

Lithium leading the charge as sentiment improves again

This is the first Weekly since 9 September, when I departed on an extended trip to the USA for both business and private reasons. Ordinarily I would be concerned about being offline for such a length of time, but this year I don't seem to have missed much. While everything was looking good five weeks ago, the stimulus from improved metal prices seems to have withered somewhat. The US dollar has rallied, commodity prices have come back as a result, and there has been an absence of inspirational themes.

Nevertheless, there has been a resurgence in battery input stocks. Lithium has led the charge and cobalt stocks have improved. There is even increased life in graphite stocks.

The Aussie Witwatersrand story has come back

It seems that the most exciting piece of action was that relating to the Novo Resource Corporation, a Canadian stock that hit a market capitalisation of \$900m last week. I had actually started to write a piece on it before I departed, but events of recent weeks have made it even more topical.

Tim Treadgold, the highly respected veteran resources journalist summed it up quite well in his article in The Australian last Monday, stating that nuggets don't equal gold mines. If there is one theme that is consistently emphasised by analysts it is that large modern day gold orebodies are characterised not by nuggets, but by extensive disseminated gold. Anything that has nugget gold is a problem for the statisticians and they are heavily discounted in any reserve calculations. Many gold mines do have high grades and even nuggets within the gold population, but they are outliers. They are the sweeteners and interesting talking points. They are not the real game.

Looking for the Witwatersrand in Australia

Back in the mid 1980s, there was a great hullabaloo up around Nullagine in the Pilbara, concerning the Beatons Creek Conglomerates. At the time there was great speculation in the shares of Metana Minerals NL, but the best performer in the market was Ivanhoe Gold, the company with the leases next door. Metana was a bit confused by some of the rumours going around the market at the time. While it believed the project to have great merit, it actually called for some caution at the time.

Ivanhoe was controlled by Russell "Nevada" Smith, a colourful WA mining promoter at the time. Ivanhoe had the leases next door. I always thought that he was the one behind the promotion, as he stood to make serious money on having the adjacent leases. The shares of both companies went up, and then down, when drilling failed to prove anything meaningful. Nothing much was heard of Beatons Creek for many years thereafter.

In the period 1983-85, Metana completed nine diamond drill holes with the deepest going down to a depth of 1,066m. It also drilled 77 RC holes to depths of 17-38m. It mined and treated some of the colluvial and alluvia

deposits adjacent to the conglomerates but it didn't really come to much.

Fast forward a few decades in time and we see that a Canadian company, Novo Resources Corporation, now has the ground after doing a deal with Millennium Minerals in 2011-2015. Mark Creasy also has his fingers in the pie with a 30% stake, and the irrepressible David Lenigas seems to be picking up where Nevada Smith left off.

The gold bearing conglomerates at Beatons Creek occur within a 10-30m thick horizon that is thought to have formed in a river fan along a coastline. Over time the light sediments were separated by wave action, leaving behind the siliceous boulders and heavy minerals including gold that are of interest today. Gold occurs as fine grains, larger flakes and rounded particles up to several millimetres across. Exploration is continuing with the model based on similarities with the gold bearing reefs in the Witwatersrand Basin in South Africa, from which more than 40% of all gold ever mined in the world was produced.

From 2011 to 2015, Novo drilled 552 RC holes for 28,839m. A lesser number of diamond drill holes were completed (7). A Measured and Indicated Resource of 3.4 mt at 2.7 gpt was calculated, for 299,000 oz of gold. An additional Inferred Resource of 3 Mt at 2.7 gpt, for 259,000 oz, was also recorded. The bodies were modelled with Leapfrog™ and a 10,000 tonne trial mining operation was recommended in a 43-101 report released in 2015.

If I had been a shareholder in Novo over this period I would have been disappointed with the results. That is a huge number of holes to drill for only 259,000 oz. The fact that the promotion seems to have now overtaken what is happening in the field is good for shareholders in Novo (if they are smart enough to sell). However, if you take the time to think it all through and focus on value, I think you will agree that it has run too hard.

Making better batteries

Every week we see news items about scientists and companies making great progress with development of new batteries, but how do we tell whether it is real or fake news? Is it really a breakthrough or just an interesting experiment? How do we decide whether any one of these "developments" is the real breakthrough that will be commercialised. It is a very crowded space.

It is generally accepted that there has to be something better than lithium-ion, if only for safety reasons. The anodes made of graphite can overheat, but what can be done about it? Titanium oxide nanotubes could be a safer material if UltraCharge Ltd is correct. They supposedly have better energy, and they are lighter and 20% cheaper. While that is useful, it doesn't represent a game changer. We are still looking for the next generation.

Graphene oxide for water filtration

Graphene has been touted as having a great future in the desalination of water. A number of different universities claim to have made significant breakthroughs in the development of filtration technology, but we haven't seen these commercialised yet.

The latest news is that researchers in Australia and Egypt have created a new thin film graphene oxide (GO) nano-composite membrane to address the issues concerning water flux, salt rejection and biofouling in desalination plants. The GO was functionalised first with tannic acid, followed by polyethyleneimine. This enabled up to 40% increase in the membrane water flux while improving salt rejection by 8%. Additionally, the product improved the antibacterial properties of the membrane by 80%. The process of fabrication is claimed to be scaleable, versatile and lower in energy consumption. Interestingly, there may be the ability to retrofit this material existing to desalination plants to make them more efficient.

It all sounds positive, but with one caveat. GO is not easily obtainable and making it with the traditional Hummers Method is expensive and involves nasty pollutants. However, the GO landscape could be changing for the better if the early test work on FGR's and Flinders University's VFD and T²FD devices continue to provide promising results. We know that these devices can produce GO in a water based solvent, but the scalability needs to be

addressed. Any success on this front could be very important, on a global scale.

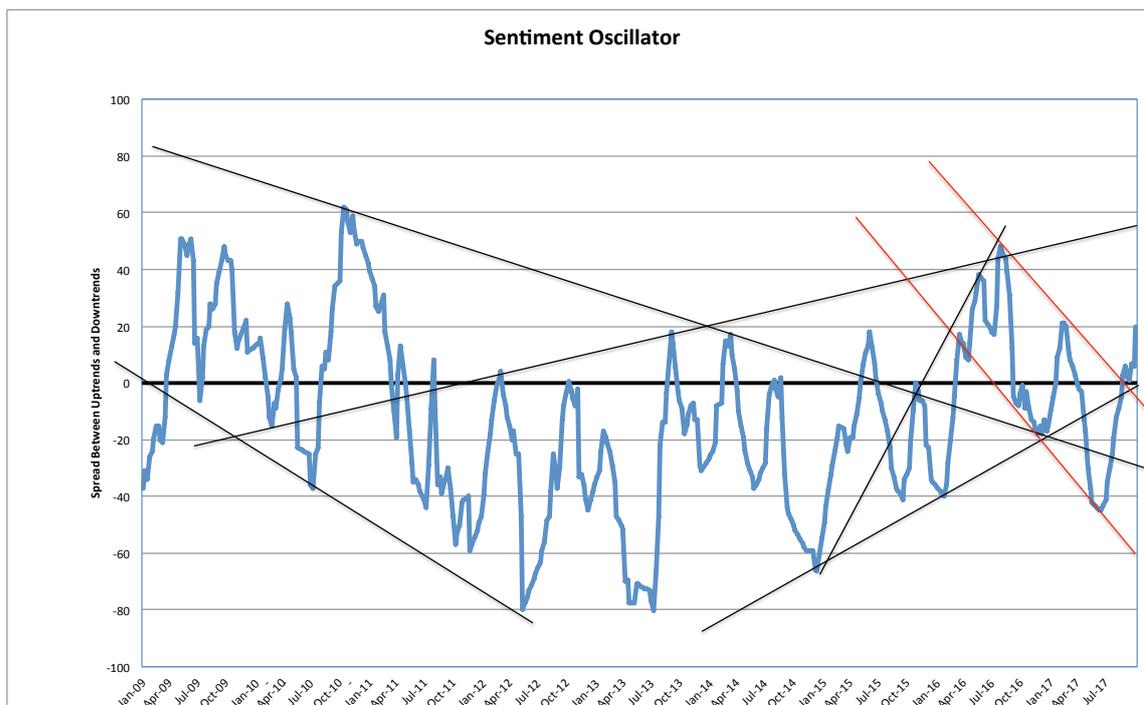
When democracy becomes divisive

There is a misguided belief that democracy is the best form of government, when really, it should be described as the least worse type. We accept it because it protects from despots and tyrants, and it gives us some sense of being in control ... sort of.

The trouble with democracy though (just one of the problems), is that the winner is the first one to get over 50%. You might have the winner achieving 50.1%, and the resulting government could be the worst nightmare for the other 49.9%. What you achieve is a guaranteed conflict that at best makes the nation half happy.

We have seen the future of peoples depend upon such election results, be it the Scottish independence referendum, the Brexit poll or the Catalan secession vote. While there is technically an outcome, the matter can never be concluded from such a vote on any one day.

In corporations law there is a recognition of special resolutions whereby just getting 50.1% is not enough. There is a higher voting thresh hold needed to get resolutions passed. Surely it is time to extend the concept to matters of state, requiring overwhelming support before making changes of great historical consequence; 50.1% is not enough.



Sentiment Indicator: The Oscillator has moved strongly higher after a few weeks of consolidation. There were 40% (35%) of the charts in uptrend and 20% in downtrend on Friday's close.

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Detailed Chart Comments

NB. Only the bold comments have been updated. Comments in grey type are from previous weeks and will be less relevant.

Indices	Code	Trend Comment	
All Ordinaries	XAO	surged higher during the week	
Metals and Mining	XMM	still rising	
Energy	XEJ	sideways	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
ABM Resources	ABU	pullback	gold
Aeon Metals	AML	breached uptrend	copper + cobalt
Alacer Gold	AQG	testing downtrend	gold – production
Alkane Resources	ALK	breached uptrend	gold, zirconia
Acacia Resources	AJC	Sideways at the bottom	coal
Aguia Resources	AGR	breaching downtrend	phosphate
Alicanto Minerals	AQI	testing downtrend	gold exploration
Allegiance Coal	AHQ	bounced off support line	coal
Alliance Resources	AGS	sideways	gold exploration
Alltech Chemicals	ATC	stronger	industrial minerals
Anova Metals	AWV	rallying	gold
Antipa Minerals	AZY	sideways	gold
Apollo Consolidated	AOP	consolidating around highs	gold exploration
Archer Exploration	AXE	rising	magnesite, graphite
Argent Minerals	ARD	sideways	polymetallic
Aspire Mining	AKM	sideways	coal
Atrum Coal	ATU	heavy pullback	coal
Aurelia Metals	AMI	upside breakout	gold + base metals
Auroch Minerals	AOU	rising	exploration
Aus Tin	ANW	sideways	tin, cobalt
Australian Bauxite	ABX	breached uptrend	bauxite
Australian Potash	APC	slump back into downtrend	potash
Australian Mines	AUZ	uptrend steepening	cobalt/nickel
Australian Vanadium	AVL	sideways	vanadium
Avanco Resources	AVB	sideways	copper
AWE	AWE	breached downtrend	oil and gas
Azure Minerals	AZS	back in downtrend	silver
BHP	BHP	trying to hold trend line	diversified
Base Resources	BSE	rallying	mineral sands
Bathurst Resources	BRL	testing uptrend	coal
Battery Minerals	BAT	reached resistance line	graphite
BBX Minerals	BBX	uptrend, but correcting now	gold
Beach Energy	BPT	breached steepest downtrend	oil and gas
Beadell Resources	BDR	testing downtrend	gold
Berkeley Resources	BKY	sideways	uranium
Berkut Minerals	BMT	rising	cobalt
Blackham Resources	BLK	down again	gold
Broken Hill Prospect.	BPL	risen to hit resistance line	minerals sands, cobalt
Buru Energy	BRU	testing downtrend	oil
Canyon Resources	CAY	vertical rise	bauxite
Cardinal Resources	CDV	rising again	gold exploration
Carnegie Clean Energy	CCE	breached downtrend	wave energy
Cassini Resources	CZI	rising	nickel/Cu expl.
Chalice Gold	CHN	surge	gold
Cobalt One	CO1	testing downtrend	cobalt

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Cobalt Blue	COB		sideways	cobalt
Comet Resources	CRL		sideways	graphite/graphene
Consolidated Zinc	CZL		downtrend being tested	zinc
Corizon Mining	CZN		down	cobalt
Crusader Resources	CAS		softer	gold/iron ore
Dacian Gold	DCN		bounced off support line	gold exploration
Danakali	DNK		bounced off support line	potash
Doray Minerals	DRM		back in downtrend	gold
Draig Resources	DRG		new high	gold
Duketon Mining	DKM		testing downtrend	nickel
Eden Innovations	EDE		new low	carbon nanotubes in concrete
Emerald Resource	EMR		sideways	gold
Energia Minerals	EMX		new uptrend breached	zinc
Evolution Mining	EVN		heavy pullback	gold
Excelsior Gold	EXG		new high	gold
Finders Resources	FND		stronger	copper
First Australian	FAR		testing uptrend	oil/gas
First Graphite	FGR		testing downtrend	graphite
Fortescue Metals	FMG		breached short term uptrend	iron ore
Galaxy Resources	GXY		steeply higher	lithium
Galilee Energy	GLL		surge out of downtrend	oil and gas, CBM
Gascoyne Resources	GCY		testing steeper downtrend	gold
Global Geoscience	GSC		new high	lithium
Gold Road	GOR		uptrend continuing	gold exploration
Graphex Mining	GPX		breached downtrend	graphite
Heron Resources	HRR		drifting lower	zinc
Highfield Resources	HFR		breached downtrend	potash
Highlands Pacific	HIG		down	copper, nickel
Hillgrove Resources	HGO		sideways	copper
Iluka Resources	ILU		surged higher	mineral sands
Image Resources	IMA		down	mineral sands
Independence	IGO		breaching downtrend	gold, nickel
Intrepid Mines	IAU		sideways	copper
Karoo Gas	KAR		breached support line	gas
Kibaran Resources	KNL		breached downtrend	graphite
Kin Mining	KIN		just holding uptrend	gold
Legend Mining	LEG		sideways	exploration
Lithium Australia	LIT		rising again	lithium
Lucapa Diamond	LOM		testing downtrend	diamonds
Macphersons Res.	MRP		downtrend	silver
MetalsX	MLX		LT uptrend in play	tin, nickel
Metro Mining	MMI		sideways to higher	bauxite
Mincor Resources	MCR		new uptrend	nickel
Mineral Deposits	MDL		on support line	mineral sands
Mustang Resources	MUS		strong rise	diamonds, rubies
Myanmar Minerals	MYL		rising on re-listing	zinc
MZI Resources	MZI		new low	mineral sands
Northern Minerals	NTU		testing downtrend	REE
Northern Star Res.	NST		rising again	gold
NTM Gold	NTM		breached steepest downtrends	gold
Oceana Gold	OGC		down after steep fall	gold
Oklo Resources	OKU		heavy correction	gold expl.
Orecorp	ORR		forming a base at its lows	gold development
Orinoco Gold	OGX		collapse on 1 for 2 issue	gold development

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Orocobre	ORE		stronger	lithium
Oz Minerals	OZL		bounced off support line	copper
Pacific American Coal	PAK		rallying from lows	coal, graphene
Pantoro	PNR		struggling to hold uptrend	gold
Panoramic Res	PAN		surge through downtrend	nickel
Peel Mining	PEX		surge through downtrend	copper
Peninsula Energy	PEN		new uptrend breached	uranium
Perseus Mining	PRU		rising	gold
Pilbara Minerals	PLS		steeply higher	lithium/tantalum
PNX Metals	PNX		sideways	gold, silver, zinc
Red River Resources	RVR		holding longer term uptrend	zinc
Regis Resources	RRL		testing uptrend	gold
Resolute Mining	RSG		at lows again	gold
RIO	RIO		rising	diversified
Salt Lake Potash	SO4		breached steepest downtrend	potash
Saracen Minerals	SAR		holding long term uptrend	gold
St Barbara	SBM		still under long term downtrend	gold
Sandfire Resources	SFR		breaching downtrend	copper
Santana Minerals	SMI		new uptrend	silver
Santos	STO		new uptrend	oil/gas
Sheffield Resources	SFX		steep rise	mineral sands
Silver Lake Resources	SLR		heavy fall	gold
Silver Mines	SVL		down again	silver
Sino Gas & Energy	SEH		breached steepest downtrend	gas
Southern Gold	SAU		gentle LT uptrend	gold
Stanmore Coal	SMR		breaching long term support	coal
Sundance Energy	SEA		new uptrend started	oil/gas
Syrah Resources	SYR		rallying	graphite
Talga Resources	TLG		testing uptrend	graphene
Tanami Gold	TAM		sideways	gold
Tempo Australia	TPP		breached downtrend	mining services
Tiger Realm	TIG		falling back to support line	coal
Torian Resources	TNR		new low	gold expl'n
Triton Minerals	TON		uptrend	graphite
Troy Resources	TRY		back in downtrend	gold
Tyranna Resources	TYX		testing downtrend	gold exploration
Vango Mining	VAN		sideways	gold
Vimy Resources	VMY		testing downtrend	uranium
West African Resources	WAF		correcting	gold
Westwits	WWI		rallying	gold exploration/development
Western Areas	WSA		new uptrend	nickel
White Rock Minerals	WRM		sideways	silver
Whitehaven Coal	WHC		gently higher	coal
WPG Resources	WPG		collapse	gold
Wolf Minerals	WLF		testing downtrend	tungsten
Totals	40%	57	Uptrend	
	20%	29	Downtrend	
		143	Total	

Guides to Chart Interpretations

- Charts usually go pass from one trend (up or down) into the other via a period of indecision and uncertainty during which the trend can either recover or change. This period is signified by the orange colour. The orange represent both the greatest risk and greatest reward possibilities.
- Once a chart is in confirmed up or downtrends it is not uncommon for 10-20% of that trend to have already transpired.

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- There are trends within trends. The focus of this chart review is the immediate trend that affects the sentiment i.e. it can be a downtrend within a long-term uptrend.
- Not every chart warrants a new comment every week. The new comments are in bold type. Grey type comments may be dated.
- Individual charts provide a single view. It is valuable to look at charts of other companies in similar commodities, and the overall sentiment is also very valuable. Not many stocks can swim against the tide.
- We periodically add or delete charts, some times for obscure reasons. If a chart consistent gives poor signals or is very erratic, we may delete it. Sometimes we add a chart because we want to see what all the fuss is about. We do have a preference for charting stocks that we cover in our research as well.
- Errors and omissions may occur from time to time, especially in fast moving markets.

Amber Lights in Tables: Just a reminder if when the amber light is used in the table – it is when the charts are ambiguous or when there is a change of trend taking place. If a chart is breaching a downtrend it can either be a positive sign or a trap. Only once it has done more work can it be confirmed as a new uptrend. Maybe it is a new uptrend (or conversely a new downtrend); the risk takers can decide to jump on board early (or sell). They will maximise their profits (or minimise their losses if indeed it is the start of the new uptrend (downtrend). More risk-averse investors should wait a little longer, being prepared to give up some of the gains in return for greater certainty.

Weightings of Sectors Represented in the Company Charts

Sector	No. of Companies	Weighting
Gold	32	22.4%
Gold Exploration	14	9.8%
Copper	11	7.7%
Coal	10	7.0%
Oil/Gas	9	6.3%
Mineral Sands	7	4.9%
Graphite	8	5.6%
Zinc	7	4.9%
Silver	6	4.2%
Lithium	5	3.5%
Nickel	5	3.5%
Potash/Phosphate	5	3.5%
Cobalt	4	2.8%
Uranium	3	2.1%
Bauxite	3	2.1%
Tin	2	1.4%
Diamonds	2	1.4%
Iron Ore	1	0.7%
Other	9	
Total	143	

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