

Market Overview



as of: 23th May 2022

- **Copper:** Rio Tinto Ltd, Freeport-McMoRan Inc, and other global miners intend to use bacteria and other newly developed technologies to extract more copper from the waste rock through a secondary leaching process. This may enable the economic recovery of copper at concentrations as low as 0.5% and below (*page 2*).
- **Precious metals:** LBMA and WGC have selected blockchain technology vendors to participate in the pilot phase of the Gold Bar Integrity initiative. It aims to digitally monitor the movement of gold along the global supply chain (*page 4*).
- **China:** Analysts say Chinese leaders may have to accept 5% economic growth this year, which is below Beijing's 5.5% target, and the prospect of a slower U-shaped recovery rather than a rapid V-bounce (*page 5*).

Key market prices

	Close price	2w chng.
LME (USD/t)		
▲ Copper	9 477.00	0.5%
▼ Nickel	27 950.00	-6.6%
LBMA (USD/troz)		
▼ Silver	22.03	-2.0%
▼ Gold (PM)	1 834.20	-2.6%
FX		
▲ EURUSD	1.0577	0.1%
▼ EURPLN	4.6366	-1.3%
▼ USDPLN	4.3832	-1.5%
▼ USDCAD	1.2829	-0.4%
▼ USDCLP	842.38	-2.4%
Stocks		
▲ KGHM	133.55	4.4%

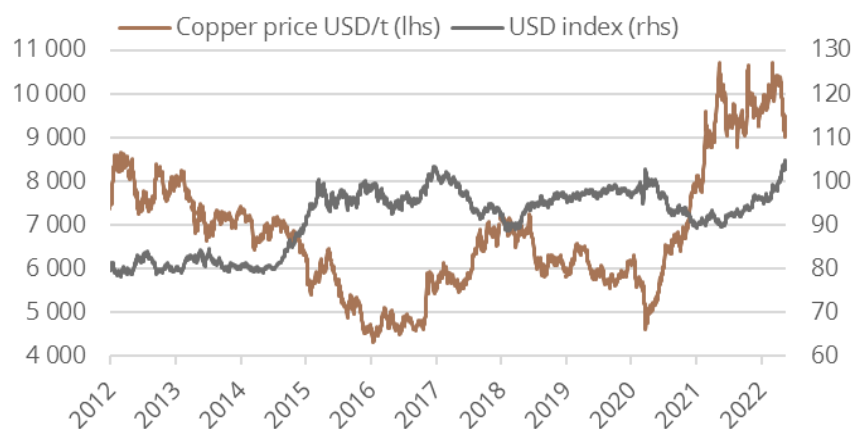
Source: Bloomberg, KGHM Polska Miedz S.A.; (*more on page 9*)

Important macroeconomic data

Release	For		
 Industrial prod. (yoy)	Apr	-2.9%	▼
 Industrial prod. (mom)	Apr	1.1%	▲
 Industr. prod. (wda, yoy)	Mar	-0.8%	▼
 Industrial prod. (yoy)	Apr	13.0%	▼
 Copper exports (\$)	Apr	4 037	▼

Source: Bloomberg, KGHM Polska Miedz S.A.; (*more on page 7*)

The price of copper remains under pressure from the strengthening dollar



Source: Bloomberg, KGHM Polska Miedz S.A.

Market Risk Unit

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Base and precious metals | Other commodities

Copper

Miners Turn To Bacteria And Other New Ways To Leach Copper From Waste Rock

Rio Tinto Ltd, Freeport-McMoRan Inc, and other global miners intend to use bacteria and other newly developed technologies to extract more copper from the waste rock through a secondary leaching process. This may enable the economic recovery of copper at concentrations as low as 0.5% and below.

Piles of waste rock stored in mines around the world can contain up to 100 million tonnes of copper

Rio Tinto Ltd, Freeport-McMoRan Inc and other global miners, spurred by rising prices and demand, are deploying a raft of new leaching technologies that can extract low concentrations of copper from waste rock and help avoid lengthy mine permitting delays. Copper prices have nearly doubled in the past two years with the demand prompting miners to find faster ways to produce the metal. That has led the industry to reconsider piles of waste rock stored at their mine sites across the globe, with Rio and other companies estimating these piles could contain as much as 100 million tonnes of copper. In conventional mining, leaching involves applying acid to piles of rock in order to extract copper, gold or other metals. The remaining rock is stored on site in waste piles. Now, miners aim to use bacteria or other newly developed chemicals to extract even more copper from that waste rock in a secondary leaching process. That could enable them to produce copper at concentrations of 0.5% or lower - compared with typical grades in mines of 0.6% to 1% or beyond - in an economic way, the companies said. These new processes also do not require fresh regulatory approval, helping to avoid fights with conservationists and others. Freeport is using several new leaching technologies it developed internally and with partners at its Morenci mine in Arizona where it estimates 19 billion pounds of copper are unrecoverable by traditional leaching methods. The miner estimates that new leaching technologies could boost its annual copper production by at least 100 million pounds within a few years, equivalent to roughly 2.6% of its output last year. Freeport and BHP Group Ltd invested last year in Jetti Resources LLC, a privately-held leaching firm that also counts BlackRock Inc as an investor. Jetti's technology helped Capstone Mining Corp double its copper production at an Arizona mine last year, the companies said. Rio Tinto, which says it has been studying leaching technologies for 30 years, says it has developed a bacteria that naturally produces heat when applied to certain types of rock, helping to pull out the copper. Beyond copper, technology firms are looking to boost the use of leaching for other minerals, including rare earths.

Chile's Climate Scientist Minister Eyes Tougher Rules For Top Copper Mining Nation

Minister Maisa Rojas announced that the law would establish "boundaries" around the industry in terms of emissions and pollutants. So far, Rojas said many environmental laws have been largely voluntary and require stricter enforcement.

Chile's Environment Minister Maisa Rojas, a leading climate scientist with a PhD from Oxford who made the leap into politics this year, is on a mission to strengthen the Andean country's environmental rules and hold mining firms to account. Rojas is spearheading a new climate change law that binds Chile to carbon neutrality by 2050 and gives her ministry more power to set emission caps, including for the mining sector. "In the case of mining, there are concrete commitments that will have to be put in place," she told Reuters. The law will put "borders" around the country's industries in terms of emissions and pollution. Rojas said many environmental rules so far had been largely voluntary and need tougher enforcement. A strengthened ministry would hold companies to account on emissions, mining tailings, water use and environmental adaptation plans, with a mandatory yearly reporting requirement to congress, she said. Rojas, who took office in March under new progressive President Gabriel Boric, faces a tough challenge to balance goals to toughen environmental regulation and meet climate targets with the country's heavy reliance on copper mining. Rojas, who has researched the impact of climate change on water resources, said the government will rely on Chile's recently reformed water code to help the country deal with its biggest environmental challenge: a 13-year drought. That prolonged dry spell has hurt mining production, forcing a shift towards desalination and damaged farmers.

Other important information on copper market:

- Chile's copper exports continued to fall in April, reflecting a slump in production during the first four months of the year. Exports of copper concentrates slipped to 879,177 mt, down 21.8% on the year. Exports during the first four months of the year totaled 3.8 million mt, down 11.1% from a year earlier. The fall was largely due to a 7.6% drop in exports to China so far this year to 2.7 million mt and a 4.1% drop in exports to Japan to 600,812 mt. Meanwhile, exports of refined copper totaled 214,646 mt in April, down 2.3% on the year while exports during January-April reached 803,063 mt, down 4.3% from a year earlier. While exports to China rose 2% over the period to 325,743 mt, exports to the US fell 21% to 151,744 mt and exports to Brazil fell 32.5% to 53,787 mt. Production during the first three months of the year totaled 1.3 million mt, down 6.8% from the same period of 2021.
- China's refined copper output stood at 898,000 mt in April, down 1% year on year and 4% lower on the month, data from the National Bureau of Statistics showed. The decline in output in April was in line with expectations due to

maintenance activities and pandemic-related disruptions. In the mid-term, refined copper output would keep increasing in the months ahead as two smelters in the Shandong province will resume production. China's refined copper output totaled 3.54 million mt in January-April, up 4.4% on the year.

- The London Metal Exchange (LME) on Friday (May13) proposed measures that it said would improve transparency and stability in the over-the-counter metals market, including more frequent disclosures of all positions. The exchange said the consultation would run for two weeks, ending on May 27.

Precious Metals

LBMA, WGC advance pilot of Gold Bar Integrity initiative

LBMA and WGC have selected blockchain technology vendors to participate in the pilot phase of the Gold Bar Integrity initiative. It aims to digitally monitor the movement of gold along the global supply chain.

The London Bullion Market Association (LBMA) and the World Gold Council (WGC) have selected two vendors, blockchain technology start-up companies Axedras and Peer Ledger, to participate in a pilot phase of the organisations' Gold Bar Integrity initiative. The initiative is aimed at digitally monitoring gold moving through the global supply chain, by confirming provenance and providing transparency. The LBMA and the WGC are, ultimately, seeking to increase trust through strengthening governance across the entire gold supply chain, thereby mitigating illicit trade risks and reducing the chance of fraudulent bars entering the formal supply chain. The start-ups have been working actively to get more than 30 volunteers from the market on board. Testing of full value chains is expected to start in May. Over the next two to three months, participants will use the vendor systems to input, track and trace gold as it moves from the mine through the value chain. By engaging in this pilot, participants will better understand the technology and data accessibility, as well as be able to identify any challenges that need to be resolved. The outcome of the pilot will help participants and the wider industry determine the next steps on the global adoption of the ecosystem. The WGC says any next steps will be discussed with the industry to help inform an implementation plan together.

Global economies | Foreign exchange markets

China Faces Uphill Battle To Repeat 2020 Miracle







Analysts say Chinese leaders may have to accept 5% economic growth this year, which is below Beijing's 5.5% target, and the prospect of a slower U-shaped recovery rather than a rapid V-bounce.






China's slowing economy will struggle to stage the kind of stunning recovery it achieved two years ago. Analysts say that means China's leaders may have to quietly accept economic growth of about 5% for this year, below Beijing's current target of "around" 5.5%, and prospects of a slower "U-shaped" recovery, rather than a rapid "V-shaped" one. With no end in sight to China's zero-COVID policy, investors worry a prolonged slowdown in the world's second-largest economy could further weaken the global recovery and that worsening supply chain disruption could fan inflation risks. That outlook contrasts sharply with 2020, when China's economy roared back from its a deep pandemic-induced contraction, thanks to a combination of stimulus and surging exports. China's economic and COVID cycles are different to that in other countries. Back (in 2020), China effectively controlled the COVID outbreak and achieved a rapid recovery. This time around, the outside world chooses to lie flat, and we see more negative impact on China as they tighten policies. Even before widespread COVID curbs in Shanghai and other major Chinese cities hit the economy, private-sector economists considered Beijing's growth target as ambitious. The United States, Europe and other major economies have chosen to "live with the virus" as they reopen and rely on vaccines to fight the pandemic. In China, such policies are seen as encouraging inaction against a deadly and highly infectious virus and as such are politically unpalatable. On the last day of 2020, President Xi Jinping declared victory over the pandemic under the banner of the Communist Party while senior officials touted the ruling party's ability to "turn crisis into opportunity." That early success means China is now likely to stick with its zero-COVID policy until at least a key party meeting towards the end of the year. Unlike 2020, however, the U.S. Federal Reserve and other central banks are raising interest rates to curb runaway prices, making it harder for the People's Bank of China to ease monetary policy due to worries about capital outflows and local inflation. Chinese consumers are tightening belts amid rising job losses and falling incomes, and the government remains reluctant to give cash handouts similar to those used in the United States and Europe. Channeling more money into big-ticket infrastructure projects is China's most viable move, but may not be enough to pick up the slack as property spending weakens. "Infrastructure, which received full-throated support from President Xi in April, should lead the recovery," economists at Societe Generale said in a note. "But infrastructure alone won't be enough, and a housing market rebound would be essential for the whole economy to turn around, given that consumption is unlikely to see a proper recovery until the end of the zero-COVID policy." Economic data for April showed China's consumption and factory output fell at a pace unseen since early 2020, when the Wuhan outbreak became a pandemic. The broad-based

slowdown has stoked worries of further job losses, with China's nationwide survey-based jobless rate rising to 6.1% in April, the highest since February 2020 and well above the government's 2022 target of below 5.5%. Export growth dipped to 3.9% in April, the weakest in almost two years, as COVID-19 curbs shut factories. Many private-sector economists expect China's economy to shrink in the second quarter from a year earlier, versus the first quarter's 4.8% growth. Fu Linghui, a spokesman at the National Bureau of Statistics, played down the possibility of a second-quarter decline. Analysts at Citi now expect the economy to contract 1.7% in the second quarter, versus previous projections for a 4.7% expansion. The bank has cut its 2022 growth forecast to 4.2% from 5.1% but still sees scope for Beijing to prevent a more destructive slowdown. China still has policy options. At this juncture, a timely and decisive rollout of real stimulus measures is really critical to bring growth back on track.

Macroeconomic calendar

Important macroeconomic data releases

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
China 						
⊗⊗	09-May	Trade balance (USD bn)‡	Apr	51.1 ▲	47.1	53.5 ◡
⊗⊗	09-May	Exports (yoy)‡	Apr	3.9% ▼	14.6%	2.7% ◢
⊗⊗⊗⊗	11-May	Consumer inflation CPI (yoy)	Apr	2.1% ▲	1.5%	1.8% ◢
⊗⊗	11-May	Producer inflation PPI (yoy)	Apr	8.0% ▼	8.3%	7.8% ◢
⊗	13-May	New yuan loans (CNY bn)‡	Apr	645 ▼	3 125	1 530 ◡
⊗⊗⊗⊗	16-May	Industrial production (yoy)	Apr	-2.9% ▼	5.0%	0.5% ◡
⊗⊗	16-May	Fixed assets investments (ytd, yoy)	Apr	6.8% ▼	9.3%	7.0% ◡
⊗	16-May	Retail sales (yoy)	Apr	-11.1% ▼	-3.5%	-6.6% ◡
Poland 						
⊗⊗⊗⊗	13-May	Consumer inflation CPI (yoy) - final data	Apr	12.4% ▲	12.3%	--
⊗⊗	13-May	Trade balance (EUR mn)‡	Mar	-3 253 ▼	-1 559	-2 088 ◡
⊗⊗	13-May	Exports (EUR mn)‡	Mar	25 831 ▲	25 141	26 259 ◡
⊗⊗	13-May	Current account balance (EUR mn)‡	Mar	-2 972 ▼	-2 663	-2 800 ◡
⊗⊗⊗⊗	16-May	Core CPI (excluding food and energy, yoy)	Apr	7.7% ▲	6.9%	7.6% ◢
⊗⊗⊗⊗⊗	17-May	GDP (yoy) - preliminary data‡	1Q	8.5% ▲	7.6%	8.1% ◢
⊗⊗⊗⊗⊗	17-May	GDP (qoq) - preliminary data‡	1Q	2.4% ▲	1.8%	1.8% ◢
⊗⊗⊗⊗	20-May	Sold industrial production (yoy)	Apr	13.0% ▼	17.3%	16.3% ◡
⊗⊗	20-May	Average gross salary (yoy)	Apr	14.1% ▲	12.4%	12.8% ◢
⊗⊗	20-May	Producer inflation PPI (yoy)‡	Apr	23.3% ▲	21.9%	20.5% ◢
⊗	20-May	Employment (yoy)	Apr	2.8% ▲	2.4%	2.7% ◢
US 						
⊗⊗⊗⊗	11-May	Consumer inflation CPI (mom)	Apr	0.3% ▼	1.2%	0.2% ◢
⊗⊗⊗⊗	11-May	Consumer inflation CPI (yoy)	Apr	8.3% ▼	8.5%	8.1% ◢
⊗⊗	13-May	University of Michigan confidence index - preliminary data	May	59.1 ▼	65.2	64.0 ◡
⊗⊗⊗⊗	17-May	Industrial production (mom)	Apr	1.1% ▲	0.9%	0.5% ◢
⊗⊗	17-May	Retail sales (excluding autos, mom)‡	Apr	0.6% ▼	2.1%	0.4% ◢
⊗	17-May	Capacity utilization‡	Apr	79.0% ▲	78.2%	78.6% ◢
⊗⊗	19-May	Philadelphia Fed business outlook	May	2.6 ▼	17.6	15.0 ◡
Eurozone 						
⊗	10-May	ZEW survey expectations	May	-29.5 ▲	-43.0	--
⊗⊗⊗⊗	13-May	Industrial production (sa, mom)‡	Mar	-1.8% ▼	0.5%	-2.0% ◢
⊗⊗⊗⊗	13-May	Industrial production (wda, yoy)‡	Mar	-0.8% ▼	1.7%	-1.0% ◢
⊗	16-May	Trade balance (EUR mn)	Mar	-16.4 ▼	-7.6	--
⊗⊗⊗⊗⊗	17-May	GDP (sa, yoy) - preliminary data‡	1Q	5.1% -	5.1%	5.0% ◢
⊗⊗⊗⊗⊗	17-May	GDP (sa, qoq) - preliminary data‡	1Q	0.3% -	0.3%	0.2% ◢
⊗⊗⊗⊗	18-May	Consumer inflation CPI (yoy) - final data	Apr	7.4% -	7.4%	7.5% ◡
⊗⊗⊗⊗	18-May	Core CPI (yoy) - final data	Apr	3.5% -	3.5%	3.5% ◡
⊗	20-May	Consumer confidence - estimation	May	-21.1 ▲	-22.0	-21.5 ◢
Germany 						
⊗⊗⊗⊗	11-May	Harmonized consumer inflation HICP (yoy) - final data	Apr	7.8% -	7.8%	7.8% ◡
⊗⊗⊗⊗	11-May	Consumer inflation CPI (yoy) - final data	Apr	7.4% -	7.4%	7.4% ◡
France 						
⊗⊗⊗⊗	13-May	Harmonized consumer inflation HICP (yoy) - final data	Apr	5.4% -	5.4%	5.4% ◡
⊗⊗⊗⊗	13-May	Consumer inflation CPI (yoy) - final data	Apr	4.8% -	4.8%	4.8% ◡

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
Italy 						
🔴🔴🔴🔴	10-May	Industrial production (wda, yoy)‡	Mar	3.0% ▼	3.4%	1.4% 🟢
🔴🔴🔴🔴	17-May	Harmonized consumer inflation HICP (yoy) - final data	Apr	6.3% ▼	6.6%	6.6% 🟡
UK 						
🔴🔴🔴🔴🔴	12-May	GDP (yoy) - preliminary data	1Q	8.7% ▲	6.6%	8.9% 🟡
🔴🔴🔴🔴🔴	12-May	GDP (qoq) - preliminary data	1Q	0.8% ▼	1.3%	1.0% 🟡
🔴🔴🔴🔴	12-May	Industrial production (yoy)‡	Mar	0.7% ▼	2.1%	0.6% 🟢
🔴🔴	17-May	Unemployment rate (ILO, 3-months)	Mar	3.7% ▼	3.8%	3.8% 🟡
🔴🔴🔴🔴	18-May	Consumer inflation CPI (yoy)	Apr	9.0% ▲	7.0%	9.1% 🟡
Japan 						
🔴🔴🔴	09-May	Composite PMI - final data‡	Apr	51.1 =	51.1	--
🔴🔴🔴🔴🔴	18-May	GDP (annualized, qoq) - preliminary data‡	1Q	-1.0% ▼	3.8%	-1.8% 🟢
🔴🔴🔴🔴🔴	18-May	GDP (qoq, sa) - preliminary data‡	1Q	-0.2% ▼	0.9%	-0.4% 🟢
🔴🔴🔴🔴	18-May	Industrial production (yoy) - final data	Mar	-1.7% =	-1.7%	--
🔴🔴🔴🔴	20-May	Consumer inflation CPI (yoy)	Apr	2.5% ▲	1.2%	2.5% 🟡
Chile 						
🔴🔴🔴	09-May	Copper exports (USD mn)‡	Apr	4 037 ▼	4 800	--
🔴🔴🔴🔴🔴	18-May	GDP (yoy)	1Q	7.2% ▼	12.0%	7.9% 🟡
Canada 						
🔴🔴🔴🔴	18-May	Consumer inflation CPI (yoy)	Apr	6.8% ▲	6.7%	6.7% 🟢

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

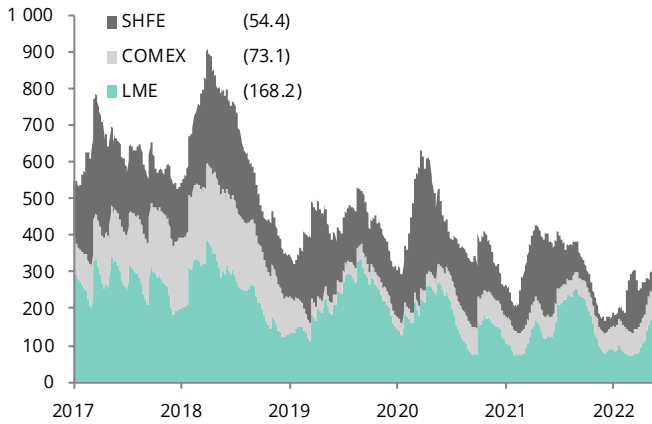
Key base & precious metal prices, exchange rates and other important market factors

<i>(as of: 20-May-22)</i>		Price change ¹					From year beginning ²		
	Price	2W	QTD	YTD	1Y	Average	Min	Max	
LME (USD/t; Mo in USD/lbs)									
Copper	9 477.00	▲ 0.5%	▼ -8.3%	▼ -2.2%	▼ -6.0%	9 936.43	9 018.50	10 730.00	
Molybdenum	18.76	▼ -1.9%	▼ -2.8%	▲ 0.4%	▲	19.10	18.69	19.33	
Nickel	27 950.00	▼ -6.6%	▼ -16.3%	▲ 33.6%	▲ 61.3%	28 174.56	20 480.00	45 795.00	
Aluminum	2 931.00	▲ 3.5%	▼ -16.3%	▲ 4.5%	▲ 22.5%	3 207.04	2 677.00	3 984.50	
Tin	34 705.00	▼ -14.5%	▼ -21.5%	▼ -12.4%	▲ 4.1%	42 389.53	33 875.00	50 050.00	
Zinc	3 755.00	▼ -1.9%	▼ -11.9%	▲ 3.4%	▲ 27.5%	3 871.68	3 500.00	4 530.00	
Lead	2 146.00	▼ -3.8%	▼ -11.8%	▼ -7.8%	▼ -2.6%	2 319.57	2 033.00	2 513.00	
LBMA (USD/troz)									
Silver	22.03	▼ -2.0%	▼ -11.2%	▼ -4.6%	▼ -20.6%	23.80	20.84	26.18	
Gold ²	1 834.20	▼ -2.6%	▼ -5.6%	▲ 0.8%	▼ -2.3%	1 883.91	1 788.15	2 039.05	
LPPM (USD/troz)									
Platinum ²	960.00	▼ -0.6%	▼ -2.3%	▼ -0.2%	▼ -19.9%	1 006.71	915.00	1 151.00	
Palladium ²	2 004.00	▼ -4.9%	▼ -11.3%	▲ 3.9%	▼ -29.9%	2 293.44	1 854.00	3 015.00	
FX ³									
EURUSD	1.0577	▲ 0.1%	▼ -4.7%	▼ -6.6%	▼ -13.3%	1.1030	1.0385	1.1464	
EURPLN	4.6366	▼ -1.3%	▼ -0.3%	▲ 0.8%	▲ 2.6%	4.6376	4.4879	4.9647	
USDPLN	4.3832	▼ -1.5%	▲ 4.9%	▲ 8.0%	▲ 18.2%	4.2082	3.9218	4.5722	
USDCAD	1.2829	▼ -0.4%	▲ 2.7%	▲ 1.2%	▲ 6.3%	1.2691	1.2451	1.3039	
USDCNY	6.6930	▲ 0.4%	▲ 5.6%	▲ 5.3%	▲ 4.0%	6.4184	6.3093	6.7893	
USDCLP	842.38	▼ -2.4%	▲ 7.0%	▼ -0.3%	▲ 17.8%	817.54	777.10	868.06	
Money market									
3m LIBOR USD	1.506	▲ 0.10	▲ 0.54	▲ 1.30	▲ 1.36	0.772	0.216	1.506	
3m EURIBOR	-0.348	▲ 0.08	▲ 0.11	▲ 0.22	▲ 0.20	-0.492	-0.576	-0.348	
3m WIBOR	6.460	▲ 0.13	▲ 1.69	▲ 3.92	▲ 6.25	4.342	2.590	6.460	
5y USD interest rate swap	2.828	▼ -0.33	▲ 0.31	▲ 1.46	▲ 1.92	2.278	1.445	3.158	
5y EUR interest rate swap	1.342	▼ -0.28	▲ 0.36	▲ 1.33	▲ 1.55	0.774	0.031	1.624	
5y PLN interest rate swap	6.195	▼ -0.55	▲ 1.04	▲ 2.46	▲ 4.59	4.997	3.780	6.915	
Fuel									
WTI Cushing	113.23	▲ 3.2%	▲ 12.9%	▲ 47.1%	▲ 82.5%	98.76	76.99	123.70	
Brent	114.23	▲ 0.1%	▲ 7.2%	▲ 47.5%	▲ 77.1%	102.68	79.83	133.89	
Diesel NY (ULSD)	403.91	▼ -20.5%	▲ 9.4%	▲ 68.6%	▲ 105.4%	359.06	241.70	534.54	
Others									
VIX	29.43	▼ -0.76	▲ 8.87	▲ 12.21	▲ 8.76	26.01	16.91	36.45	
BBG Commodity Index	130.55	▲ 0.2%	▲ 4.9%	▲ 31.6%	▲ 43.6%	119.61	100.58	134.99	
S&P500	3 901.36	▼ -5.4%	▼ -13.9%	▼ -18.1%	▼ -6.2%	4 379.10	3 900.79	4 793.54	
DAX	13 981.91	▲ 2.2%	▼ -3.0%	▼ -12.0%	▼ -9.0%	14 602.23	12 831.51	16 271.75	
Shanghai Composite	3 146.57	▲ 4.8%	▼ -3.2%	▼ -13.6%	▼ -10.3%	3 308.32	2 886.43	3 632.33	
WIG 20	1 782.66	▲ 1.0%	▼ -16.4%	▼ -21.4%	▼ -16.4%	2 073.85	1 691.62	2 411.11	
KGHM	133.55	▲ 4.4%	▼ -22.8%	▼ -4.2%	▼ -33.1%	154.03	115.60	182.20	

° 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

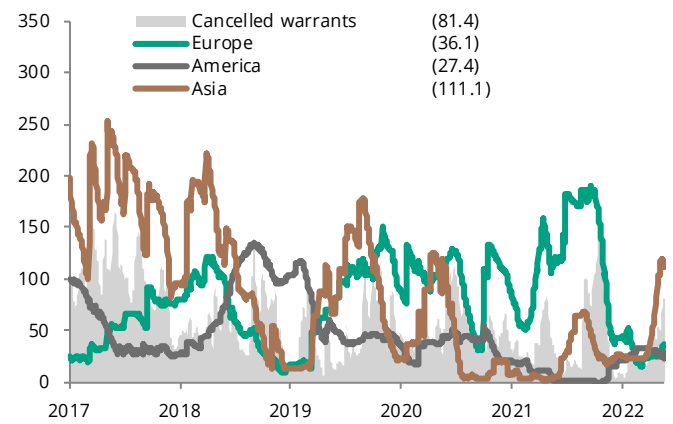
Source: Bloomberg, KGHM Polska Miedź

Copper: official exchange stocks (thousand tonnes)



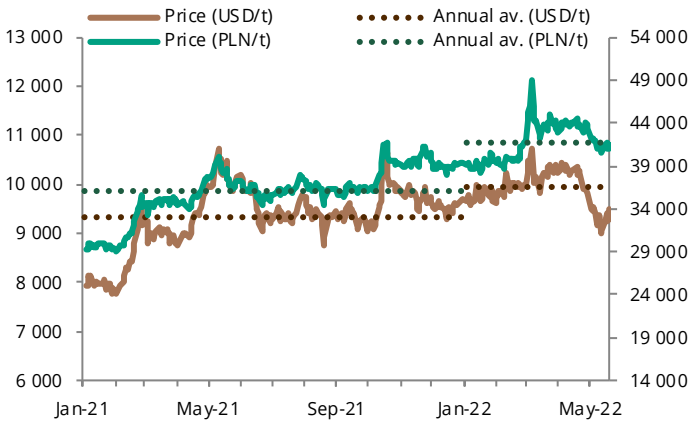
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: official LME stocks (thousand tonnes)



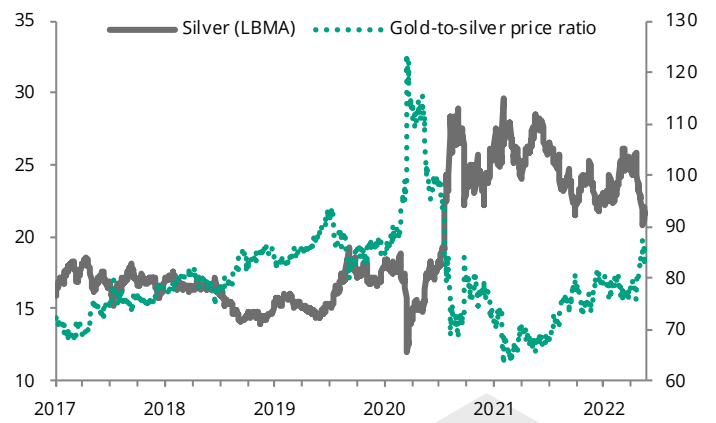
Note: Latest values in brackets. Source: Bloomberg, KGHM

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



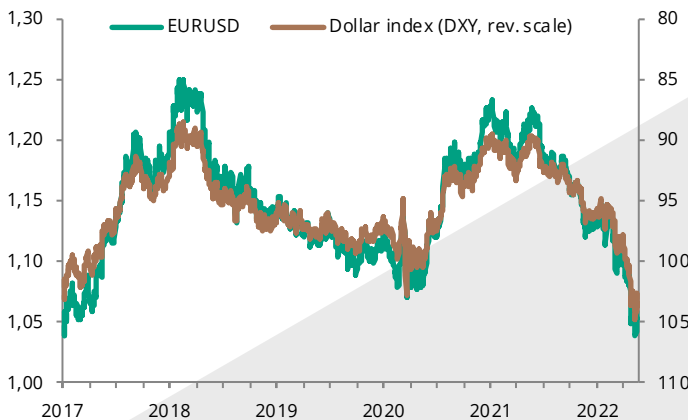
Source: Bloomberg, KGHM Polska Miedź

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



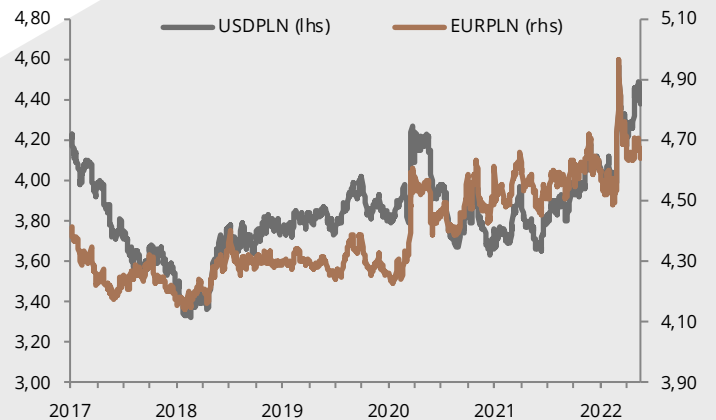
Source: Bloomberg, KGHM Polska Miedź

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:
9 - 22 May 2020.

- 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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