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Metals & Mining | Europe

3Q23 mid-cap preview: H2 copper volume inflection in sight

Q3 results should showcase stronger copper earnings on volume step-up, easing cost inflation and fading provisional pricing headwinds. Lundin, Hydro and MYTIL look attractive into earnings, while we are more cautious on Boliden and Antofagasta.

Miners – Lundin our favoured play: Among the copper equities, a 2H23 volume inflection of 10-35% H/H remains the key deliverable ([Exhibit 6](#)), starting with the 3Q23 results. At this juncture, 2024 outlooks come increasingly into focus and could drive share price action. **Antofagasta (EW):** We stay cautious into the print, with 2024 production guidance (Cons. 729kt, MSe 714kt) and possible commentary on 2024 capex (Cons. US\$2.2bn, MSe US\$2.1bn) the focal points. Our 3Q23 production of 170kt is in line and our cost estimate of US\$163/lb, is 5% below cons. **First Quantum (EW):** We see limited prospect of a material downgrade to 2023 volume/cost guidance and await an update on the finalisation of the Cobre Panama mining contract. Our 3Q23 EBITDA of US\$802mn, is in line with Visible Alpha consensus of US\$800mn and our net debt of US\$5.6bn, is 6% below consensus. **Lundin Mining (OW):** We expect (1) 2023 group guidance to stay on track, (2) Caserones to show positive operational momentum (with possible guidance upgrade) and synergy update, (3) reiteration of strategic priorities under incoming CEO. Our 3Q23 EBITDA forecast of US\$371mn is 5% ahead of cons. of US\$352mn and could see *further upside*.

Smelters/recyclers – Hydro and Mytilineos attractive into YE... Norsk Hydro (OW): While earnings downgrades have weighed on the shares, 3Q23 consensus EBITDA of NOK4.05bn (MSe NOK4.1bn) has reset sufficiently lower and presents a favourable risk-reward ahead of (1) the CMD on 29-30 November and (2) possible firmer aluminium balance into YE2023. **Mytilineos (OW):** Our 3Q23 EBITDA forecast of €260mn is up 22% Q/Q and could see *further upside*. We expect the sequential EBITDA step up in Q3/Q4 to prove a re-rating catalyst, we remain 5% above consensus on 2023/2024 EBITDA, and view the recent share price weakness as a compelling entry point.

...while Boliden and Aurubis are more mixed...: Boliden (EW): We remain cautious into results as the prospect of a small Operating Profit beat (Cons SEK2.03bn, MSe SEK2.11bn) is counterbalanced by possible higher 2024 capex (Cons. SEK14.6bn, SEK13.4bn) and downside to 2023/2024 cons. FCF expectations. **Aurubis (EW):** Market sentiment has started to turn with the [copper premium settlement](#), yet we await a better entry point given the uncertain European demand outlook.

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Industry View

Attractive

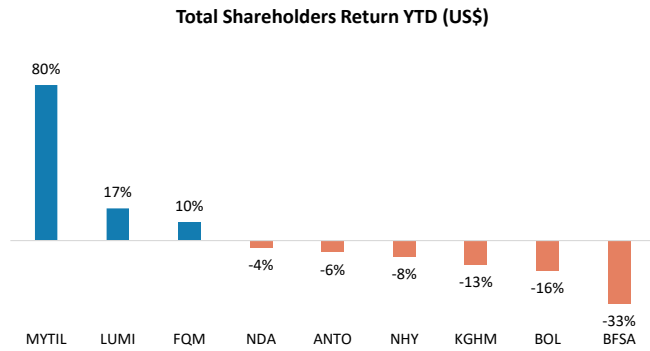
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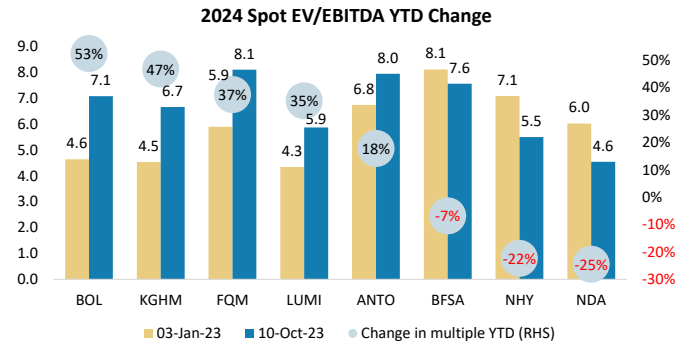
Key Charts

Exhibit 1: Mytilineos, Lundin and First Quantum deliver the highest TSR YTD, while Befesa and Boliden are the biggest laggards



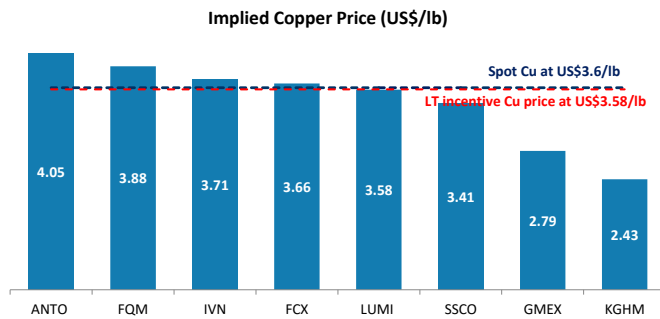
Source: Thomson Reuters

Exhibit 2: Boliden and KGHM re-rate the most YTD, while Hydro and Aurubis see the sharpest de-rating



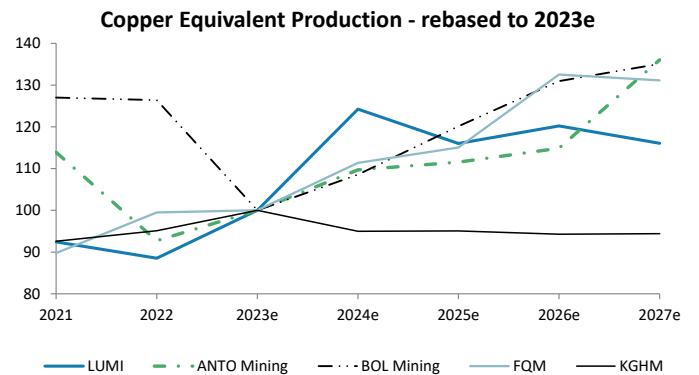
Source: Thomson Reuters, Morgan Stanley Research estimates

Exhibit 3: Thin valuation buffer - Half of the copper equity universe implies a commodity price above spot and above our LT incentive price



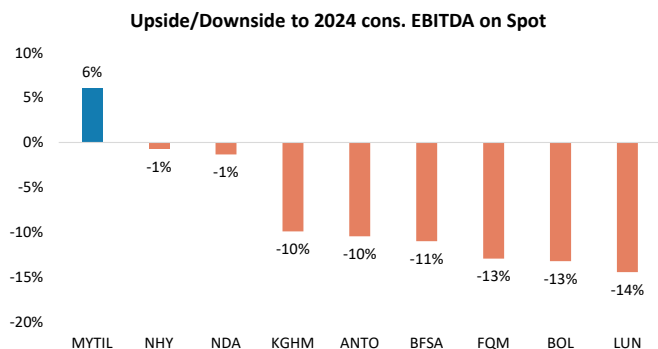
Source: Morgan Stanley Research estimates

Exhibit 4: First Quantum and Lundin set to lift volumes through 2027; ANTO and Boliden set to rebound from near-record lows



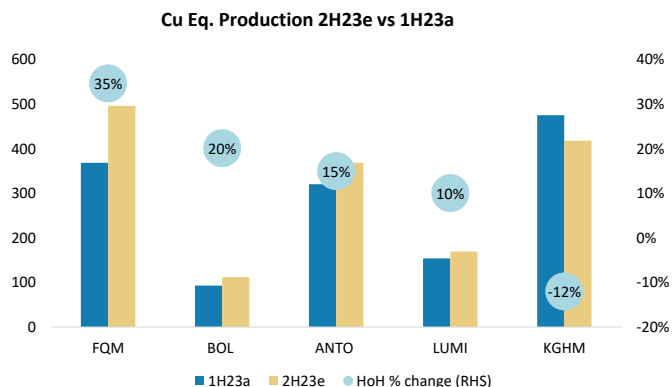
Source: Company data

Exhibit 5: Negative earnings momentum across the copper mining space



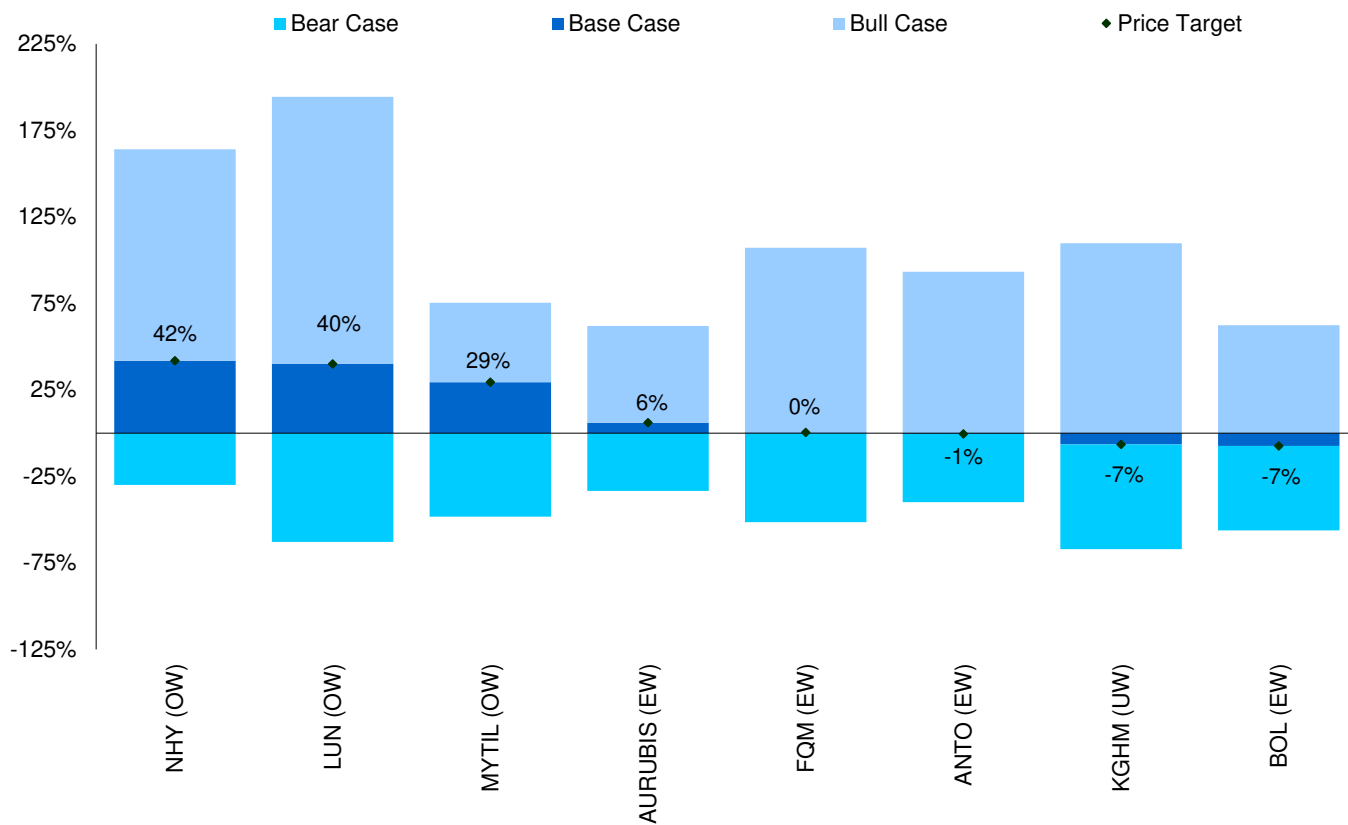
Source: Visible Alpha Consensus, Morgan Stanley Research estimates

Exhibit 6: Most copper miners are aiming for a significant uplift in 2H23



Source: Company data, Morgan Stanley Research estimates. ANTO: Mining division only. BOL: Mines division excluding Tara. LUMI: Excluding Caserones

Exhibit 7: Risk-Reward Snapshot



Source: Morgan Stanley Research estimates. Note: Priced at close on 13th October 2023.

Upcoming Results Schedule

Exhibit 8: Earning release date

Company	Event	Date
Antofagasta Plc	Production Report 3Q 2023	18-Oct-23
Boliden AB	Quarterly Report 3Q 2023	20-Oct-23
Norsk Hydro	Quarterly Report 3Q 2023	24-Oct-23
First Quantum Minerals Ltd	Quarterly Report 3Q 2023	24-Oct-23
Mytilineos	Trading Update 3Q 2023	26-Oct-23
Lundin Mining	Quarterly Report 3Q 2023	01-Nov-23
KGHM Polska Miedz SA	Quarterly Report 3Q 2023	15-Nov-23
Aurubis AG	Annual Report 12M 2023	06-Dec-23

Source: Company Data

Previews

Antofagasta (Equal-weight)

Our copper production forecast (incl. Zaldivar share) of 170kt is largely in line with Visible Alpha consensus of ~171kt. Meanwhile, we forecast group net cash costs of USc163/lb, 5% below consensus of USc172/lb.

What to look out for:

1. Copper production guidance for 2024 (Consensus 729kt, in-line with MSe)
2. Commentary on 2024 capex outlook (Consensus US\$2.2bn, MSe US\$2.1bn).
3. Update on ramp up of Los Pelambres desalination and expanded concentrator capacity
4. Commentary on Centinela Second Concentrator project sanctioning (expected in 2H23)

Exhibit 9: Key operating metrics

Key operating metrics	Q3 22A	Q4 22A	Q1 23 A	Q2 23 A	Q3 23 MSe	Q3 23 VA Cons.	MSe vs Cons.
Copper Production							
Los Pelambres	87.8	88.8	59.3	69.2	78.3	80.1	-2%
Centinela	62.5	73.7	57.7	51.5	58.8	61.3	-4%
Antucoya	21.0	21.8	18.8	19.1	22.7	17.9	27%
Zaldivar (attributable)	10.6	11.3	10.0	9.8	10.2	11.3	-10%
Group Production incl. att. Zaldivar	181.9	195.6	145.8	149.6	170.0	170.7	0%
Copper Sales	178.0	201.4	149.0	146.4	171.1	170.5	0%
Gold Production (koz)	46.9	56.1	42.2	44.1	57.1	57.5	-1%
Moly Production (kt)	2.6	3.1	2.6	2.4	2.6	3.1	-15%
Gross Cash Cost incl. Zaldivar (USc/lb)	212	200	249	247	229	231	-1%
Net Cash Cost incl. Zaldivar (USc/lb)	166	127	154	196	163	172	-5%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Exhibit 10: 2023 guidance

Guidance	Units	2023		2023 VA Consensus	2023 MSe	Guidance vs VA Cons.	Guidance vs MSe
		Guidance (Min)	Guidance (Max)				
Copper Production	kt	640	670	649	644	1%	2%
Los Pelambres	kt	320	335	296	293	11%	12%
Centinela	kt	235	250	233	226	4%	7%
Antucoya	kt	70	75	76	83	-4%	-13%
Zaldivar	kt	45	50	44	42	9%	14%
Gold	koz	220	240	205	202	12%	14%
Moly	kt	10.0	11.5	10.7	10.3	1%	4%
Group Gross Costs	USc/lb	230	230	233	235	-1%	-2%
Group Net Cash Costs	USc/lb	165	165	166	165	-1%	0%
Capex	US\$bn	1.90	1.90	1.84	1.86	3%	2%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Aurubis (Equal-weight)

We have marked to market our model for the period. Our fiscal 4Q23 EBT (operating) forecast stands at -€68mn, to account for the metal inventory net impact of €155mn (see details in [Aurubis AG: Inventory hit in line, underlying EBT appears softer \(19 Sep 2023\)](#)). We also forecast fiscal 4Q23 net cash flow (pre-capex) of €364mn and FCF (post capex) of €72mn, aided by a projected working capital release of €360mn. Our FY23 estimates for EBT (operating) come out at €338mn (vs guidance of €310-350mn) and net cash flow (pre-capex) at €453mn (vs guidance of €450-550mn).

Key focus will be the FY24 EBT (operating) guidance with our estimate at €434mn, lower as compared with the underlying FY23 level of ~€500mn (adjusted for metal inventory hit) partly due to moderating sulphuric acid contribution. The Visible Alpha consensus which may be somewhat stale stands at €450mn, but we await the company-gathered consensus in the coming weeks.

What to look out for:

1. FY24 operating EBT guidance (Visible Alpha Consensus €450mn, MSe €434mn)
2. FY24 net cash flow guidance (Visible Alpha Consensus €528mn, MSe €443mn)
3. Commentary on copper end-use demand in Europe and implications for Products business
4. Update on energy cost inflation/hedging
5. Recycling profitability outlook over the coming quarters

Exhibit 11: Key financial and operating metrics

Key financial and operating metrics (EURmn, unless otherwise stated)	4Q22a	1Q23a	2Q23a	3Q23a	4Q23 MSe
Revenues	4,244	4,096	4,688	4,167	3,983
Operating Gross profit	381	393	446	394	244
Operating EBITDA	160	172	211	160	4
Operating EBIT	81	124	162	111	-52
Operating EBT	85	125	166	115	-68
Operating consolidated net income	87	99	131	92	-52
Adjusted Basic EPS - operating (€/sh)	1.99	2.26	3.00	2.11	-1.20
Concentrate throughput (kt)	649	635	627	443	603
Sulfuric acid output (kt)	603	586	597	395	550
Cathode output (kt)	271	281	287	272	321
Wire rod output (kt)	205	195	250	248	230
Shapes output (kt)	47	49	46	48	45
Flat rolled output (kt)	40	32	35	34	35

Source: Company data, Morgan Stanley Research

Boliden (Equal-weight)

Our 3Q23 Operating Profit forecast (excl. PIR) of SEK2.11bn is 4% above Consensus (Infront) of SEK2.03bn. Meanwhile, our 3Q23 net debt estimate of SEK12.7bn rises sequentially partly due to our expectation of a working capital build. While we see prospect of a small Operating Profit beat, our 2024 capex forecast of SEK14.6bn is above consensus of SEK13.4bn. Further, we see downside to 2023/2024 consensus FCF expectations.

What to look out for:

1. Capex guidance for 2024 (Consensus SEK13.4bn, MSe SEK14.6bn)
2. Grade guidance for 2024 with a focus on Kevitsa given recent challenges
3. Update on Rönnskär smelter adverse effects relating to 1) foregone margin, 2) working capital build, 3) tankhouse capex, as well as 4) insurance cover for various effects
4. Commentary on opex and capex inflation

Exhibit 12: Key financial metrics

Financial (SEK mn unless stated)	3Q22 a	4Q22 a	1Q23 a	2Q23 a	3Q23 MSe	Co. Consensus	MS vs. Cons.
Sales	19,481	23,578	19,962	18,442	17,815	18,881	-6%
EBITDA	4,946	4,971	4,503	2,478	3,376		
Operating Profit (excl. process inventory reval)	3,484	3,190	3,019	833	2,114	2,031	4%
Mines	1,964	1,512	1,197	178	966	886	
Smelters	1,564	1,570	1,497	700	1,107	1,110	
Other/Eliminations	-44	108	325	-45	40	36	
EPS (SEK/sh) (Clean)	9.89	9.42	9.29	1.90	6.35	5.39	
Net Debt (Company definition)	3,688	-15	68	11,231	12,727		

Source: Company data, Morgan Stanley Research, Infront Data, Visible Alpha Consensus

Exhibit 13: Key operating metrics

Production	3Q22 a	4Q22 a	1Q23 a	2Q23 a	3Q23 MSe	Co. Consensus	MS vs. Cons.
Mining							
Zinc (kt)	63	67	61	58	41	42	-1%
Copper (kt)	28	23	23	23	24	24	1%
Lead (kt)	12	15	13	14	11	11	6%
Smelting							
Zinc(kt)	113	118	123	122	122	116	5%
Copper(kt)	90	89	82	60	85	82	3%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Exhibit 14: 2024 outlook in focus

2024 Outlook	MSe	Consensus
Capex (SEKmn)	14.6	13.4
Maintenance shutdowns (SEKmn)	350	n.a.
Grades		
Aitik - Copper (%)	0.17%	0.18%
Aitik - Gold (g/t)	0.07	n.a.
Garpenberg - Zinc (%)	3.50%	3.42%
Garpenberg - Silver (g/t)	110	n.a.
Kevitsa - Copper (%)	0.29%	0.30%
Kevitsa - Nickel (%)	0.20%	0.20%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus (implied)

First Quantum (Equal-weight)

Our 3Q23 EBITDA of US\$802mn, in-line with Visible Alpha consensus of US\$800mn. Our net debt forecast comes out to US\$5.6bn, stable q/q and 6% below consensus. On the operational front, our 3Q23 copper production forecast of 213kt, 3% below Visible Alpha consensus of 219kt. Meanwhile, our 3Q23 C1 cash cost estimate comes out to US\$1.69/lb, marginally below consensus of US\$1.72/lb.

For the full year, we expect First Quantum to reach the bottom end of its copper production guidance at 770kt. At the asset level, strength at Cobre Panama and Kansanshi should help offset the weakness in Sentinel, which could miss its FY2023 guidance. Meanwhile, we see prospect of the company missing its FY2023 gold production and copper C1 cash cost guidance, but only by a small margin. For context, our FY2023 gold production of 259koz is 2% below the bottom end of the 265-295koz and our C1 cash cost forecast of US\$1.88/lb or 1% above the top end of the US\$1.65-1.85/lb guidance range.

What to look out for:

1. Reiteration of low-end of FY2023 guidance for copper and limited risks to gold production and copper C1 cash cost guidance
2. Commentary on sequential development into 4Q23
3. Latest commentary on progress towards ratifying Cobre Panama fiscal deal
4. Commentary on cost inflation trends

Exhibit 15: Key financial and operating metrics

Summary (US\$m, unless otherwise stated)	3Q22 Actual	4Q22 Actual	1Q23 Actual	2Q23 Actual	3Q23 Mse	3Q23 Cons.	MSe vs cons
Sales Revenue	1,727	1,832	1,558	1,651	2,002	1,926	4%
EBITDA - Adjusted	583	647	518	568	802	800	0%
Operating Profit - Reported	289	314	225	252	477	462	3%
EPS (Reported)	0.16	0.17	0.11	0.13	0.38	0.25	52%
Basic EPS (Adjusted)	0.13	0.18	0.14	0.16	0.38	0.25	52%
Ordinary Net Debt	5,329	5,692	5,780	5,650	5,613	6,002	-6%
FCF to Equity	86	-362	-88	208	151	-9	-1776%
Copper production (kt)	195	206	139	187	213	219	-3%
Nickel production (kt)	6	6	6	6	7	8	-4%
Gold production (koz)	67	70	47	52	79	77	3%
Copper C1 cash costs (US\$/lb)	1.82	1.86	2.24	1.98	1.69	1.72	-2%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

KGHM (Underweight)

Our 3Q23 EBITDA (incl. Sierra Gorda share) comes out at PLN1,359mn, 6% above Visible Alpha Consensus of PLN1,283mn. Our negative FCF forecast of PLN-1,116mn is driven by elevated capex and subdued profitability. As such, we project net debt to rise to PLN5,449mn, up from PLN4,133mn q/q.

What to look out for:

1. Update on energy costs at KGHM Polska
2. Cost inflation across the group
3. Commentary on turnaround at KGHM International (Robinson mine)
4. Update on Sierra Gorda expansion plans
3. Further commentary on the spending plans in renewables, small nuclear reactors as well as possible investments in lithium

Exhibit 16: Key financial metrics

Financials	Units	3Q22 Actual	4Q22 Actual	1Q23 Actual	2Q23 Actual	3Q23 MSe	Cons.	% vs Cons.
Group EBITDA (incl. SG share)	PLNmn	1,636	1,920	1,882	1,266	1,359	1,283	6%
KGHM Polska Miedz S.A.	PLNmn	998	963	1,360	865	1,036		
KGHM INTERNATIONAL LTD.	PLNmn	136	291	-37	-164	-125		
Sierra Gorda (attributable)	PLNmn	402	634	550	390	398		
Other segments	PLNmn	100	32	9	175	50		
EPS (adjusted)	PLN/sh	5.43	-2.70	0.85	-0.80	1.61		
FCFE	PLNmn	-360	-903	317	574	-1,116		
Net Debt	PLNmn	4,786	5,243	4,943	4,133	5,449	5,523	-25%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus, Thomson Reuters

Exhibit 17: Key operating metrics

Production	Units	3Q22 Actual	4Q22 Actual	1Q23 Actual	2Q23 Actual	3Q23 MSe	Cons.	% vs Cons.
Copper	kt	179.8	175.6	175.5	175.7	171.7	172.5	0%
KGHM Polska	kt	146.2	143.5	149.0	146.8	145.0	145.3	0%
KGHM International	kt	10.4	8.9	7.6	7.8	8.0	7.7	3%
Sierra Gorda (attributable)	kt	23.2	23.2	18.9	21.1	18.7	19.5	-4%
Silver								
KGHM Polska	t	331.3	298.6	374.9	324.2	340.0	330.5	3%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus, Thomson Reuters

Lundin Mining (Overweight)

Our 3Q23 EBITDA forecast of US\$371mn is ahead of Visible Alpha consensus of US\$352mn. Meanwhile, our net debt forecast stands at US\$940mn, and is below consensus of US\$1,075mn. On 3Q23 production, we forecast copper at 88.7kt, zinc at 46.2kt, nickel at 3.6kt and gold at 35.5koz.

What to look out for:

1. Update on strategic and growth priorities following CEO transition
2. Commentary on Josemaria project and strategic growth optionality in the Vicuna district
3. Update on synergies between Caserones and Candelaria
4. Integration and operational momentum at Caserones.
3. Ramp up of Zinc Expansion Project.

Exhibit 18: Key financial and operating metrics

	Units	3Q22 Actual	4Q22 Actual	1Q23 Actual	2Q23 Actual	3Q23 MSe	3Q23 VA Cons.	MSe vs Cons.
Sales	US\$m	648	811	751	589	937	931	1%
Adj. EBITDA	US\$m	135	269	304	155	371	352	5%
Net earnings	US\$m	-9	144	147	59	85	97	-13%
Basic EPS	US\$/sh	-0.01	0.19	0.19	0.08	0.11	0.13	-13%
Net Debt/(Net Cash)	US\$m	-178	6	31	225	940	1,075	-13%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Exhibit 19: 2023 guidance

	Units	Guidance		Consensus	vs. guidance	MSe	vs. guidance
		Min	Max				
Production							
Copper	kt	296	325	294	6%	309	0%
Candelaria (100%)	kt	145	155	150	0%	149	0%
Chapada	kt	43	48	45	0%	45	0%
Eagle	kt	12	15	14	-4%	15	-10%
Neves-Corvo	kt	33	38	33	6%	34	3%
Caserones	kt	60	65	46	35%	61	3%
Zinkgruvan	kt	3	4	4.3	-19%	4	-19%
Zinc	kt	180	195	181	4%	180	4%
Moly	kt	2	2	2	8%	2	-9%
Nickel	kt	13	16	16	-8%	16	-7%
Gold	koz	85	60	144	-50%	154	-53%
Cash Costs							
Copper							
Candelaria	US\$/lb	1.80	1.95	2.04	-12%	1.92	-6%
Chapada	US\$/lb	2.35	2.55	2.50	-2%	2.49	-2%
Neves-Corvo	US\$/lb	2.10	2.30	2.47	-11%	2.29	-4%
Caserones	US\$/lb	2.30	2.45	2.09	13%	2.14	11%
Zinc							
Zinkgruvan	US\$/lb	0.45	0.50	0.49	-3%	0.52	-8%
Nickel							
Eagle	US\$/lb	2.30	2.45	2.19	8%	2.19	8%
Capex							
Sustaining	US\$m		785			770	2%
Josemaria Project	US\$m		350			350	0%
Total Capex	US\$m		1,135	1,140	0%	1,120	1%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Norsk Hydro (Overweight)

Our underlying EBITDA forecast of NOK4.1bn is 3% above company consensus of NOK4.0bn. At the divisional level, we are below consensus in Bauxite & Alumina, Aluminium Metal, and Energy, but above in Metal Markets and Extrusions. Our FCF estimate of -NOK3.7bn is due to lower cash flow from operations, a capex increase (particularly in extrusions), and NOK1.2bn of projected NWC build. Our 3Q23 ordinary and adjusted net debt forecasts consequently rise to NOK18.4bn and NOK22.8bn respectively.

What to watch for:

1. Extrusions volume and margin outlook
2. 4Q23 cost outlook in upstream operations
3. Update on green growth initiatives, especially the capital raising prospects and timing of the Renewables Growth vehicle (Rein)
4. Aluminium Metal realised premium guidance (4Q23 MSe at US\$376/t)
5. Restart prospects of primary and secondary aluminium capacity
6. Commentary on year-end capex and working capital outlook (guidance for NOK2bn NWC release)

Exhibit 20: Key financial metrics

P&L (NOK mn)	3Q22	4Q22	1Q23	2Q23	3Q23 MSe	3Q23 Cons.	MSe vs VA Cons.
Revenue	54,908	45,256	49,986	54,985	47,846	46,354	3%
Underlying EBITDA	9,721	7,184	7,525	7,098	4,103	4,049	1%
Underlying EBIT	7,611	4,946	5,364	4,788	2,146	1,850	16%
Underlying EPS	2.91	0.99	1.70	1.77	0.59	0.63	-6%
Capex	3,925	5,520	4,882	5,544	6,234	5,681	10%
Free Cash Flow	2,000	5,800	-1,000	3,700	-3,739	-2,229	68%
Adjusted net debt/(cash)	7,806	5,990	8,501	15,890	22,773		

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Exhibit 21: Divisional EBITDA

Divisional Underlying EBITDA (NOK mn)	3Q22	4Q22	1Q23	2Q23	3Q23 MSe	3Q23 Cons.	MSe vs VA Cons.
Bauxite & Alumina	633	101	437	817	442	477	-7%
Primary Metal (inc. net income of Qatalum)	6,463	4,756	3,972	3,215	1,231	1,277	-4%
Metal Markets	534	-91	669	334	544	437	25%
Extruded products	1,385	939	2,223	2,013	1,311	1,198	9%
Energy	321	1,542	726	854	661	719	-8%
Other and eliminations	384	-63	-501	-134	-86	-59	46%
Total underlying EBITDA	9,720	7,184	7,526	7,099	4,103	4,049	1%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Exhibit 22: Key operating metrics

Operational information	3Q22	4Q22	1Q23	2Q23	3Q23 MSe	3Q23 Cons.	MSe vs VA Cons.
Alumina production (kmt)	1,579	1,559	1,550	1,542	1,544	1,546	0%
Primary aluminium production (kmt)	543	522	499	506	506	502	1%
Total aluminium sales (cast house, kmt)	533	542	559	577	553	540	2%
Power production (GWh)	1,330	2,002	2,610	2,431	2,140	2,134	0%
Realized aluminium price LME (USD/mt)	2,497	2,246	2,291	2,273	2,153	2,161	0%
Realized aluminium price LME (NOK/mt)	24,696	22,819	23,574	24,412	22,563	22,730	-1%

Source: Company data, Morgan Stanley Research, Visible Alpha Consensus

Mytilneos (Overweight)

Our 3Q23 EBITDA forecast stands at €260mn, up 22% q/q on higher Energy profitability and stable development in Metals. In Energy ,the main drivers are (1) Generation on higher clean spark spread and increased volumes from the newly commissioned plant, (2) Renewables on asset rotation gains, and (3) Gas Supply & Trading. We expect also net debt to rise further to €1.5bn driven by elevated Renewable capex and the dividend payout, while gearing remains at comfortable levels of 1.55x ND/EBITDA (including non-recourse debt).

We maintain our 2023 EBITDA forecast of €1.03bn which is 5% above Bloomberg consensus and expect a strong finish in 4Q23 on full contribution from the new thermal plant and higher asset rotation gains in Renewables. The recent spike in European gas prices offers further upside across both the gas trading and thermal generation segments.

What to watch for:

1. M Renewables: Commentary on asset rotation and on projects under construction
2. Thermal generation outlook in 4Q23 and 2024
3. Net debt and gearing evolution as well as working capital outlook
4. Capex outlook for 2023-24
5. Power sourcing strategy for the Metals division for 2024 onwards

Exhibit 23: Key financial metrics

Key Financial Figures (EURmn)	3Q22 Actual	2Q23 Actual	3Q23 MSe	FY23 MSe
Revenue	2,419	1,158	1,451	5,624
EBITDA	240	213	260	1,033
Net Debt (incl. non-recourse)	1,398	1,239	1,535	1,579

Source: Company Data, Morgan Stanley Research

Exhibit 24: Divisional revenue

Total Revenue	3Q22 Actual	2Q23 Actual	3Q23 MSe	FY23 MSe
Energy	1,916	882	1,224	4,642
Metals	217	255	205	895
Others	286	21	22	87
Revenue	2,419	1,158	1,451	5,624

Source: Company Data, Morgan Stanley Research

Exhibit 25: Divisional EBITDA

EBITDA (EURmn)	3Q22 Actual	2Q23 Actual	3Q23 MSe	FY23 MSe
Energy	105	153	199	764
Metals	65	62	58	262
Others	70	-2	3	8
Group EBITDA	240	213	260	1,034

Source: Company Data, Morgan Stanley Research

Comps

Exhibit 26: Metals & Mining: Sector comps using our base case commodity prices and currency assumptions

	Rating	FX	Price Target	Equity Value per share	Share Price	Up/(downside)	Market cap (US\$m)	EV** (US\$ mn)			P/E			EV/EBITDA			P/B			ROE**		
								2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY
Antofagasta Plc	EW	Gbp	1,390	1,031	1,397	-0.5%	16,721	24,515	24,829	26,553	25.1x	20.4x	20.1x	8.5x	6.7x	6.8x	1.9x	1.8x	1.8x	7.7%	9.1%	8.9%
Aurubis AG	EW	EUR	78	78	74	6.1%	3,372	3,488	3,865	3,955	11.2x	9.6x	9.6x	5.5x	5.0x	4.7x	0.7x	0.7x	0.6x	6.8%	7.2%	6.8%
Befesa	EW	EUR	33	34	28	16.8%	1,195	1,834	1,836	1,768	21.1x	11.9x	10.3x	8.8x	6.9x	6.1x	1.3x	1.2x	1.2x	6.4%	10.4%	11.2%
Boliden AB	EW	SEK	285	254	308	-7.5%	7,649	9,789	10,364	10,707	13.2x	12.2x	13.0x	7.2x	7.8x	7.1x	1.4x	1.3x	1.2x	10.9%	10.9%	9.6%
First Quantum Minerals Ltd	EW	CAD	31	25	31	0.4%	15,663	26,141	25,585	24,396	24.4x	13.7x	10.5x	9.1x	6.8x	6.0x	1.3x	1.2x	1.1x	5.4%	8.8%	10.4%
KGHM Polska Miedz SA	UW	PLN	102	85	109	-6.6%	5,066	8,595	9,170	9,431	35.5x	11.2x	12.1x	7.7x	7.1x	7.3x	0.7x	0.6x	0.6x	1.9%	5.6%	4.9%
Lundin Mining	OW	SEK	106	73	76	39.9%	5,237	8,724	8,719	8,915	12.2x	10.0x	11.8x	6.7x	4.7x	5.5x	1.0x	1.0x	0.9x	8.4%	9.7%	7.8%
Mytilineos SA	OW	EUR	45	45	31	43.1%	5,223	7,070	7,241	7,452	7.5x	6.8x	7.3x	6.3x	5.7x	5.9x	2.0x	1.7x	1.5x	26.1%	24.0%	19.6%
Norsk Hydro	OW	NOK	87	81	61	41.8%	11,500	16,365	16,616	16,219	11.6x	9.0x	8.0x	6.4x	5.4x	4.9x	1.1x	1.1x	1.0x	9.9%	12.2%	12.7%
Weighted Average							71,626	106,520	108,225	109,396	19.3x	13.2x	12.5x	7.8x	6.4x	6.2x	1.4x	1.3x	1.2x	8.8%	10.5%	10.3%

	Price to NAV	FCF Yield			Dividend Yield			Net debt/EBITDA			EBITDA (US\$m)			FCFE (US\$m)			Net debt (US\$m)			EBITDA growth 5-Yr CAGR	Cash Conversion	WACC
		2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY			
Antofagasta Plc	1.4x	-0.2%	0.3%	-7.2%	2.6%	3.2%	3.2%	0.3x	0.4x	0.8x	2,884	3,733	3,884	-26	55	-1,203	896	1,294	3,038	10.8%	43.7%	8.5%
Aurubis AG	0.9x	-7.6%	-7.1%	0.7%	0.9%	1.0%	1.0%	Cash	0.3x	0.3x	629	776	845	-256	-243	26	Cash	213	229	5.3%	-110.0%	8.0%
Befesa	0.8x	1.7%	4.4%	11.6%	1.9%	3.8%	4.4%	3.1x	2.3x	1.8x	208	266	289	21	56	150	637	619	531	5.4%	68.7%	8.0%
Boliden AB	1.2x	-6.6%	-2.8%	3.8%	2.5%	2.7%	2.6%	0.8x	1.1x	1.0x	1,355	1,327	1,503	-523	-226	321	1,072	1,516	1,488	2.7%	23.7%	8.0%
First Quantum Minerals Ltd	1.2x	0.6%	3.9%	8.0%	0.4%	0.6%	1.2%	2.1x	1.5x	1.1x	2,867	3,754	4,085	90	606	1,253	6,143	5,666	4,564	13.0%	31.2%	10.0%
KGHM Polska Miedz SA	1.3x	-12.7%	-3.8%	0.3%	0.9%	1.3%	1.2%	1.8x	1.8x	1.7x	1,117	1,294	1,292	-657	-206	15	1,797	2,119	2,220	2.4%	24.5%	9.0%
Lundin Mining	1.0x	-1.7%	2.6%	-0.5%	3.9%	4.0%	4.0%	0.8x	0.6x	0.8x	1,303	1,849	1,634	-90	136	-25	1,049	1,131	1,377	17.4%	-5.2%	8.5%
Mytilineos SA	0.7x	-10.2%	3.6%	3.5%	4.7%	5.2%	4.8%	1.3x	1.2x	1.3x	1,124	1,280	1,266	-551	198	200	1,424	1,504	1,615	3.0%	68.2%	9.0%
Norsk Hydro	0.8x	0.0%	6.2%	8.2%	7.5%	5.6%	7.9%	0.5x	0.5x	0.3x	2,554	3,054	3,332	-3	793	1,055	1,182	1,438	1,095	6.7%	-11.7%	9.0%
Weighted Average		-2.7%	1.5%	2.9%	2.9%	2.9%	3.4%	1.0x	0.9x	0.9x	14,041	17,333	18,130	-1,995	1,169	1,790	14,200	15,500	16,158	7.4%	14.8%	8.7%

Source: Thomson Reuters (historical share price data), Morgan Stanley Research estimates. Note: EBITDA includes NI from associates. * Market capitalisation based on total number of group shares. ** Provisions and pensions included in enterprise value calculation. ** e RoE calculated using year-end book value. *** Dividend per share includes special dividend paid by the company. # Ordinary net debt. Valuation sheet based on 13th October 2023 closing prices

Exhibit 27: Metals & Mining: Sector comps using spot commodity prices and exchange rates

	Rating	FX	Price Target	Equity Value per share	Share Price	Up/(downside)	Market cap (US\$m)	EV** (US\$ mn)			P/E			EV/EBITDA			P/B			ROE**		
								2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY
Antofagasta Plc	EW	Gbp	1,390	1,118	1,397	-0.5%	16,721	24,560	25,034	26,927	27.6x	28.6x	25.2x	8.9x	8.0x	7.8x	1.9x	1.9x	1.8x	7.0%	6.6%	7.3%
Aurubis AG	EW	EUR	78	144	74	6.1%	3,372	3,393	3,512	3,699	11.4x	9.4x	7.3x	5.5x	4.7x	4.0x	0.7x	0.7x	0.6x	6.5%	7.3%	8.7%
Befesa	EW	EUR	33	42	28	16.8%	1,195	1,807	1,751	1,666	24.0x	15.1x	13.5x	9.2x	7.8x	7.2x	1.4x	1.3x	1.2x	5.7%	8.4%	8.9%
Boliden AB	EW	SEK	285	632	308	-7.5%	7,649	9,685	9,835	9,625	13.9x	11.7x	9.3x	7.4x	7.6x	5.7x	1.4x	1.3x	1.2x	10.4%	11.3%	13.0%
First Quantum Minerals Ltd	EW	CAD	31	23	31	0.4%	15,663	26,329	26,355	25,619	30.8x	31.0x	16.7x	9.8x	8.8x	7.4x	1.3x	1.3x	1.2x	4.3%	4.1%	7.1%
KGHM Polska Miedz SA	UW	PLN	102	366	109	-6.6%	5,066	8,423	8,370	7,948	33.0x	10.4x	7.0x	7.5x	6.7x	5.2x	0.7x	0.6x	0.6x	2.0%	6.0%	8.3%
Lundin Mining	OW	SEK	106	81	76	39.9%	5,237	8,709	8,914	9,278	13.5x	15.6x	16.8x	7.0x	5.8x	6.5x	1.0x	1.0x	1.0x	7.7%	6.5%	5.9%
Mytilineos SA	OW	EUR	45	49	31	43.1%	5,223	7,002	6,867	6,891	7.5x	6.9x	7.2x	6.3x	5.7x	5.8x	2.0x	1.7x	1.5x	26.0%	23.8%	19.9%
Norsk Hydro	OW	NOK	87	101	61	41.8%	11,500	16,432	17,020	16,676	13.1x	10.0x	8.3x	6.9x	5.9x	5.1x	1.1x	1.1x	1.0x	8.9%	11.2%	12.4%
Weighted Average							71,626	106,341	107,657	108,328	21.6x	19.4x	14.7x	8.1x	7.3x	6.6x	1.4x	1.3x	1.3x	8.1%	8.6%	9.6%

	Price to NAV	FCF Yield			Dividend Yield			Net debt/EBITDA			EBITDA (US\$m)			FCFE (US\$m)			Net debt (US\$m)			EBITDA growth 5-Yr CAGR	Cash Conversion	WACC
		2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY	2023CY	2024CY	2025CY			
Antofagasta Plc	1.3x	-0.2%	-0.6%	-7.6%	2.4%	2.3%	2.6%	0.3x	0.4x	0.9x	2,760	3,142	3,438	-36	-107	-1,263	906	1,387	3,045	13.0%	43.5%	8.5%
Aurubis AG	0.5x	-6.0%	-4.1%	-5.1%	0.9%	1.4%	1.4%	Cash	0.1x	0.3x	614	744	920	-200	-135	-165	Cash	55	255	8.3%	-112.0%	8.0%
Befesa	0.7x	1.5%	2.6%	9.3%	1.7%	3.0%	3.3%	3.2x	2.7x	2.3x	197	225	231	18	31	110	634	608	531	5.8%	68.2%	8.0%
Boliden AB	0.5x	-6.3%	-2.9%	5.8%	2.4%	2.8%	3.6%	0.8x	1.1x	0.7x	1,310	1,293	1,676	-496	-225	442	1,040	1,421	1,198	13.3%	22.3%	8.0%
First Quantum Minerals Ltd	1.4x	0.1%	-0.2%	4.7%	0.4%	0.4%	0.7%	2.3x	2.1x	1.7x	2,693	2,985	3,452	23	-35	735	6,210	6,332	5,711	13.6%	28.1%	10.0%
KGHM Polska Miedz SA	0.3x	-11.1%	-3.6%	5.4%	0.9%	1.4%	2.1%	1.7x	1.7x	1.1x	1,121	1,247	1,535	-569	-177	259	1,697	1,864	1,649	18.5%	25.3%	9.0%
Lundin Mining	0.9x	-1.3%	-0.6%	-3.4%	3.9%	3.9%	3.9%	0.8x	0.8x	1.2x	1,237	1,537	1,424	-68	-33	-180	1,026	1,272	1,665	20.1%	-9.1%	8.5%
Mytilineos SA	0.6x	-10.2%	3.5%	3.6%	4.7%	5.1%	4.9%	1.3x	1.2x	1.3x	1,110	1,201	1,185	-547	180	187	1,412	1,433	1,495	2.6%	68.2%	9.0%
Norsk Hydro	0.6x	-0.4%	3.6%	7.2%	7.4%	5.0%	6.0%	0.5x	0.6x	0.5x	2,372	2,869	3,282	-56	465	927	1,191	1,765	1,480	8.8%	-18.0%	9.0%
Weighted Average		-2.6%	-0.1%	1.3%	2.8%	2.8%	3.0%	1.1x	1.1x	1.0x	13,413	15,242	17,143	-1,931	-35	1,052	14,115	16,137	17,029	11.5%	12.9%	8.7%

Source: Thomson Reuters (historical share price data), Morgan Stanley Research estimates. Note: EBITDA includes NI from associates. For BOL and Aurubis, we take 85% of 2021 MSe benchmark TCs and 15% of spot TCs for copper and zinc. * Market capitalisation based on total number of group shares. ** Provisions and pensions included in enterprise value calculation. ** e RoE calculated using year end book value. *** Dividend per share includes special dividend paid by the company. # Ordinary net debt. Valuation sheet and spot prices are as of 13th October 2023. NM = Not meaningful.

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(as of September 30, 2023)

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For disclosure purposes only (in accordance with FINRA requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1350	37%	281	43%	21%	608	39%
Equal-weight/Hold	1673	46%	303	46%	18%	709	46%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	608	17%	68	10%	11%	225	15%
Total	3,634		652			1543	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

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Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

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INDUSTRY COVERAGE: Metals & Mining

COMPANY (TICKER)	RATING (AS OF)	PRICE* (10/16/2023)
Alain Gabriel, CFA		
Anglo American Plc (AAL.L)	E (03/29/2023)	2,282p
Glencore PLC (GLEN.L)	O (09/17/2021)	463p
Glencore PLC (GLNJ.J)	O (09/17/2021)	ZAc 10,623
Rio Tinto Plc (RIO.L)	O (05/26/2023)	5,217p
Ioannis Masvoulas, CFA		
Antofagasta (ANTO.L)	E (10/17/2022)	1,409p
Aurubis AG (NAFG.DE)	E (02/13/2023)	€74.18
Boliden (BOL.ST)	E (06/21/2023)	SKr 311.45
KGHM Polska Miedz SA (KGH.WA)	U (02/03/2023)	PLN 112.50
Lundin Mining Corp. (LUMIN.ST)	O (02/03/2023)	SKr 75.75
Lundin Mining Corp. (LUN.TO)	O (02/03/2023)	C\$9.32
Mytilineos SA (MYTr.AT)	O (07/17/2023)	€35.12
Norsk Hydro ASA (NHY.OL)	O (12/09/2020)	NKr 62.34
Sandeep Peety		
Befesa SA (BFSA.DE)	E (02/13/2023)	€28.90

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