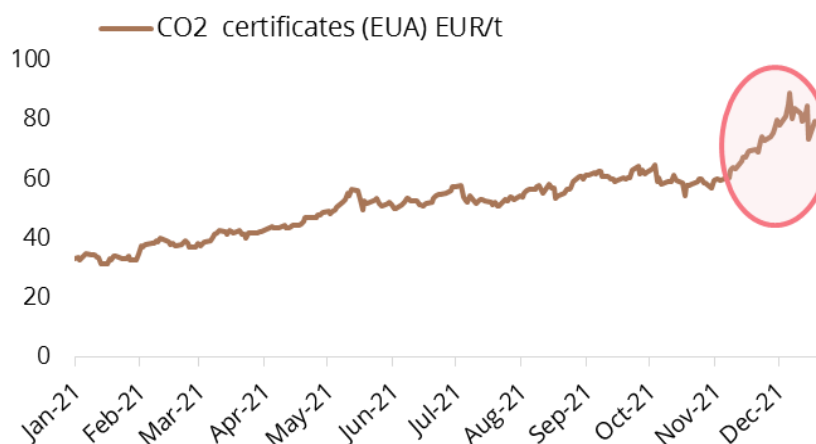


Market Overview

- **Copper:** Due to the road blockade by local communities in Peru, which started on November 20, the Las Bambas mine (approx. 2% of global copper production) stopped operating. According to the Peruvian Mining Chamber, similar protests across the country this year had resulted in 150,000 fewer tonnes of copper being produced (*page 2*).
- **Energy:** In Europe, from France through Germany to the Scandinavian countries, significant increases in energy costs are visible. The surge in energy futures is fueled by concerns about natural gas stocks, but also by soaring costs of CO2 certificates (*page 4*).
- **USA:** As the Covid-19 pandemic began to spread, the Fed ramped up bond purchases aggressively to flood the banking system with cash and stem panic in financial markets. It exploded in size from \$4.2 trillion in March 2020 to over \$7 trillion by early June. It continues to grow and stood at nearly \$8.7 trillion as of mid-December 2021 (*page 6*).

The dynamic growth and the subsequent decrease in the cost of CO2 certificates indicate a large involvement of speculative capital



Source: Bloomberg, KGHM Polska Miedź S.A.

as of: 20th December 2021

Key market prices

	Close price	2w chng.
LME (USD/t)		
▲ Copper	9 520.00	0.1%
▼ Nickel	19 840.00	-2.2%
LBMA (USD/troz)		
▲ Silver	22.65	1.3%
▲ Gold (PM)	1 807.70	2.3%
FX		
▲ EURUSD	1.1330	0.3%
▲ EURPLN	4.6334	0.9%
▲ USDPLN	4.0882	0.6%
▲ USDCAD	1.2846	0.3%
▲ USDCPL	849.65	1.4%
Stocks		
▲ KGHM	142.20	2.2%

Source: Bloomberg, KGHM Polska Miedź S.A.; (*more on page 10*)

Important macroeconomic data

	Release	For	
	Labour costs (yoy)	3Q	2.5% ▲
	NBP rate decision	Dec	1.75% ▲
	Reserve req. ratio	Dec	11.5% ▼
	Factory orders (wda, yoy)	Oct	-1.0% ▼
	Copper exports (\$)	Nov	4 920 ▲

Source: Bloomberg, KGHM Polska Miedź S.A.; (*more on page 8*)

Market Risk Unit

marketrisk@kgm.com

Base and precious metals | Other commodities

Copper

MMG Halts Copper Operations At Las Bambas As Talks To End Blockade Fail

Due to the road blockade by local communities in Peru, which started on November 20, the Las Bambas mine (approx. 2% of global copper production) stopped operating. According to the Peruvian Mining Chamber, similar protests across the country this year had resulted in 150,000 fewer tonnes of copper being produced.

MMG Ltd's Las Bambas copper mine has stopped operations after it failed to reach agreement with a Peruvian community that has blocked a transport road used by the facility for almost 30 days. The blockade against Chinese-owned Las Bambas by residents of the Chumbivilcas province has been in place since Nov. 20. The mine accounts for 2% of world copper supply while Peru is the world's no. 2 copper producer. The news sent Hong Kong-listed shares of MMG plunging 12%, before they recouped some losses to close 5% lower. The suspension is a blow for leftist President Pedro Castillo, who is the midst of trying to raise taxes on the mining sector to fund social programs. Las Bambas is the second mine to announce lately a halt, after Nexa Resources said it would do the same at its Cerro Lindo zinc mine due to a similar road blockade. Mining conflicts in Peru are on the rise and the president of Peru's mining chamber Raul Jacob said protests this year had resulted in 150,000 fewer tonnes of copper being produced. Protests have also targeted Glencore's Antapaccay, Hudbay's Constancia and top producer Antamina, co-owned by Glencore and BHP. Victor Villa, an advisor for Chumbivilcas residents, said there had been no progress in reaching a deal. He said Chumbivilcas was considering unblocking the road for the Christmas holidays, but would immediately restart the blockade afterward. If put in place, the temporary truce is unlikely to meaningfully help Las Bambas to restart production. The point of contention between Chumbivilcas and Las Bambas is a dirt road used by the mine to transport copper to a seaport. Residents from several regions who live along the road allege the dust raised by the trucks pollutes their crops and affects their livelihoods. They have been asking the mine for jobs and economic contributions. The government failed earlier this week to facilitate a meeting between the parties as talks stalled, with Villa saying the company's latest proposal on jobs and contributions was a "joke."

Codelco Reaches Deal With Chuquicamata, Salvador Copper Unions

The company said that in Chuquicamata, trade unions had accepted new three-year contract. It includes, among others a 1.3% wage increase and a signing bonus of CLP 7.1 million (\$ 8,364) per employee. New terms and conditions, including Salvador's trade unions also accepted the bonus for signing the contract worth CLP 5.3 million (US \$ 6,192).

Codelco has reached labor deals with unions at its Chuquicamata and Salvador divisions. At Chuquicamata, workers from the 500-strong No. 2 union voted by 87% in favor of a new three-year deal, the state-owned company said. Similar to deals approved earlier this week by the Mining, No. 1 and No. 5 unions (representing almost 2,000 more employees at the mining and smelting complex), the deal includes a 1.3% pay rise and a signing bonus worth CLP7.1 million (\$8,364) per worker, among other benefits. The giant Chuquicamata complex in northern Chile, which includes open pit and underground mining operations, a smelter and refinery, produced 401 000 tons of copper last year. The company is currently ramping up production from a new underground operation after the century-old Chuquicamata division became too deep to mine profitably. Codelco has held negotiations with thousands of workers this year across its operating divisions largely without disruption. However, a strike by over 1,000 workers at its Andina mine in August and September halted production for over a month. Meanwhile, supervisory staff at Codelco's Salvador division, its smallest by production, voted overwhelmingly in favor of a new pay agreement, which includes no pay rise but a signing bonus worth CLP5.3 million (\$6,192) plus improvements to a number of benefits. Division head Christian Toutin said that the deal ends the process of collective negotiations with three unions at Salvador held this year. Codelco is investing \$1.6 billion at Salvador to develop the Rajo Inca project which will increase copper production to around 90,000 mt/year from 2023 and extend the life of the division by almost half a century.

Other important information on copper market:

- China's copper cathode output of 22 major Chinese producers is expected to rise 5.8% on the month in December, as few smelters will take maintenance downtime and some will step up production to achieve this year's target, state-owned researcher Antaika said. China's copper cathode output is likely to reach 790,000 mt in December, up from 746,600 mt in November, the agency said in the report. November figures were up 1.6% on the year and 1.3% on the month, mostly as power restrictions eased and smelters remained enthusiastic amid healthy profit margins. The combined output of 22 smelters in the first 11 months reached 8.37 million mt, up 8.1% from 2020, according to Antaika. Meanwhile, total refined copper capacity of these smelters in the first 11 months was 9.83 million mt/year, accounting for more than 80% of the nation's total. Refined copper output of the smelters accounted for 95% of the country's total in 2020.

- Miner BHP Group has completed a \$30 million blockchain trade in copper concentrate with China Minmetals Corp, online platform MineHub said. The pilot transaction was the first cross-border shipment for copper concentrates using blockchain, MineHub said in a statement. "We're planning another trial with an expanded scope in early 2022," BHP Chief Commercial Officer Vandita Pant said. Blockchain is a digital ledger that forms the backbone of many cryptocurrencies such as bitcoin. In June 2020, BHP used MineHub for its first blockchain trade in iron ore with China Baoshan Iron & Steel Co Ltd. Commodity groups in recent years have been seeking to save money by digitising a sector that still uses millions of paper documents, faxes and emails. The settlement process for copper concentrates is complex, involving data moving between banks, logistics providers and government departments. The blockchain copper transaction also included carbon emissions data and metals assay results showing the various elements of the concentrate, MineHub Chief Executive Arnoud Busmann said.
- Chilean miner Antofagasta expects its copper output to reach 900,000 tonnes by 2026, some 20% higher than currently, with growth coming mostly from exploration and possibly targeted acquisitions, its chief executive said on Tuesday. Five-year production could reach around 900,000 tonnes of copper by 2026 if the second concentrator at its Centinela mine in Chile is approved by the board at the end of 2022, Chief Executive Iván Arriagada told investors during the annual Capital Markets Day. The copper miner, whose earnings soared to a record \$2.4 billion in the first half, had cut its copper output guidance for the year to between 710,000 tonnes and 740,000 tonnes from 730,000 tonnes to 760,000 tonnes, as operations were affected in 2021 by Chile's driest weather for 12 years.

Energy

The prices of energy and CO₂ certificates in Europe are breaking records as low temperatures increase energy needs

In Europe, from France through Germany to the Scandinavian countries, significant increases in energy costs are visible. The surge in energy futures is fueled by concerns about natural gas stocks, but also by soaring costs of CO₂ certificates.

In mid-December, the cost of CO₂ certificates increased crossing EUR 84 per ton

European power prices are surging as colder winter weather spurs concerns over availability of supply. With sub-zero temperatures spreading across large parts of Europe at the start of December, power producers are racing to keep up with demand amid shortages of both gas and coal. On Monday, the Polish grid manager had to ask its neighbors for help to meet domestic consumption needs, prompting Sweden to start a reserve oil-fired plant. Concerns of what an extended spell of chilly weather in January or February, traditionally the coldest months of the year, could do to power markets are now pushing up futures contracts across Europe. With no sign of Russia quickly refilling depleted gas inventories and lower-than-usual French nuclear output, after the pandemic

delayed necessary maintenance, traders are anticipating even more problems. French power for next month added as much as 2.8% to a record of 409.50 euros per megawatt-hour, almost twice the previous highest monthly average level on the day-ahead market. Elevated monthly rates are also permeating through to long-term contracts, with power for next year rising to a fresh record of 193.45 euros.

Longstanding drivers of rising power, like higher gas prices, are being aggravated in France by concerns of prolonged plant maintenance, according to Fabian Ronningen, an analyst at Rystad Energy AS. French nuclear production is significantly below the seasonal average levels over the previous five years, according to data compiled by Bloomberg. Nordic power for next year also rose to a more than decade-high of 59 euros due to expectations of a drop in available hydropower supply at the start of 2022, according to Volue Insight data. The German equivalent added as much as 8.1% to 164.70 euros, reaching the highest since Oct. 6. The surge in power futures is also fueled by steeply rising costs of pollution. Europe's benchmark carbon contract rose as much as 4.2% to a fresh record of 84 euros a metric ton. Carbon prices could easily continue to climb above 100 euros before Christmas, according to Bjarne Schieldrop, chief commodities analyst at SEB AB, with further price surges expected during winter. As utilities burn more fossil fuels, they will also need to buy additional carbon allowances to compensate for their increased emissions. Gas futures also jumped more than 7%, meaning production margins favor the use of dirtier hard coal this winter.

Global economies | Foreign exchange markets

Powell Says Balance-Sheet Debate Underway

As the Covid-19 pandemic began to spread, the Fed ramped up bond purchases aggressively to flood the banking system with cash and stem panic in financial markets. It exploded in size from \$4.2 trillion in March 2020 to over \$7 trillion by early June. It continues to grow and stood at nearly \$8.7 trillion as of mid-December 2021.




At the last meeting of the Fed, the FOMC decided to accelerate the exit from the quantitative easing program








Federal Reserve Chair Jerome Powell said officials have begun to debate when to start shrinking the central bank's massive balance sheet, but their approach the last time they did this may not be the best way this time around. Powell told at a press conference Wednesday after the Federal Open Market Committee sped up its removal of policy support to end asset purchases in mid-March. Noting that policy makers had a first discussion on the balance sheet at their meeting and would keep the conversation going at their next meeting and the one after that, Powell said the debate included a focus on lesson's learned. "We looked back at what happened in the last cycle and people thought that was interesting and informative," he said. "But to one degree or another people noted that this is just a different situation and those differences should inform the decisions we make about the balance sheet this time." Past experience shows that how the Fed manages its balance sheet matters. When the Fed wrapped up its last bond-buying campaign in October 2014 it continued to maintain the size of its balance sheet -- which by then had ballooned to around \$4.5 trillion -- by reinvesting repayments of its Treasuries and mortgage-backed securities. The central bank then started to cautiously raise its benchmark overnight policy rate in December 2015, after deciding that it preferred to use this as the primary tool for withdrawing policy support. The balance sheet's size was maintained until October 2017, at which point the Fed began to gradually shrink it by allowing some of the holdings to roll off every month. It did not sell any of the securities, which consisted of Treasuries and mortgage-backed securities. Selling assets might give rise to losses, which isn't the case if the Fed holds an instrument to maturity. It doesn't mark its holdings to market like a normal bank. The unwind, which drains cash out of the banking system, continued for almost two years. The Fed continued to raise rates until severe stock and bond-market volatility forced a pause at the end of 2018. It then reversed course with three cuts in 2019. In March of that year, it also announced a plan to slow the pace at which it was allowing the balance sheet to wind down, concluding the reduction in holdings at the end of September. From October it began to roll maturing MBS securities into Treasuries, capped at \$20 billion a month. While officials wanted the balance sheet to shrink on "automatic pilot" -- as Powell said in December 2018 -- dealers complained that money market liquidity was getting worryingly tight, which was causing harmful volatility. Matters came to a head in the summer and fall of 2019 as turmoil in money markets raised questions about whether the Fed had gone too far in shrinking its securities holdings. The New York Fed was forced to intervene with overnight cash loans in September. In October, with the balance

sheet having shrunk to around \$3.8 trillion, officials resumed asset purchases to restore the level of reserve in the banking system. A few months later, as the Covid-19 pandemic began to spread, the Fed ramped up bond purchases aggressively to flood the banking system with cash and stem panic in financial markets. It exploded in size from \$4.2 trillion in March 2020 to over \$7 trillion by early June. It continues to grow and stood at nearly \$8.7 trillion as of mid-December 2021.

Macroeconomic calendar

Important macroeconomic data releases

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
China 						
*****	06-Dec	Reserve requirement ratio	Dec	11.5% ▼	12.0%	--
**	07-Dec	Trade balance (USD bn)‡	Nov	71.7 ▼	84.5	83.6 ◡
**	07-Dec	Exports (yoy)	Nov	22.0% ▼	27.1%	20.3% ◢
*	07-Dec	Foreign reserves (USD bn)	Nov	3 222 ▲	3 218	3 206 ◢
****	09-Dec	Consumer inflation CPI (yoy)	Nov	2.3% ▲	1.5%	2.5% ◡
**	09-Dec	Producer inflation PPI (yoy)	Nov	12.9% ▼	13.5%	12.1% ◢
*	09-Dec	New yuan loans (CNY bn)	Nov	1 270 ▲	826	1 555 ◡
****	15-Dec	Industrial production (yoy)	Nov	3.8% ▲	3.5%	3.7% ◢
**	15-Dec	Fixed assets investments (ytd, yoy)	Nov	5.2% ▼	6.1%	5.4% ◡
*	15-Dec	Retail sales (yoy)	Nov	3.9% ▼	4.9%	4.7% ◡
Poland 						
*****	08-Dec	NBP base rate decision	Dec	1.75% ▲	1.25%	1.75% ○
**	14-Dec	Trade balance (EUR mn)	Oct	- 822 ▼	- 111	74.0 ◡
**	14-Dec	Exports (EUR mn)	Oct	24 982 ▲	24 537	25 630 ◡
**	14-Dec	Current account balance (EUR mn)	Oct	-1 791 ▼	-1 339	- 920 ◡
****	15-Dec	Consumer inflation CPI (yoy) - final data	Nov	7.8% ▲	7.7%	--
****	16-Dec	Core CPI (excluding food and energy, yoy)	Nov	4.7% ▲	4.5%	4.7% ○
**	17-Dec	Average gross salary (yoy)	Nov	9.8% ▲	8.4%	8.9% ◢
*	17-Dec	Employment (yoy)	Nov	0.7% ▲	0.5%	0.5% ◢
US 						
****	10-Dec	Consumer inflation CPI (mom)	Nov	0.8% ▼	0.9%	0.7% ◢
****	10-Dec	Consumer inflation CPI (yoy)	Nov	6.8% ▲	6.2%	6.8% ○
**	10-Dec	University of Michigan confidence index - preliminary data	Dec	70.4 ▲	67.4	68.0 ◢
*****	15-Dec	FOMC base rate decision - upper bound (Fed)	Dec	0.25% -	0.25%	0.25% ○
*****	15-Dec	FOMC base rate decision - lower bound (Fed)	Dec	0.00% -	0.00%	0.00% ○
**	15-Dec	Retail sales (excluding autos, mom)‡	Nov	0.3% ▼	1.8%	0.9% ◡
****	16-Dec	Industrial production (mom)‡	Nov	0.5% ▼	1.7%	0.6% ◡
**	16-Dec	Composite PMI - preliminary data	Dec	56.9 ▼	57.2	--
**	16-Dec	Manufacturing PMI - preliminary data	Dec	57.8 ▼	58.3	58.5 ◡
**	16-Dec	PMI services - preliminary data	Dec	57.5 ▼	58.0	58.8 ◡
**	16-Dec	Philadelphia Fed business outlook	Dec	15.4 ▼	39.0	29.1 ◡
*	16-Dec	Capacity utilization‡	Nov	76.8% ▲	76.5%	76.8% ○

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
Eurozone 						
🔔🔔🔔🔔	07-Dec	GDP (sa, yoy) - final data	3Q	3.9% ▲	3.7%	3.7% 🟢
🔔🔔🔔🔔	07-Dec	GDP (sa, qoq) - final data	3Q	2.2% -	2.2%	2.2% 🟡
🔔🔔🔔	07-Dec	Gross fixed capital (qoq)‡	3Q	-0.9% ▼	1.3%	0.6% 🟡
🔔🔔🔔	07-Dec	Households consumption (qoq)‡	3Q	4.1% ▲	3.9%	3.7% 🟢
🔔	07-Dec	ZEW survey expectations	Dec	26.8 ▲	25.9	--
🔔🔔🔔🔔	14-Dec	Industrial production (sa, mom)	Oct	1.1% ▲	-0.2%	1.2% 🟡
🔔🔔🔔🔔	14-Dec	Industrial production (wda, yoy)‡	Oct	3.3% ▼	5.1%	3.0% 🟢
🔔🔔🔔🔔	16-Dec	ECB main refinancing rate	Dec	0.00% -	0.00%	0.00% 🟡
🔔🔔🔔🔔	16-Dec	ECB deposit facility rate	Dec	-0.5% -	-0.5%	-0.5% 🟡
🔔🔔🔔	16-Dec	Composite PMI - preliminary data	Dec	53.4 ▼	55.4	54.4 🟡
🔔🔔🔔	16-Dec	Manufacturing PMI - preliminary data	Dec	58.0 ▼	58.4	57.8 🟢
🔔🔔🔔	16-Dec	Services PMI - preliminary data	Dec	53.3 ▼	55.9	54.3 🟡
🔔🔔	16-Dec	Labour costs (yoy)	3Q	2.5% ▲	-0.1%	--
🔔	16-Dec	Trade balance (EUR mn)	Oct	3.6 ▼	7.3	--
🔔🔔🔔🔔	17-Dec	Consumer inflation CPI (yoy) - final data	Nov	4.9% -	4.9%	4.9% 🟡
🔔🔔🔔🔔	17-Dec	Core CPI (yoy) - final data	Nov	2.6% -	2.6%	2.6% 🟡
Germany 						
🔔🔔🔔	06-Dec	Factory orders (wda, yoy)‡	Oct	-1.0% ▼	10.3%	5.5% 🟡
🔔🔔🔔🔔	07-Dec	Industrial production (wda, yoy)‡	Oct	-0.6% ▼	-0.4%	-2.9% 🟡
🔔🔔🔔🔔	10-Dec	Harmonized consumer inflation HICP (yoy) - final data	Nov	6.0% -	6.0%	6.0% 🟡
🔔🔔🔔🔔	10-Dec	Consumer inflation CPI (yoy) - final data	Nov	5.2% -	5.2%	5.2% 🟡
🔔🔔🔔	16-Dec	Composite PMI - preliminary data	Dec	50.0 ▼	52.2	51.1 🟡
🔔🔔🔔	16-Dec	Manufacturing PMI - preliminary data	Dec	57.9 ▲	57.4	56.9 🟢
🔔🔔	17-Dec	IFO business climate‡	Dec	94.7 ▼	96.6	95.3 🟡
France 						
🔔🔔🔔🔔	15-Dec	Harmonized consumer inflation HICP (yoy) - final data	Nov	3.4% -	3.4%	3.4% 🟡
🔔🔔🔔🔔	15-Dec	Consumer inflation CPI (yoy) - final data	Nov	2.8% -	2.8%	2.8% 🟡
🔔🔔🔔	16-Dec	Composite PMI - preliminary data	Dec	55.6 ▼	56.1	55.0 🟡
🔔🔔🔔	16-Dec	Manufacturing PMI - preliminary data	Dec	54.9 ▼	55.9	55.4 🟡
Italy 						
🔔🔔🔔🔔	10-Dec	Industrial production (wda, yoy)‡	Oct	2.0% ▼	4.5%	3.3% 🟡
🔔🔔🔔🔔	15-Dec	Harmonized consumer inflation HICP (yoy) - final data	Nov	3.9% ▼	4.0%	4.0% 🟡
UK 						
🔔🔔🔔🔔	10-Dec	Industrial production (yoy)	Oct	1.4% ▼	2.9%	2.2% 🟡
🔔🔔	14-Dec	Unemployment rate (ILO, 3-months)	Oct	4.2% ▼	4.3%	4.2% 🟡
🔔🔔🔔🔔	15-Dec	Consumer inflation CPI (yoy)	Nov	5.1% ▲	4.2%	4.8% 🟢
🔔🔔🔔🔔🔔	16-Dec	BoE base rate decision	Dec	0.25% ▲	0.10%	0.10% 🟢
🔔🔔🔔🔔	16-Dec	BoE asset purchase target (GBP bn)	Dec	875 -	875	875 🟡
🔔🔔🔔	16-Dec	Manufacturing PMI (sa) - preliminary data	Dec	57.6 ▼	58.1	57.6 🟡
🔔🔔🔔	16-Dec	Composite PMI - preliminary data	Dec	53.2 ▼	57.6	56.3 🟡
Japan 						
🔔🔔🔔🔔🔔	08-Dec	GDP (annualized, qoq) - final data	3Q	-3.6% ▼	-3.0%	-3.1% 🟡
🔔🔔🔔🔔🔔	08-Dec	GDP (qoq, sa) - final data	3Q	-0.9% ▼	-0.8%	-0.8% 🟡
🔔🔔🔔🔔	14-Dec	Industrial production (yoy) - final data	Oct	-4.1% ▲	-4.7%	--
🔔🔔🔔	16-Dec	Composite PMI - preliminary data	Dec	51.8 ▼	53.3	--
🔔🔔🔔	16-Dec	Manufacturing PMI - preliminary data	Dec	54.2 ▼	54.5	--
Chile 						
🔔🔔	06-Dec	Nominal wages (yoy)	Oct	5.9% ▲	5.7%	--
🔔🔔🔔	07-Dec	Copper exports (USD mn)	Nov	4 920 ▲	4 481	--
🔔🔔🔔🔔	14-Dec	BCCh overnight rate target	Dec	4.00% ▲	2.75%	4.00% 🟡

¹ Reading difference to previous release: ▲ = higher than previous; ▼ = lower than previous; = = equal to previous.

² Reading difference to consensus: 🟢 = higher than consensus; 🟡 = lower than consensus; 🟡 = equal to consensus.

mom = month-on-month; yoy = year-on-year; qoq = quarter on quarter; ytd year-to-date; sa = seasonally adjusted; wda = working days adjusted; ‡ = previous data after revision.

Source: Bloomberg, KGHM Polska Miedź

Key market data

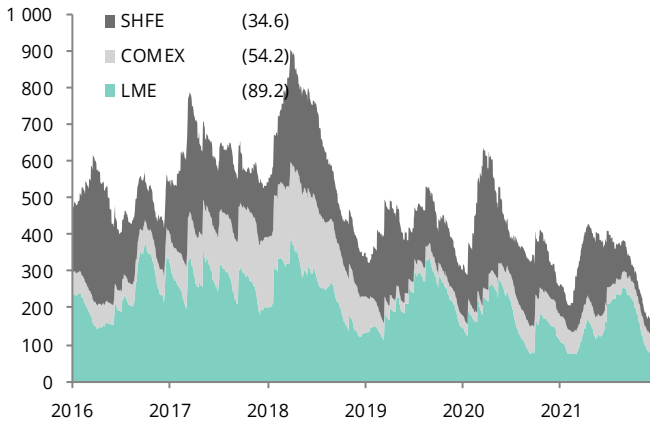
Key base & precious metal prices, exchange rates and other important market factors

<i>(as of: 17-Dec-21)</i>		Price change ¹					From year beginning ²		
	Price	2W	QTD	YTD	1Y	Average	Min	Max	
LME (USD/t; Mo in USD/lbs)									
Copper	9 520.00	▲ 0.1%	▲ 5.3%	▲ 23.0%	▲ 20.6%	9 308.26	7 755.50	10 724.50	
Molybdenum	18.59	▼ -0.4%	▼ -0.8%	▲ 85.3%	▲	15.85	9.95	20.05	
Nickel	19 840.00	▼ -2.2%	▲ 9.1%	▲ 20.0%	▲ 13.2%	18 432.18	15 907.00	21 135.00	
Aluminum	2 694.00	▲ 1.7%	▼ -5.5%	▲ 36.2%	▲ 32.8%	2 469.61	1 951.50	3 180.00	
Tin	39 550.00	▼ -1.6%	▲ 8.1%	▲ 92.6%	▲ 97.2%	32 454.80	20 965.00	41 000.00	
Zinc	3 430.00	▲ 3.2%	▲ 13.8%	▲ 25.9%	▲ 20.7%	2 989.98	2 539.00	3 815.00	
Lead	2 324.00	▲ 4.2%	▲ 9.9%	▲ 17.8%	▲ 13.6%	2 202.51	1 896.00	2 504.00	
LBMA (USD/troz)									
Silver	22.65	▲ 1.3%	▲ 5.2%	▼ -14.5%	▼ -12.0%	25.21	21.53	29.59	
Gold ²	1 807.70	▲ 2.3%	▲ 3.7%	▼ -4.4%	▼ -4.4%	1 798.63	1 683.95	1 943.20	
LPPM (USD/troz)									
Platinum ²	935.00	▼ -0.5%	▼ -2.9%	▼ -13.0%	▼ -10.5%	1 093.64	911.00	1 294.00	
Palladium ²	1 779.00	▼ -1.8%	▼ -6.3%	▼ -24.9%	▼ -23.5%	2 411.23	1 576.00	3 000.00	
FX ³									
EURUSD	1.1330	▲ 0.3%	▼ -2.2%	▼ -7.7%	▼ -7.5%	1.1848	1.1206	1.2338	
EURPLN	4.6334	▲ 0.9%	▲ 0.0%	▲ 0.4%	▲ 4.5%	4.5649	4.4541	4.7210	
USDPLN	4.0882	▲ 0.6%	▲ 2.4%	▲ 8.8%	▲ 12.8%	3.8557	3.6545	4.1893	
USDCAD	1.2846	▲ 0.3%	▲ 0.8%	▲ 0.9%	▲ 1.0%	1.2526	1.2040	1.2893	
USDCNY	6.3754	▼ 0.0%	▼ -1.1%	▼ -2.3%	▼ -2.4%	6.4532	6.3443	6.5718	
USDCLP	849.65	▲ 1.4%	▲ 5.7%	▲ 19.5%	▲ 15.6%	756.22	693.74	849.65	
Money market									
3m LIBOR USD	0.213	▲ 0.03	▲ 0.08	▼ -0.03	▼ -0.03	0.160	0.114	0.241	
3m EURIBOR	-0.581	▼ -0.02	▼ -0.04	▼ -0.04	▼ -0.04	-0.548	-0.605	-0.529	
3m WIBOR	2.350	▲ 0.14	▲ 2.12	▲ 2.14	▲ 2.14	0.470	0.210	2.350	
5y USD interest rate swap	1.268	▲ 0.02	▲ 0.21	▲ 0.84	▲ 0.82	0.933	0.416	1.459	
5y EUR interest rate swap	-0.132	▲ 0.02	▲ 0.06	▲ 0.33	▲ 0.33	-0.273	-0.485	0.043	
5y PLN interest rate swap	3.230	▲ 0.06	▲ 1.35	▲ 2.62	▲ 2.47	1.626	0.583	3.370	
Fuel									
WTI Cushing	70.86	▲ 6.9%	▼ -5.6%	▲ 46.0%	▲ 46.5%	67.90	47.62	84.65	
Brent	72.09	▲ 3.3%	▼ -8.5%	▲ 40.9%	▲ 41.0%	70.37	50.02	85.70	
Diesel NY (ULSD)	221.94	▲ 5.8%	▼ -5.2%	▲ 50.2%	▲ 48.2%	206.10	146.07	259.61	
Others									
VIX	21.57	▼ -9.10	▼ -1.57	▼ -1.18	▼ -0.36	19.70	15.01	37.21	
BBG Commodity Index	96.42	▲ 0.7%	▼ -4.3%	▲ 23.5%	▲ 25.5%	92.53	78.64	105.84	
S&P500	4 620.64	▲ 1.8%	▲ 7.3%	▲ 23.0%	▲ 24.1%	4 256.56	3 700.65	4 712.02	
DAX	15 531.69	▲ 2.4%	▲ 1.8%	▲ 13.2%	▲ 13.6%	15 194.04	13 432.87	16 251.13	
Shanghai Composite	3 632.36	▲ 0.7%	▲ 1.8%	▲ 4.6%	▲ 6.7%	3 536.19	3 357.74	3 715.37	
WIG 20	2 194.56	▲ 0.7%	▼ -5.0%	▲ 10.6%	▲ 11.1%	2 174.34	1 876.85	2 472.33	
KGHM	142.20	▲ 2.2%	▼ -9.8%	▼ -22.3%	▼ -23.9%	181.77	133.10	223.80	

° change over: 2W = two weeks; QTD = quarter-to-day; YTD = year-to-date; 1Y = one year. ¹ based on daily closing prices. ² latest quoted price. ³ central banks' fixing rates (Bank of China HK for USD/CNY). ⁴

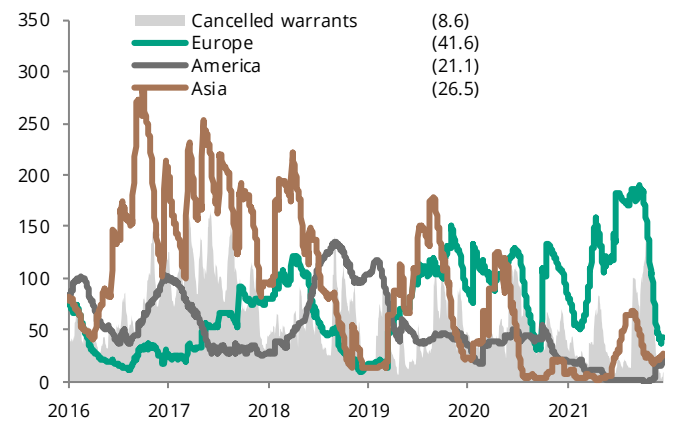
Source: Bloomberg, KGHM Polska Miedź

Copper: official exchange stocks (thousand tonnes)



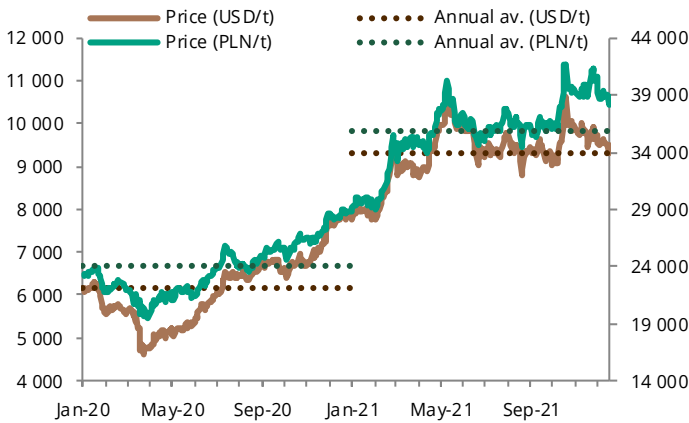
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: official LME stocks (thousand tonnes)



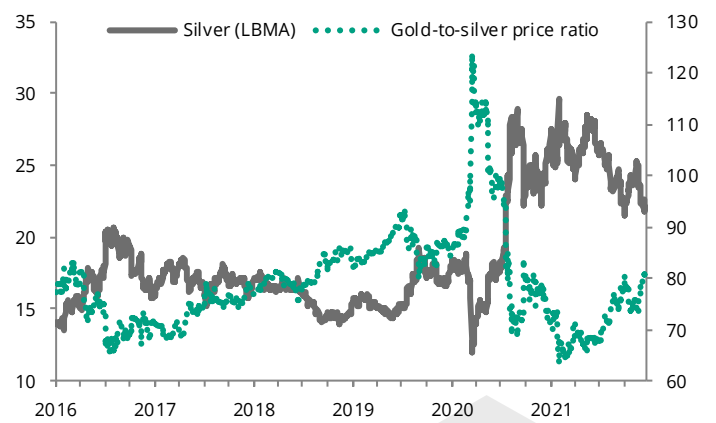
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: price in USD (lhs) and PLN (rhs) per tonne



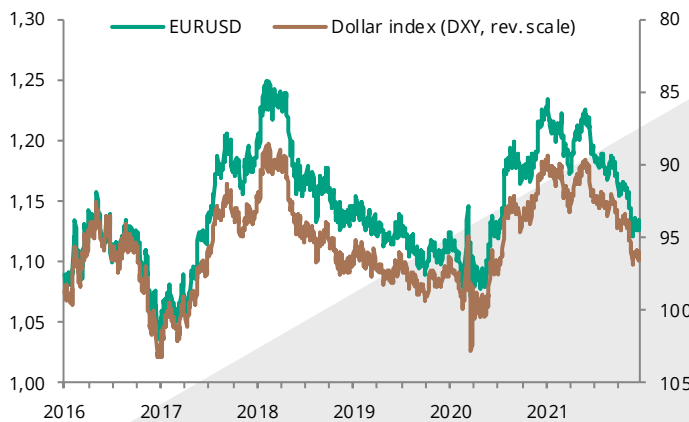
Source: Bloomberg, KGHM Polska Miedź

Silver: price (lhs) and gold ratio (rhs)



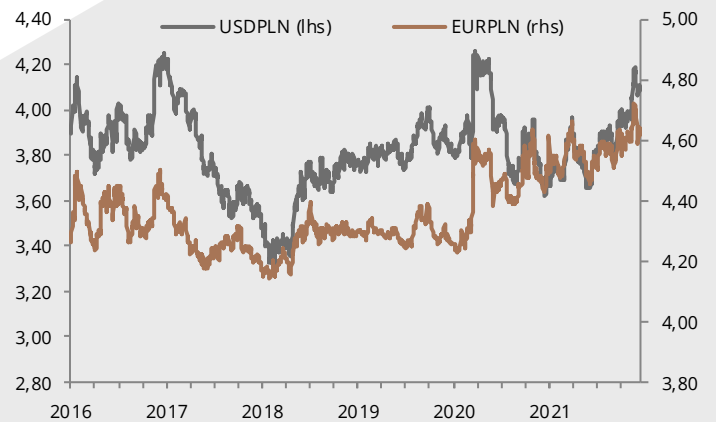
Source: Bloomberg, KGHM Polska Miedź

USD: dollar index (lhs) and ECB-based EURUSD (rhs)



Source: Bloomberg, KGHM Polska Miedź

PLN: NBP-fixing based rate vs. USD (lhs) and EUR (rhs)



Source: Bloomberg, KGHM Polska Miedź

Legal note

This document has been prepared based on the below listed reports, among others, published in the following period:
6 – 19 December 2021.

- Barclays Capital, ▪ BofA Merrill Lynch, ▪ Citi Research, ▪ CRU Group, ▪ Deutsche Bank Markets Research,
- GavekalDragonomics, ▪ Goldman Sachs, ▪ JPMorgan, ▪ Macquarie Capital Research, ▪ Mitsui Bussan Commodities,
- Morgan Stanley Research, ▪ SMM Information & Technology, ▪ Sharps Pixley.

Moreover, additional information published here was acquired in direct conversations with market dealers, from financial institution reports and from the following websites: ▪ thebulliondesk.com, ▪ lbma.org.uk, ▪ lme.co.uk, ▪ metalbulletin.com, ▪ nbp.pl, also: Bloomberg and Thomson Reuters.

Official metals prices are available on following websites:

- base metals: www.lme.com/dataprices_products.asp (charge-free logging)
- silver and gold: www.lbma.org.uk/pricing-and-statistics
- platinum and palladium: www.lppm.com/statistics.aspx

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