KGHM POLSKA MIEDŹ

Market Overview

as of: 23th October 2023

- **Copper:** 53% of participants of LME Week's informal main event survey identified copper as the metal with the best prospects. Tin came in second place with 23% of the votes. The message from the many discussions taking place there points to a promising future, but preceded by a period of turmoil *(page 2)*.
- **Precious metals:** According to the Silver Institute, demand for silver has increased by 150% over the last decade. Last year, 140 million ounces of silver were used for solar panels. Consumption is expected to grow to 160 million ounces this year, a 28% jump from last year *(page 4)*.
- **IMF:** Global growth is forecast to slow from 3.5 percent in 2022 to 3.0 percent in 2023 and 2.9 percent in 2024. The projections remain below the historical (2000–19) average of 3.8 percent. The global recovery from the COVID-19 pandemic and Russia's invasion of Ukraine remains slow and uneven *(page 6)*.

Key market prices

		Close price	2w chng.
	LME (USD/t)		
▼	Copper	7 876.00	-0.1%
▲	Nickel	18 350.00	0.4%
	LBMA (USD/troz)		
▲	Silver	23.22	9.9%
▲	Gold (PM)	1 988.50	9.3%
	FX		
▲	EURUSD	1.0591	0.3%
▼	EURPLN	4.4675	-2.9%
▼	USDPLN	4.2194	-3.2%
▲	USDCAD	1.3695	0.1%
▲	USDCLP	940.46	2.5%
	Stocks		
▲	KGHM	107.95	0.5%

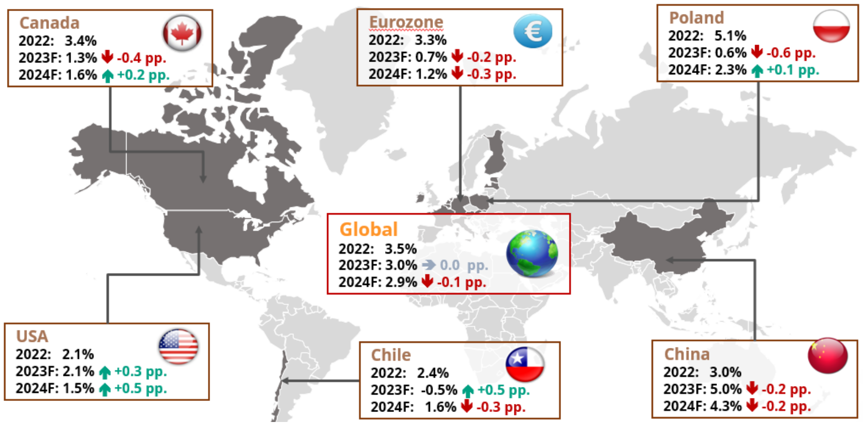
Source: Bloomberg, KGHM Polska Miedź S.A.; *(more on page 10)*

Important macroeconomic data

Release	For		
Capacity utilization	Sep	79.7%	▲
FAI (ytd, yoy)	Sep	3.1%	▼
Industrial prod. (yoy)	Sep	-3.1%	▼
Industr. prod. (wda, yoy)	Aug	-5.1%	▼
Copper exports ($)	Sep	3 859	▲

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

IMF World Economic Outlook – October 2023



Source: IMF, KGHM Polska Miedź S.A.

Market Risk Unit

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Base and precious metals | Other commodities

Copper

LME Week consensus is a bright future but short-term pain

53% of participants of LME Week's informal main event survey identified copper as the metal with the best prospects. Tin came in second place with 23% of the votes. The message from the many discussions taking place there points to a promising future, but preceded by a period of turmoil.

Copper is the metal with the most upside price potential next year, according to those attending London Metal Exchange (LME) seminar. The informal poll of 800 people gathered for the flagship event of LME Week in London was decisive with 53% opting for copper over its base metal peers. It helped that Max Layton of Citi had just pronounced copper to be "THE bullish energy transition trade within commodities" in the accompanying analysts debate. Tin came a distant second with 23% of the vote after Jeremy Pearce of the International Tin Association explained tin's unsung role as the solder that binds the world's circuit boards. No surprise that neither aluminium nor nickel excited the audience. HARBOR Aluminum's Jorge Vazquez warned that the light metal is facing a huge supply surplus of two million tonnes over the next two years, while Macquarie consultant Jim Lennon talked about Indonesia's massive production surge swamping the nickel market. Perhaps more telling than anything, however, is that even Citi expects copper prices to fall over the next few months. The future may be bright and electric but copper and the rest of the LME metals are currently caught in an old-fashioned industrial downturn. The European manufacturing sector is in recession due to high energy costs and U.S. growth is slowing. The cyclical downturn has changed the short-term outlook for many base metals with the International Copper Study Group (ICSG) and the International Lead and Zinc Study Group (ILZSG) significantly revising estimated supply-demand balances at their October meetings. When the ICSG's statistical committee last met in April, it was expecting a global refined copper supply deficit of 114,000 metric tons in 2023 before a shift to a 267,000-metric ton surplus in 2024. It has just cut this year's forecast shortfall to a marginal 27,000 metric tons, while next year's surplus has ballooned out to 467,000 metric tons.

Weak Western demand is a key part of that revised calculation. In April the Group expected usage growth of 1.6% outside of China this year, but it now thinks usage will fall by 1.0%, reflecting declines in both Europe and North America. It's a similar story with the ILZSG revisions. European zinc demand is expected to fall by 1.8% this year, dragging global usage growth down to 1.1% from the 2.1% rate forecast in April. The 45,000-metric ton zinc supply shortfall expected at the last meeting has turned into a big 248,000-metric ton surplus, followed by an even larger 367,000 surplus next year. The International Nickel Study Group went against the trend by raising its demand forecasts for both years on the back of recovery in the stainless steel sector and the continuing battery boom. But nickel production is rising so fast in Indonesia the Group still thinks the global market will register two years of supply surplus to the collective tune of a massive 462,000 metric tons.

The Groups' latest forecasts would be more bearish still were it not for strong apparent usage in China. China has surprised to the upside this year. The country's metals production is booming and it is importing more aluminium and zinc . Refined copper imports are still running below last year's levels but have been robust over the last two reported months. Since everyone uses an apparent usage calculation based on hard data such as domestic output and net trade to assess Chinese demand, it's no surprise that both the ICSG and ILZSG have lifted their estimates for the amount of metal being consumed in the country. The struggling property sector remains a significant drag, although completion rates have recently picked up, lifting demand for fittings and household appliances, which is good news for base metals but not for steel. More significant, however, is Beijing's targeted infrastructure spending which is going to metals-intensive sectors such as the power grid, electric vehicles (EV) and solar panels. Such "green" investment appears to be acting as a major offset to the downturn in the traditional metals demand driver that is the commercial property market. How long it will last is a moot point, given China's exports of both solar panels and EVs are generating increasing push-back from both the United States and the European Union.

The energy transition and the resulting booster to metals demand was the core talking-point at this year's collective LME Week discussions. Producers, particularly copper producers, were once again out in force with warnings about the potential shortfall of metal to meet the new wave of green demand. Yet the LME metals have not yet escaped the gravitational pull of the traditional industry cycle. It's the conflict between old and new cycles that has generated the mixed messages coming out of this year's annual gathering of the global metals industry in London. The old cycle is still the more powerful for now and the result, if you believe the Study Groups, will be a shift to supply surplus across the base metals spectrum. Only part of that surplus is yet visible in terms of exchange inventories, which remain historically low both in China and everywhere else.

Other important information on copper market:

- Chile's Codelco, the world's biggest copper miner, is offering to sell copper at a premium of $234 a metric ton to European customers next year - matching this year's record - a source with direct knowledge of the matter said. The premiums set by Codelco for physical delivery of copper are paid on top of the London Metal Exchange (LME) contract and are sometimes used as a benchmark for global contracts for the metal used in the power and construction industries. The premium hit a record level this year as European consumers shunning Russian copper after Moscow invaded Ukraine last year were looking for alternative sources of supply. Another factor was high energy and transport costs. Both transport and logistics costs have since dropped. Russia was previously a major supplier of copper to the European Union (EU). The EU imported more than 801,000 tons of copper in 2021, of which nearly 292,000 tons came from Russia according to data from Trade Data Monitor (TDM).

Precious Metals

Higher silver prices needed to meet solar demand,

According to the Silver Institute, demand for silver has increased by 150% over the last decade. Last year, 140 million ounces of silver were used for solar panels. Consumption is expected to grow to 160 million ounces this year, a 28% jump from last year.

Investment demand in silver has been fairly disappointing through most of 2023; Ahowever, one mining executive said that this is not the segment of the market investors should be paying attention to. In an interview with Kitco News, on the sidelines of the London Bullion Market Association 2023 Global Precious Metals Conference, Phillips Baker, CEO of Hecla Mining, said that investors need to pay attention to industrial demand and the solar power sector continues to consume massive amounts of the precious metal. "Right now, ETF demand is the sideshow. Silver's use in Photovoltaic (PV) solar panels is going to drive silver prices higher," he said. "This is not an issue that will be going away anytime soon. The need for Photovoltaic solar panels will drive demand for the next decade. The bullish comments come as silver prices test resistance just below $23 an ounce, up 9.5% from September's multi-month lows below $21 an ounce. According to data from the Silver Institute, in the last decade, silver demand has grown 150%. Last year, 140 million ounces of silver was used in solar panels. There are expectations that 160 million ounces will be used in solar panels this year, a 28% increase from last year. According to forecasts from the International Energy Agency, solar power production is expected to surpass coal-power production by 2027. Baker noted that Hecla's Greens Creek operation, the largest silver mine the U.S. and the eleventh largest in the world, produces 10 million ounces of silver a year. He added that at the current pace of consumption, the world would need at least two or three new mines that size to meet demand for just the solar sector. Baker said that the silver needed to meet growing industrial demand will have to come from above-ground stocks; however, he added that higher prices will be needed before this supply comes into the market. "You're not going to go and melt grandmother's silver tea service at $35 an ounce," he said. Baker said higher prices are also needed to bring more mine supply online. Baker's outlook comes as the silver producer continues to make significant investments in the Canadian mining sector after buying ATAC Resources in the Yukon. "You're going to need higher prices in order to be able to raise the capital necessary to develop these projects," he said. In this environment of rising demand and limited or reluctant supply, Baker said he is optimistic that silver prices will continue to increase. He added that at some point, investors will not be able to ignore the fundamental supply and demand imbalance. Some analysts have noted that investors have been reluctant to get into silver as the Federal Reserve has aggressively raised interest rates through 2023 and is expected to maintain these restrictive levels for longer than expected. At the same time, there are fears that the U.S. central bank's monetary policy will push the economy into a recession. Analysts have noted that silver's investment allure has been diminished on two fronts: a monetary metal and an industrial metal. Baker said that he sees these two factors as short-term obstacles. He noted that silver remains an important monetary metal and will prove to be an effective hedge against inflation. At the same time, Baker said that the green energy transition and the need for renewal energy could make silver recession proof. He noted that the government could once again target the green energy sector as a way to protect the economy from a recession, which would benefit silver.

Global economies | Foreign exchange markets

Navigating Global Divergences, WEO Oct 2023

Global growth is forecast to slow from 3.5 percent in 2022 to 3.0 percent in 2023 and 2.9 percent in 2024. The projections remain below the historical (2000–19) average of 3.8 percent. The global recovery from the COVID-19 pandemic and Russia's invasion of Ukraine remains slow and uneven.

The global recovery from the COVID-19 pandemic and Russia's invasion of Ukraine remains slow and uneven. Despite economic resilience earlier this year, with a reopening rebound and progress in reducing inflation from last year's peaks, it is too soon to take comfort. Economic activity still falls short of its prepandemic path, especially in emerging market and developing economies, and there are widening divergences among regions. Several forces are holding back the recovery. Some reflect the long-term consequences of the pandemic, the war in Ukraine, and increasing geoeconomic fragmentation. Others are more cyclical in nature, including the effects of monetary policy tightening necessary to reduce inflation, withdrawal of fiscal support amid high debt, and extreme weather events. More than three years after the global economy suffered the largest shock of the past 75 years, the wounds are still healing.

Global growth is forecast to slow from 3.5 percent in 2022 to 3.0 percent in 2023 and 2.9 percent in 2024. The projections remain below the historical (2000–19) average of 3.8 percent, and the forecast for 2024 is down by 0.1 percentage point from the July 2023 Update to the World Economic Outlook. Overall, global output for 2023 is estimated at 3.4 percent (or about $3.6 trillion in 2023 prices) below prepandemic projections. Despite signs of economic resilience earlier this year and progress in reducing headline inflation, economic activity is still generally falling short of prepandemic (January 2020) projections, especially in emerging market and developing economies. The strongest recovery among major economies has been in the United States, where GDP in 2023 is estimated to exceed its prepandemic path. The euro area has recovered, though less strongly—with output still 2.2 percent below prepandemic projections, reflecting greater exposure to the war in Ukraine and the associated adverse terms-of-trade shock, as well as a spike in imported energy prices. In China, the pandemic-related slowdown in 2022 and the property sector crisis contribute to the larger output losses of about 4.2 percent, compared with prepandemic predictions. Other emerging market and developing economies have seen even weaker recoveries, especially low-income countries, where output losses average more than 6.5 percent. Higher interest rates and depreciated currencies have exacerbated the difficulties of low-income countries, placing more than half either at high risk of distress or already in distress.

Risks to the outlook are more balanced than they were six months ago, on account of the resolution of US debt ceiling tensions and Swiss and US authorities' having acted decisively to contain financial turbulence. The likelihood of a hard landing has receded, but the balance of risks to global growth remains tilted to the downside. China's property sector crisis could deepen, with global spillovers, particularly for commodity exporters. Elsewhere, near-term inflation expectations have risen and could contribute—along with tight labor markets–– to core inflation pressures persisting and requiring higher policy rates than expected. More climate and geopolitical shocks could cause additional food and energy price spikes. Intensifying geoeconomic fragmentation could constrain the flow of commodities across markets, causing additional price volatility and complicating the green transition. Amid rising debt service costs, more than half of low-income developing countries are in or at high risk of debt distress.

There is little margin for error on the policy front. Central banks need to restore price stability while using policy tools to relieve potential financial stress when needed. Effective monetary policy frameworks and communication are vital for anchoring expectations and minimizing the output costs of disinflation. Fiscal policymakers should rebuild budgetary room for maneuver and withdraw untargeted measures while protecting the vulnerable. Reforms to reduce structural impediments to growth––by, among other things, encouraging labor market participation—would smooth the decline of inflation to target and facilitate debt reduction. Faster and more efficient multilateral coordination is needed on debt resolution to avoid debt distress. Cooperation is needed as well to mitigate the effects of climate change and speed the green transition, including by ensuring steady cross-border flows of the necessary minerals.

Global inflation is forecast to decline steadily, from 8.7 percent in 2022 to 6.9 percent in 2023 and 5.8 percent in 2024. But the forecasts for 2023 and 2024 are revised up by 0.1 percentage point and 0.6 percentage point, respectively, and inflation is not expected to return to target until 2025 in most cases. Under baseline scenario, inflation continues to recede as central banks maintain a tight stance. With many countries near the peak of their tightening cycles, little additional tightening is warranted. However, easing prematurely would squander the gains achieved in the past 18 months. Once the disinflation process is firmly on its way and near-term inflation expectations are decreasing, adjusting the policy rate downward will allow the monetary policy stance, that is, the real interest rate, to remain unchanged until inflation targets are in sight. Fiscal policy needs to support the monetary strategy and help the disinflation process. In 2022, fiscal and monetary policies were pulling in the same direction, as many of the pandemic emergency fiscal measures were unwound. In 2023, the degree of alignment has decreased. Most worrying is the case of the United States, where the fiscal stance has deteriorated substantially. Fiscal policy in the US should not be procyclical, even less so at this stage of the inflation cycle. More broadly, fiscal policy everywhere should focus on rebuilding fiscal buffers that have been severely eroded by the pandemic and the energy crisis, for instance, by removing energy subsidies.

Macroeconomic calendar

Important macroeconomic data releases

Weight	Date	Event	For	Reading [1]		Previous	Consensus [2]
		China					
✪✪✪✪	13-Oct	Consumer inflation CPI (yoy)	Sep	0.0%	▼	0.1%	0.2%
✪✪	13-Oct	Trade balance (USD bn)‡	Sep	77.7	▲	68.3	70.6
✪✪	13-Oct	Exports (yoy)‡	Sep	-6.2%	▲	-8.7%	-8.0%
✪✪	13-Oct	Producer inflation PPI (yoy)	Sep	-2.5%	▲	-3.0%	-2.4%
✪	13-Oct	New yuan loans (CNY bn)‡	Sep	2 310	▲	1 358	2 500
✪✪✪✪✪	18-Oct	GDP (yoy)	3Q	4.9%	▼	6.3%	4.5%
✪✪✪✪✪	18-Oct	GDP (sa, qoq)‡	3Q	1.3%	▲	0.5%	0.9%
✪✪✪✪	18-Oct	Industrial production (yoy)	Sep	4.5%	▪	4.5%	4.4%
✪✪	18-Oct	Fixed assets investments (ytd, yoy)	Sep	3.1%	▼	3.2%	3.2%
✪	18-Oct	Retail sales (yoy)	Sep	5.5%	▲	4.6%	4.9%
		Poland					
✪✪✪✪	13-Oct	Consumer inflation CPI (yoy) - final data	Sep	8.2%	▪	8.2%	--
✪✪	13-Oct	Trade balance (EUR mn)‡	Aug	491	▲	319	896
✪✪	13-Oct	Exports (EUR mn)‡	Aug	25 704	▼	25 807	25 947
✪✪	13-Oct	Current account balance (EUR mn)‡	Aug	- 202	▼	- 62.0	899
✪✪✪✪	16-Oct	Core CPI (excluding food and energy, yoy)	Sep	8.4%	▼	10.0%	8.6%
✪✪✪✪	19-Oct	Sold industrial production (yoy)‡	Sep	-3.1%	▼	-1.9%	-2.7%
✪✪	19-Oct	Average gross salary (yoy)	Sep	10.3%	▼	11.9%	10.7%
✪✪	19-Oct	Producer inflation PPI (yoy)‡	Sep	-2.8%	▲	-2.9%	-2.9%
✪	19-Oct	Employment (yoy)	Sep	0.0%	▪	0.0%	0.0%
✪✪✪	20-Oct	Retail sales (yoy)	Sep	3.6%	▲	3.1%	2.7%
		US					
✪✪✪✪	12-Oct	Consumer inflation CPI (mom)	Sep	0.4%	▼	0.6%	0.3%
✪✪✪✪	12-Oct	Consumer inflation CPI (yoy)	Sep	3.7%	▪	3.7%	3.6%
✪✪	13-Oct	University of Michigan confidence index - preliminary data	Oct	63.0	▼	68.1	67.0
✪✪✪✪	17-Oct	Industrial production (mom)‡	Sep	0.3%	▲	0.0%	0.0%
✪✪	17-Oct	Retail sales (excluding autos, mom)‡	Sep	0.6%	▼	0.9%	0.2%
✪	17-Oct	Capacity utilization‡	Sep	79.7%	▲	79.5%	79.6%
✪✪	19-Oct	Philadelphia Fed business outlook	Oct	- 9.0	▲	- 13.5	- 7.0
		Eurozone					
✪✪✪✪	13-Oct	Industrial production (sa, mom)‡	Aug	0.6%	▲	-1.3%	0.2%
✪✪✪✪	13-Oct	Industrial production (wda, yoy)	Aug	-5.1%	▼	-2.2%	-3.5%
✪	16-Oct	Trade balance (EUR mn)	Aug	6.7	▲	6.5	--
✪	17-Oct	ZEW survey expectations	Oct	2.3	▲	- 8.9	--
✪✪✪✪	18-Oct	Consumer inflation CPI (yoy) - final data	Sep	4.3%	▪	4.3%	4.3%
✪✪✪✪	18-Oct	Core CPI (yoy) - final data	Sep	4.5%	▪	4.5%	4.5%
		Germany					
✪✪✪✪	09-Oct	Industrial production (wda, yoy)‡	Aug	-2.0%	▼	-1.7%	-1.5%
✪✪✪✪	11-Oct	Harmonized consumer inflation HICP (yoy) - final data	Sep	4.3%	▪	4.3%	4.3%
✪✪✪✪	11-Oct	Consumer inflation CPI (yoy) - final data	Sep	4.5%	▪	4.5%	4.5%
		France					
✪✪✪✪	13-Oct	Harmonized consumer inflation HICP (yoy) - final data	Sep	5.7%	▲	5.6%	5.6%
✪✪✪✪	13-Oct	Consumer inflation CPI (yoy) - final data	Sep	4.9%	▪	4.9%	4.9%
		Italy					
✪✪✪✪	10-Oct	Industrial production (wda, yoy)‡	Aug	-4.2%	▼	-2.3%	-5.0%
✪✪✪✪	16-Oct	Harmonized consumer inflation HICP (yoy) - final data	Sep	5.6%	▼	5.7%	5.7%

Weight	Date	Event	For	Reading [1]		Previous	Consensus [2]	
		UK						
✪✪✪✪	12-Oct	Industrial production (yoy)‡	Aug	1.3%	▲	1.0%	1.7%	◡
✪✪✪✪	18-Oct	Consumer inflation CPI (yoy)	Sep	6.7%	-	6.7%	6.6%	◠
		Japan						
✪✪✪✪	16-Oct	Industrial production (yoy) - final data	Aug	-4.4%	▼	-3.8%	--	
✪✪✪✪	20-Oct	Consumer inflation CPI (yoy)	Sep	3.0%	▼	3.2%	3.0%	○
		Chile						
✪✪✪	10-Oct	Copper exports (USD mn)	Sep	3 859	▲	3 705	--	
		Canada						
✪✪✪✪	17-Oct	Consumer inflation CPI (yoy)	Sep	3.8%	▼	4.0%	4.0%	◡

[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

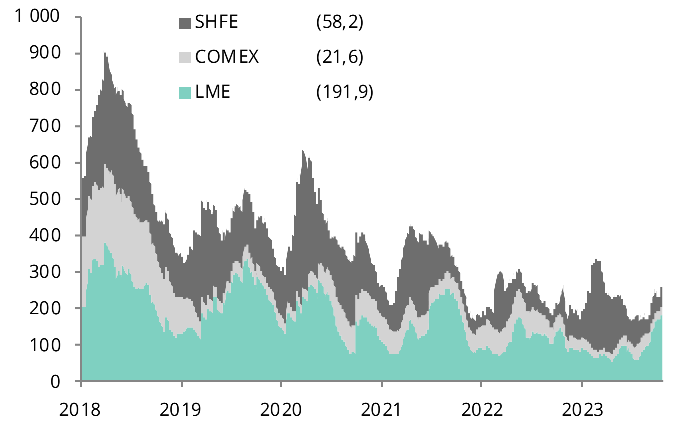
Key market data

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

(as of: 20-Oct-23)		Price change[1]				From year beginning[2]		
	Price	2W	QTD	YTD	1Y	Average	Min	Max
LME (USD/t; Mo in USD/lbs)								
Copper	7 876.00	▼ -0.1%	▼ -4.3%	▼ -6.1%	▲ 3.8%	8 536.37	7 812.50	9 436.00
Molybdenum	20.53	▼ -6.7%	▼ -13.6%	▼ -21.4%	▲	25.90	17.86	38.28
Nickel	18 350.00	▲ 0.4%	▼ -0.9%	▼ -39.7%	▼ -15.9%	22 556.72	18 160.00	31 200.00
Aluminum	2 152.00	▼ -2.5%	▼ -6.7%	▼ -8.8%	▼ -2.8%	2 263.72	2 068.50	2 636.00
Tin	24 405.00	▲ 1.8%	▲ 0.8%	▼ -1.6%	▲ 28.3%	26 315.37	22 225.00	32 050.00
Zinc	2 415.50	▼ -2.3%	▼ -8.5%	▼ -20.1%	▼ -18.0%	2 678.53	2 224.00	3 509.00
Lead	2 129.00	▼ -3.5%	▼ -3.6%	▼ -8.8%	▲ 7.0%	2 142.47	1 989.00	2 331.00
LBMA (USD/troz)								
Silver	23.22	▲ 9.9%	▲ 0.6%	▼ -3.0%	▲ 23.6%	23.30	20.09	26.03
Gold[2]	1 988.50	▲ 9.3%	▲ 6.3%	▲ 9.7%	▲ 21.6%	1 926.84	1 810.95	2 048.45
LPPM (USD/troz)								
Platinum[2]	895.00	▲ 4.3%	▼ -3.0%	▼ -16.0%	▲ 0.2%	975.37	858.00	1 128.00
Palladium[2]	1 101.00	▼ -3.9%	▼ -14.6%	▼ -38.4%	▼ -45.5%	1 398.70	1 101.00	1 802.00
FX [3]								
EURUSD	1.0591	▲ 0.3%	▼ 0.0%	▼ -0.7%	▲ 8.0%	1.0813	1.0469	1.1255
EURPLN	4.4675	▼ -2.9%	▼ -3.6%	▼ -4.7%	▼ -6.8%	4.5806	4.4135	4.7895
USDPLN	4.2194	▼ -3.2%	▼ -3.4%	▼ -4.1%	▼ -13.9%	4.2373	3.9451	4.4888
USDCAD	1.3695	▲ 0.1%	▲ 1.3%	▲ 1.1%	▼ -0.2%	1.3470	1.3128	1.3807
USDCNY	7.3151	▲ 0.2%	▲ 0.2%	▲ 6.0%	▲ 1.4%	7.0568	6.7010	7.3439
USDCLP	940.46	▲ 2.5%	▲ 3.7%	▲ 9.4%	▼ -3.8%	828.07	781.49	945.61
Money market								
3m LIBOR USD	5.660	▼ -0.01	▲ 0.00	▲ 0.89	▲ 1.34	5.340	4.782	5.687
3m EURIBOR	3.969	▼ -0.01	▲ 0.02	▲ 1.84	▲ 2.47	3.318	2.170	4.002
3m WIBOR	5.670	▼ -0.03	▼ -0.10	▼ -1.35	▼ -1.73	6.696	5.670	7.010
5y USD interest rate swap	4.219	- 0.00	- 0.00	▲ 0.20	▼ -0.27	3.821	3.418	4.408
5y EUR interest rate swap	3.434	▲ 0.03	▲ 0.03	▲ 0.19	▲ 0.25	3.166	2.672	3.500
5y PLN interest rate swap	4.915	▲ 0.18	▲ 0.42	▼ -1.25	▼ -2.87	5.120	4.140	6.125
Fuel								
WTI Cushing	88.75	▲ 7.2%	▼ -2.2%	▲ 10.6%	▲ 3.2%	78.00	66.74	93.68
Brent	91.15	▲ 0.7%	▼ -3.1%	▼ -8.1%	▲ 18.3%	109.96	87.71	137.67
Diesel NY (ULSD)	3.32	▼ -7.9%	▼ -8.5%	▲ 17.7%	▲ 32.5%	3.89	2.85	5.08
Others								
VIX	21.71	▲ 4.26	▲ 4.19	▲ 0.04	▼ -8.27	17.44	12.82	26.52
BBG Commodity Index	105.82	▲ 3.2%	▲ 0.9%	▼ -6.2%	▼ -5.1%	105.17	97.96	112.52
S&P500	4 224.16	▼ -2.0%	▼ -1.5%	▲ 10.0%	▲ 15.2%	4 229.22	3 808.10	4 588.96
DAX	14 798.47	▼ -2.8%	▼ -3.8%	▲ 6.3%	▲ 15.9%	15 619.54	14 181.67	16 469.75
Shanghai Composite	2 983.06	▼ -4.1%	▼ -4.1%	▼ -3.4%	▼ -1.7%	3 221.57	2 983.06	3 395.00
WIG 20	2 028.92	▲ 8.5%	▲ 5.9%	▲ 13.2%	▲ 42.2%	1 948.17	1 670.18	2 193.56
KGHM	107.95	▲ 0.5%	▼ -3.6%	▼ -14.8%	▲ 17.2%	120.31	104.60	153.80

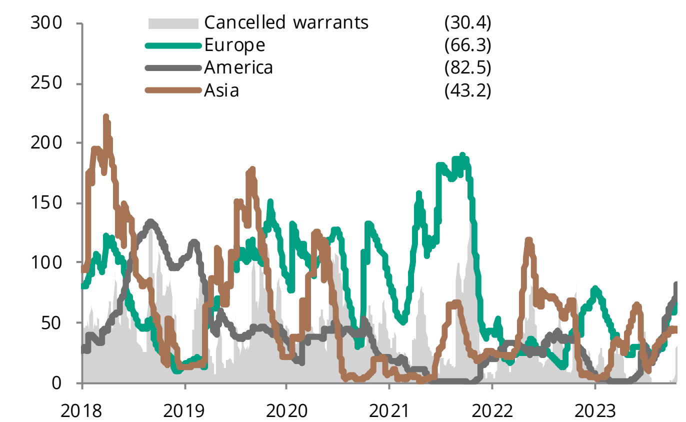
° change over: 2W = two weeks; QTD = quarter-to-day; YTD = year-to-date; 1Y = one year. [1] based on daily closing prices. [2] latest quoted price. [3] central banks' fixing rates (Bank of China HK for USD/CNY). [4].
Source: Bloomberg, KGHM Polska Miedź

Copper: official exchange stocks (thousand tonnes)



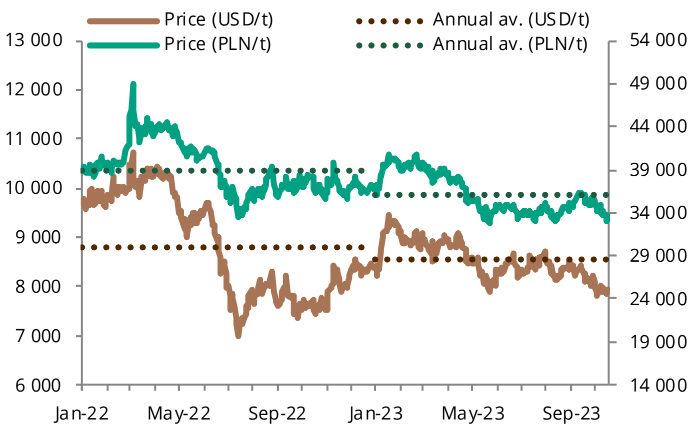
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: official LME stocks (thousand tonnes)



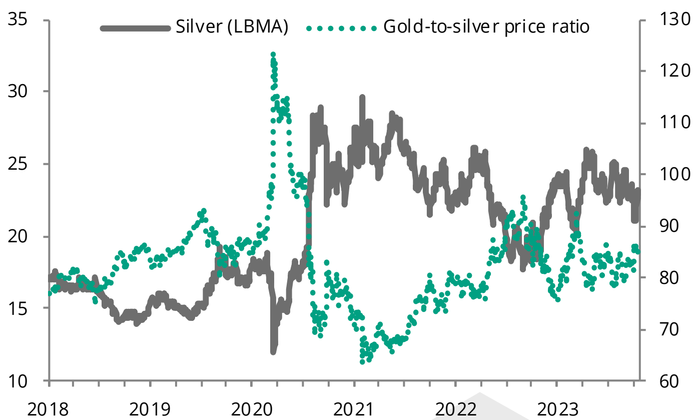
Note: Latest values in brackets. Source: Bloomberg, KGHM

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



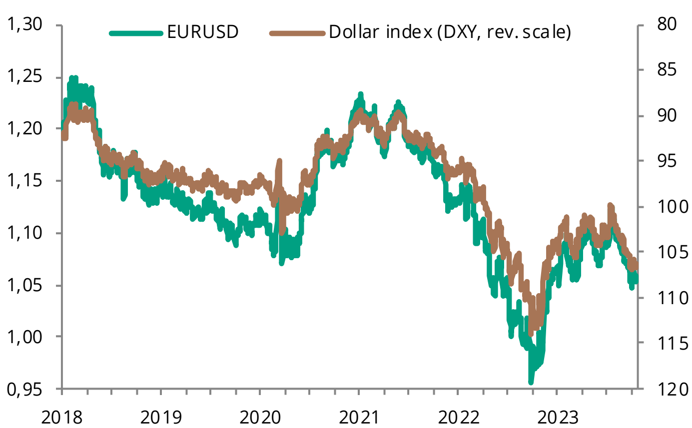
Source: Bloomberg, KGHM Polska Miedź

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



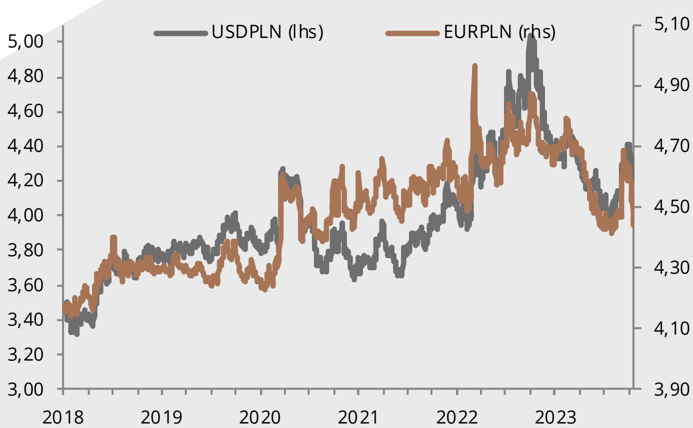
Source: Bloomberg, KGHM Polska Miedź

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: **9 – 22 October 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

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