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The Mining Investment Experts

Weekly Commentary

8 December 2018 Charts on Friday's Close Analyst : Warwick Grigor

Peak Resources looking to be a winner from the EV boom

It is very difficult to escape from the conclusion that the Dow has peaked. It has been an incredibly lengthy bull market that owes much to QE, but times are changing. We saw the start of an extended topping pattern early in 2018, and as we approach the end of 2018, we should expect that the Dow will give up more ground in 2019. There will be pushing and pulling along the way that will provide opportunities to make trading profits, but don't be expecting anything better than falls followed by rallies. No record highs are on the agenda.

Does a weaker Dow mean our market will likewise be weak? I suggest not. Correlation with the Dow will wax and wane depending upon what the excuse is for larger movements in the Dow at any given event, but there is room for divergence between the two markets. Note that for much of the US bull market our Australian market was a significant under-performer. If the US economy does slow, and if the US$ comes under pressure, our commodity based economy is going to do much better. The gold price will also do better (note last night's move). The New Year will be challenging, but it won't be without reward for the better stock pickers.

Lynas - the rare earths leader under pressure

Previously in 2011/12, we saw rare earth stocks boom not so much because they are rare (because they aren't), but because the supply is dominated by China and it has not been scared to use its market power. Speculators pushed up prices of many rare earth products by 5-10x. As usual, after every bubble, there is a collapse. Nevertheless, given the passage of time and the increasing emphasis on electric vehicles that rely heavily on magnets that use neodymium (Nd) and praseodymium (Pr), we should be reassessing investment opportunities in the sector.

The leading ASX-listed rare earth company is Lynas Corp. (LYC), with a market capitalisation of around $1bn. Lynas mines ore at the high grade Mt Weld deposit in WA, delivering up to 66,000 tpa of concentrate containing 26,500 t of rare earth oxides (REO) to its advanced processing plant neat Kuatan in Malaysia.

It has been a long and difficult journey for Lynas, especially with regard to the Malaysian facility that has been constantly under threat from environmentalists. The latest news this week was that even though the operation was determined by a Review Committee to be low risk and compliant with applicable laws, the government has declared two new pre-conditions before the operating licence renewal will be granted. The first condition is that Water Leach Purification residue must be exported. The second concerns the disposal of NUF residue. Lynas is of the view that these conditions materially shift the goal posts.

The Lynas share price fell by 22% on Wednesday as a result of this news. Whilst there will be pushback by Lynas, the continuing uncertainty is not helping the share price and it will likely sideline buyers wanting to profit from the bullish outlook for neodymium and praseodymium. However, there is an alternative company that might fit the bill, though it is in the pre-development stage - Peak Resources.

Peak - positioned to be the next rare earth player

Peak Resources (PEK) was recently doing the rounds to keep investors informed, as opposed to seeking further equity capital. As at 31 September it had $5.1m in cash with estimated expenditure in the December quarter of $1.3m. At the recent price of 2.8¢ it has a market capitalisation of $22m.

While Peak is still in the pre-finance and development phase right now, it does have plans to produce 9,250 tp of rare earth oxides, which is approximately 50% of Lynas's current capacity.

Peak's REO exposure comes via a 75% holding in the Ngualla project in Tanzania, with a large Ore Resource of 214 Mt at 2.15% REO. Only 22% of this is considered in the calculation of an Ore Reserve of 18.5 Mt at 4.8% REO; 21.3% NdPr, confirmed by 38,800m of drilling in 649 holes on a 40 x 50m grid to a depth of 120m. The reserve is sufficient for a lengthy 26 year mine life.

Mill feed will be 711,000 tpa to produce rare earth concentrates of 32,700 p.a., which will be refined to oxide production of 2,810 tpa of NdPr 2N, 7,995 tpa of La, 3,475 tpa cerium and 625 tpa of SEG/HRE. More than 90% of the revenue will come from NdPr.

Peak completed a favourable BFS in April 2017, that confirmed Ngualla was one of the lowest cost REO projects on the drawing boards. Capital costs of US$196m was calculated for development of the mine and construction of the processing plant in Tanzania, with a further US$152m for the Tees Valley refinery in the UK. Other bits and pieces take the total capex estimate to US$356m.

Unfortunately, not long after the release of the BFS, the Tanzanian Government threw a spanner in the works with a shifting of the goal posts in June 2017, on a number of fiscal matters, for all mining companies. We saw the share prices of all of the ASX-listed Tanzanian operators collapse at the time. The changes came about following a long standing disagreement between the Government and the large mining companies, Acacia and Barrick, but the repercussions went through the whole sector. The imposition of a 16% free carried interest to the Government, a 4% royalty and a 30% sales tax effectively meant the Government ends up with a 50% interest in the project profits. In the case of Peak, this obviously only applies to the in-country operations, not to the Teeside refinery.

Undeterred, Peak nevertheless lodged an application for a Special Mining Lease, encouraged by the NdPr prices jumping by over 100% in the preceding 12 months (it has subsequently retreated). Since then it has been somewhat of a waiting game, though the September quarterly did report that the Mining Commission has recommended that the SML be approved.

While this waiting goes on there is still progress with the plans for the Teeside REO Separation Refinery in the UK. The Environmental Permit, which was the final regulatory hurdle, has been granted. This refinery, with the ability to produce saleable rare earth products in-house, will be what makes Peak stand out from other emerging REO companies. It will enable maximum pricing power for the company. Most other companies are just looking at selling concentrates. The location next to European markets will also benefit the company.

The UK permits are for the life of the plant so there won't be complications that come with renewals that have plagued Lynas. Also, Peak's material has very low levels of radiation.

Right now the price of NdPr, at US$45-50/kg, is probably insufficient to enable project finance. It needs to be $60/kg, but this is where an examination of the market becomes interesting.

The market demand for NdPr oxide is approximately 35-45,000 tpa, and it is expected to grow 50% by 2025. World capacity is currently 47,000 tpa, including the Lynas expansion; but could this now be in doubt?

The vast majority of demand comes from permanent magnets that are essential for electric vehicles. While China accounts for 80-90% of global NdPr supply, observers are saying that it will be become an importer by 2020, and its domestic resources of NdPr will be exhausted by 2025. It is hunting the globe for new supplies of concentrates. There is a squeeze coming and Peak will be perfectly positioned to benefit if it has its project up and running.

Companies that are selling concentrates are receiving about US$2.50/kg (20% grade of NdPr). The price of oxides (which Peak will produce) jumps to more than US$45/kg. Add another US$10/kg for conversion to metal.

Peak commissioned a report by Michael Prassas in February 2018, that referred to neodymium and praseodymium as being "*the biggest blind spot in the global commodity market*". Virtually all electric vehicles will use a NdFeB permanent magnet motor. Wind turbines are also switching to this technology.

There are reasonable expectations that the NdPr price will move much higher (see the chart below). If so, it might be the right time to be buying Peak if you are comfortable with the financing, development and commissioning risks. There is the geopolitical risk as well, but when has that deterred speculators? At least the management risk has been minimised through the appointment of Rocky Smith, who previously ran the largest rare earth refinery outside of China. We will keep a watching brief on Peak.

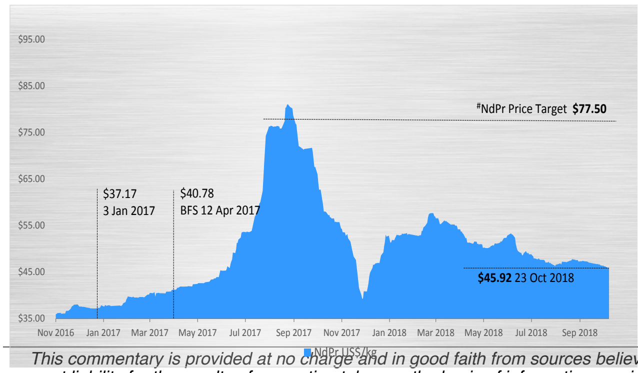


Figure 6: NdPr Prices China in US$/kg since November 2016. Source Asian Metal (China Domestic)

#Target price which is required to realise similar financial performance as communicated in the BFS incorporating the process improvements of the "Process optimisation study boosts Ngualla's operating margin" dated 28 August 2017

GEIC opening next week

I'm off to Manchester today for the official opening of the GEIC (Graphene Engineering & Innovation Centre) facility at the University of Manchester. While this will be a formal affair it is nonetheless very exciting for First Graphene to be a Tier One partner. The objective of GEIC is to bring scientists and industrial engineers together to accelerate the commercialisation of graphene.

There is a time limit on how long investors can be enthused by the promotion alone of the potential for graphene. The genuine proponents of graphene realise this. Hence, the motivation for GEIC and the objective of delivering commercial products. It is time that we progressed beyond the amazement and got stuck into profitable scale production for real industrial applications.

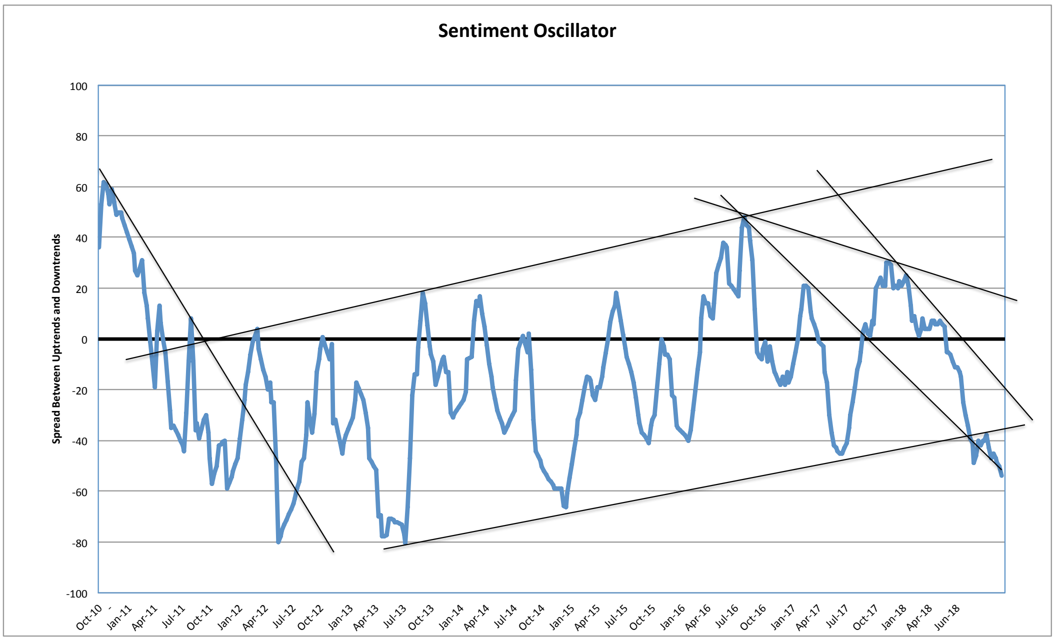
First Graphene is leading the charge here with the recent announcement of a 2,000 kg purchase order for its high quality PureGRAPH™ graphene for use in polymer liners for mining equipment. This is a world first. It is not a clever experiment to promote. It is a commercial sale - one of many that are expected in 2019. FGR's membership of GEIC is going to open a wide range of new opportunities, backed by the best scientists and equipment in the world. The growth curve is going to be very steep, for many years.

Disclosure: The author is a non-executive director of First Graphene and associated parties own shares. Capital raising fees have been earned.

This is probably the last Weekly for 2018

My absence next week means that it is unlikely that there will be another Weekly before Xmas. Given the state of the markets (special situations excluded), you are probably over it for 2018 anyway. I will resume the Weekly sometime in January, when I think there is something worthwhile discussing. Just keep in mind that the market could be ripe for a strong rally in January, as the bears frequently take longer holidays. Thin markets could increase volatility.

We have added Peak to the chart coverage, and deleted Anova due to that company having a bleak future following the failure of the Second Fortune Gold Mine initiative in WA.



Sentiment Oscillator: Sentiment weakened further over the week, with 13% (15%) of the charts in uptrend and 68% (65%) in downtrend on Friday's close.

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		still falling	
Metals and Mining	XMM		still falling	
Energy	XEJ		still falling	
Stocks	**Code**		**Trend Comment (updated comments in bold)**	**Main Interest**
Adriatic Resources	ADT		uptrend	zinc
Aeon Metals	AML		downtrend confirmed	copper + cobalt
Alacer Gold	AQG		testing downtrend	gold – production
Alkane Resources	ALK		sideways at lows	gold, zirconia
Acacia Resources	AJC		Sideways at the bottom	coal
Alchemy Resources	ALY		sideways	nickel, cobalt
Alicanto Minerals	AQI		back to lows	gold exploration
Allegiance Coal	AHQ		holding LT uptrend	coal
Alliance Resources	AGS		resting on support line	gold exploration
Altech Chemicals	ATC		down	industrial minerals - synthetic sapphire
Anova Metals	AWV		new low on poor production report	gold
Apollo Consolidated	AOP		holding support line	gold exploration
Archer Exploration	AXE		breach of support	magnesite, graphite
Argent Minerals	ARD		down	silver
Aurelia Metals	AMI		testing uptrend	gold + base metals
AusTin	ANW		rally	tin, cobalt

Australian Bauxite	ABX		gently higher	bauxite
Australian Potash	APC		testing downtrend	potash
Australian Mines	AUZ		down again	cobalt/nickel
Australian Vanadium	AVL		down heavily	vanadium
Bounty Coal	B2Y		down	coal
BHP	BHP		testing downtrend	diversified
Base Resources	BSE		down	mineral sands
Bathurst Resources	BRL		slump	coal
Battery Minerals	BAT		sideways at lows	graphite
BBX Minerals	BBX		secondary downtrend	gold
Beach Energy	BPT		down	oil and gas
Beadell Resources	BDR		secondary downtrend	gold
Bellevue Gold	BGL		return to strong uptrend - placement	gold
Berkeley Energia	BKY		collapse - Spanish media	uranium
Blackstone Minerals	BSX		back to lows	gold, cobalt
Breaker Resources	BRB		breached uptrend	gold
Broken Hill Prospect.	BPL		down	minerals sands, cobalt
Buru Energy	BRU		down	oil
Cardinal Resources	CDV		breaching downtrend	gold exploration
Cassini Resources	CZI		stronger	nickel/Cu expl.
Celsius Resources	CLA		falling again	copper/cobalt
Chalice Gold	CHN		down	gold
Cobalt Blue	COB		free fall on study results	cobalt
Comet Resources	CRL		breached downtrend, but correction down	graphite
Crusader Resources	CAS		suspended	gold
Dacian Gold	DCN		continuing down	gold
Danakali	DNK		breached uptrend	potash
Davenport Resources	DAV		steep rise	potash
Doray Minerals	DRM		sideways - merger	gold
Eden Innovations	EDE		breached uptrend	carbon nanotubes in concrete
Egan Street Resources	EGA		new low	gold
Emerald Resource	EMR		broad downtrend	gold
Evolution Mining	EVN		higher	gold
Exore Resources	ERX		rising	gold exploration
FAR	FAR		crunched down on dud oil well	oil/gas
First Graphene	FGR		rising again	graphene
Frontier Diamonds	FDX		breached downtrend	diamonds
Fortescue Metals	FMG		rallied out of steepest, but still in LT downtrend	iron ore
Galaxy Resources	GXY		strong rally	lithium
Galilee Energy	GLL		turned down	oil and gas, CBM
Gascoyne Resources	GCY		collapse	gold
Gold Road	GOR		breached uptrend	gold exploration
Golden Rim	GMR		sideways	gold exploration
Graphex Mining	GPX		rally then retracement	graphite

Heron Resources	HRR		sideways	zinc
Highfield Resources	HFR		rallied to meet resistance line	potash
Highlands Pacific	HIG		down	nickel, cobalt
Hillgrove Resources	HGO		sideways	copper
Hipo Resources	HIP		rallied to meet resistance line	battery metals
Iluka Resources	ILU		down heavily	mineral sands
Image Resources	IMA		downtrend	mineral sands
Independence Group	IGO		back in downtrend	gold, nickel
ioneer (was Global Geoscience)	INR		down	lithium
Jervois Mining	JVR		heavy fall	nickel/cobalt
Jindalee Resources	JRL		downtrend commenced	lithium
Karoon Gas	KAR		new low	gas
Kasbah Resources	KAS		still in downtrend	tin
Kibaran Resources	KNL		down	graphite
Kin Mining	KIN		heavy fall	gold
Legend Mining	LEG		down	exploration
Lepidico	LPD		continuing down	lithium
Lithium Australia	LIT		continuing downtrend	lithium
Lucapa Diamond	LOM		continuing downtrend	diamonds
Lynas Corp.	LYC		crunched back to lows	rare earths
Macphersons Res.	MRP		still down	gold/silver
Mako Gold	MKG		down	gold
Marmota	MEU		sideways	gold exploration
MetalsX	MLX		down again	tin, nickel
Metro Mining	MMI		down	bauxite
Mincor Resources	MCR		sideways	gold
Myanmar Minerals	MYL		bg	zinc
MZI Resources	MZI		downtrend still	mineral sands
Nelson Resources	NES		slump back to lows	gold exploration
Neometals	NMT		down	lithium
Northern Cobalt	N27		down again	cobalt
Northern Minerals	NTU		new low	REE
Northern Star Res.	NST		on support line	gold
NTM Gold	NTM		back into downtrend	gold
Oceana Gold	OGC		rising again	gold
Oklo Resources	OKU		down	gold expl.
Orecorp	ORR		breached downtrend	gold development
Orinoco Gold	OGX		down	gold development
Orocobre	ORE		strong rally	lithium
Oz Minerals	OZL		new low	copper
Pacific American Coal	PAK		down	coal
Pantoro	PNR		down	gold
Panoramic Res	PAN		downtrend again	gold , nickel
Peak Resources	PEK		down	rare earths

Peel Mining	PEX		breached downtrend on drill intercept	copper
Peninsula Energy	PEN		downtrend again	uranium
Perseus Mining	PRU		improving within a downtrend	gold
Pilbara Minerals	PLS		sideways through downtrend	lithium/tantalum
PNX Metals	PNX		lower	gold, silver, zinc
Polarex	PXX		still down	polymetallic
Prodigy Gold	PRX		down	gold exploration
Real Energy	RLE		rallying	gas
Red5	RED		strong breach of downtrend	gold
Red River Resources	RVR		down	zinc
Regis Resources	RRL		on support line	gold
Resolute Mining	RSG		testing downtrend	gold
RIO	RIO		down	diversified
Salt Lake Potash	SO4		re-entering downtrend	potash
Saracen Minerals	SAR		up	gold
St Barbara	SBM		up	gold
Sandfire Resources	SFR		new low	copper
Santana Minerals	SMI		new low	silver
Santos	STO		short term down	oil/gas
Sheffield Resources	SFX		down	mineral sands
St George Mining	SGQ		new uptrend failed	nickel
Sipa Resources	SRI		crunched down	general exploration - Ni,Cu, Co, Au
Stanmore Coal	SMR		new high	coal
Sundance Energy	SEA		downtrend again	oil/gas
Syrah Resources	SYR		new low	graphite
Talga Resources	TLG		down	graphite
Tanami Gold	TAM		slump	gold
Technology Metals	TMT		short term down	vanadium
Tiger Realm	TIG		down	coal
Triton Minerals	TON		down	graphite
Troy Resources	TRY		down	gold
Tyranna Resources	TYX		back in downtrend	gold exploration
Vango Mining	VAN		down	gold
Vector Resources	VEC		down again	gold
Venturex	VXR		testing downtrend	zinc
Vimy Resources	VMY		down	uranium
Volt Resources	VRC		sideways	graphite
West African Resources	WAF		down	gold
Westwits	WWI		down	gold
Western Areas	WSA		down	nickel
Whitehaven Coal	WHC		down	coal
Totals	13%	18	Uptrend	
	67%	96	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	38	26.6%	
Gold Exploration	14	9.8%	
Graphite	9	6.3%	
Coal	8	5.6%	
Oil/Gas	8	5.6%	
Lithium	8	5.6%	
Copper	6	4.2%	
Mineral Sands	6	4.2%	
Nickel	7	4.9%	
Cobalt	5	3.5%	
Zinc	5	3.5%	
Potash/Phosphate	5	3.5%	
Silver	3	2.1%	
Tin	3	2.1%	
Uranium	3	2.1%	
Rare Earths	3	2.1%	
Bauxite	2	1.4%	
Diamonds	2	1.4%	
Iron Ore	1	0.7%	
Other	7		
Total	143		

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