KGHM

Reuters: KGH.WA Bloomberg: KGH PW

Santander Biuro Maklerskie

CEE Equity Research

Metals & Mining, Poland

25 August 2022 08:05 CET

4th quartile, energy-exposed player

Underperform maintained, TP cut to PLN92

We believe the Chinese news flow remains uninspiring, as surprisingly weak GDP / PMI / real estate data mitigate hypothetical positive impact of stimulus. Most importantly, China is deliberately devaluing its currency, which may trim global USD-denominated demand for commodities and copper, potentially exposing price of the latter to the downside, we assume. In short-term, KGHM faces high exposure to energy prices, which negatively distinguishes the Polish company among world miners. Take-or-pay gas contracts, and high electricity price may result in PLN2-4bn downside to company's 2023E EBITDA y/y, we calculate. Finally, KGHM is also ahead of dozen-year heavy capex cycle (new mine, renewables), weakening its investment appeal in our view. In our model we assume KGHM's extraction tax will remain at 60% terminally (vs 85% until 2022, positive news to be announced in Nov2022, we believe), but global and local inflationary pressures cancel out its positive impact valuation-wise. KGHM is 4th quartile copper producer, thus it is most exposed to potential commodities' downside (mitigated potentially by zloty weakening), and its short- to long-term opex and capex outlooks remain discouraging, in our view.

Chinese yuan depreciation, risk to copper price. China macro and geopolitical situation is a wild card for us. We still tend to believe USD/CNY exchange rate should continue to depreciate. Weaker China currency is influencing mining cost curves, which drives down industrial commodity prices. With CNY depreciating, large chunk of global demand volumes would move copper demand line to the left. Copper supply curve seems to be steep on the right side, so any decrease in demand has got the capacity to trim copper price significantly, we believe.

Readying for extreme pressure at energy opex in 2023/2024E. KGHM is the Polish largest electricity user, with quite thin 2023E hedging at 25-30%. Also, company's take-or-pay contracts for gas bode poorly for its opex outlook, we believe. Prices of both electricity and gas have grown substantially in the recent months, hence we believe KGHM's unavoidable 2023/24E gas and electricity exposure negatively distinguishes the Polish company among world miners (we see 2023E delta at opex at PLN2.3bn, seeing electricity price optimistically at PLN900/MWh).

Downside risks vs. potential positives. The global pace of growth and cash availability are respectively the key upside and downside risks for the company. The pandemic may stall the former, though pandemic-driven supply limitations could prove supportive, as could any new monetary stimulus, we believe. The world's renewables focus should support demand for copper in the long term. Changes in extraction tax would affect KGHM's EBITDA and valuation, while participation in state-run or other new projects could pose a threat to FCFs. The parent company's mining volumes (a major source of EBITDA) may start sliding, implying downside to KGHM´s results and valuation. The new partner in Sierra Gorda might help to unlock Sierra Gorda oxides' upside. The Chilean extraction tax remains a risk to Sierra Gorda FCFs, yet we think the outcome of local parliamentary elections should trim this risk.

Changes to forecasts & valuation. We adjusted our model for current metals' prices and USDPLN exchange rate. Also, we adjusted it for impact of gas/electricity/inflation impacts, barely mitigated by extraction tax trimmed to 60% indefinitely. These result in 9-19% downsides to 2022/23E forecasts. Long-term opex challenges result in SoTP-based TP settling at PLN84 for Dec2023 (vs PLN94 for Dec2022 previously). 2023-24E comparative valuation falls 40%, depressing our blended TP to PLN92. Lack of TP upside, opex / capex challenges and macro uncertainty makes us keep KGHM at Underperform.

KGHM: Financial summary

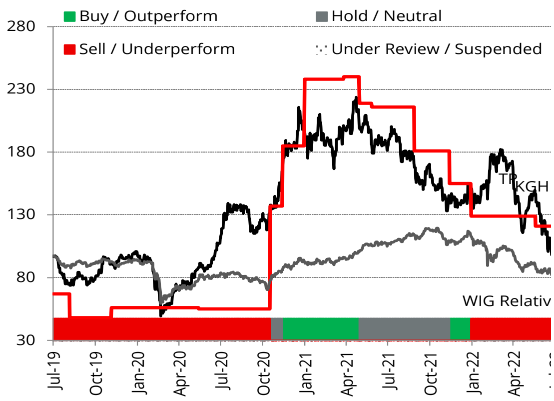
PLNmn	2019	2020	2021	2022E	2023E	2024E
Revenue	22,723	23,632	29,803	33,538	33,799	34,467
EBITDA incl. SG	5,227	6,623	10,327	9,531	6,167	6,695
EBIT	2,794	3,348	4,710	5,352	2,181	2,822
Net profit	1,428	1,797	6,156	5,497	1,146	1,672
P/E (x)	13.0	12.1	5.9	3.7	19.3	15.8
EV/EBITDA* (x)	6.4	5.5	4.8	3.3	5.3	5.3
DY	0.0%	0.0%	0.8%	3.0%	2.7%	0.5%

*Source: Company data, Santander Brokerage Poland estimates, * incl. Sierra Gorda*

Recommendation	Underperform
Price (PLN, 24 August 2022)	100.8
Target price (PLN, Dec'23)	92
Market cap. (PLNmn)	20,160
Free float (%)	68.2
Number of shares (mn)	200.0

What has changed

- TP cut to PLN92 from PLN121, recommendation Underperform maintained
- Question marks concerning Chinese demand, and devaluation of CNY pose material downside risk to commodities / copper pricing, we believe
- Energy-cost exposure (potential downside to 2023E EBITDA ranging at PLN2-4bn) negatively distinguishes company among world miners
- We keep extraction tax flat at 60% (valuation-supportive), which neutralizes inflationary pressures at SoTP valuation, applying 30% risk that it will be restored to 85%
- Multi-billion (and multi-year) capex on maintenance of Polish mining capacity and renewables highlight that KGHM's investment cycle is at its through
- An all-metal rally represents upside risk to our call, as does the weakening of zloty. The accelerated decline of Polish copper volumes, no change at Polish extraction tax, stabilization of electricity / gas prices at current levels and high Polish inflation rate all pose downside risks to KGHM



The chart measures performance against the WIG index.

Main shareholders	% of votes
State Treasury	31.8
NN Pension Fund	6.8
Aviva OFE	5.3

Source: stooq.com

Company description

KGHM is one of the world's largest copper extraction companies, and the number two global silver producer. It also operates projects in Canada, the US and Chile.

Analyst

Pawel Puchalski, CFA
Senior analyst

+48 22 586 80 95 pawel.puchalski@santander.pl

Key Stories

1) Chinese yuan depreciation, risk to copper price?

[an excerpt from Flash note 'Market Strategy Update: From inflation risks to deflation risks?' published on August 16, 2022 by Piotr Zielonka, CFA and Kamil Stolarski, CFA]

Fig. 1. Copper cost curve with demand line

Source: Wood MacKenzie

China macro and geopolitical situation is a wild card for us. We still tend to believe USD/CNY exchange rate should continue to depreciate. Weaker China currency is influencing mining cost curves, which drives down industrial commodity prices. Weak commodities should help contain inflation risks.

In the chart above we present copper cost curve. Strong USD is generally forcing the curve to move down as majority of copper producers are EM and their currencies usually weaken vs the USD. But USD/CNY is even more important for copper prices due to the impact on demand line (we present only theoretical demand lines). With CNY depreciating, demand volumes will go down moving demand line to the left. Copper supply curve seems to be steep on the right side, so any decrease in demand is decreasing copper price significantly (copper prices decreased by 30% since beginning of June).

2) Readying for extreme pressure at energy opex in 2023/2024E

KGHM is the Polish largest electricity user, with annual usage (parent company) at 3TWh p.a. Additionally, company is consuming large amounts of gas, totalling some 300mn cubic meters per annum. We were informed at the confcall that KGHM's 2023E electricity price hedging settles at 25-30%, and that the company is paying for its gas under take-or-pay contracts. Prices of both electricity and gas have risen substantially in the recent months, hence we believe KGHM's unavoidable gas and electricity exposure negatively distinguishes the Polish company among world miners.

KGHM may continue replacing gas with coal, but take-or-pay gas contracts should result in KGHM's gas bill rising very substantially already in 4Q2022E, we believe. Overall, at current gas prices KGHM's quarterly gas cost might grow to levels expected by the company for the entire 2022, we assume. In electricity, hedging remains thin, and hedging price is most likely substantially higher vs 2022 electricity prices (KGHM admitted it was hedging its 2023 electricity price from late 2021 till today). We cannot rule out some kind of long-term arrangement, letting KGHM report its 2023E electricity price at PLN900/MWh (our core scenario) and implying 2023E electricity cost PLN1.2bn higher y/y. However, if KGHM were to pay market electricity prices in 2023E (PLN1.8k/MWh), its electricity cost could expand to PLN6.3bn, PLN3.9bn y/y downside vs 2022E electricity bill.

[-] Aug2022 KPIs: Weak monthly production in every segment, KGHM Int.'s copper falls to all-time low

[published in Flash note on August 24, 2022]

Below we list key takeaways from the company's July 2022 volumes:

- **Parent company (weak):** weak monthly mining production both at copper and silver, with mid-single digit declines y/y and calendar-adjusted m/m. Anticipated rebound at electrolytic copper, up 6% m/m, yet production from own concentrate still below 30kt per month. Weak-ish monthly production of metallic silver and TPMs. Very weak copper/silver/TPM sales volumes, but we believe it remains of minor importance to quarterly volumes;
- **KGHM International (exceptionally weak):** weakest monthly copper and TPM production in project's history. At copper, disposal of Franke mine

trimmed volume by 0.9kt y/y, and Robinson mine volume comes in weak again, down 1.3kt y/y. No explanation for 37% m/m decline at TPM volume, other than striking Robinson mine weakness;

- **Sierra Gorda (weak):** copper volume rebounded vs very weak June 2022, but remains 27% weaker y/y due to low metal content in processed ore. Company suggests the change in hardness feed should result in higher monthly volumes, but does not provide any deadlines. Moly volumes remain on the slide, down 33-34% y/y and m/m.

Comment: July 2022 volumes: Negative. Parent company's mining production come in weak-ish in July 2022, down mid-single digit both y/y and calendar-adj. m/m. Electrolytic copper production from own concentrate rebounded as expected, but still remains below 30k mark. Monthly production in Aug-Dec 2022 has to remain above 37k threshold if KGHM intends to meet its FY2022 budget, we calculate, which turns into a challenge in our view. Weakness at Robinson output and lack of Franke contribution resulted in KGHM Int. monthly copper and TPM production falling to all-time lows. Sierra Gorda copper production rebounded vs. very weak June, but still remains weak in July, 27% weaker y/y and 7% below 1H22 avg. monthly production.

2022 budget delivery. July 2022 did not bring any major changes to parent company's budget delivery, with most volumes ahead of FY2022 budget except for own metallurgical copper remaining 9% below budget. KGHM Int. remains 29% above budget at copper, but Franke disposal and Robinson's July weakness trimmed annualized budget beat by 9pp (from 38% beat in June) just in one month. Budget beat is almost warranted at KGHM Int., as we see that, but please note that 2022 Franke volumes were probably not included in KGHM's FY22 budgeting. Sierra Gorda weak-ish copper production depresses its annualized YTD production 3% below budget at copper, and if project continues delivering 0.2mn lbs moly per month, today's Sierra Gorda 25% budget beat (based on strong 1H22 volumes) would be nullified, we calculate.

Fig. 2. Parent company's change at production/day
y/y change

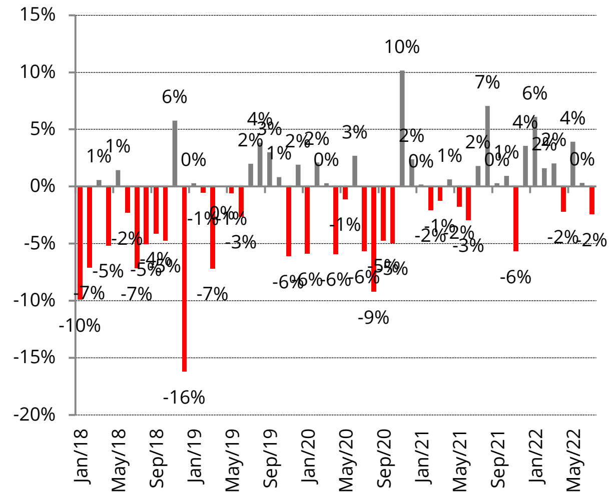
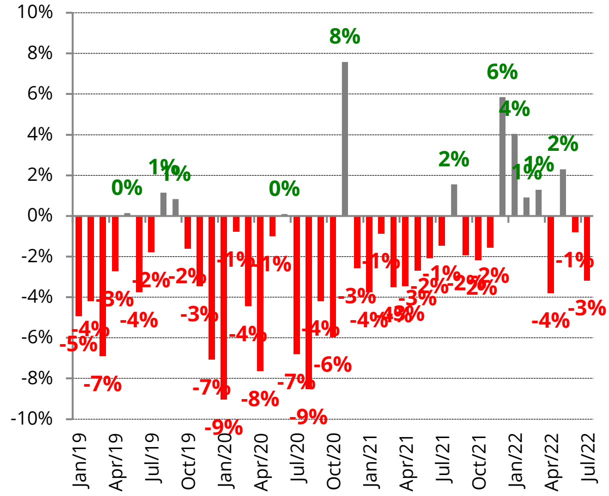
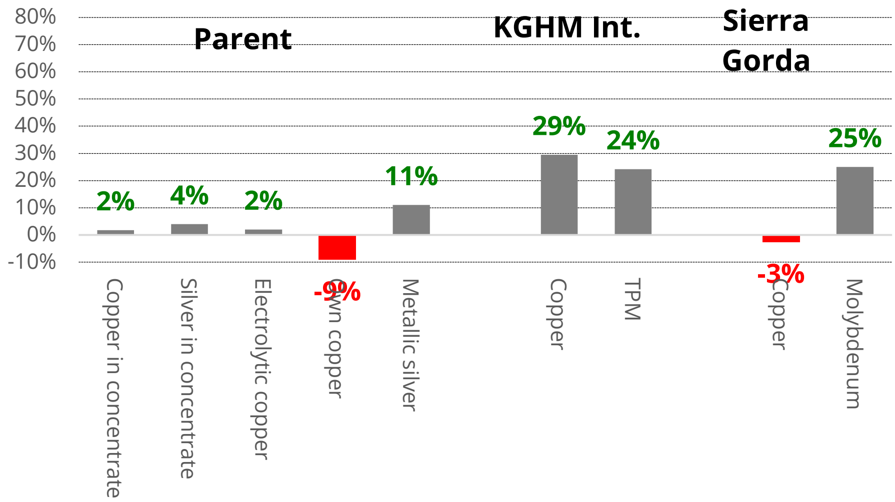


Fig. 3. Parent company's change at production/day
Specific month vs average of these months in three preceding years



Source: Company data, Santander Brokerage Poland estimates for both graphs

Fig. 4. KGHM: 2022 budget delivery* by segment



*Source: Company data, Santander Brokerage Poland estimates, * working-day recalculation of Jan-Jun2022 volumes*

Fig. 5. KGHM Group volumes

	Apr22	May22	Jun22	Jul22	y/y	m/m	Cal-adj. m/m	3Q22*	y/y	q/q
KGHM parent										
Mine production										
copper in concentrate (kt)	31.3	34.5	33.1	**32.3**	-4.7%	-2.4%	-3.6%	**97**	-3.6%	-1.7%
silver in concentrate (kt)	105.1	116.4	110.4	**108.8**	-2.6%	-1.4%	-2.6%	**327**	-2.7%	-1.3%
Metallurgical prod.										
Electrolytic copper (kt)	48.1	50.4	46.7	**49.5**	-0.4%	6.0%	4.7%	**149**	1.4%	2.6%
- including from own concentrate	28.5	28.5	25.5	**29.6**	-7.2%	16.1%	14.7%	**89**	-5.0%	8.0%
Metallic silver (t)	83.5	123.6	121.6	**117.6**	4.2%	-3.3%	-4.5%	**354**	9.5%	7.7%
Sales										
Copper sales (t)	49.7	46.3	53.4	**42.6**	1.9%	-20.2%	-21.2%	**128**	-2.9%	-14.2%
Silver sales (t)	93.5	104.1	135.4	**114.8**	-3.0%	-15.2%	-16.2%	**346**	4.3%	3.8%
KGHM International										
Production										
Payable copper (kt)	7.1	6.2	5.3	**3.6**	-39.0%	-32.1%	-32.9%	**10.8**	-43.0%	-41.7%
TPM (koz t)	7.4	6.9	5.4	**3.4**	-19.0%	-37.0%	-37.8%	**10.2**	-25.8%	-48.1%
Sales										
Copper sales (kt)	5.2	4.5	4.5	**2.3**	-58.2%	-48.9%	-49.5%	**6.9**	-65.4%	-51.2%
TPM sales (koz t)	5.9	5.7	4.3	**2.6**	-16.1%	-39.5%	-40.3%	**7.8**	-31.4%	-50.8%
Sierra Gorda (55%)										
Production										
Payable copper (kt)	6.8	7.7	6.1	**6.9**	-25.8%	13.1%	11.8%	**20.8**	-23.9%	0.8%
Molybdenum (mn lbs)	0.1	0.4	0.3	**0.2**	-33.3%	-33.3%	-34.1%	**0.6**	-75.9%	-24.8%
TPM (koz t)	2.7	3.7	2.5	**2.2**	-8.3%	-12.0%	-13.1%	**6.6**	-23.9%	-25.6%
Sales										
Copper sales (kt)	7.0	7.4	5.9	**6.6**	-36.5%	11.9%	10.5%	**19.9**	-28.8%	-2.1%
Molybdenum sales (mn lbs)	0.5	0.5	0.2	**0.3**	50.0%	50.0%	48.2%	**0.9**	-46.9%	-24.8%
TPM (koz t)	2.6	3.1	2.6	**2.2**	-18.5%	-15.4%	-16.4%	**6.6**	-21.2%	-20.2%

*Source: company data, Santander Brokerage Poland, * based on calendar-day adjusted production in July*

Santander

[-] Unique items trigger 2Q22's 15% EBITDA miss, opex inflationary pressures accelerate...

[published in Flash note on August 18, 2022]

Fig. 6. KGHM: 2Q2022 results' review

PLNmn	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	y/y	q/q	SANe	Cons.
Sales	5,649	5,632	7,052	6,745	7,761	7,229	8,068	8,993	**8,933**	*15.1%*	*-0.7%*	*8,993*	*9,066*
EBITDA	1,522	1,767	2,205	2,608	2,705	2,417	2,597	3,133	**2,176**	*-19.6%*	*-30.5%*	*2,497*	*2,537*
EBITDA margin	*26.9%*	*31.4%*	*31.3%*	*38.7%*	*34.9%*	*33.4%*	*32.2%*	*34.8%*	***24.4%***	*-10.5*	*-10.5*	*27.8%*	*28.0%*
EBIT	645	966	1,055	1,442	1,364	1,065	839	1,801	**1,230**	*-9.8%*	*-31.7%*	*1,165*	*1,707*
EBIT margin	*11.4%*	*17.2%*	*15.0%*	*21.4%*	*17.6%*	*14.7%*	*10.4%*	*20.0%*	***13.8%***	*-3.8*	*-6.3*	*13.0%*	*18.8%*
Net profit	9	473	562	1,365	2,358	1,039	1,393	1,899	**1,409**	*-40.2%*	*-25.8%*	*1,409*	*1,330*
Net margin	*0.2%*	*8.4%*	*8.0%*	*20.2%*	*30.4%*	*14.4%*	*17.3%*	*21.1%*	***15.8%***	*-14.6*	*-5.3*	*15.7%*	*14.7%*

Source: Company data, Santander Brokerage Poland estimates

Key takeaways from KGHM's 2Q2022 quarterly results:

- One-offs. EBITDA. Sierra Gorda's delayed shipments resulted in almost PLN200mn mark-to-marking effect (company sold volume at certain time at higher price, client received it later and paid lower market price). FX differences and hedging settlements drove parent company's bottom line above company's internal estimates, which made KGHM create almost PLN0.1bn provision (depressing parent company's EBITDA) for 2-4Q2022 personnel bonuses. Additionally, parent company's 'other tax and charges' opex line settles some PLN0.1bn below l-t quarterly average. Cash generation. Disposal of Interferie subsidiary (some PLN40mn inflow), Franke mine (some PLN140mn inflow) and oxides project to Sierra Gorda (PLN100mn) support company's net cash by some PLN0.23bn, we calculate. This is offset by heavy PLN1.1bn income tax paid. Bottom line. PLN0.25bn quarterly net FX gain and PLN0.4bn quarterly financial assets' fair value gain drive very strong parent company / Group's bottom line, respectively at PLN1.9bn / PLN2.3bn;
- Segmental EBITDA. KGHM International at PLN213mn, down 28% y/y, broadly in line with expectations. Very weak Sierra Gorda at PLN333mn, down 60% y/y and q/q, due to PLN0.2bn mark-to-marking resulting from delayed shipments. Below-estimate parent company at PLN1.52bn, +5% y/y and down 19% q/q, mostly due to PLN0.1bn provision for bonuses;
- Parent company opex. Very high personnel costs at PLN1.3bn, up 20% y/y and up 35% q/q. Adjusted for bonus provisioning expected at PLN0.1bn, growth at 11% y/y. extraction tax at PLN809mn, down 12% y/y and down 4% q/q. Materials & Energy (other than scrap) at PLN1.2bn, up 78% y/y and up 10% q/q. External services up 16% y/y. 'Other tax and charges' surprisingly low at PLN22mn, down 85/90% y/y and q/q. Total expenses by nature at PLN6.7bn, up 18% y/y and up 9% q/q, reported opex at PLN6.5bn, up 20% y/y and up 9% q/q;
- Cash Flow, capex, Net Debt. Net cash from operating activities at negative PLN135mn due to very high income tax paid at PLN1.1bn, totaling PLN1.6bn

in 1H2022, vs PLN2.3bn in 1H2021. Working Capital at neg. PLN0.8bn, totaling neg. PN1.4bn in 1H2022 vs neg. PLN1.7bn in 1H2021. Capex at PLN0.8bn in 2Q2022, totaling PLN1.5bn in 1H2022. Net debt (net of derivatives) grows PLN0.8bn q/q to PLN3.4bn, net debt-to-EBITDA ratio up insignificantly q/q to 0.33x.

Comment: Negative. KGHM posts 2Q2022 EBITDA at PLN2.2bn, 14% below consensus, coming in line with our expectations at bottom line. While we attribute PLN0.3bn EBITDA miss to one-off events, some PLN0.3bn cash has been lost vs consensus. Parent company's opex rallies 20% y/y to all-time high PLN6.7bn (costs adj. for depreciation/extraction tax/scrap up 28% y/y), with energy's 78% y/y growth representing the key driver. 2Q22 EBITDA miss, rallying opex outlook and metal prices keeping 2H2022E top line under pressure all warrant negative outlook, we believe.

Company's EBITDA suffered due to PLN0.2bn marking-to-market loss at Sierra Gorda (delays in dispatches trimmed SG's top line), and high FX gains (and implied high 2Q/1H22 bottom line) made company create some PLN0.1bn provision for 2022 bonuses. Parent company's costs by nature grow 18% y/y to PLN6.7bn (costs adj. for scrap/extraction tax/depreciation/ up 28% y/y), the highest reading(s) ever. These are driven by energy (up 78% y/y) personnel (+20% y/y) and third-party services (+16% y/y), yet 'other taxes/charges' position comes in surprisingly low (PLN100mn below past quarterly average), suggesting total costs might be understated.

At net debt, heavy tax paid at PLN1.1bn depressed operating cash flow into red, despite PLN0.25bn gains on disposals.

Fig. 7. KGHM: EBITDA breakdown

PLNmn	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	*y/y*	*q/q*	*SANe*
Group	**1,522**	**1,767**	**2,205**	**2,608**	**2,705**	**2,417**	**2,597**	**3,133**	**2,176**	*-19.6%*	*-30.5%*	***2,481***
Parent	1,031	1,121	1,406	1,675	1,482	1,115	1,202	1,924	**1,551**	*4.7%*	*-19.4%*	*1,663*
KGHM Int.	110	233	213	238	295	460	347	361	**213**	*-27.8%*	*-41.0%*	*259*
Sierra Gorda	324	351	567	643	835	759	930	821	**333**	*-60.1%*	*-59.4%*	*533*

Source: Company data

Fig. 8. KGHM: Cash Costs

USD/lb	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	*y/y*	*q/q*
Group	**1.58**	**1.56**	**1.61**	**1.82**	**1.96**	**2.03**	**2.00**	**2.19**	**2.18**	***11.2%***	***-0.5%***
Parent company	1.59	1.61	1.68	1.93	2.30	2.48	2.32	2.40	**2.42**	*5.2%*	*0.8%*
KGHMI	1.83	1.62	2.00	2.32	1.83	1.67	2.27	2.23	**1.77**	*-3.3%*	*-20.6%*
Sierra Gorda	1.34	1.21	1.08	0.93	0.81	0.71	0.69	1.35	**1.41**	*74.1%*	*4.4%*

Source: Company data

...and 2Q2022 confcall takeaways: Working Capital supportive to cash, energy alone to trim 2023E EBITDA by PLN3.4bn?

[published in Flash note on August 19, 2022]

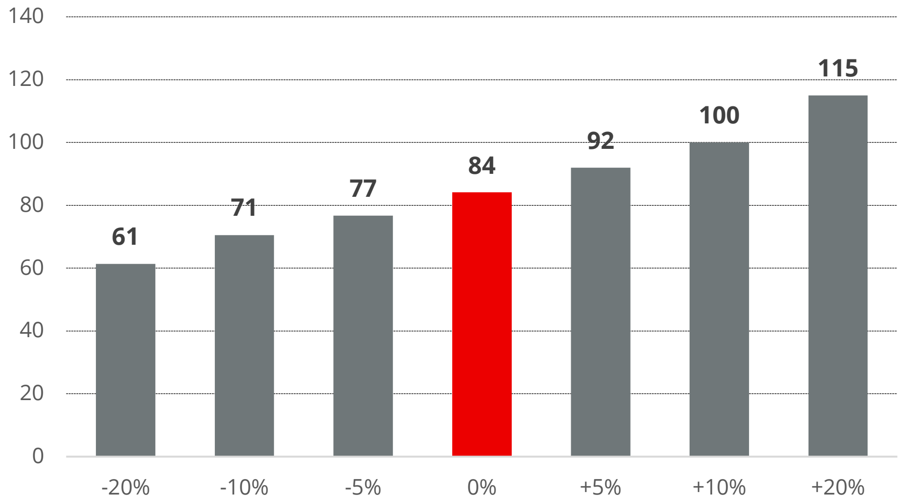
Key takeaways from yesterday's conference call with company's management:

- Company is not adjusting its FY2022 parent company unit cost, presented at PLN26.5k/t in January 2022 along with FY2022 budget;

- Volume production in Siera Gorda is stronger in July and August versus 2Q2022, project managers are doing their best to make up for weak-ish 2Q2022 in terms of FY2022 volume;
- The company does not feel the slowdown in China, sales to China are progressing smoothly, some European customers are accelerating their copper purchases;
- In 2Q2022 cost of diesel fuel grew 55% y/y in Chile. In Poland, electricity cost is 84% higher y/y, while acc. to the management costs of materials grew significantly more than price of electricity;
- In Chile, copper is sold in up to 3-month contracts to China. Marking-to-market occurs every quarter, but it used to trigger negligible EBITDA impact during stable copper prices, while management estimates mark-to-market impact at PLN120mn in 2Q2022;
- KGHM reduced gas-fired heat production in Polkowice, replacing it with coal-fired production. KGHM representatives claim company gas got enough coal on stock for this heating season;
- KGHM wants to reduce internal gas consumption from 2.5TWh to 1.9TWh in 2023. However, the company has got long-term take-or-pay contract;
- At Working Capital, company increased its inventory after the outbreak of the war, semi-finished products also remained on the rise, and KGMH also built its inventory of materials. As of 3Q2022, company is planning to reduce its stock (both copper and materials);
- KGHM is applying rolling electricity price hedging for 2023, its 2023 hedging settles at 25-30% presently, with prices hedged from 2021 till today;
- KGHM maintains 30% pay-out dividend plan for 2023;
- Company keeps lobbying for reduction in extraction tax;
- KGHM International mines from Sudbury basin are for sale, but first it is necessary to sort out their ownership structure. Carlota mine (also KGHM Int.) was for sale, but there was no interest.

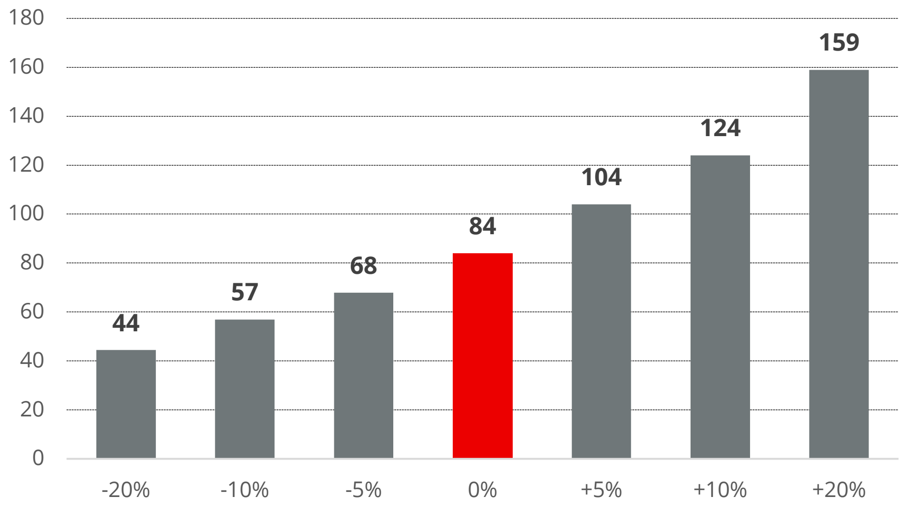
KGHM's valuation sensitivity

Fig. 9. KGHM: SoTP target price sensitivity to changes in gold / silver / TPM prices [PLN]



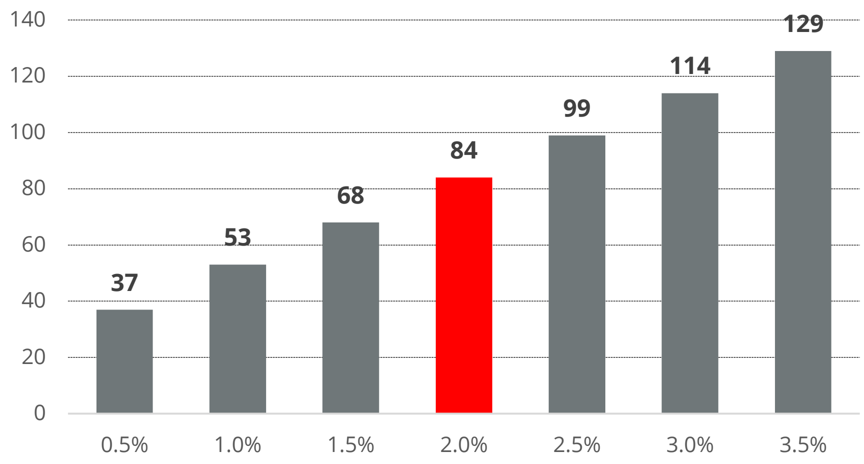
Source: Santander Brokerage Poland estimates

Fig. 10. KGHM: SoTP target price sensitivity to changes in copper / moly prices [PLN]



Source: Santander Brokerage Poland estimates

Fig. 11. KGHM: SoTP target price sensitivity to changes in all-metal price inflation [PLN]*



*Source: Santander Brokerage Poland estimates, * X axis presents all-metal per annum inflation*

Key assumptions

Fig. 12. KGHM: Key assumptions – parent company

Year to December	unit	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	...	2025E
USDPLN exchange rate		3.16	3.74	3.91	3.78	3.61	3.84	3.88	3.86	4.41	4.50		4.20
Prices													
Copper	USD/t	6,830	5,493	4,871	6,174	6,456	6,001	6,059	9,302	8,863	8,560		9,572
Silver	USD/troz	19.07	15.71	17.11	17.08	15.72	16.05	20.33	25.18	21.55	21.23		24.41
Gold	USD/troz	1,266	1,161	1,249	1,259	1,265	1,395	1,769	1,804	1,834	1,865		1,995
Volumes - Production													
Copper	kt	578	611	535	522	502	566	561	569	585	585		585
incl. copper scrap	kt	157	190	159	163	117	165	138	185	191	203		211
incl. own copper	kt	421	421	375	359	385	399	413	384	394	382		374
Silver	t	1256	1283	1191	1217	1264	1249	1,218	1,303	1,280	1,280		1280
Gold / TPM	k troz	83	94	114	117	83	104	97	81	78	76		76
Volumes - Sales													
Copper	kt	573	571	525	506	515	557	561	562	583	585		585
incl. copper scrap	kt	157	190	159	163	117	165	138	185	191	203		211
incl. own copper	kt	416	381	366	343	398	392	423	376	392	382		374
Silver	t	1263	1605	1168	1185	1228	1393	1,369	1,270	1,332	1,280		1280
Costs													
Mining Cash Costs	PLNmn	13121	12655	12436	12899	13460	15291	16,161	20,514	24,132	27,494		26695
C1 cash cost	**USD/lb**	1.82	1.56	1.20	1.72	2.02	1.66	1.40	2.39	2.62	3.31		3.09

Source: Company data, Santander Brokerage Poland estimates

Fig. 13. KGHM: Key assumptions – KGHM International (ex. Sierra Gorda project)

	unit	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	...	2025E
USDPLN exchange rate		3.16	3.74	3.91	3.78	3.61	3.84	3.88	3.86	4.41	4.50		4.20
Prices													
Copper	USD/t	6,830	5,493	4,871	6,174	6,456	6,001	6,059	9,302	8,863	8,560		9,572
TPM	USD/troz	1266	1161	1249	1259	1265	1,395	1,769	1,804	1,834	1,865		1995
Volumes - Production													
Copper	kt	86	98	90	81	79	77	67	72	67	58		55
Nickel	kt	3	2	2	1	1	1	0	1	0	0		0
TPM	k troz	70	95	92	74	68	85	66	52	65	58		55
Volumes - Sales													
Copper	kt		99	90	80	78	72	72	66	58	58		55
Nickel	kt		2	2	1	1	1	0	0	0	0		0
TPM	k troz		97	94	73	66	76	71	47	57	58		55
Costs													
Mining Cash Costs	USDmn		803	604	526	716	722	655	585	580	584		615
C1 cash cost	**USD/lb**		1.87	1.45	1.31	1.51	1.25	1.78	1.59	1.52	1.63		2.03

Source: Company data, Santander Brokerage Poland estimates

Fig. 14. KGHM: Key assumptions – Sierra Gorda project

	unit	2014	2015	2016	2017	2018	2019	2020	2021	2022E	2023E	...	2025E
USDPLN exchange rate		3.16	3.74	3.91	3.78	3.61	3.84	3.88	3.86	4.41	4.50		4.20
Prices													
Copper	USD/t	6,830	5,493	4,871	6,174	6,456	6,001	6,059	9,302	8,863	8,560		9,572
Molybdenum	USD/lb	11.59	6.60	6.42	7.07	9.80	10.68	8.95	15.28	16.88	15.66		16.98
Gold	USD/troz	1266	1161	1249	1259	1265	1,395	1,769	1,804	1,834	1,865		1995
Volumes - Production													
Copper	kt		84	94	97	97	108	149	190	165	169		169
Molybdenum	m lb		7.0	22.2	35.7	26.8	20.3	16.5	11.1	5.3	2.9		1.2
Gold	k troz		0.0	41.5	50.9	42.1	56.7	57.3	44.4	52.3	48.0		48.0
Volumes - Sales													
Copper	kt		51	95	98	95	111	148	186	165	169		169
Molybdenum	m lb		4.3	24.2	35.3	30.9	21.2	16.9	14.7	5.8	2.9		1.2
Gold	k troz		25.4	41.5	50.9	40.4	58.4	56.6	55.9	53.0	48.0		48.0
Costs													
Mining Cash Costs	USDmn		471	938	898	934	852	958	1030	1138	1284		1500
C1 cash cost	**USD/lb**		2.58	1.95	1.30	1.00	1.15	0.92	0.66	1.36	1.92		2.57

Source: Company data, Santander Brokerage Poland estimates

Fig. 15. KGHM: Revenues / EBITDA – contribution by segment

PLNmn (Year to Dec)	2016	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E
Net sales, incl.	**19,156**	**20,358**	**20,353**	**22,723**	**23,632**	**29,803**	**33,538**	**33,799**	**34,467**	**35,051**
Parent	*15,112*	*16,024*	*15,757*	*17,683*	*19,326*	*24,618*	*28,725*	*28,913*	*29,657*	*30,225*
KGHM International	*2,535*	*2,608*	*2,864*	*3,087*	*2,703*	*3,122*	*3,210*	*3,284*	*3,207*	*3,223*
Others	*1,509*	*1,726*	*1,732*	*1,953*	*1,603*	*1,603*	*1,603*	*1,603*	*1,603*	*1,603*
Sierra Gorda (55%, not incl.)	*1,388*	*1,998*	*1,944*	*2,010*	*2,599*	*4,576*	*3,774*	*3,888*	*3,911*	*3,954*
EBITDA, incl.	**4,784**	**5,814**	**4,971**	**5,227**	**6,623**	**10,327**	**9,531**	**6,167**	**6,695**	**7,975**
Parent	*3,630*	*4,197*	*3,416*	*3,627*	*4,458*	*5,474*	*6,097*	*2,980*	*3,635*	*5,189*
KGHM International	*654*	*702*	*724*	*699*	*608*	*1,340*	*1,112*	*1,175*	*1,174*	*1,060*
Others	*313*	*309*	*201*	*241*	*211*	*346*	*346*	*346*	*346*	*346*
Sierra Gorda (55%, incl.)	*188*	*606*	*630*	*660*	*1,346*	*3,167*	*1,976*	*1,666*	*1,539*	*1,380*

Source: Company data, Santander Brokerage Poland estimates

Valuation

DCF valuation

Fig. 16. KGHM: WACC calculation

	2022-24E	2025-31E
Risk-free rate	6.0%	4.0%
Unlevered beta	1.00	1.00
Levered beta	1.16	1.16
Equity risk premium	5.5%	5.5%
Cost of equity	**12.4%**	**10.4%**
Risk-free rate	6.0%	4.0%
Debt risk premium	1.0%	1.0%
Tax rate	19%	19%
After tax cost of debt	**5.7%**	**4.1%**
%D	16%	16%
%E	84%	84%
WACC	**11.3%**	**9.3%**

Source: Santander Brokerage Poland estimates

Fig. 17. KGHM: Parent company DCF valuation *

PLNmn	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenues	**28,725**	**28,913**	**29,657**	**30,225**	**30,805**	**31,396**	**31,999**	**32,614**	**32,614**
EBIT	4,793	1,618	2,225	3,731	3,613	3,491	3,363	3,218	2,812
Cash taxes on EBIT	1,423	716	863	1,185	1,183	1,181	1,178	1,173	1,085
NOPAT	**3,370**	**903**	**1,362**	**2,546**	**2,430**	**2,311**	**2,185**	**2,045**	**1,727**
Depreciation	1,504	1,562	1,610	1,658	1,706	1,754	1,802	1,850	1,898
Capital expenditure	**2,750**	**2,750**	**2,750**	**2,750**	**2,750**	**2,750**	**2,750**	**2,750**	**2,750**
Free cash flow	**2,124**	**-285**	**222**	**1,454**	**1,386**	**1,315**	**1,237**	**1,145**	**875**
WACC	11.3%	11.3%	11.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%
PV FCF 2022-2030E	6,245								
Terminal growth	-1.0%								
Terminal Value (TV)	12,802								
PV TV	4,890								
Total EV	**11,134**								

*Source: Santander Brokerage Poland estimates, * forecasts do not include potential strategy update implications*

According to the CEO, KGHM intends to focus on energy in its strategy update. KGHM requires 3TWh electricity per annum, and below we present our view of capacity and capex requirements for the company to become CO2-independent. According to our calculations, KGHM would have to spend PLN4.3bn to build zero-pollution capacity providing 50% of its electricity (strategic target).

Fig. 18. KGHM: Comparison of different zero-pollution technologies, all producing 1.5TWh p.a.

	Off-shore wind	Nuclear SMR	Onshore wind	Photovoltaics
Technology load factor	49%	85%	30%	11.5%
Capacity required [MW]	349	201	571	1,489
Total capex required [PLNmn]	5,626	3,707	4,201	3,767
Average capex requirement [PLNmn]				**4,325**

Source: Santander Brokerage Poland estimates

Fig. 19. KGHM: SoTP valuation including possible energy transformation benefit

	Copper replacement	Salt venture	Energy**
Capex [PLNmn] *	10,000	3,000	4,325
Net SoTP impact [PLNmn] ***	-3,436	-	2,263
Per share impact [PLN/share]	**-17**	**-**	**11**

*Source: Santander Brokerage Poland estimates, * our capex assumption, ** KGHM expects to build capacity providing 50% of its electricity needs, hence we included 50% of capex and SoTP impact in Energy, *** Copper: we assume capex offers no upside, Salt: recovery of capex should be expected, Energy: we estimate a PLN8.5bn terminal gain on KGHM´s 50% renewable capacity overall energy transformation with a positive impact of PLN2.2bn above from energy (PLN8.5bn discounted gain less PLN4.3bn capex).*

Fig. 20. KGHM: SoTP valuation

PLNmn	Current	*PLN per share*	Previous	*Change*
Parent company ***	11,134	56	11,226	-1%
Other assets*	1,929	10	1,930	0%
KGHM International*	3,061	15	2,725	12%
Sierra Gorda, Victoria*	7,290	36	8,206	-11%
Total assets	**23,414**	**117**	**24,087**	-3%
Net Debt ** / ***	9,900	50	7,771	27%
Net Asset Value (Jan 2022)	**13,514**	**68**	**16,316**	-17%
Dec2023 Target Price		**84**		

*Source: Company data, Santander Brokerage Poland estimates, * assets valued based on our multi-year FCF forecasts, Victoria project valuation based on data provided by KGHM, ** Net debt increased for negative PLN6 per share impact of strategic investments presented at Fig.19 and assumed 30% probability that extraction tax will be upped back to 85%, *** energy-related capex transferred from Parent company to Net Debt*

Fig. 21. KGHM: Comparable valuation

Company	Market Cap (EURmn)	P/E 2022E	P/E 2023E	P/E 2024E	EV/EBITDA 2022E	EV/EBITDA 2023E	EV/EBITDA 2024E	P/CE 2022E	P/CE 2023E	P/CE 2024E
International peers										
Anglo American	41106	5.8	6.9	7.4	3.1	3.4	3.7	4.2	4.5	4.8
BHP Group	141894	6.7	8.8	11.0	3.6	4.5	5.3	5.3	6.6	7.8
Antofagasta	13386	18.4	16.1	14.5	5.6	5.0	4.7	7.0	6.5	6.2
Freeport-McMoRan	44370	11.0	14.3	12.1	5.3	5.2	4.5	6.9	8.8	7.9
Southern Copper	37978	15.4	14.7	13.4	8.0	8.0	7.2	11.7	11.5	
Boliden	9259	8.0	11.0	10.6	4.5	5.6	5.4	5.4	6.4	6.2
Rio Tinto	97544	6.0	7.3	8.4	3.5	4.1	4.4	4.6	5.2	5.6
First Quantum Minerals	13083	11.0	12.4	8.8	5.3	5.1	4.1	5.9	6.0	4.8
Jiangxi Copper	6814	5.4	5.9	4.8	7.1	7.4	6.0	5.8	6.1	
Median		***8.0***	***11.0***	***10.6***	***5.3***	***5.1***	***4.7***	***5.8***	***6.4***	***6.2***

Source: Bloomberg consensus estimates, Santander Brokerage Poland estimates, share prices as of August 22, 2022

Fig. 22. KGHM: Multiple-based valuation implications (PLN/share)

	P/E 2023-24E	EV/EBITDA 2023-24E	P/CE 2023-24E	Average 2023-24E
Comparable valuation	76	139	114	**110**

Source: Bloomberg, Santander Brokerage Poland estimates

Please note that we expect KGHM results to deteriorate substantially in 2023/24E vs 2022E. As results' outlook comes in substantially more important to 2022 data, we decided to run comparative valuation based on years 2023-24 only, vs 2022-24E previously. Comparative valuation based on 2022E data alone would imply three-ratio average Target Price at PLN227.

Valuation summary

DCF remains our preferred valuation tool, as it relies more on the company's long-term outlook. Changes in financial results or changes in investors´ preferences drive the comparable valuation, which we see as supportive to the DCF valuation methodology.

Fig. 23. KGHM: Valuation changes**

PLN per share	New	Previous	Change
DCF / SOtP valuation	84	94	*-11%*
Comparable valuation (based on 2023-2024E)	110	184	*-40%*
Blended valuation *	**92**	**121**	***-24%***

*Source: Company data, Santander Brokerage Poland estimates, * 70% DCF, 30% comparable valuation, ** rounded values*

Fig. 24. KGHM: Santander changes to forecasts

PLNmn	2022E			2023E			2024E		
	New	Previous	*Change*	New	Previous	*Change*	New	Previous	*Change*
Sales	33,538	35,117	*-4%*	33,799	35,408	*-5%*	34,467	35,054	*-2%*
EBITDA (incl. SG)	9,531	10,436	*-9%*	6,167	7,658	*-19%*	6,695	6,259	*7%*
EBIT	5,352	6,790	*-21%*	2,181	4,150	*-47%*	2,822	2,803	*1%*
Net profit	5,497	4,699	*17%*	1,146	2,204	*-48%*	1,672	1,175	*42%*

Source: Santander Brokerage Poland estimates

Fig. 25. KGHM: Santander forecasts vs. market consensus

PLNmn	2022E			2023E			2024E		
	SANe	Cons.	*Diff.*	SANe	Cons.	*Diff.*	SANe	Cons.	*Diff.*
Sales	33,538	33,507	*0%*	33,799	32,473	*4%*	34,467	36,199	*-5%*
EBITDA (incl. SG)	9,531	8,866	*8%*	6,167	7,147	*-14%*	6,695	7,913	*-15%*
EBIT	5,352	6,433	*-17%*	2,181	4,759	*-54%*	2,822	4,608	*-39%*
Net profit	5,497	5,593	*-2%*	1,146	2,859	*-60%*	1,672	1,885	*-11%*

Source: Bloomberg, Santander Brokerage Poland estimates

Santander

Financials

Fig. 26. KGHM: Income statement forecasts

PLNmn (year to December)	2018	2019	2020	2021	2022E	2023E	2024E
Net sales	**20,353**	**22,723**	**23,632**	**29,803**	**33,538**	**33,799**	**34,467**
COGS, incl.	17,699	19,929	20,284	25,093	28,186	31,618	31,645
Depreciation	1,825	1,788	1,963	2,166	2,599	2,285	2,310
Polish extraction tax	1,671	1,520	1,625	3,348	3,002	2,767	2,898
Adj. EBITDA (incl. 55% SG)	**4,971**	**5,227**	**6,623**	**10,327**	**9,531**	**6,167**	**6,695**
EBITDA	**4,341**	**4,567**	**5,277**	**7,160**	**7,555**	**4,502**	**5,156**
Operating profit	**2,654**	**2,794**	**3,348**	**4,710**	**5,352**	**2,181**	**2,822**
One-offs	1,275	180	0	2,380	2,000	0	0
Sierra Gorda (55% loss vs loan income)	**-296**	**-111**	**247**	**1,496**	**737**	**641**	**681**
Net financial income (costs)	1,167	734	839	762	598	758	758
Profit before tax	**2,466**	**2,129**	**2,756**	**7,824**	**7,491**	**2,064**	**2,744**
Income tax	808	701	959	1,669	1,994	918	1,072
Net profit	**1,657**	**1,428**	**1,797**	**6,156**	**5,497**	**1,146**	**1,672**
EBITDA margin	21.3%	20.1%	22.3%	24.0%	22.5%	13.3%	15.0%
Operating margin	13.0%	12.3%	14.2%	15.8%	16.0%	6.5%	8.2%
Net profit margin	8.1%	6.3%	7.6%	20.7%	16.4%	3.4%	4.9%

Source: Company data, Santander Brokerage Poland estimates

Fig. 27. KGHM: Balance sheet forecasts

PLNmn (year to December)	2018	2019	2020	2021	2022E	2023E	2024E
Current assets	**7,862**	**7,740**	**8,733**	**11,363**	**14,136**	**13,617**	**13,658**
cash and equivalents	957	1,016	2,522	2,872	4,810	4,139	4,337
other short term investments	0	0	0	0	0	0	0
accounts receivable	1,222	1,259	1,129	1,373	1,545	1,557	1,588
inventories	4,983	4,741	4,459	6,337	7,000	7,140	6,952
other	700	724	623	781	781	781	781
Fixed assets	**29,375**	**31,669**	**34,047**	**36,664**	**39,161**	**40,316**	**41,902**
PPE	19,164	21,462	22,600	23,880	24,897	26,678	28,906
long-term investments	5,203	5,694	6,069	7,867	9,130	8,489	7,808
intangibles	3,013	2,984	2,998	2,843	2,843	2,843	2,843
joint venture investment	0	0	0	0	0	0	0
other	1,577	1,230	2,026	1,728	1,945	1,960	1,998
deferred taxes	418	299	354	346	346	346	346
Total assets	**37,237**	**39,409**	**42,780**	**48,027**	**53,297**	**53,932**	**55,559**
Current liabilities	**5,865**	**6,036**	**7,907**	**9,538**	**9,911**	**9,937**	**10,003**
bank debt	1,114	439	1,095	1,453	1,453	1,453	1,453
accounts payable	2,053	2,766	3,593	2,974	3,347	3,373	3,439
other current liabilities	1,890	1,459	1,744	3,467	3,467	3,467	3,467
Provisions	808	1,372	1,475	1,644	1,644	1,644	1,644
Long-term liabilities	**12,147**	**13,171**	**13,792**	**11,351**	**11,351**	**11,351**	**11,351**
bank debt	7,029	7,708	7,934	6,543	6,543	6,543	6,543
other long-term liabilities	609	631	993	1,260	1,260	1,260	1,260
Provisions	4,509	4,832	4,865	3,548	3,548	3,548	3,548
Equity	**19,133**	**20,110**	**20,992**	**27,046**	**31,943**	**32,553**	**34,114**
share capital	2,000	2,000	2,000	2,000	2,000	2,000	2,000
capital reserves	15,476	16,682	17,195	18,890	24,446	29,407	30,442
net income	1,657	1,428	1,797	6,156	5,497	1,146	1,672
Minority Interest	**92**	**92**	**89**	**92**	**92**	**91**	**91**
Total liabilities and equity	**37,237**	**39,409**	**42,780**	**48,027**	**53,297**	**53,933**	**55,559**
Net debt*	7,186	7,131	6,507	5,124	3,186	3,857	3,659

Source: Company data, Santander Brokerage Poland estimates

Fig. 28. KGHM: Cash flow statement forecasts

PLNmn (year to December)	2018	2019	2020	2021	2022E	2023E	2024E
Cash flow from operations	**4,460**	**4,997**	**5,236**	**4,275**	**7,634**	**3,305**	**4,206**
Net profit	1,657	1,428	1,797	6,156	5,497	1,146	1,672
Provisions	676	323	33	-1,317	0	0	0
Depreciation and amortization	1,825	1,788	1,963	2,166	2,599	2,285	2,310
Changes in WC, o/w	464	918	1,239	-2,741	-462	-126	224
inventories	-56	242	282	-1,878	-663	-140	188
receivables	300	-37	130	-244	-172	-12	-31
payables	220	713	827	-619	373	26	67
Other, net	-162	540	204	11	0	0	0
Cash flow from investments	**-4,541**	**-4,491**	**-3,694**	**-2,793**	**-5,095**	**-3,440**	**-3,896**
Additions to PPE and intangibles	-3,371	-4,057	-3,115	-3,291	-3,616	-4,066	-4,538
Change in long-term investments	-1,306	-491	-375	-1,798	-1,263	641	681
Other, net	136	57	-204	2,296	-217	-15	-39
Cash flow from financing	**452**	**-447**	**-36**	**-1,132**	**-600**	**-536**	**-112**
Change in long-term borrowing	630	679	226	-1,391	0	0	0
Change in short-term borrowing	39	-675	656	358	0	0	0
Change in equity and profit distribution	-218	-451	-915	198	0	0	0
Dividends paid	0	0	0	-300	-600	-536	-112
Other, net	1	0	-3	3	0	0	0
Net change in cash and equivalents	**371**	**59**	**1,506**	**350**	**1,938**	**-672**	**199**
Beginning cash and equivalents	586	957	1,016	2,522	2,872	4,810	4,139
Ending cash and equivalents	957	1,016	2,522	2,872	4,810	4,139	4,337

Source: Santander Brokerage Poland estimates

Santander Brokerage Poland

Jana Pawla II Avenue 17
00-854 Warszawa
fax. (+48) 22 586 81 09

Equity Research

Kamil Stolarski, CFA, *Head of Equity Research* *Banks, Insurers, Strategy*	tel. (+48) 22 586 81 00	kamil.stolarski@santander.pl
Paweł Puchalski, CFA, *Equity Analyst* *Telecommunications, Metals & Mining, Power*	tel. (+48) 22 586 80 95	pawel.puchalski@santander.pl
Tomasz Krukowski, CFA, *Equity Analyst* *Oil&Gas, Pharma & Biotech, CEE Non-Financials*	tel. (+48) 22 586 81 55	tomasz.krukowski@santander.pl
Adrian Kyrcz, *Equity Analyst* *Construction, Real Estate, IT*	tel. (+48) 22 586 81 59	adrian.kyrcz@santander.pl
Tomasz Sokołowski, *Equity Analyst* *Consumer, E-commerce*	tel. (+48) 22 586 82 36	tomasz.sokolowski@santander.pl
Michał Sopiel, *Equity Analyst* *Industrials, Chemicals, Quantitative Analysis*	tel. (+48) 22 586 82 33	michal.sopiel@santander.pl
Piotr Zielonka, CFA, *Equity Analyst* *Gaming, Strategy*	tel. (+48) 22 534 16 10	piotr.zielonka@santander.pl
Marcin Działek, *Analyst* *Technical Analysis*	tel. (+48) 22 782 93 09	marcin.dzialek@santander.pl

Sales & Trading

Kamil Kalemba, *Head of Institutional Equities*	tel. (+48) 22 586 80 84	kamil.kalemba@santander.pl
Mateusz Choromański, CFA, Head of Sales *Securities Broker, Investment Advisor*	tel. (+48) 22 586 80 82	mateusz.choromanski@santander.pl
Alex Kamiński	tel. (+48) 22 586 80 63	alex.kaminski@santander.pl
Błażej Leśków, *Securities Broker*	tel. (+48) 22 586 80 83	blazej.leskow@santander.pl
Michał Stępkowski, *Securities Broker*	tel. (+48) 22 586 85 15	michal.stepkowski@santander.pl
Marek Wardzyński, *Securities Broker*	tel. (+48) 22 586 80 87	marek.wardzynski@santander.pl
Adam Mizera, *Securities Broker*	tel. (+48) 22 586 85 14	adam.mizera@santander.pl

DISCLOSURES

All of the views expressed in this report accurately reflect the personal views of the Analyst of Equity Research Team in Santander Brokerage Poland which is a separate organizational unit of Santander Bank Polska S.A. ("Santander Bank Polska"), who is the author of this report.
Santander Brokerage Poland emphasizes that this document is going to be updated at least once a year.

Santander Brokerage Poland acts as a market maker / liquidity provider, on principles specified in the Regulations of the Warsaw Stock Exchange (WSE), for the shares of **KGHM Polska Miedź SA** and therefore holds financial instruments issued by this issuer / these issuers.

Over the last 12 months Santander Bank Polska has received remuneration for providing non-investment banking services for: **KGHM Polska Miedź SA.**

The issuer / issuers this report relates to, may hold shares of Santander Bank Polska in the amount of less than 5% of the total issued capital.
Santander Bank Polska Group, its affiliates, representatives or employees may occasionally undertake transactions or may be interested in acquiring securities of companies directly or indirectly related to those being analysed.
Santander Bank Polska or its affiliates may, from time to time, to the extent permitted by law, participate or invest in financing transactions with issuer / issuers this report relates to, perform services for or solicit business from such issuers and/or have a position or effect transactions in the financial instruments issued by these issuers(especially in relation to the services provided by PTE Santander Allianz SA), ad as a result Santander Bank Polska may be indirectly connected with these issuers.
Santander Bank Polska does not rule out that in the period of preparing this report any Affiliate of Santander Bank Polska might purchase shares of the Issuer or any financial instruments being the subject of this report which may cause reaching at least 0,5% of the share capital.
Subject to the above, the Issuer is not bound by any contractual relationship with Santander Bank Polska, which might influence the objectivity of the recommendations contained in this report.
However, it cannot be ruled out that, in the period in which this report is in force, Santander Bank Polska will submit an offer to provide services for the issuer / issuers this report relates to, or will purchase or dispose of financial instruments issued by these issuers or whose value depends on the value of financial instruments issued by these issuers.
With the exception of remuneration from the Santander Brokerage Poland Analysts do not receive any other form of compensation for recommendations made. Remuneration received by the persons who prepare this report may be dependent, in an indirect way, from financial results gained from investment banking transactions, related to financial instruments issued by the Issuer, made by Santander Brokerage Poland or its Affiliates.

Global statistics presenting the rating of the covered companies and the share of companies provided with investment banking in the past 12M are available at: https://www.santander.pl/inwestor/global-statistics
A list of all recommendations on any financial instrument or issuer that were disseminated by Santander Brokerage Poland during the preceding 12 month period can be found on: http://centruminformacji.santander.pl/_fileserver/item/1501616

LIMITATION OF LIABILITY
This report was produced by Santander Brokerage Poland which is a separate organizational unit of Santander Bank Polska S.A. (Santander Bank Polska) with its registered office in Warsaw. Santander Brokerage Poland and brokerage activity conducted by Santander Brokerage Poland is subject to the supervision of the Financial Supervision Commission with its headquarters in Warsaw.
Santander Brokerage Poland is subject to the regulations of the Act on Trading in Financial Instruments dated July 29th 2005 (Journal of Laws of 2018, item 2286 - consolidated text, further amended), Act on Public Offering, Conditions Governing the Introduction of Financial Instruments to Organised Trading, and Public Companies dated July 29th 2005 (Journal of Laws of 2019 item 623 - consolidated text, further amended), Act on Capital Market Supervision dated July 29th 2005 (Journal of Laws of 2019, item 1871 – consolidated text, further amended). This report is addressed to qualified investors and professional clients as defined under the above indicated regulations and to Clients of Santander Brokerage Poland entitled to gain research reports based on the brokerage services agreements.
Santander Brokerage Poland may not have taken any steps to ensure that the securities referred to in this report are suitable for any particular investor. The investments and services contained or referred to in this report may not be suitable for particular investor and it is recommended to consult an independent investment advisor in case of doubts about such investments or investment services. Nothing in this report constitutes investment, legal, accounting or tax advice, or a representation that any investment or strategy is suitable or appropriate to investor's individual circumstances, or otherwise constitutes a personal recommendation to particular investor.
Affiliates of Santander Bank Polska may, from time to time, to the extent permitted by law, participate or invest in financing transactions with the issuer / issuers this report relates to, perform services for or solicit business from such issuers and/or have a position or effect transactions in the financial instruments issued by these issuers. Santander Brokerage Poland may, to the extent permitted by applicable Polish law, UK law and other applicable law or regulation, effect transactions in the Financial instruments before this report is published to recipients.
Santander Brokerage Poland may have issued, and may in the future issue, other research reports that may be inconsistent with, and reach different conclusions from, the information presented in this report. Those reports reflect the different assumptions, views and analytical methods of the analysts who prepared them and Santander Brokerage Poland is under no obligation to ensure that such other reports are brought to the attention of any recipient of this report.
Santander Brokerage Poland informs that success in past recommendations is not a guarantee of success in future ones.
Information and opinions contained herein have been compiled or gathered, with due care and diligence, by Santander Brokerage Poland from sources believed to be reliable, however Santander Brokerage Poland cannot ensure their accuracy or completeness. Investor shall be responsible for conducting their own investigation and analysis of the information contained or referred to in this report and of evaluating the merits and risks involved in the Financial instruments forming the subject matter of this report. The information and opinions contained herein are subject to change without any notice.
Santander Brokerage Poland is not responsible for any losses incurred by Investors which were result of investment decisions based on recommendations issued by Santander Brokerage Poland, on condition that they were prepared with due care and diligence.
This report does not constitute an offer or invitation to subscribe for or purchase or carry out transactions in any financial instruments and shall not be considered as an offer to sell or to buy any securities. This report is furnished and presented to you solely for your information and shall not be reproduced or redistributed to any other person. This report nor any copy hereof shall not be disseminated, published or distributed directly or indirectly in the United States of America, Canada, Australia or Japan. Disseminating, publishing or distributing of this report directly or indirectly in the above countries or to any citizen or resident of these countries may be considered breach of the law or regulations related to the financial instruments in force in these countries. Dissemination, publishing or distribution of this report may be restricted by law in other countries. Persons who distribute this report shall make themselves aware of and adhere to any such restrictions. This report may be distributed in the United Kingdom to persons who have professional knowledge about investing in accordance with relevant regulations.
Opinions in this report must not be relied upon as having been authorised or approved by issuer. Santander Brokerage Poland informs that investing assets in financial instruments implies the risk of losing part or all the invested assets.
Santander Brokerage Poland indicates that the price of the financial instruments is influenced by lots of different factors, which are not or cannot be dependent from issuer and its business results. These are factors such as changing economical, law, political or tax condition. More information on financial instruments and risk connected with them can be found on www.santander.pl/inwestor section disclaimers and risk.
The decision to purchase any of the financial instruments should be made only on the basis of the prospectus, offering circular or other documents and materials which are published on general release on the basis of polish law.

Ratings definitions:

Outperform – Total return 10% above benchmark. Upside of approximately ≥15%.
Neutral - Total return 0%-10% above benchmark. Upside of approximately 5%-15%.
Underperform - Total return below benchmark. Upside of approximately <5%.
NOTE: The relevant benchmark for European Equities (including CEE Equities) is the 1Y German Bund rate +ERP (5.5%).
The definition of ratings are indicative. Recommendations may differ from these guidelines when justified due to the market factors, industry trends, company specific event, etc. In such cases, a pertinent clarification for the discrepancy is included in the report.

Target prices set from January to June are for December 31st of the current year. Target prices set from July to December are for December 31st of the following year.
Periodicity: our recommendations/ target prices for each issuer are going to be reviewed at least once a year and whenever market events so warrant.

In the Technical Analysis reports (TA reports), Santander Brokerage Poland does not apply direct investment ratings, and all opinions and elements of analysts' assessment are included in a descriptive form in the study itself.
The period of validity of the TA report is a maximum of 30 days, while the publication of a new TA report for a given financial instrument means that the previously published study is no longer valid.
Due to the short time horizon of the Technical Analysis reports, Santander Brokerage Poland is not going to update them on a regular basis.

In preparing this report Santander Brokerage Poland applied at least one of the following valuation methods: discounted cash flows (DCF), comparative, mid-cycle, dividend discount model (DDM), residual income, warranted equity method (WEV), SOTP valuation, liquidation value.
The discounted cash flows (DCF) valuation method is based on expected future discounted cash flows. One advantage of the DCF valuation method is that it takes into account all cash streams reaching Issuer and the cost of money over time. Some disadvantages of the DCF valuation method are that a large number of parameters and assumptions need to be estimated; and the valuation is sensitive to changes in those parameters.
The comparative valuation method is based on the economic rule of "one price". Some advantages of the comparative valuation method are that the analyst need only estimate a small number of parameters; the valuation is based on current market conditions; the relatively large accessibility of indicators for companies being compared; and that there is an extensive knowledge of the comparative method among investors. Some disadvantages of valuation by the comparative method are the considerable sensitivity of the results of the valuation on the choice of companies to the comparative group; the method can lead to a simplification of the picture of the company which in turn can lead to omitting certain important factors (e.g. growth dynamics, extra-operational assets, corporate governance, the repeatability of results, differences in applied accounting standards); and the uncertainty of the effectiveness of a market valuation of companies being compared.
The mid-cycle multiple valuation is based on long-term average valuation multiples of a sector or a peer group. The methodology aims to calculate a fair, through the cycle value of the company. Among its shortfalls is that at peaks and/or troughs of the cycle, the implied fair value may deviate substantially from the market's value of an analysed stock as well as the methods' reliance on the quality of external data (we usually use Bloomberg or Damodaran databases). Simplicity and average through-cycle value allowing to capture over- as well as under-valuation of a given stock are the main advantages of this methodology.
The dividend discount model (DDM) valuation is based on the net present value of the future dividends that are expected to be paid out by the company. Some advantages of the DDM valuation method are that it takes into account real cash flows to equity-owners and that the methodology is used in respect to companies with long dividend payout history. Main disadvantage of the DDM valuation method is that dividend payouts are based on a large number of parameters and assumptions, including dividend payout ratio.
Residual income method is conceptually close to the discounted cash flows method (DCF) for non-financial stocks, the difference being that it is based on expected residual income (returns over COE) rather than expected future cash flows. One advantage of this valuation method is that it captures the excess of profit potentially available to shareholders and the cost of money over time. Main disadvantage of the valuation method is that a large number of parameters and assumptions need to be estimated; and the valuation is sensitive to changes in those parameters.
The warranted equity method (WEV) is based on the formula P/BV = (two year forward ROE less sustainable growth rate)/(Cost of equity less sustainable growth rate) which allows estimating a fair value (FV) of a given stock in two years' time. Subsequently the FV is discounted back to today. The main advantage of the WEV method is that it is a transparent one and based on relatively short term forecasts, hence substantially reducing the margin of forecasting error. The main disadvantage in our view is that the model is based on the principle that stock price should converge towards its fair value implied by company's ROE and COE.
SOTP valuation - different assets of a company are being valued according to different valuation methods, and the sum of these valuations represents the final valuation of the company. SOTP valuation advantages / disadvantages are identical to advantages and disadvantages of the specific valuation methods used.
Liquidation value method – liquidation value is the estimated amount of money that an asset or company could be quickly sold for, such as if it were to go out of business. Then, the estimated assets value is adjusted for liabilities and liquidation expenses. One advantage of this valuation method is its simplicity. This method does not account for intangible assets as goodwill, which is the main disadvantage.

In the opinion of Santander Brokerage Poland, this report has been prepared with all due diligence and excludes any conflict of interests which could influence its content. In Santander Bank Polska there are implemented internal regulations, which are designed to prevent conflicts of interest concerning recommendations. Physical and logic barriers are established, and the principles of documentation adequate to the type of Santander Bank Polska operations are implemented. Additionally, Santander Bank Polska introduced a number of obligations and restrictions relating to the protection of confidential information flow between organizational units.
The date and time on the first page of this report indicates the date of the production of the recommendation, and the dissemination of the recommendation takes place on the same day before the start of the session.