

Tuesday, November 12, 2019 | weekly publication

Tuesday Espresso

Weekly Commodity Roundup

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

Utilities

EEX year-ahead contracts continue on a gentle downward trajectory, trading just under EUR 46/MWh. At the same time, emission prices are seen to hold close to EUR 25/t while coal trades slightly lower than last week. Power contracts on the Polish market have decreased by PLN 4/MWh week on week, while at the same time the profit margin of a vertically-integrated coal-fired power plant has contracted by 2 zlotys to PLN 165/MWh. Prices of green certificates have climbed by 4 zloty to PLN 149/MWh. Global sentiment for utilities has worsened over the past week, but in Poland WIG-Energy stocks have had a better few days performance-wise thanks to strong third-quarter earnings, underpinned by expectations ahead of a post-election cabinet reshuffle.

Gas & Oil

Refining margins have shrunk to \$3/bbl during the past week, driven by tightening cracking margins on diesel and gasoline and increasing negative margins on HSFO. With the Urals/Brent pricing differential still in the negative territory (-\$0.4/bbl), the outlook for oil refiners continues to worsen. This is accompanied by further deterioration in petrochemicals markets, reflected in margin shrinkage on olefins and polymers at respective annual rates of 27% and 20%. Prices of year-ahead natural gas contracts are currently hovering around EUR 16/t, and with EU storages still 98% full there is no sign of improvement in the near future.

Metals

In metals, market sentiment has dampened on the US's refusal to fully roll back tariffs on China, combined with downbeat data coming in from China, including a 5.8% drop in new car sales in October, the 15th month straight of falling sales, combined with a 5.1% decline to 661bn yuan in new bank loans for the month.

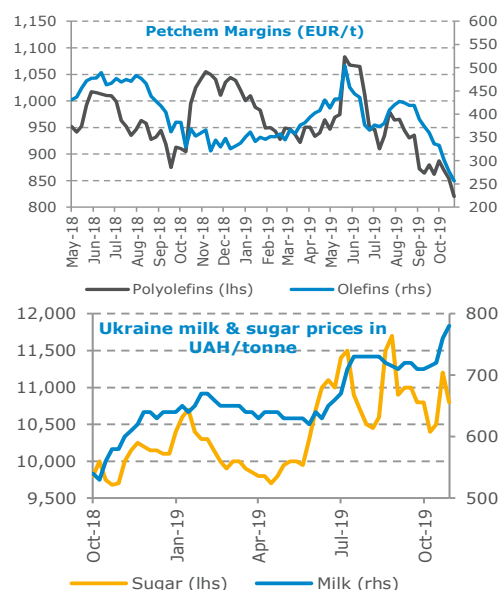
Speculative positions in copper have decreased to -23,000 from a low of -59,000, but we will probably see the price momentum fizzle soon with production stoppages in Chile not likely to curb supply by as much as anticipated. Prices of molybdenum are in a downward slide (-KGH).

After 31 days of falls, zinc stocks on the LME have reached their lowest level since 1990 (+STP).

Coking Coal

Steel inventories in China have dropped again from 9.2mmt a week ago to 8.7mmt versus a high of 12.7mmt. This is accompanied by a decline in coke stocks to 4.5mmt from 5mmt in mid-August. Coking coal prices have stabilized at \$134-140/t.

Charts of the Week



Source: Bloomberg, Dom Maklerski mBanku

1-Week & YTD Performance

Company	1W	YTD
Tarczyński	-3.7%	-10%
Kernel	-3.1%	-14%
Boryszew	-2.9%	-11%
ZCh Police	-2.3%	-2%
Tupras	-1.0%	+2.2%
IMC	-1.0%	+2.6%
Lotos	-0.6%	+1.1%
CEZ	-0.6%	+2%
Impexmetal	-0.2%	+3.5%
OMV	-0.1%	+4.7%
Orzeł Biały	+0.0%	-1%
MOL	+0.5%	+3%
ZA Puławy	+0.7%	+3.8%
PKN Orlen	+1.1%	+1%
PCC Rokita	+1.4%	-3.3%
LW Bogdanka	+1.7%	-2.7%
Grupa Azoty	+2.2%	+1.5%
ZE PAK	+2.7%	-8%
Kęty	+2.8%	+3%
Kruszwica	+4.7%	+2.6%
PGNiG	+6.3%	-2.6%
Ciech	+7.4%	-2.1%
JSW	+7.4%	-6.7%
Energa	+8.9%	-2.5%
Astarta	+10.5%	-1.5%
Enea	+12.5%	-4%
Tauron	+12.6%	-1.5%
KGHM	+15.3%	+8%
PGE	+16.3%	-5%
WIG Indices	1W	YTD
WIG	+2.4%	+3%
Chemicals	+3.3%	-4%
Energy	+12.9%	-8%
Oil & Gas	+1.7%	-3%
Food Industry	-1.0%	-1.1%
Basic Material	+14.2%	-9%
Ukraine	+1.2%	-1.0%
Sector Indices	1W	YTD
Mining	-1.6%	+1.7%
Oil & Gas E&P	+0.5%	+3%
Refining EU	-4.2%	+1.1%
Refining US	-1.2%	+2.9%
Agri & Food	+0.4%	+3.1%
Rubber	+1.2%	+2.2%
Fertilizers	-0.1%	+3%
Chemicals EU	-0.8%	+2.1%
Industrials EU	+0.7%	+3.3%
Petchem World	+2.6%	+1.0%
Utilities EU	-1.5%	+2.5%
Utilities US	-3.6%	+1.9%

Bleak outlook for petrochemicals

As margins for petrochemical products drop to new lows in what no longer can be considered just a seasonal correction, there are increasing concerns about oversupply while demand projections keep being lowered. In Europe, the situation is exacerbated by polyethylene imports from the US and their potential negative effect on the current positive price spread relative to Asia.

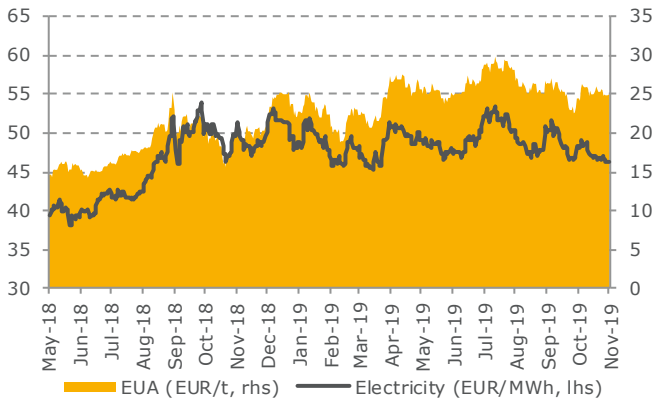
High milk & sugar prices in Ukraine

Milk prices in Ukraine have hit a new all-time high at UAH 7,800/t, driving the profits and fair value adjustments of the dairy business of Astarta, which is additionally benefitting from unseasonably stable prices of sugar (usually prices tend to shift lower during the sugar beet harvest season).

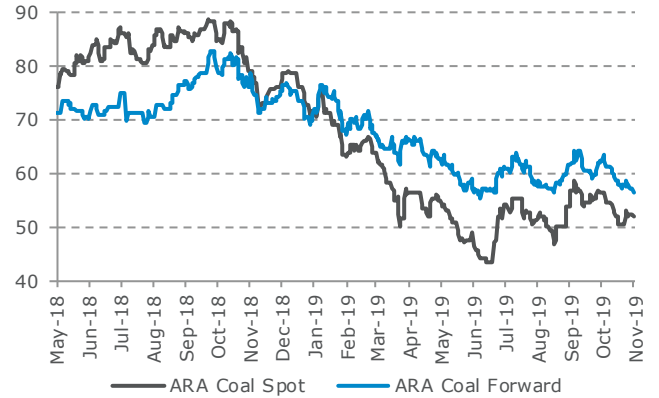


Utilities

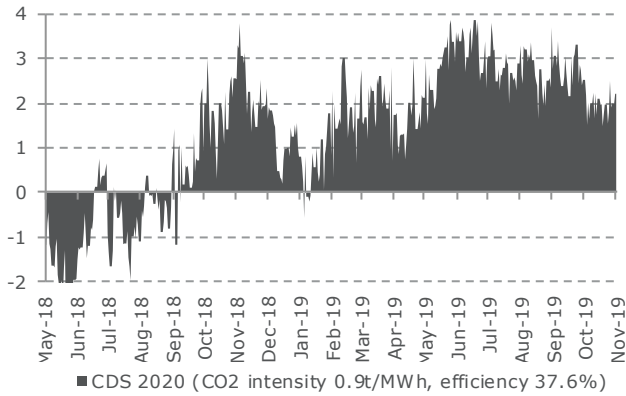
EU Prices of Electricity (EUR/MWh) & EUAs (EUR/t)



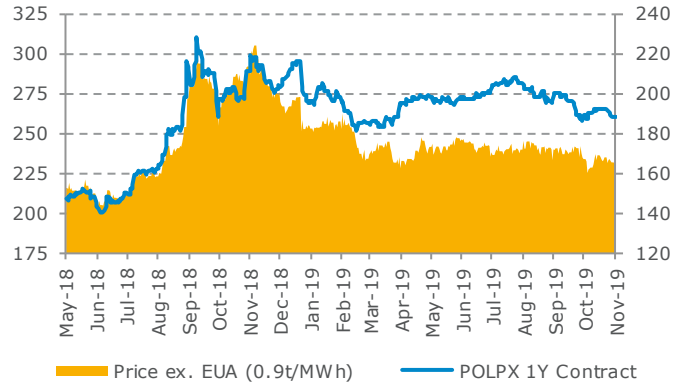
ARA Coal Spot and Forward Prices (EUR/t)



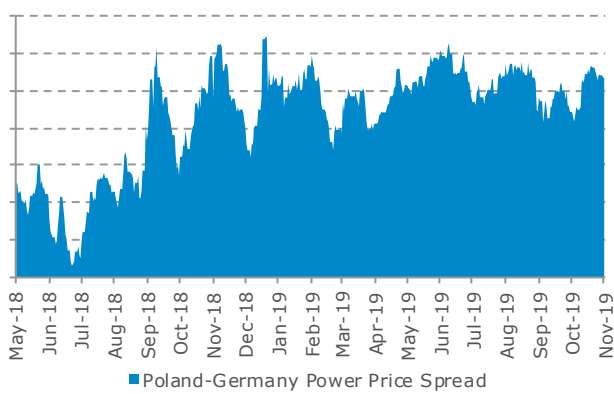
Clean-Dark Spread, Germany (EUR/MWh)



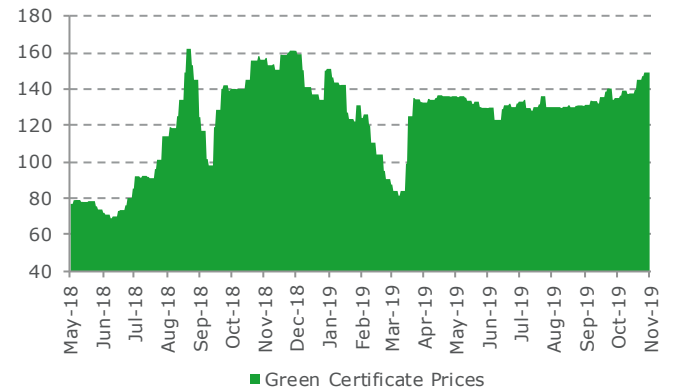
Polish Electricity Prices (1Y) (PLN/MWh)



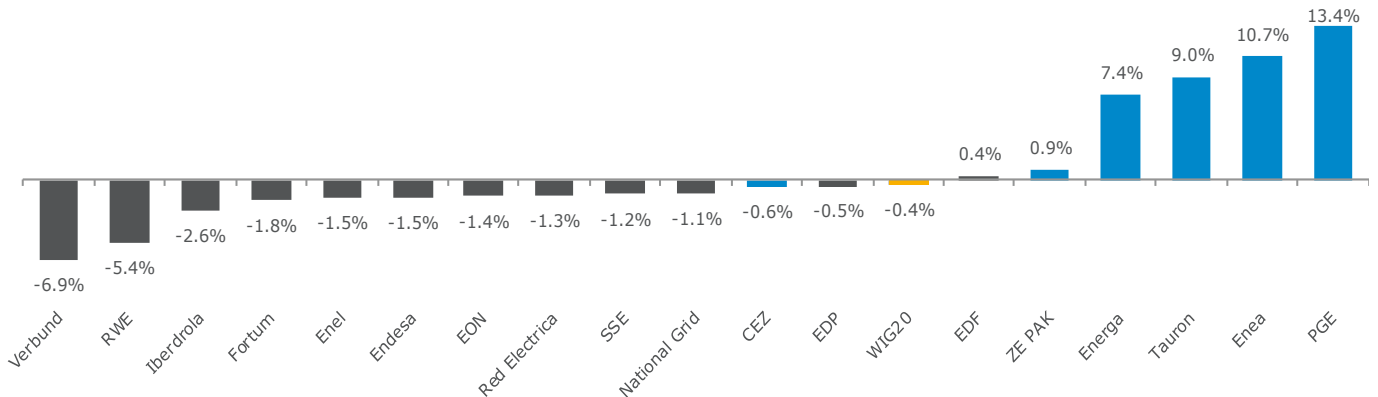
Poland-Germany Power Price Spread (PLN/MWh)



Polish Green Certificate Prices (PLN/MWh)



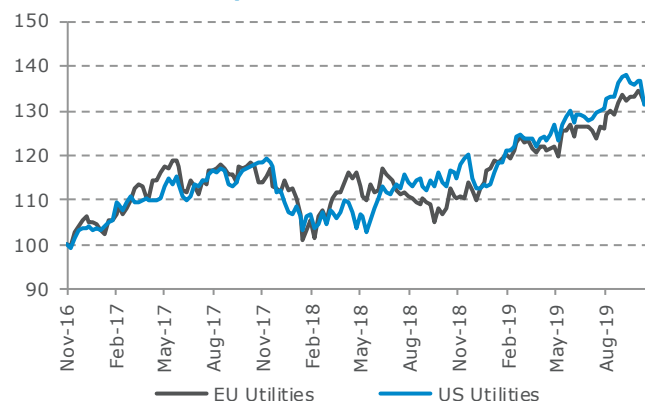
Weekly Returns of Utility Stocks



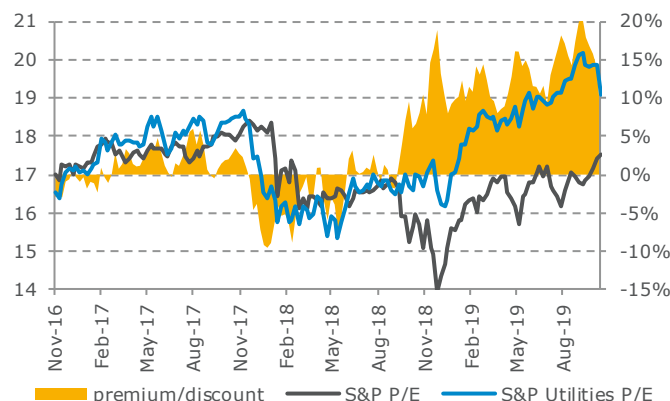
Source: Bloomberg, Dom Maklerski mBanku

Utilities

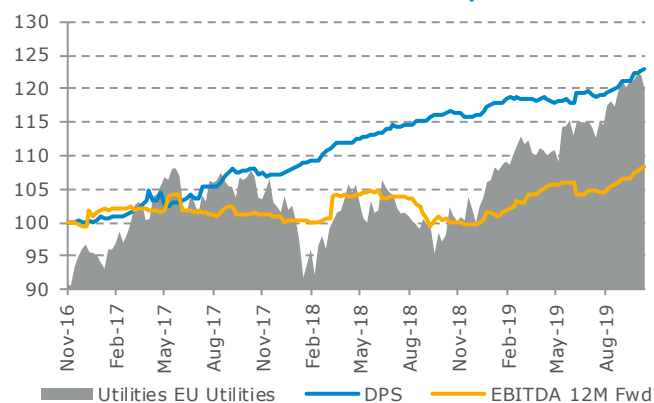
MSCI Utilities Europe vs. S&P Utilities



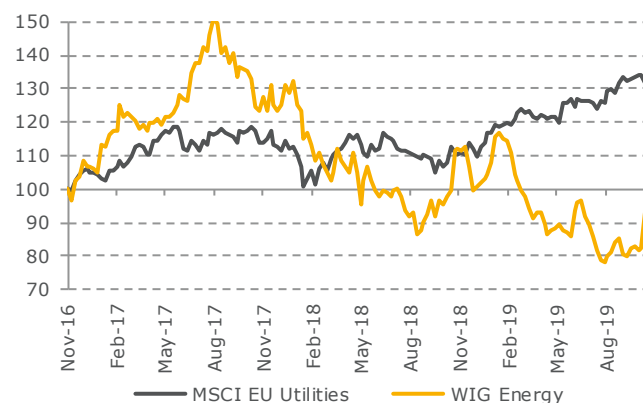
S&P Utilities vs. S&P 500 P/E



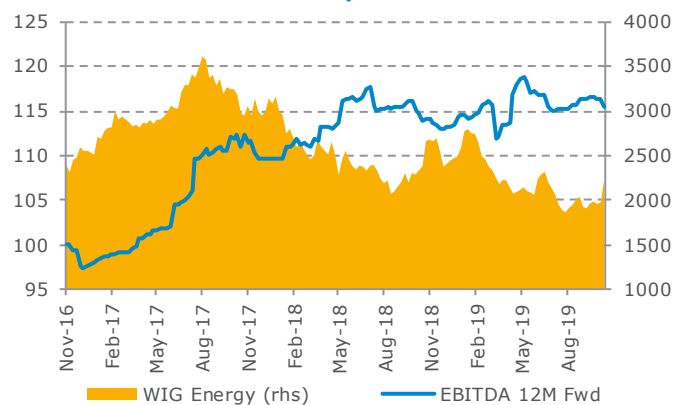
MSCI Utilities EU vs. DPS & EBITDA Expectations



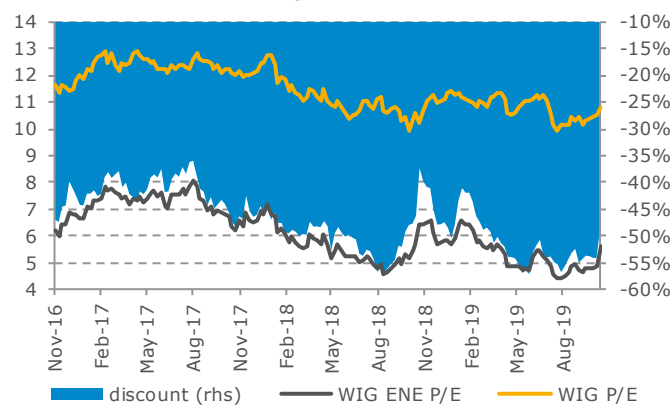
MSCI Utilities EU vs. WIG-ENERGY



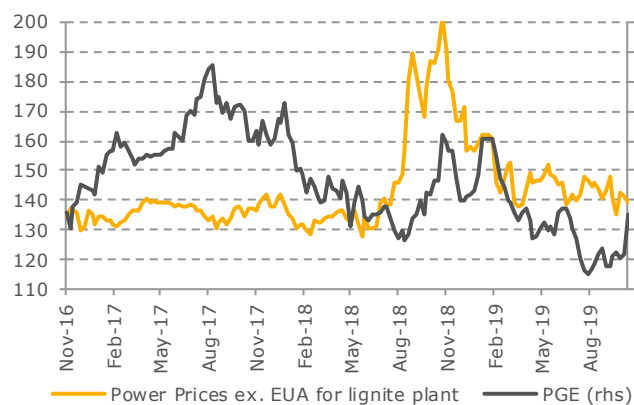
WIG-ENERGY vs. EBITDA Expectations



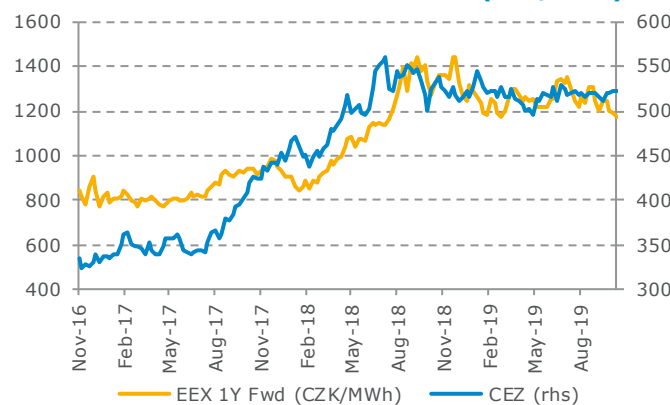
WIG-ENERGY vs. WIG P/E



PGE Performance vs. Power Prices ex. EUA



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

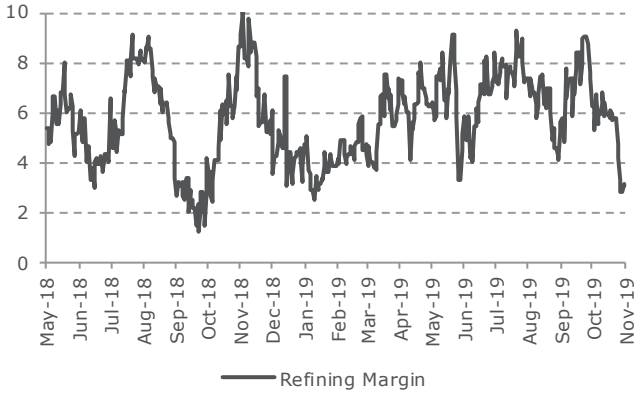


Source: Bloomberg, Dom Maklerski mBanku

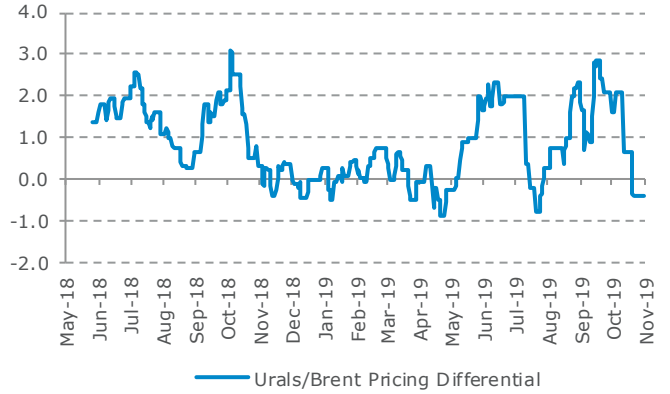


Gas & Oil

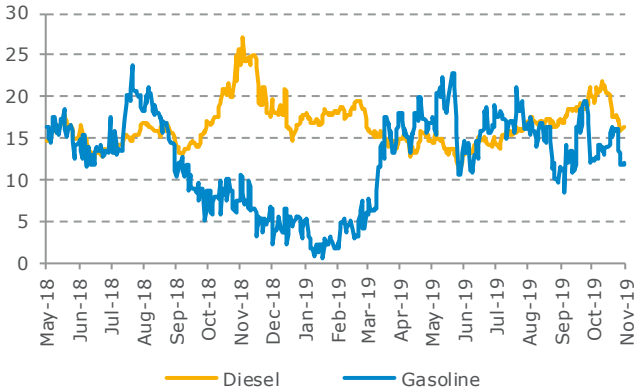
Refining Margins (US\$/bbl)



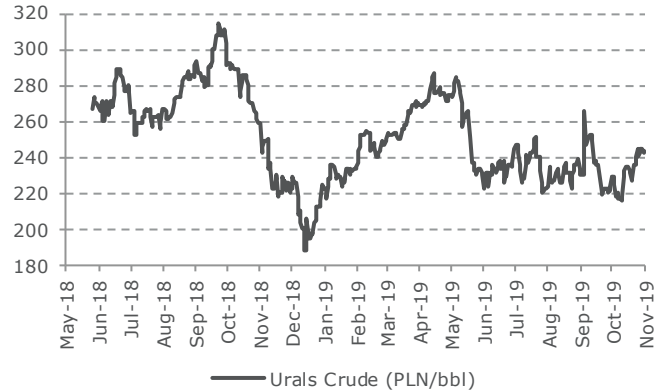
Urals/Brent Pricing Differential (US\$/bbl)



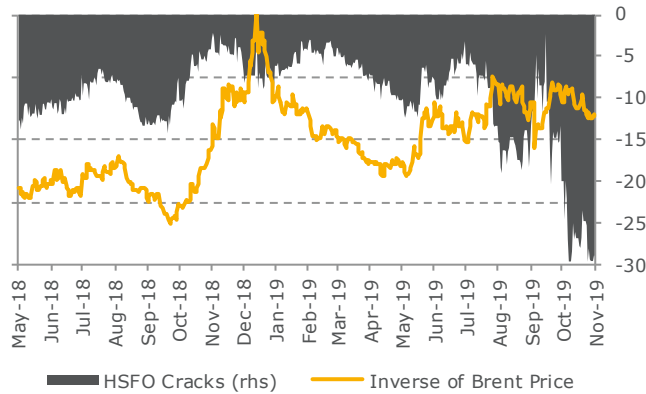
Cracking Margins on Diesel & Gasoline (US\$/bbl)



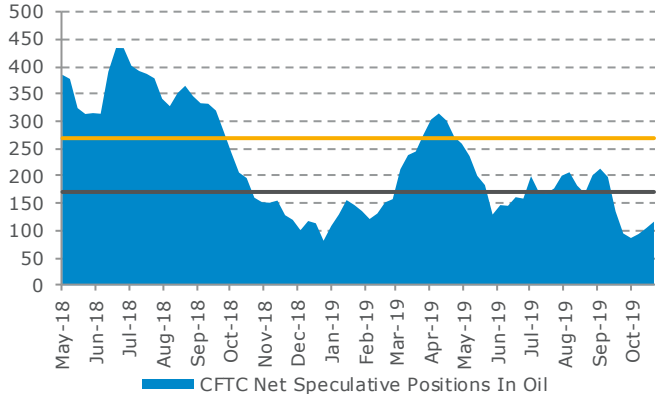
Price of Urals Crude (PLN/bbl)



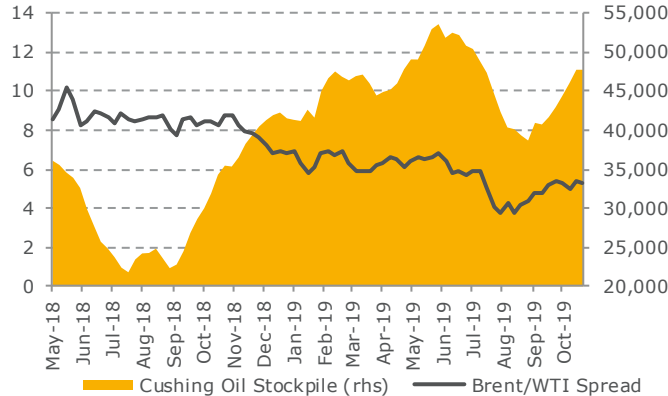
HSFO Cracks (US\$/bbl) vs. Inverse of Brent Price



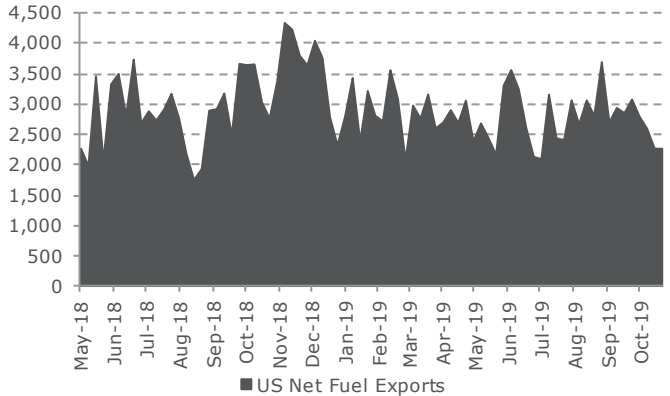
CFTC Net Speculative Positions In Oil



Brent/WTI Spread vs. Cushing Oil Stockpile



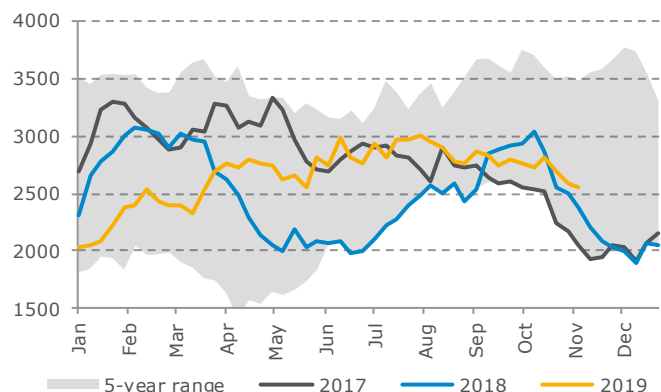
US Net Fuel Exports



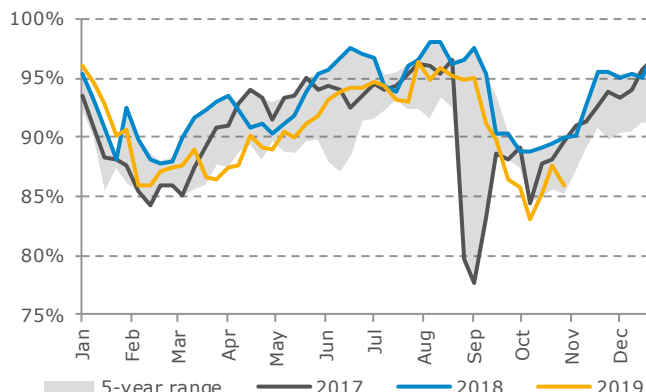
Source: Bloomberg, Dom Maklerski mBanku

Gas & Oil

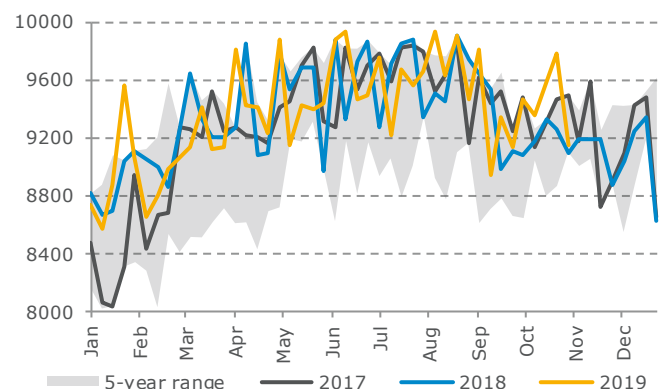
Diesel Inventories @ARA



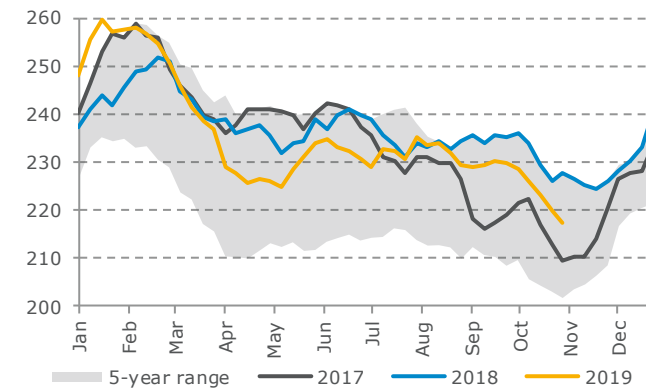
US Refinery Utilization Rates



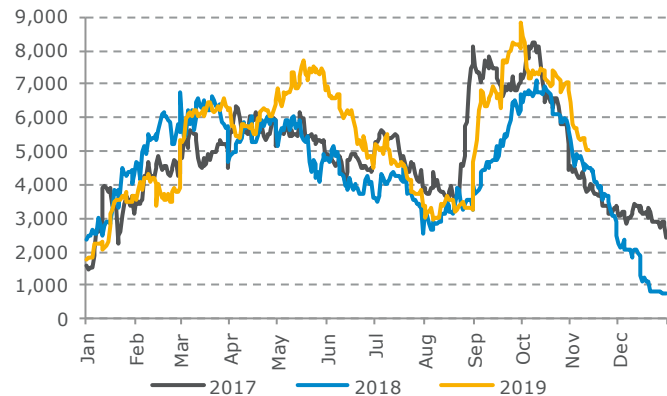
US Gasoline Demand



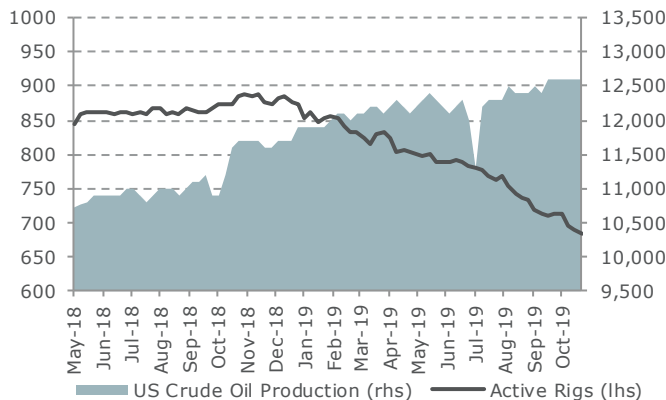
US Gasoline Inventories



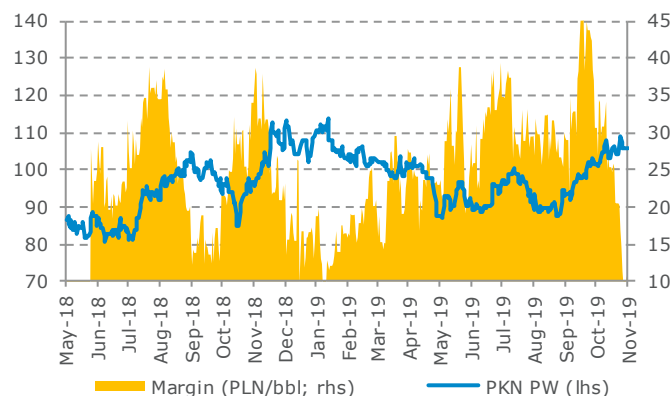
Global Refinery Outages (mmb/d)



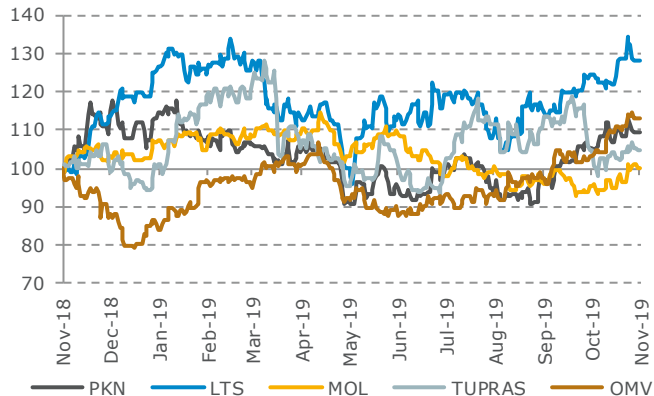
US Crude Oil Production (mboe/d) vs. Active Rigs



PKN Performance vs. Benchmark Margins



Normalized Oil Stock Chart

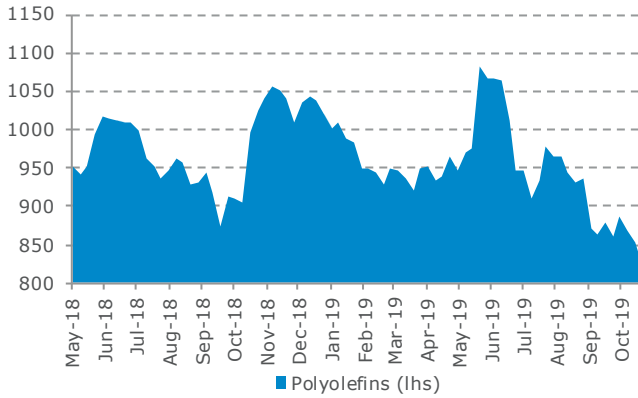


Source: Bloomberg, Dom Maklerski mBanku

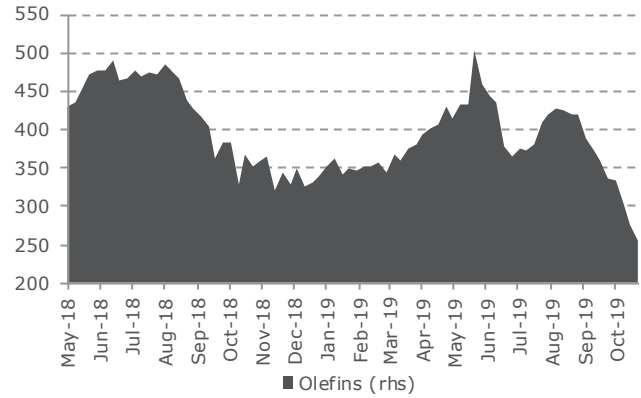


Petrochemicals & NatGas

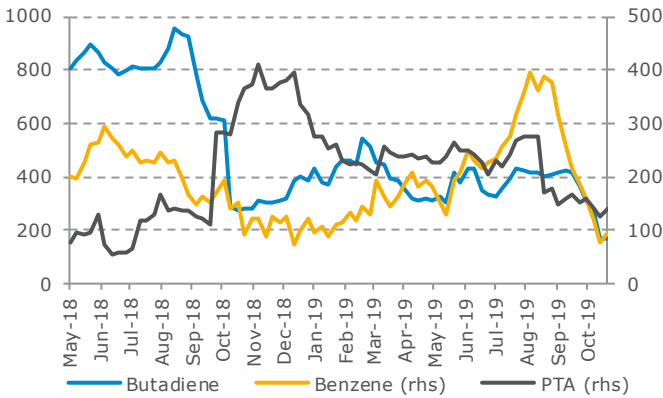
Margins on Polyolefins



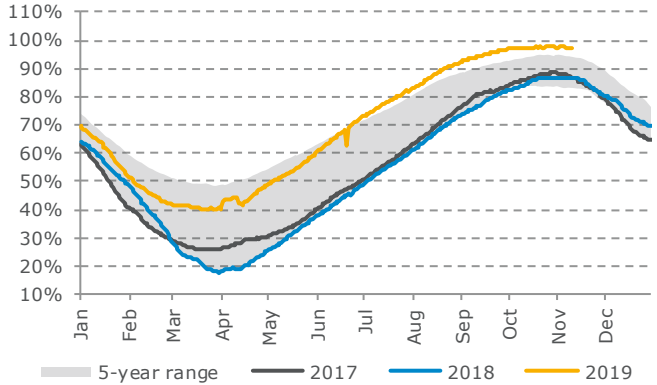
Margins on Olefins



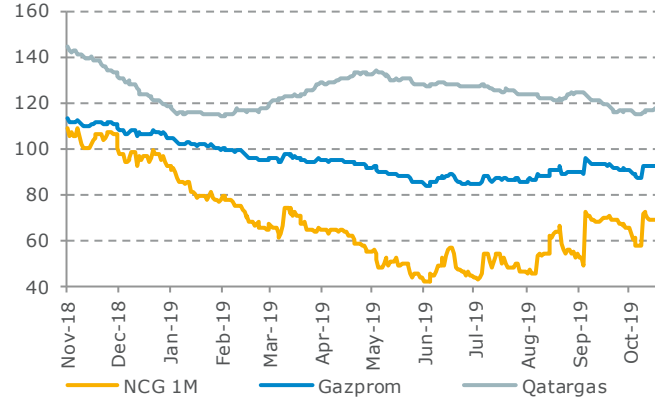
Margins on Butadiene, Benzene & PTA (US\$/t)



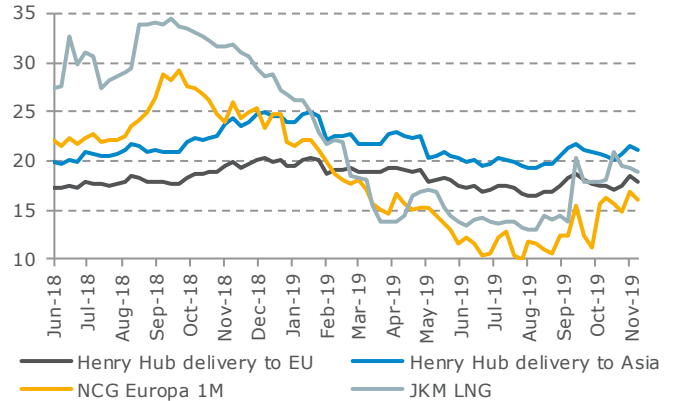
EU Gas Storage Levels (% Full)



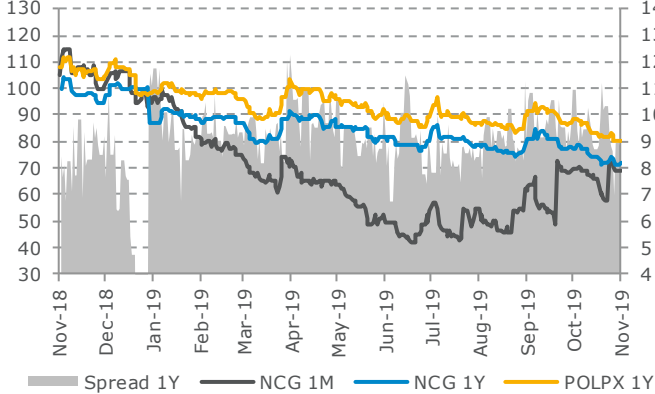
Estimated Costs of Imported Natural Gas (PLN/MWh)



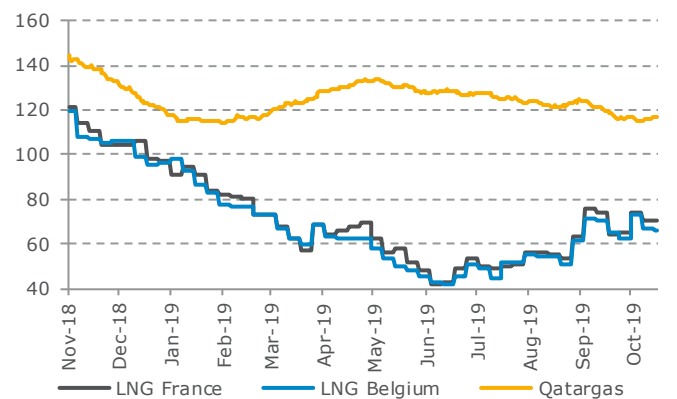
Prices of US LNG Exports to EU and Asia



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



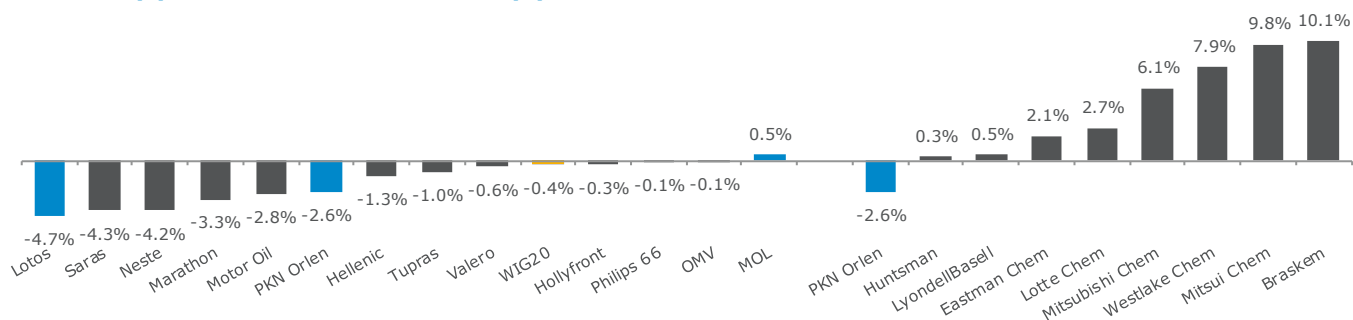
LNG Spot Rates vs. Estimated Qatargas rates



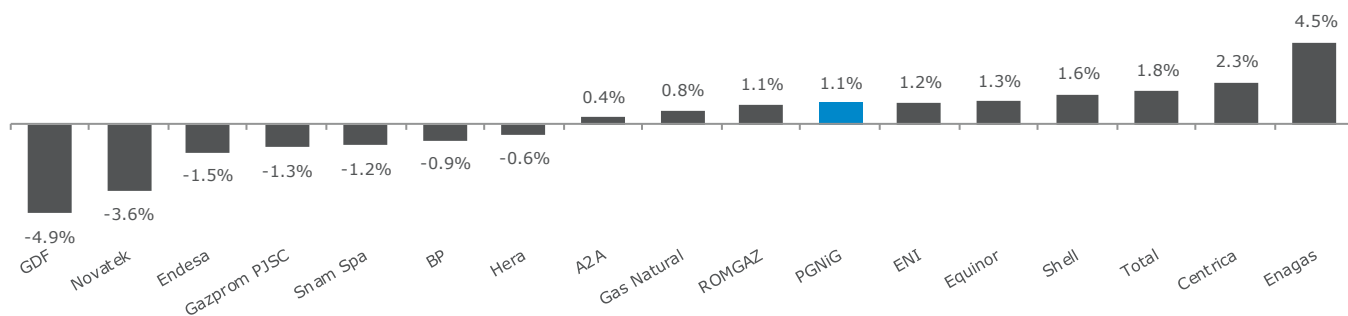
Source: Bloomberg, Dom Maklerski mBanku

Weekly Performance Charts

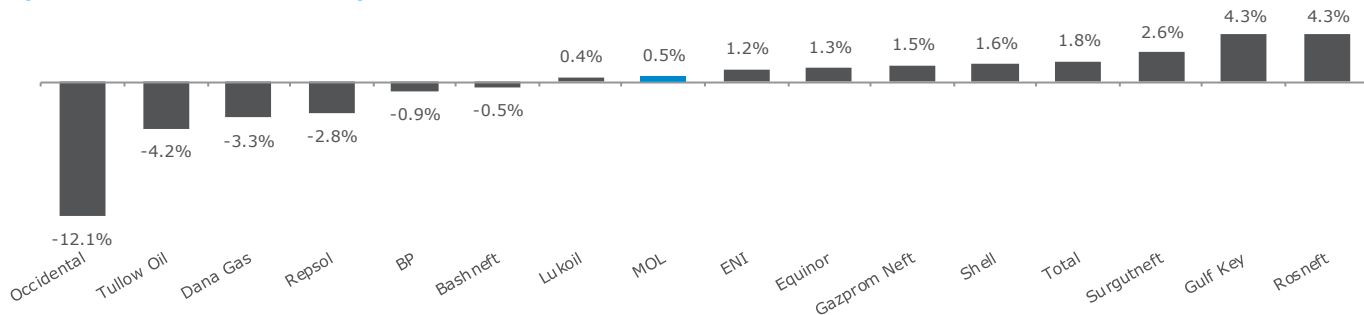
Oil Refiners (L) & Petrochemical Producers (R)



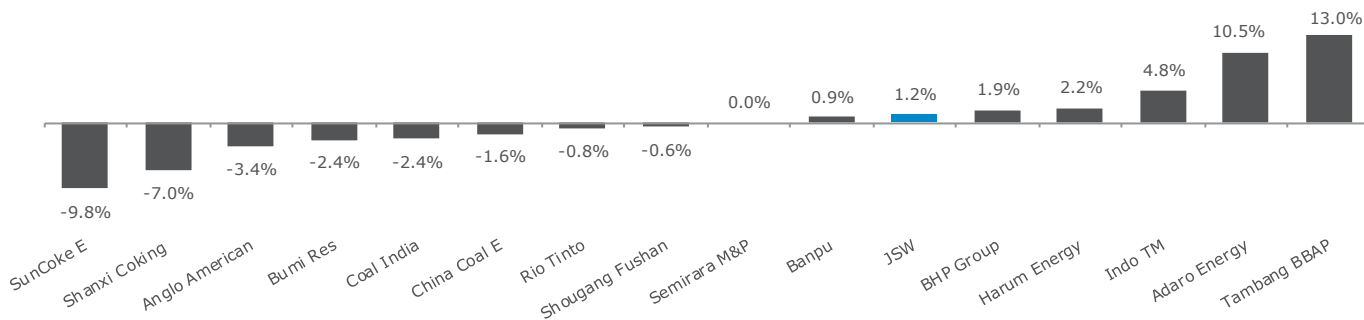
Natural Gas Companies



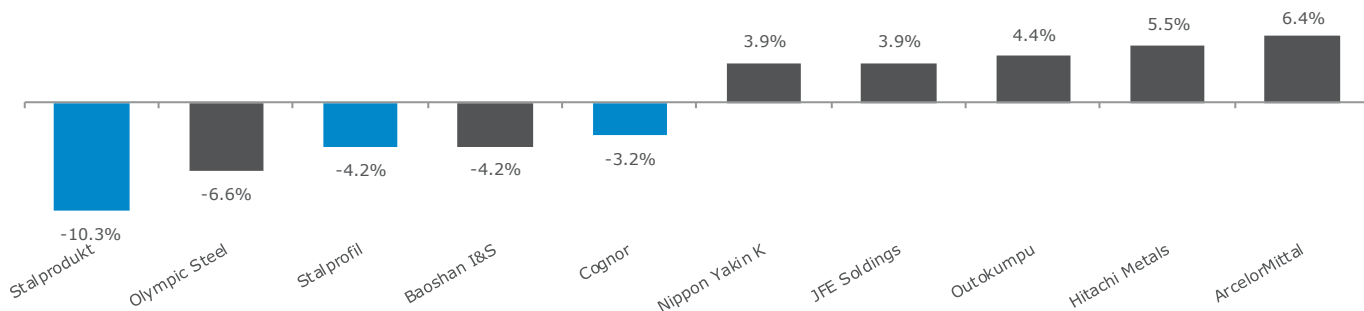
Exploration & Production Companies



Coal Producers



Steel Producers & Distributors

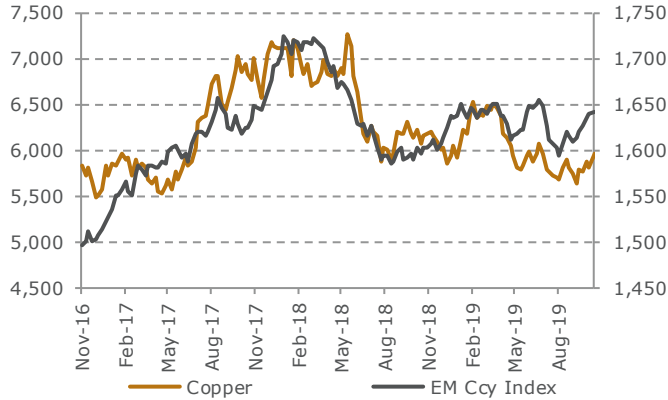


Source: Bloomberg, Dom Maklerski mBanku

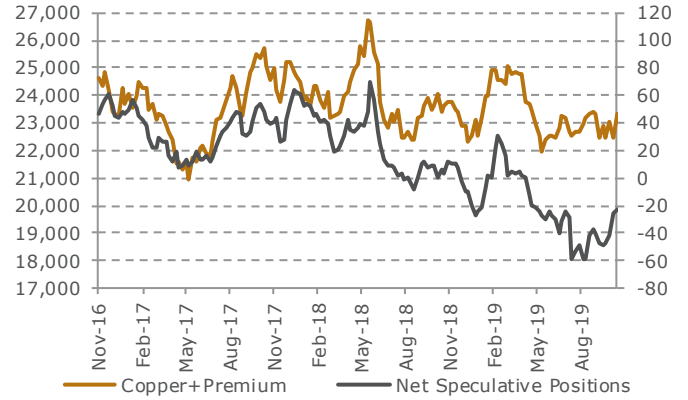


Copper Charts

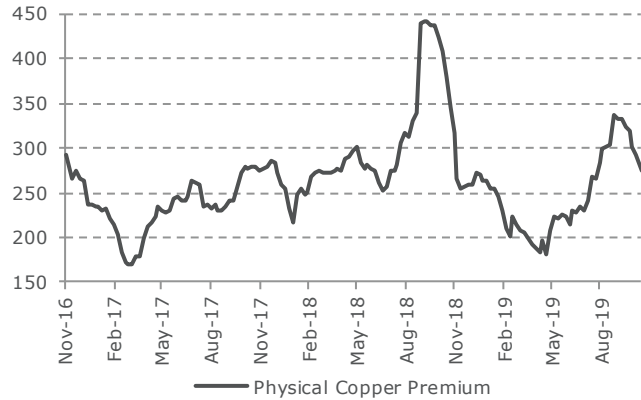
Cu Price (US\$/t) vs. EM Currencies (pts.; rhs)



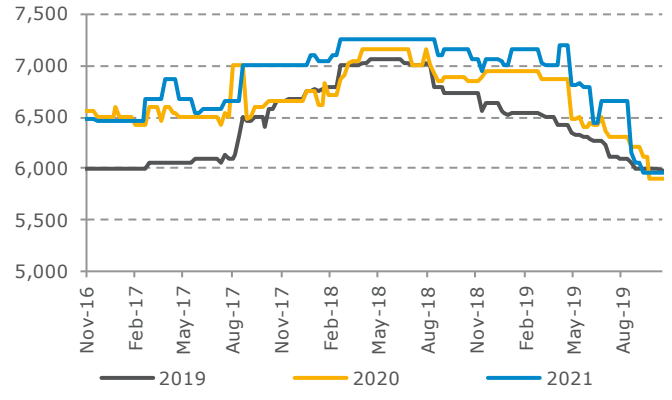
CU Price incl. Supplier Premium (PLN 1,000/t; lhs) vs. Net Speculative Positions (1,000, rhs)



Physical Copper Premiums (PLN/t)



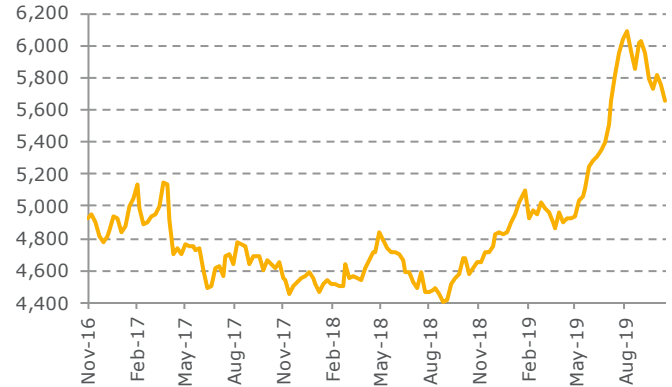
Copper Price Forecasts (median; US\$/t)



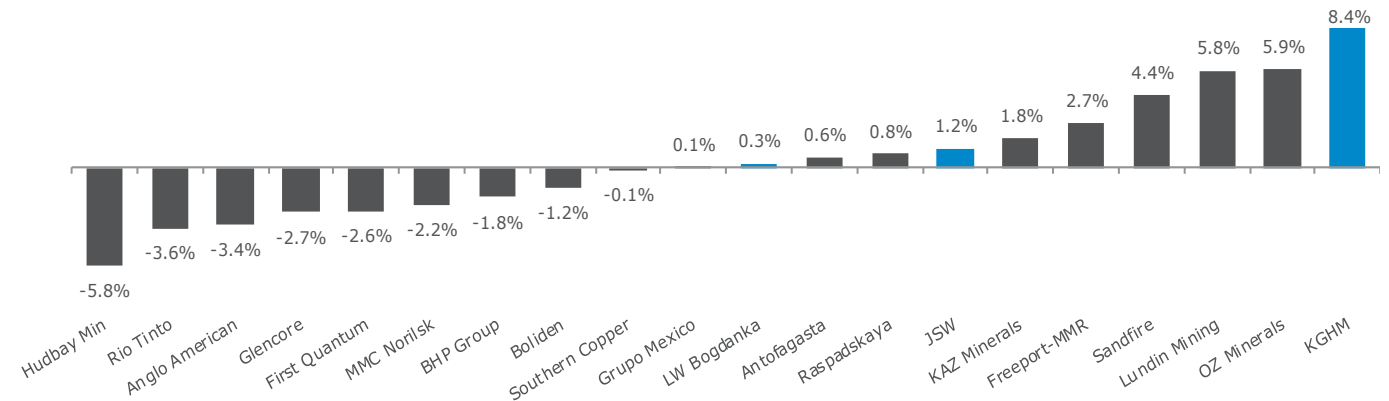
Silver prices (PLN/kg)



Prices of gold (PLN/oz)



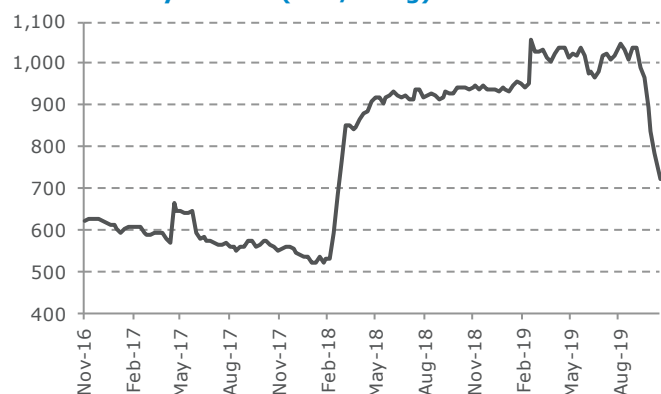
Weekly Returns of Metal & Mining Stocks



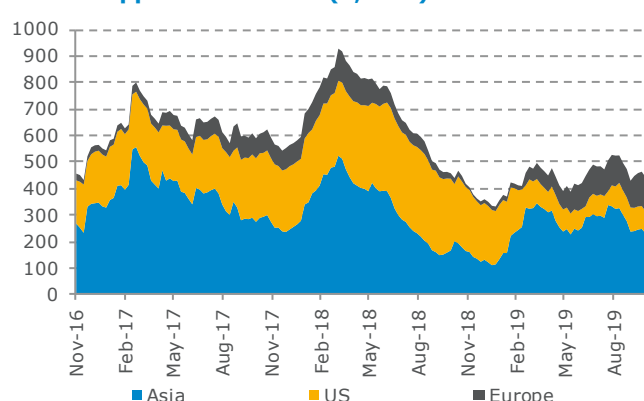
Source: Bloomberg, Dom Maklerski mBanku

More Copper Charts

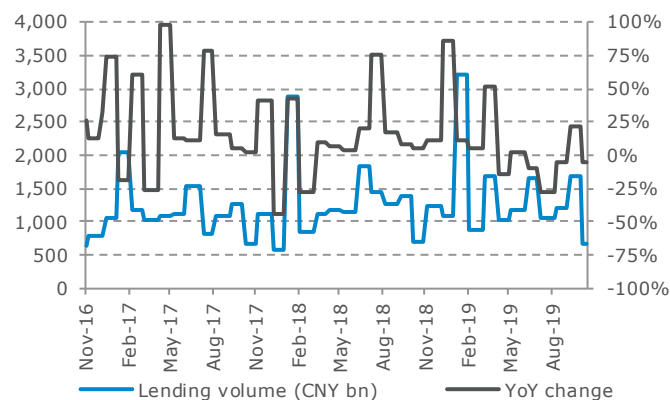
Prices of molybdenum (PLN/10 kg)



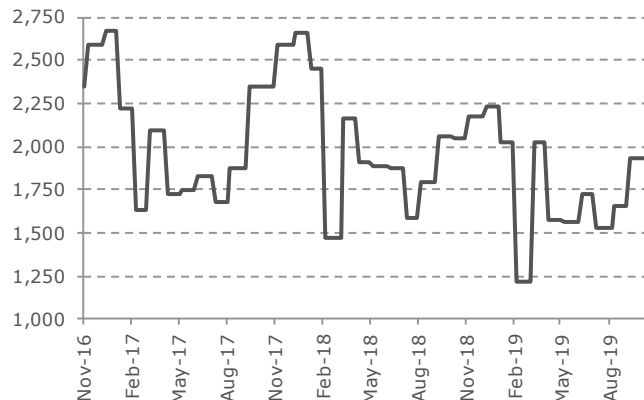
Global Copper Inventories (1,000t)



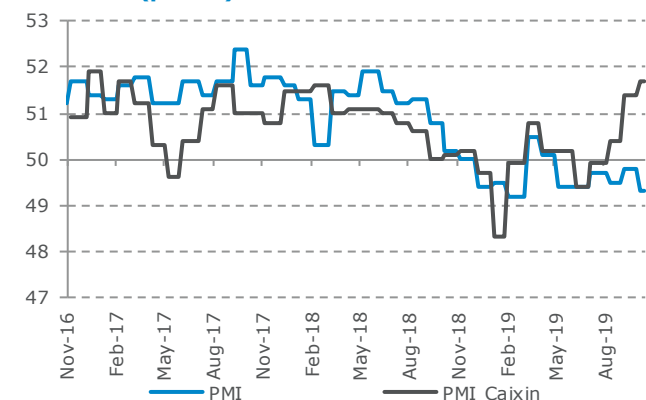
New Bank Lending in China (CNY bn)



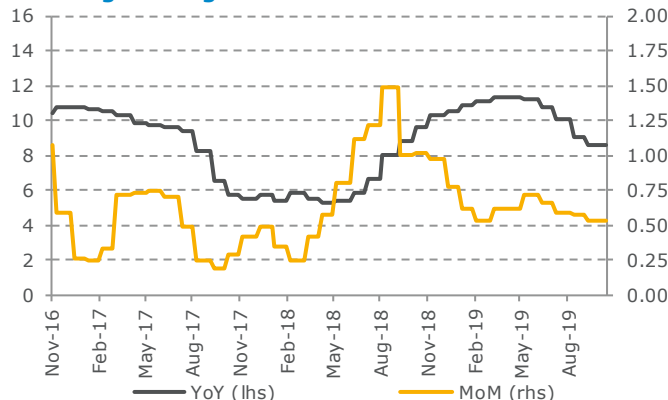
Car Sales in China (thousands)



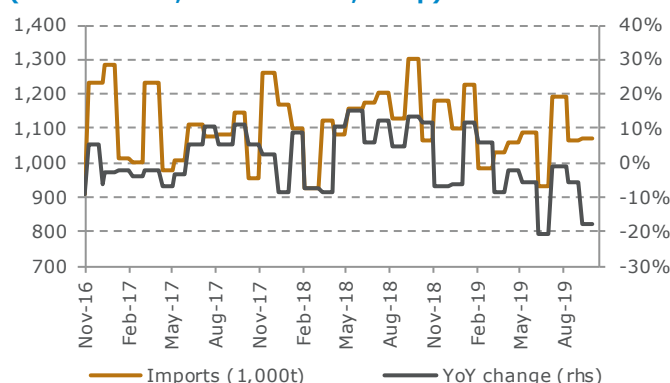
China PMI (points)



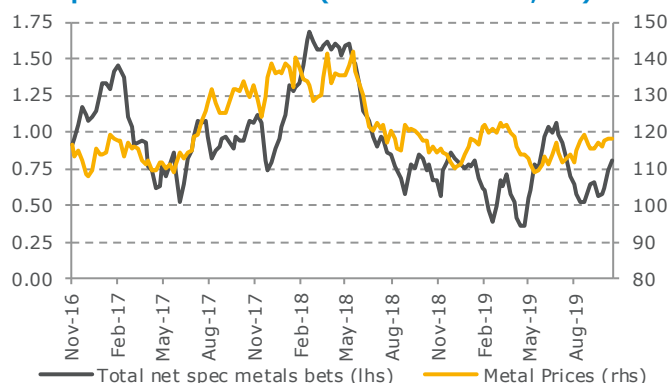
% Change In Avg. New Home Prices In 70 CN Cities



China Copper Imports (concentrates, refined metal, scrap)



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

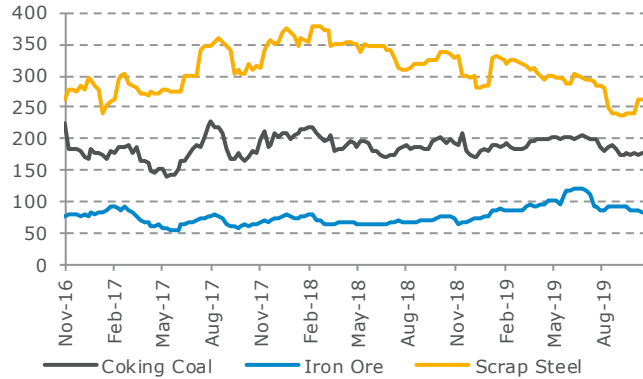


Source: Bloomberg, Dom Maklerski mBanku

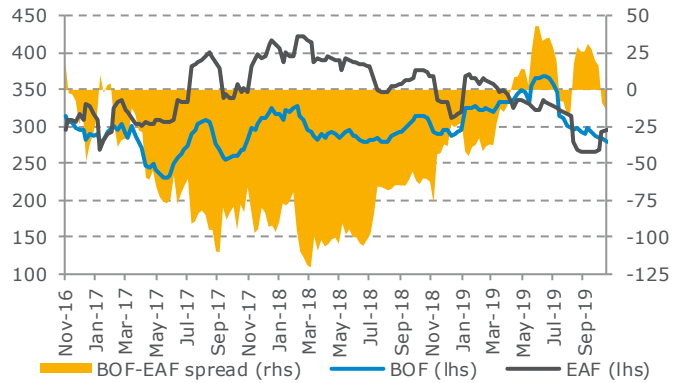


Steel Charts

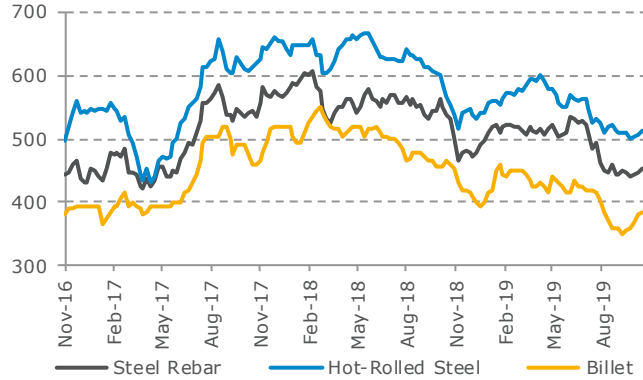
China Coking Coal & Iron Ore Prices, Rotterdam Scrap Steel Prices (US\$/t)



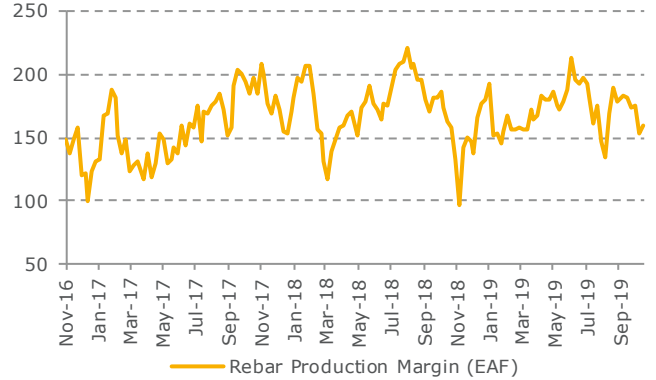
Production Costs of BOF vs. EAF Steel Producers (US\$/t)



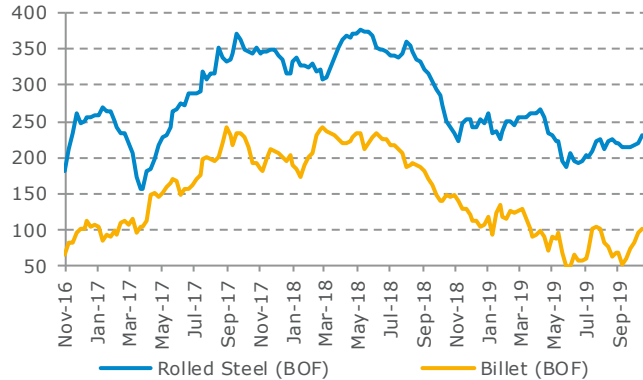
Prices of Steel Rebar & Hot-Rolled Steel (US\$/t)



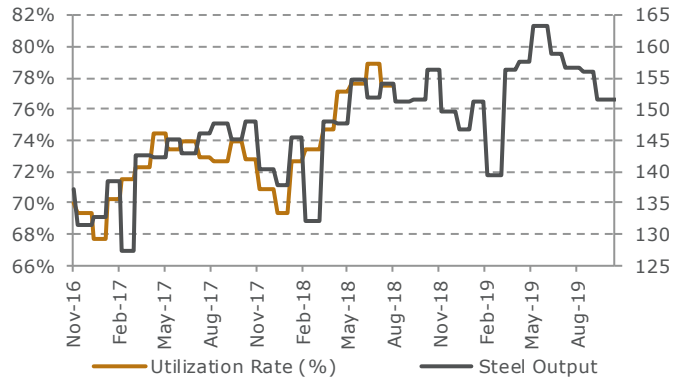
Rebar Production Margins of EAF Steelmakers (US\$/t)



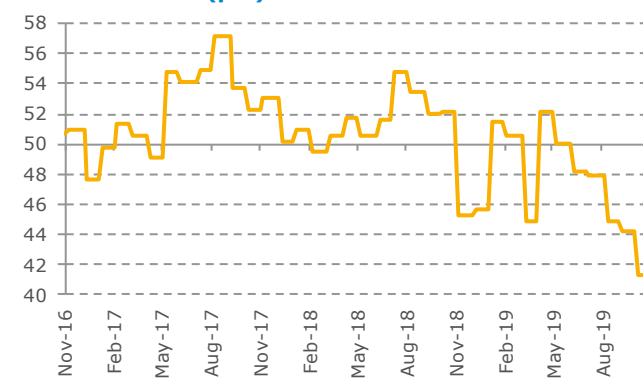
Rolled Steel & Billet Margins of BOF Steelmakers (US\$/t)



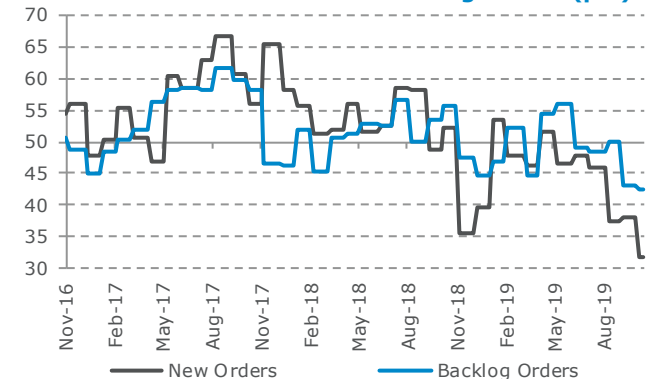
Global Steel Plant Capacity Utilization Rates & Output (Mt)



China Steel PMI (pts)



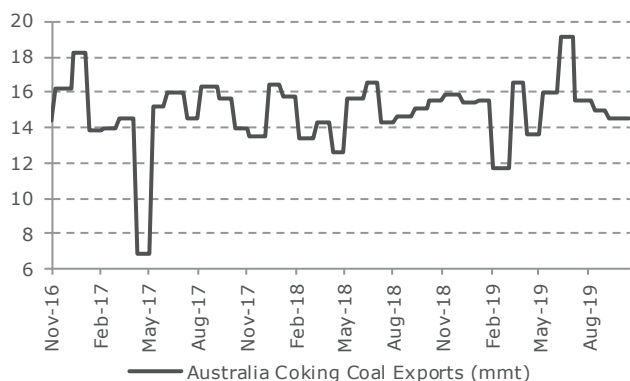
China Steel PMI New Orders & Backlog Orders (pts)



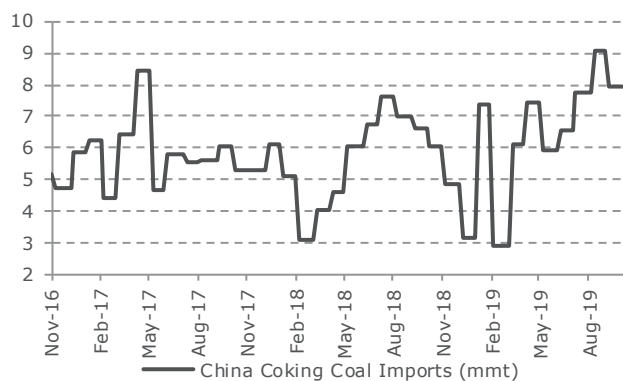
Source: Bloomberg, Dom Maklerski mBanku

More Steel Charts

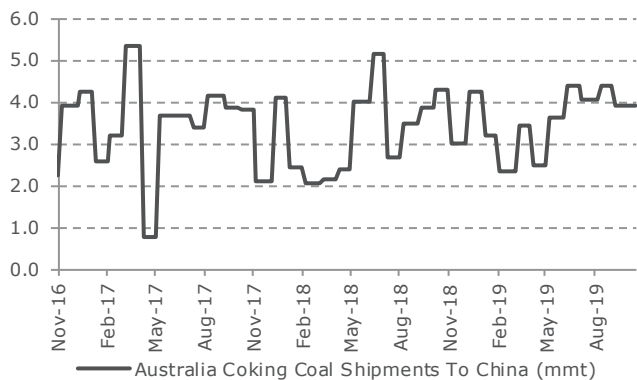
Australia Coking Coal Exports (mmt)



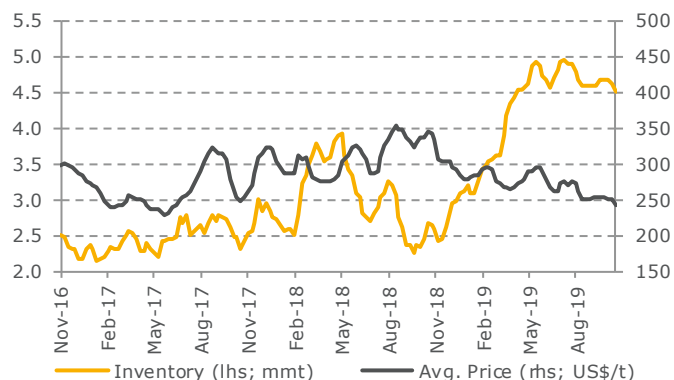
China Coking Coal Imports (mmt)



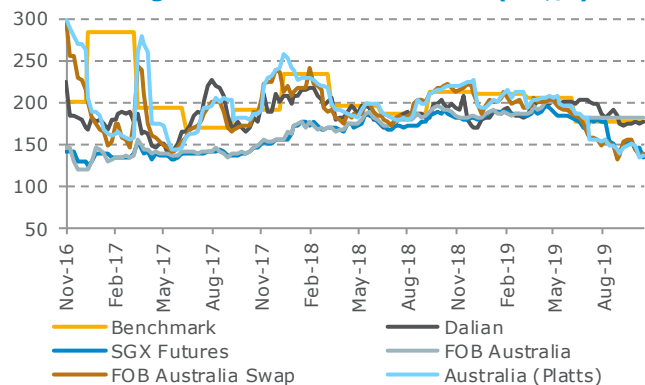
Australia Coking Coal Shipments To China (mmt)



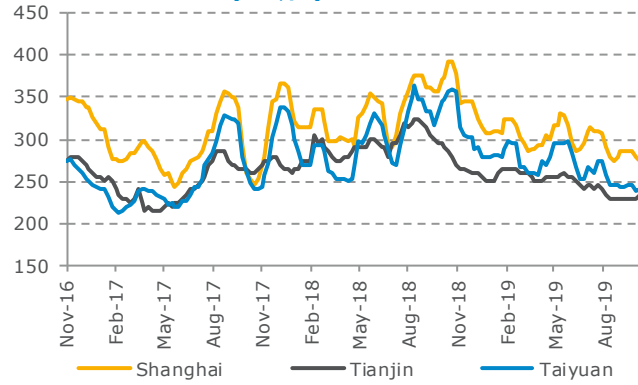
China Coke Inventories (lhs; mmt) & Average Prices (rhs; US\$/t)



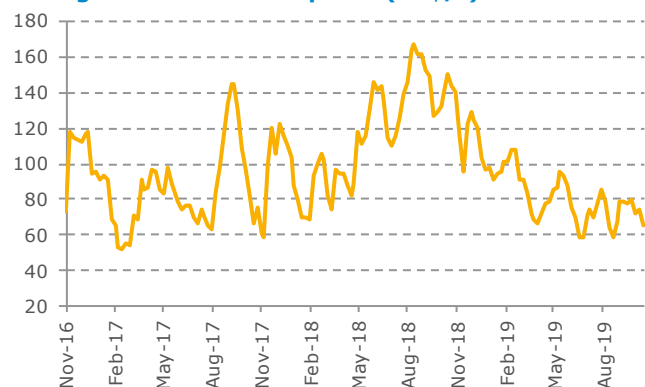
China Coking Coal Prices vs. Benchmark (US\$/t)



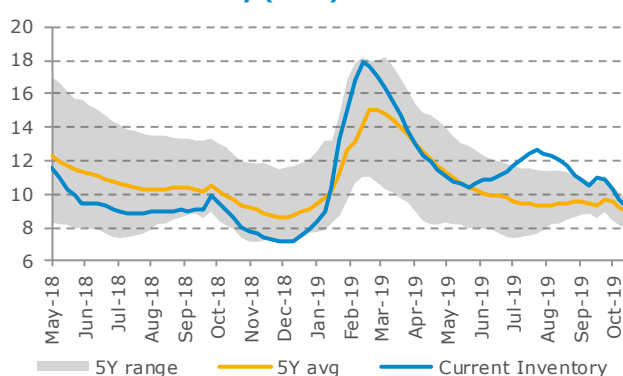
China Coke Prices (US\$/t)



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



China Steel Inventory (mmt)

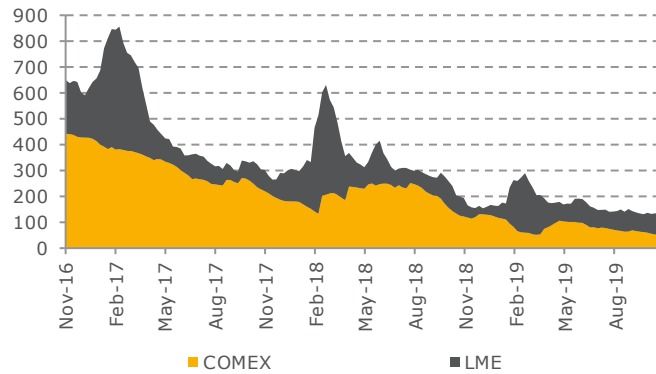


Source: Bloomberg, Dom Maklerski mBanku

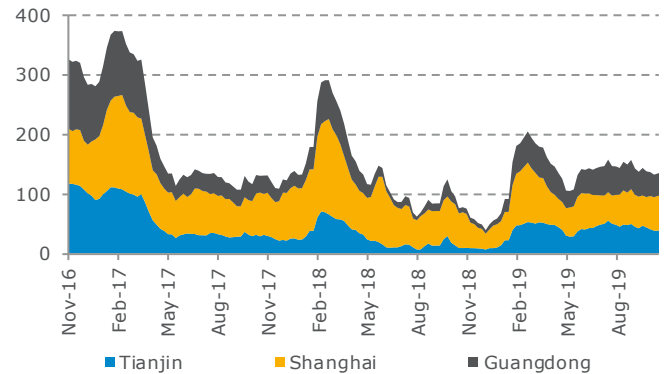


Zinc and Electrical Steel Charts

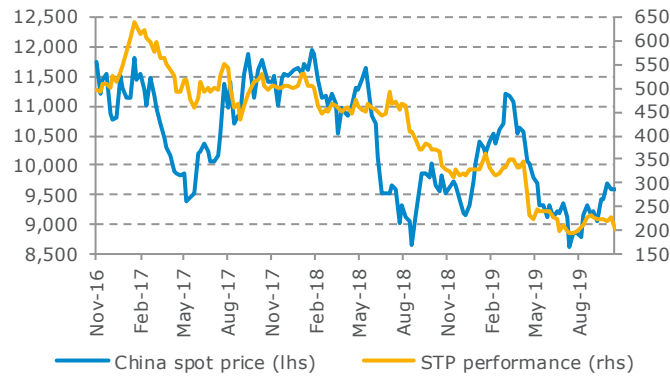
Exchange-Monitored Zinc Inventories (1,000t)



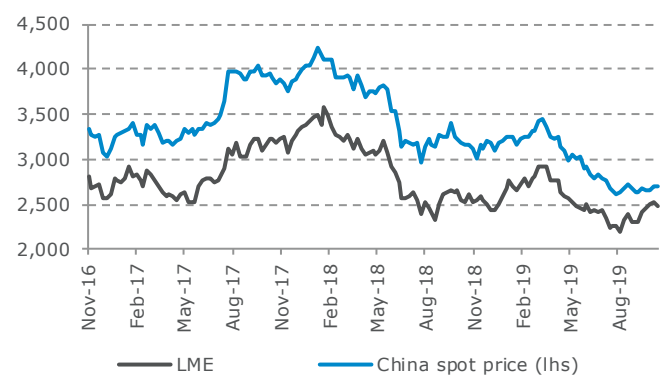
Zinc Inventories in Three Chinese Regions (1,000t)



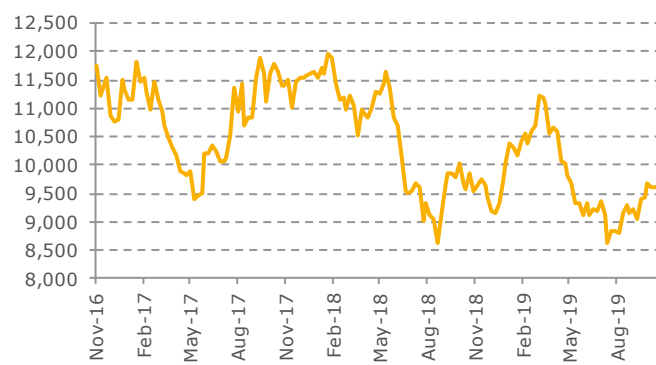
Zinc Prices vs. Stalprodukt Stock Performance (PLN)



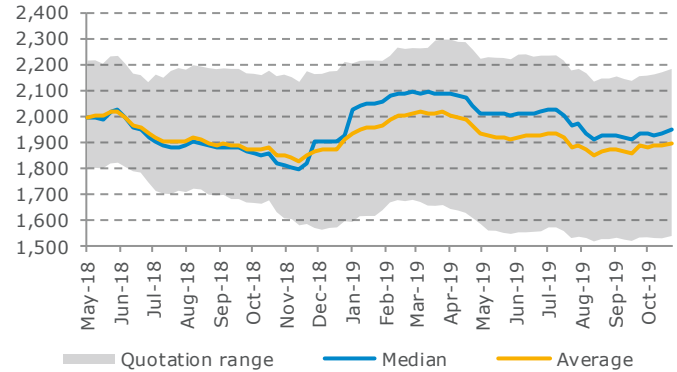
US Dollar Zinc Prices (US\$/t)



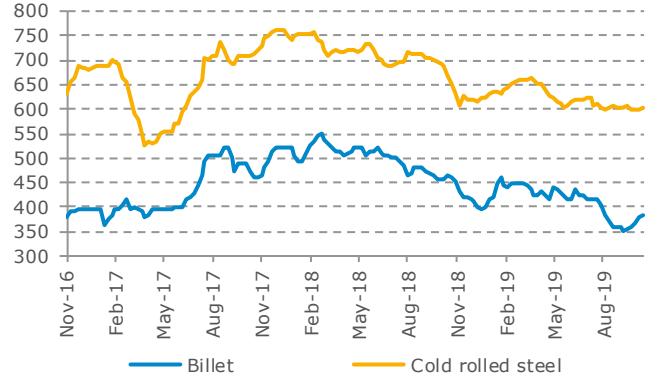
Polish Zloty Zinc Prices (PLN/t)



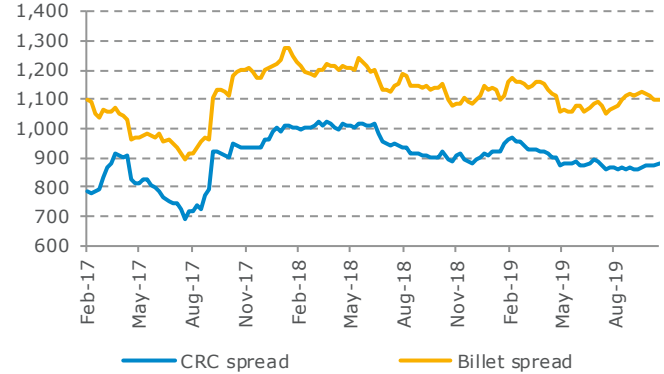
China Electrical Steel Prices (US\$/t)



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



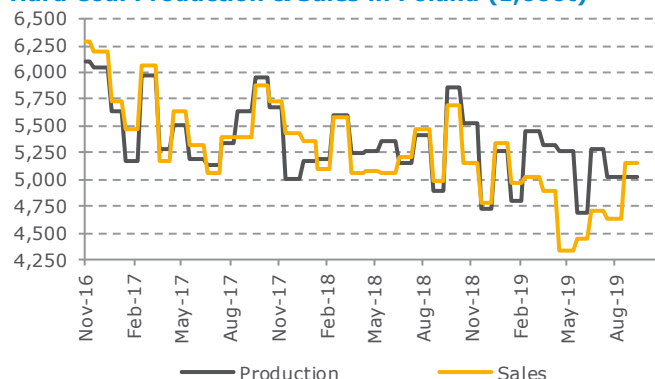
Electrical Steel Production Margins (US\$/t)



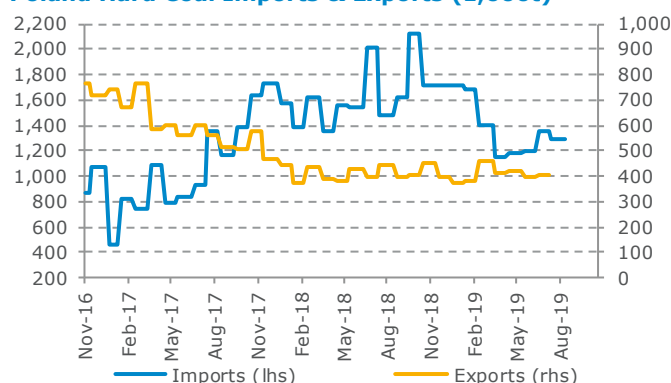
Source: Bloomberg, Dom Maklerski mBanku

Thermal Coal Charts

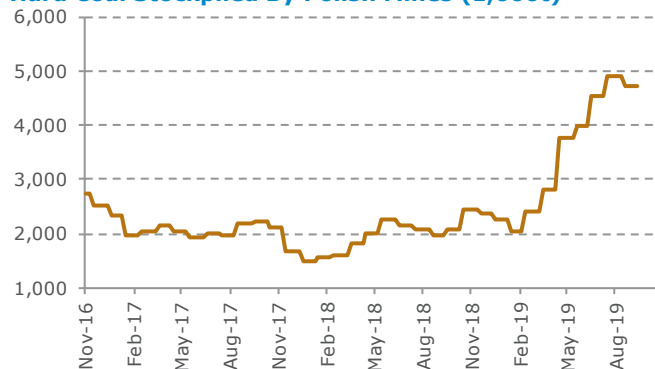
Hard Coal Production & Sales in Poland (1,000t)



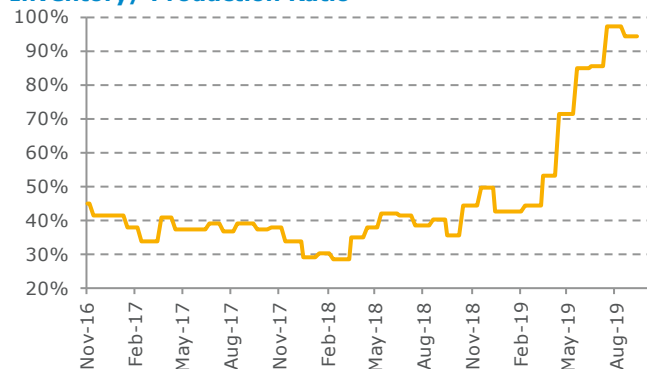
Poland Hard Coal Imports & Exports (1,000t)



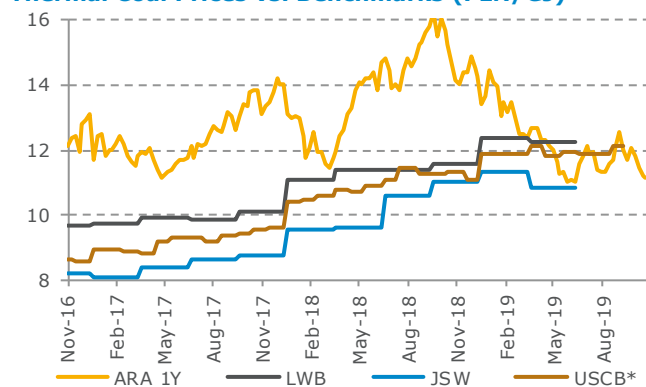
Hard Coal Stockpiled By Polish Mines (1,000t)



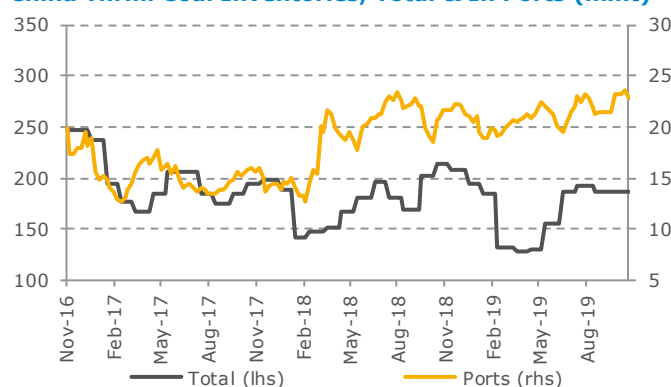
Inventory/ Production Ratio



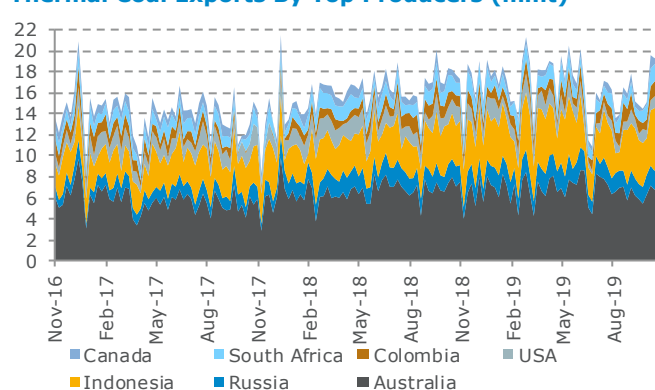
Thermal Coal Prices vs. Benchmarks (PLN/GJ)



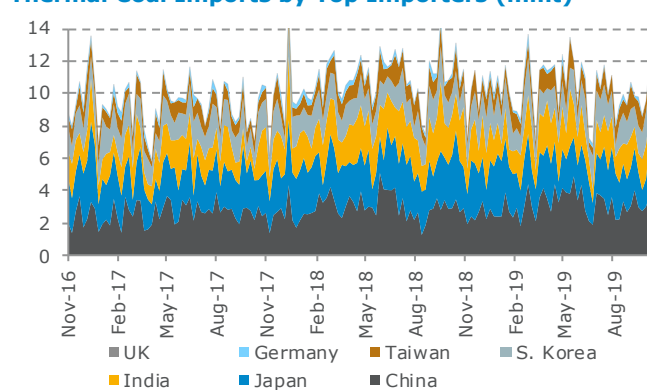
China Thrml Coal Inventories, Total & In Ports (mmt)



Thermal Coal Exports By Top Producers (mmt)



Thermal Coal Imports by Top Importers (mmt)

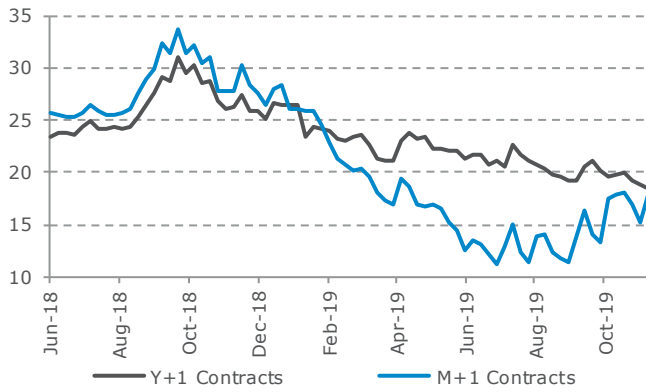


Source: Bloomberg, ARP, Eurostat, Dom Maklerski mBanku *Upper Silesian Coal Basin

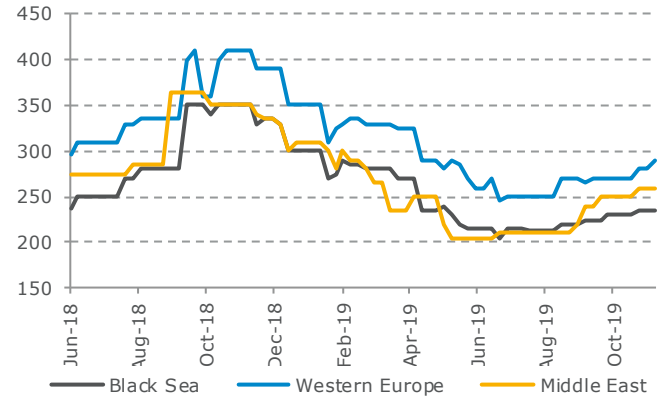


Fertilizer Charts

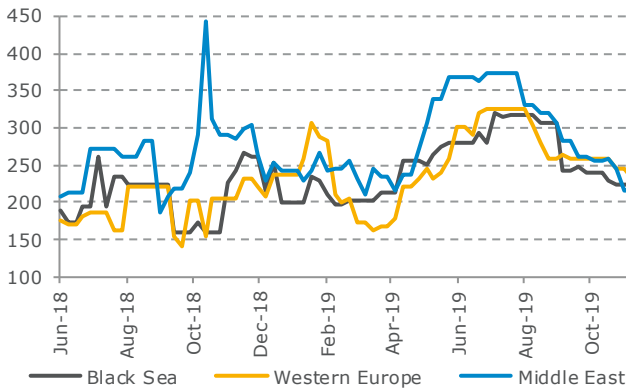
German NatGas Prices (US\$/MWh)



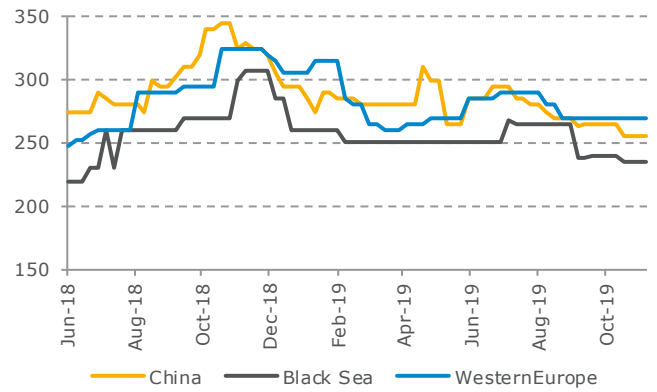
World Ammonia Prices (US\$/t)



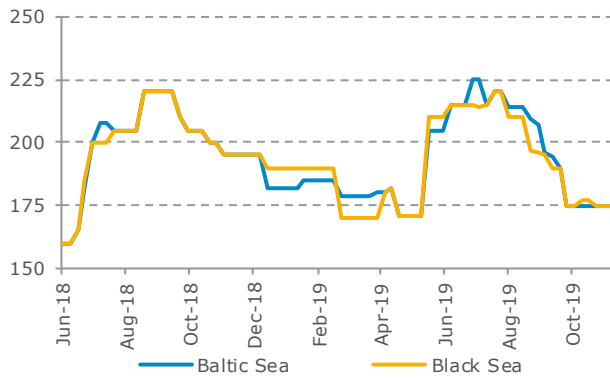
Urea-Ammonia Price Difference



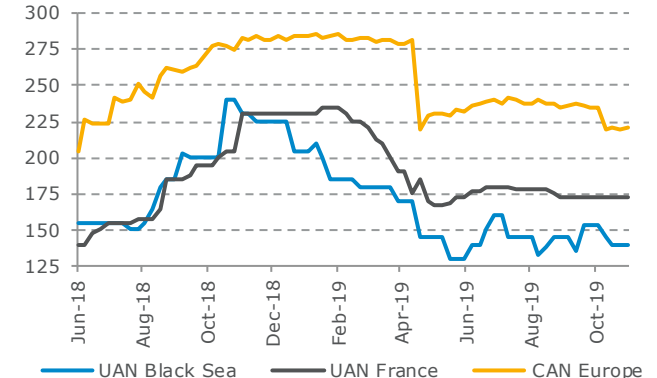
World Urea Prices (US\$/t)



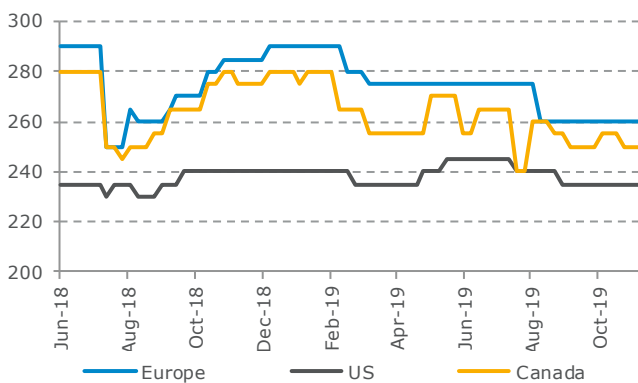
World Ammonium Nitrate Prices (US\$/t)



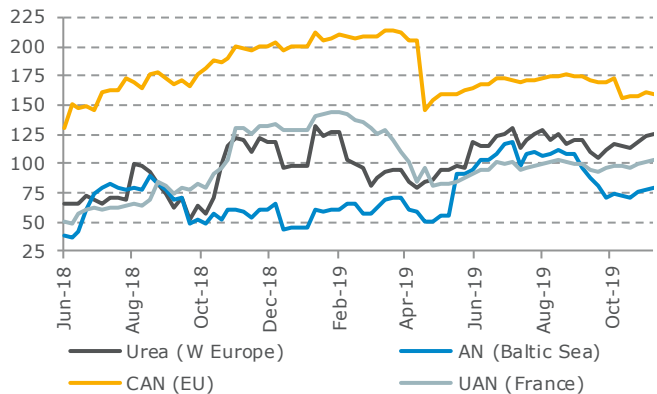
CAN & UAN prices (US\$/t)



World Ammonium Sulfate Prices (US\$/t)



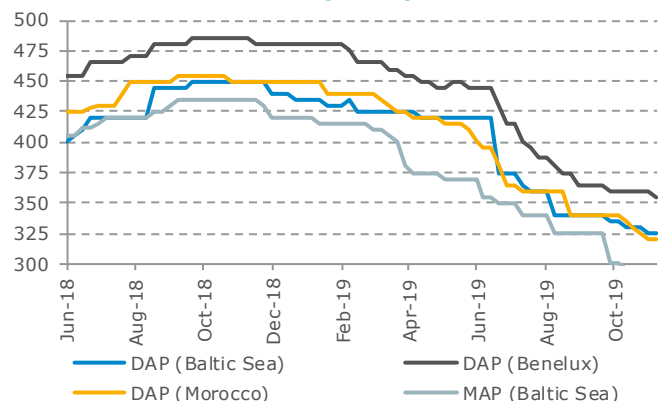
Production Margins On Nitrogen Fertilizers (US\$/t)



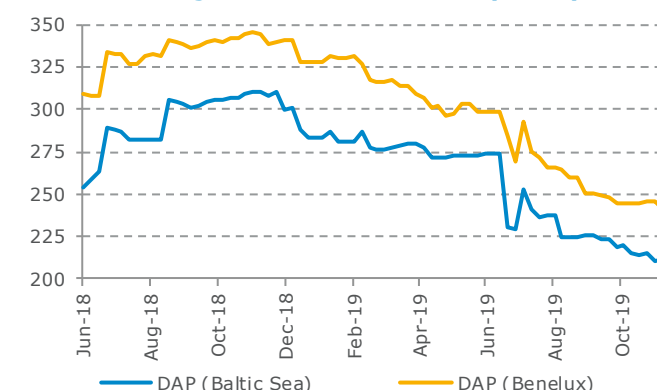
Source: Bloomberg, Dom Maklerski mBanku

Fertilizer Charts

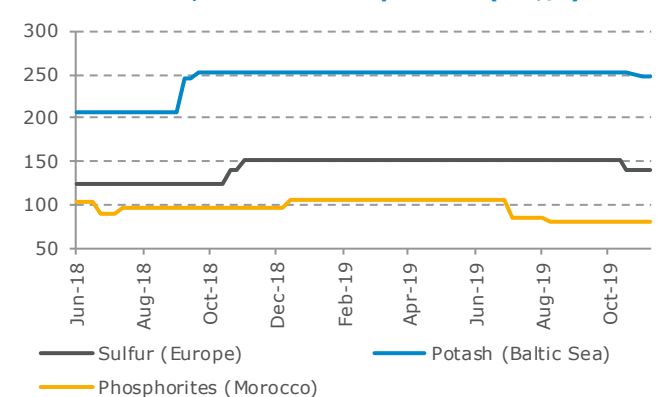
Prices of P & K Fertilizers (US\$/t)



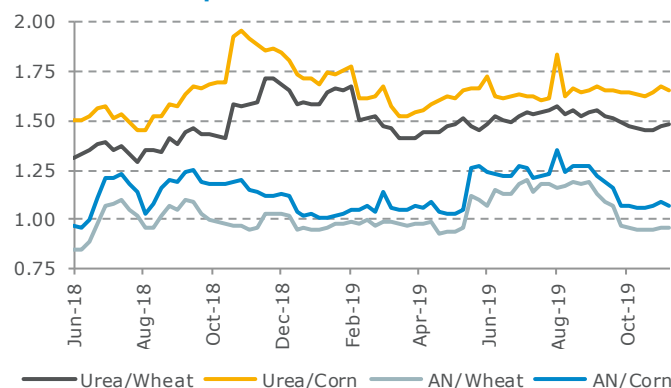
Production Margins on P & K Fertilizers (US\$/t)



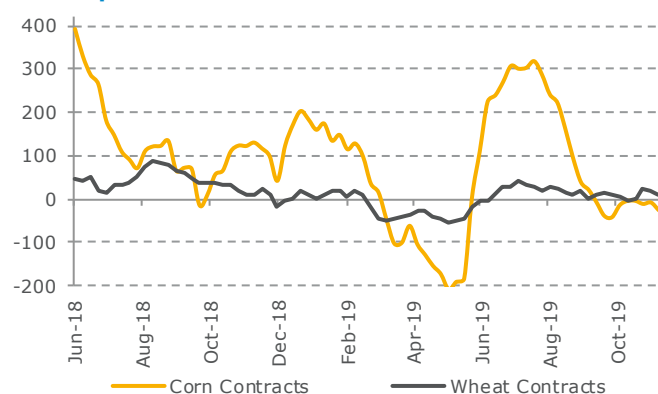
Prices of Sulfur, Potash & Phosphorites (US\$/t)



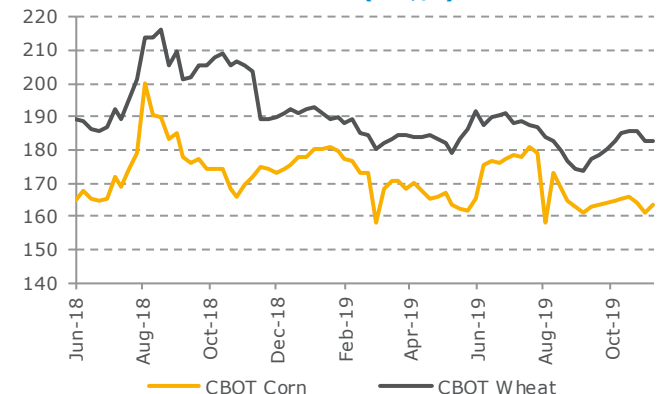
Fertilizer-to-Crop Price Ratios



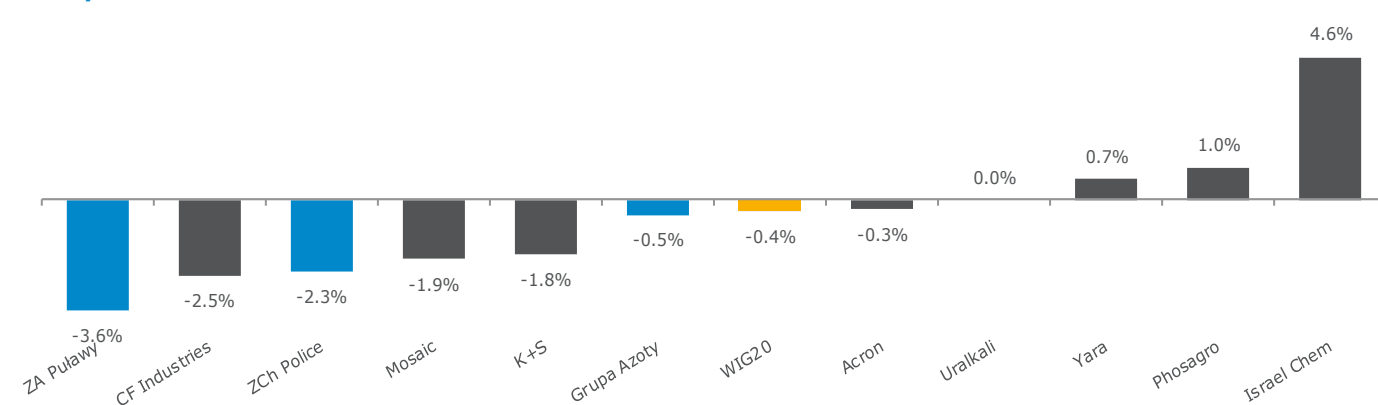
CBOT Open Positions In Corn and Wheat CBT



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



Weekly Returns of Fertilizer Stocks

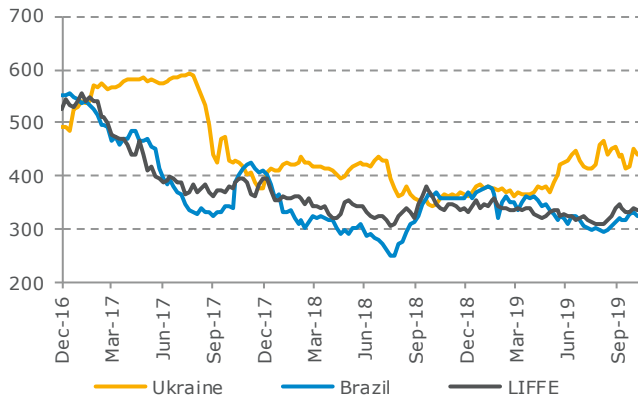


Source: Bloomberg, Dom Maklerski mBanku

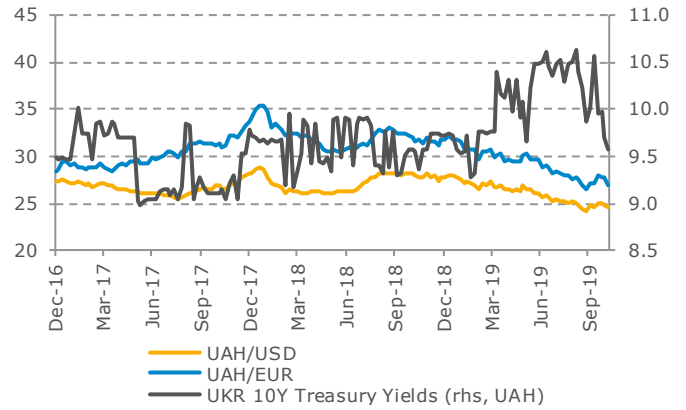


Agricultural Commodities

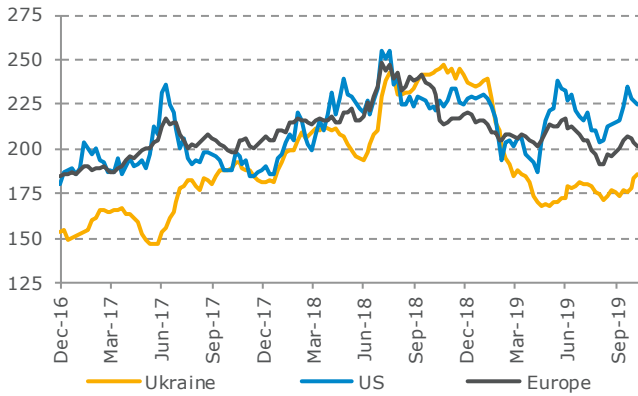
Sugar Prices (US\$/Mt)



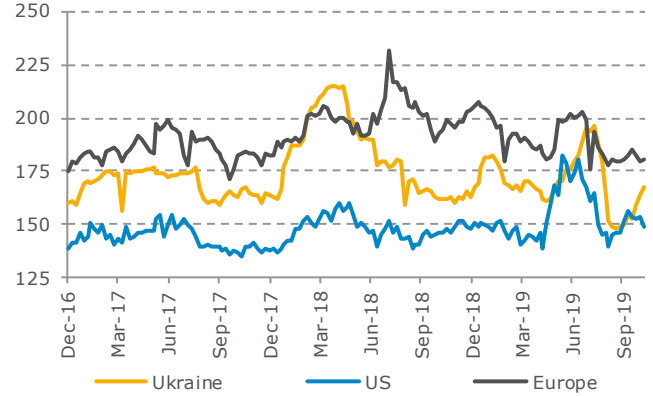
UAH Exchange Rates & Ukraine 10Y Treasury Yields



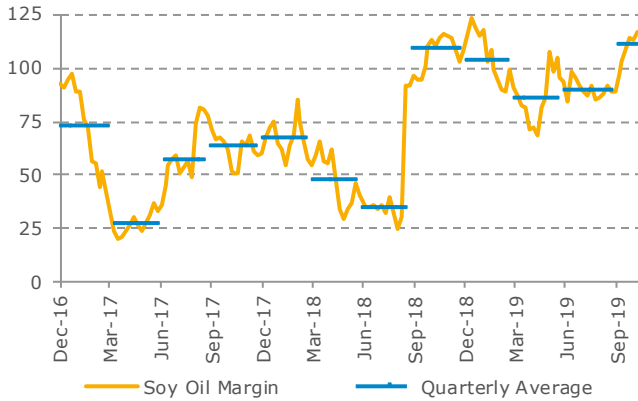
Wheat Prices (US\$/Mt)



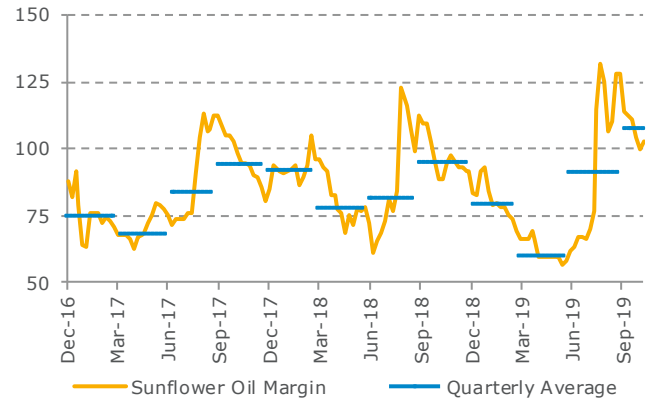
Corn Prices (US\$/Mt)



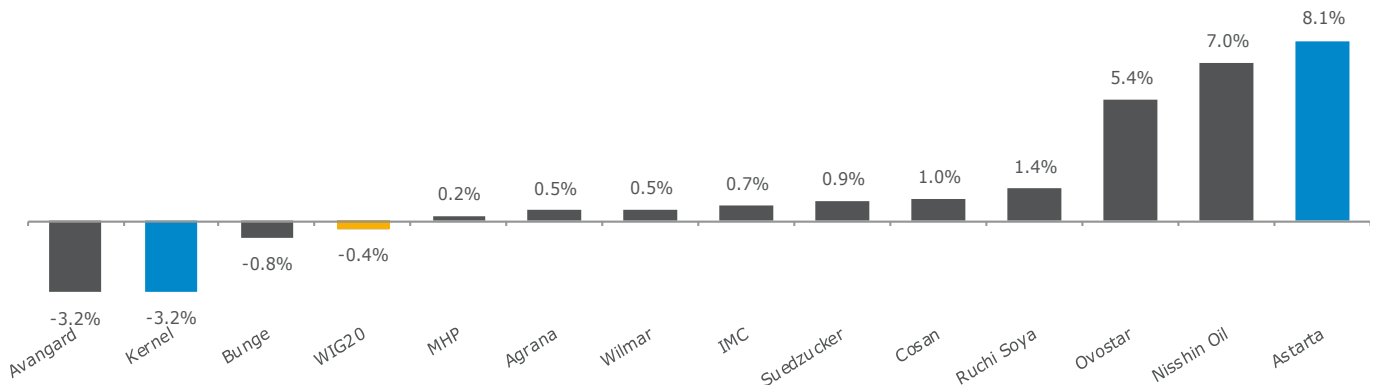
Model Margins on Soy Oil (US\$/Mt)



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



Weekly Returns of Agricultural Stocks



Source: Bloomberg, Dom Maklerski mBanku

Comparison of Utility Company Valuations

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
UTILITIES																
CEZ	522.0	7.5	6.9	6.8	2.1	1.9	1.8	15.6	13.5	13.6	29%	28%	27%	4.6%	5.8%	6.7%
Enea	9.5	3.4	3.3	3.0	0.7	0.6	0.6	4.0	3.9	3.0	20%	18%	21%	0.0%	0.0%	2.6%
Energa	6.7	3.6	4.1	4.4	0.7	0.7	0.8	5.2	5.0	4.6	19%	17%	17%	0.0%	0.0%	0.0%
PGE	9.5	3.6	4.1	3.2	0.8	0.7	0.7	6.4	8.2	5.2	21%	17%	22%	0.0%	3.9%	3.1%
Tauron	1.9	4.2	3.9	3.4	0.8	0.7	0.6	3.6	3.0	2.4	18%	17%	19%	0.0%	0.0%	0.0%
ZE PAK*	6.9	1.7	1.8	1.3	0.2	0.2	0.2	4.3	4.9	1.5	11%	11%	17%	-	7.1%	6.0%
EDF	9.2	4.1	3.8	3.7	0.9	0.9	0.9	13.5	11.2	10.9	23%	24%	24%	3.5%	4.2%	4.3%
EDP	3.7	9.2	8.8	8.5	2.0	2.0	2.0	16.8	15.3	14.2	22%	23%	24%	5.1%	5.2%	5.5%
Endesa	23.9	8.4	8.4	8.2	1.5	1.5	1.5	16.5	16.2	15.8	18%	18%	18%	6.0%	6.1%	5.2%
Enel	6.9	7.9	7.6	7.2	1.8	1.7	1.7	14.6	13.3	12.5	22%	23%	23%	4.8%	5.3%	5.7%
EON	8.8	6.3	4.6	4.5	1.0	0.5	0.5	13.2	14.2	12.9	16%	11%	11%	5.2%	5.4%	5.5%
Fortum	21.1	14.1	11.2	10.2	4.3	4.2	2.1	14.6	13.8	12.6	30%	37%	20%	5.2%	5.2%	5.3%
Iberdola	8.9	10.7	10.0	9.5	2.9	2.7	2.7	16.9	15.7	15.0	27%	27%	28%	4.3%	4.5%	4.8%
National Grid	8.9	12.9	10.8	10.2	3.8	3.7	3.6	19.9	15.1	14.4	30%	34%	35%	5.2%	5.5%	5.6%
Red Electrica	17.8	9.4	9.4	9.5	7.3	7.3	7.3	13.4	14.2	14.6	78%	78%	77%	5.9%	5.7%	5.6%
RWE	26.0	10.6	6.4	5.5	1.5	1.0	0.9	19.5	14.8	11.2	14%	15%	16%	3.1%	3.7%	4.3%
SSE	12.7	10.0	11.2	10.3	0.9	3.1	3.0	9.2	14.8	12.6	9%	27%	29%	7.7%	6.3%	6.5%
Verbund	44.9	14.6	12.3	11.7	5.1	4.7	4.4	27.6	21.7	20.4	35%	38%	38%	1.6%	2.1%	2.6%
Median		8.2	7.2	7.0	1.5	1.6	1.6	14.0	14.0	12.6	22%	23%	22%	4.6%	5.2%	5.2%

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	94.80	7.3	6.2	5.3	0.7	0.7	0.6	14.4	13.3	12.1	10%	11%	12%	3.2%	2.1%	2.3%
MOL	3020.00	4.5	4.2	3.8	0.7	0.6	0.6	10.9	9.6	8.3	15%	15%	15%	4.7%	5.0%	5.2%
PKN Orlen	105.50	5.8	6.2	6.0	0.5	0.5	0.4	10.0	11.8	12.0	9%	8%	7%	3.3%	2.8%	2.8%
Hellenic Petroleum	8.48	6.6	5.2	5.6	0.5	0.5	0.5	11.2	6.7	7.0	7%	9%	8%	5.9%	6.3%	6.1%
HollyFrontier	54.13	6.3	6.2	6.8	0.7	0.7	0.7	10.5	10.0	11.3	11%	11%	10%	2.4%	2.5%	2.6%
Marathon Petroleum	65.71	8.5	6.7	6.8	0.7	0.6	0.6	14.9	8.7	10.2	8%	9%	9%	3.2%	3.6%	4.0%
Motor Oil	21.46	5.1	4.4	4.8	0.3	0.3	0.3	8.5	6.8	7.6	6%	7%	7%	6.2%	6.4%	6.7%
Neste Oil	31.59	11.9	11.3	10.5	1.6	1.7	1.6	19.9	17.4	15.9	13%	15%	15%	2.7%	3.0%	3.3%
OMV	54.00	4.9	4.6	4.5	1.2	1.2	1.2	10.0	9.6	9.1	25%	26%	27%	3.6%	4.0%	4.3%
Phillips 66	118.41	9.0	7.7	7.8	0.6	0.6	0.6	13.3	11.2	11.0	7%	8%	8%	2.9%	3.2%	3.5%
Saras	1.62	4.3	2.6	3.7	0.2	0.2	0.2	14.7	5.5	8.8	4%	7%	5%	4.2%	9.1%	5.6%
Tupras	127.00	7.5	4.7	5.0	0.4	0.4	0.4	14.7	6.0	5.9	6%	8%	8%	6.4%	14.5%	14.7%
Valero Energy	100.68	9.5	6.5	7.2	0.5	0.4	0.5	20.0	10.3	11.4	5%	7%	6%	3.6%	3.9%	4.1%
Median		6.6	6.2	5.6	0.6	0.6	0.6	13.3	9.6	10.2	8%	9%	8%	3.6%	3.9%	4.1%

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	105.50	5.8	6.2	6.0	0.5	0.5	0.4	10.0	11.8	12.0	9%	8%	7%	3.3%	2.8%	2.8%
Axiall	73.75	8.3	7.4	7.1	1.5	1.4	1.4	19.6	15.4	13.7	18%	19%	20%	1.4%	1.4%	1.6%
Braskem	31.40	6.4	6.0	5.3	1.0	1.0	0.9	24.4	25.0	19.7	16%	16%	17%	1.7%	0.8%	1.5%
Eastman Chemical	82.68	8.7	8.3	7.9	1.9	1.8	1.8	11.6	10.4	9.2	22%	22%	23%	2.9%	3.2%	3.6%
Huntsman Corp	23.49	8.6	8.7	8.0	1.1	1.1	1.1	13.3	12.1	10.3	12%	13%	13%	2.8%	2.9%	3.0%
Lotte Chemicals	226,000	4.9	4.6	4.2	0.6	0.6	0.6	8.2	7.1	6.5	12%	13%	14%	3.9%	4.2%	4.4%
LyondellBasell	97.19	7.6	7.0	6.8	1.3	1.2	1.2	9.5	8.3	7.9	17%	18%	18%	4.4%	4.6%	4.8%
Mitsubishi Chemical	877.10	7.5	7.2	6.9	0.9	0.9	0.9	7.4	8.9	8.5	12%	13%	13%	4.6%	4.5%	4.5%
Mitsui Chemicals	2801.00	7.0	7.1	6.7	0.7	0.7	0.7	7.3	9.7	8.5	10%	10%	10%	3.6%	3.6%	3.7%
Westlake Chemical	73.75	8.3	7.4	7.1	1.5	1.4	1.4	19.6	15.4	13.7	18%	19%	20%	1.4%	1.4%	1.6%
Median		7.6	7.2	6.9	1.0	1.0	1.0	10.8	11.1	9.7	14%	15%	15%	3.1%	3.1%	3.3%

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

Comparison of NatGas Company Valuations

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
GAS COMPANIES																
PGNiG	5.00	5.4	4.2	3.7	0.8	0.7	0.7	15.0	9.8	8.7	14%	17%	18%	2.2%	2.7%	4.1%
A2A	1.80	7.8	7.3	7.0	1.4	1.4	1.3	16.7	15.2	14.3	18%	19%	19%	4.3%	4.4%	4.6%
BG Group	23.30	5.7	5.3	5.0	0.9	0.9	0.8	13.3	11.2	10.2	16%	17%	17%	6.3%	6.3%	6.4%
BP	5.07	5.2	4.9	4.8	0.7	0.7	0.7	13.2	11.7	11.0	13%	14%	14%	6.3%	6.4%	6.7%
Centrica	0.73	4.5	4.3	4.6	0.3	0.3	0.3	10.8	7.7	7.4	7%	7%	7%	6.8%	6.9%	6.9%
Enagas	22.97	9.9	9.9	10.6	8.2	8.3	9.1	12.7	12.1	12.7	82%	84%	86%	7.0%	7.2%	7.2%
Endesa	23.90	8.4	8.4	8.2	1.5	1.5	1.5	16.5	16.2	15.8	18%	18%	18%	6.0%	6.1%	5.2%
Engie	14.16	6.6	6.3	6.0	1.0	1.0	1.0	13.7	12.3	11.1	16%	16%	16%	5.5%	5.9%	6.4%
Eni	14.14	4.0	3.8	3.6	1.0	1.0	1.0	14.4	11.7	10.6	24%	25%	27%	6.1%	6.2%	6.4%
Equinor	178.20	3.3	2.9	2.7	1.1	1.0	1.0	13.0	10.9	9.9	34%	36%	37%	5.4%	5.7%	5.9%
Gas Natural SDG	24.10	9.4	9.0	8.8	1.6	1.5	1.6	17.6	16.1	15.4	17%	17%	18%	5.7%	6.0%	6.3%
Gazprom	260.40	3.9	3.8	3.6	1.1	1.1	1.0	4.2	4.6	4.3	28%	28%	28%	6.3%	7.1%	9.3%
Hera	3.83	8.2	7.8	7.6	1.4	1.3	1.3	18.8	18.2	18.2	17%	17%	17%	2.7%	2.9%	3.0%
NovaTek	211.80	13.4	12.9	13.1	4.8	4.7	4.3	9.5	14.0	12.4	36%	37%	33%	2.1%	2.6%	2.8%
ROMGAZ	37.40	5.6	5.6	5.3	2.7	2.6	2.6	9.8	9.8	9.2	49%	47%	48%	8.9%	8.9%	10.2%
Shell	27.20	5.6	5.2	4.9	0.9	0.9	0.8	13.3	11.2	10.2	16%	17%	17%	6.3%	6.3%	6.4%
Snam	4.59	12.6	12.3	12.0	10.2	10.0	9.7	14.3	14.2	13.6	81%	81%	81%	5.2%	5.5%	5.7%
Total	49.41	5.4	4.9	4.8	0.9	0.9	0.9	12.0	10.5	10.0	17%	18%	18%	5.5%	5.7%	6.1%
Median		5.7	5.4	5.1	1.1	1.1	1.0	13.3	11.7	10.8	18%	18%	18%	5.9%	6.1%	6.3%

Comparison of E&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	3020.00	5.0	4.6	4.7	0.7	0.7	0.7	8.2	7.1	7.4	14%	15%	14%	4.4%	4.6%	5.0%
Bashneft	1943.00	2.0	2.0	1.7	0.5	0.5	0.4	3.0	2.9	2.4	24%	24%	25%	13.2%	11.7%	12.7%
BP	5.07	5.2	4.9	4.8	0.7	0.7	0.7	13.2	11.7	11.0	13%	14%	14%	6.3%	6.4%	6.7%
Dana Gas	0.89	6.8	6.3	-	3.3	3.1	2.9	24.1	12.2	12.2	49%	49%	-	6.6%	6.6%	7.9%
Eni	14.14	4.0	3.8	3.6	1.0	1.0	1.0	14.4	11.7	10.6	24%	25%	27%	6.1%	6.2%	6.4%
Equinor	178.20	3.3	2.9	2.7	1.1	1.0	1.0	13.0	10.9	9.9	34%	36%	37%	5.4%	5.7%	5.9%
Gazprom Neft	423.00	4.2	4.2	3.9	1.1	1.0	1.0	4.9	5.1	4.8	25%	25%	25%	8.3%	9.3%	10.5%
Gulf Keystone	2.20	3.2	2.0	1.5	1.9	1.3	1.0	12.5	7.1	5.7	59%	66%	70%	7.0%	5.0%	6.1%
Lukoil	6048.00	3.8	3.9	3.7	0.6	0.6	0.6	6.9	6.9	7.0	15%	16%	16%	5.3%	7.3%	7.7%
Occidental Petroleum	38.88	9.7	7.7	6.8	4.7	3.8	3.6	19.0	35.8	17.3	48%	50%	52%	8.0%	8.2%	8.3%
Repsol	15.03	5.0	4.4	4.4	0.7	0.7	0.7	9.9	8.0	8.0	15%	16%	16%	6.4%	6.7%	6.8%
Rosneft Oil	453.00	4.3	4.1	3.8	1.0	1.0	1.0	6.9	5.7	5.4	24%	25%	25%	6.5%	8.2%	9.2%
Shell	27.20	5.6	5.2	4.9	0.9	0.9	0.8	13.3	11.2	10.2	16%	17%	17%	6.3%	6.3%	6.4%
Surgutneftegas	38.99	-	-	-	-	-	-	5.3	4.6	3.9	-	-	-	9.6%	5.9%	3.0%
Total	49.41	5.4	4.9	4.8	0.9	0.9	0.9	12.0	10.5	10.0	17%	18%	18%	5.5%	5.7%	6.1%
Tullow Oil	2.08	5.6	5.5	5.4	4.2	4.0	3.9	15.6	13.0	12.8	75%	71%	72%	2.8%	2.8%	3.0%
Median		5.0	4.4	4.2	1.0	1.0	1.0	12.3	9.3	9.0	24%	25%	25%	6.3%	6.3%	6.5%

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	20.80	0.2	1.4	1.1	0.0	0.2	0.2	3.5	-	18.0	19%	12%	16%	8.2%	0.0%	0.0%
KGHM	96.40	4.4	4.7	4.3	1.0	1.0	0.9	8.0	9.8	9.1	23%	21%	22%	0.0%	1.6%	3.0%
LW Bogdanka*	36.80	1.3	1.4	1.6	0.5	0.5	0.5	4.3	5.3	6.6	36%	33%	31%	3.2%	4.7%	4.5%
Anglo American	20.10	4.2	4.5	4.7	1.5	1.5	1.5	8.7	9.6	10.4	35%	33%	31%	4.5%	4.1%	4.1%
Antofagasta	9.05	5.8	6.1	5.4	2.8	2.9	2.7	19.8	21.3	17.3	49%	47%	50%	2.4%	2.2%	2.8%
BHP Group	16.92	6.1	5.7	6.2	3.1	3.0	3.1	13.7	10.9	12.3	50%	53%	51%	6.1%	6.4%	6.0%
Freeport-McMoRan	11.09	13.0	8.8	5.1	2.2	2.1	1.8	100+	21.6	8.3	17%	24%	34%	1.8%	2.7%	3.2%
Glencore	2.46	6.7	5.8	5.4	0.4	0.4	0.4	17.3	12.3	9.8	5%	6%	7%	5.5%	5.1%	5.7%
Grupo Mexico	52.58	6.0	5.7	5.3	2.8	2.6	2.4	12.3	11.4	10.9	46%	45%	46%	5.0%	4.8%	7.5%
Kazakhmys	5.09	4.9	5.0	4.7	2.7	2.7	2.5	6.7	6.7	6.1	55%	53%	54%	1.5%	100%+	1.3%
Rio Tinto	41.40	4.8	5.4	6.1	2.3	2.5	2.6	8.3	9.7	11.7	49%	46%	43%	8.2%	6.7%	5.4%
Southern CC	38.08	10.0	9.7	9.0	4.9	4.7	4.4	19.0	18.4	17.0	49%	49%	49%	4.1%	3.8%	3.9%
Median		5.4	5.6	5.2	2.3	2.3	2.1	8.7	10.9	10.6	41%	39%	39%	4.3%	4.1%	4.0%
ALUMINUM PRODUCERS																
Grupa Kęty	315.50	7.8	8.3	8.5	1.2	1.3	1.3	10.7	12.3	12.5	16%	15%	15%	7.6%	7.5%	6.1%
Alcoa	22.22	4.4	4.2	3.9	0.7	0.7	0.6	-	20.3	14.6	16%	16%	17%	-	0.1%	0.3%
Constellium	14.33	7.1	6.5	6.0	0.7	0.7	0.7	31.4	13.1	9.7	10%	10%	11%	-	-	-
Kaiser Aluminum	111.75	9.2	8.2	8.3	1.3	1.3	1.3	17.1	14.3	13.7	14%	15%	15%	2.1%	2.3%	2.3%
Norsk Hydro	35.00	8.0	5.6	4.8	0.6	0.6	0.6	40.2	15.3	11.3	8%	10%	12%	3.5%	3.6%	4.0%
Rusal	3.50	12.7	9.6	8.1	1.4	1.4	1.3	5.2	4.2	3.9	11%	14%	16%	1.8%	4.4%	5.4%
Median		7.9	7.4	7.0	1.0	1.0	1.0	17.1	13.7	11.9	13%	15%	15%	2.8%	3.6%	4.0%

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

Comparison of Fertilizer Company Valuations

	Price	EV/EBITDA			EV/S			P/E			EBITDA Margin			DY		
		2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
FERTILIZER PRODUCERS																
Grupa Azoty	35.82	4.3	7.9	8.3	0.6	0.7	0.8	6.7	30.5	18.6	13%	9%	9%	0.0%	0.0%	1.0%
ZA Police*	11.50	8.6	6.0	5.8	0.6	0.6	0.6	35.9	17.7	18.0	7%	10%	10%	-	-	-
Acron	4944.00	8.6	7.5	7.2	2.6	2.4	2.2	11.0	9.7	9.7	31%	32%	30%	6.6%	6.8%	7.2%
CF Industries	46.45	9.9	9.2	8.8	3.6	3.5	3.4	21.2	17.5	15.2	37%	38%	38%	2.6%	2.6%	2.7%
Israel Chemicals	16.37	6.7	6.5	6.3	1.5	1.5	1.4	11.3	10.5	9.9	23%	23%	23%	4.5%	4.7%	4.9%
K+S	12.95	8.0	6.9	6.3	1.4	1.3	1.3	15.6	11.3	9.0	17%	19%	20%	2.5%	3.5%	4.2%
Phosagro	2447.00	5.7	5.5	5.2	1.8	1.7	1.6	8.3	8.9	8.7	31%	31%	31%	7.4%	5.8%	5.8%
The Mosaic Company	20.93	8.4	6.8	5.8	1.4	1.3	1.3	31.7	14.1	10.0	16%	20%	22%	0.9%	1.0%	1.4%
Yara International	366.10	7.0	6.1	5.8	1.1	1.0	1.0	12.7	10.4	9.5	16%	17%	18%	4.3%	6.5%	5.5%
Median		8.0	6.8	6.3	1.4	1.3	1.3	12.7	11.3	9.9	17%	20%	22%	3.4%	4.1%	4.6%

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*	19.45	4.5	3.3	3.4	0.8	0.8	0.7	40.2	3.7	2.3	18%	23%	21%	-	-	4.1%
Kemel	41.20	4.5	5.6	5.0	0.4	0.4	0.4	5.0	7.8	6.9	9%	7%	7%	2.2%	2.3%	3.1%
Agrana Beteiligungs	17.38	10.4	8.6	8.1	0.6	0.6	0.6	42.4	23.2	18.5	6%	7%	8%	5.8%	5.8%	5.8%
Bunge Limited	55.82	10.5	10.0	9.1	0.4	0.3	0.3	19.8	16.0	13.0	3%	3%	4%	3.6%	3.9%	4.3%
Cosan	60.59	5.1	4.9	4.5	0.4	0.4	0.4	13.6	12.5	12.3	8%	9%	9%	2.6%	3.1%	3.3%
MHP	8.56	5.2	4.9	4.5	1.2	1.2	1.1	5.9	6.3	4.7	23%	23%	24%	8.8%	8.8%	8.8%
Nisshin Oilio	4035.00	9.3	8.7	8.3	0.5	0.5	0.5	15.2	15.7	15.0	6%	6%	6%	2.0%	2.0%	2.0%
Suedzucker	13.11	-	11.1	6.8	0.7	0.7	0.7	-	-	15.8	-	6%	10%	1.5%	1.5%	2.1%
Wilmar Int.	3.83	14.5	13.2	12.5	0.8	0.8	0.7	15.8	13.6	12.8	6%	6%	6%	2.6%	2.8%	3.0%
Median		7.2	8.6	6.8	0.6	0.6	0.6	15.5	13.1	12.8	7%	7%	8%	2.6%	3.0%	3.3%

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

List of abbreviations and ratios contained in the report:

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

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

Recommendations of Dom Maklerski 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 Dom Maklerski 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

This document has been created and published by Dom Maklerski 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 Dom Maklerski mBanku considers reliable, including information published by issuers, shares of which are subject to recommendations. However, Dom Maklerski 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 Dom Maklerski 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, Echo Investment, Elemental Holding, Elzab, Enea, Energoaparatura, Erbud, Ergis, Erste Bank, Famur, Ferrum, GetBack, Getin Holding, Getin Noble Bank, Globalworth Poland, Groclin, Helio SA, Impexmetal, INDATA, ING BSK, Kopex, Kruk, LW Bogdanka, Mangata, MCI Capital, Mennica Polska, Mostostal Warszawa, Netia, Neuca, NVAI Dom Maklerski, Oponeo.pl, Orbis, OTP Bank, PA Nova, PBKM, PEKABEX, Pfeiderer Group, PGNiG, PKO BP, Polenergia, Polimex-Mostostal, Polnord, Polwax, Prime Car Management, Primatech, Prochem, Projprzem, PZU, Raiffeisen Bank International, Rawlplug, Santander Bank Polska, Seco/Warwick, Skarbiec Holding, Solar Company, Sygnity, Tarczyński, Trakcja, Unibep, Vistal Gdynia, 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, Globalworth Poland, Helio SA, MCI Capital, Mostostal Warszawa, NVAI Dom Maklerski, Orbis, Pfeiderer Group, Polenergia, Prime Car Management, Primatech.

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 Dom Maklerski mBanku.

Recommendations are addressed to all Clients of Dom Maklerski 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

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 Dom Maklerski 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 Dom Maklerski 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.

Dom Maklerski mBanku

Senatorska 18
00-082 Warszawa
<http://www.mbank.pl/>

Research Department

Kamil Kliszcz
director
+48 22 438 24 02
kamil.kliszcz@mbank.pl
energy, power generation

Jakub Szkopek
+48 22 438 24 03
jakub.szkopek@mbank.pl
industrials, chemicals, metals

Aleksandra Szklarczyk
+48 22 438 24 04
aleksandra.szklarczyk@mbank.pl
construction, real-estate development

Michał Marczak
+48 22 438 24 01
michal.marczak@mbank.pl
strategy

Paweł Szpigiel
+48 22 438 24 06
pawel.szpigiel@mbank.pl
media, IT, telco

Piotr Poniatowski
+48 22 438 24 09
piotr.poniatowski@mbank.pl
industrials

Michał Konarski
+48 22 438 24 05
michal.konarski@mbank.pl
banks, financials

Piotr Bogusz
+48 22 438 24 08
piotr.bogusz@mbank.pl
retail, gaming

Mikołaj Lemańczyk
+48 22 438 24 07
mikolaj.lemanczyk@mbank.pl
financials

Sales and Trading**Traders**

Piotr Gawron
director
+48 22 697 48 95
piotr.gawron@mbank.pl

Adam Prokop
+48 22 697 47 90
adam.prokop@mbank.pl

Sales, Foreign Markets

Bartosz Orzechowski
+48 22 697 48 47
bartosz.orzechowski@mbank.pl

Krzysztof Bodek
+48 22 697 48 89
krzysztof.bodek@mbank.pl

Magdalena Bernacik
+48 22 697 47 35
magdalena.bernacik@mbank.pl

Jędrzej Łukomski
+48 22 697 49 85
jedrzej.lukomski@mbank.pl

Tomasz Jakubiec
+48 22 697 47 31
tomasz.jakubiec@mbank.pl

Andrzej Sychowski
+48 22 697 48 46
andrzej.sychowski@mbank.pl

Private Client Sales

Kamil Szymański
director
+48 22 697 47 06
kamil.szymanski@mbank.pl

Jarosław Banasiak
deputy director
+48 22 697 48 70
jaroslaw.banasiak@mbank.pl