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FAR EAST CAPITAL
The Mining Investment Experts

Weekly Commentary

3 December 2016 *On Friday's Close* Analyst : Warwick Grigor

Looking beyond batteries to something much more elegant - supercapacitors and why they could be much better

We have an orderly market

The news that we have just had the best November on the ASX in 11 years is probably falling on deaf ears if you have been in the junior end of the market. Nevertheless, the stronger general stock market evidence is that life has been a lot worse, in recent years.

The events which caused the greatest short term volatility in 2016, Brexit and the US Presidential election, have been absorbed without any lasting drama. The US economy has grown by 3.2% (annualised) in the September quarter, and Turnbull has passed his ABCC legislation. An imminent rise is US interest rates has been acknowledged and we are seeing an agreement on oil production cuts..

The press is calling a mini-boom in commodities with iron ore and coal prices showing rises of almost 80% and 300% respectively this year. Copper prices have responded to expectations of infrastructure spending and copper shares have responded accordingly. The only real negative has been the gold price. Nevertheless, the wheel keeps turning and life goes on as markets are behaving predictably and with order.

Technical Change

Last week I commented that the institutional investors were buying the leading resource stocks in anticipation that the cycle had turned and that it was time to be positioning themselves for the next growth phase. That is a safe bet as everything operates in cycles. It should be a no brainer, but it isn't particularly adventurous. This strategy isn't likely to earn super profits - but that is not what institutional investors are about. Their game is to have as much money under management as possible so they can charge management fees. They are more concerned with protecting their revenue streams than out-performing the market. They are not risk takers. So, as private individuals, you should always be able to outperform institutional funds if you think and act smart.

Be wary of the tech booms that are flurries …

One way to significantly outperform the market and make enormous profits is to invest in disruptive technologies that open up new and seemingly never ending growth curves. Every now and then the market will indulge in technology and stocks will come out of the woodwork promising untold riches from their new ideas. The last flurry of this kind was in 2015, when mining looked like it was down for the count. Many moribund junior stocks were rebirthing themselves as technology plays. There were some amazing share price performances for those who were quick to both buy, and sell. The trouble with these little tech booms is that there is usually no Second Act. There is no follow through in terms of another round of buyers who hold for the long term, and the business models of most of these companies are deficient. There are many similarities with land grabs in speculative exploration rushes. So, when I talk of disruptive or new technologies, I talk of something different to promotion of technology booms. I talk of something with a much broader base.

… and focus on energy as a sustainable thematic

The most significant changes we are seeing across industry are those that relate to energy. That is what our modern society relies on. That is were the most money is directed and where the greatest profits are earned. Energy security has driven world politics. Those countries with energy have been the ones with the highest standard of living. We all know that. For the last 100 years the word energy has been synonymous with oil.

It was only a little over 100 years ago that the biggest environmental challenge to the urban world was mountains of horse dung in the streets. Yet in a mere 20 years the automobile had replaced horses and in 1917, the last horse-drawn streetcar was retired in Manhattan. The rate of change, the speed in which technology was adopted was astounding. The oil age arrived as the environmental saviour virtually overnight.

Fast forward the clock 100 years and that previous environmental saviour has now been castigated as the modern environmental disaster. The world wants an alternative source of energy. It is not going to be hydro, coal, gas or nuclear. We have had time to look at and utilise all of these. While they will continue to contribute to the mix, they don't offer the solution to the future. They don't satisfy our social needs for something elegant. Hence the push for renewables.

The way we generate electricity, the way we store it and the way we consume it are the most commanding themes in society today. We have the social push which is leading the political push. They money behind this push is funding scientific development in all continents as solutions are sought. The challenge for the investor is to discern which of the new technologies are going to be the most likely to succeed, and which companies have the best business models to ensure that success.

Storage of energy has been a serious stumbling block for many decades. Generation of electricity has been relatively straight forward but storing it for when you really want to use it has been the issue. There has been much tinkering with battery technology over time, with gradual improvement. As it stands now the most acceptable candidate is the lithium-ion battery. But what we have today is just one stop along the path. We will see continual development and improvement of lithium ion batteries, and many other types of batteries. The objective of the battery industry is one that gives five times the energy density at one fifth of the cost. This might be achieved with lithium sulphuric batteries, or lithium silica batteries but the performances will improve incrementally over time.

We can invest in battery input components, quite comfortable in the knowledge that demand is increasing and so profits should improve. Suppliers should experience higher share prices. Our task then is to find the most profitable suppliers - the best managed and the ones with the lowest input costs. That makes sense.

What are the chances of batteries becoming obsolete?

But what if there was a totally different foundation to the battery construction? A battery is basically a chemical system of storing energy. It is based on chemical reactions within its components. Its performance depends on how the various components work together to successfully capture energy and discharge it. It is all about the efficiency of the chemistry.

What if the next generation takes us beyond the chemistry and into the physics. What if we learn that the chemical reactions in batteries are always going to be problematic, such as the the Galaxy batteries that present a serious fire risk? How do we leap frog over these problems?

Supercapacitors could be the super batteries

Supercapacitors are different to batteries because they rely on physics to store and discharge electricity. They avoid the chemical problems but how “super” are they really. So far they have had a limited appeal because they have trouble achieving sufficient energy density. They charge up very quickly but equally they discharge very quickly due to their configuration and storage of energy along planes.

There is ongoing research that has recently been very successful in overcoming the problem of energy density limitations by dramatically expanding the surface area on which to store the ions. The scientists involved believe they have the game changing technology to make supercapacitor “batteries” much better that conventional chemical batteries. They will recharge in less than 10% of the time it takes to charge lithium-ion batteries. They will hold a much larger charge and have a much longer life on each charge. Rather than being suitable for 1,000 cycles they could easily last 10,000 or even 100,000 cycles because there is no chemical reaction that degrades the components. As there are no chemicals they are infinitely more environmentally friendly. They sound too good to be true, but what if this is a real possibility? While there is probably another 1-2 years of research needed before they can be commercially proven, there will be plenty of speculation along the way. It is that speculation that could provide very exciting share market profits ahead of delivery.

Impressive silver intercepts from Santana

We draw your attention to some very impressive RC drill results that Santana Minerals released last week. The first one was from surface to 52m, returning 127 gpt silver, with the last 23m of the hole recording 253 gpt. Another hole returned 6m at 194 gpt from a depth of 75m. These came from the Las Animas flexure on the northern portion of the Mojardina Loop, at the Cuitaboca silver project in Mexico. There isn’t space this week to say much more than these are great holes that further support the very positive outlook for this new silver company.

Lucapa receives a five year licence

We have all been waiting, some not so patiently, for the Angolan Government to renew Lucapa's Kimberlite Exploration Licence. It has finally come through (in time for Christmas) with a bonus. This Licence is for five years, not the usual two year period. Shareholders should be very pleased.

While the Company will deny it, saying it was always business as usual, any sensible person would say that there was no incentive for LOM to do anything more than necessary during the time it was waiting for the renewal. There was no incentive to accelerate any programs until such time as tenure was reconfirmed. Now that we have the Licence I would expect that we should see a better flow of positive news regarding the kimberlite exploration.

We have seen truly amazing alluvial diamond production from Lucapa but many investors want to see the source pipe. Even though it is obvious that the pipe is underneath existing workings the prudent geologists would like to see the confirmation with drill samples from depth. As these come through, now the licence has been renewed, we expect a re-rating of the stock.

There has been profit taking on coking coal stocks …

The coking coal price continues to hold above the US$300 pt price, having risen almost 300% this year. Most of the coking coal share prices have performed equally well, though there has been some profit taking. Of the stocks we chart Aspire Mining (AKM) has pulled back heavily from its high of 5.5¢, but it is still 500% higher than it was back in June. Atrum Coal (ATU) has fallen back almost 50% from its high of a few months ago but this would have more to do with the failure of a takeover offer to proceed and subsequent personnel changes. Bathurst Coal (BRL) has had a healthy 20% correction but it too is still 500% higher than its 2016 low. Stanmore Coal and Tiger Realm have each done something similar, still being up around 500%.

… but Pacific American Coal has been overlooked

The one major exception on the performance table is Pacific American Coal (PAK). Perhaps there is confusion regarding its direction, having made an investment in advanced nanocarbon (graphene) earlier in the year when coal looked like it was down for the count. PAK’s share price has not responded to the moves in coking coal prices notwithstanding a research note by respected coal analyst, Mike Harrowell, who declared that a fair share price was 30¢ (on a coking coal price of US$140 pt)) (available on the FEC website). Perhaps the current 1 for 8 entitlement issue at 10¢ has dampened demand. Whatever the reason, Far East Capital likes the story. It has underwritten the issue and the author owns 10% of the company. It would not be hard to see the share price kick 2-3x once this issue closes in another week.

Some of the PAK shareholders are there for the graphene as it is the only way to get exposure to Imagine Intelligent Materials Pty Ltd, a company that is progressing well with the commercialisation of graphene in geofabrics. Imagine expects to make its first revenue in Q1 2017. As exciting as Imagine is, PAK sees it more as a smart investment than a change of direction. It will seek to maximise the value of this investment but the greatest tangible asset for PAK at the moment is its Elko coking coal project in British Columbia. That is the reason why FEC made its foray onto the share register. That is the reason why we think the share price is grossly undervalued in the market place. It is a no brainer.

Sentiment Indicator: This week we have seen the stocks in downtrend increase while those in uptrend were steady. Thus sentiment softened. There were 24% (24%) of the charts in uptrend and 42% (39%) 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		**turned down at resistance**	
Metals and Mining	XMM		**pullback from high**	
Energy	XEJ		**strong week**	
Stocks	**Code**		**Trend Comment (updated comments in bold)**	**Main Interest**
ABM Resources	ABU		**strongly higher again**	gold
Aeon Metals	AML		breaching ST downtrend	copper + cobalt
Alacer Gold	AQG		down heavily	gold – production
Alkane Resources	ALK		**breached uptrend**	gold, zirconia
Acacia Resources	AJC		Sideways at the bottom	coal
Aguia Resources	AGR		down again	phosphate
Alicanto Minerals	AQI		down heavily	gold exploration
Alltech Chemicals	ATC		**breaching downtrend on higher volume**	industrial minerals
Anova Metals	AWV		holding uptrend	gold
Antipa Minerals	AZY		testing downtrend	gold
Archer Exploration	AXE		breached downtrend	magnesite, graphite
Argent Minerals	ARD		downtrend	polymetallic
Aspire Mining	AKM		**down**	coal
Atrum Coal	ATU		heavy pullback	coal
Aurelia Metals	AMI		**still down, gently**	gold + base metals
Auroch Minerals	AOU		breached downtrend with sharp rise	exploration
Aus Tin	ANW		sideways	tin, cobalt
Australian Bauxite	ABX		turned down at resistance	bauxite
Australian Vanadium	AVL		downtrend	vanadium
Avanco Resources	AVB		breached downtrend	copper
AWE	AWE		down again	oil and gas
Azure Minerals	AZS		downtrend	silver
BHP	BHP		**pullback from high**	diversified
Base Resources	BSE		rising	mineral sands
Bathurst Resources	BRL		strongly higher	coal
Beach Energy	BPT		steeply rise	oil and gas
Beadell Resources	BDR		lower	gold
Berkeley Resources	BKY		breached uptrend	uranium
Blackham Resources	BLK		heavy fall	gold
Broken Hill Prospect.	BPL		adjusted after Cobalt Blue distribution	minerals sands, cobalt
Buru Energy	BRU		testing downtrend	oil
Canyon Resources	CAY		testing downtrend	bauxite
Cardinal Resources	CDV		collapse	gold exploration
Carnegie Wave	CWE		**testing uptrend**	wave energy
Cassini Resources	CZI		**breached uptrend**	nickel/Cu expl.
Chalice Gold	CHN		**holding uptrend**	gold
Crusader Resources	CAS		new low	gold/iron ore
Dacian Gold	DCN		testing uptrend	gold exploration
Danakali	DNK		sideways	potash
De Grey	DEG		sideways	gold

Doray Minerals	DRM	down	gold
Duketon Mining	DKM	down	nickel
Eden Energy	EDE	sideways	carbon nanotubes in concrete
Energia Minerals	EMX	down	zinc
Evolution Mining	EVN	down	gold
Excelsior Gold	EXG	rallying	gold
Finders Resources	FND	strong uptrend	copper
First Australian	FAR	sideways to lower	oil/gas
First Graphite	FGR	testing ST resistance line	graphite
Fortescue Metals	FMG	new high	iron ore
Galaxy Resources	GXY	breaching downtrend	lithium
Galilee Energy	GLL	breached downtrend	oil and gas, CBM
Gascoyne Resources	GCY	breaching support	gold
Geopacific Res. Resources	GPR	down	copper/gold exp.
Global Geoscience	GSC	breached downtrend	lithium
Gold Road	GOR	breached downtrend	gold exploration
Goldphyre	GPH	short term down	potash,gold
Graphex Mining	GPX	downtrend	graphite
Herron Resources	HRR	breaching downtrend	zinc
Highfield Resources	HFR	breached downtrend	potash
Highlands Pacific	HIG	sideways around lows	copper, nickel
Hillgrove Resources	HGO	back in downtrend	copper
Hot Chilli	HCH	testing downtrend	copper
Iluka Resources	ILU	rallying	mineral sands
Image Resources	IMA	down	mineral sands
Independence	IGO	pullback	gold, nickel
Intrepid Mines	IAU	sideways - 7¢ capital return proposed	copper
Karoon Gas	KAR	heavy fall	gas
Kibaran Resources	KNL	breached support line	graphite
Kin Mining	KIN	breached uptrend	gold
Legend Mining	LEG	rising again	exploration
Lithium Australia	LIT	downtrend	lithium
Lucapa Diamond	LOM	recapturing uptrend	diamonds
Macphersons Res.	MRP	down	silver
Medusa Mining	MML	still in long term downtrend	gold
Metals of Africa	MTA	vertical rise	graphite
MetalsX	MLX	downtrend	tin, gold
Metro Mining	MMI	rising	bauxite
Mincor Resources	MCR	down	nickel
Mineral Deposits	MDL	downtrend breached	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	selldown	gold
Oceana Gold	OGC	down	gold
Oklo Resources	OKU	breached downtrend	gold expl.
Orecorp	ORR	down	gold development
Orinoco Gold	OGX	down	gold development
Orocobre	ORE	strongly higher	lithium
Oz Minerals	OZL	new high	copper
Paladin Energy	PDN	down again	uranium
Pacific American Coal	PAK	downtrend	coal, graphene
Pantoro	PNR	breached steepest uptrend	gold
Panoramic Res	PAN	rising	nickel
Paringa Resources	PNL	strong recovery	coal
Peel Mining	PEX	gentle uptrend	copper
Peninsula Energy	PEN	falling again	uranium
Perseus Mining	PRU	Uptrend	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		down	gold
Resolute Mining	RSG		breached support line	gold
Reward Minerals	RWD		strong rise	potash
Rex Minerals	RXM		back to lows	copper
RIO	RIO		still strong	diversified
RTG Mining	RTG		breached support line	copper/gold
Rum Jungle	RUM		sideways	quartz
Salt Lake Potash	SO4		steeply higher	potash
Saracen Minerals	SAR		down	gold
St Barbara	SBM		down	gold
Sandfire Resources	SFR		stronger	copper
Santana Minerals	SMI		down	silver
Santos	STO		breached downtrend	oil/gas
Sheffield Resources	SFX		down	mineral sands
Silver Lake Resources	SLR		breached downtrend	gold
Silver Mines	SVL		down	silver
Sino Gas & Energy	SEH		sideways to down	gas
Southern Gold	SAU		down	gold
Stanmore Coal	SMR		breached steep uptrend	coal
Sundance Energy	SEA		new uptrend confirmed	oil/gas
Syrah Resources	SYR		heavy fall	graphite
Talga Resources	TLG		sideways	graphene
Tanami Gold	TAM		breached uptrend	gold
Teranga Gold	TGZ		down heavily	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		downtrend	uranium
Troy Resources	TRY		secondary downtrend	gold
Tyranna Resources	TYX		testing uptrend	gold exploration
Vimy Resources	VMY		sideways through downtrend line	uranium
West African Resources	WAF		down	gold
Westwits	WWI		ST downtrend	gold exploration/development
Western Areas	WSA		up again	nickel
White Rock	WRM		breached downtrend	silver
Whitehaven Coal	WHC		heavy correction	coal
WPG Resources	WPG		sideways	gold
Wolf Minerals	WLF		continuing down	tungsten
Totals	24%	33	Uptrend	
	42%	59	Downtrend	
		140	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	23.6%	
Copper	14	10.0%	
Gold Exploration	11	7.9%	
Oil/Gas	9	6.4%	
Potash/Phosphate	7	5.0%	
Mineral Sands	7	5.0%	
Graphite	6	4.3%	
Zinc	5	3.6%	
Silver	6	4.3%	
Lithium	5	3.6%	
Nickel	5	3.6%	
Uranium	5	3.6%	
Coal	10	7.1%	
Tin	2	1.4%	
Bauxite	3	2.1%	
Iron Ore	1	0.7%	
Diamonds	2	1.4%	
Other	9		
Total	140		