

# **Market Overview**

**Copper:** Codelco is selling bonds, taking out loans and selling nonstructural assets to secure funding for its multibillion-dollar upgrade projects only four months after saying it didn't need to raise money this year or next. In Peru a recently issued construction permit for Southern Copper's Tia Maria mine has been suspended. It means a fresh blow to business confidence in Peru, but it might help calm violent protests that have blocked \$400 million in copper shipments from the port of Matarani (*page 2*).

- Nickel: Talk of a possible earlier start to the ban on ore exports from Indonesia pushed benchmark nickel prices to a 16-month high (page 4).
- USA: The Federal Reserve reduced interest rates for the first time since the financial crisis in a move that Chairman Jerome Powell said was designed to "insure against downside risks" rather than signal the start of a lengthy cycle of monetary policy easing (page 5).

as of: 12th August 2019

#### Key market prices

		Close price	2w chng.
	LME (USD/t)		
▼	Copper	5 744.00	-3.5%
	Nickel	15 620.00	11.7%
	LBMA (USD/troz)		
	Silver	17.00	3.7%
	Gold (PM)	1 497.70	5.5%
	FX		
	EURUSD	1.1198	0.7%
	EURPLN	4.3225	1.1%
	USDPLN	3.8613	0.4%
	USDCAD	1.3221	0.5%
	USDCLP	710.98	2.1%
	Stocks		
▼	KGHM	*t)         5744.00       -3.9         15620.00       11.7         D/troz)       17.00       3.7         1497.70       5.9         1.1198       0.7         4.3225       1.7         3.8613       0.4         1.3221       0.9         710.98       2.7	-14.8%
Source	: Bloomberg, KGHM Po	olska Miedź; (mor	e on <u>page 8</u> )

Important macroeconomic data									
	Release	For							
	Fed upper rate	Jul	2.25% 🔻						
$\langle \bigcirc \rangle$	GDP (sa, yoy)	2Q	1.1% 🔻						
	Manufacturing PMI	Jul	47.4 🔻						
*1	Exports (yoy)	Jul	3.3% 🔺						
	Manufacturing PMI	Jul	43.2 🔺						
Sourc	e: Bloomberg, KGHM Polska Mie	edź; <i>(more</i>	e on <u>page 6</u> )						



In the context of possible earlier start of the Indonesian ore exports



Market Risk Unit marketrisk@kghm.com

Please see important disclosures at the end of this document (page 10)



### **Base and precious metals | Other commodities**

### Copper

Codelco is selling bonds, taking out loans and selling non-structural assets to secure funding for its multibillion-dollar upgrade projects only four months after saying it didn't need to raise money this year or next. In Peru a recently issued construction permit for Southern Copper's Tia Maria mine has been suspended. It means a fresh blow to business confidence in Peru, but it might help calm violent protests that have blocked \$400 million in copper shipments from the port of Matarani.

#### Important information on copper market:

- The world's largest copper miner is selling bonds, taking out loans and selling non-structural assets to secure funding for its multibillion-dollar upgrade projects only four months after saying it didn't need to raise money this year or next. Codelco agreed to borrow \$300 million and sold two bonds for a combined \$180 million of funding, the state-owned company said in a statement to Chile's securities regulator CMF. Earlier it sold a 37% stake in natural gas port terminal GNL Mejillones for \$193.5 million. The Santiagobased miner's moves this week are a departure from the strategy that chairman Juan Benavides outlined in April, when he said Codelco was well financed through 2020. and wouldn't need to issue more debt. One thing that's changed is the price of copper. In mid-April, prices were near a 10month high, at around \$6,500 per ton. Since then price has fallen about 12% to two years low. The company responsible for over 8% of the world's copper production needs to invest more than \$20 billion over the next decade to prevent a slump in output at its aging mines in Chile. Codelco had net debt of \$16 billion in the first quarter of the year, according to information compiled by Bloomberg. Codelco hands all of its profit to the Chilean state, which then decides how much it will reinvest. In the past, the company relied on a combination of debt and government capitalization to fund its projects. But it received its last funding package from the Chilean government in February, a \$400 million payment that was part of a \$4 billion package approved under the previous administration, and President Sebastian Pinera hasn't announced new capitalization for the company.
- According to Reuters Peru suspended a recently issued construction permit for Southern Copper's Tia Maria mine, a project that has triggered violent protests by nearby residents. The permit will be suspended until government officials evaluate its legality along with objections from local authorities in the Arequipa region where Tia Maria, a \$1.4 billion project, would be built, Energy and Mines Minister Francisco Ismodes told local broadcaster RPP. The review will likely take two to three months, he said. Southern Copper Corp, a unit of Grupo Mexico, has sought to build Tia Maria for nearly a decade, but



opposition from local farmers and residents who fear pollution and loss of water supply has thwarted the effort. The mine project, expected to produce 120,000 tons of copper per year, has been the focus of debate over whether the significant tax revenues from mines outweigh the objections of people who live near them. Peru's business community had applauded President Martin Vizcarra's July 9 decision to grant a construction permit for Tia Maria as a sign of his commitment to promoting investment. The suspended permit deals a fresh blow to business confidence in Peru amid slowing economic growth, but it might help calm violent protests against Tia Maria that have blocked \$400 million in copper shipments from the port of Matarani. Marco Arana, a leftist lawmaker and anti-mining activist, said on RPP that local protest leaders in Arequipa would likely continue to demand full annulment of the construction permit, but its suspension might help draw local authorities back to the negotiating table.

- According to Bloomberg Rio Tinto's Resolution Copper project in the U.S. achieved a "major permitting milestone" with the release of an independently prepared Draft Environmental Impact Statement for the project. Review conducted by the U.S. States Forest Service took over six years. Resolution has the potential to supply up to 25 per cent of the United States' copper demand and complements Rio Tinto's other copper projects. Resolution Copper Mining is a limited liability company owned 55% by Rio Tinto and 45% by BHP.
- Production at Chile's state-owned Codelco copper mining company fell 12.1% to 769,400 tonnes in the first half of 2019 compared with the same period last year, the country's Cochilco copper commission said. BHP Group's Escondida copper mine the world's largest also saw production fall 12% in the first half to 569,900 tonnes, Cochilco said. And the Collahuasi copper mine in northern Chile, a joint venture between Anglo American Plc and Glencore Plc, produced 254,700 tonnes in the first six months of the year, 2.8 percent lower versus the first half of last year.



### Nickel

Talk of a possible earlier start to the ban on ore exports from Indonesia pushed benchmark nickel prices to a 16-month high.

## Indonesia says no decision yet on early start to mineral ore export ban

According to Reuters, Indonesia is discussing bringing forward a ban on mineral ore exports that was previously set to begin in 2022, but no decision has yet been made on such a move, its trade minister said. Talk of a possible earlier start to the ban on ore exports from one of the world's key sources of metals pushed benchmark nickel prices to a 16-month high. Indonesia's trade minister, Enggartiasto Lukita, also said lately that President Joko Widodo had asked for input from his ministers on the step. Current mining regulations allow exports of unprocessed mineral ore until January 2022, with an Indonesian industry association urging the government to stick to that timetable. The ban is about pushing domestic industries to process more mineral ores locally. "From a trading point of view, if this export is restricted sooner, it will disrupt exports of around \$4 billion in ore," Lukita said. Indonesia currently has 13 operating nickel smelters with input capacity of 24.52 million tones, government data showed, with 22 more nickel smelters currently under development. Incoming smelters will add 46.33 million tones input capacity to the smelting industry. However, Indonesia's nickel miners association (APNI) said that the current installed capacity was not enough to process the nation's nickel ore output.

If export is restricted sooner, it will disrupt exports of around \$4 billion in ore



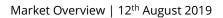
### **Global economies | Foreign exchange markets**

#### **Fed Cuts Rates**

The Federal Reserve reduced interest rates for the first time since the financial crisis in a move that Chairman Jerome Powell said was designed to "insure against downside risks" rather than signal the start of a lengthy cycle of monetary policy easing.

According to Bloomberg, The Federal Reserve reduced interest rates for the first time since the financial crisis in a move that Chairman Jerome Powell said was designed to "insure against downside risks" rather than signal the start of a lengthy cycle of monetary policy easing. Central bankers voted, with two officials dissenting, to lower the target range for the benchmark rate by a quarterpercentage point to 2%-2.25%. The shift was predicted by most investors and economists, yet will disappoint President Donald Trump, who tweeted he wanted a "large cut." "In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the committee decided to lower" rates, the Federal Open Market Committee, said in a statement following the twoday meeting in Washington. It also noted that "uncertainties" about the economic outlook remain, leaving the door open to further easing. U.S. stocks whipsawed between gains and losses after the Fed's announcement, while Treasuries and the dollar also fluctuated as traders awaited Powell's press conference. Kansas City Fed President Esther George and Boston's Eric Rosengren voted against the cut. The statement said they "preferred at this meeting to maintain the target range for the federal funds rate." Powell has repeatedly said the Fed's "overarching goal" is to keep growth going. Acting now is aimed at getting ahead of any potential slump. Lackluster inflation also offered the Fed space and reason to ease. Its preferred price gauge, excluding food and energy, rose 1.6% in June from a year earlier and hasn't met the Fed's 2% target this year. While Trump and some investors wanted the Fed to be more aggressive, its scope for doing so is limited. Stocks are high, unemployment is around the lowest in a half-century and consumers continue to spend. The rate reduction was the first since December 2008 when the Fed dropped its benchmark effectively to zero as it battled recession and financial crisis. It began raising borrowing costs in December 2015, doing so another eight times.

Central bankers voted, with two officials dissenting, to lower the target range for the benchmark rate by 0.25 pc. pts to 2%





### Macroeconomic calendar

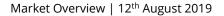
#### Important macroeconomic data releases

Veight	Date	Event	For	Reading <sup>1</sup>	Previous	Consensu
		China				*
000	31-Jul	Official manufacturing PMI	Jul	49.7 🔺	49.4	49.6
000	01-Aug	Caixin's manufacturing PMI	Jul	49.9 🔺	49.4	49.5
>	07-Aug	Foreign reserves (USD bn)	Jul	3 104 🔻	3 1 1 9	3 105
00	08-Aug	Trade balance (USD bn)‡	Jul	45.1 🔻	51.0	42.7
00	08-Aug	Exports (yoy)	Jul	3.3% 🔺	-1.3%	-1.0%
00-Aug Consumer inflation CPI (yoy)		Jul	2.8% 🔺	2.7%	2.7%	
00	09-Aug	Producer inflation PPI (yoy)	Jul	-0.3%	0.0%	-0.1%
		Poland				
0000	31-Jul	Consumer inflation CPI (yoy) - preliminary data	Jul	2.9% 🔺	2.6%	2.6%
000	01-Aug	Manufacturing PMI	Jul	47.4 🔻	48.4	47.9
		US				
,	29-Jul	Dallas Fed manufacturing activity	Jul	- 6.3 🔺	- 12.1	- 6.0
000	30-Jul	Consumer spending inflation PCE (mom)	Jun	0.2% =	0.2%	0.2%
000	30-Jul	Consumer spending inflation PCE (yoy)‡	Jun	1.6% 🔺	1.5%	1.7%
0	30-Jul	Personal income (sa, mom)‡	Jun	0.4% =	0.4%	0.4%
0	30-Jul	Personal spending (sa, mom)‡	Jun	0.3%	0.5%	0.3%
•	30-Jul	S&P/CaseShiller home price index‡	May	217 🔺	216	217
0000	31-Jul	FOMC base rate decision - upper bound (Fed)	Jul	2.25%	2.50%	2.25%
0000	31-Jul	FOMC base rate decision - lower bound (Fed)	Jul	2.00%	2.25%	2.00%
00	01-Aug	Manufacturing PMI - final data	Jul	50.4 🔺	50.0	50.1
0	01-Aug	ISM Manufacturing	Jul	51.2 🔻	51.7	52.0
٥	02-Aug Change in non-farm payrolls (ths)‡		Jul	164 🔻	193	165
<ul> <li>02-Aug Durable goods orders - final data</li> <li>02-Aug Underemployment rate (U6)</li> <li>02-Aug Unemployment rate</li> </ul>		Jun	1.9% 🔻	2.0%		
		Underemployment rate (U6)	Jul	7.0%	7.2%	
		Unemployment rate	Jul	3.7% =	3.7%	3.6%
0	02-Aug	University of Michigan confidence index - final data	Jul	98.4 =	98.4	98.5
	02-Aug	Average hourly earnings (yoy)	Jul	3.2% 🔺	3.1%	3.1%
00	05-Aug	Composite PMI - final data	Jul	52.6	51.6	
00	05-Aug	PMI services - final data	Jul	53.0 🔺	52.2	52.2
		Eurozone				-
	30-Jul	Economic confidence	Jul	103 🔻	103	103
	30-Jul	Industrial confidence	Jul	- 7.4 🔻	- 5.6	- 7.0
	30-Jul	Consumer confidence - final data	Jul	- 6.6 =	- 6.6	- 6.6
	30-Jul	Business climate indicator	Jul	- 0.1 🔻	0.2	0.1
0000	31-Jul	GDP (sa, yoy) - estimation	2Q	1.1% 🔻	1.2%	1.0%
0000	31-Jul	GDP (sa, qoq) - estimation	2Q	0.2%	0.4%	0.2%
000	31-Jul	Core CPI (yoy) - estimation	Jul	0.9% 🔻	1.1%	1.0%
000	31-Jul	CPI estimate (yoy)	Jul	1.1% 🔻	1.3%	1.1%
0	31-Jul	Unemployment rate‡	Jun	7.5% 🔻	7.6%	7.5%
00	01-Aug	Manufacturing PMI - final data	Jul	46.5 🔺	46.4	46.4
0	02-Aug	Retail sales (yoy)‡	Jun	2.6% 🔺	1.0%	1.3%
0	02-Aug	Producer inflation PPI (yoy)	Jun	0.7% 🔻	1.6%	0.8%
000	05-Aug	Composite PMI - final data	Jul	51.5 =	51.5	51.5
000	05-Aug	Services PMI - final data	Jul	53.2 🔻	53.3	53.3



Weight	Date	Event	For	Reading <sup>1</sup>	1	Previous	Consensu	us 2
		Germany						
0000	30-Jul	Harmonized consumer inflation HICP (yoy) - preliminary data	Jul	1.1%	•	1.5%	1.2%	•
0000	30-Jul	Consumer inflation CPI (yoy) - preliminary data	Jul	1.7%		1.6%	1.5%	
00	30-Jul	GfK consumer confidence	Aug	9.7		9.8	9.7	0
000	31-Jul	Retail sales (yoy)‡	Jun	-1.6%		3.8%	0.0%	•
00	31-Jul	Unemployment rate	Jul	5.0%	-	5.0%	5.0%	0
000	01-Aug	Manufacturing PMI - final data	Jul	43.2		43.1	43.1	
000	05-Aug	Composite PMI - final data	Jul	50.9		51.4	51.4	•
000				-3.6%		-8.4%	-5.2%	
07-Aug Industrial production (wda, yoy)		Jun	-5.2%	•	-3.7%	-3.1%		
		France						
00000	30-Jul	GDP (yoy) - preliminary data	2Q	1.3%		1.2%	1.4%	-
00000	30-Jul	GDP (qoq) - preliminary data	2Q	0.2%		0.3%	0.3%	•
0000	31-Jul	Harmonized consumer inflation HICP (yoy) - preliminary data	Jul	1.3%		1.4%	1.2%	
0000	31-Jul	Consumer inflation CPI (yoy) - preliminary data	Jul	1.1%		1.2%	1.1%	0
000	01-Aug	Manufacturing PMI - final data	Jul	49.7		50.0	50.0	•
000	05-Aug	Composite PMI - final data	Jul			51.7	51.7	
0000	09-Aug	Industrial production (yoy)‡	Jun	0.0%		3.9%	1.0%	
		Italy						
00000	31-Jul	GDP (wda, yoy) - preliminary data	2Q			-0.1%	-0.1%	
00000	31-Jul	GDP (wda, qoq) - preliminary data	2Q			0.1%	-0.1%	
0000	31-Jul	Harmonized consumer inflation HICP (yoy) - preliminary data	Jul			0.8%	0.5%	•
	-		Jun			9.8%	10.0%	-
	0	-	Jul			48.4	48.0	
	0		Jun			-0.6%	-0.8%	-
	0	•	Jul			50.1	50.1	
OO       31-jul       Unemployment rate - preliminary data‡         OO       01-Aug       Manufacturing PMI         OOO       02-Aug       Industrial production (wda, yoy)‡         OOO       05-Aug       Composite PMI         OOO       09-Aug       Harmonized consumer inflation HICP (yoy) - final data         UK         OOOO       01-Aug       BoE base rate decision         OOOO       01-Aug       BoE asset purchase target (GBP bn)         OOO       01-Aug       Manufacturing PMI (sa)		Jul	0.3%		0.4%	0.4%		
				0 750/		0 750/		1
	-		Aug		-	0.75%	0.75%	0
	-		Aug		-	435	435	0
	-	-	Jul		-	48.0	47.6	
000 00000	05-Aug	Composite PMI GDP (yoy) - preliminary data	Jul 20		▲ ▼	49.7 1.8%	49.8 1.4%	
00000	09-Aug	GDP (gog) - preliminary data GDP (gog) - preliminary data	2Q 2Q	-0.2%		0.5%	0.0%	
00000	09-Aug	Industrial production (yoy)‡	2Q Jun		V	0.5%	-0.3%	-
0000	03-Aug	Japan	Jun	-0.070	•	0.570	-0.5%	•
0000	30-Jul	Industrial production (yoy) - preliminary data	Jun	-4.1%	•	-2.1%	-2.0%	-
000	01-Aug	Manufacturing PMI - final data	Jul		V	49.6		
000	05-Aug	Composite PMI - final data	Jul		V	51.2		
00000	09-Aug	GDP (annualized, gog) - preliminary data‡	2Q	_	V	2.8%	0.5%	
00000	09-Aug	GDP (qoq, sa) - preliminary data‡	2Q		V	0.7%	0.1%	
	- 0	Chile	,				*	
000	31-Jul	Total copper production (metric tons)	Jun	474 740	•	492 322		
000	31-Jul	Manufacturing (yoy)	Jun	_	V	1.9%	-2.1%	-
0000	05-Aug	Economic activity (yoy)	Jun	_	· V	2.3%	1.8%	-
	0							

<sup>1</sup> Reading difference to previous release: ▲ = higher than previous; ▼ = lower than previous; = equal to previous.
 <sup>2</sup> 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

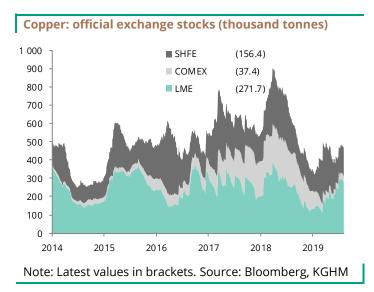
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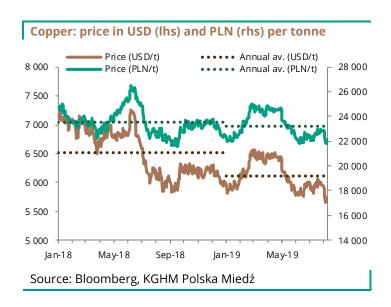
Key	v base & precious meta	rices exchange rates and otl	her important market factors
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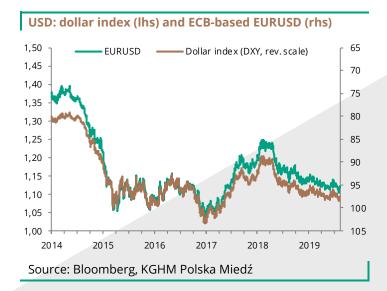
(as of: 09-Aug-19)					Price	cha	nge <sup>1</sup>		From year beginning <sup>2</sup>			
	Price		2W		QTD		YTD		1Y	Average	Min	Max
LME (USD/t)												
Copper	5 744.00	•	-3.5%	▼	-3.8%	▼	-3.7%	▼	-8.1%	6 111.18	5 647.00	6 572.0
Molybdenum		-		-		-		-				
Nickel	15 620.00		11.7%		23.3%		47.4%		11.1%	12 605.16	10 440.00	15 620.0
Aluminum	1 746.00	•	-1.6%	▼	-1.6%	▼	-6.6%	▼	-17.6%	1 817.49	1 719.50	1 923.0
Tin	16 900.00	▼	-3.7%	▼	-10.1%	▼	-13.3%	▼	-14.0%	19 914.19	16 830.00	21 925.0
Zinc	2 262.50	▼	-8.5%	▼	-12.3%	▼	-9.9%	▼	-15.7%	2 669.49	2 258.00	3 018.0
Lead	2 086.00		2.8%		9.0%		3.8%	▼	-2.4%	1 965.33	1 768.00	2 154.0
LBMA (USD/troz)												
Silver	17.00		3.7%		11.7%		9.9%		9.8%	15.37	14.38	17.0
Gold <sup>2</sup>	1 497.70		5.5%		6.3%		16.9%		23.3%	1 329.79	1 269.50	1 506.0
LPPM (USD/troz)												
Platinum <sup>2</sup>	863.00	•	-0.7%		5.5%		8.7%		3.1%	834.66	782.00	914.0
Palladium <sup>2</sup>	1 432.00	•	-6.2%	▼	-6.0%		13.4%		59.5%	1 431.30	1 267.00	1 604.0
FX <sup>3</sup>												
EURUSD	1.1198		0.7%	▼	-1.6%	▼	-2.2%	▼	-3.4%	1.1280	1.1037	1.153
EURPLN	4.3225		1.1%		1.7%		0.5%		1.2%	4.2898	4.2406	4.340
USDPLN	3.8613		0.4%		3.4%		2.7%		4.8%	3.8027	3.7243	3.886
USDCAD	1.3221		0.5%		1.0%	▼	-3.1%		1.4%	1.3299	1.3038	1.360
USDCNY	7.0620		2.4%		2.8%		2.7%		3.5%	6.8127	6.6872	7.062
USDCLP	710.98		2.1%		4.6%		2.3%		10.4%	678.69	649.22	721.7
Money market												
3m LIBOR USD	2.176	•	-0.08	▼	-0.14	▼	-0.63	▼	-0.16	2.535	2.176	2.80
3m EURIBOR	-0.404	•	-0.04	▼	-0.06	▼	-0.10	▼	-0.09	-0.324	-0.404	-0.30
3m WIBOR	1.720	-	0.00	-	0.00	-	0.00		0.02	1.720	1.720	1.72
5y USD interest rate swap	1.511	$\bullet$	-0.30	▼	-0.25	▼	-1.06	▼	-1.42	2.224	1.446	2.71
5y EUR interest rate swap	-0.438	•	-0.12	▼	-0.21	▼	-0.64	▼	-0.74	-0.026	-0.438	0.22
5y PLN interest rate swap	1.648	•	-0.15	▼	-0.22	▼	-0.47	▼	-0.79	1.974	1.648	2.24
Fuel												
WTI Cushing	54.50	$\bullet$	-4.2%	▼	-6.8%		20.0%	▼	-18.4%	57.27	46.54	66.4
Brent	58.03	$\bullet$	-8.6%	▼	-9.9%		9.1%	▼	-18.3%	65.36	53.83	73.8
Diesel NY (ULSD)	179.43	$\bullet$	-6.1%	▼	-7.7%		6.7%	▼	-14.8%	194.57	170.01	212.4
Others												
VIX	17.97		5.14		2.89	▼	-7.45		6.70	15.61	12.01	25.4
BBG Commodity Index	77.42	▼	-2.0%	▼	-2.8%		0.9%	▼	-8.8%	79.94	75.97	83.0
S&P500	2 918.65	▼	-3.4%	▼	-0.8%		16.4%		2.3%	2 835.52	2 447.89	3 025.8
DAX	11 693.80	▼	-5.8%	▼	-5.7%		10.7%	▼	-7.7%	11 788.67	10 416.66	12 629.9
Shanghai Composite	2 774.75	•	-5.7%	▼	-6.9%		11.3%	▼	-0.7%	2 906.26	2 464.36	3 270.8
WIG 20	2 127.61	•	-6.9%	▼	-8.6%	▼	-6.5%	▼	-8.5%	2 310.18	2 127.61	2 414.4
КБНМ	82.26	•	-14.8%	▼	-20.5%	▼	-7.4%	▼	-12.5%	98.07	82.26	112.0

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

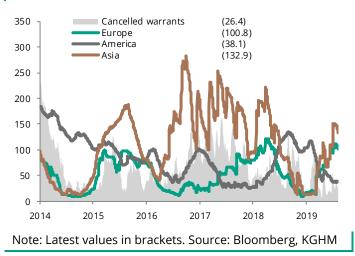












Silver: price (lhs) and gold ratio (rhs)



PLN: NBP-fixing based rate vs. USD (lhs) and EUR (rhs)





### Legal note

This document has been prepared based on the below listed reports, among others, published in the following period: **29<sup>th</sup> July – 11<sup>th</sup> August 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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