

21 January 2017

On Friday's Close

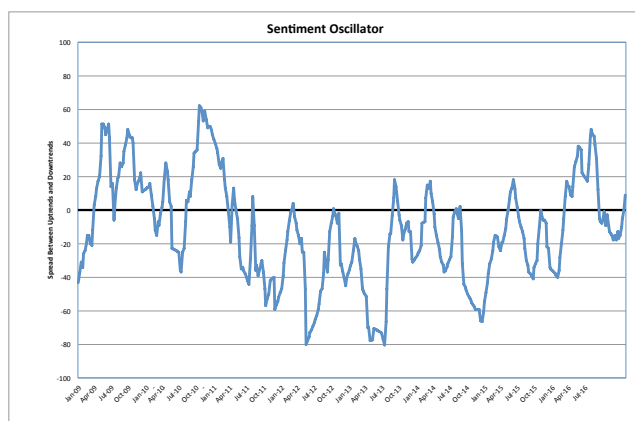
Analyst : Warwick Grigor

A clear buy signal on the charts; FGR deals on supercapacity battery

While the All Ords came back, as we suggested that it was likely to do, there were some good signs last week.

Many charts are breaking downtrends

We have had a clear buy signal on the charts with many of them breaching downtrends that have been in play for a few months, and even longer. This augers well for the next few months, which is as far ahead as anyone can reasonably see. The Sentiment Oscillator below confirms this view as it has crossed back into positive territory. Those investors who have been standing on the sidelines need to act now, or miss out.



We are still in the New Year shakedown period, with this year there being another consideration - the new USA President. Most of the chatter in the media is around what Trump will or won't do as he proves the most fertile ground for commentary. There is an air of optimism that he is conducive to the market going higher, but the Dow has hit a stumbling block at 20,000. Nevertheless, our leading mining stocks keep attracting buyers. The iron ore price/demand outlook oscillates but the outlook seems sound, the oil price is working its way through varying opinions and the gold price is creeping higher. Uranium suddenly looks a lot better. Copper will be needed for infrastructure. Coal is having a pullback but that is a healthy reaction. Institutions continue to reweight in the sector.

Internationally there is increasing tension between China and the USA but we don't know how far this will go. In the meantime the Chinese economy seems robust enough. Brexit is still worrying UK investors and there is continuing speculation about what other countries will do. We are getting frequent mass killings via bombs and guns but that seems to be the way of the world. It is what it is.

Supercapacity deal takes FGR into the battery space

First Graphite has announced a deal that catapults it into the next generation of energy storage devices (batteries) on the back of its graphene capabilities.

The most advanced commercial batteries on the market today are lithium-ion batteries. A whole new market segment has emerged that supplies lithium, cobalt and graphite to the battery market, but we know that lithium-ion batteries are not perfect. Ask Samsung. Scientists all around the world are trying to improve them but whatever improvements are introduced, they are likely to be incremental improvements rather than game changers. It is about making them safer and more efficient but they will still be chemical based.

The next quantum leap in energy storage will be the commercialisation of supercapacitors. That name will confuse some readers so we will interchangeably call them "batteries" even though scientists will say that is not technically correct. They store energy so the man in the street will think of them as batteries.

In simple terms a supercapacitor battery is like a reservoir of energy. You fill them up with electricity from an external source and you draw it down as you need it. Chemical batteries actually make electricity through chemical reactions and each time a battery charges or discharges through that reaction, there is wear and tear on the components. Eventually they wear out. Supercapacitor batteries are different in that they physically store electricity without a chemical reaction so in theory, they don't wear out.

FGR has signed an agreement with a Melbourne-based company that has been working with a leading Melbourne university, the Swinburne University of Technology to develop a new type of supercapacitor, offering 10x the energy density of existing units. It uses graphene oxide and laser technology and it has reconfigured the design of the supercapacitor. The concept and the science has been proved. FGR has stepped up to provide the finance to scale up the unit and to develop a prototype AA battery and achieve a commercial outcome for the product, which has been named the Bolt Electricity Storage Technology Battery (BEST Battery).

To quote Craig McGuckin, the CEO of FGR, "While there is still work required to prove the commerciality, and thus some risk, the potential rewards could be stunning. Who wouldn't want an energy storage advice that weighs only 10% of the current batteries, that is chemical free and that can recharge in a fraction of the time, for 10 times as many cycles?"

This is an example of the leverage that FGR is pursuing, using its graphene credentials. Other technologies are also being pursued. You could draw an analogy of an exploration company with five or six projects. If even one of them succeeds and a commercial orebody is proved, it becomes a company maker. If the BEST Battery is as good as the university believes then the international rights to the

technology could be worth hundreds, if not billions of dollars. The risk/reward ratio is what it is all about.

Pantoro (PNR) Update - A sweet gold mine

During the week I attended an investor update seminar on Pantoro, as part of an east coast roadshow. Regular readers will be aware that I have mentioned the company a number of times in 2016, as an example of a promising new gold producer in WA. I'm pleased to say that everything is going well operationally, and my enthusiasm is unabated.

The performance of the PNR share price in late 2016 has been quite impressive. At a time when most gold producers were being sold down, as the gold price tanked, PNR's share price was quite strong. That is a good sign. Now that the gold price is improving again the share price is breaking new highs. About the only dampener still to play out is the overhang of 20-30 million shares still held by Bulletin and Matsa following their sale of the minority interest (20%) in Nicolson to PNR, but that won't be around for too much longer as daily volumes are frequently in the range of 3-10 mill. per day. It has good liquidity.

The most important point to take away from the presentation is that Nicolson is not an isolated orebody. It is part of a major regional system between two controlling fault zones that look to be very productive. What you see today will bear little resemblance to what you will see in 3-5 years, with multiple high grade orebodies feeding the mill. The Company thinks it reasonable to lift the production target from 50-55,000 oz pa (achievable from March 2017), to 80,000 oz pa some time in 2018. It could grow even further if exploration continues to be successful. As usual, grade is king. This is a high grade, very profitable goldfield that is starting to reveal its riches.

I have listed below a number of other points that may be of interest to readers;

- December Qtr gold production was almost 10,000 oz with the Company on track to meet the 50-55,000 oz production rate from Q2 2017.
- about 25% of the mill feed is coming from open pits, which is giving the underground workings some useful breathing space while being ramped up. The pits will provide 18 months of ore with which to blend and enable a more consistent head grade to the mill
- the open pit ore is being campaign mined up until August 2017, and stockpiled, as this provides a better contract price. By the time the Wagtail pits get down to a depth of 65m the waste to ore ratio will top out at 17:1, so it will be underground mining beneath this level. The lower 15-20m of the pit profile will be in fresh rock so the ground conditions to develop a decline will be optimal, meaning the ground issues that complicated the initial decline development at Nicolson should not reoccur. While mining through the Archer Fault provided serious problems to begin with, it is now being recognised as an important regional and local control mechanism for gold. Thus without it, there wouldn't be a mine.
- These pits are currently at depths of 10-12m and already some of the flitches are showing grades which reflect PNR's drilling pre-mining, when numerous + 10 gpt intercepts were reported. The ore is oxidised to a

depth of 40m, but drill and blast methods are still needed at these shallow depths.

- The Nicolson workings are currently down to a depth of 180m and the resource extends to 300m, and is open at depth. There is currently 30,000 oz fully developed ahead of mining.
- PNR employs four airleg miners who work three stopes and there are two long-hole stopes. Thus there are 4 -5 ore headings supplying feed at present. Mining widths range from 0.5m up to 2.5-3m.
- The open pits to the south, with Wagtail north and south being the most productive, look as if they will facilitate a duplication of the underground workings at depth. Drilling to a depth of 130m has given an intercept of 2m at 13.5 gpt. As these are already on a granted mining lease the development of underground workings can be fast-tracked, perhaps prior to the end of 2017, with extensional exploration drilling in currently underway.
- the plant is working well. Most of the gold has leached out in the first four hours of a 12 hour residence time. The ore is being ground to 80% passing 106 μ m with the recoveries being similar to a 75 μ m grind that was achieved with earlier testing. Thus it is not particularly grind sensitive
- a mobile tertiary crusher is currently being used to bring the mill feed down from 11 mm to 6-7 mm. This adds about \$30/oz to crushing costs. The plan is to replace this with a fixed crusher, thereby bringing the costs back down.
- the medium-term intention is to lift plant capacity from 200,000 tpa to 350,000 tpa, subject to a scoping study. At this point it looks like the capex would be around \$10m with the emphasis being on second hand equipment, a strategy that has worked well for PNR to date.
- there is a strong association between galena and gold grade. The sulphides report to the gravity concentrate which yields approximately 50% of the gold recovered, and overall plant recovery is 96%
- the big feature of Nicolson to date has been the massive over-call on grade and total gold in-situ. Originally PNR was looking for 700 oz per vertical metre (opvm), but the discovery of high grade crosscutting structures has lifted this figure to 1,200 opvm. It now looks like this will increase to 1,500 opvm, which is very impressive. The positive reconciliation of gold can be linked back to the RC drilling, on which the resources were originally calculated. The contained ounces increased by 60% when diamond drilling is used.
- Interestingly, the Mother Lode has provided 25% of the gold to date with grades up to 25 gpt, but it is completely outside the pre-mining resource. The Company describes it as a "game changer" and believes that more of the same style of lode will be discovered.
- exploration will continue to be an important focus with six walk up drill targets waiting to be tested. The current exploration budget is around \$4m p.a.

- In December the cash costs were probably around A\$800/oz as a result of higher production, enabling AISC of about A\$1,000/oz.
- While the wet season is in full swing, the impact of rainstorms is less consequential than down around Kalgoorlie. The rain seems to drain away quite quickly rather than lie around for days, as the southern goldfields experience. Thus the wet season is not a real problem.
- debt is currently 7,700 oz (approx. A\$12.6m) in the form of a non-interest bearing gold loan. It is being repaid at 400-500 oz per month, with the final payment scheduled in April 2018.
- there is evidence that institutional investors are coming onto the register, with the market capitalisation now exceeding \$150m

Cobalt Blue (COB) Update - Listing 31/1/17

COB is scheduled to list on 31 January, following a successful \$10m IPO. This promises to be a good vehicle for cobalt exposure with the consensus being that cobalt will be one of the more exciting commodities to play in 2017, due to shortages of the metals and potential conflict in the DRC, which contributes 50% of the world supply.

There are a number of cobalt plays coming to surface on the ASX, but very few have JORC resources. Most of them only have sniffs, and sometimes good samples from selective rock chips. There is even one out there that is being promoted on the back of good drill intercepts, *but the cobalt grades actually came from the blade* used to cut the core, not from the geology. You'd be excused for calling it a fraud.

COB stands out because it does have a JORC resource of 35 Mt, in the safe jurisdiction of NSW (near Broken Hill).

Like virtually all cobalt projects, the cobalt is found with other elements so that the economics depends on not just cobalt alone. Here it is found in association with pyrite, so the co-product is sulphur or sulphuric acid. COB's earn-in deal commits it to spending real money expanding the resource and completing economic studies. Thus it plans to deliver and not just promote. It will be one of the more tangible cobalt specialist.

Mustang getting recognition for rubies

Mustang Resources (MUS) was a stunning performer on Friday, rising from 2.3¢ to a high of 5.9¢ (up 156%) on turnover of 166 mill. shares. We have been watching it a while with the thought that if it could do anything like the UK listed ruby producer, Gem, it could be very interesting. However, as the shares kept falling I began to worry.

That concern evaporated yesterday with the news of the recovery of two 24 carat rubies and the first sales into the USA. The downtrend was clearly broken with yesterday's rise. Keep this one on your radar.

We have added Tempo Australia

We have added Tempo Australia (TPP) to our chart coverage, being an example of a mining services company. Tempo is a smaller, specialised construction and engineering company that is well placed to benefit from any improvement in the mining sector. In the past it has done well with clients in the oil and gas sector, and RIO in iron ore. It is looking for accelerated growth from this point with Angophora Capital coming in for a \$9.5m placement. Angophora is the private investment vehicle of Guido Belgiorno-Nettis, a joint Managing Director of Transfield Holdings. Engineering companies go through cycles like many other companies, both economic cycles and company development cycles. The smaller, more agile companies can offer great growth opportunities if you get the timing right.




Sentiment Indicator: The sentiment has finally turned positive. There were 50% (32%) of the charts in uptrend and 37% (32%) 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.

Indices	Code	Trend Comment	
All Ordinaries	XAO	sitting above the long term resistance line	
Metals and Mining	XMM	surge to new high	
Energy	XEJ	continues to improve	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
ABM Resources	ABU	strongly higher, then heavy pullback	gold
Aeon Metals	AML	new high	copper + cobalt
Alacer Gold	AQG	rallied to hit resistance line	gold – production
Alkane Resources	ALK	nudging resistance line	gold, zirconia
Acacia Resources	AJC	Sideways at the bottom	coal
Aguia Resources	AGR	down again	phosphate
Alicanto Minerals	AQI	gentle uptrend commenced	gold exploration
Alltech Chemicals	ATC	rising	industrial minerals
Anova Metals	AWV	breached ST downtrend	gold
Antipa Minerals	AZY	back in downtrend	gold
Apollo Consolidated	AOP	crunched on preliminary metallurgical tests	gold exploration
Archer Exploration	AXE	breached downtrend	magnesite, graphite
Argent Minerals	ARD	new uptrend	polymetallic
Aspire Mining	AKM	nudging resistance line	coal
Atrum Coal	ATU	testing downtrend	coal
Aurelia Metals	AMI	breaching downtrend	gold + base metals
Auroch Minerals	AOU	improving	exploration
Aus Tin	ANW	down	tin, cobalt
Australian Bauxite	ABX	forming a wedge, on support	bauxite
Australian Potash	APC	sideways through downtrend	potash
Australian Vanadium	AVL	rising gently	vanadium
Avanco Resources	AVB	rising	copper
AWE	AWE	testing downtrend	oil and gas
Azure Minerals	AZS	crunch down on Kennecott withdrawal	silver
BHP	BHP	on support line	diversified
Base Resources	BSE	rising	mineral sands
Bathurst Resources	BRL	correcting lower	coal
Battery Minerals	BAT	sideways	graphite
Beach Energy	BPT	breached uptrend	oil and gas
Beadell Resources	BDR	testing downtrend	gold
Berkeley Resources	BKY	strongly higher	uranium
Blackham Resources	BLK	breached downtrend	gold
Bligh Resources	BGH	breached downtrend	gold
Broken Hill Prospect.	BPL	breaching downtrend	minerals sands, cobalt
Buru Energy	BRU	testing downtrend	oil
Canyon Resources	CAY	testing downtrend	bauxite
Cardinal Resources	CDV	forming a base	gold exploration
Carnegie Clean Energy	CCE	surge to new high	wave energy
Cassini Resources	CZI	breached downtrend	nickel/Cu expl.
Chalice Gold	CHN	holding uptrend	gold
Crusader Resources	CAS	downtrend	gold/iron ore
Dacian Gold	DCN	rising again	gold exploration
Danakali	DNK	rising again	potash
Doray Minerals	DRM	down	gold
Duketon Mining	DKM	testing downtrend	nickel

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Eden Energy	EDE		sideways	carbon nanotubes in concrete
Energia Minerals	EMX		strong rise	zinc
Equator Resources	EQU		strong rise	cobalt/nickel
Evolution Mining	EVN		testing downtrend	gold
Excelsior Gold	EXG		rallying	gold
Finders Resources	FND		breached downtrend	copper
First Australian	FAR		sideways to lower	oil/gas
First Graphite	FGR		breached downtrend	graphite
Fortescue Metals	FMG		new high	iron ore
Galaxy Resources	GXY		rising again	lithium
Galilee Energy	GLL		breached uptrend	oil and gas, CBM
Gascoyne Resources	GCY		rallied to hit resistance line	gold
Geopacific Res. Resources	GPR		breached downtrend	copper/gold exp.
Global Geoscience	GSC		breached downtrend	lithium
Gold Road	GOR		downtrend	gold exploration
Graphex Mining	GPX		breached downtrend	graphite
Heron Resources	HRR		new low	zinc
Highfield Resources	HFR		testing uptrend	potash
Highlands Pacific	HIG		sideways around lows	copper, nickel
Hillgrove Resources	HGO		breached downtrend	copper
Hot Chilli	HCH		testing downtrend	copper
Iluka Resources	ILU		rising	mineral sands
Image Resources	IMA		building a base	mineral sands
Independence	IGO		recovering with the gold price	gold, nickel
Intrepid Mines	IAU		sideways	copper
Karoo Gas	KAR		breached downtrend	gas
Kibaran Resources	KNL		breached support line	graphite
Kin Mining	KIN		breached uptrend	gold
Legend Mining	LEG		strong surge, then a slump	exploration
Lithium Australia	LIT		downtrend breached	lithium
Lucapa Diamond	LOM		recapturing uptrend	diamonds
Macphersons Res.	MRP		down	silver
Medusa Mining	MML		still in long term downtrend	gold
MetalsX	MLX		downtrend	tin, nickel
Metro Mining	MMI		rising	bauxite
Mincor Resources	MCR		down	nickel
Mineral Deposits	MDL		rising again	mineral sands
Mustang Resources	MUS		at lows	diamonds, rubies
MZI Resources	MZI		still in downtrend	mineral sands
Northern Minerals	NTU		breaching uptrend	REE
Northern Star Res.	NST		rallied to hit resistance line	gold
NTM Gold	NTM		breached uptrend	gold
Oceana Gold	OGC		breached downtrend	gold
Oklo Resources	OKU		breached downtrend	gold expl.
OreCorp	ORR		breached downtrend	gold development
Orinoco Gold	OGX		down	gold development
Orocobre	ORE		strongly higher	lithium
Oz Minerals	OZL		another new high	copper
Paladin Energy	PDN		rallied to hit resistance line	uranium
Pacific American Coal	PAK		breached downtrend	coal, graphene
Pantoro	PNR		new high	gold
Panoramic Res	PAN		rising wedge	nickel
Paringa Resources	PNL		strong recovery	coal
Peel Mining	PEX		gentle uptrend	copper

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Peninsula Energy	PEN		another strong rise	uranium
Perseus Mining	PRU		rallying	gold
Pilbara Minerals	PLS		breached downtrend	lithium/tantalum
PNX Metals	PNX		strong surge	gold, silver, zinc
Potash West	PWN		falling	potash
Red River Resources	RVR		still in uptrend	zinc
Regis Resources	RRL		breaching resistance line	gold
Resolute Mining	RSG		new short term uptrend	gold
Reward Minerals	RWD		strong rise	potash
RIO	RIO		still strong	diversified
RTG Mining	RTG		testing downtrend	copper/gold
Rum Jungle	RUM		sideways	quartz
Salt Lake Potash	SO4		steeply higher	potash
Saracen Minerals	SAR		strong rally	gold
St Barbara	SBM		breached resistance line	gold
Sandfire Resources	SFR		stronger	copper
Santana Minerals	SMI		down	silver
Santos	STO		rising	oil/gas
Sheffield Resources	SFX		rising again	mineral sands
Silver Lake Resources	SLR		rising	gold
Silver Mines	SVL		down	silver
Sino Gas & Energy	SEH		rising	gas
Southern Gold	SAU		steep rise	gold
Stanmore Coal	SMR		breached steep uptrend and turning down	coal
Sundance Energy	SEA		new uptrend confirmed	oil/gas
Syrah Resources	SYR		breaching downtrend	graphite
Talga Resources	TLG		breached downtrend	graphene
Tanami Gold	TAM		breached uptrend	gold
Tempo Australia	TPP		breached downtrend	mining services
Teranga Gold	TGZ		surge through downtrend	gold
Tiger Realm	TIG		surging higher	coal
Tiger Resources	TGS		breaching downtrend	copper
TNG Resources	TNG		breached uptrend	titanium, vanadium
Torian Resources	TNR		down	gold expl'n
Toro Energy	TOE		continuing to rise	uranium
Troy Resources	TRY		secondary downtrend	gold
Tyranna Resources	TYX		down	gold exploration
Vimy Resources	VMY		downtrend breached	uranium
West African Resources	WAF		testing downtrend	gold
Westwits	WWI		ST downtrend but rally on Friday	gold exploration/development
Western Areas	WSA		crunched on Friday	nickel
White Rock	WRM		breached downtrend	silver
Whitehaven Coal	WHC		heavy correction	coal
WPG Resources	WPG		bounced off lows	gold
Wolf Minerals	WLF		continuing down	tungsten
Totals	35%	50	Uptrend	
	26%	37	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	33	23.1%
Copper	13	9.1%
Gold Exploration	13	9.1%
Oil/Gas	9	6.3%
Potash/Phosphate	7	4.9%
Mineral Sands	7	4.9%
Graphite	6	4.2%
Zinc	5	3.5%
Silver	6	4.2%
Lithium	5	3.5%
Nickel	5	3.5%
Uranium	5	3.5%
Coal	10	7.0%
Tin	2	1.4%
Bauxite	3	2.1%
Iron Ore	1	0.7%
Diamonds	2	1.4%
Other	11	
Total	143	

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