

Market Overview

 as of: 31st Dec 2018





- Copper:** At the beginning of 2018, the price of copper fluctuated around the level of 7,200 USD/mt, after which by the end of the first quarter it decreased to approximately 6,600 USD/mt. The second quarter brought more optimism to the metals market, which allowed to reach the level of 7,262.50 USD/t, ie the highest price since January 2014. At the end of the second quarter, however, there was a dynamic sell-off of the red metal, as a result of which the price dropped within a few weeks below the level 6,000 USD/mt, losing more than 20% of its value (*page 2*).
- Precious metals:** Money managers and investors are ramping up gold purchases in wake of recent sell-offs in stocks across advanced economies, as heightened political risks and trade tensions have boosted the demand for safe-haven assets. Meanwhile, the dollar fell against the safe-haven yen and Swiss franc recently, as investors cut their exposure to riskier assets amid the partial U.S. government shutdown and signs of confrontation between the White House and the Federal Reserve (*page 5*).
- USA:** Despite president Donald Trump's assaults on Twitter, The Federal Reserve raised borrowing costs for the fourth time this year. The officials' decision was argued with relatively high economic activity in United States (*page 6*).

Key market prices

	Close price	2w chng.
LME (USD/t)		
▼ Copper	6 018.00	-1.3%
▼ Nickel	10 670.00	-2.4%
LBMA (USD/troz)		
▲ Silver	15.30	4.8%
▲ Gold (PM)	1 279.00	3.0%
FX		
▲ EURUSD	1.1454	1.0%
▲ EURPLN	4.2969	0.1%
▼ USDPLN	3.7550	-0.8%
▲ USDCAD	1.3638	1.8%
▲ USDCPL	695.69	1.3%
Stocks		
▼ KGHM	88.88	-1.0%

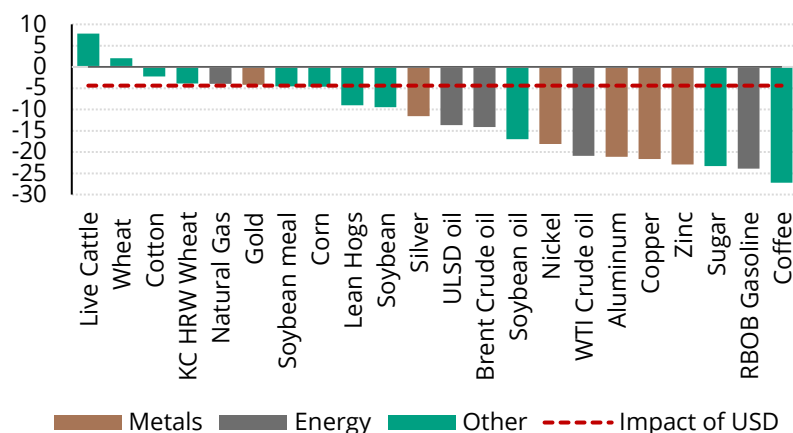
 Source: Bloomberg, KGHM Polska Miedź; (*more on page 10*)

Important macroeconomic data

Release	For		
 Fed upper rate	Dec	2.50%	▲
 Industrial prod. (yoy)	Nov	4.7%	▼
 GDP (yoy)	3Q	1.4%	-
 GDP (yoy)	3Q	1.5%	-
 GDP (yoy)	Oct	2.2%	▲

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

The year 2018 brought declines in the vast majority of commodity markets



Source: KGHM Polska Miedź, Bloomberg

Market Risk Unit

marketrisk@kgm.com

Base and precious metals | Other commodities

Copper

At the beginning of 2018, the price of copper fluctuated around the level of 7,200 USD/mt, after which by the end of the first quarter it decreased to approximately 6,600 USD/mt. The second quarter brought more optimism to the metals market, which allowed to reach the level of 7,262.50 USD/t, ie the highest price since January 2014. At the end of the second quarter, however, there was a dynamic sell-off of the red metal, as a result of which the price dropped within a few weeks below the level 6,000 USD/mt, losing more than 20% of its value.

The average copper price in 2018 was 6,523 USD/mt and was 5.8% higher than in 2017

Summary of 2018 on the copper market

From the macroeconomic perspective, the main reason for the copper price decrease was a significant tightening of protectionist rhetoric and, consequently, systematic introduction of further announcements and election promises of President Donald Trump to the international trade order. Financial markets reacted very nervously, and each subsequent iteration increased risk aversion, especially on the commodity market, which, being one of the leading barometers of volatility in financial markets, is strongly exposed to the risk-on and risk-off phases. Premises on the international trade side do not have such a direct impact on the copper market, nevertheless, exports and imports influence the calculation of GDP, especially in open economies such as China or the European Union. It seems, therefore, that it was mainly concerns about the slowdown and/or reduction in trade that affected the depreciation on the financial markets, including the copper market.

The macroeconomic factors had the greatest impact on copper prices

Another factor negatively affecting the valuation of some assets was the appreciation of the US dollar, whose exchange rate is negatively correlated with commodity prices. The American Federal Reserve consistently followed interest rate hikes in relation to the plan set at the end of 2017. In total, the monetary tightening scale was 100 basis points, and the 3-month LIBOR USD at the end of the year was at the level above 2.80% (against 1.69% a year earlier). In addition to the "classic" tightening of monetary policy, the Fed began selling assets (quantitative tightening) which have been accumulated since 2008, both on the side of government bonds (US Treasuries) and MBS (mortgage-backed securities) bonds, additionally affecting the tightening of monetary conditions.

On the market side, one of the most important events was the closure of a significant speculative position (over USD 3 billion) by a Chinese investor around the middle of the year. This was probably one of the most important factors that affected the scale of the market's decline during the holiday season.

In fundamental terms, it should be noted that the dynamics of demand was one of the highest for several years, especially in China. However, focusing on the supply side, market participants faced a reversal of the historical, infamous

tendency of production disruptions on the side of the mines. This year, the burden of negative events took place in smelters. At the beginning of the year, quite a lot of attention was paid to potential disturbances, which after 2017 and a loud strike at the Escondida mine seemed to be a certain point in last year's agenda. However, apart from technical problems, no more "spectacular" downtimes were recorded. Environmental controls in China and the closure of smelters in India significantly reduced the production potential of refined copper and negatively impacted the mining industry for the concentrate market. The consequence was a significant drop in the TC/RC processing premiums (ie a discount compared to the LME stock exchange price). In China, environmental transformation was carried out, which in turn resulted in a significant reduction in imports of Category 7 scrap (of lower quality, low copper) and subsequent remodeling of the physical market (higher absorption of better quality scrap from Europe, while in Europe there was a greater absorption of US scrap as a consequence of the imposition of duties by China on material from the USA). By the end of September, there was also an increase in physical premiums to cathodes, which was an image of a stronger physical market related to the adaptation of the Chilean smelters to new environmental requirements in early 2019 and the physical premium squeeze was caused by concerns about the uncertain availability of material. With regard to the supply of copper, it is also worth paying attention to the trend on the side of stocks, which from April systematically decreased, falling from over 900,000 mt to just over 350,000 mt at the end of December, taking official stock exchange magazines as a source of analysis.

The last quarter of 2018 provided some hope in the market. The G20 meeting in Argentina brought a preliminary agreement between the US and China regarding the trade and as a consequence no further escalation of D. Trump's customs policy is expected until the end of February 2019. On the other hand, however, fears have been caused by the weakening global economic activity and macroeconomic data, which indicate a slight slowdown in the global economy. The events in the first quarter of 2019 and the speed of reaction in economic policy in key countries in terms of copper consumption will have a significant impact on the price of red metal in 2019.

Other important information on copper market:

- Shares of billionaire Anil Agarwal's Vedanta Ltd. surged in Mumbai after the country's National Green Tribunal said the company could restart its copper smelter that accounts for nearly half of India's output. Vedanta's shares rose as much as 6.3 percent in Mumbai on Monday, paring losses to 37 percent this year, after the tribunal on Saturday quashed the Tamil Nadu state government's order to shut the 400,000 tons a year smelter. The tribunal ordered the state pollution board to approve the plant's restart within three weeks. The tribunal has also directed Vedanta to spend 1 billion rupees (\$14 million) on community welfare over three years and implement pollution control and monitoring mechanisms. The ruling was in line with the

recommendations of a panel set up to give its opinion on the smelter. The panel said last month that the closure of the copper plant by the state government wasn't justified and was "against the principles of natural justice.

- Collahuasi, one of the world's largest copper producers, has unveiled plans to invest \$3.2 billion to boost production at its open pit operation in northern Chile. According to an environment impact study presented to regional authorities, the project would expand throughput at the mine's concentrator plant to 210,000 mt/d from around 160,000 mt/d through the installation of a fifth ball mill, additional crushing capacity and floatation cells. The company also would relaunch the mine's SX-EW facility, closed in 2015, making use of bioleaching technology and expanding capacity to 60,000 mt/year of cathode. Collahuasi also would build a desalination plant to reduce pressure on local water supplies. At full capacity, the overhauled mine would be able to produce more than 700,000 mt/year of copper in concentrate and cathode. Collahuasi CEO Jorge Gomez said that the project had undergone several revisions in recent years and had been consulted with local communities. Chilean authorities welcomed the announcement of the project, which has been almost a decade in the making. After a three-year downturn in mining investment, the industry is on the up in Chile. Last month, Teck confirmed a \$4.7 billion investment to turn its Quebrada Blanca operation into one of the world's largest copper mines, while the Antofagasta Minerals' board has approved a \$1.2 billion investment at its flagship Los Pelambres mine, designed to bolster treatment capacity over the next decade.
- China's top copper smelters set their floor treatment charges (TCs) for the first quarter of 2019 at \$92/mt, SMM learned on Thursday December 27. The floor charges, the minimum miners pay smelters to process their copper concentrate into refined metal, were agreed at a meeting of the China Smelters Purchase Team (CSPT) on December 27. The floor TCs rose \$2/mt from the previous quarter, given weak purchasing enthusiasm among smelters. Smelters showed relatively strong interest in resources that are expected to arrive in China in March, while traders held their offers firm.
- China's Zhejiang Huayou Cobalt Co will invest \$147.2 million to build a copper project in Democratic Republic of Congo (DRC), as it extends the exploration of its mining assets in the country, the company said in a filing to the Shanghai stock exchange on Tuesday. The project will be located in the Lukuni region in the south of DRC, and will have annual electro-deposited copper production capacity of 30,000 tonnes. Electro-deposited copper is a raw material widely used in the electrical equipment and machine manufacturing sectors. Huayou has built two cobalt refineries in the Luiswishi region of DRC after buying copper-cobalt mineral rights from La Generale des Carrieres et des Mines in 2015. The new copper project is expected to launch by September 2019, the company said in the filing, but it also warned it still needs approvals from Chinese authorities. The investment will be made through its subsidiary Congo DongFang International Mining (CDM), which mainly sources copper and cobalt from DRC.

- Freeport-McMoRan Inc. and Indonesia completed a deal that allows the Southeast Asian nation to gain majority ownership of the giant Grasberg copper and gold mine, bringing to an end almost two years of negotiations. PT Indonesia Asahan Aluminium, the state-owned company, will now own 51.2 percent of Freeport's local unit that operates the Grasberg mine after all the formalities related to the stake transfer were completed, President Joko Widodo, known as Jokowi, told reporters in Jakarta. Wrestling control of the mine that has been operated by the U.S. miner for almost five decades is seen as a major boost for Jokowi's re-election prospects as it reinforces his image as a champion of resource nationalism. The deal also removes uncertainty about the future of the world's second-largest copper mine and clears the way for further investment and development of the asset.

Precious Metals

Money managers and investors are ramping up gold purchases in wake of recent sell-offs in stocks across advanced economies, as heightened political risks and trade tensions have boosted the demand for safe-haven assets. Meanwhile, the dollar fell against the safe-haven yen and Swiss franc recently, as investors cut their exposure to riskier assets amid the partial U.S. government shutdown and signs of confrontation between the White House and the Federal Reserve.

Norilsk Nickel Mining plans expanded mining for palladium

Norilsk Nickel Mining's recent announcement that it plans to expand palladium production over the next five years is expected to impact the price of the precious metal. Palladium, a byproduct of platinum mining, has outperformed silver, gold and platinum for all of 2018, trading at a significant premium to gold and platinum. The price of palladium has climbed more than 50 percent over the past four months. Norilsk Nickel, in Russia, is the world's largest producer of palladium and nickel.

Palladium, like platinum, is primarily used as an auto catalyst in emissions control. The precious metals consultancy Metals Focus reports that demand for palladium for auto catalyst use will reach a record high of 8.5 million ounces in 2018. Palladium is mostly mined along with platinum in South Africa and Russia. Norilsk announced it will be infusing more than \$12 billion into the expansion of palladium exploration and production over the next five years.

The only producer of palladium in the United States is Sibanye-Stillwater, a South African-owned mining operation in Montana. Sibanye acquired the previously American-owned Stillwater mining operations in 2017. Sibanye-Stillwater is projected to yield 468,000 ounces of palladium from the Montana sites.

Global economies | Foreign exchange markets

Fed raises rates, turns more cautious for 2019 hikes

Despite president Donald Trump's assaults on Twitter, The Federal Reserve raised borrowing costs for the fourth time this year. The officials' decision was argued with relatively high economic activity in United States.

The Federal Reserve raised borrowing costs for the fourth time this year, looking through a stock-market selloff and defying pressure to hold off from President Donald Trump, while dialing back projections for interest rates and economic growth in 2019. By trimming the number of rate hikes they foresee in 2019, to two from three, policy makers signaled they may soon pause their monetary tightening campaign. Officials had a median projection of one move in 2020. Following the decision, stocks erased gains, 10-year Treasury yields fell and the dollar bounced off its lows of the day. Investors may have been swayed by the Fed's generally upbeat analysis and expectation of more rate increases than markets anticipate. Chairman Jerome Powell, speaking at a press conference after the decision on Wednesday, stressed that policy was not on a preset course.

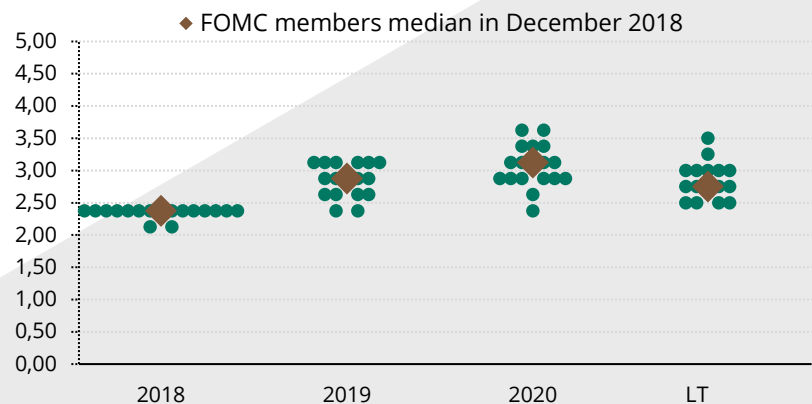
"There's significant uncertainty about the -- both the path and the ultimate destination of any further rate increases," Powell told reporters. "Inflation has still remained just a touch below two percent. So I do think that gives the committee the ability to be patient in moving forward." Powell and his colleagues said "economic activity has been rising at a strong rate," according to a statement following the two-day meeting in Washington. While officials said risks to their outlook "are roughly balanced," they flagged threats from a softening world economy. The Federal Open Market Committee "will continue to monitor global economic and financial developments and assess their implications for the economic outlook," the statement said. The 10-0 decision lifted the federal funds rate target to a range of 2.25 percent to 2.5 percent.

The quarter-point hike came after Trump assailed the Fed on Twitter for two straight days, urging it to hold rates steady in the most public assault on its political independence in decades. Investors are also fretting over the economy, with the S&P 500 Index falling significantly in recent weeks. Answering questions during the press conference, Powell said political considerations play no role in Fed policy making. "We're going to do our jobs the way we've always done them," he said when asked about White House pressure. The Fed will do its analysis and "nothing will cause us to deviate from that," he added. Officials also altered key language in their statement, saying the FOMC "judges that some further gradual increases" in rates will likely be needed, a shift from previous language saying the FOMC "expects that further gradual increases" would be required. In addition, the median estimate among policy makers for the so-called neutral rate in the long run fell to 2.75 percent, from 3 percent in the previous forecasts from September. The median projection is for the benchmark rate to end 2021 at 3.1 percent, down from a prior estimate of 3.4 percent.

Those are more acknowledgments that rates are moving closer to the point where policy makers will at least take a break from the quarterly procession of hikes they pursued throughout 2018. When taken together, the latest quarter-point move, language changes and shift in rate projections indicate continued confidence in the economy, yet also greater caution over how far and fast the Fed expects to move with future hikes. As Powell has said, the Fed is now feeling its way forward and will act in line with how the economy performs. Investors have had a more pessimistic view than the Fed, foreseeing one increase at most in 2019, according to interest-rate futures prices. In a related move, the Fed lifted the interest rate it pays on bank reserves deposited at the central bank by just 20 basis points, instead of the usual 25 basis points that would match the quarter-point increase for the fed funds target range. As with a similar move in June, the action was aimed at containing the effective fed funds rate inside the target range.

Unemployment in November remained at 3.7 percent, its lowest since 1969. That has helped lift wages but hasn't provoked any serious signs of excessive inflation. Still, many forecasters expect growth to slow in 2019 and into 2020, and the Fed's median estimate for gross domestic product expansion in 2019 fell to 2.3 percent from 2.5 percent. Previous hikes and a stronger dollar will gradually bite into the economy just as fiscal stimulus fades and foreign economies from China to Europe also cool. Meanwhile, the ongoing trade dispute with China and a potentially chaotic exit for the U.K. from the European Union represent significant additional risks. Financial markets have been turbulent for weeks, with the S&P 500 Index of U.S. stocks dropping 13 percent from the end of September through Tuesday. Yields on 10-year U.S. Treasuries have also been volatile, dropping to 2.76 percent this week after hitting a seven-year high of 3.26 percent in October.









Fed raises rates, but turns more cautious for 2019






Źródło: KGHM Polska Miedź, Bloomberg

Macroeconomic calendar

Important macroeconomic data releases

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
China 						
🔴🔴	27-Dec	Industrial profits (yoy)	Nov	-1.8% ▼	3.6%	--
Poland 						
🔴🔴🔴🔴	17-Dec	Core CPI (excluding food and energy, yoy)	Nov	0.7% ▼	0.9%	0.7% ○
🔴🔴	18-Dec	Average gross salary (yoy)	Nov	7.7% ▲	7.6%	7.2% ▲
🔴	18-Dec	Employment (yoy)	Nov	3.0% ▼	3.2%	3.0% ○
🔴🔴🔴🔴	19-Dec	Sold industrial production (yoy)	Nov	4.7% ▼	7.4%	4.2% ▲
🔴🔴	19-Dec	Producer inflation PPI (yoy)	Nov	2.7% ▼	3.2%	3.1% 🟡
🔴🔴🔴	21-Dec	Retail sales (yoy)	Nov	8.2% ▼	9.7%	7.9% ▲
🔴🔴	21-Dec	Unemployment rate	Nov	5.7% -	5.7%	5.8% 🟡
🔴	24-Dec	M3 money supply (yoy)	Nov	8.8% ▲	8.3%	8.5% ▲
US 						
🔴🔴🔴🔴🔴	19-Dec	FOMC base rate decision - upper bound (Fed)	Dec	2.50% ▲	2.25%	2.50% ○
🔴🔴🔴🔴🔴	19-Dec	FOMC base rate decision - lower bound (Fed)	Dec	2.25% ▲	2.00%	2.25% ○
🔴🔴	20-Dec	Philadelphia Fed business outlook	Dec	9.4 ▼	12.9	15.0 🟡
🔴🔴🔴🔴🔴	21-Dec	GDP (annualized, qoq) -	3Q	3.4% ▼	3.5%	3.5% 🟡
🔴🔴🔴🔴	21-Dec	Consumer spending inflation PCE (mom)	Nov	0.1% -	0.1%	0.2% 🟡
🔴🔴🔴🔴	21-Dec	Consumer spending inflation PCE (yoy)	Nov	1.9% ▲	1.8%	1.9% ○
🔴🔴	21-Dec	Durable goods orders - preliminary data	Nov	0.8% ▲	-4.3%	1.6% 🟡
🔴🔴	21-Dec	Personal income (sa, mom)	Nov	0.2% ▼	0.5%	0.3% 🟡
🔴🔴	21-Dec	Personal spending (sa, mom)‡	Nov	0.4% ▼	0.8%	0.3% ▲
🔴🔴	21-Dec	University of Michigan confidence index - final data	Dec	98.3 ▲	97.5	97.4 ▲
🔴	26-Dec	Richmond Fed manufacturing index	Dec	-8.0 ▼	14.0	15.0 🟡
🔴	26-Dec	S&P/CaseShiller home price index‡	Oct	214 ▼	214	--
Eurozone 						
🔴🔴🔴🔴	17-Dec	Consumer inflation CPI (yoy) - final data	Nov	1.9% ▼	2.0%	2.0% 🟡
🔴🔴🔴🔴	17-Dec	Core CPI (yoy) - final data	Nov	1.0% -	1.0%	1.0% ○
🔴	17-Dec	Trade balance (EUR mn)	Oct	14.0 ▲	13.1	--
🔴	21-Dec	Consumer confidence - estimation	Dec	-6.2 ▼	-3.9	-4.3 🟡
Germany 						
🔴🔴	18-Dec	IFO business climate	Dec	101 ▼	102	102 🟡
🔴🔴	21-Dec	GfK consumer confidence	Jan	10.4 -	10.4	10.3 ▲
🔴🔴🔴🔴	28-Dec	Harmonized consumer inflation HICP (yoy) - preliminary data	Dec	1.7% ▼	2.2%	1.9% 🟡
🔴🔴🔴🔴	28-Dec	Consumer inflation CPI (yoy) - preliminary data	Dec	1.7% ▼	2.3%	1.9% 🟡
France 						
🔴🔴🔴🔴🔴	21-Dec	GDP (yoy) - final data	3Q	1.4% -	1.4%	1.4% ○
🔴🔴🔴🔴🔴	21-Dec	GDP (qoq) - final data	3Q	0.3% ▼	0.4%	0.4% 🟡
Italy 						
<i>No major data in the period</i>						
UK 						
🔴🔴🔴🔴	19-Dec	Consumer inflation CPI (yoy)	Nov	2.3% ▼	2.4%	2.3% ○
🔴🔴🔴🔴🔴	20-Dec	BoE base rate decision	Dec	0.75% -	0.75%	0.75% ○
🔴🔴🔴🔴	20-Dec	BoE asset purchase target (GBP bn)	Dec	435 -	435	435 ○
🔴🔴🔴🔴🔴	21-Dec	GDP (yoy) - final data	3Q	1.5% -	1.5%	1.5% ○
🔴🔴🔴🔴🔴	21-Dec	GDP (qoq) - final data	3Q	0.6% -	0.6%	0.6% ○

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
Japan 						
⦿⦿⦿⦿	21-Dec	Consumer inflation CPI (yoy)	Nov	0.8% ▼	1.4%	0.8% ⦿
⦿⦿⦿⦿	28-Dec	Industrial production (yoy) - preliminary data	Nov	1.4% ▼	4.2%	0.6% ▲
Chile 						
<i>No major data in the period</i>						
Canada 						
⦿⦿⦿⦿	19-Dec	Consumer inflation CPI (yoy)	Nov	1.7% ▼	2.4%	1.8% ◡
⦿⦿⦿⦿⦿	21-Dec	GDP (yoy)‡	Oct	2.2% ▲	2.0%	2.2% ⦿

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

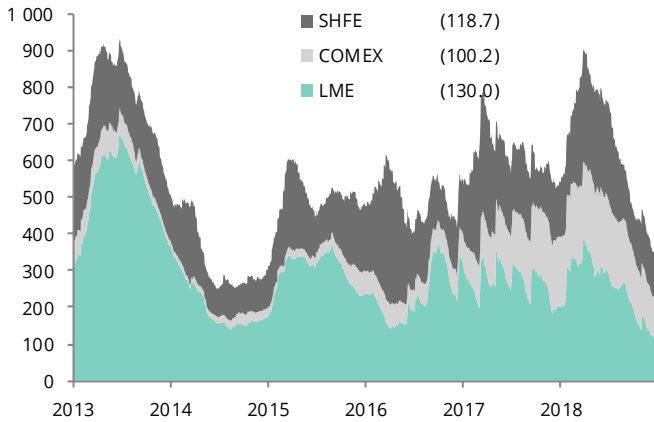
Key base & precious metal prices, exchange rates and other important market factors

<i>(as of: 28-Dec-18)</i>		Price change ¹				From year beginning ²		
	Price	2W	QTD	YTD	1Y	Average	Min	Max
LME (USD/t)								
Copper	6 018.00	▼ -1.3%	▼ -2.6%	▼ -15.9%	▼ -16.6%	6 525.25	5 823.00	7 262.50
Molybdenum	26 000.00	- 0.0%	- 0.0%	▲ 62.5%	▲ 62.5%	23 938.49	16 000.00	26 000.00
Nickel	10 670.00	▼ -2.4%	▼ -14.5%	▼ -13.0%	▼ -11.8%	13 132.30	10 650.00	15 750.00
Aluminum	1 881.00	▼ -2.9%	▼ -6.5%	▼ -16.1%	▼ -16.3%	2 111.04	1 881.00	2 602.50
Tin	19 425.00	▼ -0.4%	▲ 2.5%	▼ -2.3%	▼ -1.8%	20 155.81	18 425.00	22 105.00
Zinc	2 542.50	▼ -1.5%	▼ -1.2%	▼ -23.2%	▼ -22.7%	2 923.59	2 287.00	3 618.00
Lead	2 033.00	▲ 6.3%	▲ 1.5%	▼ -18.5%	▼ -19.1%	2 243.36	1 867.00	2 683.00
LBMA (USD/troz)								
Silver	15.30	▲ 4.8%	▲ 6.9%	▼ -9.3%	▼ -8.6%	15.71	13.97	17.52
Gold ²	1 279.00	▲ 3.0%	▲ 7.7%	▼ -1.3%	▼ -0.9%	1 268.46	1 178.40	1 354.95
LPPM (USD/troz)								
Platinum ²	788.00	▲ 0.8%	▼ -3.3%	▼ -15.0%	▼ -14.8%	879.71	772.00	1 020.00
Palladium ²	1 270.00	▲ 1.0%	▲ 16.1%	▲ 20.3%	▲ 20.2%	1 029.16	849.00	1 271.00
FX ³								
EURUSD	1.1454	▲ 1.0%	▼ -1.1%	▼ -4.5%	▼ -4.0%	1.1811	1.1261	1.2493
EURPLN	4.2969	▲ 0.1%	▲ 0.6%	▲ 3.0%	▲ 2.8%	4.2616	4.1423	4.3978
USDPLN	3.7550	▼ -0.8%	▲ 2.2%	▲ 7.9%	▲ 7.1%	3.6111	3.3173	3.8268
USDCAD	1.3638	▲ 1.8%	▲ 5.4%	▲ 8.7%	▲ 8.3%	1.2955	1.2288	1.3641
USDCNY	6.8785	▼ -0.3%	▲ 0.1%	▲ 5.7%	▲ 5.3%	6.6211	6.2690	6.9757
USDCLP	695.69	▲ 1.3%	▲ 5.2%	▲ 13.1%	▲ 12.8%	641.65	588.28	698.56
Money market								
3m LIBOR USD	2.797	▼ -0.01	▲ 0.40	▲ 1.10	▲ 1.10	2.305	1.696	2.824
3m EURIBOR	-0.310	▲ 0.00	▲ 0.01	▲ 0.02	▲ 0.02	-0.322	-0.329	-0.309
3m WIBOR	1.720	- 0.00	- 0.00	- 0.00	- 0.00	1.710	1.700	1.720
5y USD interest rate swap	2.607	▼ -0.19	▼ -0.46	▲ 0.36	▲ 0.34	2.870	2.283	3.214
5y EUR interest rate swap	0.198	▼ -0.06	▼ -0.19	▼ -0.12	▼ -0.12	0.353	0.198	0.509
5y PLN interest rate swap	2.128	▼ -0.10	▼ -0.39	▼ -0.37	▼ -0.37	2.458	2.128	2.740
Fuel								
WTI Cushing	45.33	▼ -9.1%	▼ -38.1%	▼ -25.0%	▼ -24.2%	65.03	42.33	76.41
Brent	51.89	▼ -10.3%	▼ -37.4%	▼ -22.3%	▼ -21.8%	71.24	49.73	86.09
Diesel NY (ULSD)	166.60	▼ -8.9%	▼ -29.1%	▼ -19.3%	▼ -18.7%	209.72	166.60	243.40
Others								
VIX	28.34	▲ 3.82	▲ 16.22	▲ 17.30	▲ 18.16	16.60	9.15	37.32
BBG Commodity Index	77.59	▼ -3.3%	▼ -8.9%	▼ -12.0%	▼ -11.5%	86.20	77.21	91.57
S&P500	2 485.74	▼ -2.4%	▼ -14.7%	▼ -7.0%	▼ -7.5%	2 747.17	2 351.10	2 930.75
DAX	10 558.96	▼ -2.0%	▼ -13.8%	▼ -18.3%	▼ -18.7%	12 269.59	10 381.51	13 559.60
Shanghai Composite	2 493.90	▼ -4.0%	▼ -11.6%	▼ -24.6%	▼ -24.3%	2 943.15	2 483.09	3 559.47
WIG 20	2 276.63	▼ -0.2%	▼ -0.4%	▼ -7.5%	▼ -8.2%	2 290.39	2 082.77	2 630.37
KGHM	88.88	▼ -1.0%	▼ -0.2%	▼ -20.1%	▼ -21.2%	94.03	82.56	115.00

^o 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

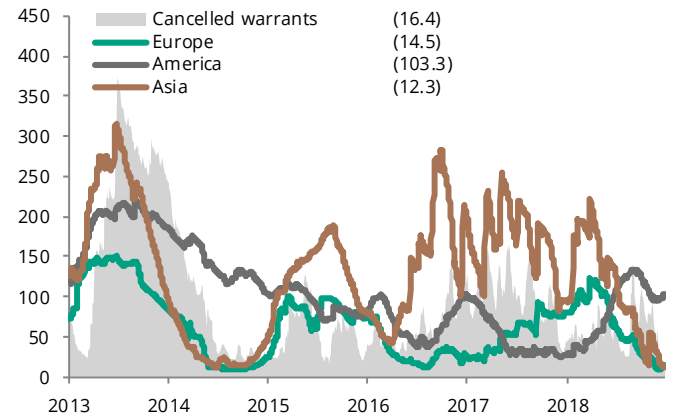
Source: Bloomberg, KGHM Polska Miedź

Copper: official exchange stocks (thousand tonnes)



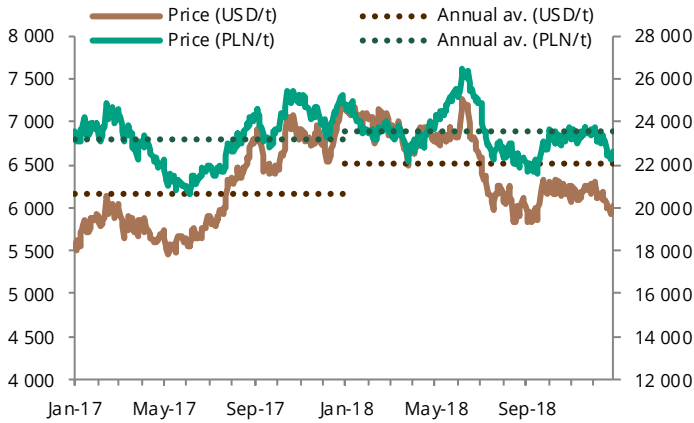
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: official LME stocks (thousand tonnes)



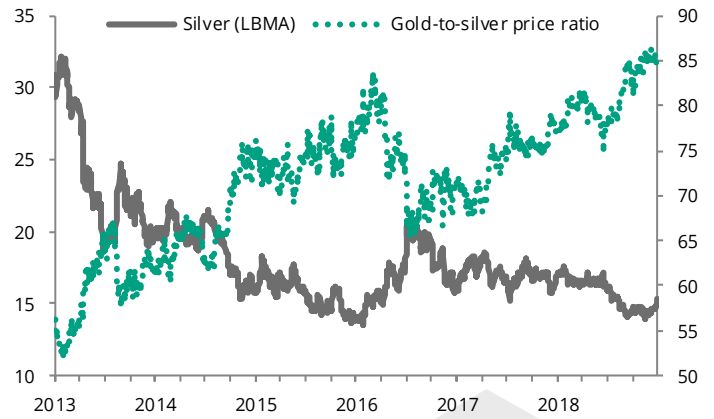
Note: Latest values in brackets. Source: Bloomberg, KGHM

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



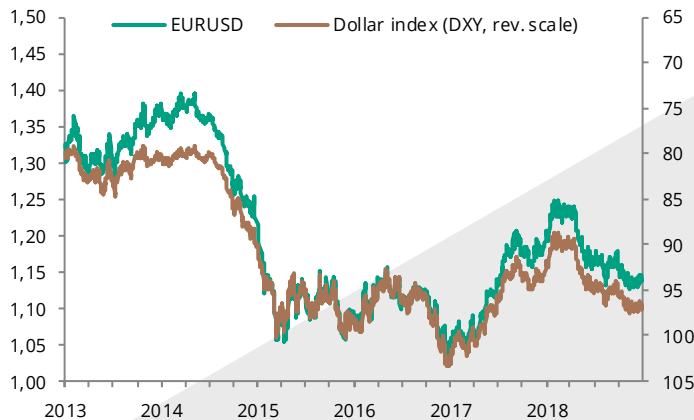
Source: Bloomberg, KGHM Polska Miedź

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



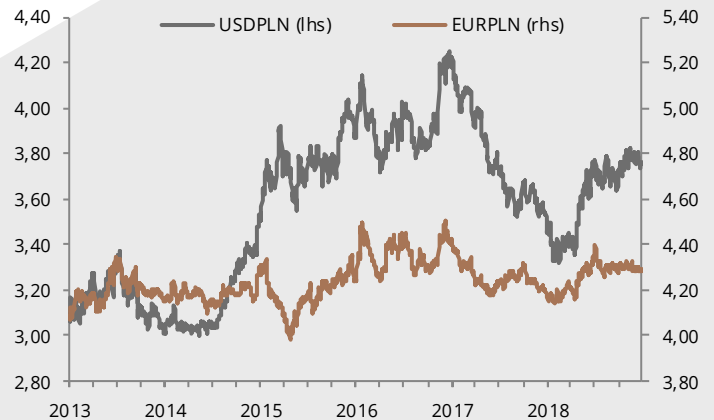
Source: Bloomberg, KGHM Polska Miedź

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:
17th – 30th December 2018.

- 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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In case of questions or comments please contact us:

KGHM Polska Miedz (Polish Copper) S.A.
Departament Rzyzka Finansowego i Rynkowego (Financial and Market Department)
Wydział Rzyzka Rynkowego (Market Risk Unit)
ul. M. Skłodowskiej-Curie 48
59-301 Lubin, Poland