Wednesday, November 2, 2016

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HALLGARTEN & COMPANY

Portfolio Strategy

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Model Mining Portfolio:

Holding Pattern

Performance Review – October 2016

Model Mining Portfolio

Holding Pattern

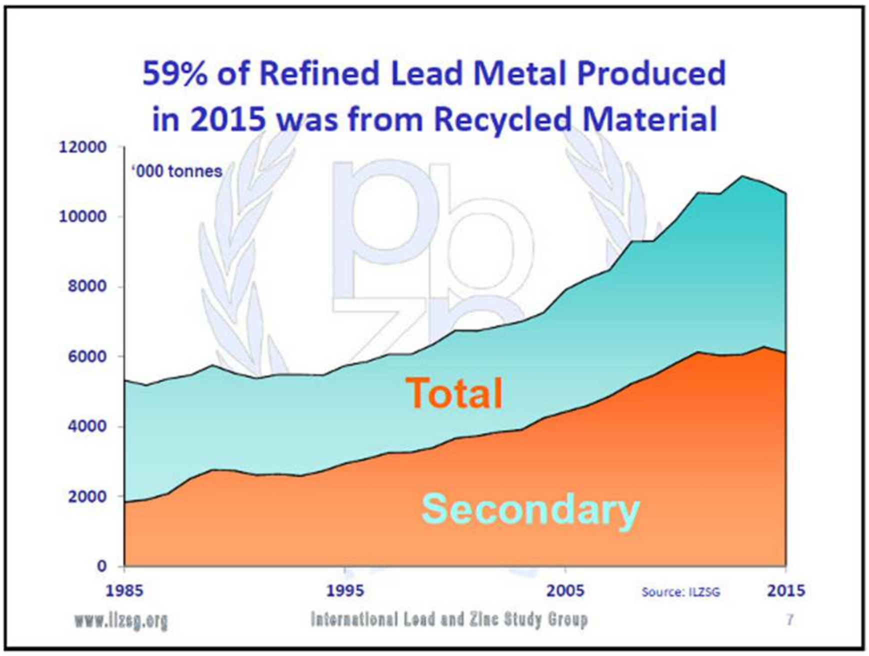
- Growth in the US continues to power along
- Base metals have rebounded with Zinc through the $1.10 ceiling. Copper firming up.
- Antimony is on the rise again after being down for several years
- Chrome and Manganese have awoken from their slumbers and moved steeply higher
- Vanadium is experiencing very strong demand and price rises
- The AUD and CAD remain at highly competitive levels despite improvements in commodity prices, which represents a Goldilocks scenario of the best of all worlds
- Silver and gold have been relatively immobilized by the lack of external stimulants
- Lead has switched into surplus and we regard Lead as a first-line "victim" of the rise of Lithium ion batteries
- Lithium stocks have retreated with juniors, in most cases, being off by 50% or more from 2016 highs

Writing on the Wall for Lead

During the month we met with one of the largest companies in Germany on their Futurology project as it relates to mining over the next 15 years. We were surprised when they asked which metal will not need to be mined at the end of the designated period. After a brief reflection the answer seemed obvious and that metal was Lead. Even they were taken a bit aback as Lead has been part of human endeavour and industry since the earliest days of human civilization.

That then begged the question as to whether platinum/palladium also were headed into some sort of sea-change, due to the rise of the Electric Vehicle (EV), that would render them obsolete. The logic that works for one, works for the other, though with the overarching supply dynamic for PGMs that production is likely to decline rather than rise due to the poor prognosis for many South African and Russian mines of considerable vintage. Therefore our nuanced approach to platinum is that the question is whether demand will fall faster than supply. That we doubt but it is a pont to be argued.

However the EV phenomenon has the potential to take away the incremental demand for "new" Lead. The logic is that Lead is a metal with a strong (or indeed the strongest) component of recycling in the metals space. This implies that the existing stock of Lead, which is primarily "stored" in the world's stock of Lead-acid batteries is infinitely recyclable. Very few batteries escape the recyclers tender mercies after a vehicle has gone to the Great Beyond. This implies that most Lead mined now goes to meeting incremental demand for automobile batteries.



This begs the question of what happens to Lead mining when the amount of Lead recycled equals the amount of Lead required for traditional applications if the usage in Lead batteries starts to go into reverse? The rise of the Lithium-ion battery and the electric vehicle seems destined to hasten that day.

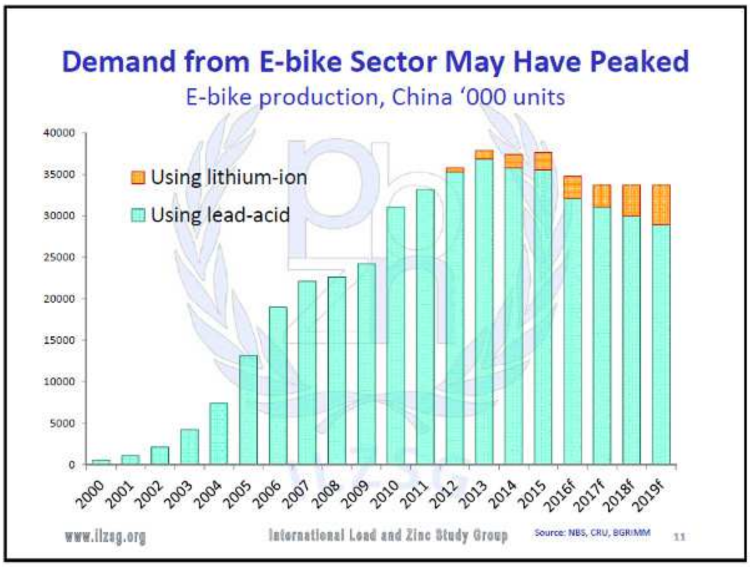
Lithium – Out with the Old

The macro trend that is ringing the death knell for Lead's once mighty position is the rise of Lithium and moreover the potential of the surge in electrical vehicle penetration to make some countries "combustion engine free zones" by 2030. This is not a pretty scenario for Lead. As cars are getting lighter one of the heaviest components (the lead battery) is also the most retro in its contribution to moving people forward.

Even the industry thinktank, the International Lead Zinc Study Group (ILZSG) has grasped the extent of Lead's dilemma: Their latest projections cite the dangers for Lead demand as:

- Lead-acid already losing market share to lithium-ion in some stationary battery sectors
- Pressure from auto-makers to develop more efficient and robust batteries
- Main challenges for lead-acid are Dynamic Charge Acceptance (DCA) and shallow cycle life
- Competition with lithium-ion in auto-batteries intensifying as costs come down (eg. Tesla)

The rise of China and the desire of its middle class for automobiles was a phenomenon which gave Lead demand its one last boost over the last decade. Even at the lower levels in China though we see Lead starting to go into eclipse. In the chart below we can see how in electric bicycles, used by the lower echelons of the Chinese economic pyramid are expected to decline in absolute terms and the share held by Lead-acid batteries to face growing replacement by Lithium-ion batteries.



This chart humble as it is shows the most disturbing trend. If one looks at 2019 consumption of Lead for this product it is back at 2010 levels. This might imply that the scrapping of ten year old bicycles will, by the end of this decade, provide all the Lead needed for new bicycles using Lead acid batteries. Here we see in microcosm that Lead will be a zero-sum game with a "closed-cycle" of Lead recycling ultimately serving most, if not all, "new" demand for Lead.

If countries move *en masse* to adoption of EVs over combustion engines (as we should expect in China by 2030) then not only will most demand for Lead batteries be removed but there will be a massive flowback of Lead from existing vehicles being scrapped. This will remove all incremental demand for Lead and provide "surplus" Lead for which we cannot foresee any new application.

The Zinc Conundrum

The demise of Lead that we posit here has an interesting implication for Zinc mining. As is well-known I am an unreconstructed bull of Zinc. Traditionally Lead and Zinc and Silver have appeared in the same mines (to varying degrees) and have either pulled together or pulled against each other in the economic equations that make those mines viable. That begs the question of what should happen to the economics of existing or planned mines should Lead become something akin to a zero in the algebraic calculation of the economics of a mine. Moreover if the Lead cannot be sold then what does one do with it?

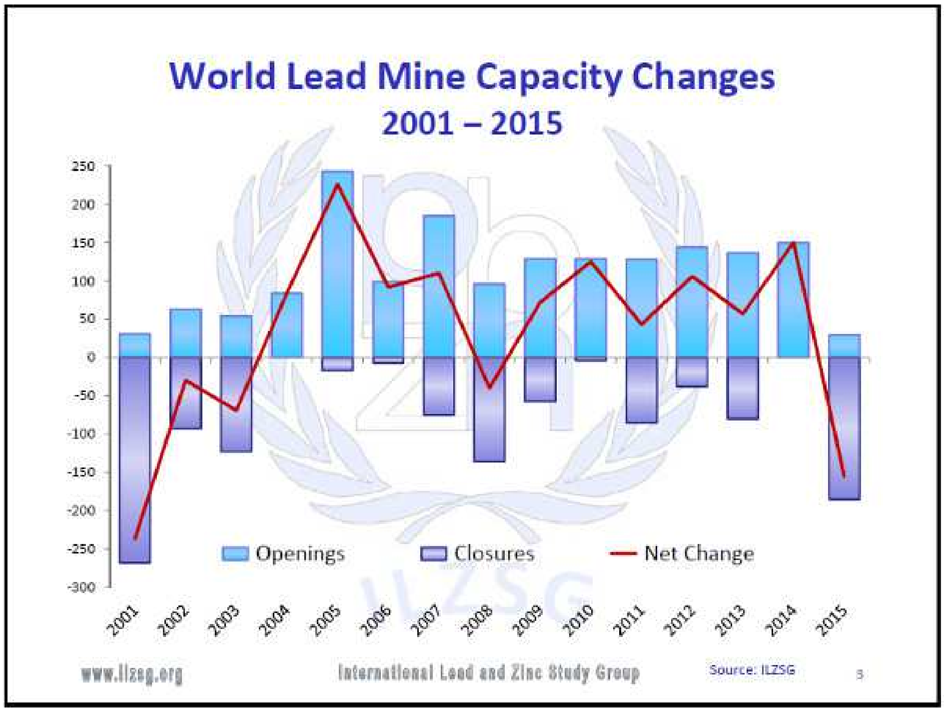
The table below shows the perilously poised nature of the Lead market.

April 2016 ILZSG Global Forecasts

Lead	2016 Forecast Thousand tonnes
Mine Production	4,575 (+0.5%)
Metal Production	10,904 (+2.3%)
Metal Usage	10,828 (+2.0%)
Balance	76

However, since those April projections, supply has exceeded demand by 48,000 tons on the global lead market from January to August, according to more recent statistics from the ILZSG.

As we all know there have been reductions in the output of Zinc/Lead mines due to mines closing or being mothballed. This has propelled the Zinc price substantially higher but left Lead, not unjustifiably, wallowing.



Thus if even mine closures can help Lead then what can? One thought that crossed the mind was that if Lead's price declined enough then recycling may lose its viability (despite government demands that Lead batteries be recycled rather than go to landfill etc).

The rosy lining to Lead's demise is that Zinc mines will need to be justified by an even higher price than the currently projected sweet-spot of $1.20 per lb or above because Lead will not be contributing much or anything to the equation. This implies an even bigger boost to Zinc and a hunt for the type of mineralogy in deposits that are high-grade in Zinc (and silver) and relatively lower grade in Lead.

Collateral Damage?

This will not be the first time that a mineral or an alloy thereof has gone out of fashion. Bronze is not what it was and pewter is scarcely employed these days. Thorium once had widespread usage in gas mantles to the extent there was even a cartel that dominated its trade.

Lead though is one of the 800lb gorillas of the base metal space and its demise (or substantial sidelining) will make waves because of its intimate connection with the Zinc and Silver mining business. Lithium comes out with the laurels from this David & Goliath slugfest. Like all new champs though, it needs to watch its back for new contenders arising as the airwaves are thick now with talk of Manganese, Antimony and all sorts of other exotic combinations that will continue to make the battery space a veritable ferment of new technologies.

The Portfolio Move

The Model Mining Portfolio ended the month at $4.06mn, up marginally from $4.04mn. Cash holdings rebounded to $1.12mn (from $991,000 at the end of September) largely because of our Glencore sale and profit on closing the Orocobre Short.

Portfolio Changes

There were a number of portfolio changes at the very end of the month. The transactions we undertook were:

- Closed Short position in Orocobre. Bought 100,000 shares in ORE.ax at AUD $3.18 per share on the 28th of October
- Added a Long position in Morumbi Resources. Bought one million shares in MOC.v at CAD 9.5cts per share on 31st of October
- Added to Long position in Nyrstar. Bought 12,000 shares in NYR.br at EUR 4.77 per share on 31st of October
- Closed Long position in Glencore. Sold 100,000 shares in GLEN.L at GBP2.465 per share on the 31st of October

The logic behind these was that both the Glencore and Orocobre trades had reached their target prices. Indeed since closing the Orocobre trade its price experienced a massive rebound. Ironically it was this week last year that all the chatter at the LME Week in London was about whether Glencore would survive and its price was down around 66 pence. We exited at nearly four times that level.

On Nyrstar our position had become sub-sized and it was either a choice of eliminating the position or rebuilding. The news that the shuttered Tennessee mine was being reopened and the return of Zinc to an upward price trajectory. Therefore we executed a five-fold increase in the position.

In the process of reviewing Nyrstar we noted that little publicized bargain buy by Morumbi of Nyrstar's Honduras operations including a Zinc mine. This proved irresistible and we added a Long position in this hitherto unknown name.

Black Dragon Gold

We might mention that we are keeping a watching brief on Black Dragon Gold (BDG.v) with a view to implementing a Short position should its stock price rise much further.

While we are immensely enthusiastic about the Spanish mining revival, our memories of the new management team at what was Astur Gold, are less than rosy. Previous encounters with this "team/family" have been at Woulfe Mining and Vuatakuola Gold.

Nyrstar

Adhering to the dictum that "the bigger they are the harder they fall" Nyrstar has had a steep and painful dive in recent years. Getting any interest from analysts must be a trial for them and it gives us a certain satisfaction that in their heyday they refused to speak to us because we would not adhere to their guidance.

Despite that we favoured their strategy of accumulating mining assets to match their upstream roasting/smelting capabilities. The downfall was a combination of too much debt and the swoon in the Zinc/Lead price. Trafigura moved in for the kill and ended up with a key stake through a rescue financing. Mines were shut or mothballed and some sold (see anon).

Now though the mines are reopening and some of the smaller properties have been shed. With Zinc prices busting through the $1.10 level, the perspectives change dramatically for the company. The stock has been largely flat over the last twelve months with many perceiving it to be firmly in the Trafigura orbit and essentially "game over". That is an over-simplifaction. There will need to be a next phase to this evolution. Might Trafigura merge with Nyrstar and use this as a means of going public itself?

In any case Nyrstar looks destined for an earnings turnaround on the coattails of Zinc and thus we upped our position substantially, particularly as we had exited our other "real" Zinc play, Glencore during the month.

Morumbi Resources (MOC.v) – in the ascendant in Zinc

In reviewing recent developments at Nyrstar we noted what they termed a minor asset sale, in this instance the disposal of the El Mochito mine, located in north-western Honduras, to Morumbi Resources, which is in the process of changing its name to Ascendant Resources. Morumbi is headed up by Mark Brennan, who used to run Largo Resources.

This development prompted us to add a Long position in this company to the Model Mining Portfolio as primary Zinc producers are a rather rare commodity in these markets today.

Under the terms of the September agreement, Morumbi will acquire from Nyrstar a 100% interest in AMPAC, the owner of El Mochito. The purchase price of US$500,000 will be funded from the net proceeds of an offering (which has just closed). As of August 31, 2016 (unaudited), AMPAC had current assets of US$6,131,099, current liabilities of US$3,970,300 and net working capital of US$2,160,799, so Morumbi have got themselves a bargain here..

The El Mochito mine is approximately 88 kilometres south-west of San Pedro Sula and 220 kilometres north-west of the capital city, Tegucigalpa, has been in operation since 1948. The underground operation utilises selective and bulk underground mining methods to mine multiple flat lying manto deposits and high-grade vertical chimneys.

In Nyrstar's 2015 Mineral Resource and Mineral Reserve Statement from April 2016, the 2,300 tonne per day operation crushes and mills ore then it undergoes standard flotation to produce a zinc-silver concentrate as well as a lead-silver concentrate.

The mine produced 10,000 tonnes in the first half of the current year but that was down from previous production due to difficulties in the flowsheet. In 2015, the mine produced 23,000 tonnes of Zinc, 11,000 tonnes of Lead and 1.1mn ozs of Silver. It had previously been an asset of Breakwater Respources. Morumbi is not going to be a major Zinc miner on El Mochito alone, but the latest purchase represents a canny "buying straw hats in Spring" exercise.

The company just closed a $19.5mn financing that consisted of 50cts Subscription receipts. This was a novel structure as the company is consolidating and so each receipt will turn into one share after the one-for-five rollback. This will leave the company cashed up and ready to roll.

Parting Arrow

An interesting data set we receive once a month comes from the TSX. It is called the MiG Report. It covers both exchanges and gives a good snapshot of how Canadian mining (amongst other sectors) is performing.

Here is the January report:

	TSX Venture	TSX	TSXV and TSX
Mining			
Number of Issuers	1,063	245	***1,308***
QMV (C$)	7,611,778,379	171,634,766,114	***179,246,544,493***
New Listings	-	1	***1***
Equity Capital Raised (C$)	53,455,232	255,263,811	***308,719,043***
Number of Financings	80	12	***92***
Volume Traded	902,888,475	2,152,358,414	***3,055,246,889***
Value Traded (C$)	128,880,327	11,911,792,856	***12,040,673,183***
# of Trades	87,117	3,937,772	***4,024,889***

Recently we were preparing a presentation for the FINEX conference in London and used the August data for a slide. Then September data came in and we switched that in (see next page). We had to do a double-take though as it seemed the number of listed stocks had gone down by five during the month despite there having been a surprising number of IPOs during the year (29 to be precise). However then going back to the January numbers we see that total issuers stood at 1,308 at the end of January and 1,215 at the end of September. Taking into account the 29 additions (of which one was in January) it would appear as if 121 listed companies have exited the scene during those eight months.

	TSX Venture	TSX	TSXV and TSX
Mining			
Number of Issuers	985	230	***1,215***
QMV (C$)	19,369,831,211	281,777,467,445	***301,147,298,656***
New Listings	22	7	***29***
Equity Capital Raised (C$)	1,797,509,107	6,068,862,349	***7,866,371,456***
Number of Financings	1,002	192	***1,194***
Volume Traded	21,417,959,732	27,650,420,545	***49,068,380,277***
Value Traded (C$)	5,802,445,733	193,700,162,789	***199,502,608,522***
# of Trades	2,769,175	47,731,019	***50,500,194***

That represents a 10% attrition rate, which coming at a time of supposed recovery, is rather brutal. Of course, it is probably just a combination of delayed reaction (as companies that finally ran out of funds expired before they could be repurposed as shells) and the hidden hand of the TSX ridding itself of lingering embarrassments.

We might also (rather cynically) note that the TSX makes more money out of new listings rather than shell revivals so cleansing the market of potential shells means that the TSX can maximize its income from renewed interest by forcing promoters to go the “long way” which also puts more money in the TMX Group’s coffers.

Mining Model Portfolio as at: 1-Nov-16

	Security	Initiated	Currency	Price Avg.	Price Current	Portfolio Weighting	Increase in Value	Target
Long Equities								
Various Large/Mid-Cap	Capstone Mining (CS.to)	5/29/2009	CAD	2.32	0.81	1.00%	-65.10%	$2.00
	NevSun (NSU)	3/23/2012	CAD	3.45	3.89	5.20%	12.80%	$5.00
	Sherritt International (S.to)	7/11/2013	CAD	1.78	0.86	3.50%	-51.70%	$2.50
	Palladium ETF (PALL)	10/16/2014	USD	72.08	59.43	4.30%	-17.50%	$74.00
	Metals X (MLX.ax)	29/5/2014	AUD	0.98	1.45	5.40%	48.20%	$1.80
Uranium	Uranium Participation Corp (U.to)	10/20/2010	CAD	7.01	3.72	2.50%	-46.90%	$6.00
	Western Uranium (WUC.cx)	7/5/2016	CAD	2.25	1.69	2.70%	-24.90%	$4.80
	GoviEx (GXU.cx)	6/29/2015	CAD	0.08	0.17	5.50%	106.90%	$0.50
Zinc/Lead Plays	Zinc ETF (Zinc.L)	1/15/2010	USD	7.04	7.21	2.60%	2.40%	£9.00
	Canadian Zinc (CZN.to)	12/9/2011	CAD	0.82	0.2	0.60%	-75.60%	$0.70
	Morumbi Resources (MOC.v)	10/31/2016	CAD	0.09	0.095	2.60%	5.60%	$0.34
	Nyrstar (NYR:BR)	9/28/2009	Euros	65.1	16.48	13.00%	-74.70%	€ 11.00
	Southern Silver Exploration (SSV.v)	8/25/2016	CAD	0.42	0.485	3.30%	15.50%	$0.94
Gold Producers	NewGold (NGD.to)	5/31/2013	CAD	7.05	5.29	4.30%	-25.00%	$8.00
	Patagonia Gold (PGD.L)	10/2/2013	GBP	3.6	2.94	2.60%	-18.30%	£4.00
	Eldorado Gold (EGO)	6/21/2012	USD	9.12	4.23	4.60%	-53.60%	$7.00
	Teranga Gold (TGZ.to)	6/21/2012	CAD	1.57	1.09	3.50%	-30.60%	$1.50
Copper Producer	Coro Mining (COP.to)	2/23/2015	CAD	0.03	0.13	3.50%	333.30%	$0.30
Processor	IBC Advanced Alloys (IB.v)	4/29/2016	CAD	0.3	0.47	1.30%	56.70%	$1.40
Driller	Cabo Drilling (CBE.v)	9/28/2016	CAD	0.025	0.01	0.50%	-60.00%	$0.08
Gold Explorers	Everton Resources (EVR.v)	4/17/2012	CAD	0.08	0.06	1.60%	-20.00%	$0.10
Tungsten Producer	Almonty Industries (AII.v)	7/31/2015	CAD	0.36	0.24	3.20%	-33.80%	$1.00
Copper Explorer	Asiamet Resources (ARS.v)	4/28/2016	CAD	0.05	0.04	1.60%	-20.00%	$0.24
Nickel Explorer	Sama Resources (SME.V)	23/2/2015	CAD	0.16	0.12	2.60%	-25.00%	$0.30
Lithium	Neometals (NMT.ax)	7/31/2014	AUD	0.04	0.35	4.80%	845.90%	$0.60
	Galaxy Mining (GXY.ax)	6/28/2016	AUD	0.35	0.35	2.10%	1.30%	$0.70
Scandium Explorer	Scandium International (SCY.to)	8/23/2016	CAD	0.14	0.15	2.40%	7.10%	$1.00
Graphite Producer	Elcora Resources (ERA.v)	29/5/2014	CAD	0.2	0.34	4.60%	70.00%	$0.64
Graphite Developer	Talga Resources (TLG.ax)	8/25/2016	AUD	0.27	0.29	4.00%	9.40%	$0.42
REE Explorer	Northern Minerals (NTU.ax)	6/9/2011	AUD	0.73	0.17	0.70%	-76.70%	$0.28
	NET CASH					**1,120,140**		
Short Equities						**Weighting**		
Shorts	Bacanora (BCN.v)	12/4/2015	CAD	1.53	1.3	37.10%	15.00%	$0.80
	Galane Gold (GG.v)	4/28/2016	CAD	0.06	0.12	62.90%	-100.00%	$0.03

Current Cash Position	**1,120,140**
Current Liability on Shorts Not Covered	**156,716**
Net Cash	**1,276,857**
Current Value of Bonds	**0**
Current Value of Long Equities	**2,782,633**
TOTAL VALUE OF PORTFOLIO	**4,059,489**

Short Equities	**-6%**
Long Equities	**106%**

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