

Market Overview

- **Copper:** Chinese imports of copper scrap and aluminium scrap in the second half of this year are forecast to fall further due to the government's import license system for metal scrap (*page 2*).
- **Precious metals:** The supply of recycled gold reached 287.6 tons in the first quarter of 2019, up 5% from a year earlier, largely due to recent strength in the local gold price across many markets, the World Gold Council (WGC) said in its latest report (*page 4*).
- **Trade war:** President Trump has increased the US tariffs on Chinese goods worth 200 billion USD. China has announced the retaliation measures by increasing tariffs on 60 billion USD American import. Another development in the trade dispute was blacklisting Huawei, the Chinese telecom giant (*page 5*).

as of: 20th May 2019

Key market prices

	Close price	2w chng.
LME (USD/t)		
▼ Copper	6 025.00	-2.5%
▼ Nickel	12 025.00	-1.2%
LBMA (USD/troz)		
▼ Silver	14.48	-1.2%
▲ Gold (PM)	1 280.80	0.2%
FX		
▼ EURUSD	1.1172	-0.2%
▲ EURPLN	4.3072	0.5%
▲ USDPLN	3.8545	0.6%
▲ USDCAD	1.3468	0.1%
▲ USDCLP	692.79	2.1%
Stocks		
▼ KGHM	94.88	-2.9%

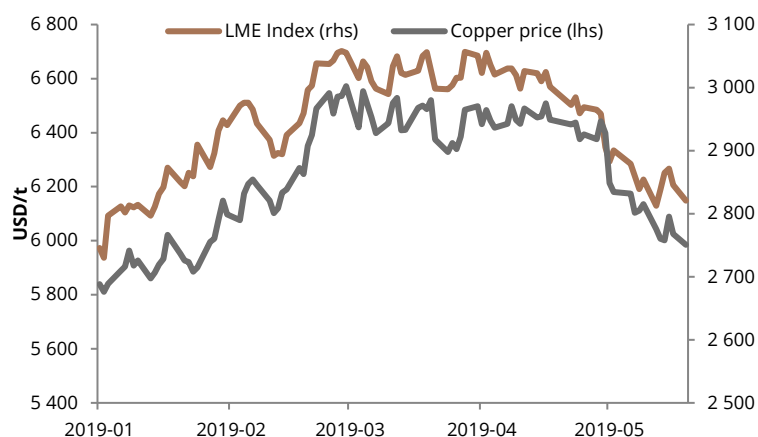
Source: Bloomberg, KGHM Polska Miedź; (*more on page 8*)

Important macroeconomic data

Release	For		
 GDP (yoy)	1Q	4.6%	▼
 GDP (sa, yoy)	1Q	1.2%	-
 CPI (yoy)	Apr	2.0%	▲
 GDP (sa, yoy)	1Q	0.6%	▼
 Econom. activity (yoy)	Mar	1.9%	▲

Source: Bloomberg, KGHM Polska Miedź; (*more on page 6*)

US-China trade war is reflected in the price of copper, as well as most other base metals



Source: Bloomberg, KGHM Polska Miedź

Market Risk Unit

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Base and precious metals | Other commodities

Copper

Chinese imports of copper scrap and aluminium scrap in the second half of this year are forecast to fall further due to the government's import license system for metal scrap.

China H2 Copper Scrap Imports Seen Falling Further

Chinese imports of copper scrap and aluminium scrap in the second half of this year are forecast to fall further due to the government's import license system for metal scrap, Chinese copper producer Tongling Nonferrous Metals said in its recent copper report. Starting July 1, category 6 copper scrap will be changed from non-restricted solid waste imports to restricted imports, therefore requiring import licenses. The producer forecast that by 2020, China will formally halt imports of solid waste, with copper scrap imports forecast to be banned from being imported by then. Because of this, it forecast China's H1 2019 category 6 tangible copper scrap imports will fall, but noted that owing to rising metal contained in scrap, and market players' striving to import before July, the volume of metal contained in scrap could rise. According to state-run metals agency Beijing Antaika, global copper scrap supply in 2019 is tightening. With the complete ban of category 7 copper scrap imports since the start of 2019, and the coming restriction of category 6 copper scrap imports, coupled with tight domestic environment controls, scrap supply in China is likely to fall again this year, it said. Category 6 copper scrap refers to copper content of over 60%, which can be directly used for processing, while category 7 copper scrap includes waste wire, cable and waste motor grades with copper content of 7% and 55%, which can only be used after dismantling and sorting, according to Chinese sources. Copper scrap importers that have been issued import licenses are located in the provinces of Zhejiang, Guangdong, Guangxi, Jiangxi, Hebei, Shandong and Tianjin City, data from the China Nonferrous Metals Industry Association Recycling Metals Branch (CMRA) showed. CMRA said it would be hard for the mainland's own copper scrap supply to offset the shortage caused by reduced scrap imports, and forecast that the squeeze in scrap supply would have new effects on the domestic recycled copper sector, spurring recyclers to upgrade production facilities by installing more modern recycling and dismantling systems in the years to come. China imported 100,000 mt of copper scrap in March, down 54.4% year on year, General Administration of Customs data showed.

Other important information on copper market:

- Aurubis, Europe's largest copper producer, sees a "slightly weaker" trend for rod in the next few months due to lower demand from cable producers, according to its earnings report. Significantly" weaker demand seen from the

flat rolled products sector, mainly due to poor European automotive market. "Robust" sales seen for copper shapes, supported by higher demand from the industrial tube sector. The German refiner expects good copper scrap and concentrate supply, and "satisfactory" treatment and refining charges until the end of the fiscal year. Aurubis set above-benchmark copper premium at \$96/ton for the calendar year vs \$86/ton in 2018 "For the most part, we expect to be able to implement this premium for our products". Aurubis plans scheduled maintenance shutdowns at Pirdop site in Bulgaria (22 days in May-June), Lunen site (25 days in September) and Hamburg (October). Impact on operating EBT from Pirdop shutdown estimated at ~15m euros, and ~3m euros from Lunen.

- A trade war between the United States and China is depressing the price of copper and the red metal would be 5% to 15% higher without the dispute, the chairman for Chile's Antofagasta Plc told lately a Chilean newspaper. "Without the commercial war, I am convinced that the price of copper would be between \$3.20 and \$3.50 per pound," Jean-Paul Luksic said in an interview with El Mercurio. Despite a late rebound on hopes of an agreement between Washington and Beijing, the value of copper registered its fourth consecutive weekly decline. Luksic said that the market has good prospects, but the red metal is hurting more than it should be. The bruising trade war, which has slowed the global economy, is clouding the outlook for demand from top metals consumer. "As long as this uncertainty persists, the low prices will continue," said Luksic, who will also lead the Asia-Pacific Economic Cooperation Summit in Santiago this year.
- Barrick Gold Corp, the world's second largest bullion miner, is preparing its Zambian copper mine Lumwana for sale in the second half of 2019, looking to target Chinese buyers, according to Reuters. Fresh from two major deals in recent months, Barrick has said it plans to shed \$1.5 billion of less productive mines, which have little expansion potential. It included Lumwana among the possible sales, as a relatively low-grade copper mine whose margins could be materially affected by Zambia's new mining code and import duty. Analysts value the mine at up to \$500 million. Barrick is holding discussions with investment banks about appointing advisers to the sale. Reuters said that a bank with links to Chinese companies was likely to get the advising role for Lumwana. Barrick didn't immediately respond to a request for comment. The group is looking to enter talks with Chinese state-owned companies including Aluminum Corp of China, known as Chinalco, and China Minmetals Corporation, which have been seeking growth abroad and a foothold in Africa, lured by its vast resources. The sale process, however, may not be easy, the sources said, as the potential acquirer will have to be comfortable with the risk associated with tax changes in Zambia.

Precious Metals

The supply of recycled gold reached 287.6 tons in the first quarter of 2019, up 5% from a year earlier, largely due to recent strength in the local gold price across many markets, the World Gold Council (WGC) said in its latest report.

Gold recycling in Q1 2019 rose by 5% yoy

The supply of recycled gold reached 287.6 tons in the first quarter of 2019, up 5% from a year earlier, largely due to recent strength in the local gold price across many markets, the World Gold Council (WGC) said in its latest report. The largest growth in recycling was seen in the UK. Brexit wrangling continued to exert pressure on the pound in Q1, helping to push up the local gold price further and tempting some to cash in, the report said. In the Middle East, Iran saw a doubling of recycling levels year-on-year during the first quarter of 2019. A much higher local price in Iran was the primary driver of this increase, as consumers continue to face deteriorating economic prospects. In India, both gold-for-cash and gold-for-gold recycling levels were boosted by the rise in gold price to a peak of over Rs33,700/10g by mid-February. Recycling of old inventory by local retailers also rose slightly, as concerns over a price correction mounted. Similarly, China saw a greater level of recycling among retailers as they switched to higher-margin products.

China SGE gold withdrawals sharply down

The April figures for Shanghai Gold Exchange (SGE) gold withdrawals show a sharp fall year on year which could indicate a significant downturn in the Chinese gold consumption. The latest total gives withdrawal figures ample time to recover through the remainder of the year. But even so the figures may show that the Trump imposed tariffs are beginning to bite as far as gold imports and consumption are concerned. But as far as global gold demand is concerned it appears that demand is picking up nicely in India and is strong in Europe (particularly in Germany and Austria) and this should counterbalance any Chinese shortfall this year. However if the world is heading for a trade war-stimulated recession it could have a mixed impact on global gold demand. On the one hand it could stimulate safe haven buying from those with deep pockets, but also adversely affect purchases from the huge numbers of small gold accumulators. It could also stimulate sales of gold related investment holdings as people use their built-up gold accumulations to alleviate any recession-related income downturns and also revive gold scrap sector. One should also take into account what appear to be increasing central bank gold purchases as a further boost to demand. At the moment the number of countries openly adding to their gold reserves appears to be limited but it does appear that some countries which had held their gold reserves steady for a number of years may now be adding to them on a regular basis.

Global economies | Foreign exchange markets

US Sanctions were backed by potential espionage threat from China through the Huawei equipment.

US-China trade war update

President Trump has increased the US tariffs on Chinese goods worth 200 billion USD. China has announced the retaliation measures by increasing tariffs on 60 billion USD American import. Another development in the trade dispute was blacklisting Huawei, the Chinese telecom giant.






The US-China trade war has entered a new phase after the breakdown of talks. President Trump in a series of tweets has accused China of an attempt to change the previously agreed terms of the trade deal and has increased the US tariffs on Chinese goods worth 200 billion USD. China has announced the retaliation measures by increasing tariffs on 60 billion USD American import (to the level of 25%, 20%, 10% depending on the type of good). Chinese tariffs will start being applied as of 1 June 2019. Yet another development in the trade dispute was blacklisting Huawei, the Chinese telecom giant, a move that bans the company from American components and technology market. Sanctions were backed by potential espionage threat from China through the Huawei equipment. Google has already declared that it would ban Huawei from some services of its mobile operating system Android, which in practice cuts off the Chinese tech company from the mobile devices market. China suggests that its next step in trade conflict could be an embargo on the export of raw earth metals to the USA. China controls a majority of the metals' mining industry, and the metals are essential in production of modern electronics, computers, telecommunication devices and photovoltaics.






















Chinese policymakers will increase stimulus measures in proportion to the impact of higher tariffs from the US in order to keep the economy on a reasonable growth path. China has 3.65 trillion USD at its disposal to counteract. A huge chunk of the sum is invested in the American government bonds, which allows China to impact the price of the American debt on international markets.

Taking into account the depth of Chinese pockets and a deeply rooted into Chinese culture a need not to lose face and dignity it may be expected that the trade war will be long and exhausting both for China and the US, and what follows, for the global economy. As of today the most probable course of action is alleviating the conflict by Mr. Trump before the 2020 presidential elections. A breakthrough can come during the Trump-Xi meeting at the G-20 summit in Osaka 28-29 June 2019.

Macroeconomic calendar

Important macroeconomic data releases

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²	
China							
⊕	07-May	Foreign reserves (USD bn)	Apr	3 095 ▼	3 099	3 100	☹
⊕⊕	08-May	Trade balance (USD bn)‡	Apr	13.8 ▼	32.4	34.6	☹
⊕⊕	08-May	Exports (yoy)‡	Apr	-2.7% ▼	13.8%	3.0%	☹
⊕⊕⊕⊕	09-May	Consumer inflation CPI (yoy)	Apr	2.5% ▲	2.3%	2.5%	⊖
⊕⊕	09-May	Producer inflation PPI (yoy)	Apr	0.9% ▲	0.4%	0.6%	☺
⊕	09-May	New yuan loans (CNY bn)	Apr	1 020 ▼	1 690	1 200	☹
⊕⊕⊕⊕	15-May	Industrial production (yoy)	Apr	5.4% ▼	8.5%	6.5%	☹
⊕⊕	15-May	Fixed assets investments (ytd, yoy)	Apr	6.1% ▼	6.3%	6.4%	☹
⊕	15-May	Retail sales (yoy)	Apr	7.2% ▼	8.7%	8.6%	☹
Poland							
⊕⊕	14-May	Trade balance (EUR mn)‡	Mar	589 ▲	- 367	- 961	☺
⊕⊕	14-May	Exports (EUR mn)	Mar	19 654 ▲	18 324	19 689	☹
⊕⊕	14-May	Current account balance (EUR mn)‡	Mar	533 ▲	- 342	- 1 187	☺
⊕⊕⊕⊕⊕	15-May	NBP base rate decision	May	1.50% -	1.50%	1.50%	⊖
⊕⊕⊕⊕⊕	15-May	GDP (yoy) - preliminary data	1Q	4.6% ▼	4.9%	4.4%	☺
⊕⊕⊕⊕⊕	15-May	GDP (qoq) - preliminary data	1Q	1.4% ▲	0.5%	1.2%	☺
⊕⊕⊕⊕	15-May	Consumer inflation CPI (yoy) - final data	Apr	2.2% -	2.2%	--	⊖
⊕⊕⊕⊕	16-May	Core CPI (excluding food and energy, yoy)	Apr	1.7% ▲	1.4%	1.7%	⊖
US							
⊕⊕⊕⊕	10-May	Consumer inflation CPI (mom)	Apr	0.3% ▼	0.4%	0.4%	☹
⊕⊕⊕⊕	10-May	Consumer inflation CPI (yoy)	Apr	2.0% ▲	1.9%	2.1%	☹
⊕⊕⊕⊕	15-May	Industrial production (mom)‡	Apr	-0.5% ▼	0.2%	0.0%	☹
⊕⊕	15-May	Retail sales (excluding autos, mom)‡	Apr	0.1% ▼	1.3%	0.7%	☹
⊕	15-May	Capacity utilization‡	Apr	77.9% ▼	78.5%	78.7%	☹
⊕⊕	16-May	Philadelphia Fed business outlook	May	16.6 ▲	8.5	9.0	☺
⊕⊕	17-May	University of Michigan confidence index - preliminary data	May	102 ▲	97.2	97.2	☺
Eurozone							
⊕⊕⊕	06-May	Composite PMI - final data‡	Apr	51.5 -	51.5	51.3	☺
⊕⊕⊕	06-May	Services PMI - final data‡	Apr	52.8 -	52.8	52.5	☺
⊕⊕	06-May	Retail sales (yoy)‡	Mar	1.9% ▼	3.0%	1.8%	☺
⊕⊕⊕⊕	14-May	Industrial production (sa, mom)‡	Mar	-0.3% ▼	-0.1%	-0.3%	⊖
⊕⊕⊕⊕	14-May	Industrial production (wda, yoy)‡	Mar	-0.6% ▼	0.0%	-0.8%	☺
⊕	14-May	ZEW survey expectations	May	- 1.6 ▼	4.5	--	⊖
⊕⊕⊕⊕⊕	15-May	GDP (sa, yoy) - preliminary data	1Q	1.2% -	1.2%	1.2%	⊖
⊕⊕⊕⊕⊕	15-May	GDP (sa, qoq) - preliminary data	1Q	0.4% -	0.4%	0.4%	⊖
⊕	16-May	Trade balance (EUR mn)	Mar	22.5 ▲	17.9	--	⊖
⊕⊕⊕⊕	17-May	Consumer inflation CPI (yoy) - final data	Apr	1.7% -	1.7%	1.7%	⊖
⊕⊕⊕⊕	17-May	Core CPI (yoy) - final data	Apr	1.3% ▲	1.2%	1.2%	☺
Germany							
⊕⊕⊕	06-May	Composite PMI - final data‡	Apr	52.2 -	52.2	52.1	☺
⊕⊕⊕	07-May	Factory orders (wda, yoy)‡	Mar	-6.0% ▲	-8.1%	-5.4%	☹
⊕⊕⊕⊕	08-May	Industrial production (wda, yoy)‡	Mar	-0.9% ▼	0.2%	-2.6%	☺
⊕⊕⊕⊕	14-May	Harmonized consumer inflation HICP (yoy) - final data	Apr	2.1% -	2.1%	2.1%	⊖
⊕⊕⊕⊕	14-May	Consumer inflation CPI (yoy) - final data	Apr	2.0% -	2.0%	2.0%	⊖

Weight	Date	Event	For	Reading ¹	Previous	Consensus ²
France 						
🌟🌟🌟	06-May	Composite PMI - final data‡	Apr	50.1 -	50.1	50.0 
🌟🌟🌟🌟	10-May	Industrial production (yoy)‡	Mar	-0.9% ▼	0.5%	-0.1% 
🌟🌟🌟🌟	15-May	Harmonized consumer inflation HICP (yoy) - final data	Apr	1.5% ▲	1.4%	1.4% 
🌟🌟🌟🌟	15-May	Consumer inflation CPI (yoy) - final data‡	Apr	1.3% -	1.3%	1.2% 
Italy 						
🌟🌟🌟	06-May	Composite PMI	Apr	49.5 ▼	51.5	50.6 
🌟🌟🌟🌟	10-May	Industrial production (wda, yoy)	Mar	-1.4% ▼	0.9%	-0.8% 
🌟🌟🌟🌟	16-May	Harmonized consumer inflation HICP (yoy) - final data	Apr	1.1% ▼	1.2%	1.2% 
UK 						
🌟🌟🌟🌟🌟	10-May	GDP (yoy) - preliminary data	1Q	1.8% ▲	1.4%	1.8% 
🌟🌟🌟🌟🌟	10-May	GDP (qoq) - preliminary data	1Q	0.5% ▲	0.2%	0.5% 
🌟🌟🌟🌟	10-May	Industrial production (yoy)‡	Mar	1.3% ▲	0.4%	0.5% 
🌟🌟	14-May	Unemployment rate (ILO, 3-months)	Mar	3.8% ▼	3.9%	3.9% 
Japan 						
🌟🌟🌟	07-May	Manufacturing PMI - final data	Apr	50.2 ▲	49.2	--
🌟🌟🌟	08-May	Composite PMI	Apr	50.8 ▲	50.4	--
Chile 						
🌟🌟🌟🌟	06-May	Economic activity (yoy)	Mar	1.9% ▲	1.4%	1.9% 
🌟🌟🌟	07-May	Copper exports (USD mn)‡	Apr	2 782 ▼	3 088	--
🌟🌟	07-May	Nominal wages (yoy)	Mar	4.8% ▲	4.3%	--
🌟🌟🌟🌟🌟	10-May	BCCh overnight rate target	May	3.00% -	3.00%	3.00% 
Canada 						
🌟🌟🌟	10-May	Net change in employment (ths)	Apr	107 ▲	- 7.2	11.6 
🌟🌟🌟🌟	15-May	Consumer inflation CPI (yoy)	Apr	2.0% ▲	1.9%	2.0% 

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

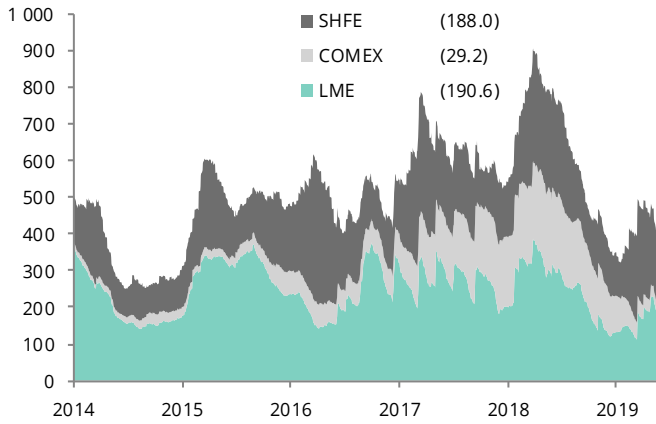
Key base & precious metal prices, exchange rates and other important market factors

<i>(as of: 17-May-19)</i>		Price change ¹					From year beginning ²		
	Price	2W	QTD	YTD	1Y	Average	Min	Max	
LME (USD/t)									
Copper	6 025.00	▼ -2.5%	▼ -7.1%	▲ 1.0%	▼ -11.9%	6 251.83	5 811.00	6 572.00	
Molybdenum	-	-	-	-	-	-	-	-	
Nickel	12 025.00	▼ -1.2%	▼ -7.6%	▲ 13.5%	▼ -17.5%	12 414.58	10 440.00	13 610.00	
Aluminum	1 805.00	▲ 1.2%	▼ -5.0%	▼ -3.5%	▼ -20.8%	1 847.50	1 761.00	1 923.00	
Tin	19 625.00	▲ 1.3%	▼ -9.0%	▲ 0.6%	▼ -5.0%	20 795.26	19 375.00	21 925.00	
Zinc	2 755.00	▼ -3.9%	▼ -8.2%	▲ 9.7%	▼ -9.8%	2 762.04	2 462.00	3 018.00	
Lead	1 809.00	▼ -3.8%	▼ -10.5%	▼ -10.0%	▼ -22.2%	1 991.93	1 768.00	2 154.00	
LBMA (USD/troz)									
Silver	14.48	▼ -1.2%	▼ -4.1%	▼ -6.4%	▼ -11.6%	15.36	14.48	16.08	
Gold ²	1 280.80	▲ 0.2%	▼ -1.1%	▼ -0.1%	▼ -0.7%	1 297.96	1 269.50	1 343.75	
LPPM (USD/troz)									
Platinum ²	823.00	▼ -3.7%	▼ -3.2%	▲ 3.7%	▼ -7.5%	840.06	782.00	914.00	
Palladium ²	1 316.00	▼ -3.2%	▼ -5.3%	▲ 4.2%	▲ 32.8%	1 410.78	1 267.00	1 604.00	
FX³									
EURUSD	1.1172	▼ -0.2%	▼ -0.6%	▼ -2.4%	▼ -5.4%	1.1313	1.1123	1.1535	
EURPLN	4.3072	▲ 0.5%	▲ 0.1%	▲ 0.2%	▲ 0.5%	4.2991	4.2706	4.3402	
USDPLN	3.8545	▲ 0.6%	▲ 0.5%	▲ 2.5%	▲ 6.2%	3.7992	3.7243	3.8545	
USDCAD	1.3468	▲ 0.1%	▲ 0.8%	▼ -1.3%	▲ 5.2%	1.3334	1.3095	1.3600	
USDCNY	6.9179	▲ 2.2%	▲ 3.1%	▲ 0.6%	▲ 8.6%	6.7502	6.6872	6.9179	
USDCLP	692.79	▲ 2.1%	▲ 1.7%	▼ -0.3%	▲ 9.8%	669.71	649.22	697.64	
Money market									
3m LIBOR USD	2.522	▼ -0.04	▼ -0.08	▼ -0.29	▲ 0.19	2.648	2.518	2.804	
3m EURIBOR	-0.313	▼ -0.01	▼ 0.00	▼ 0.00	▲ 0.01	-0.309	-0.313	-0.306	
3m WIBOR	1.720	-	0.00	-	0.00	1.720	1.720	1.720	
5y USD interest rate swap	2.187	▼ -0.12	▼ -0.10	▼ -0.38	▼ -0.85	2.467	2.166	2.715	
5y EUR interest rate swap	-0.034	▼ -0.07	▼ -0.05	▼ -0.23	▼ -0.48	0.096	-0.034	0.222	
5y PLN interest rate swap	2.050	▼ -0.19	▲ 0.11	▼ -0.07	▼ -0.48	2.051	1.908	2.240	
Fuel									
WTI Cushing	62.76	▲ 0.8%	▲ 4.4%	▲ 38.2%	▼ -12.2%	57.85	46.54	66.40	
Brent	73.26	▲ 2.8%	▲ 8.5%	▲ 37.8%	▼ -7.1%	66.18	53.83	73.89	
Diesel NY (ULSD)	209.63	▲ 1.5%	▲ 6.1%	▲ 24.6%	▼ -8.6%	198.06	170.01	212.40	
Others									
VIX	15.96	▲ 0.52	▲ 2.25	▼ -9.46	▲ 2.53	15.73	12.01	25.45	
BBG Commodity Index	79.70	▲ 0.3%	▼ -1.7%	▲ 3.9%	▼ -11.7%	80.76	76.99	83.06	
S&P500	2 859.53	▼ -2.5%	▲ 0.9%	▲ 14.1%	▲ 5.1%	2 783.46	2 447.89	2 945.83	
DAX	12 238.94	▼ -0.4%	▲ 6.2%	▲ 15.9%	▼ -6.7%	11 542.68	10 416.66	12 412.75	
Shanghai Composite	2 882.30	▼ -0.8%	▼ -6.7%	▲ 15.6%	▼ -8.6%	2 900.77	2 464.36	3 270.80	
WIG 20	2 184.35	▼ -4.6%	▼ -5.5%	▼ -4.1%	▼ -3.2%	2 333.70	2 163.94	2 414.41	
KGHM	94.88	▼ -2.9%	▼ -11.3%	▲ 6.8%	▼ -0.1%	99.32	86.12	112.00	

^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

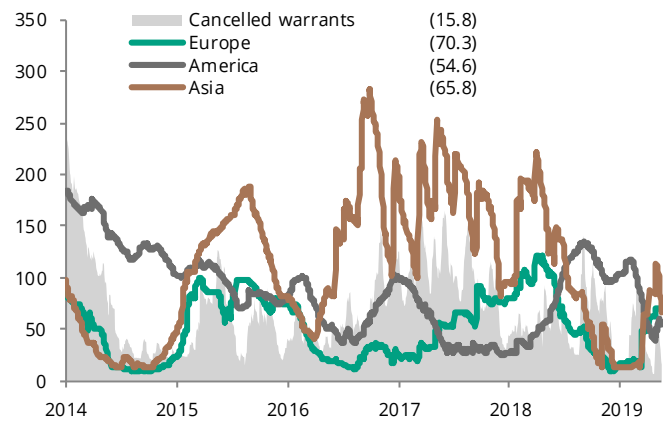
Source: Bloomberg, KGHM Polska Miedź

Copper: official exchange stocks (thousand tonnes)



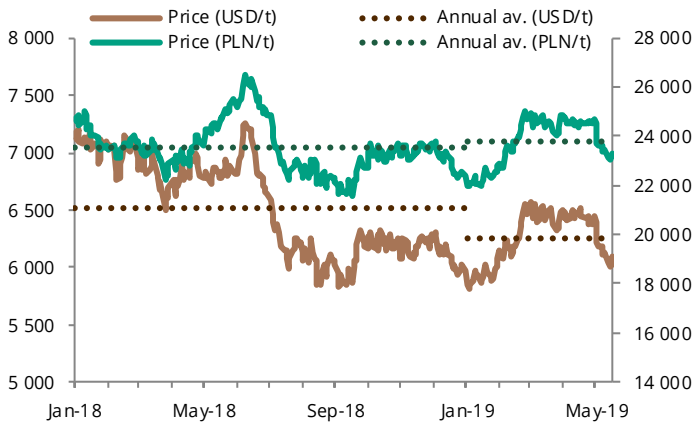
Note: Latest values in brackets. Source: Bloomberg, KGHM

Copper: official LME stocks (thousand tonnes)



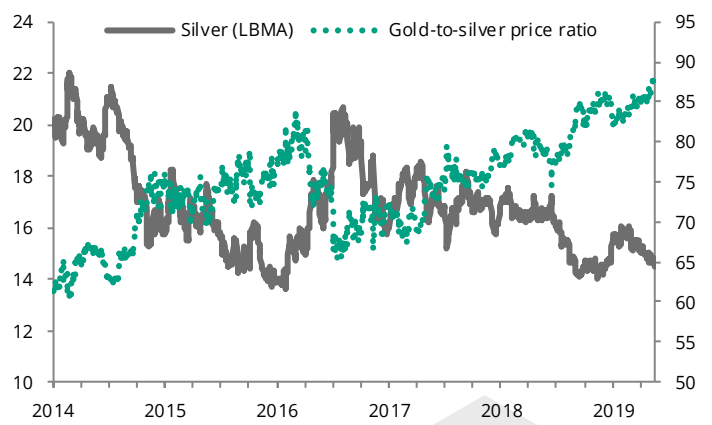
Note: Latest values in brackets. Source: Bloomberg, KGHM

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



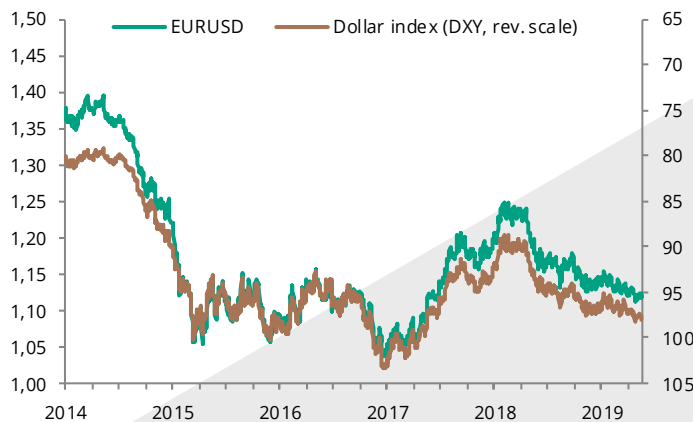
Source: Bloomberg, KGHM Polska Miedź

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



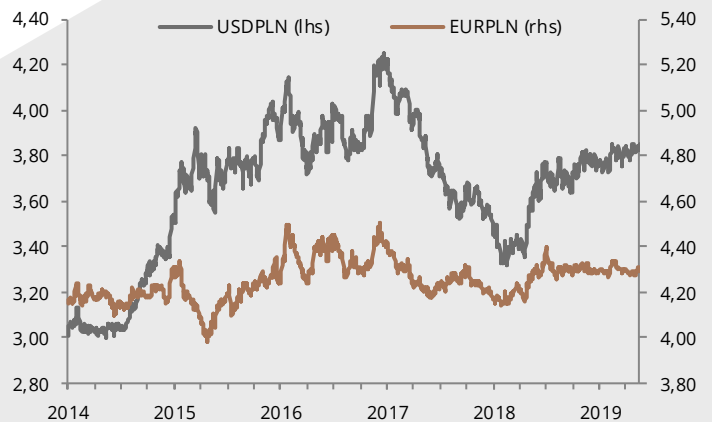
Source: Bloomberg, KGHM Polska Miedź

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:
6th – 19th May 2019.

- 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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