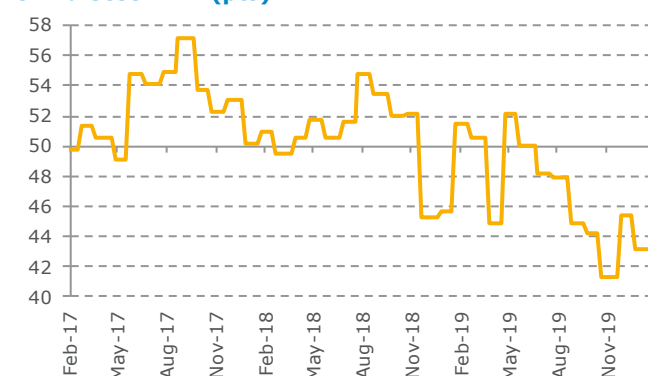
**Rolled Steel & Billet Margins of BOF Steelmakers (US\$/t)**



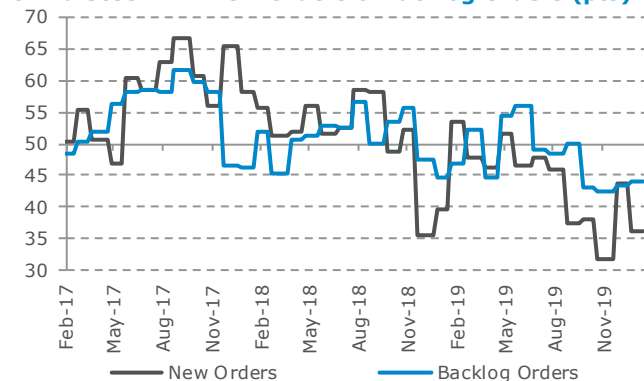
**Global Steel Plant Capacity Utilization Rates & Output (Mt)**



**China Steel PMI (pts)**



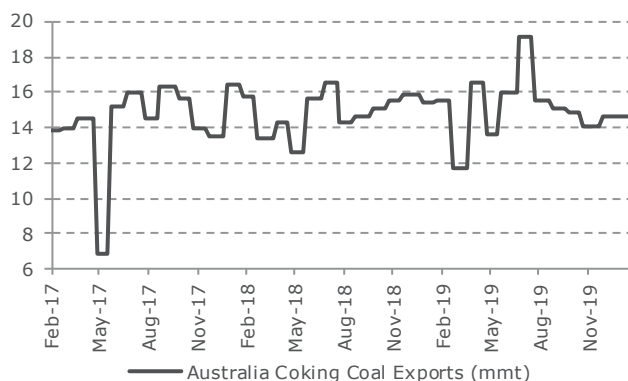
**China Steel PMI New Orders & Backlog Orders (pts)**



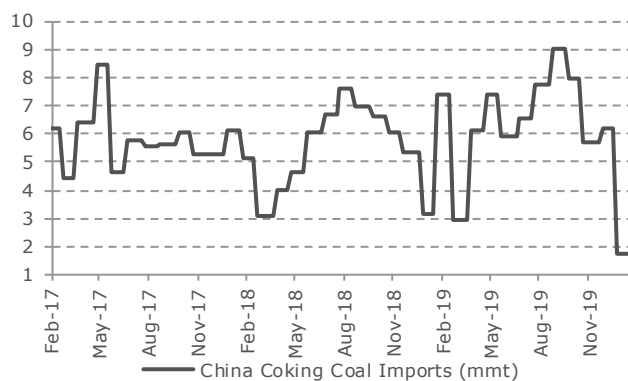
Source: Bloomberg, mBank

## More Steel Charts

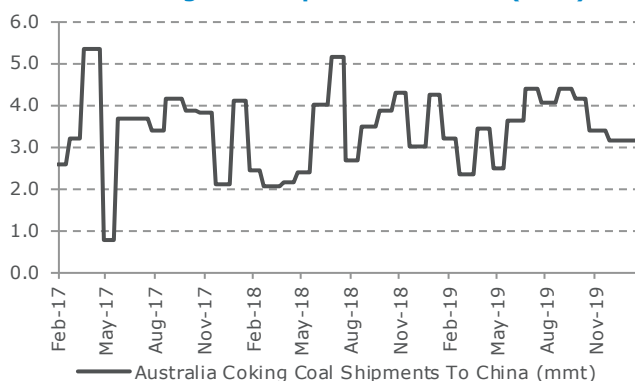
**Australia Coking Coal Exports (mmt)**



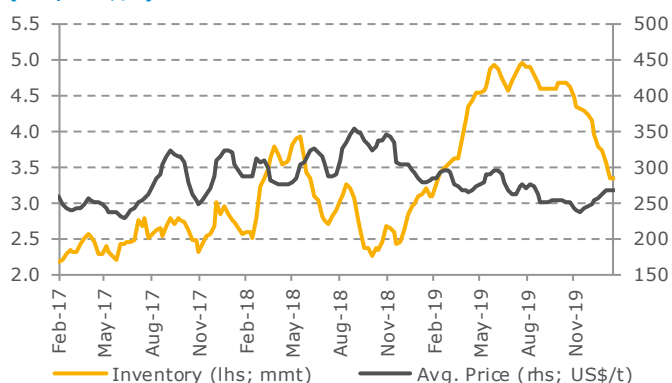
**China Coking Coal Imports (mmt)**



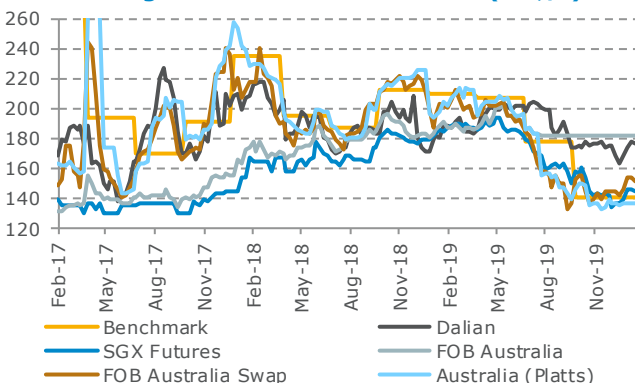
**Australia Coking Coal Shipments To China (mmt)**



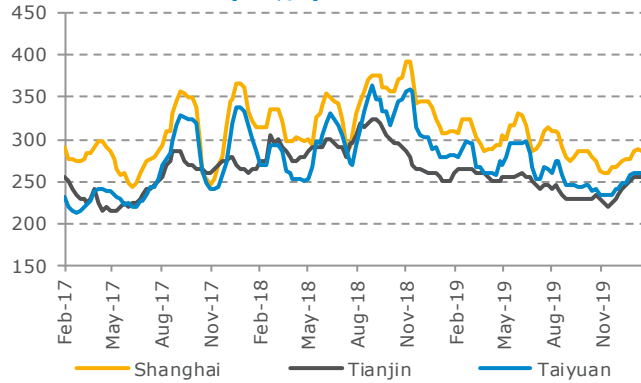
**China Coke Inventories (lhs; mmt) & Average Prices (rhs; US\$/t)**



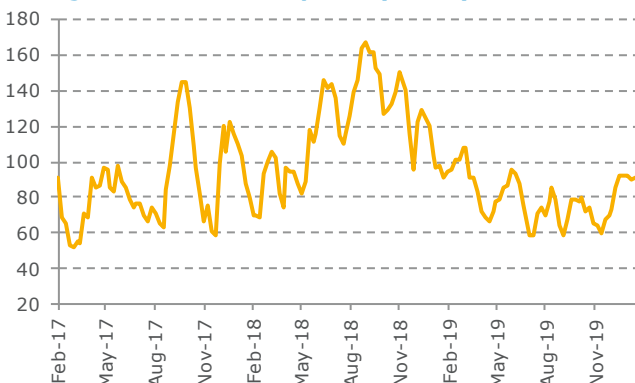
**China Coking Coal Prices vs. Benchmark (US\$/t)**



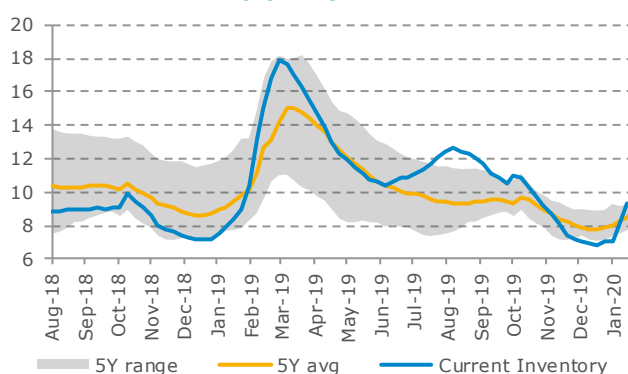
**China Coke Prices (US\$/t)**



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



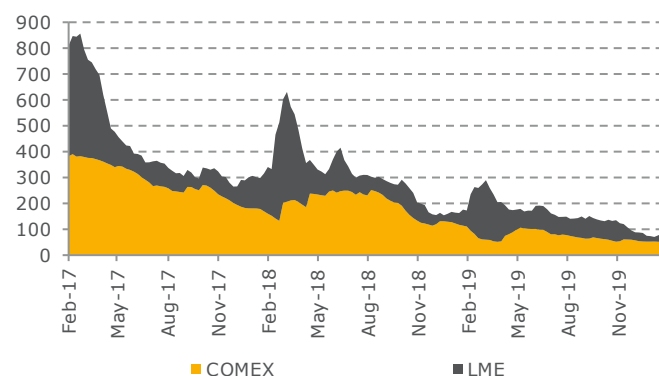
**China Steel Inventory (mmt)**



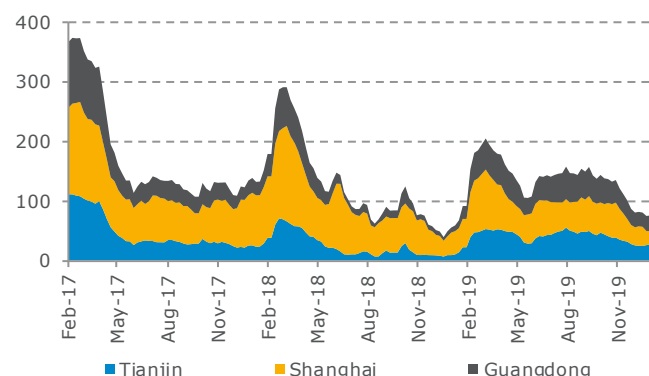
Source: Bloomberg, mBank

## Zinc and Electrical Steel Charts

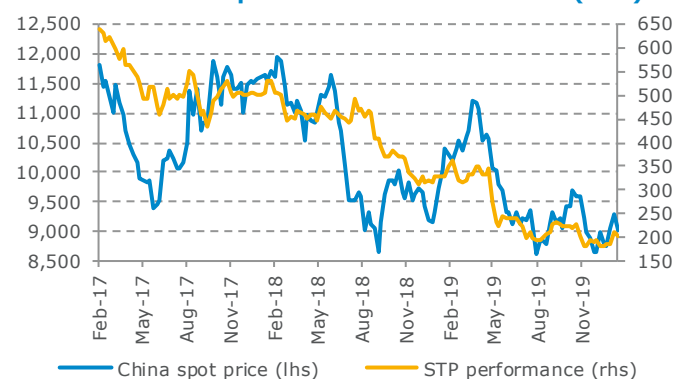
### Exchange-Monitored Zinc Inventories (1,000t)



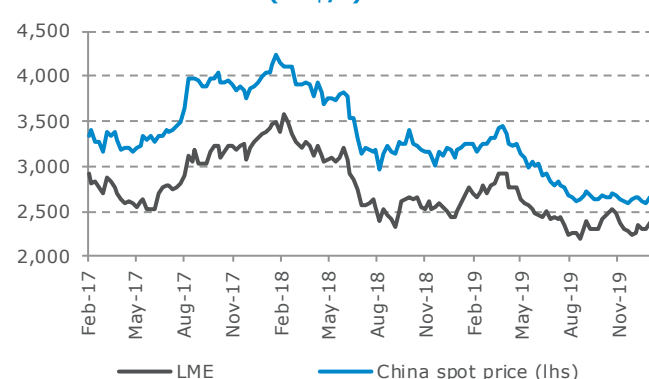
### Zinc Inventories in Three Chinese Regions (1,000t)



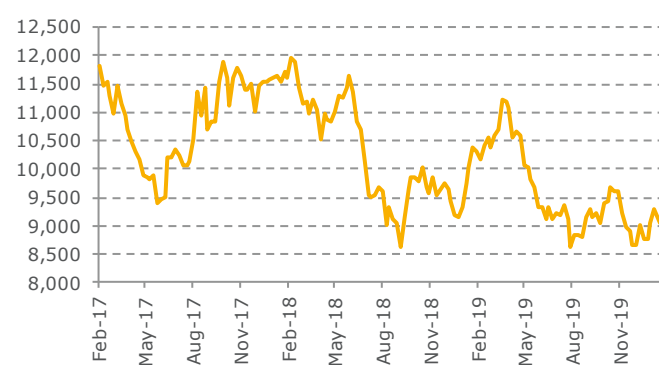
### Zinc Prices vs. Stalprodukt Stock Performance (PLN)



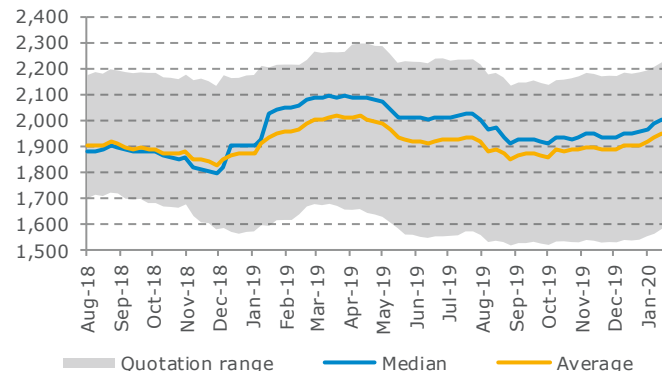
### US Dollar Zinc Prices (US\$/t)



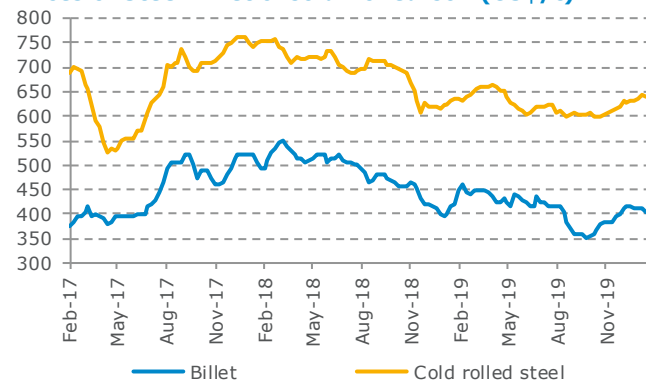
### Polish Zloty Zinc Prices (PLN/t)



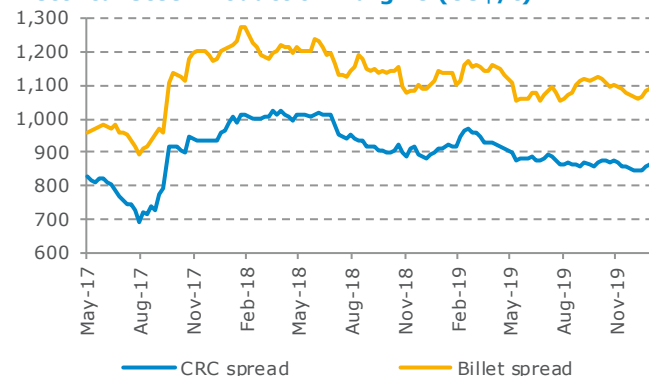
### China Electrical Steel Prices (US\$/t)



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



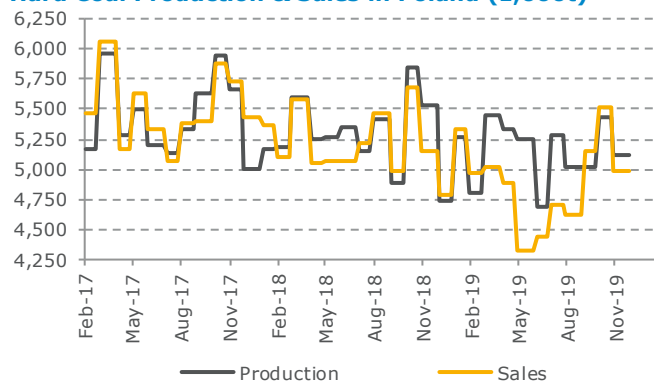
### Electrical Steel Production Margins (US\$/t)



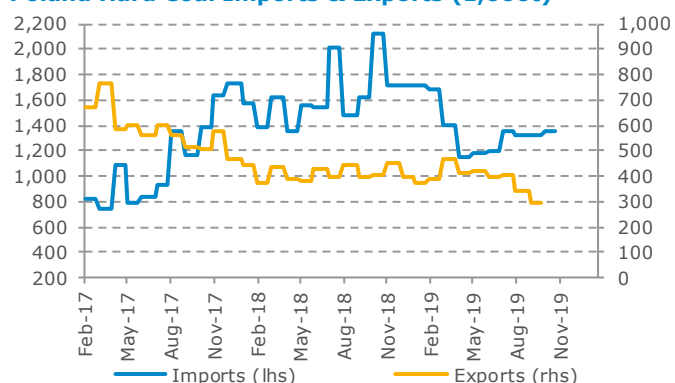
Source: Bloomberg, mBank

## Thermal Coal Charts

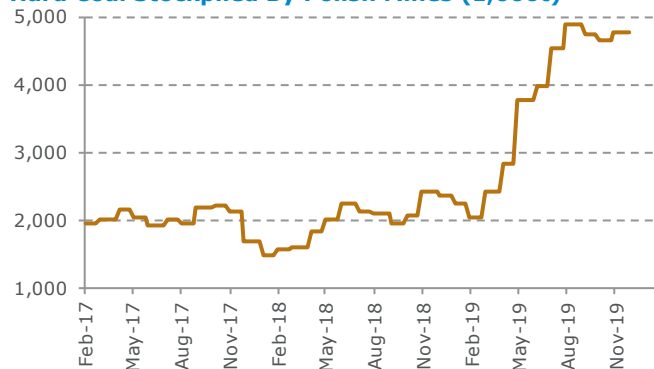
**Hard Coal Production & Sales in Poland (1,000t)**



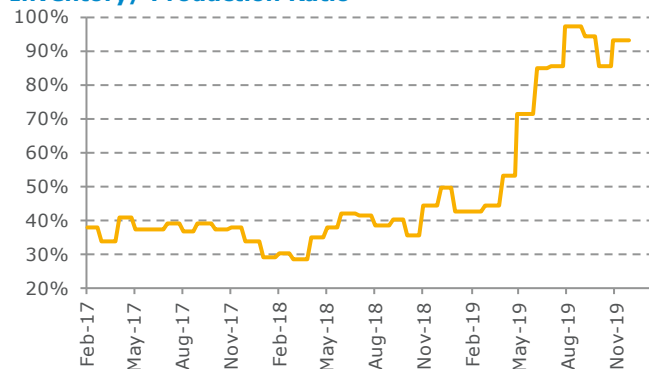
**Poland Hard Coal Imports & Exports (1,000t)**



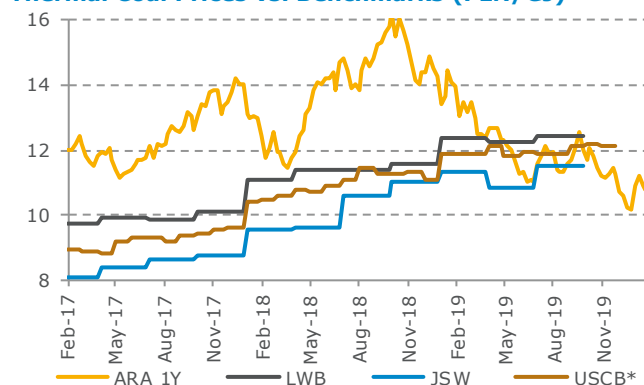
**Hard Coal Stockpiled By Polish Mines (1,000t)**



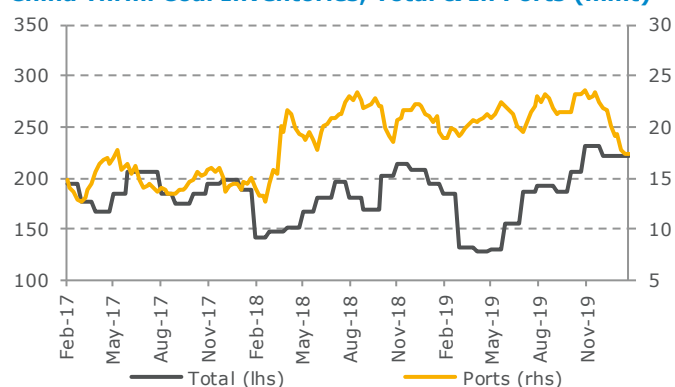
**Inventory/ Production Ratio**



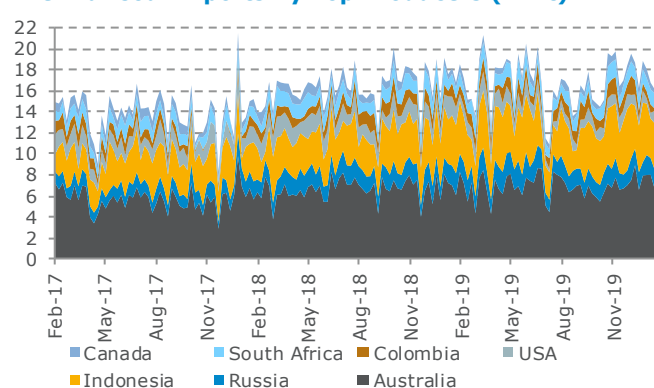
**Thermal Coal Prices vs. Benchmarks (PLN/GJ)**



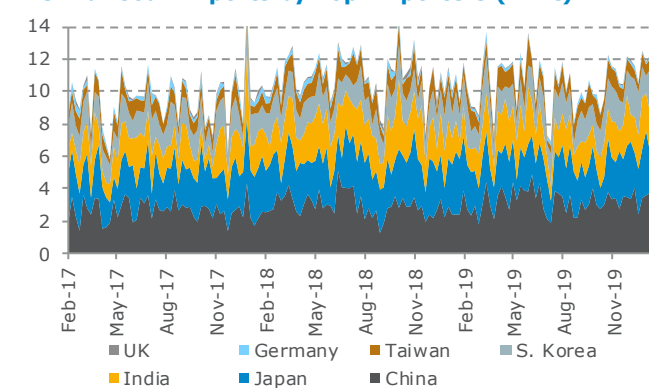
**China Thrml Coal Inventories, Total & In Ports (mmt)**



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



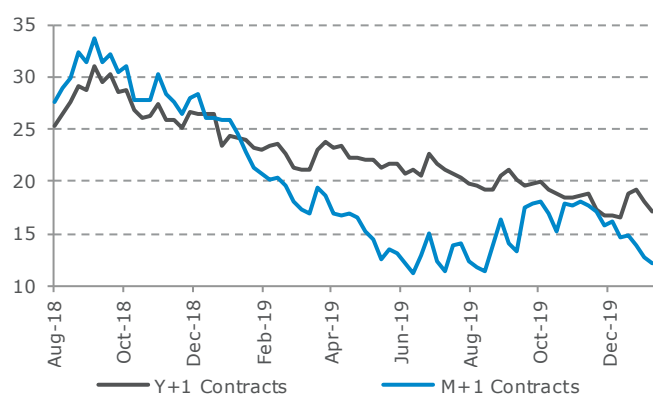
**Thermal Coal Imports by Top Importers (mmt)**



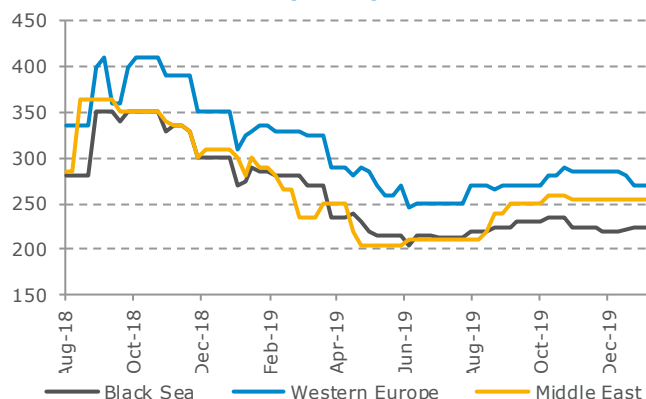
Source: Bloomberg, ARP, Eurostat, mBank \*Upper Silesian Coal Basin

## Fertilizer Charts

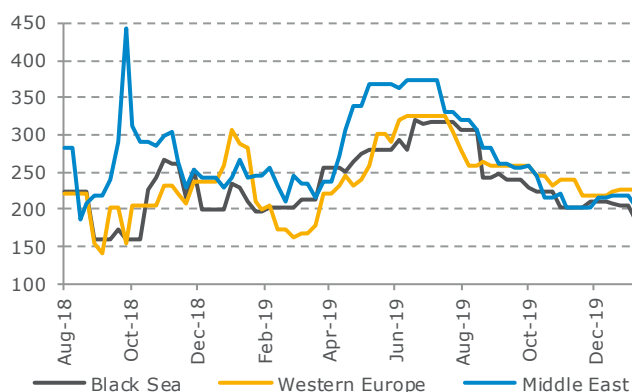
German NatGas Prices (US\$/MWh)



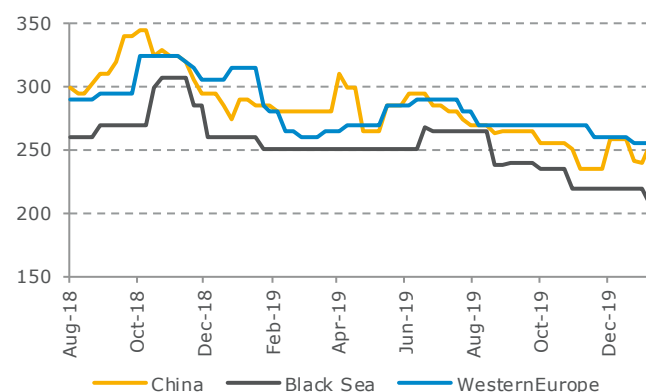
World Ammonia Prices (US\$/t)



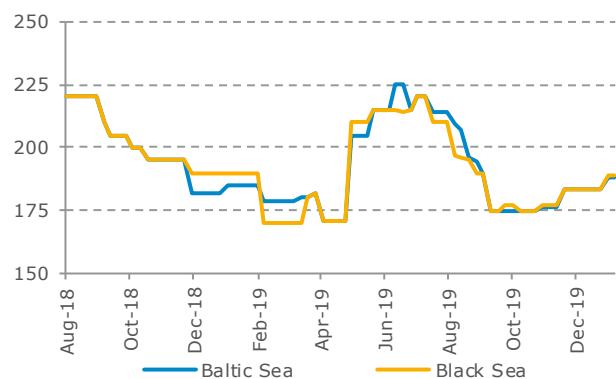
Urea-Ammonia Price Difference



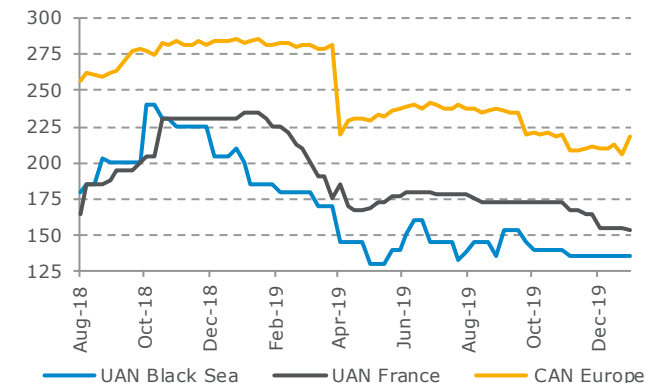
World Urea Prices (US\$/t)



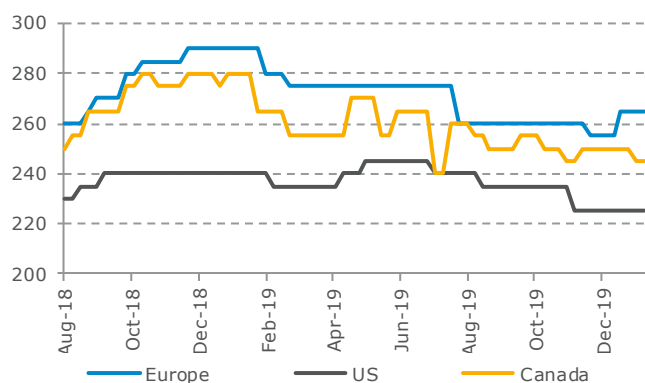
World Ammonium Nitrate Prices (US\$/t)



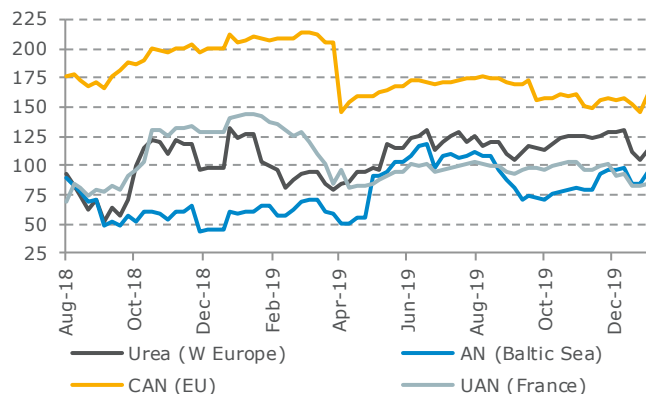
CAN & UAN prices (US\$/t)



World Ammonium Sulfate Prices (US\$/t)



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

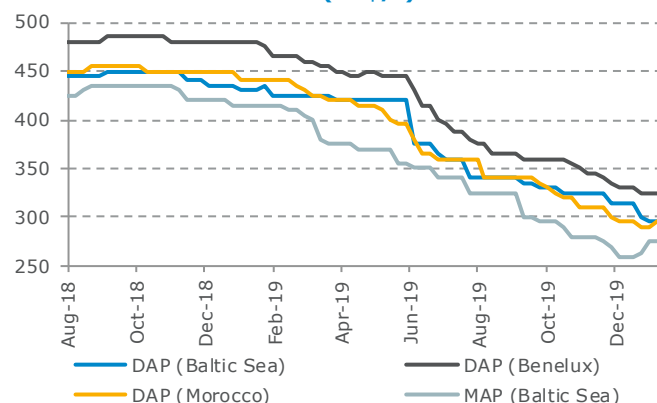


Source: Bloomberg, mBank

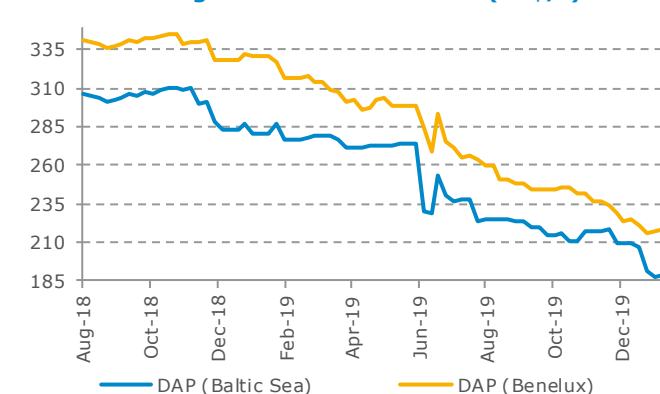


## Fertilizer Charts

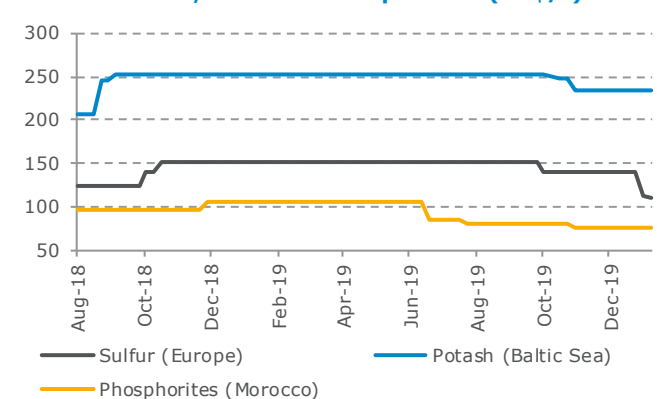
Prices of P & K Fertilizers (US\$/t)



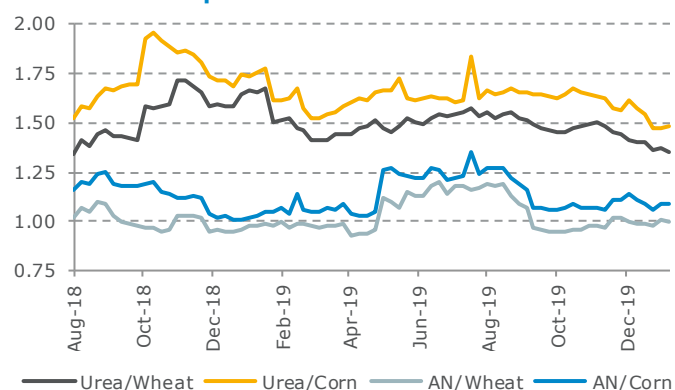
Production Margins on P & K Fertilizers (US\$/t)



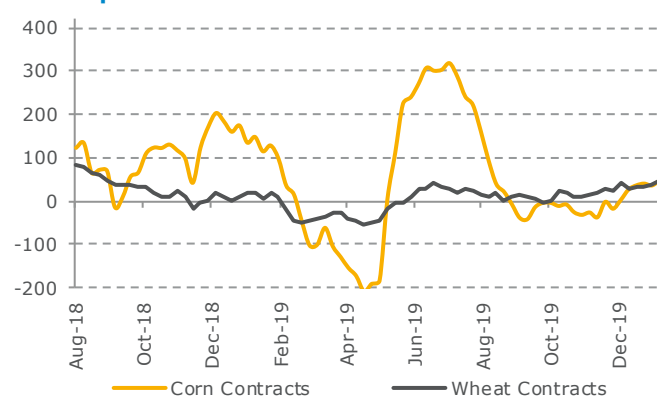
Prices of Sulfur, Potash & Phosphorites (US\$/t)



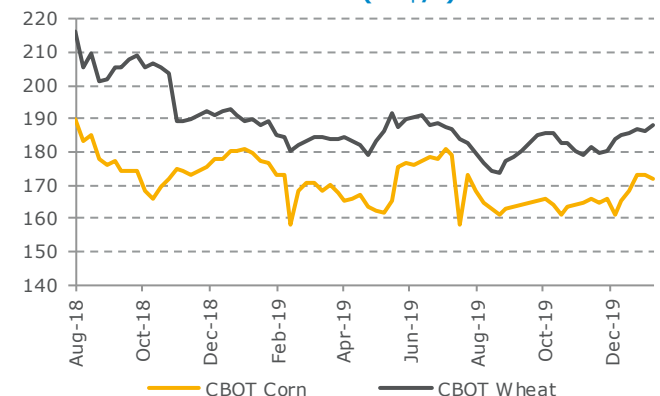
Fertilizer-to-Crop Price Ratios



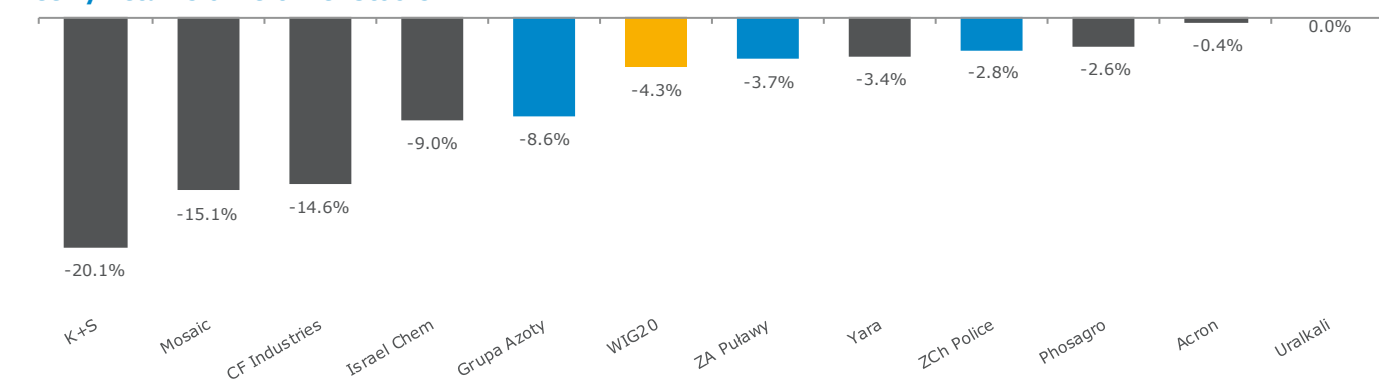
CBOT Open Positions In Corn and Wheat CBT



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



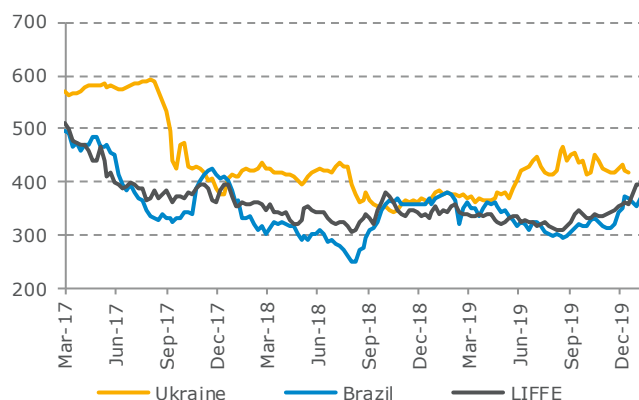
Weekly Returns of Fertilizer Stocks



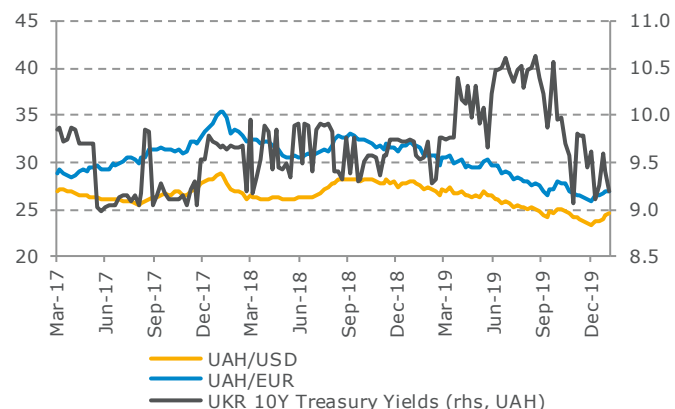
Source: Bloomberg, mBank

## Agricultural Commodities

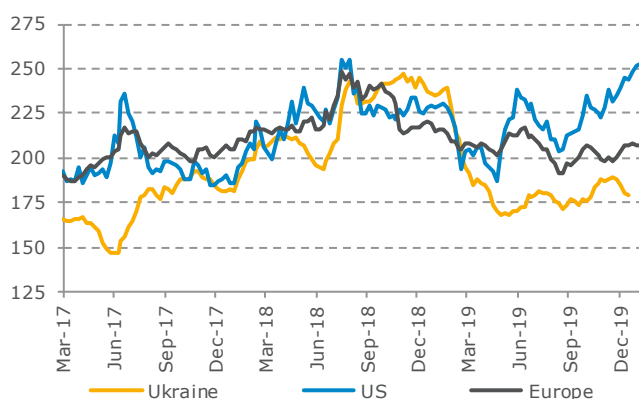
### Sugar Prices (US\$/Mt)



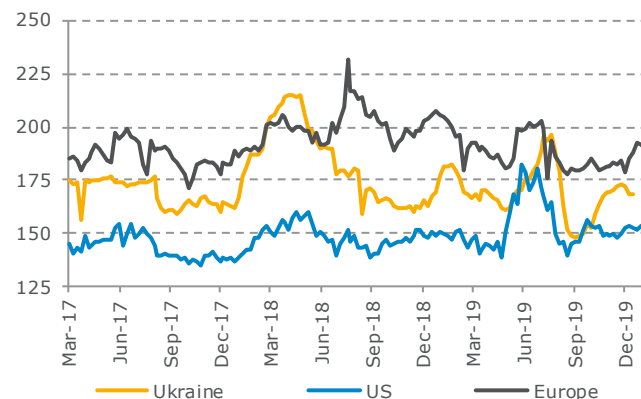
### UAH Exchange Rates & Ukraine 10Y Treasury Yields



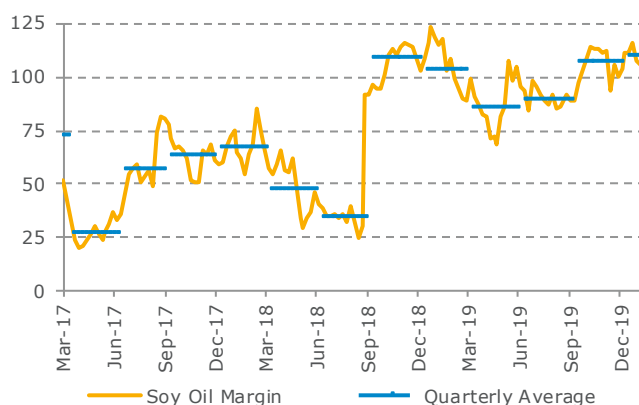
### Wheat Prices (US\$/Mt)



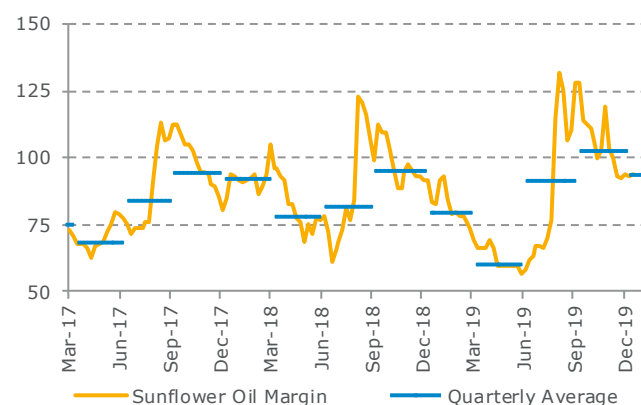
### Corn Prices (US\$/Mt)



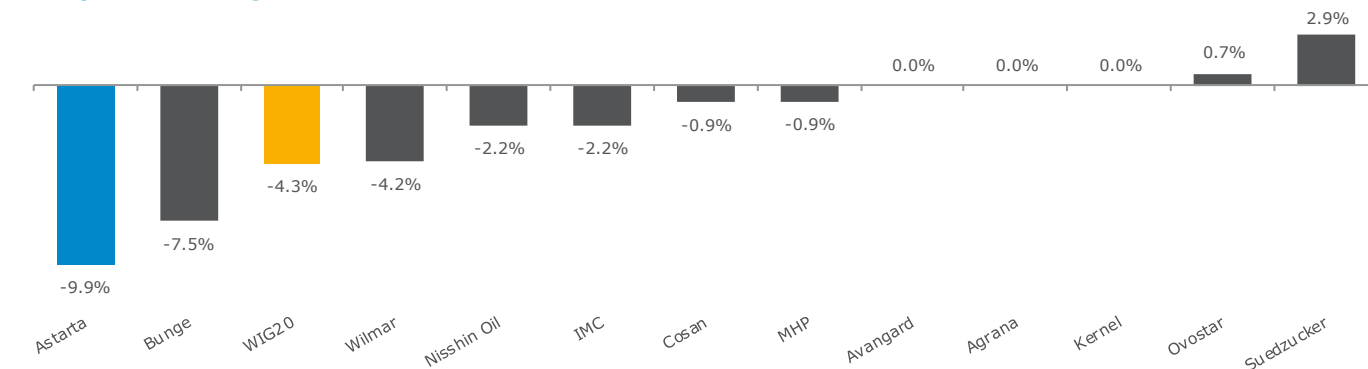
### Model Margins on Soy Oil (US\$/Mt)



### 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	517.5	7.4	6.9	6.7	2.1	1.9	1.8	15.4	13.4	13.5	29%	28%	27%	4.6%	5.8%	6.7%
Enea	7.3	3.1	3.1	2.8	0.6	0.5	0.6	3.1	3.0	2.3	20%	18%	21%	0.0%	0.0%	3.3%
Energa	7.5	3.7	4.3	4.5	0.7	0.7	0.8	5.8	5.6	5.1	19%	17%	17%	0.0%	0.0%	0.0%
PGE	7.1	3.1	3.5	2.7	0.7	0.6	0.6	4.8	6.2	4.1	21%	17%	21%	0.0%	5.2%	4.0%
Tauron	1.5	4.1	3.7	3.2	0.7	0.6	0.6	2.9	2.4	2.0	18%	17%	19%	0.0%	0.0%	0.0%
ZE PAK*	7.6	0.8	0.9	0.9	0.1	0.1	0.1	4.1	4.3	3.3	12%	9%	11%	-	5.2%	7.9%
EDF	11.5	4.6	4.2	4.1	1.1	1.0	1.0	17.8	14.4	14.0	23%	24%	25%	2.7%	3.2%	3.4%
EDP	4.2	9.7	9.4	9.1	2.1	2.1	2.1	19.6	18.2	17.0	22%	22%	23%	4.5%	4.5%	4.7%
Endesa	24.2	8.5	8.2	8.0	1.6	1.5	1.5	16.5	15.7	15.1	19%	19%	19%	6.0%	6.3%	5.4%
Enel	7.7	8.3	8.0	7.7	1.9	1.8	1.8	16.1	14.7	13.8	23%	23%	24%	4.3%	4.8%	5.1%
EON	10.3	10.8	8.0	7.8	1.7	0.9	0.9	15.7	15.6	14.3	16%	12%	11%	4.5%	4.7%	4.9%
Fortum	22.9	15.1	10.6	10.6	4.6	1.0	1.1	15.8	14.3	13.8	30%	9%	11%	4.8%	4.8%	4.8%
Iberdola	9.8	11.4	10.7	10.1	3.0	2.9	2.8	18.5	17.4	16.6	27%	27%	28%	3.9%	4.1%	4.4%
National Grid	10.1	14.1	11.9	11.3	4.2	4.1	3.9	22.6	17.1	16.4	30%	34%	35%	4.6%	4.8%	5.0%
Red Electrica	18.2	9.6	9.5	9.5	7.5	7.4	7.4	13.7	14.7	14.8	78%	78%	78%	5.8%	5.6%	5.6%
RWE	31.6	9.2	6.2	5.3	1.4	1.2	1.1	20.1	18.9	14.0	16%	19%	21%	2.5%	2.9%	3.5%
SSE	15.0	11.5	13.0	12.0	1.0	3.1	3.1	10.8	17.7	15.3	9%	24%	26%	6.5%	5.3%	5.5%
Verbund	47.6	15.7	13.3	12.6	5.5	5.0	4.8	29.3	24.0	22.5	35%	38%	38%	1.5%	1.9%	2.2%
Median		8.8	8.0	7.7	1.6	1.3	1.3	15.7	14.7	14.0	21%	20%	22%	4.3%	4.7%	4.8%

### 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	83.50	6.4	5.0	4.9	0.6	0.6	0.6	13.5	9.7	10.8	10%	12%	12%	3.6%	3.6%	3.6%
MOL	2662.00	4.2	4.6	4.2	0.5	0.7	0.6	8.9	8.0	7.4	13%	15%	15%	5.4%	5.6%	5.9%
PKN Orlen	82.58	4.4	4.8	5.3	0.4	0.4	0.4	7.4	9.2	11.4	9%	8%	7%	4.2%	4.2%	4.2%
Hellenic Petroleum	8.28	7.0	5.5	5.7	0.5	0.5	0.5	12.1	7.1	7.5	7%	9%	8%	5.6%	5.7%	5.9%
HollyFrontier	44.13	5.4	5.7	6.1	0.6	0.6	0.6	9.0	9.0	10.2	11%	10%	9%	3.0%	3.2%	3.4%
Marathon Petroleum	52.70	7.7	6.1	6.4	0.6	0.6	0.6	12.8	7.4	8.8	8%	9%	9%	4.0%	4.5%	4.9%
Motor Oil	20.40	5.5	4.6	4.9	0.3	0.3	0.3	9.0	6.6	7.5	5%	7%	7%	6.3%	6.7%	7.0%
Neste Oil	33.77	11.7	11.8	10.8	1.7	1.8	1.7	18.7	17.8	16.0	14%	15%	16%	2.7%	2.9%	3.2%
OMV	46.21	4.5	4.3	4.2	1.1	1.1	1.1	8.9	8.7	8.1	25%	26%	26%	4.2%	4.6%	5.0%
Phillips 66	96.92	8.1	6.8	6.7	0.5	0.5	0.5	11.9	9.5	9.3	7%	8%	8%	3.6%	4.0%	4.3%
Saras	1.29	3.5	2.3	3.0	0.1	0.1	0.1	13.4	4.9	7.3	4%	6%	5%	5.2%	9.3%	7.2%
Tupras	115.80	8.7	5.0	4.9	0.4	0.4	0.4	20.3	6.4	6.0	5%	7%	7%	5.9%	13.3%	14.8%
Valero Energy	85.05	8.2	5.7	6.1	0.4	0.4	0.4	17.2	8.8	9.6	5%	7%	6%	4.2%	4.6%	4.9%
Median		6.4	5.0	5.3	0.5	0.5	0.5	12.1	8.7	8.8	8%	9%	8%	4.2%	4.6%	4.9%

### 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	82.58	4.4	4.8	5.3	0.4	0.4	0.4	7.4	9.2	11.4	9%	8%	7%	4.2%	4.2%	4.2%
Axiall	63.88	7.5	7.0	6.6	1.4	1.3	1.3	17.1	14.6	12.9	18%	19%	20%	1.6%	1.7%	1.8%
Braskem	35.22	8.4	8.5	7.6	1.2	1.1	1.1	-	-	97.8	14%	13%	14%	1.3%	0.8%	0.2%
Eastman Chemical	69.83	7.9	7.6	7.3	1.7	1.7	1.6	9.9	9.0	8.0	22%	22%	22%	3.5%	3.7%	4.1%
Huntsman Corp	20.99	8.0	8.2	7.5	1.0	1.0	1.0	12.3	11.1	9.3	12%	13%	13%	3.1%	3.2%	3.3%
Lotte Chemicals	209,000	4.7	4.8	4.4	0.6	0.6	0.6	8.5	8.2	7.1	12%	12%	13%	3.7%	3.8%	4.0%
LyondellBasell	82.11	6.9	6.5	6.1	1.2	1.1	1.1	8.2	7.4	6.7	17%	17%	18%	5.2%	5.5%	5.6%
Mitsubishi Chemical	797.10	7.3	7.1	6.8	0.9	0.9	0.9	6.7	8.8	8.8	12%	13%	13%	5.0%	5.0%	4.9%
Mitsui Chemicals	2454.00	6.5	7.2	6.6	0.6	0.7	0.7	6.4	12.4	8.9	10%	9%	10%	4.1%	4.1%	4.2%
Westlake Chemical	63.88	7.5	7.0	6.6	1.4	1.3	1.3	17.1	14.6	12.9	18%	19%	20%	1.6%	1.7%	1.8%
Median		7.4	7.0	6.6	1.1	1.1	1.0	8.5	9.2	9.1	13%	13%	14%	3.6%	3.7%	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	3.86	4.8	4.7	3.7	0.6	0.6	0.6	12.8	15.0	9.9	12%	13%	16%	2.9%	3.1%	2.7%
A2A	1.79	7.7	7.4	7.0	1.4	1.4	1.3	16.3	15.9	14.8	19%	19%	19%	4.4%	4.5%	4.7%
BG Group	21.45	5.4	5.0	4.9	0.9	0.9	0.8	13.0	10.7	9.9	16%	17%	17%	6.7%	6.7%	6.9%
BP	4.77	5.2	4.8	4.8	0.7	0.7	0.7	13.1	11.6	11.0	13%	14%	14%	6.6%	6.8%	6.9%
Centrica	0.89	4.9	4.8	5.1	0.4	0.4	0.4	12.5	9.5	9.0	7%	7%	7%	5.6%	5.7%	5.8%
Enagas	24.10	10.7	10.7	11.2	8.9	9.1	9.7	13.3	12.9	13.0	83%	85%	87%	6.7%	7.0%	7.0%
Endesa	24.22	8.5	8.2	8.0	1.6	1.5	1.5	16.5	15.7	15.1	19%	19%	19%	6.0%	6.3%	5.4%
Engie	15.70	7.0	6.6	6.3	1.1	1.0	1.0	15.2	13.6	12.4	16%	16%	16%	5.0%	5.3%	5.8%
Eni	13.20	3.9	3.7	3.5	0.9	0.9	0.9	14.2	11.3	10.0	24%	25%	26%	6.5%	6.7%	6.8%
Equinor	175.90	3.4	2.9	2.7	1.2	1.1	1.0	13.7	11.1	10.0	35%	36%	37%	5.2%	5.7%	6.0%
Gas Natural SDG	23.31	9.3	8.9	8.7	1.6	1.6	1.6	17.2	16.0	15.0	17%	18%	18%	5.9%	6.2%	6.5%
Gazprom	230.96	4.0	4.0	3.6	1.1	1.1	1.0	4.1	4.9	4.4	27%	26%	28%	6.6%	7.6%	11.0%
Hera	4.16	8.5	8.1	7.9	1.4	1.3	1.2	19.2	19.3	18.6	16%	16%	16%	2.4%	2.6%	2.7%
NovaTek	186.50	13.8	11.1	10.5	4.1	4.0	3.8	4.0	12.6	11.3	30%	36%	36%	2.5%	3.1%	3.4%
ROMGAZ	36.90	5.2	5.5	5.4	2.5	2.6	2.6	9.1	9.9	9.7	48%	48%	49%	9.0%	8.4%	9.1%
Shell	25.44	5.4	4.9	4.8	0.9	0.8	0.8	13.2	10.7	9.9	16%	17%	17%	6.6%	6.7%	6.9%
Snam	4.80	13.1	12.9	12.5	10.6	10.4	10.1	14.8	14.6	14.0	81%	81%	81%	5.0%	5.2%	5.4%
Total	46.11	5.2	4.6	4.4	0.8	0.8	0.8	11.8	10.0	9.6	16%	18%	18%	5.7%	6.1%	6.4%
Median		5.4	5.3	5.2	1.1	1.1	1.0	13.2	12.1	10.5	18%	18%	19%	5.8%	6.1%	6.2%

## 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	2662.00	4.7	4.3	4.1	0.6	0.6	0.6	7.7	6.9	6.5	13%	15%	15%	4.8%	5.1%	5.7%
Bashneft	1996.00	2.1	2.0	1.8	0.5	0.5	0.5	3.1	3.0	2.5	24%	24%	25%	10.8%	10.6%	11.5%
BP	4.77	5.2	4.8	4.8	0.7	0.7	0.7	13.1	11.6	11.0	13%	14%	14%	6.6%	6.8%	6.9%
Dana Gas	0.90	6.6	5.9	-	3.4	3.1	3.0	12.3	12.3	12.3	51%	53%	-	6.5%	6.5%	7.8%
Eni	13.20	3.9	3.7	3.5	0.9	0.9	0.9	14.2	11.3	10.0	24%	25%	26%	6.5%	6.7%	6.8%
Equinor	175.90	3.4	2.9	2.7	1.2	1.1	1.0	13.7	11.1	10.0	35%	36%	37%	5.2%	5.7%	6.0%
Gazprom Neft	444.00	4.4	4.5	4.1	1.1	1.1	1.0	5.2	5.4	5.0	25%	25%	25%	8.0%	9.0%	10.1%
Gulf Keystone	1.97	2.7	1.7	1.2	1.6	1.1	0.9	11.4	6.3	3.6	60%	66%	69%	7.6%	5.5%	6.8%
Lukoil	6545.00	4.0	4.1	4.0	0.6	0.7	0.6	7.0	7.2	7.2	16%	16%	16%	6.7%	11.1%	10.8%
Occidental Petroleum	41.24	10.1	8.0	7.5	4.7	4.0	3.9	21.5	38.9	24.6	47%	50%	51%	7.5%	7.7%	7.8%
Repsol	12.65	4.5	4.0	4.0	0.6	0.6	0.6	8.8	7.0	7.0	14%	16%	16%	7.7%	8.0%	8.2%
Rosneft Oil	468.30	4.4	4.2	3.9	1.0	1.1	1.0	6.7	5.8	5.4	24%	25%	26%	6.9%	7.9%	9.1%
Shell	25.44	5.4	4.9	4.8	0.9	0.8	0.8	13.2	10.7	9.9	16%	17%	17%	6.6%	6.7%	6.9%
Surgutneftegas	35.69	-	-	-	-	-	-	5.4	3.9	3.9	-	-	-	4.2%	7.9%	7.0%
Total	46.11	5.2	4.6	4.4	0.8	0.8	0.8	11.8	10.0	9.6	16%	18%	18%	5.7%	6.1%	6.4%
Tullow Oil	0.51	4.1	5.1	5.4	3.0	3.5	3.6	4.8	8.3	10.3	73%	69%	67%	5.3%	2.0%	2.8%
Median		4.4	4.3	4.0	0.9	0.9	0.9	10.1	7.7	8.4	24%	25%	25%	6.6%	6.7%	7.0%

## 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	19.20	0.8	2.7	2.5	0.2	0.2	0.3	4.8	-	-	19%	9%	11%	8.9%	0.0%	0.0%
KGHM	93.16	4.7	5.1	5.3	1.1	1.1	1.1	9.2	9.7	11.4	24%	22%	20%	0.0%	1.6%	3.1%
LW Bogdanka*	33.20	1.1	1.2	1.3	0.4	0.4	0.4	3.8	4.7	6.2	36%	33%	31%	2.7%	6.3%	6.5%
Anglo American	20.33	4.4	4.4	4.8	1.5	1.5	1.5	9.4	9.7	10.8	34%	34%	31%	4.2%	4.2%	3.9%
Antofagasta	8.37	5.6	5.5	5.2	2.7	2.7	2.6	19.7	19.3	17.0	49%	49%	50%	2.4%	2.5%	3.4%
BHP Group	17.04	6.3	6.0	6.4	3.2	3.2	3.3	13.8	11.2	12.6	50%	53%	51%	6.0%	6.2%	5.6%
Freeport-McMoRan	10.90	12.7	9.0	5.1	2.2	2.1	1.8	-	26.6	9.1	17%	23%	34%	1.8%	1.8%	2.0%
Glencore	2.21	6.6	6.0	5.5	0.3	0.4	0.3	16.4	13.1	10.3	5%	6%	6%	6.5%	5.7%	5.6%
Grupo Mexico	51.36	6.0	5.6	5.3	2.8	2.6	2.5	13.1	11.9	11.3	46%	46%	46%	5.8%	5.8%	8.4%
Kazakhmys	4.46	4.7	4.6	4.4	2.5	2.4	2.3	6.0	5.7	5.5	54%	53%	52%	1.7%	1.8%	1.6%
Rio Tinto	42.16	5.1	5.6	6.3	2.5	2.6	2.7	8.9	9.8	12.1	48%	46%	44%	8.2%	6.4%	5.6%
Southern CC	37.97	9.8	9.3	9.0	4.9	4.7	4.5	18.6	17.3	16.4	50%	50%	51%	4.3%	4.2%	4.2%
Median		5.3	5.6	5.3	2.3	2.3	2.0	9.4	11.2	11.3	41%	40%	39%	4.2%	4.2%	4.0%
ALUMINUM PRODUCERS																
Grupa Kęty	347.00	8.1	8.8	9.0	1.3	1.4	1.4	11.8	13.6	14.0	16%	15%	15%	6.9%	6.8%	5.5%
Alcoa	14.87	9.8	3.9	3.3	0.5	0.5	0.5	-	100+	21.5	5%	14%	15%	-	-	-
Constellium	12.22	6.5	6.2	5.7	0.6	0.6	0.6	27.2	11.6	8.2	10%	10%	11%	-	-	-
Kaiser Aluminum	100.75	8.4	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	29.62	7.1	5.1	4.4	0.5	0.5	0.5	31.4	13.8	9.7	8%	10%	11%	4.2%	4.4%	5.0%
Rusal	4.43	15.5	14.3	11.8	1.6	1.6	1.5	6.8	5.3	5.0	10%	11%	13%	1.5%	3.4%	4.4%
Median		8.2	7.0	6.6	0.9	0.9	0.9	14.9	13.4	11.1	10%	12%	14%	3.3%	3.9%	4.7%

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	26.50	3.9	6.3	7.9	0.5	0.6	0.8	5.4	21.9	100+	14%	10%	10%	0.0%	0.0%	0.0%
ZA Police*	10.30	10.5	7.3	7.1	0.8	0.7	0.7	31.2	15.4	15.8	7%	10%	10%	-	-	-
Acron	4736.00	8.7	7.6	7.2	2.7	2.4	2.2	9.6	7.9	7.8	31%	32%	30%	6.8%	7.0%	7.3%
CF Industries	39.42	9.3	8.7	8.4	3.3	3.3	3.2	18.7	15.9	13.8	36%	37%	38%	3.0%	3.1%	3.1%
Israel Chemicals	14.07	6.4	6.3	5.9	1.4	1.4	1.3	10.6	10.2	9.2	23%	22%	22%	5.0%	4.8%	5.2%
K+S	8.24	7.7	7.0	6.0	1.2	1.2	1.1	17.2	13.0	7.4	16%	17%	18%	2.9%	3.7%	5.1%
Phosagro	2426.00	5.7	6.1	5.6	1.8	1.8	1.7	8.0	10.4	10.3	31%	30%	31%	7.3%	4.9%	4.9%
The Mosaic Company	18.56	8.2	7.0	5.9	1.3	1.3	1.2	43.4	17.3	10.7	16%	18%	21%	1.0%	1.2%	1.4%
Yara International	331.70	6.9	5.9	5.6	1.1	1.0	1.0	13.0	10.4	9.2	16%	17%	17%	3.3%	4.8%	5.6%
Median		7.7	7.0	6.0	1.3	1.3	1.2	13.0	13.0	9.8	16%	18%	21%	3.2%	4.3%	5.0%

### 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*	16.80	6.3	3.9	3.8	0.8	0.8	0.7	-	2.9	2.5	13%	20%	19%	-	-	5.2%
Kemel	48.10	5.0	6.8	6.4	0.4	0.5	0.5	5.8	9.4	9.2	9%	8%	7%	1.8%	1.9%	1.9%
Agrana Beteiligungs	18.80	11.0	-	-	0.7	-	-	45.9	-	-	6%	-	-	5.3%	-	-
Bunge Limited	51.84	10.1	9.8	9.4	0.3	0.3	0.3	18.0	14.8	12.2	3%	3%	3%	3.9%	4.2%	4.6%
Cosan	78.81	6.5	6.4	5.9	0.6	0.5	0.5	16.0	15.7	14.7	9%	8%	9%	1.9%	2.0%	2.7%
MHP	8.72	5.3	5.0	4.5	1.2	1.2	1.1	6.0	6.4	4.8	23%	23%	24%	8.6%	8.6%	8.6%
Nisshin Oillio	3700.00	8.7	8.3	8.0	0.5	0.5	0.5	14.0	14.1	13.6	6%	6%	6%	2.2%	2.2%	2.2%
Suedzucker	15.06	-	11.9	7.5	0.8	0.8	0.8	-	-	15.0	-	7%	10%	1.3%	1.4%	2.0%
Wilmar Int.	4.10	14.4	13.2	12.4	0.9	0.8	0.7	16.5	14.6	13.2	6%	6%	6%	2.6%	2.7%	3.0%
Median		7.6	7.6	6.9	0.7	0.6	0.6	16.0	14.1	12.7	7%	7%	8%	2.4%	2.2%	2.8%

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

## Recommendations of Biuro maklerskie mBanku:

A recommendation is valid for a period of 9 months, unless a subsequent recommendation is issued within this period. Expected returns from individual recommendations are as follows:

**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%  
Recommendations are updated at least once every nine months.

mBank S.A. with its registered office in Warsaw at Senatorska 18 renders brokerage services in the form of derived organisational unit – Brokerage Office which uses name Biuro maklerskie mBanku.

mBank S.A. as part of the Exchange's Analytical Coverage Support Programme ("Programme", <https://www.gpw.pl/eacsp>) prepares analytical reports for the following companies: Cognor Holding, Comarch, VRG. These documents are prepared at the request of Giełda Papierów Wartościowych w Warszawie S.A. ("WSE"), which is entitled to copyrights to these materials. mBank S.A. receives remuneration from the WSE for the preparation of the reports. All documents prepared for the Programme are available at: [https://www.mdm.pl/ui-pub/site/market\\_and\\_analysis/analysis\\_and\\_recommendations/analytical\\_coverage\\_support\\_programme](https://www.mdm.pl/ui-pub/site/market_and_analysis/analysis_and_recommendations/analytical_coverage_support_programme)

This document has been created and published by Biuro maklerskie mBanku. The present report expresses the knowledge as well as opinions of the authors on day the report was prepared. The opinions and estimates contained herein constitute our best judgment at this date and time, and are subject to change without notice. The present report was prepared with due care and attention, observing principles of methodological correctness and objectivity, on the basis of sources available to the public, which Biuro maklerskie mBanku considers reliable, including information published by issuers, shares of which are subject to recommendations. However, Biuro maklerskie mBanku, in no case, guarantees the accuracy and completeness of the report, in particular should sources on the basis of which the report was prepared prove to be inaccurate, incomplete or not fully consistent with the facts. mBank S.A. bears no responsibility for investment decisions taken on the basis of the present report or for any damages incurred as a result of investment decisions taken on the basis of the present report.

This document does not constitute an offer or invitation to subscribe for or purchase any financial instruments and neither this document nor anything contained herein shall form the basis of any contract or commitment whatsoever. It is being furnished to you solely for your information and may not be reproduced or redistributed to any other person. This document does not constitute investment, legal, accounting or other advice, and mBank is not liable for damages resulting from or related to the use of data provided in the documents. This document may not be copied, duplicated and/or be directly or indirectly distributed in the United States, Canada, Australia or Japan, nor transferred to citizens or residents of a state where its distribution may be legally restricted, which does not limit the possibility of publishing materials prepared for the Programme on Cognor Holding, Comarch, VRG, mBank or WSE websites. Persons who disseminate this document should be aware of the need to comply with such restrictions.

Recommendations are based on essential data from the entire history of a company being the subject of a recommendation, with particular emphasis on the period since the previous recommendation. Investing in shares is connected with a number of risks including, but not limited to, the macroeconomic situation of the country, changes in legal regulations as well as changes on commodity markets. Full elimination of these risks is virtually impossible.

Recommendations are based on essential data from the entire history of a company being the subject of a recommendation, with particular emphasis on the period since the previous recommendation.

Investing in shares is connected with a number of risks including, but not limited to, the macroeconomic situation of the country, changes in legal regulations as well as changes on commodity markets. Full elimination of these risks is virtually impossible.

mBank S.A. bears no responsibility for investment decisions taken on the basis of the present report or for any damages incurred as a result of investment decisions taken on the basis of the present report.

It is possible that mBank S.A. in its brokerage activity renders, will render or in the past has rendered services for companies and other entities mentioned in the present report.

mBank S.A. does not rule out offering brokerage services to an issuer of securities being the subject of a recommendation. Information about any conflicts of interest that may arise in connection with the issuance of recommendations (should such a conflict exist) is provided below, and it is valid as of the date of the most recent Monthly Report published by Biuro maklerskie mBanku or as of the date of the most recent recommendation issued for an Issuer, as applicable.

This document was not transferred to the issuers prior to its publication.

mBank S.A. may have received compensation from the following companies in the last 12 months: ABC Data, Alchemia, Alior Bank, Ambra, Amica, Bank Handlowy, Bank Millennium, Bank Pekao, BGŻ BNP Paribas, BoomBIT, Boryszew, Capital Park, CD Projekt, Centrum Nowoczesnych Technologii, Ceramika Nowa Gala, CI Games, Cognor, Echo Investment, Elemental Holding, Elzab, Enea, Energoaparatura, Erbud, Ergis, Erste Bank, Famur, Ferrum, GetBack, GetIn Holding, GetIn Noble Bank, Globalworth Poland, Grodin, Helio SA, Impexmetal, INDATA, ING BSK, Kopex, Kruk, LW Bogdanka, Mangata, MCI Capital, Mennica Polska, Mostostal Warszawa, Netia, Neuca, NWA Dom Maklerski, Opono.pl, Orbis, OTP Bank, PA Nova, PBKM, PEKABEX, Pfeiderer Group, PGNiG, PKO BP, Polenergia, Polimex-Mostostal, Polnord, Polwax, Prime Car Management, Primetech, Prochem, Projrzem, PZU, Raiffeisen Bank International, Rawlplug, Rubicon Partners NFI, Santander Bank Polska, Seco/Warwick, Skarbiec Holding, Solar Company, Sygnity, Tarczyński, Trakcja, Unibep, Vistal Gdynia, Wittchen, Work Service, YOLO, Zastal, ZUE.

In the last 12 months mBank S.A. has acted as dealer-manager for tender or exchange offers for the shares of: ABC Data, BoomBIT, Centrum Nowoczesnych Technologii, Ceramika Nowa Gala, CI Games, Ergis, Globalworth Poland, Helio SA, MCI Capital, Mostostal Warszawa, NWA Dom Maklerski, Orbis, Pfeiderer Group, Prime Car Management, Primetech.

Asseco Poland provides IT services to mBank S.A.

mBank S.A. has a cash service agreement in place with Pekao and a phone subscription agreement in place with Orange Polska S.A.

mBank S.A., its shareholders and employees may hold long or short positions in the issuers' shares or other financial instruments related to the issuers' shares. mBank, its affiliates and/or clients may conduct or may have conducted transactions for their own account or for account of another with respect to the financial instruments mentioned in this report or related investments before the recipient has received this report.

Copying or publishing the present report, in full or in part, or disseminating in any way information contained in the present report requires the prior written agreement of mBank S.A. Recommendations are addressed to all Clients of Biuro maklerskie mBanku.

Recommendations are addressed to all Clients of Biuro maklerskie mBanku.

All investment recommendations and strategies issued by mBank S.A. over the last 12 months are available at: [http://www.mdm.pl/ui-pub/site/market\\_and\\_analysis/analysis\\_and\\_recommendations/fundamental\\_analysis/recommendations?recent\\_filter\\_active=true&lang=en](http://www.mdm.pl/ui-pub/site/market_and_analysis/analysis_and_recommendations/fundamental_analysis/recommendations?recent_filter_active=true&lang=en)

The activity of mBank S.A. is subject to the supervision of the Polish Financial Supervision Commission.

Individuals who did not participate in the preparation of recommendations, but had or could have had access to recommendations prior to their publication, are employees of Biuro maklerskie mBanku authorised to access the premises in which recommendations are prepared and/or individuals having to access to recommendations based on their corporate roles, other than the analysts mentioned as the authors of the present recommendations.

This publication constitutes investment research within the meaning of Art. 36.1 of Commission Delegated Regulation (EU) 2017/565.

The compensation of the research analysts responsible for preparing investment research is determined independently of and without regard to the compensation of or revenue generated by any other employee of the Bank, including but not limited to any employee whose business interests may reasonably be considered to conflict with the interests of the persons to whom the investment research prepared by the Research Department of Biuro maklerskie mBanku is disseminated. With that being said, since one of the factors taken into consideration when determining the compensation of research analysts is the degree of fulfillment of annual financial targets by customer service functions, there is a risk that the adequacy of compensation offered to persons preparing investment research will be questioned by a competent oversight body.

**For U.S. persons only:** This research report is a product of mBank SA which is the employer of the research analyst(s) who has prepared the research report. The research analyst(s) preparing the research report is/are resident outside the United States (U.S.) and are not associated persons of any U.S. regulated broker-dealer and therefore the analyst(s) is/are not subject to supervision by a U.S. broker-dealer, and is/are not required to satisfy the regulatory licensing requirements of FINRA or required to otherwise comply with U.S. rules or regulations regarding, among other things, communications with a subject company, public appearances and trading securities held by a research analyst account.

This report is intended for distribution by mBank SA only to "Major Institutional Investors" as defined by Rule 15a-6(b)(4) of the U.S. Securities and Exchange Act, 1934 (the Exchange Act) and interpretations thereof by U.S. Securities and Exchange Commission (SEC) in reliance on Rule 15a 6(a)(2). If the recipient of this report is not a Major Institutional Investor as specified above, then it should not act upon this report and return the same to the sender. Further, this report may not be copied, duplicated and/or transmitted onward to any U.S. person, which is not the Major Institutional Investor.

In reliance on the exemption from registration provided by Rule 15a-6 of the Exchange Act and interpretations thereof by the SEC in order to conduct certain business with Major Institutional Investors, mBank SA has entered into an agreement with a U.S. registered broker-dealer, Cabrera Capital Markets. ("Cabrera"). Transactions in securities discussed in this research report should be effected through Cabrera or another U.S. registered broker dealer.

## Strong and weak points of valuation methods used in recommendations:

**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.



**mBank S.A.**  
Senatorska 18  
00-950 Warszawa  
<http://www.mbank.pl/>

## Research Department

Kamil Kliszczyk  
director  
+48 22 438 24 02  
[kamil.klisczyk@mbank.pl](mailto:kamil.klisczyk@mbank.pl)  
energy, power generation

Jakub Szkopek  
+48 22 438 24 03  
[jakub.szkopek@mbank.pl](mailto:jakub.szkopek@mbank.pl)  
industrials, chemicals, metals

Aleksandra Szklarczyk  
+48 22 438 24 04  
[aleksandra.szklarczyk@mbank.pl](mailto:aleksandra.szklarczyk@mbank.pl)  
construction, real-estate development

Michał Marczak  
+48 22 438 24 01  
[michal.marczak@mbank.pl](mailto:michal.marczak@mbank.pl)  
strategy

Paweł Szpigel  
+48 22 438 24 06  
[pawel.szpigel@mbank.pl](mailto:pawel.szpigel@mbank.pl)  
media, IT, telco

Piotr Poniąkowski  
+48 22 438 24 09  
[piotr.poniatowski@mbank.pl](mailto:piotr.poniatowski@mbank.pl)  
industrials

Michał Konarski  
+48 22 438 24 05  
[michal.konarski@mbank.pl](mailto:michal.konarski@mbank.pl)  
banks, financials

Piotr Bogusz  
+48 22 438 24 08  
[piotr.bogusz@mbank.pl](mailto:piotr.bogusz@mbank.pl)  
retail, gaming

Mikołaj Lemańczyk  
+48 22 438 24 07  
[mikolaj.lemanczyk@mbank.pl](mailto:mikolaj.lemanczyk@mbank.pl)  
financials

## Sales and Trading

### Traders

Piotr Gawron  
director  
+48 22 697 48 95  
[piotr.gawron@mbank.pl](mailto:piotr.gawron@mbank.pl)

Adam Prokop  
+48 22 697 47 90  
[adam.prokop@mbank.pl](mailto:adam.prokop@mbank.pl)

Krzysztof Bodek  
+48 22 697 48 89  
[krzysztof.bodek@mbank.pl](mailto:krzysztof.bodek@mbank.pl)

Magdalena Bernacik  
+48 22 697 47 35  
[magdalena.bernacik@mbank.pl](mailto:magdalena.bernacik@mbank.pl)

Tomasz Jakubiec  
+48 22 697 47 31  
[tomasz.jakubiec@mbank.pl](mailto:tomasz.jakubiec@mbank.pl)

Andrzej Sychowski  
+48 22 697 48 46  
[andrzej.sychowski@mbank.pl](mailto:andrzej.sychowski@mbank.pl)

### Sales, Foreign Markets

Bartosz Orzechowski  
+48 22 697 48 47  
[bartosz.orzechowski@mbank.pl](mailto:bartosz.orzechowski@mbank.pl)

Jędrzej Łukomski  
+48 22 697 49 85  
[jedrzej.lukomski@mbank.pl](mailto:jedrzej.lukomski@mbank.pl)

### Private Client Sales

Kamil Szymański  
director  
+48 22 697 47 06  
[kamil.szymanski@mbank.pl](mailto:kamil.szymanski@mbank.pl)

Jarosław Banasiak  
deputy director  
+48 22 697 48 70  
[jaroslaw.banasiak@mbank.pl](mailto:jaroslaw.banasiak@mbank.pl)