

Base Metals Equities

April, 23, 2019

1Q19 preview: Base metals buoyed on positive macro outlook, increasing supply deficit

Copper started the year in a rally mood after closing out the year at \$2.63/lb suffering from negative trade sentiment for most of December. January and February saw the red metal move back above the \$2.95/lb mark (briefly) before spending much of March range bound between \$2.90 and 2.95/lb. The average price for the quarter was \$2.80/b slightly above the Q418 average of \$2.75/lb. The base metal equities tracked the metals prices for much of the quarter with every base metal name up during the quarter.

According to The International Copper Study Group March 20th, 2019 press release, there was a deficit of 390,000 tonnes of copper in 2018 on the back of lower supply growth combined with strong Chinese apparent usage and the deficit may have been as high as 450,000 tonnes in 2018 when adjusted for changes in Chinese bonded stocks. We expect this theme to continue. Demand remains solid and production growth will struggle to match it. Our long-term view has not changed and we expect to see the copper price strengthen modestly through 2019. As we said in our last quarterly preview, we expect copper prices to end 2019 higher than they started.

Like copper, zinc had a strong start to the year, quietly rallying for much of the first quarter. The galvanizing metal closed out 2018 at \$1.13/lb but by the end of the first quarter of 2019 it had quietly rallied to \$1.36/lb for a quarterly average of \$1.23/lb.

Nickel reversed the downward trend from Q418 after settling at \$4.73/lb to finish off 2018 the metal rallied hard in early 2019 and averaged \$5.60 for the quarter. From the early March peak of \$6.20/lb, the stainless steel component metal gave back some of its gains going into quarter end.

We see continued strength in the red metal through the year and expect the prospect of material deficits in 2019 to support our thesis. Cobre Panama which is currently in the commissioning phase is the last of the previous cycle mega projects. Modest demand growth driven by electrification of emerging markets and transportation networks should drive copper and the base metal complex higher.

Following the strengthening base metal prices during the quarter, the base metal equities performed very well to start the year. Our coverage list was lead by ERO Copper up 69% in the first three months. Markets appear to be aligned with our thinking of strengthening prices in the base metal complex for 2019.

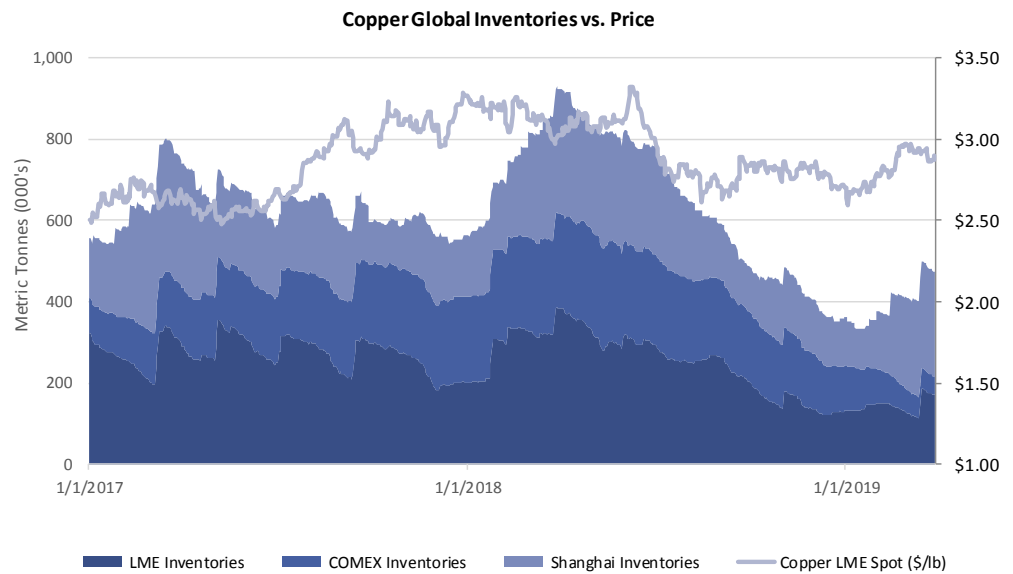
With earnings season kicking off on Wednesday, we outline our expectations for the quarter.

Ticker	Rating		Target	
	New	Old	New	Old
Base Metals & Diversified				
Senior Producers				
FM-CA	n.c.	BUY	n.c.	C\$27.00
LUN-CA	n.c.	BUY	C\$11.00	C\$10.50
HBM-CA	n.c.	BUY	n.c.	C\$17.00
Junior Producers				
ERO-CA	n.c.	BUY	n.c.	C\$18.75
ASND-CA	n.c.	BUY	n.c.	C\$1.60
CS-CA	n.c.	BUY	n.c.	C\$1.90
CMMC-CA	n.c.	BUY	n.c.	C\$1.75
TKO-CA	n.c.	HOLD	n.c.	C\$2.85
TV-CA	n.c.	BUY	n.c.	C\$1.00

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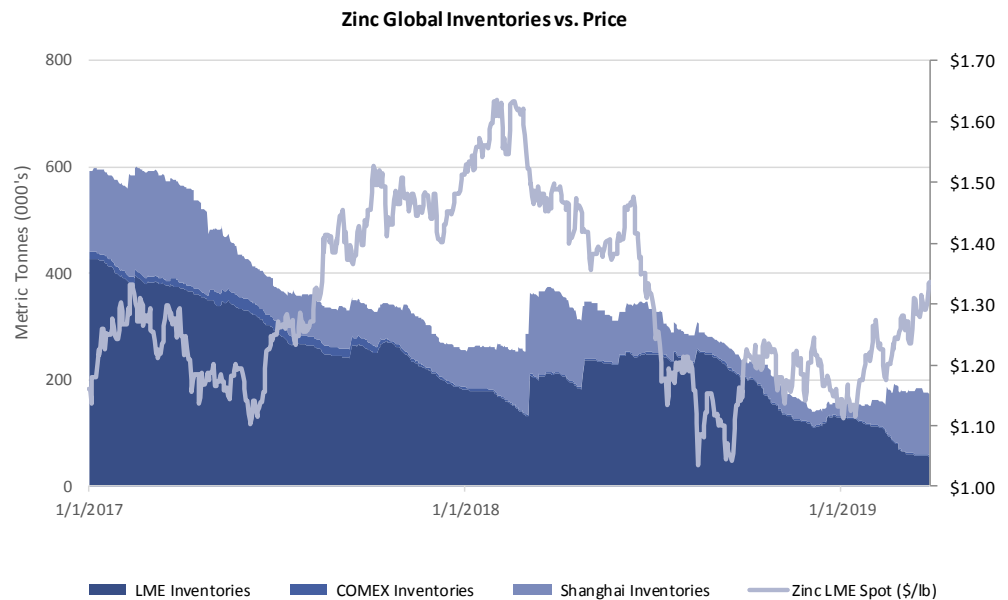
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Figure 1. Global copper inventories and price movement



Source: Bloomberg, GMP Securities

Figure 2. Global zinc inventories and price movement



Source: Bloomberg, GMP Securities

Figure 3. 1Q19 performance of our coverage universe

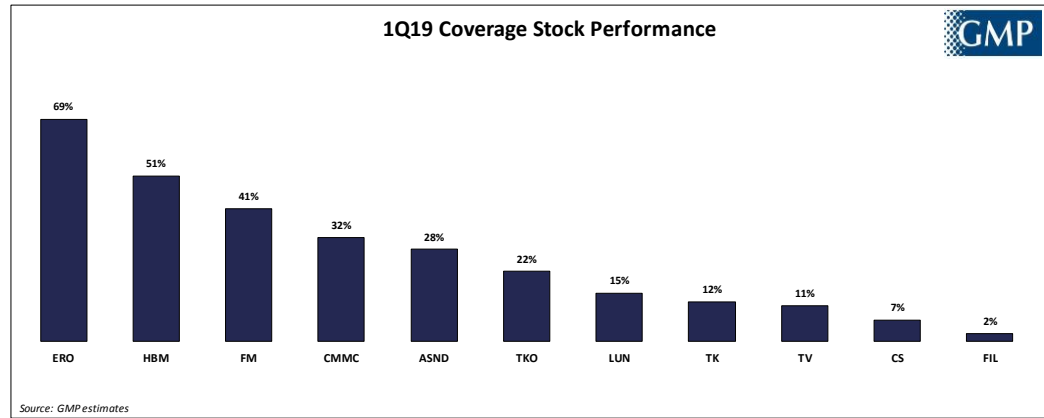


Figure 4. Copper production per share of our coverage universe

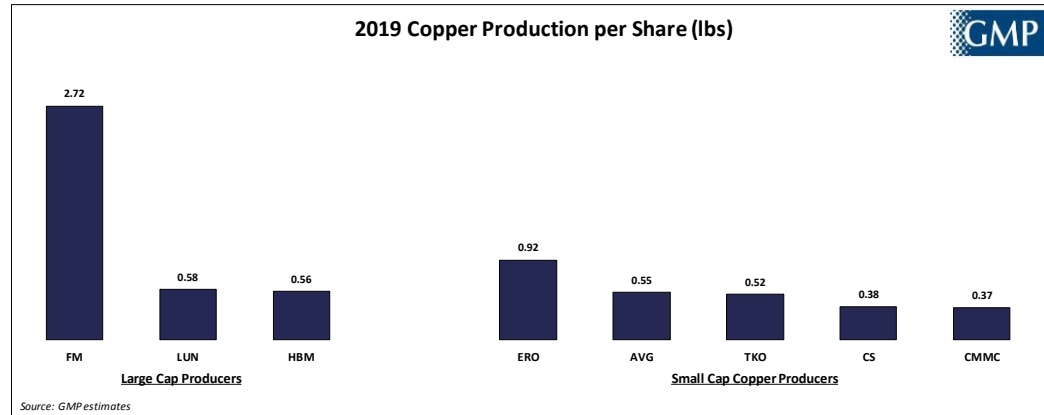
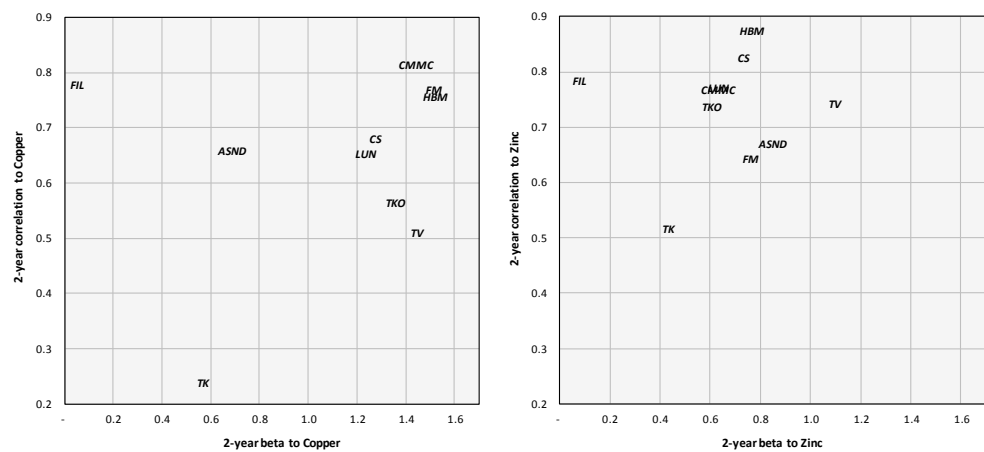


Figure 5. Torque to copper and zinc for our coverage universe



Source: GMP estimates

1Q expectations

Recent trends in metal prices reinforce our confidence in our assumptions; our metal price assumptions remain unchanged. We continue to use long-term estimates of US\$3.10/lb Cu and \$1.10/lb Zn. Below, we discuss our expectations for the quarter.

Hudbay Minerals

For 1Q19, Hudbay's Manitoba Operations produced 6.1k tonnes Cu and 28k tonnes Zn; we expect Constancia Cu production of 27.9k tonnes Cu for total quarterly copper production of 34.1k tonnes.

HBM continues to execute, and the past few months have seen the release of a number of catalysts for the company. Exploration drilling proximal to the Chisel North and Lalor mines in Manitoba have shown exciting intercepts, and the company looks to continue its successful track record of discovering and building out assets organically. The new Lalor mine plan and updated reserves will look to leverage the higher recoveries of the recently purchased New Britannia mill.

In Arizona, significant progress occurred on the permitting front for Rosemont, with both the U.S. Forestry Service and Army Corps of Engineers issuing and verifying the Section 404 Water Permit. The approval of the water permit represents the final substantial permitting hurdle the company has had to cross. Following a rigorous consultation period, Hudbay looks to move forward with the project. Together with Constancia, Rosemont represents the next generation of copper production for the company.

Our target price, which is based on a 1.0x target multiple, remains unchanged at C\$17.00/sh.

First Quantum

For First Quantum, we estimate production of 136k tonnes Cu, 4.2k tonnes Zn and 50k oz Au within the quarter. Cash costs excluding Cobre Panama are estimated to be \$1.26/lb Cu produced. Quarterly production is affected by seasonal weather in Zambia, and First Quantum expects 1Q19 production at Kanshanshi and Sentinel to be the lowest of the year; we have adjusted our numbers accordingly.

In Panama, Cobre Panama continues to advance, with first ore introduced into the milling circuit in February as scheduled. Last month, First Quantum released an updated technical report on the project, and announced the upgraded life of mine plan to increase peak milling capacity of the project from 90Mtpa to 100Mtpa. Copper production will now reach peak output three years earlier, and by 2023 produce nearly 75mm tonnes more Cu than we initially modelled. While the project expansion does not move the needle significantly from a valuation standpoint, it increases the company's leverage to the copper price, allowing FM to capitalize on greater cash flow earlier than previously anticipated with increased confidence.

Our target price of C\$27.00/sh remains unchanged. We continue to use a 1.0x NAV multiple to value FM. First Quantum remains high-gearred to rising copper prices which we expect throughout 2019, and is one of our best ideas.

Ero Copper

For 1Q19, we expect production of 9.7k tonnes Cu; production is driven by Vermelhos and Pilar.

Last week, ERO released the results from its 1Q19 exploration program. At Vermelhos, the combination of geophysical anomalies and drilling intercepts has yielded significant potential for extensions along 5.5km of strike length. At the Vermelhos Mine, a southern extension of high grade Cu mineralization was drilled, and yielded grades as high as 17.19% Cu over 3.0m. At Pilar, thirteen drill rigs continue to turn yielding positive results, in addition to a newly digitized historical drill database, effectively affording ERO the confidence to extend the West Limb to the south towards the Pilar Mine. Current drilling results are highlighted by 10.5m at 4.0% Cu. Drilling results are located approximately 100m to the south of the current resource model at R22, and 250m south of P1P2W, reflecting potential linear continuity of the West Limb as a much larger, continuous orebody. Overall, the guiding theme to ERO's most recent exploration update is the company's ability to realize low cost, near-term value of the mineralization drilled to date.

Earlier last month, ERO announced the new planned addition of a VERTIMILL at its Caraiba Mill. For a minimal capital investment of US\$6mm, the second mill has the effect of reducing residence time and consequently increasing throughput, allowing the operation to sustainably operate at its nameplate capacity of 3.1mtpa. ERO ran at an annualized rate of 3.1mtpa in 4Q18, and the additional mill provides confidence this rate can be sustained. Further, the mill will be able to boost recoveries by 4-6% over the life of mine, significantly increasing our modeled NAV. While these benefits can be recognized almost immediately following installation later this year, we model a more conservative ramp up of throughput and increased recoveries, affording a period of logistical optimization. By 2022, we model the full increase in recoveries, after a ramp up period of three years. Throughput and recovery increases materially drive target price of C\$18.75/sh, which is based on a 1.0x NAV multiple.

Lundin Mining Corp.

For Lundin, we expect 1Q19 production of 41k tonnes Cu at a cash cost of \$1.59/lb Cu, 38k tonnes Zn, and 3.4k tonnes Ni.

Production at Candelaria has been guided towards being back half weighted, as the company progresses with the pit pushback. 2018 was the high-water year for capital expenditures, as the reinvestment in the new mining fleet, South Sector underground development, and mill optimization project progressed smoothly. Together, these investments will help to increase the already expanded reserves, boosting Cu production to 180k tonnes by 2021, representing nearly 20% more production than forecast when Lundin purchased the asset.

At Neves- Corvo, the zinc expansion project is nearly half completed, and is on track to commence commissioning in early 2020. LUN expects to incur US\$210mm in expansionary capital expenditures during 2019 on the project. By 2021, zinc production is set to double production levels from 2018.

Earlier last week, Lundin announced the purchase of the Chapada copper gold mine, located in Brazil. Lundin purchased the asset for \$800mm, plus additional subsequent payments contingent upon certain gold price participation agreements and capex developments of \$225mm. The asset will add high quality, long life copper production at low cost, with confident ability to expand resources through exploration. Chapada will add over 25% of the company's current Cu production, and approximately 100k oz Au. We foresee the transaction closing in 3Q19, and thus will not affect our estimates for this upcoming quarter. The transaction remains NAV accretive, as we value the asset at a ~1.0B NPV @ 8%. We have increased our target price to C\$11.00/sh following the Chapada transaction, which is based on a 1.0x NAV multiple.

Capstone Mining

For 1Q19, we expect Capstone to produce 17.3k tonnes Cu at a cash cost of \$1.87/lb Cu, and 1.9k tonnes Zn.

At Cozamin, Capstone remains active in robust logistical updates to accompany the asset's reserve update. As of January, Cozamin's proven and probable reserves increased 89% to 6.2mm tonnes @ 1.60% Cu. The impressive inventory jump is accompanied by an expected 30% increase in throughput at Cozamin by the end of 2020. Anticipated additional capex is less than \$5mm, boosting annual production to between 40-45mm lbs Cu by 2020, representing a near 30% increase in expected throughput. At Pinto Valley, a scoping study is currently underway to assess the overall economics of its resource base and the possibility of reserve expansion.

The significant boost in reserves at Cozamin follows a nearly 13-year period of reliable new discoveries from initial production, and should solidify the asset as a robust source of production growth for Capstone for years to come. Our target, which we determine via a 1.0x NAV multiple, remains unchanged at C\$1.90/sh.

Copper Mountain Mining

In 1Q19, we expect Copper Mountain to produce 18.7mm lbs Cu at a cash cost of \$2.42/lb Cu net of by products.

While the addition of New Ingerbelle was announced late last year, the release of the new integrated production plan in late February provides more granularity and a clear path forward. The new plan includes a modest mill expansion from 40ktpd to 45ktpd, and the full integration of production from the New Ingerbelle pit. Average annual copper equivalent production has jumped 27% to 116mm lbs over the first ten years of mine life, with an additional 12 years of mine life cumulating in a total LOM of 26 years. Expansionary capital required is roughly \$25.2mm for the new mill this year, and \$22.7mm for the new pit start up in 2022. Due to the company phasing expenditures, and the inherent low cost of this expansion, Copper Mountain maintains financial flexibility throughout the process. The company is expected to generate free cash flow in 9 of the next 10 years.

With free cash flow generation foreseeable in the near and mid term, Copper Mountain maintains flexibility to progress its Australian development stage, permitted Eva Project, organically creating production growth. Our target price, which is determined using a 1.0x NAV multiple, remains unchanged at C\$1.75/sh.

Taseko Mines

We expect TKO to produce 31mm lbs of copper at cash cost of \$2.01/lb in 1Q19. Earlier in the month, it was announced that Florence Copper produced its first copper at the on-site test facility. Initial leaching has been operating as expected, and the scale up has been relatively seamless. The company is now focused on optimizing operational parameters to ramp up to the commercial plant. Once fully up and operating, the in situ leach facility will produce 85MM lbs of copper annually for 20 years at an average cost of \$1.10/lb.

Trevali Mining

For 1Q19, we expect Trevali to produce 91mm lbs Zn, 45mm lbs Pb, and 260k oz Ag, at a consolidated cash cost of 0.87/lb Zn net of by products.

Production for the first quarter is expected to be the lowest of the year, with a number of mine schedule sequencings as well as capital improvements occurring. At Santander and Rosh Pinah, lead grades are expected to significantly increase quarter over quarter throughout the year, causing lead production to increase every successive quarter. Zinc production is also expected to be stronger in the second half of 2019. At Caribou, capital upgrades are expected to cause weaker 1Q19 zinc production, which is to be made up throughout the year. Rosh Pinah is expected to have its strongest quarter of zinc production to start the year, as zinc grades are forecast to decline from 10% to 8% end of year.

On the cost side, consolidated cash costs are expected to be highest in 1Q19 due to a combination of seasonal impacts in Peru and Atlantic Canada, and scoping to de-risk annual production and increase inventories. We foresee costs coming down throughout the year as throughput increases into the year due to the completion of maintenance requirements.

On the exploration front, Trevali remains disciplined in replacing reserves at all of its operations, in addition to modestly increasing resources. The Santander Pipe deposit will continue to be a focus throughout the year, while drilling at Perkoa has yielded an extension of the Hanging Wall zone 300m below the current mine plan. Exploratory drills continue to turn, and have discovered several compelling greenfields VMS systems proximal to the Perkoa mine.

Ascendant Resources

In 1Q19, Ascendant produced 15.1mm lbs Zn, 5.9mm lbs Pb, and 293k oz Ag, for a zinc equivalent total of 23.3mm lbs.

With the new expansionary project underway, 2019 and 2020 are high water years for capital expenditures, with US\$15-US\$20mm to be spent this year. Following the expansion, costs are forecast significantly lower.

In Portugal, drills continue to turn at the Lagoa Salgada project in the world class Iberian Pyrite Belt. Ahead for 2019, ASND plans to conduct a detailed follow up induced polarization survey and geochemistry work to more efficiently delineate drill targets. A total of 37 drill holes targeting 15,175m are planned for 2019; this is more than double the total drilled in 2018. Step out and infill drilling is targeting the prior resource, and upgrading

inferred tonnes to higher confidence. We eagerly await the announcement of an expanded resource at Lagoa.

Impact of adjustments made to our models

The tables below summarize the net impact of changes to our models due to edits.

Figure 6. Changes to our targets and valuations

	Ticker	Price	Rating		Target		NAV		Tgt P/NAV Multiple	Tgt P/NAV Multiple Old
		23-Apr-19	New	Old	New	Old	New	Old		
Base Metals & Diversified										
Senior Producers										
First Quantum Minerals Ltd.	FM-CA	C\$15.37	n.c.	BUY	n.c.	C\$27.00	C\$26.81	C\$27.43	1.0x	1.0x
Lundin Mining Corp.	LUN-CA	C\$7.48	n.c.	BUY	C\$11.00	C\$10.50	C\$10.87	C\$10.11	1.0x	1.0x
HudBay Minerals Inc.	HBM-CA	C\$9.39	n.c.	BUY	n.c.	C\$17.00	C\$16.48	C\$16.99	1.0x	1.0x
Junior Producers										
Ero Copper Corp.	ERO-CA	C\$17.64	n.c.	BUY	n.c.	C\$18.75	C\$18.87	C\$18.82	1.0x	1.0x
Ascendant Resources Inc.	ASND-CA	C\$0.51	n.c.	BUY	n.c.	C\$1.60	C\$1.64	C\$1.58	1.0x	1.0x
Capstone Mining Corp.	CS-CA	C\$0.71	n.c.	BUY	n.c.	C\$1.90	C\$1.78	C\$1.82	1.0x	1.0x
Copper Mountain Mining Corp.	CMMC-CA	C\$1.08	n.c.	BUY	n.c.	C\$1.75	C\$1.79	C\$1.78	1.0x	1.0x
Taseko Mines Limited	TKO-CA	C\$0.94	n.c.	HOLD	n.c.	C\$2.85	C\$2.73	C\$2.75	1.0x	1.0x
Trevali Mining Corp.	TV-CA	C\$0.37	n.c.	BUY	n.c.	C\$1.00	C\$1.29	C\$1.33	0.8x	0.8x

Source: GMP Securities

Figure 7. Changes to our earnings and cash flow estimates

	Ticker	Price	2019E EPS		2020E EPS		2019E CFPS		2020E CFPS	
		23-Apr-19	New	Old	New	Old	New	Old	New	Old
Base Metals & Diversified										
Senior Producers										
First Quantum Minerals Ltd.	FM-CA	C\$15.37	\$0.63	\$0.59	\$1.28	n.a.	\$2.08	\$2.55	\$3.79	n.a.
Lundin Mining Corp.	LUN-CA	C\$7.48	\$0.32	\$0.30	\$0.47	n.a.	\$0.84	\$0.86	\$1.30	n.a.
HudBay Minerals Inc.	HBM-CA	C\$9.39	\$0.23	\$0.63	\$0.45	n.a.	\$2.05	\$2.58	\$3.28	n.a.
Junior Producers										
Ero Copper Corp.	ERO-CA	C\$17.64	\$0.46	\$0.38	\$0.73	n.a.	\$0.92	\$0.85	\$1.27	n.a.
Capstone Mining Corp.	CS-CA	C\$0.71	\$0.06	\$0.05	\$0.09	n.a.	\$0.29	\$0.31	\$0.40	n.a.
Copper Mountain Mining Corp.	CMMC-CA	C\$1.08	(C\$0.02)	C\$0.08	C\$0.70	n.a.	C\$0.15	C\$0.46	C\$0.83	n.a.
Ascendant Resources Inc.	ASND-CA	C\$0.51	\$0.16	\$0.15	\$0.21	n.a.	\$0.29	\$0.28	\$0.38	n.a.
Trevali Mining Corp.	TV-CA	C\$0.37	\$0.07	\$0.09	\$0.13	n.a.	\$0.15	\$0.17	\$0.22	n.a.
Taseko Mines Limited	TKO-CA	C\$0.94	C\$0.08	C\$0.09	C\$0.34	n.a.	C\$0.34	C\$0.31	C\$0.57	n.a.

Source: GMP Securities

Figure 8. 4Q EPS and CFPS estimates

	Symbol	Analyst	Rating	Target	CFPS		EPS	
					1Q19e	1Q19 Cons	1Q19e	1Q19 Cons
Senior Producers								
Hudbay Minerals	HBM	Parkinson	BUY	C\$17.00	\$0.45	\$0.37	\$0.02	\$0.02
First Quantum Minerals	FM	Parkinson	BUY	C\$27.00	\$0.41	\$0.43	\$0.14	\$0.13
Lundin Mining	LUN	Parkinson	BUY	C\$11.00	\$0.17	\$0.19	\$0.06	\$0.07
Junior Producers								
Ero Copper	ERO	Parkinson	BUY	C\$18.75	\$0.30	\$0.37	\$0.17	\$0.19
Capstone Mining	CS	Parkinson	BUY	C\$1.90	\$0.06	\$0.05	\$0.01	\$0.01
Copper Mountain	CMMC	Parkinson	BUY	C\$1.75	C\$0.03	C\$0.05	(C\$0.01)	C\$0.01
Trevali Mining	TV	Parkinson	BUY	C\$1.00	\$0.03	\$0.04	\$0.01	\$0.01
Ascendant Resources	ASND	Parkinson	BUY	C\$1.60	\$0.04	\$0.04	\$0.02	\$0.00
Taseko Mines	TKO	Parkinson	HOLD	C\$2.85	C\$0.08	C\$0.05	C\$0.02	(C\$0.01)

Source: GMP Securities

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