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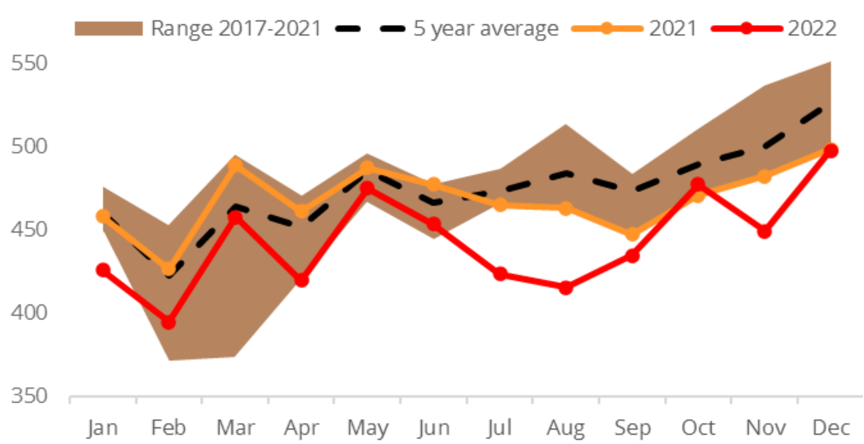
Market Overview

as of: 30th January 2023

- **Copper:** Likely output of the red metal will peak at some 7.14 million tonnes in 2030, according to report obtained by Reuters. That is later and well below the 7.62 million-tonne 2028 peak Cochilco had estimated in its outlook a year ago *(page 2)*.
- **Precious metals:** Following two years of depressed buying in India, 2022 saw a healthy recovery in physical silver investment, jumping to 79.4 Moz last year, the highest total since 2015. A recent investment opportunity in India is silver exchange-traded products (ETPs), launched in September 2021. As of end 2022, silver ETP holdings in India stood at an estimated 8 Moz, a good start given the fact that these products were only released in late 2021 *(page 4)*.
- **USA:** The Federal Reserve's Preferred by the Federal Reserve's inflation gauges probably cooled in December to the slowest paces in more than a year. But inflation remains well above their 2% goal and a still-tight labor market risks keeping it elevated *(page 6)*.

Chilean copper production in 2022 compared to the range of the previous five years



Source: Cochilco, KGHM Polska Miedź S.A.

Key market prices

	Close price	2w chng.
LME (USD/t)		
▲ Copper	9 345.50	2.6%
▲ Nickel	29 065.00	7.0%
LBMA (USD/troz)		
▲ Silver	23.73	0.2%
▲ Gold (PM)	1 923.05	0.8%
FX		
▲ EURUSD	1.0865	0.5%
▲ EURPLN	4.7076	0.3%
▼ USDPLN	4.3252	0.0%
▼ USDCAD	1.3314	-0.7%
▼ USDCLP	802.58	-2.4%
Stocks		
▼ KGHM	146.20	-4.9%

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

Important macroeconomic data

Release	For		
Industrial prod. (yoy)	Dec	1.3%	▼
Composite PMI	Jan	46.6	▲
Core CPI (yoy)	Dec	5.2%	-
Industrial prod. (yoy)	Dec	1.0%	▼
GfK consumer confidence	Feb	- 33.9	▲

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

Market Risk Unit

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Base and precious metals | Other commodities

Copper

Chile Mine Delays To Slow Copper Growth; Peak Seen Lower, Later

Likely output of the red metal will peak at some 7.14 million tonnes in 2030, according to report obtained by Reuters. That is later and well below the 7.62 million-tonne 2028 peak Cochilco had estimated in its outlook a year ago.

Copper production in Chile, the world's largest producer of the red metal, will grow at a slower rate this decade than previously hoped, a government report seen by Reuters showed, with peak output later and lower than estimated a year ago. Likely output of the red metal will peak at some 7.14 million tonnes in 2030, two years later than anticipated as delays hit mining projects in the Andean nation, according to an unpublished report from regulator Cochilco obtained by Reuters. That is well below the 7.62 million-tonne 2028 peak the regulator had estimated in its decade outlook a year ago. "Lots of important projects in the next decade haven't advanced in engineering or environmental baselines during the pandemic," the report said, adding that its outlook was "quite lower than projections made in previous years." Production snarls in Chile could prop up the global price of the metal, which has soared since 2020 past $9,000 per tonne. Also, protests in neighboring Peru have curbed production in major mines at the world's No. 2 copper producing country. Despite the expected slower growth in Chile, the report forecasts production to grow 17% to 6.58 million tonnes by 2033. Expected output will be 5.345 million tonnes in 2022, 5.467 million tonnes this year and 5.891 million tonnes in 2024. The report states that its projections depend on all planned mining projects in the current portfolio coming online, adding that projects to maintain and expand current mines would not be enough on their own to meet projections. In a response to questions from Reuters, Cochilco research head Víctor Garay said the peak couldn't come earlier as new projects needed studies and analysis, which "take a long time". Chile's copper sector, the country's top exporter, has demanded more "legal certainty" for investment after the government recently denied permits for the Dominga iron and copper project and amid uncertainty over a new constitution. On Wednesday the chief executive of miner Freeport-McMoRan Inc said Chile expansion projects were on hold until the country's political situation was clearer. The report showed a production fall last year versus 2021 but said that this "should close the cycle of production losses associated with the (COVID-19) pandemic." There will also be a likely production drop after the 2030 peak as some operations close or produce less.

Other important information on copper market:

- The world's refined copper market saw a 89,000 tonne deficit in November, compared with a surplus of 68,000 tonnes in October, the International Copper Study Group (ICSG) said in its latest monthly bulletin. World refined copper output in November was 2.2 million tonnes, while consumption was 2.3 million tonnes. For the first eleven months of 2022, the market was in a 384,000 tonne deficit compared with a 381,000 tonne deficit in the same period a year earlier, the ICSG said.

- China's refined copper imports totaled 3.88 million mt in 2022, up 7.1% from a year earlier, data from the General Administration of Customs showed. Imports reached 364,116 mt in December, down 13% from a year earlier and 4.4% lower from a month ago, according to the customs data. The decline in December was in line with market expectations, amid the absence of import arbitrage opportunity since early November. The import arbitrage window is expected to remain closed up to the Lunar New Year holidays due to sluggish demand and accumulated stocks in the domestic market, sources said. China's imports of refined copper from Chile -- the world's largest producer of copper -- increased by 20% from a year ago, to 911,696 mt in 2022. Chile accounted for 23.5% of China's total imports. Meanwhile, imports from Russia fell by almost 20% to 324,232 mt, accounting for 8.3% of the country's total.

- Copper production at Chile's Codelco, the world's largest producer of the metal, fell almost 11% in 2022 as the state-owned company saw delays in major investment projects and a series of technical issues, the company's chairman Maximo Pacheco said Jan. 24. Speaking in Santiago, Pacheco said production had fallen by 172,000 mt in 2022 compared to 2021. Codelco produced a total of 1.73 million mt of copper in 2021, including 1.62 million mt from its own operations. The decline also marked a shortfall of 162,000 mt from the company's budgeted production for the year. The production is likely to continue at similar levels in 2023, he said. Pacheco said that 77% of the decline was attributable to a series of technical problems at its operations, including the collapse of a stockpile dome at Chuquicamata mine, a belt failure at Radomiro Tomic mine and a water shortage at its El Teniente mine.

Precious Metals

Indian Investors Are Taking Advantage of Increasing Silver Investment Options

Following two years of depressed buying in India, 2022 saw a healthy recovery in physical silver investment, jumping to 79.4 Moz last year, the highest total since 2015. A recent investment opportunity in India is silver exchange-traded products (ETPs), launched in September 2021. As of end 2022, silver ETP holdings in India stood at an estimated 8 Moz, a good start given the fact that these products were only released in late 2021.

Investors in India Have Purchased Nearly 730 Million Ounces of Physical Silver Since 2010. As the world's sixth-largest economy and foremost silver fabricator, India also plays an essential role in silver and gold investment demand, historically recognized in that market as savings and investment assets. Today, with new investment products available to Indian investors, India's role in silver investment has the potential to grow even further.

A new Silver Institute Market Trend Report, "Trends in Indian Investment Demand," explores the main components across this market, including physical silver investment, exchange-traded products, digital silver, the futures market in India, and silver's prospects for being listed on the India International Bullion Exchange. The report, commissioned by the Silver Institute, was authored by Metals Focus, a leading precious metals consultancy.

Since 2010, India's physical silver investment (bars and coins) has accounted for one-third of overall Indian silver demand. During this time, Indian retail investors bought around 730 million ounces (Moz) of silver, representing 90 percent of 2022's global silver mine production. Following two years of depressed buying, 2022 saw a healthy recovery in physical investment, jumping to 79.4 Moz last year, the highest total since 2015. This growth has contributed to a record high for Indian silver imports, which surged last year to 304 Moz, comfortably surpassing the 2015 record of 260 Moz.

A recent investment opportunity in India is silver exchange-traded products (ETPs), launched in September 2021. Currently, there are seven ETPs and five silver ETP Fund-of-Funds (FoFs, which invest in ETPs). As of end 2022, silver ETP holdings in India stood at an estimated 8 Moz, a good start given the fact that these products were only released in late 2021.

In keeping with silver ETPs, digital silver products have also been newly launched in India, although to date, they have failed to gain traction among retail investors. Digital silver allows investors to buy silver for a low price point, depending on the platform. The silver is then stored in insured vaults by the seller on behalf of the customer, who can either sell it back on the same platform or take physical delivery in the form of coins or bullion (after paying delivery and minting charges). Digital silver represents another new chapter of silver investment in India, and already nine companies offer these products in India.

Another new potential arena for silver investment is the India International Bullion Exchange (IIBX), which launched in August 2022. The IIBX allows Indian jewelers and bullion dealers to import gold directly from foreign suppliers through the exchange by trading Bullion Depository Receipts (BDRs). While the exchange only permits gold imports and trading of gold through spot contracts, officials expect the importation and trading of silver to eventually be allowed.

The report notes that since 2014, some notable policy and regulatory changes in India have structurally altered investment in precious metals, potentially limiting physical investment. These changes have included the government's push to provide banking services to the entire population and the crackdown on tax evasion and cash transactions.

Global economies | Foreign exchange markets

Key US Inflation Gauge Seen Slowing But Leaving Fed Wanting More

The Federal Reserve's Preferred by the Federal Reserve's inflation gauges probably cooled in December to the slowest paces in more than a year. But inflation remains well above their 2% goal and a still-tight labor market risks keeping it elevated.

The Federal Reserve's preferred inflation gauges probably cooled in December to the slowest paces in more than a year, reinforcing a step down in the pace of interest-rate hikes but likely not enough for officials to discuss a pause. Economists project a 5% annual increase in the personal consumption expenditures price index due Friday, and a 4.4% rise in the core metric, which excludes food and energy. Both would be the smallest advances since late 2021, and estimates for monthly changes also point to moderation compared with earlier last year. Such figures would be consistent with forecasts that the Fed will further dial back the pace of interest-rate hikes to a quarter-point move at the conclusion of their two-day meeting on Feb. 1. But inflation remains well above their 2% goal and a still-tight labor market risks keeping it elevated. Economists will also be watching the government's initial estimate of fourth-quarter gross domestic product, which also includes PCE price and other inflation metrics. Fed officials last month boosted their core PCE estimate to end 2022 around 4.8%, up from a 4.5% projection in September. For that to materialize, the December figure would have to rise 0.38% month-over-month, compared to the median estimate of 0.3%, according to Bloomberg calculations. Those assumptions have supported the Fed's reasoning that interest rates will peak around 5.1% and stay there through 2023. Another closely watched inflation gauge, the consumer price index, has been decelerating for months, and wage pressures are easing. Policymakers acknowledge the progress, but contend that their work is far from over. Chair Jerome Powell and his colleagues are particularly concerned with inflation in the service sector excluding energy and housing, as wages are a big cost for these businesses. "Even with the recent moderation, inflation remains high, and policy will need to be sufficiently restrictive for some time to make sure inflation returns to 2% on a sustained basis," Fed Vice Chair Lael Brainard said last week. Walmart Inc., the largest private-sector employer in the US, said that it's raising starting wages by 17% against a backdrop of high inflation and stiff competition for labor. Depending on the location, initial pay for new workers can range as high as $19 [an hour]. Economists are concerned that the Fed, partly due to basing policy on inflation forecasts that are too pessimistic, will hike rates so high — or keep them elevated for an extended period — to the point that it tips the US into recession. The GDP report shows the economy grew at a slower pace at the end of the year, but still supported by robust consumer spending on services. Beyond that, the outlook is cloudier. Forecasters see GDP contracting in the second and third quarters as spending stagnates, business investment wanes and industrial production weakens, according to a Bloomberg survey of economists conducted earlier this month. That puts the odds of a recession over the next year at 65%. Inflation is notoriously difficult to predict, and the Fed has been caught off guard in the past. Critics, and even several officials themselves, say the central bank moved too slowly with its hiking campaign last year, and messaging is key to keep market expectations in check. So while the PCE data will likely reinforce that inflation is cooling, it's too soon for the Fed to declare victory. Policymakers will insist they need to see more evidence that price gains are in fact ebbing before discussing pausing rate hikes, particularly in wage measures like the employment cost index and average hourly earnings to be released next week.

Macroeconomic calendar

Important macroeconomic data releases

Weight	Date	Event	For	Reading [1]		Previous	Consensus [2]
		China					
✪✪✪✪✪	17-Jan	GDP (yoy)	4Q	2.9%	▼	3.9%	1.6%
✪✪✪✪✪	17-Jan	GDP (sa, qoq)	4Q	0.0%	▼	3.9%	-1.1%
✪✪✪✪	17-Jan	Industrial production (yoy)	Dec	1.3%	▼	2.2%	0.1%
✪✪	17-Jan	Fixed assets investments (ytd, yoy)	Dec	5.1%	▼	5.3%	5.0%
✪	17-Jan	Retail sales (yoy)	Dec	-1.8%	▲	-5.9%	-9.0%
		Poland					
✪✪✪✪	16-Jan	Core CPI (excluding food and energy, yoy)	Dec	11.5%	▲	11.4%	11.5%
✪✪	20-Jan	Average gross salary (yoy)	Dec	10.3%	▼	13.9%	13.1%
✪	20-Jan	Employment (yoy)	Dec	2.2%	▼	2.3%	2.3%
✪✪✪✪	23-Jan	Sold industrial production (yoy)‡	Dec	1.0%	▼	4.5%	1.7%
✪✪✪	23-Jan	Retail sales (yoy)	Dec	15.5%	▼	18.4%	17.8%
✪✪	23-Jan	Producer inflation PPI (yoy)‡	Dec	20.4%	▼	21.1%	19.4%
✪	24-Jan	M3 money supply (yoy)	Dec	5.4%	▼	5.6%	5.9%
✪✪	25-Jan	Unemployment rate	Dec	5.2%	▲	5.1%	5.2%
		US					
✪✪✪✪	18-Jan	Industrial production (mom)‡	Dec	-0.7%	▼	-0.6%	-0.1%
✪✪	18-Jan	Retail sales (excluding autos, mom)‡	Dec	-1.1%	▼	-0.6%	-0.5%
✪	18-Jan	Capacity utilization‡	Dec	78.8%	▼	79.4%	79.5%
✪✪	19-Jan	Philadelphia Fed business outlook‡	Jan	- 8.9	▲	- 13.7	- 11.0
✪✪✪	24-Jan	Composite PMI - preliminary data	Jan	46.6	▲	45.0	46.4
✪✪✪	24-Jan	Manufacturing PMI - preliminary data	Jan	--		46.2	46.0
✪✪✪	24-Jan	PMI services - preliminary data	Jan	46.6	▲	44.7	45.0
✪	24-Jan	Richmond Fed manufacturing index	Jan	- 11.0	▼	1.0	- 5.0
✪✪✪✪✪	26-Jan	GDP (annualized, qoq) - estimation	4Q	2.9%	▼	3.2%	2.6%
✪✪	26-Jan	Durable goods orders - preliminary data‡	Dec	5.6%	▲	-1.7%	2.5%
✪✪✪✪	27-Jan	Consumer spending inflation PCE (mom)	Dec	0.3%	▲	0.2%	0.3%
✪✪✪✪	27-Jan	Consumer spending inflation PCE (yoy)	Dec	4.4%	▼	4.7%	4.4%
✪✪	27-Jan	Personal income (sa, mom)‡	Dec	0.2%	▼	0.3%	0.2%
✪✪	27-Jan	Personal spending (sa, mom)‡	Dec	-0.2%	▼	-0.1%	-0.2%
✪✪	27-Jan	University of Michigan confidence index - final data	Jan	64.9	▲	64.6	64.6
		Eurozone					
✪	17-Jan	ZEW survey expectations	Jan	16.7	▲	- 23.6	--
✪✪✪✪	18-Jan	Consumer inflation CPI (yoy) - final data‡	Dec	9.2%	▼	10.1%	9.2%
✪✪✪✪	18-Jan	Core CPI (yoy) - final data	Dec	5.2%	-	5.2%	5.2%
✪	23-Jan	Consumer confidence - preliminary data‡	Jan	- 20.9	▲	- 22.0	- 20.0
✪✪✪	24-Jan	Composite PMI - preliminary data	Jan	--		49.3	49.8
✪✪✪	24-Jan	Manufacturing PMI - preliminary data	Jan	--		47.8	48.5
✪✪✪	24-Jan	Services PMI - preliminary data	Jan	--		49.8	50.1
✪	27-Jan	M3 money supply (yoy)	Dec	4.1%	▼	4.8%	4.6%
		Germany					
✪✪✪✪	17-Jan	Harmonized consumer inflation HICP (yoy) - final data	Dec	9.6%	-	9.6%	9.6%
✪✪✪✪	17-Jan	Consumer inflation CPI (yoy) - final data	Dec	8.6%	-	8.6%	8.6%
✪✪✪	24-Jan	Composite PMI - preliminary data	Jan	--		49.0	49.6
✪✪✪	24-Jan	Manufacturing PMI - preliminary data	Jan	--		47.1	48.0
✪✪	24-Jan	GfK consumer confidence‡	Feb	- 33.9	▲	- 37.6	- 33.3
✪✪	25-Jan	IFO business climate	Jan	90.2	▲	88.6	90.3

Weight	Date	Event	For	Reading [1]		Previous	Consensus [2]	
		France						
✪✪✪	24-Jan	Composite PMI - preliminary data	Jan	--		49.1	49.5	
✪✪✪	24-Jan	Manufacturing PMI - preliminary data	Jan	--		49.2	49.5	
		Italy						
✪✪✪✪	17-Jan	Harmonized consumer inflation HICP (yoy) - final data	Dec	12.3%	▬	12.3%	12.3%	○
		UK						
✪✪	17-Jan	Unemployment rate (ILO, 3-months)	Nov	3.7%	▬	3.7%	3.7%	○
✪✪✪✪	18-Jan	Consumer inflation CPI (yoy)	Dec	10.5%	▼	10.7%	10.5%	○
✪✪✪	24-Jan	Manufacturing PMI (sa) - preliminary data	Jan	--		45.3	45.5	
✪✪✪	24-Jan	Composite PMI - preliminary data	Jan	--		49.0	48.8	
		Japan						
✪✪✪✪	18-Jan	Industrial production (yoy) - final data	Nov	-0.9%	▲	-1.3%	--	
✪✪✪✪	20-Jan	Consumer inflation CPI (yoy)	Dec	4.0%	▲	3.8%	4.0%	○
✪✪✪	24-Jan	Composite PMI - preliminary data	Jan	50.8	▲	49.7	--	
✪✪✪	24-Jan	Manufacturing PMI - preliminary data	Jan	--		48.9	--	
		Chile						
✪✪✪✪✪	26-Jan	BCCh overnight rate target	Jan	11.25%	▬	11.25%	11.25%	○
		Canada						
✪✪✪✪	17-Jan	Consumer inflation CPI (yoy)	Dec	6.3%	▼	6.8%	6.4%	◡
✪✪✪✪✪	25-Jan	BoC base rate decision	Jan	4.50%	▲	4.25%	4.50%	○

[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

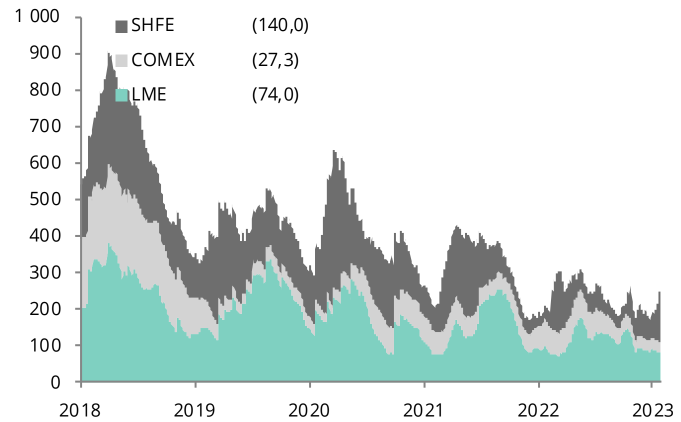
Key market data

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

(as of: 27-Jan-23)	Price	Price change[1] 2W	QTD	YTD	1Y	From year beginning[2] Average	Min	Max
LME (USD/t; Mo in USD/lbs)								
Copper	9 345.50	▲ 2.6%	▲ 11.4%	▲ 11.4%	▼ -5.3%	8 983.87	8 209.00	9 436.00
Molybdenum	31.70	▲ 6.3%	▲ 21.3%	▲ 21.3%	▲	31.21	29.76	32.25
Nickel	29 065.00	▲ 7.0%	▼ -4.5%	▼ -4.5%	▲ 27.1%	28 111.32	26 475.00	31 200.00
Aluminum	2 597.00	▲ 3.4%	▲ 10.0%	▲ 10.0%	▼ -16.4%	2 482.05	2 242.50	2 636.00
Tin	32 050.00	▲ 12.3%	▲ 29.2%	▲ 29.2%	▼ -25.7%	27 943.68	25 050.00	32 050.00
Zinc	3 509.00	▲ 6.3%	▲ 16.0%	▲ 16.0%	▼ -3.8%	3 274.63	2 977.00	3 509.00
Lead	2 207.00	▼ -0.4%	▼ -5.5%	▼ -5.5%	▼ -5.3%	2 213.61	2 063.00	2 331.00
LBMA (USD/troz)								
Silver	23.73	▲ 0.2%	▼ -0.9%	▼ -0.9%	▲ 2.4%	23.79	23.41	24.30
Gold[2]	1 923.05	▲ 0.8%	▲ 6.1%	▲ 6.1%	▲ 6.4%	1 895.96	1 834.00	1 932.45
LPPM (USD/troz)								
Platinum[2]	1 010.00	▼ -4.4%	▼ -5.2%	▼ -5.2%	▼ -1.1%	1 058.26	1 010.00	1 100.00
Palladium[2]	1 642.00	▼ -5.6%	▼ -8.2%	▼ -8.2%	▼ -28.0%	1 743.74	1 642.00	1 802.00
FX [3]								
EURUSD	1.0865	▲ 0.5%	▲ 1.9%	▲ 1.9%	▼ -2.6%	1.0763	1.0500	1.0895
EURPLN	4.7076	▲ 0.3%	▲ 0.4%	▲ 0.4%	▲ 3.0%	4.6984	4.6688	4.7239
USDPLN	4.3252	▼ 0.0%	▼ -1.7%	▼ -1.7%	▲ 5.9%	4.3563	4.3242	4.4373
USDCAD	1.3314	▼ -0.7%	▼ -1.7%	▼ -1.7%	▲ 4.7%	1.3429	1.3314	1.3658
USDCNY	6.7927	▲ 1.4%	▼ -1.5%	▼ -1.5%	▲ 6.7%	6.7931	6.7010	6.9150
USDCLP	802.58	▼ -2.4%	▼ -6.6%	▼ -6.6%	▲ 0.5%	828.40	802.58	856.31
Money market								
3m LIBOR USD	4.825	▲ 0.03	▲ 0.06	▲ 0.06	▲ 4.53	4.807	4.782	4.830
3m EURIBOR	2.492	▲ 0.16	▲ 0.36	▲ 0.36	▲ 3.04	2.338	2.170	2.501
3m WIBOR	6.940	▲ 0.02	▼ -0.08	▼ -0.08	▲ 3.98	6.947	6.910	7.010
5y USD interest rate swap	3.675	▲ 0.02	▼ -0.35	▼ -0.35	▲ 1.95	3.677	3.497	3.922
5y EUR interest rate swap	2.891	▲ 0.11	▼ -0.35	▼ -0.35	▲ 2.75	2.845	2.672	3.045
5y PLN interest rate swap	5.290	▲ 0.04	▼ -0.87	▼ -0.87	▲ 1.19	5.328	5.040	5.988
Fuel								
WTI Cushing	79.68	▼ -0.2%	▼ -0.7%	▼ -0.7%	▼ -8.0%	78.08	72.84	81.31
Brent	85.63	▲ 1.5%	▲ 0.8%	▲ 0.8%	▼ -4.5%	82.85	76.41	87.23
Diesel NY (ULSD)	326.55	▼ -1.2%	▼ -3.0%	▼ -3.0%	▲ 16.6%	327.66	301.19	358.84
Others								
VIX	18.51	▲ 0.16	▼ -3.16	▼ -3.16	▼ -11.98	20.22	18.35	22.90
BBG Commodity Index	111.61	▲ 0.0%	▼ -1.1%	▼ -1.1%	▲ 5.1%	110.68	107.36	112.52
S&P500	4 070.56	▲ 1.8%	▲ 6.0%	▲ 6.0%	▼ -5.9%	3 951.04	3 808.10	4 070.56
DAX	15 150.03	▲ 0.4%	▲ 8.8%	▲ 8.8%	▼ -2.4%	14 915.60	14 181.67	15 187.07
Shanghai Composite	3 264.81	▲ 2.2%	▲ 5.7%	▲ 5.7%	▼ -3.8%	3 185.74	3 116.51	3 264.81
WIG 20	1 911.50	▼ -0.6%	▲ 6.7%	▲ 6.7%	▼ -14.4%	1 902.19	1 824.82	1 937.98
KGHM	146.20	▼ -4.9%	▲ 15.3%	▲ 15.3%	▼ -0.4%	146.48	130.50	153.80

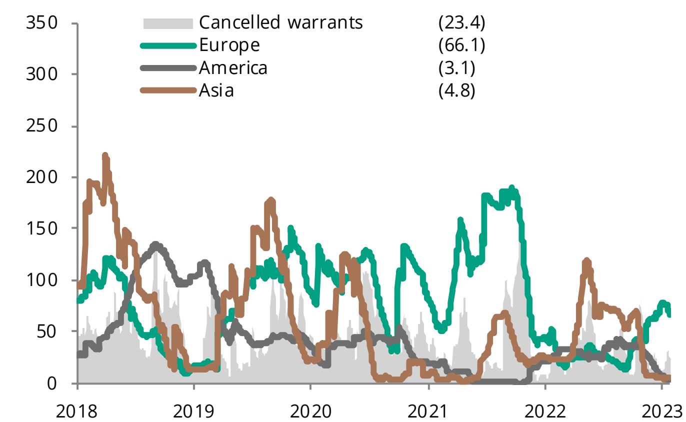
° change over: 2W = two weeks; QTD = quarter-to-day; YTD = year-to-date; 1Y = one year. [1] based on daily closing prices. [2] latest quoted price. [3] central banks' fixing rates (Bank of China HK for USD/CNY). [4].
Source: Bloomberg, KGHM Polska Miedź

Copper: official exchange stocks (thousand tonnes)



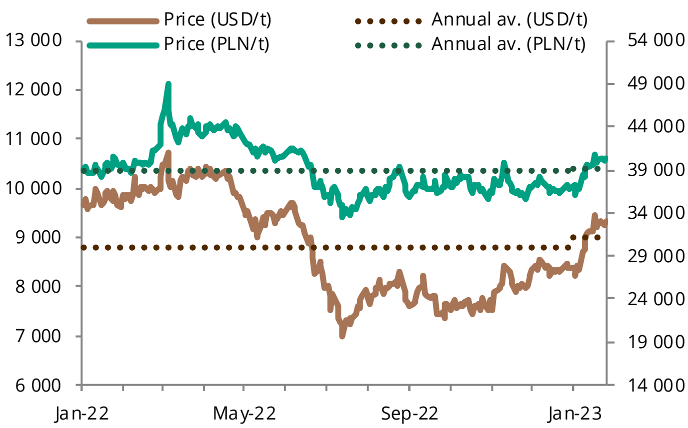
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: official LME stocks (thousand tonnes)



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

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

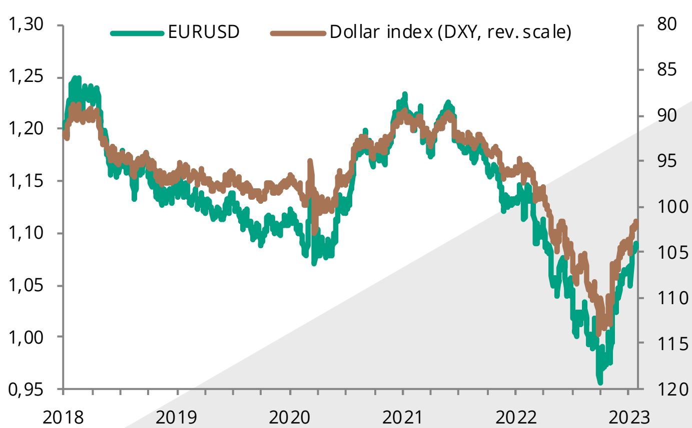


Source: Bloomberg, KGHM Polska Miedź

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

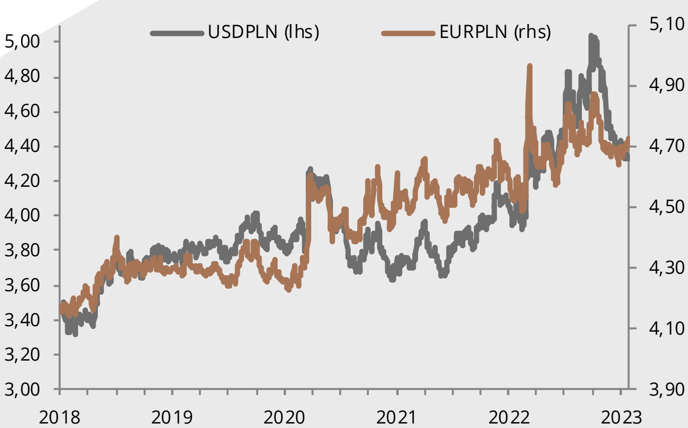
Source: Bloomberg, KGHM Polska Miedź

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: **16 – 29 January 2023.**

▪ 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

In case of questions or comments please contact us:

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