



MINERAL COMMODITIES

BUY

Beyond the horizon...leveraging cash-flow for growth

Ticker	MRC AU
Share Price (A\$¢)	24
Target Price (A\$¢)	47
Upside (%)	95%
12mth high/low (A\$¢)	13.0/32.0
Shares out (m)	422.2
Market Cap (A\$m)	101.3
Enterprise Value (A\$m)	100.8

MRC is a diversified mining company with two producing assets, the Tormin mineral sands operation in South Africa and the Skaland graphite mine in Norway, plus the advanced Munglinup graphite project in Australia. MRC combines steady cash-flow from an established commodity sector with the upside growth from supplying the electric revolution. The portfolio includes one of the highest-grade mineral sands operations as well as two of the highest-grade graphite projects worldwide. Our updated Target Price (TP) of A\$47 (see p3) offers ~95% upside to MRC's current share price and we thus retain our stance at BUY.

Summary forecasts*

End-Dec		2018A	2019A	2020F	2021F	2022F	2023F
Total revenue	US\$m	55.4	61.8	51.0	65.4	134.0	145.0
EBITDA	US\$m	14.7	16.5	8.4	18.6	48.1	56.2
EPS	US¢/share	2.1	1.9	0.6	2.2	6.1	7.4
Dividend yield	%	5.4%	2.5%	2.9%	5.4%	5.4%	5.4%
ROE	%	20.1%	17.8%	5.7%	18.8%	41.5%	36.0%
P/E	X	7.8	8.8	27.3	7.6	2.7	2.2
EV/EBITDA	X	4.7	4.2	8.2	3.7	1.4	1.2

Source: Mirabaud Securities estimates

*assuming Munglinup will be developed in 2021

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- **Tormin's licence** expansion application, expected imminently, will be a game-changer as it **will extend Tormin's life by >10y** while **boosting Tormin's revenues by more than 30% from 2022**.
- **Skaland**, MRC's second cash-generating asset, is the **largest flake-graphite producer in Europe** and one of the world's highest-grade operating flake-graphite mines (resource grade: ~22%).
- Tormin, along with Skaland, will support development of **Munglinup**, which comes with a robust DFS, projecting **EBITDA of A\$45m pa**, post-tax **NPV of A\$160m** and an **IRR of 30%**.
- MRC should see its profitability boosted in the coming years, with **EBITDA rising by ~200% by 2022**, driven by the Tormin expansion as well as first production from Munglinup.
- MRC's management has a strong track record operating Tormin very effectively for 7 years, having mined ~4.5x Tormin's initial resource, while **having paid back ~A\$22m in dividends** (~22% of current market cap. – the stock **yields** an average of ~5.5% annually).



Source: Mineral Commodities

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VALUATION

We value MRC on a sum-of-parts basis, incorporating NPVs of the key assets (calculated at an 8% real discount rate) and using our House commodity price assumptions. **This results in a Target Price of A\$47 per share, offering ~95% upside to the current share price, and we therefore retain our BUY recommendation.**

The main change in our sum-of-parts valuation since our previous valuation is the potential significant expansion of Tormin's life with the addition of the two expected new mining permits, covering the adjoining Northern Beaches and the Inland Strand deposits.

We have included the recently acquired 90%-owned of Skaland mine, which we value on a DCF basis, but only on its current resources (we conservatively assume no resource replenishment as mining progresses). Our model assumes a total potential mineable inventory of ~0.84Mt resulting in a life-of-mine of ~16 years (see p11). Clearly, any resource additions would potentially extend mine life.

Regarding Munglinup, despite the fact that MRC will soon own 90% of the project (we are assuming MRC will exercise its right to increase its JV interest to 90% by issuing 30m new shares and paying A\$0.8m to the project's vendor), we are valuing Munglinup on a 100% basis as we believe that MRC will also acquire the balance of 10% (see p17) from Gold Terrace, through the issuing of a 1% royalty as per the initial agreement. We have updated our model to incorporate the DFS results and we have relaxed our risk discount from 50% to 40% as MRC has significantly de-risked the project since our previous valuation via the completion of a DFS.

The positive impact from Tormin's life increase and Munglinup's development has been further enhanced by the weakening of the A\$ (by ~10% to US\$0.69 vs. US\$0.77 previously) which we use to translate our US\$ estimates to A\$/sh values.

Sum-of-parts valuation

	US\$m	A\$/share
Tormin, NPV ₈	113.8	36.7
Munglinup, NPV ₈ – assuming MRC owns 100% of the project	86.0	27.8
Munglinup's risk adjustment – 40% risk adjustment (reduction)	-34.4	-11.1
Skaland mine, NPV ₈	13.3	4.3
Net cash position (as at end-Dec 2019)	0.4	0.1
NPV _{8%} real. Of corporate-level costs	-34.1	-11.0
Total value	144.9	
No of shares (m)*	452.2	
Valuation (A\$/share)		46.8

Source: Mirabaud Securities estimates

A\$=US\$0.69

*we are including the 30m new shares MRC will issue to Gold Terrace to increase its Munglinup interest to 90%

Our revised A\$47 per share TP (from A\$0.20/share previously) now offers ~95% upside to MRC's current share price, and we therefore retain our BUY recommendation.

Upcoming catalysts

Tormin's S102 mining right expansion application to be granted	Q3 CY2020
Maiden resource estimate from Tormin's new permit - Inland Strand	H2 CY2020
Tormin: primary concentrator throughput increase – Phase 2	End-CY2021
Skaland: mine optimisation – production increase	CY2022
First production from Munglinup	CY2022

Source: Mirabaud Securities

NEW LICENCES WILL SIGNIFICANTLY EXTEND TORMIN'S LIFE

MRC has managed to massively de-risk Tormin over the last few years by renewing Tormin's current beach mining rights for a further 10 years, followed by the granting of two prospecting rights adjacent to Tormin (the Northern Beach mining areas and the Inland Strand deposits), which come with a newly granted Integrated Environmental Authorisation (IEA). Assuming the Section 102 expanded mining right application is approved as expected, the new permits could more than double Tormin's current mining footprint (see picture below).

MRC has also managed to continue replenishing resources at the existing beach mining area, while it has recently published a maiden resource estimate from one of the newly granted rights (the Northern Beach mining areas). We expect a maiden resource estimate from the Inland Strand deposits in the near future.

Tormin's current beach resource update

The updated inferred JORC resource estimate (as at end-2019) of 2.40Mt of ore at an average grade of 8.68% THM (total heavy minerals - comprising 0.25% zircon, 0.10% rutile, 1.03% ilmenite and 6.7% garnet), is ~6% higher in tonnage compares with the 2018 resource estimate of 2.27Mt at 14.16% THM and indicates that the company has managed to replenish more than the 2019 mined volume (2.51Mt at 11.21% - see table on p6).

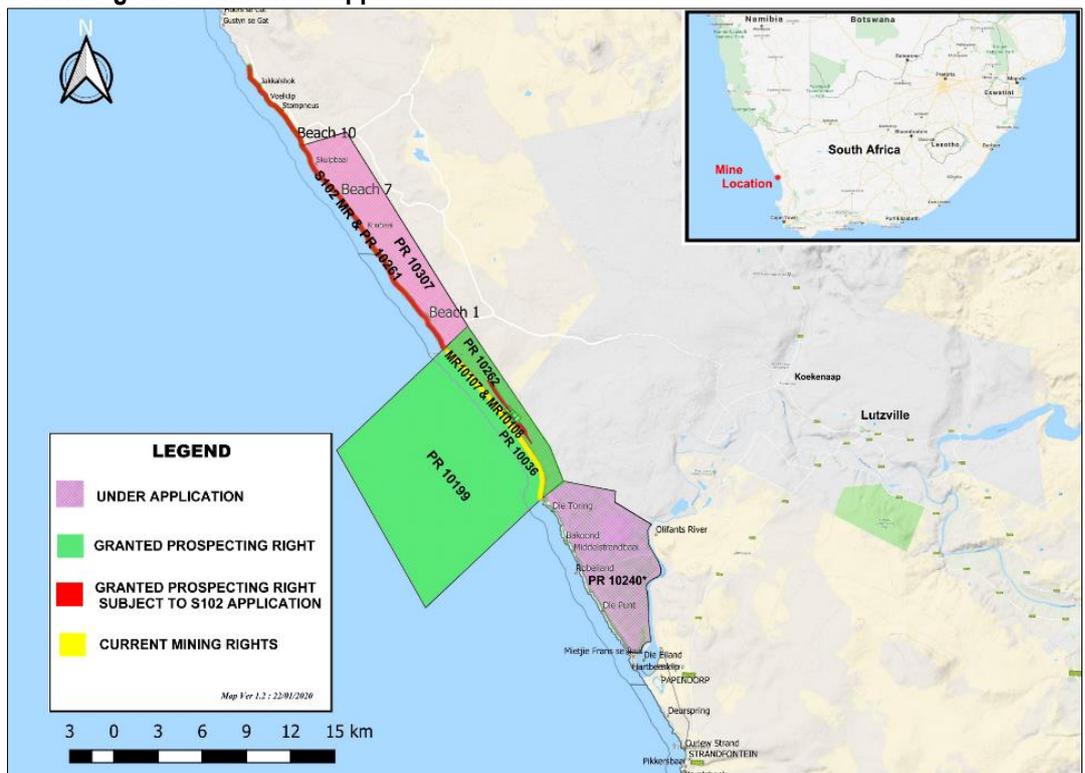
MRC has operated Tormin since late-2013 and over the past six years has managed to replenish most of the mined volume (~11.7Mt). **That is ~4.5x MRC's initial 2013 indicated resource estimate of 2.7Mt.**

Mining is taking place via small open-pits where material is extracted from surface to bedrock, thus the stripping ratio is minimal. The pits are then naturally replenished as they are filled with HMS material from the surf zone during high tides. As a result, MRC has managed to mine each mining block several times.

Although tonnage replenishment occurs at a continuous pace at Tormin, it is happening at a diminishing THM grade. That is due to the fact that although the mined areas are replenished relatively quickly, it takes time for the wave action to enrich the heavy mineral content to the grades encountered prior to first mining.

Despite that, Tormin, with an average grade of 16.3% (see resources table on p7), remains among the highest-grade mineral sands deposits in the world, with ~4x the average grade of our list of main producers (see table on p5).

Tormin's granted and under application tenements



Source: Mineral Commodities

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Mineral sand producers' resources and reserves

Producer	Resources (Mt)	HM resource grade	Reserves (Mt)	HM reserve grade
Iluka Resources	3,052.0	5.8%	503.0	3.3%
Kenmare Resources	7,955.0	3.0%	1,584.0	3.3%
Base Resources	1,578.0	4.6%	62.0	3.8%
Astron*	5,712.0	3.2%	-	-
MRC	4,91	16.3%	-	-
Average (excl. MRC)		4.2%		3.5%

Source: Mirabaud Securities

*Astron reserves are reported as at April 2016

Maiden resources from Northern Beaches

On January 29, MRC reported the granting of two additional prospecting rights and immediately commenced exploration, focusing on a 7km reverse-circulation (RC) and sonic resource-definition drilling programme, targeting a JORC-compliant resource estimate.

The two permits comprise the Northern Beach mining areas, directly north of and adjoining Tormin (10261) and the Inland Strand deposits (10262), with a total area of 2,139ha (~35km in length). The 'Northern Beaches' comprise ten beaches with a total length of 23.5km which cover an area of 398ha (see photo on p4), while the Inland Strand is a 12km long area covering 1,741ha immediately adjacent to the existing mining operations.

A JORC-compliant maiden resource estimate for the Northern Beaches was published in early-May at 2.51Mt at an average grade of 23.5% THM (total heavy minerals – comprising 0.89% zircon, 0.25% rutile, 2.1% ilmenite and 11.62% garnet) at a 2% cut-off grade (see MRC's resource table in p7).

That more than doubles Tormin's mineral sands resource base (from 2.4Mt to 4.91Mt) at a much higher grade and at a higher level of confidence, as the vast majority (98%) of the Northern Beaches' maiden resource is classified in the measured (71%) and indicated (27%) categories vs. the existing inferred resources of the current beach.

The Northern Beaches are part of the same active beach environment as the existing Tormin beaches, where the HM (heavy minerals) in the beach are constantly replenished by the transport of new sediment from deeper waters.

The Northern Beaches prospecting right (under application for a mining right) comprises 10 beaches, with the maiden resource sourced from only three of those (beaches 5, 7 and 10 – see picture on p5). Exploration on the remainder of the Northern Beaches tenement will commence in Q3 2020 targeting an ore reserve estimate for later this year.

At the end of March, MRC reported the granting of an Integrated Environmental Authorisation (IEA) which refers to the S102 mining right expansion application and includes the vast majority of the above mentioned areas.

The company is now expecting the DMR to finalise the S102 application, allowing MRC to extend Tormin's life by >10 years. The S102 expanded mining right, when granted, will not only significantly extend Tormin's life, but will also allow sufficient time for the mined areas to recover and be replenished with higher-grade material.

The company advises that, following the anticipated granting of its S102 application to mine the new areas, the mining sequence at Tormin will be adjusted to allow more replenishment time and thus maintain higher grades for longer periods, as the Current Beaches and the Northern Beaches will then be mined sequentially year-on, year-off.

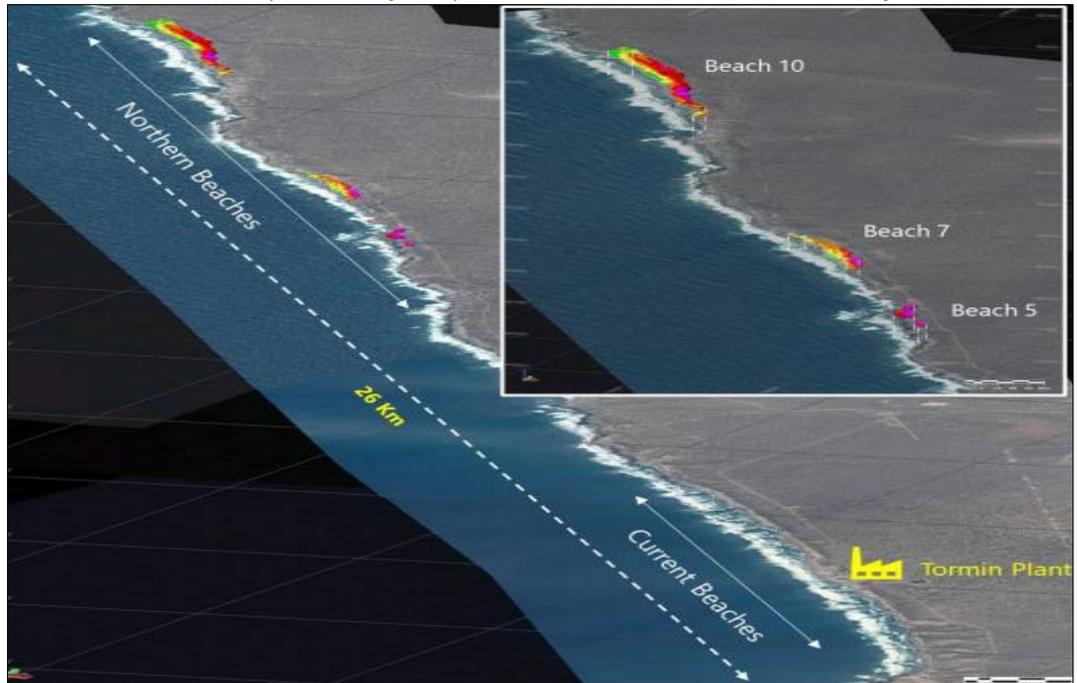
We are modelling Tormin assuming that the two active deposits (Current and Northern Beaches) will be mined in rotation, year on year off along with the Inland Strand deposit. Our long-term mining sequence assumes 60-65% (or ~2.5Mtpa) of the annual throughput will be sourced from the Inland Strand deposit and the balance 35-40% (or ~1.5Mtpa) from either current or Northern Beaches.

This is crucial, as it will allow more time (one full year) between phases of mining on any given block (beach) to be replenished and re-concentrated with the HM through normal tidal movements before it will be mined again.

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That in turn, would reduce the gap between the mining of HM and the replenishment rate, as some areas of the current beach have been mined, in the past, up to ten times a year. As HM replenishment is a function of time and the number of sea storm events, the less intensive mining activity should result in extended mine life.

Location of the Northern (5,7 & 10 deposits) and Current Beaches as well as Tormin plant



Source: Mineral commodities

Based on the fact that tonnage from existing mining rights has been constantly replenished over the last six years (~11.7Mt - ~4.5x Tormin’s initial 2.7Mt resource), and that the Northern Beaches have not been fully explored, we are assuming that the Northern Beaches’ initial resource of ~2.5Mt could support Tormin’s 10-year mine-life contributing ~8.2Mt of ore (~3.3x its initial resources - see table below).

That is a relatively conservative assumption considering that if the Northern Beaches were to follow Tormin’s replenishment pattern, initial resources of 2.5Mt could grow up to >12Mt over a 10-year period (~5 times increase), contributing another 2 years to our assumed life of Tormin.

Mirabaud’s assumption on existing and new permits’ contribution to Tormin’s 10 year LoM

	Actual resources (Mt)	Mirabaud’s 10y mine-life assumption (Mt)	Total HM %	Zircon %	Rutile %	Ilmenite%	Garnet %
Tormin’s Current Beaches	2.40	7.0	8.70%	0.25%	0.10%	1.03%	6.70%
Northern Beaches	2.51	8.2	23.60%	0.89%	0.25%	2.10%	11.61%
Inland Strand	No resources	21.5	12.50%	1.00%	0.50%	5.00%	6.00%
Mirabaud’s 10y LoM resource assumption*		36.7	14.26%	0.83%	0.37%	3.59%	7.39%

Source: Mirabaud Securities *we are assuming that both the current and the Northern beaches will continue the pattern of tonnage replenishment at the same grade

It would be reasonable to assume that Tormin’s existing licence resource should be replenished at a higher grade, now that it will rest for at least 12 months before it is mined again (vs. the current pattern of up to 10 times per year). The same should happen with the Northern Beaches as they will be mined on the same pattern as Tormin’s Current Beaches (year on, year off).

However, as we do not know the exact rate that the replenishment is taking place, we are conservatively assuming the grade will remain at the same level over the whole assumed 10-year life.

In the meantime, MRC has published a set of excellent initial drilling results from the Inland Strand deposits (Western inland strandline), which confirm the near -surface and high-grade nature of the deposit, as ~30% of the samples returned grades of >10% THM. A second strandline (Eastern strandline) was discovered running parallel to the coastline and the Western strandline, and will be explored.

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Tormin's existing licence mineral resource history

Tormin – current mining licence	Resources Mt	Total HM %	Zircon %	Rutile %	Ilmenite%	Garnet %
Indicated resources (Dec. 2013)	2.70	49.40%	3.40%	0.70%	10.60%	25.30%
Material mined - 2014	1.07	55.30%	5.02%	0.65%	16.90%	32.55%
Inferred resources (Dec. 2014)	2.70	38.14%	2.21%	0.46%	10.05%	25.22%
Material mined (wet) - 2015	1.62	49.81%	3.88%	0.60%	16.15%	28.94%
Inferred resources (Dec. 2015)	2.70	27.6%	1.56%	0.55%	6.97%	18.54%
Material mined (wet) 2016	1.81	46.0%	2.78%	0.61%	12.97%	29.21%
Inferred resource - Dec 2016	1.80	28.1%	1.65%	0.53%	6.15%	18.99%
Material mined - 2017	2.05	27.57%	1.10%	0.51%	5.81%	19.40%
Inferred resources - Dec 2017	1.80	15.92%	0.79%	0.43%	2.72%	11.45%
Tonnes mined - FY2018	2.65	17.35%	0.55%	0.38%	3.14%	12.55%
Inferred resources - Dec 2018	2.26	14.10%	0.43%	0.19%	2.30%	7.90%
Tonnes mined – FY2019	2.51	11.21%	0.42%	0.21%	1.81%	7.53%
Inferred resources – Dec 2019	2.40	8.68%	0.25%	0.10%	1.03%	6.70%
Tonnes mined Q1 2020	0.62	7.68%	0.35%	0.13%	1.56%	5.57%

Source: Mineral Commodities

MRC's existing and new permit resource estimates

	Resources Mt	Total HM %	Zircon %	Rutile %	Ilmenite%	Garnet %
Tormin Current Beaches (Dec 2019 est.)	2.40	8.7%	0.25%	0.10%	1.03%	6.70%
Northern Beaches (May 2020 estimate)	2.51	23.6%	0.89%	0.25%	2.10%	11.61%
MRC's total resources	4.91	16.3%	0.58%	0.18%	1.58%	9.20%

Source: Mineral Commodities

Tormin's new mining plan

Assuming a positive final decision for the S102 mining licence application, MRC is considering an increase in its primary beach concentration capacity as well as the building of a mineral separation plant (MSP - ~0.5Mtpa) to produce final ilmenite, garnet and zircon higher-value products from Tormin's concentrate.

However, the company is initially planning a low-cost and quick road to production from the Northern Beaches (Phase 1), with the relocation of one of the existing PBCs (primary beach concentrators) at beach 10, to upgrade locally mined ore which will then be transferred to the Tormin processing plant (~25km).

The metallurgical processing characteristics of the Northern Beaches' material are similar to those of the Current Beaches and thus Tormin could accommodate ore from the Northern beaches without any modifications to the processing plant.

Capital requirements for Phase 1 are minimal (~US\$1m), and spending will commence immediately after the granting of the S102 application, allowing the company to maintain current throughput levels (~2.5Mtpa) at a higher grade over the next couple of years, mainly due to the contribution of ore from the higher-grade Northern Beaches.

Phase 2 includes the construction of a ~4.0Mtpa PBC circuit for the processing of higher quantities of ore from the Northern Beaches and the Inland Strand, by increasing throughput capacity from 240tph to 480-500tph. We are expecting initial capex for Phase 2 at ~US\$12m, with spending taking place during CY2021-22.

Phase 3 includes the construction of a ~0.5Mtpa MSP for the production of final ilmenite, garnet and zircon higher-value products. We are not yet including Phase 3 in our Tormin model, as we await further details of the capex and opex, but clearly this plan offers further upside.

Granting of the S102 will also allow the company to access renewable grid power via the nearby Eskom wind farm. The company advises that this could cut power cost (10-20% of cash costs) by more than 25%. Our model assumes both the initial capital requirements to access the grid (~US\$6m in 2020 and 2021) as well as the cost benefits from 2021 onwards, which we calculate at ~US\$2m pa.

TORMIN'S NEW LICENCES' GRADE SENSITIVITY

As noted above, the Inland Strand deposit currently lacks a resource estimate. Our model assumes the Inland Strand deposit's contribution to our 10-year mine-plan being slightly above 20Mt at 12.5% THM (see table with our assumptions on p6). The two tables below illustrate Tormin's NPV sensitivity to a range of zircon-rutile (first sensitivity table) and zircon-ilmenite (second sensitivity table) grades from the newly granted Inland Strand permit (resource contribution of ~58% to our Tormin 10y plan). Our base-case assumptions for the Inland Strand's zircon, rutile and ilmenite grades are 1.0%, 0.5% and 5.0% respectively.

As expected, Tormin's NPV is very sensitive to the more valuable zircon concentrate grade compared with rutile and ilmenite. On average, over our Tormin's assumed 10-year mine-life, zircon (from all three permits – Current, Northern and Inland Strand) will contribute ~40% of Tormin's revenue with rutile and ilmenite contributing ~4.5% and ~21% respectively (see table on p10).

Tormin's NPV (US\$m) sensitivity to the Inland Strand's zircon & rutile grades

	Zircon	0.60%	0.80%	1.00%	1.20%	1.40%
Rutile						
0.30%		83.1	97.8	107.1	115.7	124.1
0.40%		88.9	101.6	110.5	119.0	127.3
0.50%		94.5	105.1	113.8	122.2	130.4
0.60%		99.5	108.5	117.0	125.4	133.5
0.70%		103.0	111.9	120.3	128.5	136.6

Source: Mirabaud Securities estimates

Tormin's NPV (US\$m) sensitivity to the Inland Strand's zircon & ilmenite grades

	Zircon	0.60%	0.80%	1.00%	1.20%	1.40%
Ilmenite						
3.0%		78.2	92.9	104.0	112.8	121.1
4.0%		86.3	99.8	108.9	117.4	125.7
5.0%		94.5	105.1	113.8	122.2	130.4
6.0%		100.7	109.7	118.2	126.5	134.6
7.0%		105.7	114.4	122.8	130.9	139.0

Source: Mirabaud Securities estimates

PRODUCTION AND COST FORECASTS

Mining and processing operations resumed on April 13, 17 days after MRC suspended operations at Tormin following the lockdown in South Africa as a response to the pandemic outbreak of the coronavirus disease (Covid-19). Following the lockdown, MRC has put under review its FY2020 production guidance in anticipation of the effects of the pandemic.

Our production forecast

Owing to the impact of Covid-19, we have conservatively assumed a ~15% year-on-year ore throughput reduction from ~2.5Mt in 2019 down to 2.15Mt in 2020. That would have a short-term impact mainly to the garnet and ilmenite production. Non-mag concentrate production is expected to strengthen, by ~40%, mainly due to a ~40% assumed increase in zircon grade, the result of the inclusion of the higher-grade Northern Beaches and Inland Strand deposits to the mining mix.

For 2020 we are forecasting Tormin's zircon/rutile (non-mag) concentrate production at ~14.6kt, ilmenite production at ~47.5kt and garnet production at ~145kt, which compares with the 2019 actual production of ~9.9kt of non-mag concentrate, ~50kt of ilmenite and 179kt of garnet (see table on p10).

At the beginning of is year, the company had unsold finished garnet and ilmenite concentrate of ~210kt and ~20kt respectively. We assume that 50% of the stockpiled ilmenite and the majority of the stockpiled garnet concentrate will be sold during 2020. MRC has a contract obligation with GMA to produce and sell ~213kt pa of garnet concentrate. However, for 2020 we are forecasting that Tormin will produce ~145kt of garnet, thus MRC should de-stock ~70kt of the stockpiled garnet concentrate.

From 2022, our model assumes full utilisation of the Phase 2 expansion, with throughput of the primary beach concentrators increasing from 2.5Mt to 4.0Mt pa (see table in p10).

Tormin's sales update

Our garnet production and sales forecasts are based on the existing off-take agreement with GMA (Tormin's garnet off-taker). However, a dispute has risen with GMA regarding the stockpiled inventory quantities. An independent expert will be appointed, whose determination will be binding on both parties, and MRC expects the resolution to be concluded within the next two months.

In the meantime, MRC will continue meeting its contractual obligations. Our model assumes that the dispute will be resolved in favour of the company and that sales will continue unaffected.

However, due to the abnormal cash inflows in H1 2020, owing mainly to the disruption to garnet sales, the company is considering various funding options to ensure budgeted growth initiatives remain funded (mainly Tormin's Phase 1 and 2).

Despite the recent dispute with GMA, we believe that garnet will remain a key component of Tormin's success. Garnet is mainly used as an abrasive, in waterjet cutting (replacing silica sand with garnet sand), as well as water filtration. Increasing demand for garnet and a ban on the use of harmful minerals including slag and silica are likely to fuel the growth of the global market for industrial garnet, which should see steady growth over the coming years and is expected to exceed US\$0.7bn by the end of 2024 (source: report by Persistence Market Research – PMR).

Tormin's non-magnetic (zircon-rutile) concentrate sales have continued unaffected since the beginning of the year.

Ilmenite sales had been impacted by Covid-19. However, in early-June, the company reported improved market conditions, with Chinese mineral sand processing facilities returning to production. Firm sales for ilmenite concentrate have been secured for H2 2020, with first ilmenite shipments now expected in July. Our ilmenite sales assumption for 2020 is ~25% the 2019 ilmenite sales and thus we believe that our assumption is achievable even if sales will be limited in H2 2020.

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Tormin's production and costs forecasts summary

		FY2018A	FY2019A	FY2020F	FY2021F	FY2022F	FY2023F	
Tonnes mined	kt	2,650	2,510	2,150	2,500	4,000	4,000	
Total HM grade	%	17.35%	11.16%	11.63%	14.74%	12.12%	14.67%	
	Zircon	%	0.55%	0.42%	0.62%	0.93%	0.72%	0.96%
	Rutile	%	0.38%	0.21%	0.24%	0.35%	0.35%	0.41%
	Ilmenite	%	3.14%	1.81%	2.52%	3.68%	4.17%	4.58%
	Garnet	%	12.55%	7.53%	8.25%	9.77%	6.88%	8.73%
PBC throughput	kt	2,434	2,400	2,150	2,500	4,000	4,000	
SCP feed	kt	859	589	496	665	953	925	
Production								
Non-mag concentrate	Kt	17.0	9.9	14.0	24.5	32.2	41.4	
Ilmenite concentrate	kt	108.6	49.9	46.7	79.3	143.8	157.6	
Garnet concentrate	kt	278.2	179.1	142.9	196.7	221.7	281.1	
Total production	Kt	403.8	238.9	203.7	300.5	397.7	480.2	
Sales								
Non-mag concentrate	Kt	18.0	10.4	14.6	25.6	33.6	43.2	
Ilmenite concentrate	Kt	106.8	216.6	57.4	90.5	146.0	160.0	
Garnet concentrate	Kt	213.3	213.2	213.2	213.2	213.2	213.2	
Total sales	kt	338.1	440.3	285.3	329.3	392.8	416.4	
Product mix								
Zircon contribution in revenues	%	30%	15%	26%	36%	39%	44%	
Rutile contribution in revenues	%	4%	2%	3%	4%	4%	5%	
Ilmenite contribution in revenues	%	25%	49%	16%	20%	25%	24%	
Garnet contribution in revenues	%	41%	38%	56%	41%	32%	28%	
Prices								
Zircon	US\$/dmtn	19.5	19.3	17.5	18.8	20.0	20.0	
Rutile	US\$/dmtn	7.0	6.5	6.0	6.5	7.0	7.0	
Ilmenite	US\$/t	127	134	120	130	130	130	
Garnet	US\$/t	113	113	113	113	113	113	
Revenue								
Total revenue	US\$m	53.5	58.3	42.5	58.2	74.5	85.5	
Revenue/t of concentrate sold	US\$/wmt	158.2	132.4	149.1	176.7	189.7	205.4	
Costs								
Total Production Cost	US\$m	24.0	20.2	21.8	23.8	32.6	34.0	
Total OPEX (excl. D&A)#	US\$m	33.5	37.6	32.7	37.0	48.7	51.5	
Total cash cost (incl. D&A)*	US\$m	37.5	42.3	37.2	41.5	54.6	57.4	
Total production cost/t of production	US\$/dmt	57.7	84.4	106.9	79.2	81.9	70.8	
Total OPEX/t of production#	US\$/wmt	81.6	154.8	157.7	121.1	120.4	105.5	
Total cash costs/t of sales*	US\$/wmt	110.9	89.3	130.3	126.1	139.0	137.9	
EBITDA								
EBITDA	US\$m	20.0	20.7	9.9	21.2	25.8	34.0	
EBITDA margin	%	37%	35%	23%	36%	35%	39.7%	

Source: Mirabaud Securities estimates

*Total cash cost includes: production cash cost, product handling, transport and selling cost, royalties, and D&A

#Total OPEX includes: production cash cost, product handling, transport and selling cost and royalties (excludes D&A)

SKALAND – MRC’S SECOND CASH-FLOW GENERATING ASSET

Following the Share Purchase Agreement MRC entered into on 4 April 2019, in October 2019 the company finalised the acquisition of 90% of the issued share capital in Skaland Graphite AS (the Traelen mine, the Skaland processing plant and other associated properties) for a total consideration of ~US\$8.7m, with the balance (10% interest) being retained by the facilitator of the transaction.

The consideration will be paid in two tranches, with the initial consideration of NOK41.4m (US\$4.5m) having already been paid (Q4 2019). The balance of NOK38m (~US\$3.8m at spot FX rate of NOK:US\$ 9.91) will be paid over a five year period on a quarterly basis (NOK2.7m per quarter in year 1 and NOK1.7m per quarter for years 2-5) with annual interest of NIBOR +2%, quarterly compounded. The first tranche of the acquisition (US\$4.5m) as well as the two-year work programme will be funded from MRC’s existing cash.

We believe that the addition of such a high quality asset in MRC’s portfolio not only offers a welcome geographic diversification to the company (Norway is among the safest places in the world to invest), but would also provide early cash flow which, along with Tormin, will support the development of the company’s other high-grade graphite deposit, the Munglinup project in Australia.

Operating Skaland will also provide valuable experience and market knowledge which will help with Munglinup. That would eventually make MRC an international graphite producer with two high-grade graphite assets in Tier 1 jurisdictions.

Skaland is the largest crystalline graphite producer in Europe and the fourth largest producer globally outside China, while it is one of the world’s highest-grade operating flake graphite mines with an average grade of ~22% Cg (total carbon in graphite form - see table below). The Traelen mine is located in northern Norway on the island of Senja, with the Skaland processing plant located ~12km to the southeast.

Skaland’s maiden resource estimate

MRC, in March, reported Skaland’s maiden JORC compliant resource of ~1.79Mt at 22% TGC for 397kt of contained graphite, making Skaland one of the highest grade operating graphite mine in the world.

The company has re-modelled the deposit using historical drill logs, additional exploration drilling as well as resource optimisation to identify the optimum plan for conversion of the mineral resource to reserves.

MRC is planning to re-commence drilling in Q2, targeting an ore reserve estimate for later this year. We are modelling Skaland on a relatively conservative approach, assuming that ~90% of the indicated resources and only ~45% of the inferred resources will contribute to our mine plan (~55% of the deposit’s total resources).

Skaland’s mineral resources

Classification	Tonnes (kt)	Total graphitic carbon (TGC)	Tonnes contained graphite (kt)
Indicated	409	26%	106
Inferred	1,376	21%	291
Total	1,785	22%	397

Source: Mirabaud Securities, Mineral Commodities

Our model assumes a total potential mineable inventory of ~0.84Mt at ~25% TGC for ~223kt of contained graphite, resulting in a life-of-mine of ~16 years.

Skaland’s mineral resource is quoted at various cut-off grades, with nearly 75% (or ~296kt of contained graphite) of the total contained tonnes reporting at 25% TGC, demonstrating the high grade nature of the deposit.

It is common in high-grade underground deposits, like Skaland, for the inferred resources to be upgraded to the indicated category and eventually to reserves, while replacing the inferred resources and thus maintaining the deposit’s resource, as the mining progresses down dip.

Our model is based only on the existing resources and not assuming that these would be replenished as the mining progresses. Our mineable inventory assumes that inferred resources would be upgraded to the M&I category, and thereafter to ore reserves at a resource-to-reserve conversion rate of ~75%, for a 16 year mine-life (assuming stable throughput of ~54kt pa).

MINERAL COMMODITIES

Skaland's production and costs summary

Skaland mine		FY2019A	FY2020F	FY2021F	FY2022F	FY2023F	FY2024F
Ore mined	kt	31.0	38.0	45.0	54.0	54.0	54.0
Waste mined	kt	13.5	15.2	18	21.6	21.6	21.6
Total material mined	kt	44.5	48	63	75.6	75.6	75.6
Strip ratio	X	0.44	0.40	0.40	0.40	0.40	0.40
Ore processed	kt	37.1	35.0	45.0	54.0	54.0	54.0
Head grade	%	26.1%	25.9%	25.0%	25.0%	25.0%	25.0%
Recovery	%	91.7%	92.0%	92.0%	92.0%	92.0%	92.0%
Total graphite conc. production	kt	9.8	9.3	11.5	13.8	13.8	13.8
Total graphite conc. sold	kt	7.3	13.5	12.0	14.3	14.2	13.8
Revenue	US\$m	4.6	7.4	7.2	8.6	8.5	8.3
Av. realised graphite conc. price	US\$/t	639	550	600	600	600	600
Total cash cost	US\$m	4.0	4.9	5.0	5.7	5.7	5.7
Total cash cost (excl. D&A)	US\$/t	406	530	432	410	410	410
EBITDA	US\$m	0.7	2.5	2.2	2.9	2.8	2.6
EBITDA margin	%	15%	34%	31%	34%	33%	32%

Source: Mirabaud Securities estimates

Mine optimisation

The Traelen mine and Skaland processing plant currently produce on average ~10ktpa of graphite flake concentrate (~2% of global annual natural flake graphite production), with potential for expansion to ~16ktpa.

The necessary regulatory approvals for the production increase to 16ktpa have recently been granted and the company is now working towards the mine optimisation, which will be twofold.

The main focus is to upgrade the concentrate by increasing the grade of the fines (classified as -150 microns) as well as the percentage of coarse material in the concentrate. Initial results of the pilot-scale testwork indicate that the grade of the fines could reach 96-99% TGC (from 86-92% currently), which in turn could form a very high-grade feedstock for downstream value-adding (battery anode material).

The higher-grade fines concentrate, along with the increase in coarse graphite recovery (from ~35% currently up to >40%), should result in an improved graphite basket price.

The company advises that during 2020 it will focus on reducing graphite inventory built over last year. In Q1 2020, the company produced 1.66kt and sold 3.74kt of graphite concentrate. However, as a result of the higher portion of lower value material in the product's sales mix (66% fines vs. 61% in the previous quarter), Skaland's concentrate did not attract a higher value, which explains the slightly lower quarterly price achieved (~US\$545/t vs. ~US\$583/t in Q4 2019).

The company has reported historical revenues of ~US\$6.3m pa over the past three years. However, historical revenues understate the mine's likely future performance, as the previous operator was receiving a relatively low basket price due to a legacy marketing agreement which has been terminated by MRC.

Thus, we understand that the basket price MRC will receive from the free market, particularly post-optimisation, should be higher than the recent US\$550-600/t. We are conservatively modelling Skaland at a long-term price of US\$600/t of graphite concentrate based on a product mix of 45:55 coarse-to-fine material. However, a 25% increase of the basket price to US\$750/t, would almost double Skaland's NPV to US\$25.1m (see table on p13).

The company advises that from 2022 production could increase from the current ~10ktpa up to ~16ktpa, mainly by increasing plant utilisation from 56-60% today (35-37ktpa throughput) to ~86% (~54ktpa throughput).

Production and sales from Skaland continue unaffected by the Covid-19 pandemic, while the company is taking the necessary actions to tackle relative issues (including self-isolation and school closures).

MINERAL COMMODITIES

Production for 2020 has been projected at ~10kt (2.5-4.5kt of coarse and 5.5-7.5kt of fine material), and sales at ~13.5kt. For 2020 we are forecasting production of 9.25kt and sales of 13.5kt. Our production forecast then rises to ~11.5kt in 2021 and to ~13.8kt pa from 2022 onwards (vs. the company's guidance of ~16kt pa).

During Q1 2020, Skaland's unit production cost rose sharply due to the lower quarterly production, the result of the January planned shutdown. The unit cost is expected to fall in Q2 2020 as production returns to normal levels. Our model calculates a very healthy long-term EBITDA margin of >30% (see table on p12).

Skaland's NPV (US\$m) sensitivity to the head grade (%) and basket price (US\$/t)

	Basket price	US\$500/t	US\$550/t	US\$600/t	US\$650/t	US\$700/t	US\$750/t
Head grade							
24%		3.9	7.7	11.4	15.2	19.0	22.8
25%		5.4	9.4	13.3	17.2	21.2	25.1
26%		7.0	11.1	15.2	19.3	23.4	27.4
27%		8.6	12.8	17.0	21.3	25.5	29.8
28%		10.1	14.5	18.9	23.3	27.7	32.1

Source: Mirabaud Securities estimates

Downstream potential

On top of the production increase and the upgrade of the quality of the concentrate, MRC is targeting an integrated, downstream value-added strategy to capitalise on the fast-growing demand for sustainably manufactured Li-ion batteries.

The European Union is phasing out polluting vehicles, as 11 countries have taken regulatory action to replace internal combustion engine vehicles with EVs within the next 10-20 years. Norway is leading this effort by example, as the official target is to sell only EVs from 2025 onwards.

Norway also leads the world in EV usage, as it has the largest fleet of EVs per capita worldwide. Currently, 50% of cars sold in Norway are electric and another 20% are plug-in hybrids. Also, in Norway, 98% of the electricity production comes from renewable energy sources, with hydropower being the key source.

Low-cost renewable energy sources provide industry with a competitive advantage, especially for downstream processing which is a very energy intensive step. Thus, the company is considering the construction of a purification and micronisation/spheronisation plant in Norway, in order to capture additional margins via downstream processing, while utilising local existing infrastructure (proximity to sea as well as to electrical grid).

MRC is collaborating with Doral Fused Materials and CSIRO (Australia's national science agency) to develop and operate a mini-pilot plant, in an effort to establish a more environmentally friendly pathway to commercial production of high-purity graphite, without the use of hydrofluoric acid (an aggressive acid that is toxic to the environment if not effectively neutralised).

The focus is the development of a purification process for graphite concentrate with a targeted purity of at least 99% (preferably >99.95% - battery grade), to replace the existing costly and environmentally harmful process which is based on fluoride-based reagents.

The company is also evaluating the potential for micronizing and spheronising the high-grade (~98%-99%) fines concentrate into unpurified spherical graphite on site. That is a fast-tracked approach to producing battery anode materials

Skaland's coarse concentrate material could be used for the development of an expandables strategy, including the production of expanded graphite sheets and foils. Expandable graphite is a potential value-added product for larger-flake natural graphite from Skaland that would not go into the Li-ion battery markets.

Although, the company has not yet published a concentrate study, we believe that if MRC were to produce a final product, margins could move from the current ~35% up to >60%. Skaland could utilise cheap local energy and existing infrastructure to produce a suite of battery anode materials (unpurified spherical graphite, uncoated purified spherical graphite, coated purified spherical graphite and others) which could sell for US\$1,800-7,000/t.

FINANCIALS

MRC: one of the highest dividend yielding mining stocks

During 2019, MRC paid in total ~A\$5.5m in dividends (2018 final dividend and 2019 interim dividend - total annual dividend payments of A\$¢1.3 per share). From our selected group of mineral sands producers, only Tronox, Kenmare and Iluka are paying a dividend, and these stocks currently yield ~3.7%, ~3.1% and ~1.5% respectively. That compares with MRC's 2016-19 average dividend yield of ~5.5% based on MRC's current share price of ~A\$0.24, making MRC one of the highest dividend yielding stocks in the mineral sands sector. MRC, since 2016, has paid almost A\$22m in dividends (~A\$5.5m pa).

The board decided not to declare a final dividend for FY2019, due to the uncertainty from the pandemic and the potential impact it could have on the company's operations and thus cash flows.

We are assuming that the company will resume its pattern of paying a 2020 final dividend of A\$¢0.7/share (paid in Q2 2021), followed by a 2021 interim dividend of A\$¢0.6/share (see table below).

Mirabaud's scenarios

We have prepared a set of financial summary tables (see pp15-16) showing two scenarios. The first includes Tormin and Skaland projects only, while the second includes development of the Munglinup graphite project.

Our model, under scenario 1 (Tormin and Skaland deposits only), projects that MRC could fund both Tormin's Phase 1 and 2 expansion without the need of any external financing. MRC's year-end cash position reaches a low in 2022 of ~US\$8.5m, after Tormin's expansion has been funded (~US\$30m in total).

However, for the development of Munglinup (2nd scenario), MRC would need to secure a funding package, which we calculate at ~US\$42m (based on our forecast, 2021 year-end negative cash position – see table on p16), and could be a combination of equity and debt (MRC is relatively ungeared). That envisages first production from Munglinup in 2022, which will then contribute ~US\$24m to MRC's 2023 EBITDA of ~US\$32m (see table on p15) taking combined EBITDA to ~US\$56m (see table on p16). In our model, development of Munglinup remains unfunded (ie cash becomes temporarily negative).

Summary forecasts – Tormin, Skaland and Munglinup (2nd scenario)

End-Dec		2018A	2019A	2020F	2021F	2022F	2023F
Total revenue*	US\$m	55.4	61.8	51.0	65.4	134.0	145.0
EBITDA	US\$m	14.7	16.5	8.4	18.6	48.1	56.2
Net Income	US\$m	8.8	7.8	2.7	9.7	27.6	33.4
EPS	US¢/share	2.1	1.9	0.6	2.2	6.1	7.4
ROE	%	20.1%	17.8%	5.7%	18.8%	41.5%	36.0%
P/E	X	7.8	8.8	27.3	7.6	2.7	2.2
EV/EBITDA	X	4.7	4.2	8.2	3.7	1.4	1.2
Dividend yield	%	5.4%	2.5%	2.9%	5.4%	5.4%	5.4%

Source: Mirabaud Securities estimates

*revenue fluctuate along with Tormin's grade

MINERAL COMMODITIES

MRC summary financial estimates – Tormin and Skaland only

		2018A	2019A	2020F	2021F	2022F	2023F
Profit & loss							
Total revenue	US\$m	55.4	61.8	51.0	65.4	83.1	94.0
Operating costs	US\$m	-33.5	-39.9	-37.6	-42.0	-54.4	-57.2
Corporate expenses	US\$m	-6.9	-5.2	-5.0	-4.8	-4.8	-4.8
EBITDA	US\$m	14.7	16.7	8.4	18.6	24.0	32.1
Depreciation	US\$m	-4.0	-4.7	-4.7	-4.7	-6.2	-6.2
Interest & admin. expenses	US\$m	-0.5	-0.1	-0.2	-0.1	0.0	0.0
Profit before income tax	US\$m	10.4	11.9	3.5	13.8	17.7	25.8
Taxation	US\$m	-1.6	-4.0	-0.8	-4.1	-4.8	-7.2
Profit for the period	US\$m	8.8	7.8	2.7	9.7	12.9	18.6
Balance sheet							
Cash and cash equivalents	US\$m	12.4	8.1	11.8	11.3	8.5	21.5
Inventories	US\$m	25.8	21.9	11.3	9.3	10.0	15.0
<i>Total current assets</i>	US\$m	44.1	38.8	36.4	32.2	33.2	52.9
Property, plant & equipment	US\$m	15.3	17.8	14.6	26.4	34.4	29.6
<i>Total non-current assets</i>	US\$m	36.8	48.0	47.0	59.7	68.6	64.5
Borrowings ST	US\$m	2.3	3.6	2.7	1.4	0.0	0.0
<i>Total current liabilities</i>	US\$m	30.7	30.7	28.8	31.4	32.0	31.8
Borrowings LT	US\$m	2.8	4.1	1.4	0.0	0.0	0.0
<i>Total non-current liabilities</i>	US\$m	8.1	10.1	7.5	6.0	6.0	6.0
Retained earnings	US\$m	-1.5	2.4	5.2	10.9	19.8	34.4
<i>Total equity</i>	US\$m	42.1	46.0	48.9	54.7	63.6	78.2
Cash flow							
Cash flow from operations	US\$m	14.5	13.3	11.1	23.7	17.9	19.1
Cash flow from investments	US\$m	-9.4	-10.0	-3.6	-17.4	-15.2	-2.1
Cash flow from financing...of which	US\$m	-3.2	-7.4	-3.8	-6.8	-5.5	-4.0
<i>Dividends paid to shareholders</i>	US\$m	-3.8	-3.8	0.0	-4.0	-4.0	-4.0
Net cash flow	US\$m	2	28.2	33.6	13.2	0.0	0.0
Year-end cash position	US\$m	12.4	8.1	11.8	11.3	8.5	21.5
Ratio analysis							
EPS	US¢/share	2.1	1.9	0.6	2.2	2.9	4.1
Dividend pay-out	US¢/share	0.9	0.4	0.5	0.9	0.9	0.9
Dividend yield	%	5.4%	2.5%	2.9%	5.4%	5.4%	5.4%
ROE	X	20.1%	17.8%	5.7%	18.8%	21.9%	26.3%
P/E	X	7.8	8.8	27.3	7.6	5.7	4.0
EV/EBITDA	X	4.7	4.1	8.2	3.7	2.9	2.2

Source: Mirabaud Securities estimates

A\$1=US\$0.69

MINERAL COMMODITIES

MRC summary financial estimates – Tormin, Skaland and Munglinup (2nd scenario)*

		2018A	2019A	2020F	2021F	2022F	2023F
Profit & loss							
Total revenue	US\$m	55.4	61.8	51.0	65.4	134.0	145.0
Operating costs	US\$m	-33.5	-39.9	-37.6	-42.0	-81.2	-84.1
Corporate expenses	US\$m	-6.9	-5.2	-5.0	-4.8	-4.8	-4.8
EBITDA	US\$m	14.7	16.5	8.4	18.6	48.1	56.2
Depreciation	US\$m	-4.0	-4.7	-4.7	-4.7	-10.1	-9.8
Interest & admin. expenses	US\$m	-0.5	-0.1	-0.2	-0.1	0.0	0.0
Profit before income tax	US\$m	10.4	11.9	3.5	13.8	38.0	46.4
Taxation	US\$m	-1.6	-4.0	-0.8	-4.1	-10.4	-12.9
Profit for the period	US\$m	8.8	7.8	2.7	9.7	27.6	33.4
Balance Sheet							
Cash and cash equivalents	US\$m	12.4	8.1	11.8	-41.7	-34.4	-4.5
Inventories	US\$m	25.8	21.9	11.3	9.3	10.0	15.0
<i>Total current assets</i>	US\$m	44.1	38.8	36.4	-20.8	-1.3	35.4
Property, plant & equipment	US\$m	15.3	17.8	14.6	87.0	92.7	85.8
<i>Total non-current assets</i>	US\$m	36.8	48.0	47.0	120.3	126.9	120.7
Borrowings ST	US\$m	2.3	3.6	2.7	1.4	0.0	0.0
<i>Total current liabilities</i>	US\$m	30.7	30.7	28.8	38.9	38.3	38.2
Borrowings LT	US\$m	2.8	4.1	1.4	0.0	0.0	0.0
<i>Total non-current liabilities</i>	US\$m	8.1	10.1	7.5	6.0	6.0	6.0
Retained earnings	US\$m	-1.5	2.4	5.2	10.9	34.4	63.8
<i>Total equity</i>	US\$m	42.1	46.0	48.9	54.7	78.3	107.7
Cash flow							
Cash flow from operations	US\$m	14.5	13.3	11.1	31.3	29.5	37.6
Cash flow from investments	US\$m	-9.4	-10.0	-3.6	-78.0	-16.7	-3.7
Cash flow from financing...of which	US\$m	-3.2	-7.4	-3.8	-6.8	-5.5	-4.0
<i>Dividends paid to shareholders</i>	US\$m	-3.8	-3.8	0.0	-4.0	-4.0	-4.0
Net cash flow	US\$m	2.0	-4.0	3.7	-53.5	7.3	29.9
Year-end cash position*	US\$m	12.4	8.1	11.8	-41.7	-34.4	-4.5
Ratio analysis							
EPS	US¢/share	2.1	1.9	0.6	2.2	6.1	7.4
Dividend pay-out	US¢/share	0.9	0.4	0.5	0.9	0.9	0.9
Dividend yield	%	5.4%	2.5%	2.9%	5.4%	5.4%	5.4%
ROE	X	20.1%	17.8%	5.7%	18.8%	41.5%	36.0%
P/E	X	7.8	8.8	27.3	7.6	2.7	2.2
EV/EBITDA	X	4.7	4.2	8.2	3.7	1.4	1.2

Source: Mirabaud Securities estimates

A\$1=US\$0.69

*Assumes go-ahead for Munglinup given at the beginning of 2021 – Munglinup's funding requirement implied by negative cash balance in 'Year-end cash position' line

MINERAL COMMODITIES

MUNGLINUP

In January 2020 the company published a very positive definitive feasibility study (DFS) of its 90%-owned Munglinup graphite project in Western Australia. Development of Munglinup would offer significant geographical and commodity-market diversification from Tormin, MRC's flagship production asset, and would be complementary to the recently-acquired Skaland graphite producing asset, in Norway.

The DFS broadly confirms the results of the prefeasibility study (PFS) released in May 2018, albeit with the much greater confidence levels of a DFS vs. a PFS, which stem from the greater detail and accuracy levels required in a DFS.

Munglinup's DFS de-risks MRC's medium-to-long term graphite production plans, as first graphite production from Munglinup is now expected at the end of 2021. Thus the schedule assumes there are no issues with the additional environmental studies (EPA and EPBC), approvals of which are expected in Q3 2020.

An initial mine life of 14 years is supported by the ore reserve of 4.24Mt at an average grade of 12.8% graphite contained, as well as from 2.75Mt of in-pit inferred resources (see resources below). The mineralisation is open in all directions indicating the potential to extend mine life via additional exploration work.

The tables below show Munglinup's mineral resources (2016 estimate at 5% TGC cut-off), ore reserves (2018 estimate using variable cash flow cut-off – ore where cash flow is positive) as well as Munglinup's total estimated inventory (reserves plus in-pit inferred resources inside the pit design).

Capex is now estimated at A\$88m (US\$60.6m) up from A\$52.4m at the PFS, with the largest elements representing the processing plant and the infrastructure required. Construction is expected to take ~12 months. Despite the higher initial capital requirements, the project's capital intensity remains very attractive (US\$1,072/t pa vs. our peer-group average of US\$2,722/t pa – see graph on p20).

MRC is planning to build a plant with a throughput of 400ktpa of ore between year 1 and 6, increasing to 500ktpa from year 7 onwards. That would yield average annual production of ~52ktpa of graphite concentrate (with the graphitic content at >95%). This is a modest ~5% reduction from the PFS's annual output of 54.8ktpa.

Opex is estimated at US\$491/t of product (A\$720/t at the DFS FX assumption of ~US\$0.68/A\$). That comes at a lower level of contingency (11.5%) which stems from the greater accuracy (15% vs. 28% in the PFS) and confidence levels inherent in a DFS-level estimate.

Munglinup's mineral resources table

Classification	Cut-off (%)	Tonnes (Mt)	Graphite grade (%TGC)	Contained graphite (kt)
Indicated	5%	4.49	13.1%	588
Inferred	5%	3.50	11.0%	383
Total	5%	7.99	12.2%	971

Source: Mirabaud Securities

*Munglinup mineral resource is estimated at 5% TGC cut off

Munglinup's ore reserves table

Classification	Cut-off (%)	Tonnes (kt)	Graphite grade (%TGC)	Contained graphite (kt)
Proven	-	-	-	-
Probable	-	4.24	12.8%	543
Total	Reserves	4.24	12.8%	543

Source: Mirabaud Securities

Munglinup's total inventory table

Classification	Tonnes (kt)	Graphite grade (%TGC)	Contained graphite (kt)
Inferred resources – In-pit resources*	2.75	11.1%	306
Probable reserves	4.24	12.8%	544
Total inventory	6.99	12.2%	850

Source: Mirabaud Securities

*In-pit resources comprise inferred material inside the designed pit designs using a variable cash flow cut-off grade and do not constitute part of the ore reserves

MINERAL COMMODITIES

The project envisaged in the DFS would generate annual EBITDA of US\$31m, resulting in an EBITDA margin of ~50%. The high margin is driven principally by Munmlinup's high grade. Our model calculates a life-of-mine average EBITDA of ~US\$27.3m and an EBITDA margin ~47%.

We are modelling Munmlinup on a long-term average basket price of US\$1,100/t of graphite concentrate, based on the feasibility's basket price of US\$1,144/t reduced by 4% in order to account for the discount we believe the company will need to accept when selling its concentrate into China. Our Munmlinup model's cost assumptions and outputs are based on the project's PFS and our graphite basket price assumptions are tabulated below.

On that basis we calculate a post-tax NPV (using an 8% real discount rate) and IRR of ~US\$86m (100%-basis) and 28.4% respectively. That compares with the DFS's NPV (7% DR) of US\$111m and IRR of 30%.

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

Item	Unit	Mirabaud assumptions	Feasibility study (DFS)
Scenario	ktpa	400-500	400-500
Mineable resource	Mt	6.28	6.40
Average strip ratio	Waste:ore	5.3:1.0	5.0:1.0
Life-of-mine	Years	14.0	14.0
Annual mill throughput Y1-6 (LoM for PFS/scoping)	Mt	0.4	0.4
Annual mill throughput Y7 onwards	Mt	0.5	0.5
Average graphite head grade (LoM average)	%	12.5	12.8
Recovery	%	88%	88%
Graphite concentrate production (LoM average)	kt	52.5	52.0
Long-term graphite price assumption	US\$/t	1100	1144
Royalties (inc. 2% owned by prior tenement holder)	%	6.5	5.5
On-site cash operating costs (LoM)	A\$/t	717	720
Tax rate	%	30	30
Initial capex	A\$m	88	88
LoM cumulative sustaining capital cost	A\$m	31	37
LoM capex (incl sustaining capex)	A\$m	119	125
Post-tax NPV ₈ (100%-basis)	A\$m	126	160**
Post-tax IRR	%	28%	30%
Payback period	years	3.4	2.7

Source: Mirabaud Securities estimates

*A\$1=US\$0.69

**NPV in DFS was calculated at a DR of 7% and US\$:A\$ exchange rate long-term assumption of A\$1=US\$0.7

We would attribute our slightly lower NPV to the higher discount rate used (8% vs. the DFS's 7%), though we note that the project remains extremely attractive and now comes with the much greater confidence levels inherent in a DFS vs. a PFS.

The DFS indicates a robust project which represents a relatively low-capex and quick route to low-cost graphite production. That enhances MRC's ambitions to build a business that will produce natural graphite concentrate in the Tier 1 jurisdictions of Australia and Norway.

MRC will move to 90% ownership and could go up to 100%

Meanwhile, MRC has reported that it will exercise its option to acquire the extra 39% in Munmlinup from Gold Terrace (vendor) through the issue of 30m new shares and by paying A\$0.8m in cash as per the initial farm-in and joint-venture agreement (September 2017). That will take MRC to 90% ownership of Munmlinup.

MRC could further increase its ownership up to 100% by either issuing another 10m new shares to the vendor, or granting the vendor a 1% gross royalty on all minerals produced (vendor's decision). Our model assumes an extra 1% royalty to the vendor while accounting for 100% of Munmlinup in our sum-of-parts valuation.

MINERAL COMMODITIES

Downstream processing

The economic outcomes of the DFS (and of our model) are based on producing and selling basic graphite natural-flake product, and do not incorporate the down-stream value-added potential of the product.

However, we understand that the company will continue technical and economic study work with regards to identify the optimal scenario for the production of higher value battery anode material (micronised, spheronised and coated purified fines concentrate), for consumption in the growing lithium-ion battery sector.

Project sensitivities

We have 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 Munglinup's NPV sensitivity to a range of graphite prices, against the discount rate (1st table), and head grade of material processed (2nd table).

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

	US\$1,000/t	US\$1,050/t	US\$1,100/t	US\$1,150/t	US\$1,200/t
10%	46.8	57.9	68.9	80.0	91.1
9%	53.4	65.3	77.0	88.9	100.8
8%	60.7	73.4	86.0	98.8	111.5
7%	68.8	82.5	96.0	109.7	123.3
6%	77.8	92.5	107.0	121.8	136.5

Source: Mirabaud Securities estimates

*our base case graphite basket price assumption is US\$1,100/t and grade is 15.9%

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

	US\$1,000/t	US\$1,050/t	US\$1,100/t	US\$1,150/t	US\$1,200/t
15.5%	88.5	104.3	119.9	135.8	151.5
14.0%	74.6	88.8	102.9	117.3	131.5
12.5%	60.7	73.4	86.0	98.8	111.5
11.0%	46.8	58.0	69.1	80.3	91.5
9.5%	32.9	42.6	52.1	61.8	71.5

Source: Mirabaud Securities estimates

*our base case graphite basket price assumption is US\$1,100/t and grade is 15.9%

ASSESSING GRAPHITE PROJECTS

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 purity of the final product as well as the existence of off-take agreements.

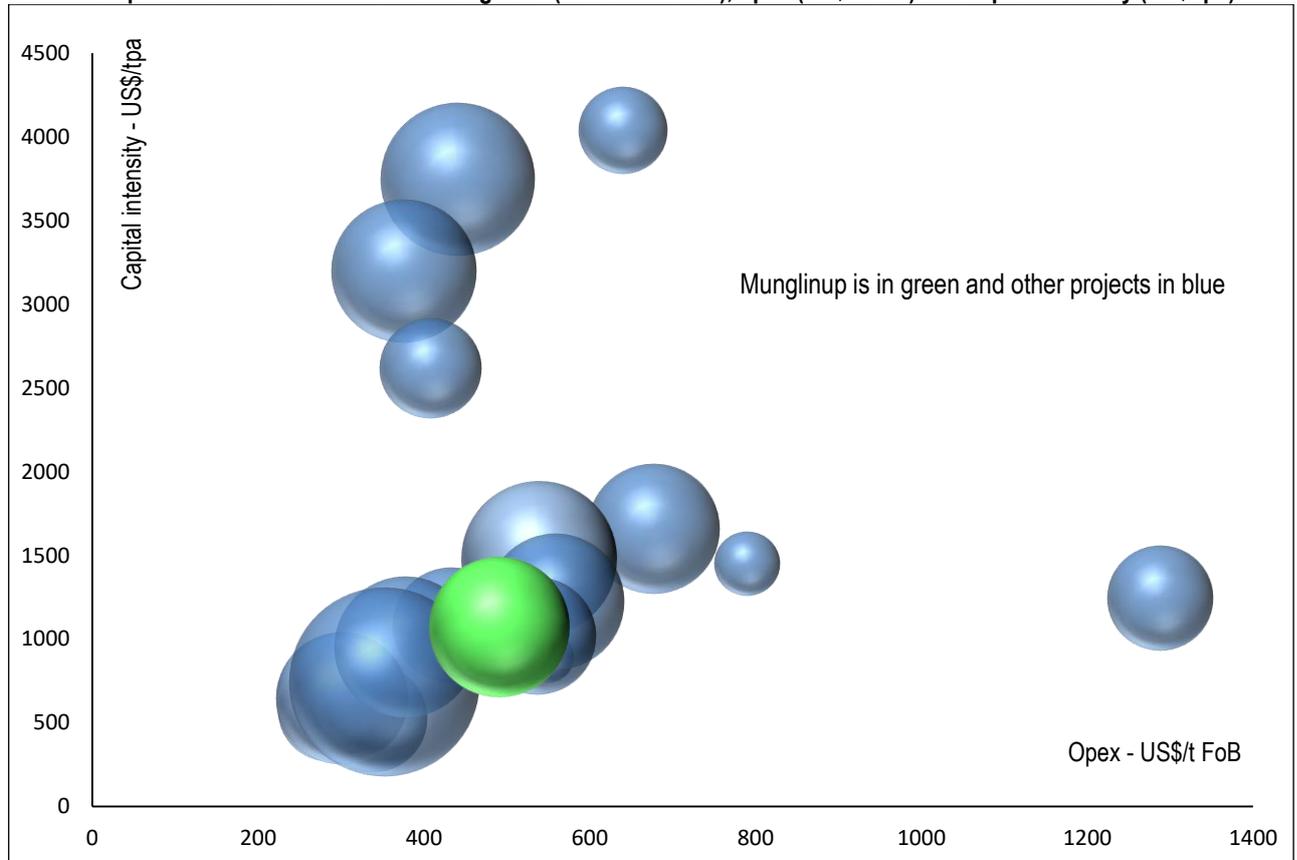
An attractive graphite deposit will typically have larger flakes, as the larger the flakes the higher the natural purity. Higher purity and larger flake sizes in turn both command higher sales prices. Also, the higher the proportion of crystalline (flake) graphite versus amorphous graphite the better, 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%) on the one hand, and a higher percentage of larger flakes in the final concentrate on the other, 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 favourable flake-size distribution which serves a number of potential final products.

The graph below illustrates that Munglinup is one of the highest-grade development project and among the less capital intense and lower cost projects in our universe of new producers and projects under development.

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 super jumbo, jumbo and large flakes for each deposit [TCG (jumbo) + (large flakes)]

MINERAL COMMODITIES

DISCLAIMER

RECOMMENDATIONS HISTORY

Mineral Commodities

Market index: FTSE AIM Basic Resources

Date	Market Index	Stock Price (A\$)	Valuation (A\$)	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
29-June-2020	2,398	0.24	0.47	Buy

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BUY: The stock is expected to generate absolute positive price performance of over 10% during the next 12 months.

HOLD: The stock is expected to generate absolute price performance of between negative 10% and positive 10% during the next 12 months.

SELL: The stock is expected to generate absolute negative price performance of over 10% during the next 12 months.

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

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