

5 August 2017

*On Friday's Close*

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## Digger & Dealers might provide some enthusiasm

The surge in the iron ore spot price has been the feature of the past week, reaching a price of US\$74 pt on Tuesday. That explains why BHP, Fortescue and RIO have all moved higher. Apparently the Chinese steel mills are making so much money that they are happy to pay higher prices for quality iron ore imports. The long awaited collapse of Chinese growth is not materialising, so there isn't much room for pessimism on this front. Rebar prices are actually at a four year high.

The sentiment elsewhere is continuing to improve gently. Although you might not have seen your portfolio values rise significantly since the start of July, the Sentiment Oscillator is now showing a healthy rebound. We are heading in the right direction. It will be interesting to see what the mood is like next week in Kalgoorlie, for the annual Diggers and Dealers Forum. This might well be the catalyst to get enthusiasm going again for the junior sector.

### *Tough battery standards highlight the need for something better than lithium-ion*

Proposed new standards for the installation of lithium-ion batteries in domestic installations in Australia have been criticised as being too tough, requiring concrete bunkers separate from the home (*p.18, AFR, 2/8/17*). Maybe they are too tough and there is room for them to be relaxed a little, but the point to remember is that lithium-ion, as a chemical based battery, presents ongoing safety issues. We need to move on to better technology.

The obvious better technology involves physical storage of energy as opposed to electricity from chemical reactions. That takes us to supercapacitors. These devices are much safer as there is no chemical reaction that can lead to fires and explosions. It is simply a matter of filling up the reservoir by plugging it into the power point, and this happens in a fraction of the time that it currently takes for existing rechargeable batteries; try 60 seconds for a mobile phone rather than an hour or two. A Tesla car would take only five minutes to recharge.

The key to new supercapacitors is the use of graphene. Existing supercapacitors use activated carbon to house energy, but that material has poor interconnectivity of spacing and in reality only achieve 10% of the potential storage capacity. The BEST battery being developed by FGR and Swinburne University of Technology overcomes this problem by using graphene oxide (GO) and reduced GO to create nanopores, using laser technology, that enables a 10x increase in the storage capacity over existing supercapacitors. Thus they can now compete with lithium-ion storage but with much faster charging rates. Also, they will last at least 10-20x longer as there is no chemical reaction to degrade cathode or electrodes. This promises to be a serious game changer.

We know the science works in the laboratory. The current work program involves the construction of a working prototype AA battery for demonstration purposes, hopefully

by the end of 2017. The focus will be on designing manufacturing methods so as to ensure a reasonable unit cost, in scale.

As yet the market doesn't seem to understand the risk reward ratio for the BEST battery or the outstanding leverage available to FGR. The Company is committed to spending up to \$2m to earn a 70% interest in the global licence, but almost half of this could come back in the form of R&D rebates.

What would a manufacturing licence be worth for a product as good as this one promises to be? How about \$1bn as an opening bid? Given that Samsung dropped about US\$5bn on its recent Galaxy 7 battery fiasco, US\$1bn would be a small price to pay. Would that be the only licence that could be sold? Probably not. All battery producers will want access to the technology.

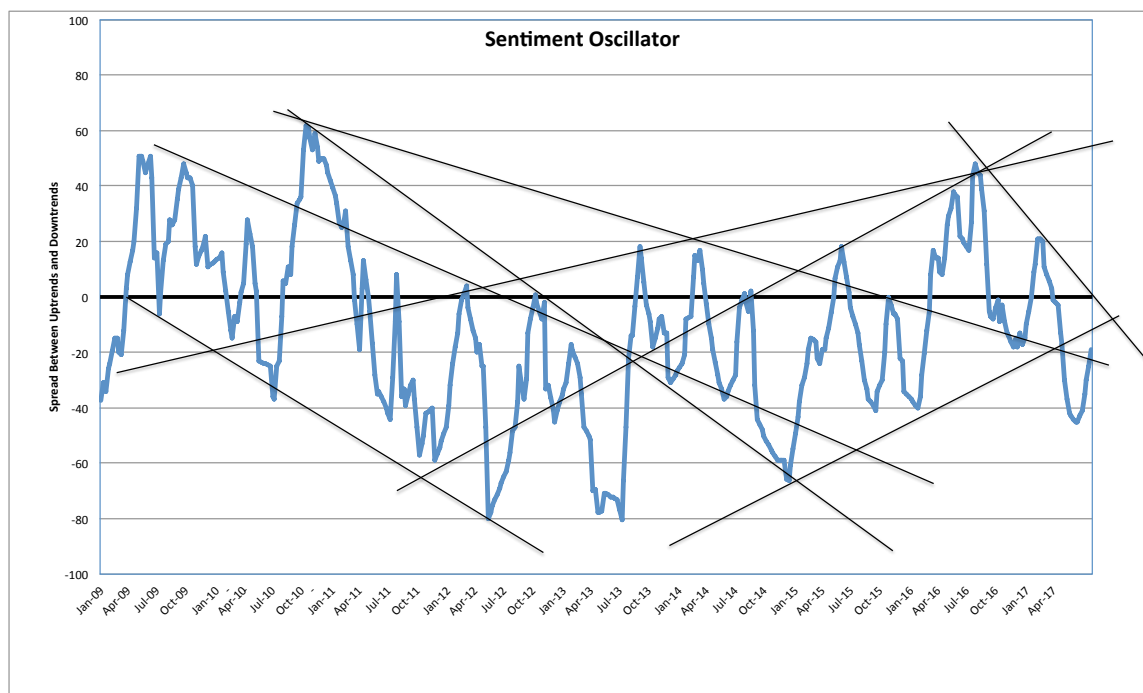
We are all gamblers in the stock market, to a lesser or greater extent. Decisions should be made based on the risk reward equation. Here, FGR is effectively risking no more than \$2m for the potential to earn \$1bn. You can use your own probability factor, but even a 10% chance of success gives the company a 50x return on its investment. The optionality value is clearly exceptional. Yet, it is still just another example of a number of graphene-based initiatives that make the stock a compelling opportunity.

### *What has happened to the cobalt boom?*

One could be forgiven to think that the cobalt boom is over, having been snuffed out by the bear market that depressed the mining sector in the months leading up to the end of the financial year. However, that would be somewhat short sighted. Cobalt will be an essential ingredient for batteries for some time, even with competing technologies, and there continues to be serious concern regarding availability of supply.

We are still seeing ASX-listed companies with new cobalt projects at regular intervals. Geologically they are often interesting but there is a quantum leap before they can be deemed commercial. I have seen a number of European projects recently that fall in this category. Some of them have even been small scale historical producers in the past. While I like to encourage entrepreneurs, these projects don't really get me excited. I'm still drawn back to Africa, particularly somewhere like Zambia where the geology is good for both high grade copper and cobalt without the drawbacks of doing business in the neighbouring DRC.

Cobalt will be back in the spotlight soon if the number of emails I received last week, all preaching the opportunity with cobalt, are anything to go by.



**Sentiment Indicator:** The Oscillator improved again as a number of stocks exited downtrends, being the first step on the path to new uptrends. There were 24% (23%) of the charts in uptrend and 43% (48%) 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	breached downtrend with sideways pattern	
Metals and Mining	XMM	surging after breached short term downtrend	
Energy	XEJ	short term downtrend being tested	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
ABM Resources	ABU	sideways through downtrend	gold
Aeon Metals	AML	rising again	copper + cobalt
Alacer Gold	AQG	falling from rally	gold – production
Alkane Resources	ALK	spiked higher	gold, zirconia
Acacia Resources	AJC	Sideways at the bottom	coal
Agua Resources	AGR	weaker	phosphate
Alicanto Minerals	AQI	new low on rights issue shortfall	gold exploration
Allegiance Coal	AHQ	rising	coal
Alliance Resources	AGS	sideways	gold exploration
Alltech Chemicals	ATC	<b>stronger</b>	industrial minerals
Anova Metals	AWV	strong rebound, then fell again	gold
Antipa Minerals	AZY	rallying	gold
Apollo Consolidated	AOP	breaching downtrend	gold exploration
Archer Exploration	AXE	surge through downtrend	magnesite, graphite
Argent Minerals	ARD	gentle uptrend	polymetallic


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Aspire Mining	AKM		testing downtrend	coal
Atrum Coal	ATU		new low	coal
Aurelia Metals	AMI		at apex of wedge	gold + base metals
Auroch Minerals	AOU		down	exploration
Aus Tin	ANW		testing downtrend	tin, cobalt
Australian Bauxite	ABX		sideways through uptrend	bauxite
Australian Potash	APC		testing downtrend	potash
Australian Mines	AUZ		gentle uptrend commenced	cobalt/nickel
Australian Vanadium	AVL		down	vanadium
Avanco Resources	AVB		nudging resistance line	copper
AWE	AWE		breached downtrend	oil and gas
Azure Minerals	AZS		sideways through downtrend	silver
BHP	BHP		short term uptrend	diversified
Base Resources	BSE		breaching uptrend	mineral sands
Bathurst Resources	BRL		continuing higher	coal
Battery Minerals	BAT		reached resistance line	graphite
Beach Energy	BPT		breached steepest downtrend	oil and gas
Beadell Resources	BDR		new low	gold
Berkeley Resources	BKY		testing downtrend	uranium
Berkut Minerals	BMT		new low	cobalt
Blackham Resources	BLK		slump to new low	gold
Broken Hill Prospect.	BPL		breached downtrend	minerals sands, cobalt
Buru Energy	BRU		sideways at lows	oil
Canyon Resources	CAY		new low	bauxite
Cardinal Resources	CDV		breaching uptrend after placement	gold exploration
Carnegie Clean Energy	CCE		testing uptrend	wave energy
Cassini Resources	CZI		breached uptrend	nickel/Cu expl.
Chalice Gold	CHN		holding uptrend	gold
Cobalt One	CO1		rally on change of name (from Equator)	cobalt
Cobalt Blue	COB		testing downtrend	cobalt
Comet Resources	CRL		sideways near highs	graphite/graphene
Consolidated Zinc	CZL		downtrend	zinc
Corizon Mining	CZN		breached downtrend	cobalt
Crusader Resources	CAS		breached downtrend	gold/iron ore
Dacian Gold	DCN		breached downtrend	gold exploration
Danakali	DNK		still in uptrend	potash
Doray Minerals	DRM		back in downtrend	gold
Duketon Mining	DKM		new low	nickel
Eden Innovations	EDE		breached short term downtrend	carbon nanotubes in concrete
Emerald Resource	EMR		sideways	gold
Energia Minerals	EMX		rallying from lows	zinc
Evolution Mining	EVN		ST down, within LT uptrend	gold
Excelsior Gold	EXG		back to recent high	gold
Finders Resources	FND		LT uptrend	copper
First Australian	FAR		testing uptrend	oil/gas
First Graphite	FGR		testing secondary downtrend	graphite
Fortescue Metals	FMG		short term uptrend	iron ore
Galaxy Resources	GXY		testing downtrend	lithium
Galilee Energy	GLL		down	oil and gas, CBM
Gascoyne Resources	GCY		breached uptrend	gold
Global Geoscience	GSC		back to highs	lithium
Gold Road	GOR		uptrend continuing	gold exploration
Graphex Mining	GPX		new low then strong recovery	graphite
Heron Resources	HRR		drifting lower	zinc

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Highfield Resources	HFR		continuing down	potash
Highlands Pacific	HIG		down	copper, nickel
Hillgrove Resources	HGO		back to highs	copper
Iluka Resources	ILU		surged higher	mineral sands
Image Resources	IMA		testing uptrend	mineral sands
Independence	IGO		sideways	gold, nickel
Intrepid Mines	IAU		sideways	copper
Karoo Gas	KAR		breached support line	gas
Kibaran Resources	KNL		testing downtrend	graphite
Kin Mining	KIN		surge on gold discovery announcement	gold
Legend Mining	LEG		sideways	exploration
Lithium Australia	LIT		pullback after breakout	lithium
Lucapa Diamond	LOM		down	diamonds
Macphersons Res.	MRP		downtrend	silver
Medusa Mining	MML		downtrend	gold
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		breached downtrend	diamonds, rubies
MZI Resources	MZI		down	mineral sands
Northern Minerals	NTU		down	REE
Northern Star Res.	NST		breached uptrend	gold
NTM Gold	NTM		breached uptrend	gold
Oceana Gold	OGC		down after steep fall	gold
Oklo Resources	OKU		new high	gold expl.
Orecorp	ORR		down	gold development
Orinoco Gold	OGX		breached downtrend	gold development
Orocobre	ORE		under longer term downtrend	lithium
Oz Minerals	OZL		breached downtrend	copper
Pacific American Coal	PAK		down	coal, graphene
Pantoro	PNR		new high	gold
Panoramic Res	PAN		downtrend	nickel
Peel Mining	PEX		pullback	copper
Peninsula Energy	PEN		down	uranium
Perseus Mining	PRU		new low	gold
Pilbara Minerals	PLS		hugging downtrend line	lithium/tantalum
PNX Metals	PNX		down	gold, silver, zinc
Red River Resources	RVR		holding longer term uptrend	zinc
Regis Resources	RRL		confirming uptrend	gold
Resolute Mining	RSG		still going lower	gold
Reward Minerals	RWD		new low	potash
RIO	RIO		recovery	diversified
RTG Mining	RTG		breached downtrend	copper/gold
Salt Lake Potash	SO4		down	potash
Saracen Minerals	SAR		holding long term uptrend	gold
St Barbara	SBM		heading down	gold
Sandfire Resources	SFR		breaching downtrend	copper
Santana Minerals	SMI		back in downtrend	silver
Santos	STO		under long term support line	oil/gas
Sheffield Resources	SFX		still in downtrend	mineral sands
Silver Lake Resources	SLR		heavy fall	gold
Silver Mines	SVL		down again	silver
Sino Gas & Energy	SEH		down	gas

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Southern Gold	SAU		resuming uptrend	gold
Stanmore Coal	SMR		breaching long term support	coal
Sundance Energy	SEA		down	oil/gas
Syrah Resources	SYR		strong rise	graphite
Talga Resources	TLG		spike then pullback	graphene
Tanami Gold	TAM		short term down	gold
Tempo Australia	TPP		breached downtrend	mining services
Teranga Gold	TGZ		strong rally	gold
Tiger Realm	TIG		breached downtrend	coal
Tiger Resources	TGS		suspended	copper
TNG Resources	TNG		testing short term downtrend	titanium, vanadium
Torian Resources	TNR		new low	gold expl'n
Toro Energy	TOE		breached first downtrend	uranium
Troy Resources	TRY		testing downtrend	gold
Tyranna Resources	TYX		testing downtrend	gold exploration
Vango Mining	VAN		uptrend being tested	gold
Vimy Resources	VMY		testing downtrend	uranium
West African Resources	WAF		strong rise	gold
Westwits	WWI		rallying	gold exploration/development
Western Areas	WSA		new uptrend	nickel
White Rock Minerals	WRM		down	silver
Whitehaven Coal	WHC		gently higher	coal
WPG Resources	WPG		still down	gold
Wolf Minerals	WLF		down	tungsten
Totals	24%	35	Uptrend	
	43%	63	Downtrend	
		146	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	33	22.6%
Copper	12	8.2%
Gold Exploration	14	9.6%

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<b>Weightings of Sectors Represented in the Company Charts</b>			
Coal	<b>10</b>	<b>6.8%</b>	
Oil/Gas	<b>9</b>	<b>6.2%</b>	
Potash/Phosphate	<b>6</b>	<b>4.1%</b>	
Mineral Sands	<b>7</b>	<b>4.8%</b>	
Graphite	<b>7</b>	<b>4.8%</b>	
Silver	<b>6</b>	<b>4.1%</b>	
Zinc	<b>6</b>	<b>4.1%</b>	
Lithium	<b>5</b>	<b>3.4%</b>	
Nickel	<b>5</b>	<b>3.4%</b>	
Uranium	<b>4</b>	<b>2.7%</b>	
Cobalt	<b>4</b>	<b>2.7%</b>	
Tin	<b>2</b>	<b>1.4%</b>	
Bauxite	<b>3</b>	<b>2.1%</b>	
Diamonds	<b>2</b>	<b>1.4%</b>	
Iron Ore	<b>1</b>	<b>0.7%</b>	
Other	<b>10</b>		
<b>Total</b>	<b>146</b>		

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