



Battery Metals Index

October 23, 2017

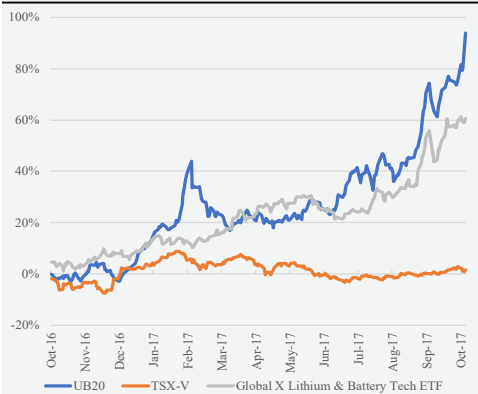


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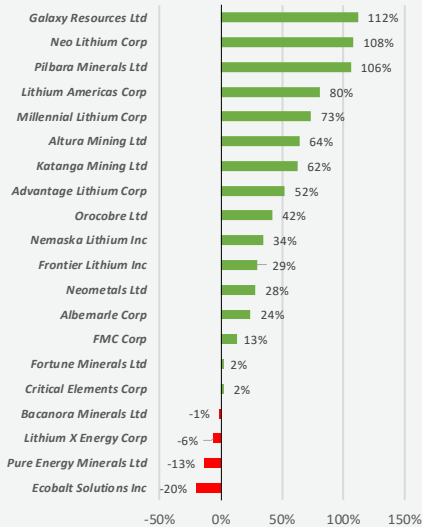
August 28, 2017 - October 23, 2017

UB20: 32.4% (93.5% Y/Y)
 TSX-V: 1.4% (0.4% Y/Y)
 Global X Lithium ETF: 19.7% (53.6% Y/Y)

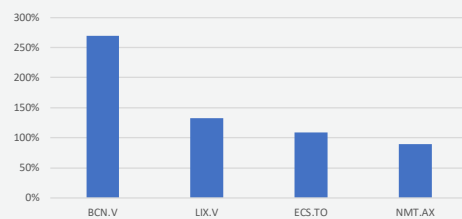
Dollar amounts in CAD unless otherwise stated.



UB20: Performance Distribution



Top Volume Gainers (m/m)



Chris Thomson | Head of Research | Ubika Research | Chris@UbikaResearch.com | 1 (416) 574-0469

Patrick Smith | Analyst | Ubika Research | Patrick@UbikaResearch.com | 1 (647) 444-5506

Yousuf Shekhani | Associate | Ubika Research | Yousuf@UbikaResearch.com | 1 (647) 607-0691

Battery Metals Stocks Charge Higher: Ubika Index Update

The Ubika Battery Metals Index is up 32% since our last report dated August 28, 2017, as the Index outperformed its benchmarks TSX-V Index and the Global X Lithium and Battery ETF, which gained 1% and 20%, respectively, over the same period. Notable performers for this report include:

1. Galaxy Resources Limited (ASX:GXY): which returned 112%, following two consecutive quarters of increased production.
2. Advantage Lithium (TSXV:AAL), whose stock price increased 52% in anticipation of positive drill results.
3. eCobalt Solutions (TSX:ECS), which decreased 20% following the release of its new Feasibility Study.

Industry Highlights:

- **Jiangxi Special Electric Motor Ltd takes a \$20mm stake in Tawana Resources.** The Chinese electric vehicle manufacture took an 11.5% stake in Tawana Resources, an Australian lithium exploration company. Tawana owns 50% of the Bald Hill lithium and tantalum mine in Australia, which is expected to begin shipping in March 2018.
- **China's Great Wall Motor Company agrees to take a \$27.9mm stake in Pilbara Minerals Ltd, as part of an off-take agreement.** On September 28, China's largest SUV manufacturer agreed binding terms for 75,000 tonnes per annum (tpa) of chemical grade spodumene, with the option to double its offtake to 150,000 tpa, by providing Pilbara with US\$50mm in debt financing. As part of the agreement, Great Wall also agreed to an upfront \$27.9mm equity subscription.
- **BHP Billiton expects to accelerate its nickel sulfate expansion to meet battery demand.** During August, the Australian mining company announced it plans to spend more than \$43mm at its Kwinana refinery in Western Australia. The refinery processes the Nickel West operation. The expansion is anticipated to produce 100,000 tonnes per year of nickel sulphate hexahydrate, the major component used in lithium-ion batteries. The first stage is expected to be completed by April 2019 and the second stage is expected to double production to 200,000 tonnes per year. This would make Nickel West the largest global nickel sulphate operation.

Upcoming Conferences:

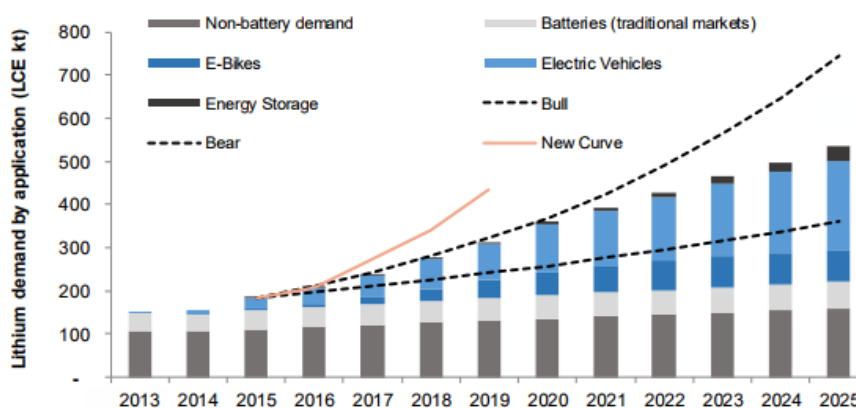
MineLatinAmerica Seminar - November 23, 2017, Toronto, Canada. The event features Latin American mining projects, as well as technical presentations and panel discussions.



Lithium Demand:

The electrification of transportation led by China has sent lithium stocks surging over the past year. As shown below, the strong upwards trend is set to continue over the next few years as global manufacturers shift towards electric vehicles. According to the table below, Lithium demand is expected to double by 2021.

Figure 1: Lithium Demand Forecast



Source: Neo Lithium Corp. Presentation

Change in Constituents:

As part of our aim to provide readers with relevant and insightful industry reports, we conduct periodic reviews of our index constituents to determine whether they meet the overall criteria for inclusion. As a result, we have removed Altius Minerals Corp (TSX:ALS), Highlands Pacific Ltd (HIG:ASX), Lonmin PLC (LMI.L), Lundin Mining Corp (TSX:LUN), Independence Group NL (ASX:IGO), SQM Chile (NYSE:SQM) and Tiger Resources Ltd (ASX:TGS) from the Ubika Battery Metals 20 Index

The new constituents for the Ubika Battery Metals 20 Index include Pure Energy Minerals Ltd (TSXV:PE), Advantage Lithium Corp (TSXV:AAL), Lithium X Energy Corp (TSXV:LIX), Bacanora Minerals Ltd (TSXV:BCN), Frontier Lithium (TSXV:FL), Neo Lithium Corp (TSXV:NLC), and Critical Elements Corp (TSXV:CRE).

As we aim to shift the Ubika Indices to an investable index model, we have decided to switch to an Equal Weight Index. The new Index is like a portfolio, or an index fund, as it gives each stock an equal weighting.

Notable Performers:

Galaxy Resources Limited (ASX:GXY)

Galaxy Resources is an Australian-based lithium producer with assets across the globe. The Company operates one facility, and has two projects under development. The stock has increased 112% since our last report date, following the release of strong quarterly earnings, and amid [ongoing rumors](#) of a pending supply agreement between the Company and Panasonic, which supplies Tesla's car batteries.

The Company's Mt. Cattlin facility comprises a spodumene (lithium concentrate) and tantalum mine, and a processing operation located two kilometers north of Ravensthorpe in Western Australia. The Company mines spodumene at Mt Cattlin and sends the ore to its hydrometallurgical processing facility. At the facility, the ore is processed and sold as dried concentrate. As per existing offtake agreements, Galaxy agreed to sell 120,000 tonnes of lithium concentrate, grading a minimum of 5.5% Lithium Oxide to customers in China. Furthermore, the customers will pay a pro-rated price for higher grades. The table below details the mineral reserves and production capacity at Mt Cattlin:

Figure 2: Galaxy Resources (August 2015)

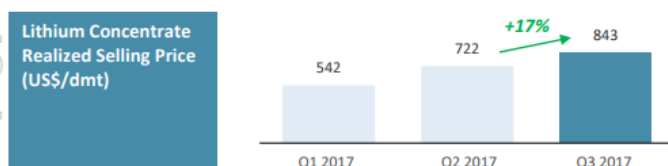
Resource and Production Capacity			
Resource Category	Tonnes	Lithium Oxide %	Tanatum Oxide ppm
Measured	2,540,000	1.2	152
Indicated	9,534,000	1.06	170
Inferred	4,343,000	1.07	132
Total	16,416,000	1.08	157
Production Capacity	1.6mm tpa		

Source: Company Filings

The Company's Sal de Vida project is located the Salta and Catamarca provinces in Argentina, close to FMC Corp's (NYSE:FMC) Fenix operations. The project is situated within the 'Lithium Triangle', which produces more than 60% of global annual lithium supply. The project is expected to cost US\$376mm and the Company's revised Feasibility Study indicates a post-tax NPV10% of US\$1,043mm and a post-tax IRR of 34.6% (August 2016).

Since our last report on August 28, GXY issued two quarterly earnings releases, significantly increasing production and lowering costs. As a result, GXY has maintained a strong upwards momentum, returning 112% over the last couple of months. Initially, the stock gained 50% within two weeks following the release of its Q2/2017 earnings. During the quarter, GXY completed the ramp up and commissioning of its facility at Mt. Cattlin. Following the ramp up, GXY produced 32,998 dry metric tonnes (dmt) of lithium concentrate grading 5.77%, up 41% Q/Q, and sold 30,135 dmt increasing sales volume by 28% Q/Q. In October, GXY hit an eight-year high following the release of its Q3/2017 earnings, as the Company produced 47,075 dmt grading 5.74%, up 43% Q/Q. In addition, GXY sold 41,834 dmt during the quarter, up 39% Q/Q, while reducing production cash costs by 18% Q/Q to US\$320/dmt. Galaxy's performance was further boosted by a higher realized selling price of Lithium Concentrate, as shown below:

Figure 3: Galaxy's Realized Price



Source: Company Presentation

GXY trades at a 2018 EV/CF of 16.32x compared to its peer average of 39.25x. The stock has 6 Buy, 2 Hold and no Sell recommendations.

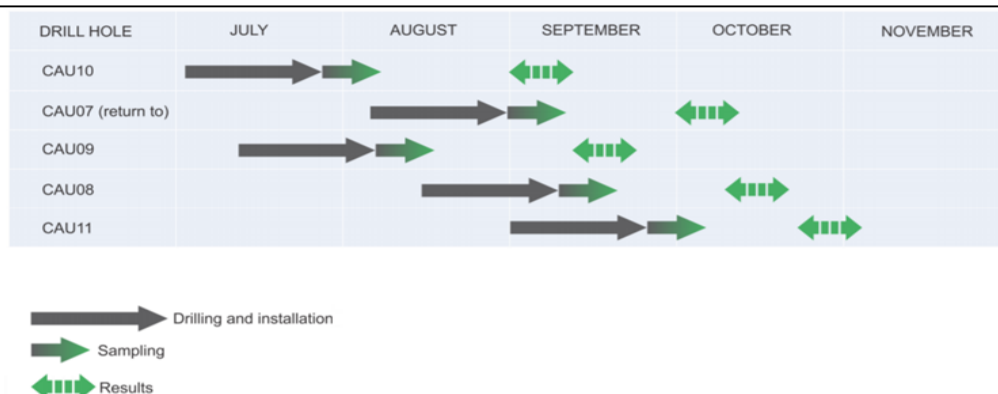
Advantage Lithium (TSXV:AAL)

Advantage Lithium is a Canada-based company with assets in Argentina and the United States. The Company's stock price increased 52% since our last report, following rising lithium prices and in anticipation of its upcoming drill results.

AAL aims to leverage the expected supply shortage for lithium over the coming years by exploring and developing lithium projects across South America and the United States. Advantage Lithium has interests in five projects in Argentina and another in the United States.

The Company's flagship asset, the Cauchari project, is a 75/25 Joint Venture between the Company and Orocobre Limited (TSX:ORL). The project comprises 28,500 hectares, and is located 10 kilometers south of Orocobre's LCE production plant in the Jujuy Province, Argentina. Advantage Lithium plans to leverage the Cauchari project's close proximity to Orocobre's existing production plant, by processing its lithium brine at Orocobre's facilities. The Cauchari JV hosts Inferred minerals reserves of 230 million cubic meters of brine at 380 mg/l Li and 3,700 mg/l K for 470,000 tonnes of lithium carbonate equivalent (LCE) and 1.62 million tonnes of potash (December 2016). Currently, AAL has budgeted \$17mm for drilling and exploration costs as the Company plans to expand its existing resource over the coming year. With an updated NI 43-101 resource due in early 2018, the Company aims to bring the project into development by 2018/2019. The table below shows a timeline of the expected release dates of its drill results. AAL's stock price rose 30% the week before its drill result announcement on September 19, but fell back 19% on the day of the release. Since then, the stock has risen back above its September highs as further drill results are due.

Figure 4: Time line for AAL's Drill Results



Source: Company Presentation

The Company's second major asset is its Clayton Valley North East project. AAL's property is located in Nevada, United States, approximately 350 kilometers from the city of Las Vegas. The mine is located along Albermarle Corp's (NYSE:ALB) Silver Peak mine, which is North America's only lithium producer.

eCobalt Solutions (TSX:ECS)

eCobalt Solutions is a cobalt exploration and development company in the process of bringing its Idaho Cobalt project into production. The Company's stock price has declined 20% since our last report date, driven by the results of the anticipated Feasibility Study results, which were released on September 27. A higher realized price for cobalt was largely offset by higher capital costs for the project.

eCobalt's 100% owned Idaho Cobalt project is a cobalt-copper-gold project located outside the town of Salmon, Idaho, United States. eCobalt has obtained all the environmental permits necessary for the project, and expects the project to be an underground mine and mill operation. According to a PEA dated March 10, 2015, the project had an estimated post-tax NPV8% of \$113.45mm (cobalt price at \$19.5/lb) at a capital cost of \$146.76mm. Furthermore, the Company also plans to build a hydro-metallurgical processing facility close by, which will serve as a refinery for the mined ore. eCobalt expects to build the facility on a railhead in Blackfoot, Ohio.

On September 27, ECS's stock price dipped 8% the day it released a Feasibility Study for its Idaho Project. The study indicated a post-tax NPV7.5% of \$135.8mm (cobalt price at \$26.65/lb). Furthermore, the study estimated an initial capital cost of \$186.7mm, up 27% from its 2015 PEA. The study also provided some reserve figures:

Figure 5: eCobalt Resource Table

Category	Co% Cut-off	Resource (Tons)	Co (%)	Co (lbs)	Au (opt)	Au (ounces)	Cu (%)	Cu (lbs)
Proven	0.25	1,987,209	0.43	17,107,067	0.013	25,276	0.69	27,383,521
Probable	0.25	1,674,685	0.52	17,409,858	0.017	28,010	0.67	22,372,024
Total Reserve	0.25	3,661,894	0.47	34,516,925	0.016	53,286	0.68	49,755,545

Source: Company Filings

To date, eCobalt has spent \$110mm on the project, for exploration, permitting and pre-construction purposes. Currently, the Company continues drilling at its property to potentially extend the 12.5-year mine life estimated in the Feasibility Study. Furthermore, ECS has begun pre-construction in anticipation of financing the project. The table below shows the timeline for the Idaho Cobalt project:

Figure 6: eCobalt Project Timeline



Source: Company Presentation

Currently ECS has an average price target of \$1.75, representing a 52.2% upside for the stock with 1 Buy and 1 Hold Recommendation.

Upcoming Catalysts:

While Chinese auto manufacturers seem to have shown initiative to secure lithium supply, to support China's electrification of transportation, auto manufacturers from the rest of the world [have yet to fulfill on some hefty promises](#). Volvo plans to produce only electric or hybrid vehicles starting in 2019. Furthermore, at the Frankfurt Auto show this year, Volkswagen pledged to spend \$103 billion to electrify its vehicles by 2030. The spike in demand for lithium has led to a surge in pricing, and has led to expectations of a supply shortage over the next couple of years. In the wake of this market environment, further off-take agreements, or even acquisitions, could serve as major catalysts over the coming months.

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