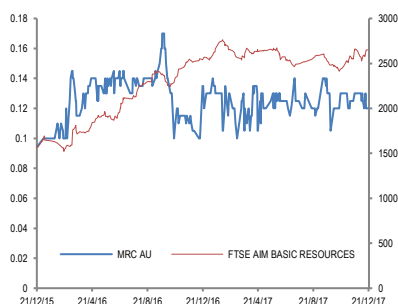


Speculative Buy

Ticker	MRC AU
Share Price (A\$¢)	0.12
Target Price (A\$¢)	0.20
Upside (%)	65%
12mth high/low (A\$¢)	0.09/0.15
Shares out (m)	414.9
Market Cap (A\$m)	49.8
Enterprise Value (A\$m)	45.7



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Munglinup to transform MRC

MRC recently (22 November) executed a joint-venture agreement, part of the binding term sheet signed between the company and Gold Terrace (unlisted company owned by international investors), which resulted in the acquisition of an initial 51% of the Munglinup graphite project in Western Australia. The structure of the binding agreement allows MRC to earn up to 100% of the project in subsequent tranches.

Munglinup, which is located in one of the most attractive mining jurisdictions worldwide (the highly prospective Albany-Fraser Range district in the southern part of Western Australia), is **one of the highest grade graphite deposits under development**.

The results of the scoping study, released at the end of November, indicate a robust project which represents a relatively low-capex and quick route to low-cost graphite production. The project comes with a mining lease which was granted in 2010 for a period of 21 years (2031), as well as viable logistics as it assumes that the concentrate will be transported by road and stockpiled at Esperance port (~105km). That, along with the high-grade nature of the deposit (no need for a sizeable plant), are the main reasons behind the low capex.

Our in-house comparison table (see p19) indicates that **Munglinup is the 2nd highest grade graphite development project worldwide** (with an average resource grade of 15.3%) and has the **4th lowest capital intensity**, at US\$650/tpa. Equally important, Munglinup when in production will be lower cost than ~60% of aggregate production under development or consideration. The low capex and low operating cost are partly due to the simple process flowsheet which does not involve any primary crushing or grinding as well as due to the fact that the mineralisation is hosted in relatively soft saprolite and does not require drilling and blasting.

Following the very positive results of the scoping study, MRC has already commenced the necessary metallurgical test work and drilling programme for a pre-feasibility study (PFS) which we expect to be published in Q1 2018. The PFS, on top of the drilling that will commence early next year, will also incorporate a maiden reserve estimate. We note that MRC is also considering the option to produce and sell spherical graphite (the feedstock for battery anodes). This will be assessed through preliminary test-work as part of the PFS.

We believe that the addition of Munglinup will transform MRC, partly due to the fact that it provides a well-needed geographic and commodity diversification, while equally importantly a successful development would provide cash flow after the end of the life of the Tormin mineral-sands operation in South Africa, MRC's existing cash-flow asset.

We have updated our valuation and target price (TP) mainly by incorporating the Munglinup graphite project into our model. **Our updated TP of A\$¢20.1 (see p14) offers ~65% upside to MRC's current share price and we thus retain our stance at SPECULATIVE BUY.**

Summary forecasts

Y/E-Dec		2015A	2016A	2017F	2018F
Revenue	US\$m	46.5	27.1	60.2	57.4
Costs	US\$m	26.4	13.4	35.4	36.5
EBITDA	US\$m	13.7	10.6	19.7	15.6
EPS	US¢/sh	2.6	0.9	2.1	1.5
Dividend yield	%	7.1	9.8	9.8	9.8

Source: Mirabaud Securities estimates

A\$1=US\$0.77

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Upcoming catalysts

Commencement of drilling	Q1 2018
Completion of the metallurgical test work	Q1 2018
Maiden reserve estimate	Q1 2018
Publication of the pre-feasibility study	Q1 2018
Publication of the feasibility study	Q2 2018
Marketing and potential offtake agreement	H2 2018
Munglinup's project finance	H2 2018
Munglinup's construction commission	H2 2018
First production from Munglinup	Q2 2019

Source: Mirabaud Securities

Munglinup's acquisition structure

MRC recently (22 November) executed the joint-venture agreement, as part of the binding term sheet signed (September 11) between the company and Gold Terrace (unlisted company owned by international investors), which resulted in the acquisition of an initial 51% of the Munglinup graphite project in Western Australia. The structure of the agreement allows MRC to earn up to 100% of the project in subsequent tranches.

For the initial 51% of the project the company has paid A\$3.2m in cash and has issued 10m new shares (which represents ~2.4% of MRC's enlarged share capital). Based on MRC's share price at that time, the initial 51% cost A\$4.5m which in turn implies a value for the entire project of ~A\$8.8m.

MRC can increase its holding to 90% by paying a further A\$0.8m in cash, issuing a further 30m new shares and completing a feasibility study within two years. This second tranche would take the acquisition cost for the 90% holding to A\$9.2m (or ~A\$11.5m when factoring in the cost of the feasibility study), which in turn would imply a value for 100% of the project at ~A\$10.2m (or slightly above A\$12.5m including our estimated cost of a feasibility study). The 10% retained by the vendor will be a participating interest, but the vendor will be able to require MRC to buy the interest for either 10m new shares (which values Munglinup at ~A\$13m assuming MRC's current share price) or a 1% gross royalty on all minerals produced from the project.

Scoping study returns robust results

Munglinup, which is located in one of the most attractive mining jurisdictions worldwide (the highly prospective Albany-Fraser Range district in the southern part of Western Australia), is one of the highest-grade deposits under development and will eventually become one of the lowest cost producers worldwide.

MRC recently published an internally-conducted scoping-level study, the results of which indicate a robust project which represents a relatively low-capex and quick route to low-cost graphite production.

A scoping-study by definition cannot include inferred resources, thus the study is based on the M&I component of the Munglinup's JORC-compliant resources only (3.6Mt at 15.3% for 555kt of contained graphite, see table on p10).

The results of the study show a low capex (~US\$36m), low operating cost (~US\$405/t FoB Esperance) and quick road to production of ~56ktpa of graphite concentrate for an initially estimated 9 year-life.

MRC can earn up to 100% of the project if the vendor requires MRC to buy its remaining 10% interest

Munglinup offers much-needed geographical and commodity diversification to MRC

On that basis the scoping study's plant throughput assumption of 400ktpa yields an IRR of 67% and NPV₈ of ~US\$115m (assuming an USD/AUD exchange rate of 1.3), at a base-case graphite price of US\$1,092/t FoB and a balanced flake distribution assumption.

MRC has also stress-tested the project at a range of graphite prices and flake distribution profiles. That has resulted in an IRR and NPV₈ range of 26-117% and A\$38-313m respectively (see table below). These ranges are based on a 10-year-low assumed graphite price of US\$675/t FoB and a conservative flake distribution assumption at one end; and a peer-company average graphite price assumption of US\$1,681/t FoB and an aggressive flake distribution scenario at the other.

Basket pricing matrix used in the Munmlinup scoping study

Basket price matrix (US\$/t FoB) and flake distribution estimations			
Graphite price / flake distribution	Conservative	Balanced	Aggressive
Low - 10 year pricing low	675	819	918
Mid - Cannacord LT average	912	1,092	1,218
High - peer company average	1,253	1,489	1,681

Source: Mineral Commodities scoping study

Indicative NPV and post-tax IRR ranges from the Munmlinup scoping study

Indicative NPV (US\$m) and IRR						
Graphite price / flake distribution	Conservative		Balanced		Aggressive	
	NPV	IRR	NPV	IRR	NPV	IRR
Low - 10 year pricing low	US\$29m	26%	US\$58m	41%	US\$80m	52%
Mid - Cannacord LT average	US\$77m	50%	US\$115m	67%	US\$141m	79%
High - peer company average	US\$146m	81%	US\$194m	100%	US\$236m	117%

Source: Mineral Commodities scoping study

A\$1=US\$0.77

Market price assumptions

Our long-term average graphite basket price of ~US\$1,500/t (CIF) is reduced by 20% in order to account for the transport cost to China as well as for the discount we believe the company will need to accept when selling its concentrate to China (vs. our assumed pricing in N.American and European markets). Although the scoping study indicates that Munmlinup's product could achieve a 94% LoM average concentrate grade, for our model we are assuming a more conservative 92% purity.

However, over the first few years we believe the company will need to accept a further discount in order to penetrate the Chinese market. We estimate that discount at a further 10% resulting in an entry price of ~US\$1,050/t (FoB Esperance) of graphite concentrate.

Market price assumptions

Flake distribution (µm)	Flake distribution (mesh)	% distribution	Mirabaud -purity 92%*	Mirabaud – purity 94%	Mirabaud – purity 99%
Jumbo (+300)	+50	26%	US\$2,329/t	US\$2,678/t	US\$6,248/t
Large (-300, +180)	50-80	24%	US\$1,300/t	US\$1,495/t	US\$5,217/t
Medium (-180, +150)	80-100	8%	US\$1,187/t	US\$1,365/t	US\$4,249/t
Fine (-150, +75)	100-200	20%	US\$1,165/t	US\$1,340/t	US\$3,809/t
Amorphous (-75)	-200	22%	US\$1,148/t	US\$1,320/t	US\$3,383/t
Average price for Munmlinup			US\$1,498/t	US\$1,723/t	US\$4,723/t
Discount 20% (transport cost and China discount)			US\$300/t	US\$345/t	US\$945/t
Discount 10% (market penetration discount)			US\$150/t	US\$172/t	US\$472/t
Mirabaud's assumed basket price			US\$1,049/t	US\$1,152/t	US\$3,253/t

Source: Mirabaud Securities estimates

*Our base case scenario assumes purity of 92%

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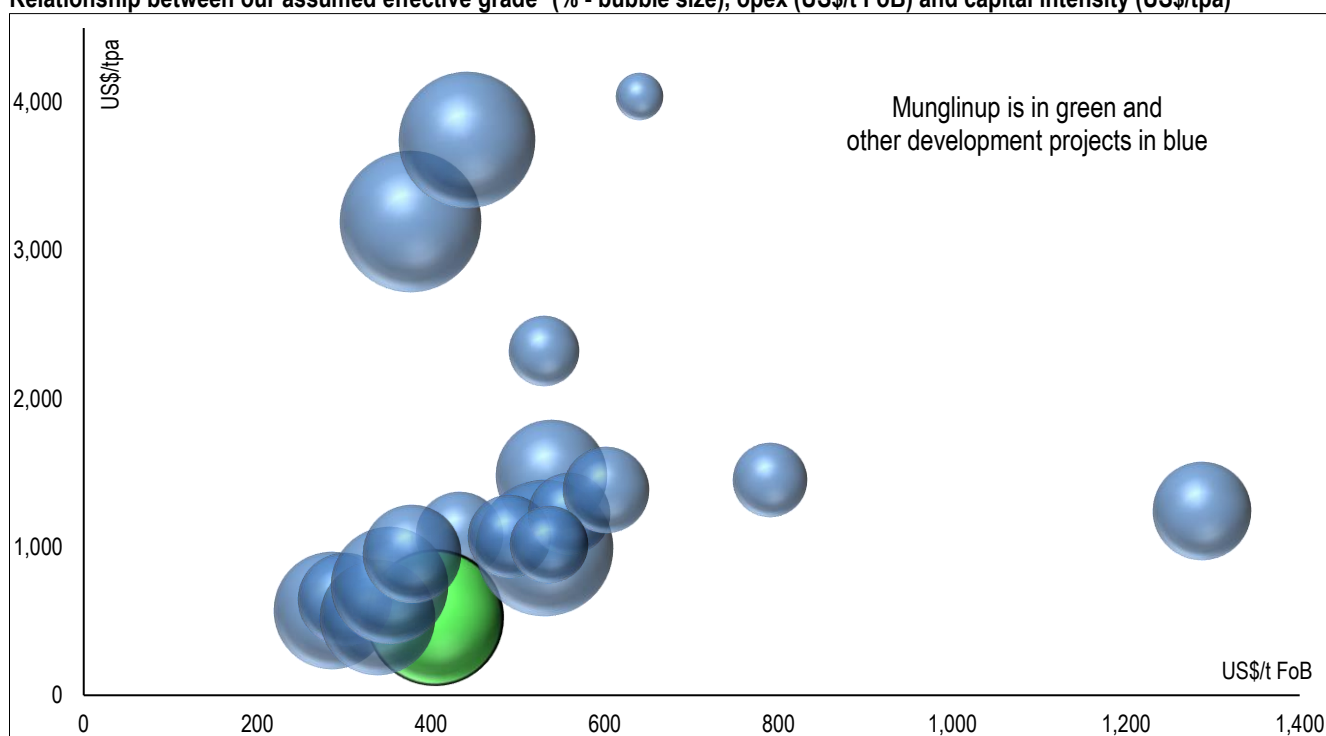
Munglinup stands out from the crowd

We have compiled a database of 22 graphite development projects worldwide, which show an average grade of 7.8% of total graphite contained (TCG), an average cash operating cost of ~US\$704/t and an estimated capital intensity average of US\$2,727/tpa (see graph below and table in p19).

Based on our table, **Munglinup is the 2nd highest grade graphite development project in our list** (with an average resource grade of 15.3%), behind only Mason Graphite’s Lac Gueret project in Canada, **and has the 4th lowest capital intensity**, at US\$650/tpa.

Equally important, in terms of operating cost, based on our graphite development projects’ list **Munglinup when in production will be lower cost than 60% of aggregate production under development or consideration** (7th lowest cash operating cost in our list – see p19). The low capex and low operating costs are due to the high grade nature of the deposit which allows for a smaller processing plant, due to the simple process flowsheet which does not involve any primary crushing or grinding as well as due to the fact that the mineralisation is hosted in relatively soft saprolite and does not require drilling and blasting.

Relationship between our assumed effective grade* (% - bubble size), opex (US\$/t FoB) and capital intensity (US\$/tpa)



Source: Mirabaud Securities

our effective grade assumption contains only the % of jumbo and large flakes for each deposit [TCG(jumbo + large flakes %)]

Assessing graphite projects

Flake size distribution and the purity of the final product are equally or even more important than the size and grade of a deposit

Ranking graphite projects is difficult mainly due to significant variations between different resource profiles. Although, resource tonnes and grade are important metrics to value a project, the overall picture is much more complex. That is due to the existence of other key factors, equally or even more important to the size and grade of a deposit, such as the flake size distribution, the project economics, the purity of the final product as well as the existence of off-take agreements.

An attractive graphite deposit will typically have larger flakes, as the larger the flakes the higher the natural purity. Higher purity and larger flake sizes in turn both command higher prices. Also, the higher the proportion of crystalline (flake) graphite versus amorphous graphite, the better, as the latter is more abundant and its applications are in lower value products.

The more complex the processing, by including further grinding and flotation in an effort to produce a product with higher natural purity, the lower the percentage of the larger flake sizes in the final concentrate and the higher the cost of production. The trade-off between a more costly higher purity level product (above the normal level of purity of 94-97%) and a higher percentage of larger flakes in the final concentrate is driven by the demand and the willingness of the end-user to pay a premium for a purer concentrate.

Munglinup, in our view, ticks most of the boxes of a top-quality deposit being very high grade, and having a very favourable flake-size distribution which serves a number of potential final products.

The project has received significant metallurgical test work from previous owners, including Gwalia Consolidated (in a 1991 feasibility study) and Graphite Australia (in 2011, including a bulk sample). Test work also shows that the graphite has excellent characteristics for expandability (important for high-value applications such as fire retardants and shaped products).

Analysis based on recent work, supported by the Gwalia data, shows a very good flake size distribution, including: ~35% jumbo and above (>300 microns), a further 24% classified as large flake (>180 microns), and 8% medium (>150 microns). The balance of 33% is classified as fine flake or amorphous.

Model assumptions

We are modelling Munglinup based on the project's scoping study. The project comprises five separate deposits (see figure on p6) with the majority of the production target (~73%) being focused at the Halberts Main deposit which contains all of the measured mineral resource and is scheduled to be mined first.

The study indicates that further drilling may prove that some of these deposits remain open at depth but, more importantly, they may continue along strike and might even join up. That could be the case with the Halberts Main and South deposits, where no infill drilling has been undertaken previously due to lack of funding.

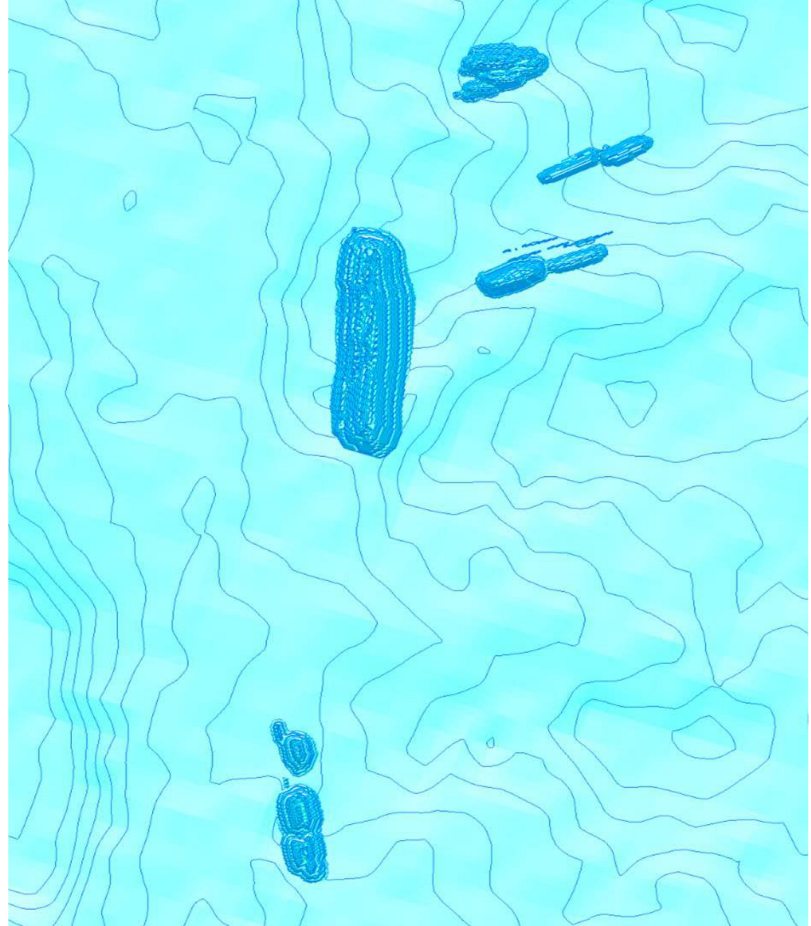
As the mineralisation is hosted in relatively soft saprolite it does not require drilling and blasting, while the simple process flowsheet does not involve any primary crushing or grinding.

The process plant design is based on proven technology. Weathered ore from the stockpile is fed into a drum scrubber to break down top size material, with the trommel's underflow screened at 1.0mm and then deslimed at 38µm to reduce flotation issues.

The deslimed product falls into the gravity circuit and subsequently to the rougher and cleaner flotation. Final graphite concentrate is dewatered by filtration and then

dried before being screened, bagged into 1t bags and finally trucked to the port of Esperance, which is located ~105km to the east and has container handling capabilities.

Contour plan showing proposed final pits



Source: Mineral Commodities

The study assumes a small open-pit operation with annual ore mined of 400ktpa when Munglinup runs at full scale. Our model adopts a relatively conservative ramp-up period of 3-months in the first year (2019 in our model). Thus, for 2019 we are forecasting throughput of 200kt which increases to our long-term throughput assumption of 400ktpa from 2020 onwards.

The above will result in graphite concentrate of ~28kt in the first year of production, increasing to our long-term production assumption of ~56ktpa, based on an average graphite grade of 16.5% and a stable recovery rate of 80% (comprising ~84% from the gravity and ~95% from the flotation circuit). Initial planning for MRC is to produce and sell a graphite concentrate, with an estimated graphite-in-concentrate grade of ~94%.

Our Munglinup's model assumptions and outputs based on the internally conducted scoping study and our graphite basket price assumptions are tabulated below. The scoping study has used inputs, among others, from graphite engineering consultants Battery Limits. The latter, in 2016, conducted a high level project study which assumed two scenarios of 200-325ktpa mining rate for the

production of 30ktpa and 50ktpa of graphite concentrate. These figures were increased proportionally by MRC to form its 400ktpa scoping study scenario.

Although the initial study was accepted in principal by Battery Limits, supplementary test-work in conjunction with a mining operations study would be required in order for the project to be further optimised.

Summary of Munглиnup's cash-flow modelling assumptions and outputs

Item	Unit	Mirabaud - assumptions	Scoping study
Scenario	ktpa	400	400
Mineable resource	Mt	2.6Mt	3,6Mt
Average strip ratio	Waste:ore	4.0:1.0	4.0:1.0
Life-of-mine	Years	7	9
Annual mill throughput LoM	Mt	0.4	0.4
Average graphite head grade (LoM average)	%	16.5	17.0
Recovery	%	80	81
Average annual graphite production	kt	50.8	52.7
Graphite concentrate production (LoM average)	kt	54.0	56.0
Long-term graphite price assumption	US\$/t	1,049	1,092
Royalties (including the 2% owned by the prior tenement holder)	%	9	9
On-site cash operating costs (LoM)	US\$/t	352	350
Total cash costs (LoM – CIF customers, incl. royalties)	US\$/t	406	405
Tax rate	%	30	30
Initial capex	A\$m	55	47
LoM cumulative sustaining capital cost	A\$m	8	8
LoM capex (incl sustaining capex)	A\$m	63	55
Post-tax NPV ₈	A\$m	81	150
Post-tax IRR	%	52%	67%
Payback period	years	1.8	1.7

Source: Mirabaud Securities estimates

*A\$1=US\$0.77

Project sensitivities

We have also created a series of sensitivity tables in order to estimate the potential impact of changes in a number of basic variables. The tables below illustrate Munглиnup's NPV sensitivity (400ktpa scenario) to a range of graphite prices, against the discount rate (1st table), and grade (2nd table).

Munглиnup's NPV* (US\$m) sensitivity to graphite price* and discount rate

	US\$600/t	US\$800/t	US\$1,000/t	US\$1,200/t	US\$1,400/t
12%	(10.7)	15.6	41.9	68.2	94.6
10%	(9.4)	19.3	48.0	76.7	105.5
8%	(7.9)	23.5	55.0	86.4	117.8
6%	(6.1)	28.4	62.9	97.4	131.9
4%	(4.0)	34.0	72.0	110.0	148.0

Source: Mirabaud Securities estimates

*our base case graphite basket price assumption is US\$1,049/t and grade is 16.5%

Munглиnup's NPV (US\$m) sensitivity to graphite price* and grade

	US\$600/t	US\$800/t	US\$1,000/t	US\$1,200/t	US\$1,400/t
20%	12.1	50.2	88.3	126.4	164.5
18%	0.7	35.0	69.2	103.5	137.8
16%	(10.8)	19.7	50.2	80.7	111.2
14%	(22.6)	4.5	31.1	57.8	84.5
12%	(39.0)	(10.8)	12.1	35.0	57.8
10%	(55.3)	(28.1)	(6.9)	12.1	31.1

Source: Mirabaud Securities estimates

*our base case graphite basket price assumption is US\$1,049/t and grade is 16.5%

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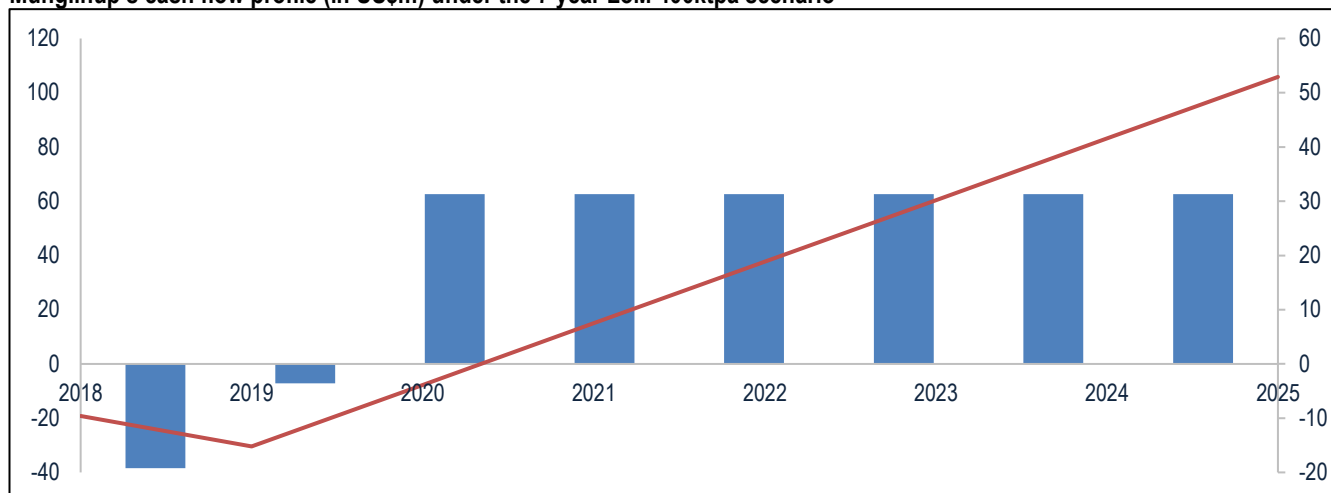
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Munglinup's cash flow profile (in US\$m) under the 7 year LoM 400ktpa scenario



Source: Mirabaud Securities estimates

Spherical graphite and other downstream processing is currently under consideration

Munglinup comes with a mining lease which expires in 2031

Next steps

We understand that the company would also consider the option to produce and sell spherical graphite and other downstream products such as graphene. That will be assessed through preliminary test-work and will be part of the PFS as Munglinup's final product would possibly require further purification.

Last week MRC reported the execution of a Memorandum of Understanding (MoU) with Doral Fused Materials to use its Western Australian-based plant (Perth) to test Munglinup's natural flake graphite for further downstream processing.

The MoU will allow MRC to utilise Doral's excess power supply, its environmental permit (to fast track the process) as well as its processing plant to determine the graphite's suitability for thermal purification (rather than the environmentally damaging acid process), spheronisation and coating of natural flake graphite for the production of a premium graphitic anode material with a potential graphite content of 99.95%.

We understand that the company will initially spherically process part of Munglinup's jumbo flakes (~35% based on Gwalia's data) to be used in battery applications. Thus we expect that 10-20% of the initial production may be downstream processed. We calculate that the coated, spheronised product could sell for more than US\$10,000/t and create margins of >50%.

The focus of the next stage lies with Munglinup's process flowsheet, product specifications and marketing. During 2018 MRC is also planning to establish a market for Munglinup's graphite concentrate along with off-take agreements.

The project comes with a mining lease which was granted in 2010 for a period of 21 years (2031). With regards to the environmental permit the company should submit a comprehensive mining proposal to the DMP/DMIRS for assessment (flora and fauna assessment has already been conducted in 2015). MRC advises that following the submission of the application, the department may need up to 2 months to award the environmental permit.

The project also comes with a viable logistics route as it assumes that the concentrate will be transported by road to the Esperance port (~105km). However, there are still some infrastructure requirements including the upgrading of the last

part (~5km) of the road to the mine. More colour on the infrastructure needs will be given in the next phase of study.

Following the very positive preliminary economic results of the scoping study, the company has already commenced the necessary metallurgical test work and drilling programme for a pre-feasibility study (PFS) which we expect to be published in H1 2018. The PFS, on top of the drilling that will commence early next year (samples will be used for met-tests and hydrogeology), will also incorporate a maiden reserve estimate.

Funding requirements

We calculate that MRC will need no more than US\$2.5m in total in order to finalise the FS and move to 90% ownership of the project as per the agreed earn-in terms. The terms also allow Gold Terrace to divest its remaining 10% (automatically takes MRC to 100%) by either the issuance of 10m new MRC shares or by granting a 1% royalty to the vendor.

Thereafter another ~US\$36m would be required to build Munmlinup. The FS, on top of the above-mentioned milestones, will also incorporate the environmental and mine approvals and permitting for the project as well as the marketing (off-take agreements) arrangements.

With its Tormin operation in South Africa cash positive, we estimate MRC has sufficient internal cash (cash on hand of A\$8.7m at end-September plus another A\$8.7m in trade receivables) to fund the cash elements of the acquisition up to 90% of the project and to cover the cost of the feasibility study. According to the amended garnet sales agreement with GMA we expect the company to receive revenue of ~US\$25m over the next 3 years (see p4).

Munmlinup: one of the highest-grade graphite projects worldwide

The resources reported on 11 September by MRC have been previously calculated by consultants AEMCO. The latter analysed historical data and drilling samples, and calculated (July 2016) M&I resources of 555kt of contained graphite (in 3.6Mt of resources at 15.3% total graphite using a 10% TGC cut-off).

However, we note that the inferred resources (~56% of the contained total) were not used for the purposes of the scoping study and thus offer excellent upside potential along with the fact that the deposit remains open along strike and at depth. We are currently conservatively modelling Munmlinup on 75% of its M&I resources only, we are assuming a 75% M&I resource-to-reserve conversion rate.

Initial capex requirements of ~US\$36m indicate that MMunmlinup

Mineral resources table

Area	Classification	Tonnes (kt)	Graphite grade (%TGC)	Contained graphite (kt)
Halberts Main	Measured	1,710	14.1%	241
	Indicated	1,367	15.3%	209
Halberts South	Indicated	179	21.7%	39
Harris	Indicated	65	20.7%	13
McCarthy East	Indicated	56	20.7%	12
McCarthy West	Indicated	249	16.4%	41
Sub total	Measured	1,710	14.1%	241
	Indicated	1,915	16.4%	314
Total		3,624	15.3%	555

Source: Mirabaud Securities

*Munmlinup mineral resource is estimated at 10% TGC cut off

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Munglinup flake graphite size distributions from historical testwork

Flake size distribution	Micron	Mesh	Nagrom testwork (Conservative)	Median (Balanced)	Gwalia FS (Aggressive)
Jumbo	+300	+48	10%	26%	35%
Large	+180, -300	+80	30%	24%	24%
Medium	+150, -180	+100	10%	8%	8%
Small	+75, -150	-100	25%	20%	16%
Fine	-75	-200	25%	22%	17%

Source: Mirabaud Securities

Tormin update

As we first highlighted in our report dated 29 April 2016, the natural replenishment of Tormin's heavy mineral sands (HMS) has been happening at a diminishing grade. We calculated that MRC has managed to mine >6.5Mt since 2014 when Tormin had only 2.7Mt of indicated resources. Since 2014 the company has managed to replace almost 4Mt of ore, though at a diminishing grade.

The latest resource estimate (Dec. 2016) of 1.8Mt at 28.08% of total HMS grade (comprising 1.65% zircon, 0.53% rutile, 6.15% ilmenite and 18.99% garnet), indicated that although grade has been maintained at ~28% for a second year in-a-row, resource replenishment is happening at a slower rate compared with the mining rate. Since then, MRC has mined and processed >1.5Mt of ore over the first three quarters of 2017 and we expect that this will exceed 2.0Mt at year end.

MRC has not yet published an updated resource estimate for its Tormin HMS operation for CY2017. However, based on the company's history of replenishing its mined resources, we believe that MRC will manage to replace the tonnes mined during 2017 but we are assuming a lower grade of ~25% (vs. 28.08% previously).

In order for MRC to expand its resource base and eventually extend Tormin's life, the acceptance by the DMR of the neighbouring prospecting rights applications has become vital. MRC is expecting the judgement on 4 prospecting applications (at the northern and southern limits of Tormin's existing mining lease, as well as adjacent and inland from the current mining operations – see picture on p11).

In case of a positive decision by DMR, these licences could potentially extend Tormin's life by 5 years (which is our conservatively-assumed life extension scenario) at a similar grade with that of Tormin's, while allowing sufficient time to the mined areas to recover and be replenished with higher grade material.

Our Tormin model assumes a life extension of 5 years up to 2023. However, due to the risk and uncertainty in the South African regulatory and permitting environment we are heavily discounting this life extension by 80% (we only give it 20% of its NPV value – see p13).

The company, in April 2017, also submitted an EMP102 amendment application which allows the company to increase its current mining footprint by an area equal to its existing granted mining rights. This would have provided an earlier access to the proposed northern beaches and inland strand areas (Geelwal Karoo Farm) but the application was declined by the DMR in December 2017.

The company is considering to lodge an appeal against the decision or even making a new application for an integrated Environmental Authorisation (EA) as the recent refusal of EA was issued without the submission of a full EIA and the reasons provided for the refusal are not entirely clear.

Tormin's life could potentially be extended by >5y if DMR accepts MRC's prospecting applications

In the meantime, a court on March 2017 ruled that the DMR is the competent authority that can rule on MRC's environmental and other issues according to the South African Government's One Environmental System (came into effect in Dec. 2014). Thus, neither the DEA nor the DEADP have any rights over MRC, while the applications that have been previously denied by DEA have now been transferred for approval by DMR.

Onshore and offshore permits



Source: Mineral Commodities

We value Tormin's stockpiled garnet and ilmenite at ~US\$24m in today's money

We note that Tormin has currently ~550kt of stockpiled garnet material which will be sold to GMA under the garnet concentrate off-take agreement modified earlier this year. ~480kt of the stockpiled garnet has been partly paid and remains stockpiled on GMA's behalf at the mine site. MRC expects to receive a further US\$70/t for this material following delivery to the port and ship loading. On top of that, there is another ~70kt of garnet stockpiled on-site for which the company will be paid in full. We calculate that for the above-mentioned stockpiled quantities MRC should expect more than US\$25m net to be received over a three-year period which increases to ~US\$29m when accounting for the stockpiled ilmenite. At an 8% discount rate, we calculate the value of MRC's stockpiled material at ~US\$24m (in today's money).

Western Australia exploration portfolio

MRC has recently (13 Dec.) announced that it has lodged six new exploration licences and entered into a JV in Western Australia, in-line with the company's commodity and geographic diversification strategy into tier 1 jurisdictions.

Four of the licences cover an area of 876km² of prospecting ground for hard-rock lithium (20-50km from the Wodgina lithium mine operated by Mineral Resources and Pilgangoora lithium-tantalite projects developed by Pilbara and Altura).

Regarding the other two exploration licences: the first has been lodged over a number of channel iron deposits (140km²) in the Ashburton Shire province (some of the deposits come with historical non-JORC resources and grades of up to 56% Fe) and the second (120km²) over the near surface copper anomalies of the Mooloogool project.

Finally, the company has entered into a farm-in agreement to earn up to 90% of the Doolgunna gold-copper prospect (60km²) for US\$40,000 (past expenditure) as

well as the exploration work (up to 8 exploration holes) over a period of 2 years. The vendors retain a 10% free carried interest which could be converted to 1% net smelter royalty (NSR).

Iranian business development strategy

MRC has recently (18 December) reported the signing of two agreements in Iran as well as its in-country exploration strategy. The company earlier this year reported the incorporation of an operational subsidiary company as well as the opening of a new office in Iran to pursue opportunities in the country. The subsidiary will be headed by Mr Bahman Rashidi (Iranian), who has >20 years of experience as a geologist with major Iranian state mining companies such as Rio Tinto and Normandy Mining.

MRC has already identified and inspected more than 31 prospective targets and has concluded the below joint-venture agreements (JV) some of which offer existing production in the precious metals sector.

MRC has entered into an agreement to acquire up to 73.5% in privately owned Tuzlar Gold Mining. MRC will initially acquire a 22.8% for US\$0.68m with an option to add an extra 50.7% for US\$2.53m following the completion of the exploration programme (total cost of US\$3.21m for 73.5% of Tuzlar).

Tuzlar, is an operating gold mine which has historically produced 2-3koz pa (at an average grade of 1.5-2.0g/t), was discovered by Anglo American 9 years ago and comes with a granted mining licence of 14km².

MRC's intention is to come up with a JORC-compliant resource estimate through a detailed exploration programme which is expected to cost ~US\$0.5m and will include surface sampling and mapping, geophysics (including IP), magnetic surveys and deep drilling of the central part of the licence area.

MRC has the right to earn up to 75% in a JV which in turn wholly owns the Asbkhan copper-gold project in northwestern Iran (this area hosts Iran's 2nd largest copper deposit, Sungun with 850Mt of resources at 0.67% Cu and 0.027% Mo).

In order to earn-in its 75%, MRC has to fund the phase 1 exploration which consists of surface sampling, geophysical surveys and follow-up reconnaissance core drilling and has an estimated budget of ~US\$0.5m.

MRC has also entered into a Memorandum of Understanding (MoU) with the Iran Minerals Production & Supply Company (IMPASCO – the policy maker for ferrous and non-ferrous mines) which provides for MRC to tender on advanced Au-Cu and brine/potash projects which IMPASCO is planning to commercialise.

Finally, the company has signed an MoU with Geological Survey of Iran (GSI) to access all data and information held by the GSI.

MRC's total exploration budget for Iran in 2018 is estimated at US\$2.4m and will be funded from Tormin's free cash flow.

On a regional scale, that part of Asia hosts a number of world-class deposits along the eastern Tethyan Metallogenic Belt (TMB). We note that the TMB, which extends from Europe through Anatolia to Iran, is one of the world's major metal producing belts mainly for gold-rich porphyry deposits.

Tuzlar gold project has historically produced 2-3koz pa at an average grade of 1.5-2.0g/t

Asbkhan copper-gold project is located in northwestern Iran, an area which hosts the country's second largest copper deposit

Iran is ranked the world's 15th most mineral rich country holding ~7% of the world's total minerals and proven reserves of metallic and non-metallic deposits estimated at ~55bt. Iran holds the world's largest zinc resources, the 9th largest copper resources and 10th largest iron ore resources.

The Iranian business development strategy gives access to world class mineral resources in an underexplored jurisdiction (due to the previously imposed sanctions) which offers significant growth of its mining industry. Producers in Iran will also benefit from the very low oil prices which in some cases could represent up to 30% of overall costs for a miner.

Iran offers a unique opportunity as it currently attempts to secure large investments into its underexplored and promising mining sector. The knowledge of local staff on one hand and the high potential of mineral deposits, their diversity and the absence of dense vegetation cover on the other hand, offer an attractive exploration opportunity.

In our view, MRC's relationship with local partners will play a key role in any potential deal as well as the development of any project as it could radically shorten the learning curve, allowing the company to reduce costs and avoid delays on a number of environmental, legal and other potential issues.

Xolobeni Update

MRC owns 56% of the Xolobeni project in Eastern Cape Province of South Africa. A 26% interest is held by its Black Economic Empowerment Partner and 18% by associated entities of MRC's executive management. The project consists of four granted and one pending prospecting rights issued under the Minerals and Petroleum Resources Development Act 2002.

The Xolobeni JORC-compliant M&I resource is estimated to be 346Mt at 5% HM. The deposit contains 9Mt of ilmenite and is the 10th largest mineral sands resource in the world. A mining study concluded that the Xolobeni mineral sand deposit is economically viable with a mine life of some 25 years.

The company currently has an application pending for a mining right. The application is in the final stages of the environmental Impact assessment. In September 2016, the minister for Mineral Resources placed a moratorium on any new permitting for the project for 18 months to assess independently competing stakeholder's views on the development of the project. The company is currently considering all options relating to its interest in the project, including divestment.

Valuation

We value MRC based on a sum-of-parts basis, incorporating an NPV estimate (calculated at an 8% real discount rate) and using our House commodity price assumptions (see p3 for graphite and p14 for mineral sands).

The DCF model is based on Tormin's assumed resource base (2Mt at 25% HMS grade) as well as the profits expected from the sale of the stockpiled garnet. We also give a 20% value on our prospecting rights application extension scenario (we apply a 80% discount). This scenario assumes that MRC will be awarded part or all of the prospecting rights licences. The reason for the heavy discount is the risk and uncertainty in the South African regulatory and permitting environment.

With regards to the newly acquired Munglinup graphite project, despite the fact that MRC currently owns only 51% of the project, we are valuing Munglinup on a 90% basis as we believe that the company will exercise its option to acquire the extra 39% from Gold Terrace following the completion of the PFS, through the issuing of 30m new shares and paying A\$0.8m in cash (incorporated in our valuation) as per the initial agreement.

We currently give no value to the company's Iranian prospective targets, the Xolobeni project as well as the early-stage exploration Western Australian assets MRC lodged last week.

Sum-of-parts valuation

	US\$m	A\$m
Tormin, NPV ₈ – our worst case scenario assumption	8.1	10.5
Tormin NPV ₈ – life extension scenario	38.5	49.8
Tormin NPV ₈ – 80% risk adjustment to the life extension scenario	-30.8	-39.8
Garnet stockpiles, NPV ₈	24.3	31.4
Munglinup, NPV ₈ – assuming MRC owns 90% of the project	56.3	72.7
Munglinup's risk adjustment – 50% risk adjustment (reduction)	-28.2	-36.4
Net cash position (as at end-September 2017)	4.1	5.4
Cash component of the Munglinup's 90% assumed acquisition	-3.0	-3.9
Total value	69.3	89.7
No of shares (m)*		414.9
Shares component of the Munglinup's 90% assumed acquisition		30.0
Total shares		444.9
Valuation (A\$/share)		20.12

Source: Mirabaud Securities estimates.

US\$1=A\$0.77

Our revised A\$0.20 per share TP (from A\$0.17/share previously) now offers ~65% upside to MRC's current share price, and we therefore retain our SPECULATIVE BUY recommendation.

Summary production and costs forecasts

		Q4-2017	FY2017	FY2018
Production & costs summary				
Tormin				
Tonnes mined	kt	500	2,072	2,080
Total HM grade	%	25.6	27.1	25.7
	Zircon	%	1.05	1.07
	Rutile	%	0.50	0.51
	Leucoxene	%	0.50	0.48
	Ilmenite	%	5.50	5.40
	Garnet	%	18.00	19.63
PBC throughput	kt	500	2,027	2,080
SCP feed	kt	291	922	812
Production				
Non-mag concentrate...of which:	kt	5.9	21.5	26.5
	Zircon	Kt	3.9	15.6
	Rutile	kt	1.4	4.6
Ilmenite concentrate	kt	50.9	248.2	142.6
Garnet concentrate	kt	183.4	495.1	324.8
Prices				
Zircon	US\$/DMTU	15.00	13.25	15.04
Rutile	US\$/DMTU	5.00	4.23	4.75
Ilmenite	US\$/t	100	97	120
Garnet	US\$/t	40	40	40
Costs				
Production cost	US\$/t*	7.1	7.3	7.4
Total cash costs	US\$/t*	19.8	20.0	20.1
Total operating costs	US\$/t*	22.7	22.8	23.0

Source: Mirabaud Securities estimates

*US\$/t of ore processed

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Summary production and financial forecasts

		2014A	2015A	2016A	2017F	2018F
Production and costs summary						
Tormin						
Tonnes mined	Mt	1,075	1,625	1,808	2,027	2,080
Total HM grade...of which:	%	53.83	49.57	45.96	27.08	25.20
	Zircon	4.76	3.88	2.78	1.07	1.20
	Rutile	0.65	0.60	0.62	0.51	0.50
	Ilmenite	17.26	16.15	12.97	5.40	5.50
	Garnet	31.16	28.94	29.21	19.63	18.00
	Leucosene	-	-	0.38	0.48	0.50
PBC throughput	kt	1,075	1,625	1,808	2,027	2,080
SCP feed	kt	556	598	659	922	812
Production						
Non-mag concentrate ...of which:	kt	42.7	44.5	35.8	21.5	26.5
	Zircon in concentrate	76.9	72.9	74.1	80.0	80.0
	Rutile in concentrate	8.9	13.4	13.3	13.0	13.0
Ilmenite concentrate	kt	100.4	110.0	211.7	247.7	142.6
Garnet concentrate	kt	254.9	285.0	270.8	495.1	324.8
Sales						
Non-mag	wkt	42.0	45.2	38.4	25.3	27.7
Garnet total	wkt	79.6	372.5	130.3	480.0	210.0
Garnet (stockpile)	wkt	-	292.5	130.3	240.0	-
Garnet (FoB)	wkt	-	80.0	-	240.0	210.0
Ilmenite	wkt	21.9	-	4.1	275.0	150.0
Profit & loss						
Total revenue	US\$m	35.0	46.5	27.1	60.2	57.4
Operating cost	US\$m	27.1	26.4	13.4	35.4	36.5
EBITDA	US\$m	4.4	13.7	10.6	19.7	15.6
Depreciation	US\$m	3.3	4.2	3.9	5.8	6.2
Interest & admin. expenses	US\$m	1.0	3.0	3.2	5.4	5.4
Profit before income tax	US\$m	4.0	12.9	6.6	13.5	9.3
Taxation	US\$m	4.4	2.4	2.8	4.2	2.8
Profit for the period	US\$m	8.4	10.6	3.8	9.4	6.5
Cash flow						
Cash flow from operations	US\$m	8.4	9.1	4.4	15.2	13.5
Cash flow from investments	US\$m	(5.4)	(6.1)	(6.9)	(4.0)	(2.0)
Cash flow from financing...of which	US\$m	(0.3)	(2.6)	1.1	(8.5)	(5.8)
<i>Dividends paid to shareholders</i>	US\$m	-	-	(2.9)	(5.3)	(4.0)
Net cash flow	US\$m	2.7	0.1	(1.3)	2.6	5.7
Year-end cash position	US\$m	4.2	4.2	2.9	5.7	11.4
Ratio analysis						
EPS	US¢/share	2.1	2.6	0.9	2.1	1.5
Dividend pay-out	US\$m	-	2.9	3.8	4.1	4.1
Dividend pay-out	US¢/share	-	0.72	0.93	0.93	0.93
Dividend yield	%	-	7.6	9.8	9.8	9.8
P/E	X	4.3	9.1	10.2	4.5	6.5
EV/EBITDA	X	6.4	3.0	3.9	2.1	2.6

Source: Mirabaud Securities estimates

A\$1=US\$0.77

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Flake graphite, as opposed to the more common amorphous graphite, has a crystalline structure which endows it with certain highly-valuable properties

The supply of natural (mined) flake graphite is variously estimated at 530-650kt in 2016, of which ~60% is produced in China

Supply of natural flake graphite has grown modestly, but that is set to change over the next ten years as growing demand from the battery sector encourages a number of new projects

Appendix A: Graphite market

Flake graphite, as opposed to the more common amorphous graphite, has a crystalline structure which endows it with certain properties, chiefly:

- high electrical conductivity (which makes graphite highly suitable as a battery anode);
- relatively lightweight compared with other materials with similar electrical properties (good for portable/automotive batteries);
- high thermal conductivity (further enhanced by its anisotropic nature, which means it conducts heat well in two directions but not in the third);
- expandability under heat (for use as a fire retardant, and without the environmental issues associated with the main alternatives); and
- insolubility/chemical inertness which, along with its high level of heat resistance, makes graphite suitable for use in high-performance gaskets and other seals.

Supply

The worldwide market for all types of graphite totalled just over 2.3Mt last year, of which about two thirds was synthetic graphite (made via the relatively expensive process of graphitisation of petroleum coke) and one-third natural graphite (~850kt).

Natural graphite supply comprises ~60% flake graphite and ~40% amorphous graphite, plus a very small amount of vein graphite produced in Sri Lanka. Amorphous lacks many of the properties found in flake graphite, and typically has a lower carbon content, and is mainly used for lower-value applications in the lubricant and friction-materials sectors. China accounts for around half of worldwide amorphous production.

The supply of natural (mined) flake graphite is variously estimated at 530-650kt in 2016, of which ~60% is produced in China. Other notable current sources of flake are Brazil (~20%) and India (~6%).

Chinese dominance of supply is important because government policy can have a major impact on supply. In recent years, a number of smaller mines have been consolidated, in particular those producing amorphous graphite, production of which is now almost entirely under state control. Consolidation is also under way in the flake sector in China, driven in part by environmental restrictions.

Supply of natural flake graphite has grown modestly (past ten years' CAGR of ~1.5%), but that is set to change over the next ten years as growing demand from the battery sector encourages a number of new projects.

Our own table of graphite development project (p19) show potential non-Chinese supply of 2.0Mtpa (of which 1.5Mtpa is in Africa). Of course, not all of these projects will go ahead, but it is essential for the health of the graphite-supply sector that many do proceed, as without them the fear of undersupply would derail the plans of many potential customers. We do not see that as a likely scenario, as the political momentum behind EVs is already so strong, but it is important to remember that graphite is not an exchange-traded, fungible commodity such as copper, but must be supplied via a stable, consistent industrial supply chain.

Relative tightness in the supply of flake graphite in China caused by environmental restrictions and some water shortages helped raise prices for large flake by around 20% in Q3 2017

Demand

Demand in the overall graphite market (normal and synthetic) is currently dominated (31%) by use in electrodes for steel-making (in electric arc furnaces). This end-use is supplied entirely from synthetic graphite. However, it has the power to influence prices for natural graphite as certain applications (notably batteries) use a combination of natural and synthetic. Thus increased demand from electrodes driving up synthetic prices can draw synthetic away from the battery sector, increasing demand and prices for natural flake.

After a long period of weakness, such a jump in the prices of carbon electrodes has occurred this year. Relative tightness in the supply of flake graphite in China caused by the above-mentioned environmental restrictions and some water shortages helped raise prices for large flake by around 20% in Q3 CY2017 (August), again after a long period of relative weakness.

Battery makers favour synthetic graphite due to its consistency and purity, both of which can be controlled by the synthetic graphite producer during the production process. However, the cost of production makes synthetic graphite relatively expensive, hence the growing use of natural graphite in the battery mix.

This competition between synthetic and natural graphite will be dictated in part by price, but also battery makers will favour sources of natural graphite that are reliable and consistent. This last property largely stems from having a supply drawn from the same mine(s), rather than buying material from a variety of sources as and when available on the spot market and blending it.

Other key uses of graphite include refractory bricks (19% of demand); as a recarburiser in steel-making (13% of demand); in foundry applications (7%), in lubricants (7%), and in shaped products (5%). Demand for graphite from the battery sector represents 7% currently, but is forecast to rise to 26% over the period 2016-26.

Since the formulation of these demand growth forecasts, developments that are likely to increase further the demand for graphite in batteries include:

- At the end of November, Toyota, the world's second largest car manufacturer, announced an overhauling of its corporate structure to speed up decision-making and enhance its R&D, mainly in response to the vehicle electrification that is currently taking place.
- In September 2017, Volkswagen, the world's largest car manufacturer, announced plans to offer electric versions of all 300 models across the 12 brands that the group owns by 2030. VW said battery procurement will require the equivalent of four 'giga-factories' by 2025, at which point the group plans to have 50 EV models and 30 hybrids across its range (*Source: Bloomberg*).
- In late July 2017, the UK Government announced plans to ban new cars with petrol or diesel engines by 2040 (*Source: BBC*).
- In early July 2017 the French Government announced plans to ban the sale of cars with petrol or diesel engines by 2040 (*Source: BBC*).
- In early July 2017, Volvo announced all of its cars will be either EVs or hybrids from 2019 (*Source: Financial Times*).

Although currently a relatively modest part (7%) of the overall graphite market, battery demand represents ~20% of the market for natural flake graphite. That proportion is set to grow, driven mainly by demand from the so-called giga-factories planned to supply growth in EVs.

Mineral Commodities



Company	Project	Country	Listing	Stage	Mkt Cap**	Net cash	Resource contained	Grade	Super jumbo flake*	Large flake*	Effective grade*	Basket price†#	Cash opex (FoB)#	Profit margin	Capex	Capital intensity	Prod#	Annual EBITDA#	EV/ EBITDA
					US\$m	US\$m	Mt Cg	% Cg	>32mesh	>50mesh	% Cg	US\$/t	US\$/t	%	US\$m	US\$/tpa	ktpa	US\$m	x
Syrah Resources	Balama	Mozambique	ASX	Construct	984.2	-121.2	128.50	11.0%	8%	12%	2.2%	850	286	66%	200	571	350	197	4.4
Mason Graphite	Lac Gueret	Canada	TSX	Feasibility	252.2	-44.1	9.48	16.3%	14%	13%	4.4%	1465	376	74%	166	3197	52	57	3.7
Nextsource Materials	Molo	Madagascar	TSX	Feasibility	25.2	-1.4	141.30	6.1%	38%	8%	2.8%	1014	433	57%	18	1082	17	10	2.4
Lincoln Minerals	Kookaburra Gully	Australia	ASX	Feasibility	16.0	-0.9	2.03	15.2%	0%	4%	0.5%	735	550	25%	34	999	34	6	2.4
Mineral Commodities	Munglinup	Australia	ASX	Resource	39.8	-1.0	0.56	15.3%	35%	24%	9.0%	1092	405	63%	36	650	56	38	1.1
Northern Graphite	Bissett Creek	Canada	TSX	Feasibility	22.5	-3.4	1.20	1.7%	60%	34%	1.6%	1700	640	62%	84	4038	21	22	0.9
Sovereign Metals	Malingunde	Malawi	ASX	Scoping	23.6	-1.2	28.80	7.1%	28%	24%	3.7%	900	301	67%	29	644	45	27	0.8
Kibaran Resources	Epanko	Tanzania	ASX	BFS	28.4	-1.1	3.05	10.0%	20%	31%	5.2%	1181	539	54%	89	1482	60	39	0.7
Nouveau Monde	Matawinie	Canada	TSX	PEA	46.9	-11.0	1.49	4.5%	17%	32%	2.2%	1429	408	71%	136	2617	52	53	0.7
Graphex Mining	Chilalo	Tanzania	ASX	PFS	18.4	-1.9	2.99	5.6%	26%	23%	2.7%	1217	490	60%	74	1072	69	50	0.7
Magnis Resources	Nachu Graphite	Tanzania	ASX	BFS	197.0	-4.4	9.40	5.4%	41%	32%	3.9%	2350	559	76%	269	1223	220	394	0.5
Battery Minerals	Montepuez+PSG	Mozambique	ASX	DFS/PFS	41.4	-17.0	8.20	7.7%	9%	22%	2.4%	1741	1288	26%	174	1243	140	64	0.4
Triton Minerals	Nicanda Hill	Mozambique	ASX	PFS	53.6	-2.3	155.90	10.7%	7%	16%	2.5%	985	338	66%	110	524	210	136	0.4
<i>company data includes</i>	Ancuabe	Mozambique	-	Scoping	53.6	-2.3	3.04	6.6%	34%	21%	3.6%	1435	677	53%	99	1657	60	45	0.4
Focus Graphite	Lac Knife	Canada	TSX	Feasibility	21.6	-1.8	2.14	15.0%	11%	22%	5.0%	1713	441	74%	166	3747	44	56	0.4
Walkabout Resources	Lindi Jumbo	Tanzania	ASX	DFS	20.8	-9.0	3.26	11.0%	45%	25%	7.7%	1564	352	77%	30	743	40	48	0.3
Hexagon Resources	Mcintosh	Australia	ASX	PFS	23.1	-1.6	0.96	4.5%	2%	18%	0.9%	1565	790	50%	119	1451	82	64	0.3
Alabama Graphite	Coosa	US	TSX	PEA	9.0	-1.0	3.91	2.5%	12%	8%	0.5%	9000	1555	83%	43	8727	5	37	0.2
Zenyatta	Albany	Canada	TSX	PEA	32.9	-1.1	1.41	3.5%	-	-	-	7500	2046	73%	412	13722	30	164	0.2
Black Rock Mining	Mahenge	Tanzania	ASX	PFS	16.8	-0.7	15.83	7.8%	19%	35%	4.2%	1241	378	70%	159	952	167	144	0.1
Graphite One Res	Graphite Creek	US	TSX-V	PEA	15.2	-0.7	5.70	7.0%	0%	19%	1.3%	5054	1774	65%	363	6558	55	182	0.1
Volt Resources	Namangale	Tanzania	ASX	PFS	21.7	-6.3	22.59	4.9%	30%	30%	2.9%	1684	536	68%	173	1018	170	195	0.1
Average					91.6	-11.2	26.25	7.8%	21%	21%	3.0%	2206	703	63%	140	2727	92	95	0.9
Median					23.6	-1.9	3.91	7.0%	18%	22%	2.8%	1465	536	66%	119	1243	55	56	0.4

Source: Mirabaud Securities, company data

*Munglinup has the highest effective grade when accounting only for the jumbo and large flake size material: (15.3% * (35%+24%)) = 9%

**Market capitalisation at 9/12/2017

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RECOMMENDATIONS HISTORY

Mineral Commodities

Market index	FTSE AIM Basic Resources			
Date	Market Index	Stock Price (p)	Valuation (p)	Opinion
31-Jan-2013	3,675	0.11	0.20	Speculative Buy
5-Nov-2013	3,381	0.14	0.19	Speculative Buy
2-Sept-2015	1,960	0.13	0.18	Speculative Buy
29-Apr-2016	1,925	0.14	0.17	Speculative Buy
20-Dec-2017	2,653	0.12	0.20	Speculative Buy

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- BUY:** The stock is expected to generate absolute positive price performance of over 100% during the next 12 months.
- HOLD:** The stock is expected to generate absolute price performance of between 10% positive and 10% negative during the next 12 months.
- SELL:** The stock is expected to generate absolute negative price performance of over 10% during the next 12 months.
- RISK QUALIFIER:** Speculative: Stocks bear significantly higher risk that typically cannot be valued by normal fundamental criteria. Investments in the stock may result in material loss.

The ratings are applicable to all research produced after 1st January 2016.

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