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FAR EAST CAPITAL

The Mining Investment Experts

Weekly Commentary

3 August 2024 *Chart comments updated on Friday's close* Analyst : Warwick

First Graphene - continuing to make sound progress

It didn't take long to answer last week's question of whether or not the All Ords had peaked. The strong rise on Wednesday answered that question, initially. However, all that effort was wasted when the US markets started to have palpitations, with volatility, that is typical of markets trying to decide where to go next.

Headlines were talking about a correction in the markets after the weak performance on Friday night, based on fears of a recession. Fear and greed drive markets. At the moment, fear is the dominant emotion at the big end of town. At the bottom end … well, the dominant emotion is still depression. It is a pity that we can't use the NDIS debacle to receive payments for the mental illness that is weighing down on the minds of many of the punters.

First Graphene - where are we now?

Regular readers will be aware that I have been involved with First Graphene (FGR) as a shareholder and chairman for around 10 years now. That sounds like a long time, and it is, but it is not uncommon in the new technology space.

The share register has turned over a few times since the company first went into graphene, with the traders moving in and out while the longer-term investors have kept the faith. I mention the company from time to time, but today I will present an opinionated piece, coming from the view of a director and a shareholder, that puts the company's progress in perspective, as evidenced in the latest Quarterly.

June Qtly - progress on the cement application

FGR is continuing to emphasise the work being undertaken with Breedon Group plc, pursuant to a Joint Development and Commercialisation Agreement signed in Q2 2024. After having successfully completing two rounds of large-scale trials, with FGR's product achieving all of the requirements regarding improvements in strength, quality and reductions in carbon emissions, the test work has progressed to the next stage of determining the best way to introduce graphene into the cement manufacturing process. It is about efficiency of material handling at this point i.e. determining the lowest cost, most simple method of introducing graphene to the process.

This latest program irequires the use of three tonnes of the PureGRAPH-CEM® product, which has an optimised formulation specifically designed for use in cement grinding mills. This new grade of PureGRAPH® will also help meet emission reduction targets, with the product containing up to 50% less embodied CO_2 compared to other grades used in previous trials. These tests are scheduled for September.

Whilst FGR is confident that its product is the best, most efficient way of achieving the dual targets of strengthening concrete and reducing carbon emissions, we cannot say exactly when Breedon will push the button on large scale adoption, so we won't stick our neck out with any predictions.

Nevertheless, the world-wide cement industry is watching the testing progress very closely, waiting for the first company to take the plunge. Thereafter, there could be a rush to get involved. Then the issue will not be "*how long*", but "*how quickly can we ramp up production to satisfy demand*." It would be a good problem to have.

Growing levels of interest for other applications

At the moment FGR is delivering its graphene to about a dozen customers on a regular basis, with growing volumes. At the same time there are new customers in the pipeline across a range of applications that are still conducting trials. Sales to these will become apparent over the next 12 months but owing to commercial confidentiality insisted upon by these customers, there will be restrictions on what FGR is allowed to report publicly. Nevertheless, the financials will record any sales.

New projects embarked upon during the Quarter that involve further research include;

i) graphene enhanced resins for hydrogen storage tanks to reduce permeability and increase strength in composites to deliver the lighter weight storage vessels required. Already the tests are measuring permeability reduction of up to 48 times.

ii) graphene-based electrocatalysts for use in energy production and the generation of genuinely green hydrogen,

iii) inclusion of graphene in structural beams of modern eco-friendly housing to increasing fire-retardancy, strength, durability, thermal and acoustic performance.

Operational and cost improvements

As part of the drive to continually improve efficiency and reduce unit costs, whilst reducing the carbon costs of manufacturing, FGR has embarked on the following initiatives;

i) installation of a new Retsch mill. This has enabled a 67% more efficient milling process in the production of industrial-scale quantities of PureGRAPH®, with higher surface areas and consistent morphology compared to previous milling methods,

ii) utilisation of a grant received from the Australian Federal Government under the Manufacturing Modernisation Fund (MMF) to invest in a Micrea microwave. This technology rapidly speeds up drying times of wet graphene, requiring less energy to operate and reducing the labour involved, which ultimately reduces the unit production cost of PureGRAPH®,

iii) Phase 2 trials of Electrochemical Cell optimisation were conducted during the quarter, with initial key improvements including a 32% increase in overall

PureGRAPH® production rate and a 25% reduction in power consumption compared to Phase 1.

Add these advances with continual reduction in overheads and First Graphene comes across as the most competitive supplier of high quality graphene in the market place.

Consistent improvements in costs

There is nothing magical in being able to produce graphene, but making it suitable across a wide range of applications requires a deep understanding of the nano-engineering involved. Once graphene has been introduced for any particular purpose, there is an added layer of skill involved in maximising the efficiency and the quality of graphene, at any given price point.

FGR has consistently been able to improve the cost efficiency of its graphene manufacturing process, such that it can make graphene at much lower costs than would have been imagined 10 years ago. A frequent criticism by analysts was the graphene was too expensive. This was a motherhood statement that showed limited understanding at the time, because it was not balanced against the great efficiencies that came with graphene. Nevertheless, manufacturing costs have been significantly reduced by consistent improvements in the process. FGR has delivered what those analysts were requiring.

Any well-run business is not going to want to change a process without significant cost reasons for doing so. The addition of graphene must involve major, not minor cost reduction and improvements in performance. Testing for all potential customers involves getting the price point right. The ability to do so is a constant feature of FGR's business model.

The Bottom Line

Holding the attention of stock market punters for any length of time is an impossible task. As we have seen many thematics crash and burn in recent years we see consistent evidence of short-termism dominating the battlefield. Fortunes have been won and lost recently in graphite, lithium, rare earths and the general range of critical metals. The ability of the ASX-listed companies to make operational profits out of these commodities is still unknown, except for the obvious examples of one to two successful lithium companies. Most of the players will just wither on the vine while the punters look for other stories. Where does a long term survivor like First Graphene fit within this mindset?

The FGR share register is dominated by longer term thinkers rather than traders. You can see this in the low volatility and low turnover. The real question is whether the loyalty of these shareholders is well placed. I can imagine more than one of them asking "*are we there yet?"*

FGR released its quarterly report last week. Careful reading of this will show that there are many irons in the fire, along with one large, game changing opportunity - cement.

At the end of the day we are still waiting on Breedon to give the commercial go-ahead. While FGR believes it will come, it is impossible to give a date. In the meantime, rather than waiting for one momentous decision alone, we should be looking at the strong progress across a number of other applications that will be important contributors to profitability.

Some background on the graphene sector

When graphene first attracted considerable hype 10 to 15 years ago, it was hailed as the wonderful new, disruptive nanomaterial that could deliver amazing outcomes for many applications. That potential is gradually being realised but with more obstacles to commercialisation than what was first contemplated. The very disruptive nature of the material and its incredible efficiencies have meant that manufacturers of existing products and materials have been reluctant to facilitate its use for fear of redundancy. You might think that they should embrace the new technology to get a jump on their competitors, but that is not how established and secure businesses think. Innovation moves the goal posts and take people out of their comfort zones. Most fear change.

The typical approach of the early graphene companies was to identify an application that could be significantly enhanced with the addition of graphene. These applications would draw on the characteristics of strength, flexibility, conductivity and fire retardancy, to name just a few of the characteristics that graphene enhances. Graphene was able to make many applications and products much better but one of the problems for these companies was the ability to produce the graphene at scale and consistent quality, while at the same time trying to get a market foothold for the new product. Many companies ran out of steam when they couldn't maintain the enthusiasm in the equity markets, owing to the time it took to gain momentum and market penetration. The actual manufacturing of the graphene wasn't the major problem (though many processes are not commercially scaleable); it was about generating sales of the products than graphene went into.

FGR's The business model - scale and quality

At the time First Graphene identified that with so many companies doing their own thing, at very small scale, the considerations of volume and consistent quality were not being addressed. So, it developed a continuous, large volume process that could deliver repeatable high quality graphene that would overcome the issues with batch production faced by so many pioneers of graphene.

In recent years the effectiveness of this business model has been proven to be correct, with many other companies confessing that their graphene manufacturing processes have been troublesome. In many cases, its may make more sense for them to be supplied from FGR's Henderson facility.

With the transition of time FGR and its world leading team of chemists and engineers have dealt with many different qualities and types of graphene, as it has been providing bespoke specification across a wide range of materials enhanced with the introduction of graphene. The know-how that has been built up has further enhanced the company' s reputation and led to yet more enquiries and opportunities. There is no doubt in my mind that FGR continually demonstrates world leadership in the field of graphene.

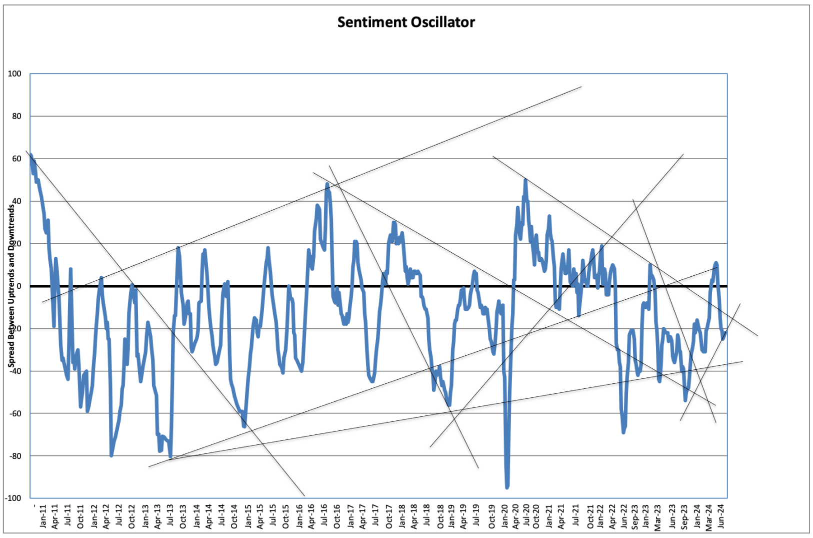
Disclosure: The author is a director of First Graphene and owns shares and options. l

Indian tariffs on gold and silver slashed

There were reports of the Indian Government slashing import tariffs from 15% to 6% last week. Depending upon when this takes effect, it could have a material effect on the attractiveness of gold to the Indian population.

Diggers and Dealers next week

The annual Diggers and Dealers Conference is on in Kalgoorlie next week. As usual, Far East Capital has a booth that acts as an office for a few days. It will be interesting to see what the mood is, and the level of mental health amongst the mining and exploration companies that will be in attendance.



Sentiment Oscillator:
Sentiment improved slightly. There were 26% (25%) of stocks in uptrend and 48% (49%) in downtrend at the close of the

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		new high then a pullback	
Metals and Mining	XMM		falling	
Energy	XEJ		still under long term downtrend line	
Information Technology	XIJ		off its highs	
Stocks	**Code**		**Trend Comment (updated comments in bold)**	**Main Interest**
5EA Advanced Materials	5EA		new low	boron
Advance Metals (was Pacific American)	AVM		back to lows	coal, gold exploration
Aguia Resources	AGR		new high	phosphate, gold
Alkane Resources	ALK		still down	gold
Alicanto Minerals	AQI		new low	base metals, silver, gold
Alligator Energy	AGE		down	uranium
Almonty Industries	AII		testing uptrend	tungsten
Alpha HPA	A4N		testing longer term uptrend	HPA
Altech Chemical	ATC		back in downtrend	HPA, anodes
Alto Metals	AME		surge higher on merger proposal	gold
American Rare Earths	ARR		consolidating	rare earths

Anax Metals	ANX		heavy slump	copper
Andean Silver	ASL		correcting lower	silver
Anteotech	ADO		sideways at lows	silicon anodes, biotech
Arafura Resources	ARU		pullback	rare earths
Ardea Resources	ARL		down	nickel
Arizona Lithium	AZL		strong rally	lithium
Astral Resources	AAR		new uptrend	gold
Averina	AEV		spike through downtrend,	phosphate
Aurora Energy Metals	1AE		down	uranium
Aurelia Metals	AMI		rising	copper + base metals
Australian Gold and Copper	AGC		still down	base metals, silver, gold
Australian Rare Earths	AR3		new low	rare earths
Australian Strategic Materials	ASM		heavy fall to new low	rare earths
BHP	BHP		heavy fall	diversified, iron ore
Barton Gold	BGD		falling	gold exploration
Beach Energy	BPT		down	oil and gas
Bellevue Gold	BGL		breached uptrend	gold
Besra Gold	BEZ		collapse on lifting of suspension	gold
Black Cat Syndicate	BC8		stronger	gold
Boab Metals	BML		down	silver/lead
Brazil Critical Minerals	BCM		down on placement	rare earths
Brazilian Rare Earths	BRE		down	rare earths
Brightstar Resources	BTR		uptrend	gold
Caravel Minerals	CVV		correcting lower	copper
Carnaby Resources	CNB		collapse on Scoping Study, testing support	copper
Castile Resources	CST		trying to hold support line	gold/copper/cobalt
Catalyst Metals	CYL		surge to new high	gold
Cazaly Resources	CAZ		rising	rare earths
Celsius Resources	CLA		stronger	copper
Cobalt Blue	COB		new low	cobalt
Cyprium Metals	CYM		heavy pullback	copper
Emerald Resources	EMR		rising, new high	gold
Empire Energy	EEG		new high	gas
EQ Resources	EQR		breaching downtrend	tungsten
Evolution Energy	EV1		collapse to a new low	graphite
Evolution Mining	EVN		rising	gold
First Graphene	FGR		down	graphene
Fortescue Metals	FMG		down	iron ore
Genesis Minerals	GMD		rising	gold
Globe Metals and Mining	GBE		steeply higher	niobium
Gold 50	G50		testing downtrend	gold exploration + gallium
Great Boulder Resources	GBR		new low	gold exploration
Group 6 Metals	G6M		rising again	tungsten
Hamelin Gold	HMG		stronger	gold exploration

Hastings Technology Metals	HAS		surge on placement to Chinese	rare earths
Heavy Minerals	HVY		bounced to test resistance line	garnet
Hillgrove Resources	HGO		lower	copper
Iluka Resources	ILU		down	mineral sands
ioneer (was Global Geoscience)	INR		breached uptrend	lithium
Ionic Rare Earths	IXR		down	rare earths
Jervois Mining	JVR		back to lows	nickel/cobalt
Jindalee Lithium	JLL		new low	lithium
Jupiter Mines	JSM		down	manganese
Kaiser Reef	KAU		improving	gold
Krakatoa Resources	KTA		back to lows	rare earths
Larvotto Resources	LRV		rising	gold, antimony
Lindian Resources	LIN		new low	rare earths + bauxite
Li-S Energy	LIS		sideways	Lithium sulphur battery technology
LCL Resources	LCL		new low	gold/nickel exploration
Lotus Resources	LOT		breached uptrend	uranium
Lucapa Diamond	LOM		new low	diamonds
Lunnon Metals	LM8		down	nickel
Lynas Corp.	LYC		rallied to meet resistance	rare earths
Marmota	MEU		rising	gold/uranium exploration
Mayur Resources	MRL		breached uptrend	renewables, cement
Meeka Gold	MEK		at lows	gold
MetalsX	MLX		rising	tin, nickel
Meteoric Resources	MEI		down	rare earths
Metro Mining	MMI		new high	bauxite
Midas Minerals	MM1		testing downtrend	lithium
Nagambie Resources	NAG		another new low	gold, antimony
Neometals	NMT		new low	lithium
Newfield Resources	NWF		down again	diamonds
Nexgen Energy	NXG		breached uptrend	uranium
Northern Star Res.	NST		testing downtrend	gold
Nova Minerals	NVA		down	gold exploration
Novo Resources	NVO		down	gold exploration
Pacific Gold	PGO		breached downtrend	gold exploration
Paladin Energy	PDN		down heavily on takeover bid	uranium
Pantoro	PNR		rising again	gold
Patriot Battery Metals	PMT		collapse to a new low	lithium
Peninsula Energy	PEN		gently lower	uranium
Perseus Mining	PRU		new high	gold
Provaris Energy	PV1		down	hydrogen
QMines	QML		new low	copper
Queensland Pacific Metals	QPM		new low	nickel/cobalt/HPA
RareX	REE		new low	phosphate, rare earths
Regis Resources	RRL		testing uptrend	gold

Renergen	RLT		down	gas, helium
Richmond Vanadium	RVT		heavy fall	vanadium
RIO	RIO		heavy slump	diversified, iron ore
RTG Mining	RTG		rising again	copper
Rumble Resources	RTR		new low	zinc exploration
S2 Resources	S2R		downtrend accelerating	gold exploration
Sandfire Resources	SFR		down	copper
Santos	STO		weaker	oil/gas
Sarytogan Graphite	SGA		down	graphite
Siren Gold	SNG		pullback	gold exploration
South Harz Potash	SHP		new low	potash
Southern Cross Gold	SXG		heavy slump breaching uptrend	gold exploration
Southern Palladium	SPD		rising again	PGMs
Stanmore Coal	SMR		testing downtrend	coal
Stellar Resources	SRZ		testing uptrend	tin
Summit Resources	SUM		heavy correction	niobium, rare earths
Suvo Strategic Minerals	SUV		sideways through uptrend	kaolin
Talga Resources	TLG		slump	graphite
Tamboran Resources	TBN		rising again	gas
Theta Gold Mines	TGM		rising again	gold
Thor Energy	THR		down	uranium
Torque Metals	TOR		back to lows	gold exploration + lithium
Vanadium Resources	VR8		new uptrend breached	vanadium
Venture Minerals	VMS		back to recent high	tin, tungsten
Vintage Energy	VEN		new low	gas
Voltaic Strategic Resources	VSR		at lows	REO + lithium
Vertex Minerals	VTX		breached downtrend	gold
Walkabout Resources	WKT		sideways	graphite
Warriedar Resources	WA8		uptrend	gold exploration
West Cobar	WC1		new low	rare earth + lithium
Westgold Resources	WGX		rising	gold
West Wits Mining	WWI		rising again	gold
Whitehaven Coal	WHC		testing uptrend	coal
Totals	26%	35	Uptrend	
	48%	64	Downtrend	
		134	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	26	19.4%	
Gold Exploration	15	11.2%	
Rare Earths	13	9.7%	
Copper	10	7.5%	
Uranium	7	5.2%	
Lithium	6	4.5%	
Oil/Gas	6	4.5%	
Nickel	5	3.7%	
Graphite/graphene	5	3.7%	
Iron Ore/Manganese	4	3.0%	
Potash/Phosphate	4	3.0%	
Coal	3	2.2%	
Tungsten	3	2.2%	
Tin	3	2.2%	
Silver	3	30.0%	
Diamonds	2	1.5%	
Niobium	2	1.5%	
Vanadium	2	20.0%	
Zinc/Lead	2	1.5%	
Mineral Sands	1	0.7%	
Bauxite	1	0.7%	
Cobalt	1	0.7%	
Other	10		
Total	134		

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