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Weekly Commentary

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The Mining Investment Experts

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Chart comments at Friday's close

Good recovery in sentiment with a stronger gold price

Equity markets continued to recover over the week as the Fed stepped back from quantitive tightening policy, to which the banking panic can be attributed. Tighten money and stock markets fall; relax money and markets rise. There is a simple correlation.

The economic indicators coming out of the US are all pointing to softer performance with the ISM Manufacturing PMI, falling from 47.7 to 46.3 in March. That is the lowest level since 2009. So, the higher interest rates are starting to bite. Mission accomplished. Now, the Fed needs to make sure it doesn't make things worse by being too aggressive when it should really be observing the lagged effect of higher interest rates. We don't want an overkill. It is now time to watch and wait.

The bounce in the gold price back above US\$2,000/oz is showing that the markets think interest rates have stopped rising. It is too difficult to say whether gold is just at a trading high, or whether there is enough momentum to keep it going higher - or even a reason to go higher - but gold producing company share prices are responding appropriately. Improving sentiment is starting to flow down to developing and exploration companies. Watch to see if the breaching of downtrends last week evolves into new uptrends.

China to ban exporting REE process and refining technology?

A dispatch overnight said that China was considering banning exports of various rare-earth magnet production and process/refining technologies as a response to the US targeting the Chinese chip-making industry. The last major official rare earth policy shift by Beijing saw NdPr prices skyrocket when exports to Japan were suspended in 2010, over the Senkaku Islands. There could be fun and games coming for the REE sector if China becomes more combative.

Australian Rare Earth is making good progress

Australian Rare Earths (AR3) was a spectacular performer in the market after the IPO in June 2021, rising from 30¢ to a high of \$1.07 by November of that year. However, since then the price has dropped down to 19¢ before recovering to 21.5¢ on Friday's close. One would have been forgiven for thinking that the wheel had fallen off, but that is not the case. Read on.

A very large scale project

Last week AR3 announced a 25% increase in its 100% owned Koppamurra JORC Mineral Resources to 101 Mt at 818 ppm TREO, with the Indicated category increasing by 40% to 63 Mt at 839 TREO. More spectacularly, the Exploration Target range has increased to between 330 Mt and 1.4 billion tonnes. This is really growing in scale.

The project has the enormous dimensions of 140 km in strike and 30 km in width. The ore horizon is generally 2-3 m thick, overlain by 2-3m of overburden. It has been very cheap to drill out with the 4,500 holes only going down to an average depth of 10m. It traverses the SA/Victorian border but there are no prizes for guessing which side of the boundary is receiving the greatest exploration effort.

The near surface, soft host mineralisation will enable very low mining costs, presumably with scrapers. A mining operation would probably involve depositing the extracted overburden and tailings back into the shallow pit as operations progress along strike. The 3,700 tonne trial pit already provides good evidence of how the pit can be quickly and progressively rehabilitated, returning the ground to its original agricultural purpose.

Source geology still being assessed

Unlike many of the WA rare earth clay deposits based on in-situ weathering of granite, Koppamurra seems to be a sedimentary deposit that has formed through the concentration mechanism of the rising and falling water table above a limestone basement, over a million years or more.

The deposit seems to be void of monazite and radioactive elements. Yet, the NdPr component is a healthy 21.5% of the total rare earths in the deposit.

lonic or not ionic, that is the question.

Some companies have been fairly loose in the way they describe their clay deposits as being ionic, so let's look at what the term really means.

The term refers to how the rare earths elements are bonded to the clays, with the recovery of the REO being achieved by breaking the ionic bonds that hold them in place. It is common for clay deposits to have some degree of ionic material, but technically you need for the proportion to be up around 40% to justify the tag.

A standard diagnostic leach test is used to see what sort of REO recoveries can be achieved in acid with a pH of 4. If you can recover 40%, you are in the ball park, though 60% is obviously better. Of course, you can recover a much higher percentage if you drop the pH to 2 or 3, but when you do this you dissolve a lot of the gangue material, which introduces contaminants such as aluminium, iron and silicon which have to be subsequently removed. Nevertheless, a commercial operation is likely to work off a pH in the range of 2-3 in order to maximise recovery of the rare earths.

As you subsequently lift the pH of the concentrate above 5, you see the impurities drop out of solution. Rare earths themselves drop out at a pH of 7.

The rare earths are recovered into a mixed rare earth carbonate concentrate (MREC) that is then fed into a separation facility to extract the rare earths using a solvent

extraction process. There are very few facilities outside of China that have a separation facility. As an example, Neo Performance Materials Inc has the only commercial rare earth separation operation in Europe. (Recall that Hastings Technology Metals acquired 22.1% in this TSX listed company).

In good company with Neo and ANSTO

Neo appears to be taking AR3 seriously as it has signed a non-binding MoU with the company to provide assistance in the development of the project. It also contemplates buying 50% of the project output for the first production module. While being non-binding, Neo has received value with the receipt of 3.5 million options over shares in AR3 with a strike price of 48¢.

AR3 has used ANSTO to conduct metallurgical test work and successfully achieved pilot scale production of a MREC from an 800 kg bulk sample of ore, being the first Australian project to achieve this milestone. While it is still early, AR3 thinks that a reasonable initial production rate would be 2,000 tpa REO contained within MREC.

The bottom line

The market capitalisation of AR3 is a modest \$23m but if you add the stock that is escrowed until June this year, this figure increases to \$31m. The cash balance as at 31 December 2022, was \$9m. Now that the hot air in the stock price has cooled down, it may be that the shares are very modestly priced as these levels for a company operating in a sound jurisdiction like South Australia, having achieved the progress already reported. Traders might wait for a rare earths pricing signal before moving on the stock, but longer term investors could get set at these levels without competing with hot money.

South Harz Potash progressing steadily

We recently caught up with South Harz Potash (SHP), the junior company with a long life brownfields potash project in Germany. You may recall that in previous Weeklies we have have opined that South Hartz is a good project but it is better suited to patient longer term investors than traders. Nevertheless, the share price has shown high volatility over intervals of six months or more within a trading range of 3-15c. So, it seems that there is room for traders to benefit as well.

Management with more of a development focus

The most notable development in recent months has been the wheeling in of a new management team with a view to taking the Company's attention beyond the geological characteristics. The appointment of Lawrence Bethelet as COO is noteworthy. He is a Canadian metallurgist with more than 30 years operational and executive experience with major global potash and fertiliser firms, mostly in Saskatchewan in Canada. He was Project Director for the \$3bn K3 Potash Project that involved sinking shafts down to 1,150m depth. Most recently he was also head of Eurochem's mining division with four mines; two potash mines and two phosphate operations.

The new CEO, Luis da Silva, was previously President and CEO of phosphate developer, GB Minerals. He brings a good balance between industry knowledge and corporate and capital markets knowhow.

Operational progress includes bulk sampling

On the operational side, South Harz has recovered a 5 tonne bulk sample from a depth of 790m with access being achieved via the shaft of the operating company next door. In reality it came from the neighbour's side of the boundary, but it is the same orebody.

Given the level of co-operation being achieved with the neighbour, there is the possibility that its shafts may be of use to South Harz, for ventilation at the very least. There could be capex savings of up to US\$250m, and an 18 month time saving.

The Company sees that there are very few geological, mining or processing risks from this point, given that over 300 historical holes have been drilled into the orebody, and there is a strong knowledge base from historical, neighbouring operations. A 3D block model is being worked on now that will enable a DFS standard mine plan to be completed. Backfilling techniques are also assessed, with the benefit of the neighbour's experience and the local mining database going back more than 100 years.

The base case plan involves the use of well-established processing practices already used regionally. Conventional underground mining methods could deliver 4.5 Mtpa of ore to the plant, with two 500,000 tpa evaporation and crystallisation units that would produce both KCI and NaCI for delivery into markets.

The Bottom Line

South Harz has had a few false starts over the years, with not enough forward commitment following the completion of the scoping study. However, it now appears to be more focused on getting on with the job. The PFS is scheduled to be completed by the end of 2023, and the DFS a year later. This means that it is still a longer term play, with US\$620m in pre-production capex required, but as we have seen there will be trading opportunities from general market volatility along the way.

We should expect that the Company will look very different by the time a development decision is made. A company capitalised at \$23m needs to be innovative with financing and project partners in order to fund a US\$620m project, but there should be plenty of leverage along the way. The need for long term supplies of potash, close to markets, will be a constant theme in a world growing hungrier by the day. South Harz is in the heart of Europe, a net importer of MOP. Low transports costs will be a major competitive advantage when compared with projects elsewhere in the world. An earlier, more detailed commentary on SHZ can be found in the following link, when it was still called Davenport.

http://www.fareastcapital.com.au/newsletter.asp?id=385

Andean Mining acquiring new high-grade gold

Andean Mining is an unlisted company with the high-grade El Dovio copper/gold project in Colombia. FEC has been of assistance in the past, raising money for the company. Andean has recently added to its portfolio, signing a term sheet for the acquisition on the Santa Barbara high-grade gold project in Colombia. While it is really an exploration/development play, a 30 tonne per day pilot plant has been successfully recovering 20-25 gpt from a narrow underground vein.

We will always be a little cautious about narrow high-grade gold mines, but in the case of Santa Barbara what really appeals are the parallels with the fabulous Buritica Gold Mine in Colombia. That started out with a 30 tpd pilot plant like Santa Barbara, on similar narrow high grade veins, 10-12 years ago. Successful exploration saw the development of 250,000 oz p.a. gold mine in 2020, that is now being expanded to 400,000 oz p.a. It was bought by Zinjin Mining for C\$1.4bn in about 2020.

We can optimistically say that Buritica Gold Mines provides a road map for Santa Barbara. The size of the potential prize is stunning. It is early days, but keep an eye out for further commentary relating to funding and the aim of securing an ASX listing, with the expanded portfolio. We would be happy to discuss the detail with any readers, and existing Andean shareholders.

Disclosure: Interests associated with the author own shares in Andean. Capital raising fees have been received.

Novonix (NVX) - when over-performance comes home to roost

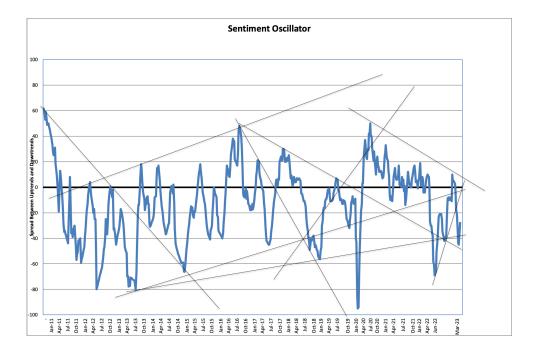
I first noticed Novonix when it was selling between \$1 and \$2 a share, in 2000, when I was looking around for battery stocks as opposed to suppliers of battery raw materials As part of the learning curve I tried to speak to the company to

better understand its business. However, I was rather tersely rebuffed by an arrogant executive director. The person I spoke to did say that Novonix had developed a methodology that could predict new battery performance much faster than the process of iterations of manufacturing and testing over lengthy time cycles. I didn't have enough confidence to put pen to paper, but I did put it under chart coverage. From that point I was amazed at how the share price performed, hitting a high of \$11.95 in November 2021. At that level it was capitalised at \$5.8bn. So, I dropped it from chart coverage due to over-performance. Its capitalisation just didn't make sense.

That spectacular performance didn't last long. Last week it was interesting to see that the share price had fallen back to \$1.10, but it still had a market capitalisation of \$542m.

Why bother mentioning it? In general terms its performance has been instructive, reminding us of some timeless principles of investing. Whether or not it was a ramp, fuelled by a hot market and US stock market listings, is up to others to decide, but when a price performs spectacularly we must not allow ourselves to become true believers too late in the run. There is no point in going all the way to the top just to ride it back down again. We have to remember to sell, no matter how good the prospects seem, when you get such extreme share price performance.

We have deleted Image Resources from chart coverage.



Sentiment Oscillator: Sentiment continued to improve last week with a noticeable fall of stock in downtrends. There were 20% (17%) of the charts in uptrend, and 48% (60%) in downtrend.

Detailed Chart Comments

NB. Only the bold comments have been updated. Comments in grey type are from previous weeks and will be less relevant. Please note that this list is a cross section of the market. It IS NOT a list of recommendations.

Indices	Code	Trend Comment	
All Ordinaries	XAO	steeply higher	
Metals and Mining	XMM	steep[ly higher, then pullback	
Energy	XEJ	breached downtrend	
Information Technology	XIJ	rising	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
92 Energy	92E	testing downtrend	uranium
A-Cap Energy	ACB	at lows	uranium
ADX Energy	ADX	sideways	oil and gas
Alpha HPA	A4N	new high	HPA
Adriatic Resources	ADT	new high	zinc, polymetallic
Advance Metals (was Pacific American)	AVM	off its lows	coal, gold exploration
Alkane Resources	ALK	rising	gold
Alicanto Minerals	AQI	still down	base metals, silver, gold
Almonty Industries	AII	sideways	tungsten
Altech Chemical	ATC	approaching resistance line	HPA, anodes
Anteotech	ADO	at lows	silicon anodes, biotech
Alto Metals	AME	testing downtrend	gold exploration
American Rare Earths	ARR	breached support line	rare earths
Antilles Gold	AAU	trying to breach downtrend	gold
Anax Metals	ANX	testing downtrend	copper
Arafura Resources	ARU	down	rare earths
Ardea Resources	ARL	new low	nickel
Aurelia Metals	AMI	testing downtrend	gold + base metals
Australian Rare Earths	AR3	back to lows	rare earths
Auteco Minerals	AUT	breached downtrend	gold exploration
Arizona Lithium	AZL	new low	lithium
Azure Minerals	AZS	rising again	nickel exploration
BHP	BHP	failed at resistance line	diversified, iron ore
Barton Gold	BGD	testing uptrend	gold exploration
Beach Energy	BPT	testing resistance line	oil and gas
Bellevue Gold	BGL	off its highs	gold exploration
Benz Mining	BNZ	slump	gold
Black Cat Syndicate	BC8	recapturing uptrend	gold
BMG Resources	BMG	down	gold exploration
Boab Metals	BML	at resistance line	silver/lead
Breaker Resources	BRB	takeover bid	gold exploration
Buru Energy	BRU	testing resistance line	oil
Calidus Resources	CAI	new low	gold
Caravel Minerals	CVV	down	copper

Carnaby Resources	CNB	br	reached downtrend	copper
Castile Resources	CST	st	ill in downtrend	gold/copper/cobalt
Celsius Resources	CLA	si	deways	copper
Chesser Resources	CHZ	br	reaking downtrend	gold exploration
Cobalt Blue	СОВ	do	own	cobalt
Cyprium Metals	СҮМ	sl	ump on funding failure	copper
Dateline	DTR	ba	ack to lows	rare earths
Ecograf	EGR	ne	ew low	graphite
Emerald Resources	EMR	ris	sing, new high	gold
Empire Energy	EEG	ne	ew low	gas
EQ Resources	EQR	ris	sing	tungsten
Euro Manganese	EMN	do	own	manganese
Evolution Energy	EV1	so	ofter	graphite
Evolution Mining	EVN	br	reaching downtrend	gold
First Graphene	FGR	do	own	graphene
Fortescue Metals	FMG	te	esting downtrend	iron ore
FYI Resources	FYI	CO	ollapse on Alcoa withdrawing fromJV	HPA
Galena Mining	G1A	fa	Illing back to trend line	lead
Genesis Minerals	GMD	do	own	gold
Genmin	GEN	do	own	iron ore
Gold Road	GOR	ba	ack to support line	gold
Great Boulder Resources	GBR	si	deways	gold exploration
Group 6 Metals	G6M	do	own	tungsten
Hastings Technology Metals	HAS	ba	ack to lows	rare earths
Hazer Group	HZR	do	own again	hydrogen
Heavy Minerals	HVY	sl	ump back to trend line	garnet
Highfield Resources	HFR	do	own	potash
Hillgrove Resources	HGO	sl	ump	copper
Iluka Resources	ILU	br	reaching support line	mineral sands
ioneer (was Global Geoscience)	INR	do	own	lithium
Ionic Rare Earths	IXR	do	own	rare earths
Jervois Mining	JVR	ne	ew low	nickel/cobalt
Kaiser Reef	KAU	si	deways through downtrend	gold
Kalina Power	KPO	ne	ew low	power station additive
Krakatoa Resources	KTA	ne	ew low	rare earths
Kingfisher Mining	KFM	he	eavy fall	rare earths
Lepidico	LPD	do	own	lithium
Lindian Resources	LIN	ris	sing again	bauxite
Lion One Metals	LLO	br	reached downtrend	gold
Li-S Energy	LIS	br	reached downtrend	Lithium sulphur battery technology
Los Cerros	LCL	do	own	gold exploration
Lotus Resources	LOT	do	own	uranium
Lucapa Diamond	LOM	do	own again	diamonds
Lunnon Metals	LM8	re	esumed uptrend	nickel

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Lynas Corp.	LYC	turned down at resistance line	rare earths
Magnetic Resources	MAU	surge on REO news, then retracement	gold exploration
Mako Gold	MKG	sideways	gold exploration
Marmota	MEU	drifting lower	gold exploration
Matador Mining	MZZ	down	gold exploration
Mayur Resources	MRL	rising	renewables, cement
Meeka Gold	MEK	down	gold
Megado Gold	MEG	down	rare earths, gold exploration
MetalsX	MLX	down	tin, nickel
Meteoric Resources	MEI	rising again	rare earths
Metro Mining	ММІ	still down	bauxite
Mincor Resources	MCR	surge on takeover bid	gold/nickel
Mithril Resources	МТН	sideways	gold/silver
Musgrave Minerals	MGV	still falling, gently	gold exploration
Nagambie Resources	NAG	down	gold, antimony
Neometals	NMT	new low	lithium
Northern Star Res.	NST	rallying with the gold price	gold
Nova Minerals	NVA	new low	gold exploration
Orecorp	ORR	down	gold development
Pacific Gold	PGO	breached downtrend	gold exploration
Pantoro	PNR	new low	gold
Panoramic Res	PAN	down	nickel
Parabellum Resources	PBL	down	rare earths
Patriot Battery Metals	PMT	heavy slump after raising	lithium
Peak Resources	PEK	on trend line	rare earths
Peninsula Energy	PEN	sideways through downtrend	uranium
Perseus Mining	PRU	off its highs	gold
Poseidon Nickel	POS	at lows	nickel
Provaris Energy	PV1	down	hydrogen
PVW Resources	PVW	new low	rare earths
QMines	QML	down	copper
Queensland Pacific Metals	QPM	slump. still in downtrend	nickel/cobalt/HPA
RareX	REE	breaching downtrend	rare earths, phosphate
Regis Resources	RRL	rising again	gold
Renergen	RLT	down	gas, helium
Resource Mining Corp.	RMI	gently down	nickel exploration
Richmond Vanadium	RVT	recovering	vanadium
RIO	RIO	breached uptrend but strong rally	diversified, iron ore
Rumble Resources	RTR	secondary downtrend	gold exploration
	S2R	sideways	gold exploration
Sandfire Resources	SFR	breached uptrend	copper
Santos	STO	softer	oil/gas
Sarama Resources	SRR	sideways through downtrend line	gold exploration
Sarytogan Graphite	SGA	on support line	graphite

Siren Gold	SNG		down	gold exploration
South Harz Potash	SHP		new low	potash
Southern Cross Gold	SXG		breached downtrend	gold exploration
Stanmore Coal	SMR		surge higher	coal
Strandline Resources	STA		down	mineral sands
Sunstone Metals	STM		new uptrend forming	gold/copper exploration
Suvo Strategic Minerals	SUV		risen to meet resistance line	kaolin
Talga Resources	TLG		slump on \$40m placement	graphite
Tamboran Resources	TBN		breached downtrend	gas
Technology Metals	TMT		down	vanadium
Theta Gold Mines	TGM		sideways	gold
Thor Mining	THR		down	gold exploration
Tietto Minerals	TIE		breached downtrend	gold
Vanadium Resources	VR8		new low	vanadium
Venture Minerals	VMS		down	tin, tungsten
West African Resources	WAF		breaching downtrend	gold
Westgold Resources	WGX		good rally	gold
West Wits Mining	WWI		downtrend breached	gold
Whitehaven Coal	WHC		testing downtrend	coal
Xantippe Resources	XTC		sideways	lithium
Zenith Minerals	ZNC		down	gold exploration
Totals	20%	28	Uptrend	
	48%	69	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.
- 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 Exploration	25	17.5%			
Gold	23	16.1%			
Rare Earths	15	10.5%			
Oil/Gas	9	6.3%			
Nickel	9	6.3%			
Copper	9	6.3%			
Lithium	7	4.9%			
Iron Ore/Manganese	5	3.5%			
Graphite/graphene	5	3.5%			
Uranium	4	2.8%			
Silver	4	50.0%			
Tungsten	3	2.1%			
Mineral Sands	2	1.4%			
Vanadium	3	37.5%			
Zinc/Lead	2	1.4%			
Coal	2	1.4%			
Potash/Phosphate	2	1.4%			
Bauxite	2	1.4%			
Tin	2	1.4%			
Cobalt	1	0.7%			
Diamonds	1	0.7%			
Other	8				
Total	143				

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