



BRIDGE STREET
CAPITAL PARTNERS

SHEFFIELD RESOURCES LTD (SFX AU, \$0.49. Market cap A\$203m)
Thunderbird on budget and on schedule for 4Q23 commissioning. Growth strategy to be funded by a modest equity raise.

Investment view

Construction of SFX's 50%-owned Thunderbird project is now over 75% complete with commissioning scheduled for 4Q23. Thunderbird is a Tier 1, zircon-dominated mineral sands project boasting low costs (R/C of 2.5). It is readily expandable and has a minimum 30-40 year mine life.

Our revised project NPV_s for Thunderbird of A\$1.65bn translates to a fully funded valuation of \$2.15/share for SFX, diluted for the recent A\$30m capital raising (at 50c/share). On our estimates SFX is trading on an effective EV/EBITDA of around 2x (2024/25f) based on its 50% share of project economics.

SFX has recently taken an inexpensive option to acquire an ilmenite-rich mineral sands project in Brazil, which may deliver growth beyond Thunderbird. This to us is a very sensible approach to building SFX into a significant mid-cap miner.

SFX has been evaluating additional mineral sand opportunities with Thunderbird now fully funded and moving toward production. SFX's Executive Chair Bruce Griffin, a mineral sands specialist, and his team, have been successful in reconfiguring and fully funding the Thunderbird project. We believe SFX has a management team well positioned to identify quality mineral sand opportunities to add to its Tier 1 asset base. In our view, mineral sands developments require an in-depth knowledge of this complex sector, from technical, permitting, marketing and financing viewpoints. Few companies globally are able to deliver these skills, in our view.

A recent \$30m capital raise will allow SFX to enter into a low-cost option to acquire the South Atlantic ilmenite-rich mineral sands project in Brazil. This is a project well known to SFX's Executive Chair, and it already looks very promising. In a sector crying out for new production capacity, we are surprised that a project of this calibre seems not to have been evaluated by the major producers.

The South Atlantic mineral sands project in Southern Brazil – key points:

- Located in the state of Rio Grande do Sul in the far south of Brazil, consisting of a sequence of dunes and beach sands extending for some 80km. The deposit comprises 4 contiguous deposits: Retiro, Estreito, Capão do Meio and Bujuru.
- The exploration target for Retiro and Bujuru alone is 500 to 720Mt at 3.2 to 4.0% total heavy mineral content (THM). To us, there appears to be good potential for additional resources.
- THM grades are reported at 3-10%, low slimes (<5%, which is very important) and 3 to 12m in thickness. The deposits are at surface, and therefore could be amenable to low-cost dredge mining.
- The valuable mineral assemblage (VHM) is dominated by ilmenite (a critical feedstock for the global pigment industry) which makes up around 78-79% of the VHM assemblage.
- While a lower zircon deposit than Thunderbird the zircon content is typical of this style of deposit and will be welcome in a market with medium term supply shortages expected from the decline of existing mines. From a revenue perspective the ilmenite might be around 50% and zircon 35%.
- The project has been well-explored, suggesting that a JORC Resource and even a feasibility study might emerge quite quickly.
- The project appears to be exceptionally well-located, lying adjacent to the town of Rio Grande, an industrial town with access to significant port infrastructure roads and power.
- Project risk seems to us to be related to environmental issues, lying adjacent to the coast and wetlands, and a curious locally-imposed mining ban (which we believe to be irrelevant, and which should not impact on the Federally-issued mining tenements).

The South Atlantic mineral sands project

The South Atlantic deposits lie adjacent to the Atlantic coast, having derived valuable HM from the weathering of ancient shield rocks of Southern Brazil, and concentrated by wave action along a palaeo-coastline. The deposits are reported to be Quaternary in age (so perhaps just a few thousand years old).



Source, SFX draft presentation, February 2023

The sands are described as having been formed by the action of wind and sea currents and influenced by changing sea levels due to glaciation events. The more recent sedimentation has included the transport, concentration and preservation of HM placers along the barrier beach shorelines of the project area. These styles of deposits, in our experience, tend to have relatively low clays (or slimes) and can be reasonably coarse and therefore should lend themselves to conventional mining and metallurgical processing. The proximity of the project to export port facilities is of course a major positive.

To the deposits themselves:

- The deposit's 80km strike length has been extensively explored historically (RTZ and Paranapanema). Over 900 drill holes have been completed since the deposit's discovery in 1988.
- Importantly the exploration work appears to be of high quality with results having been reviewed by reputable consultants in 2014 and 2021. This may allow the conversion of Exploration Target to Resources quite quickly.
- The bulk of the drilling is confined to the southern Retiro deposit, with less at the northern Bujuru deposit. Both deposits are sufficiently drilled to allow Exploration Targets to be estimated by mineral sands specialist IHC Mining. It seems fairly clear from the plans presented that there is ample potential for additional resources within the 80km strike.
- Resources have been determined at cut-off grades of 1% and 2% and are as follows:

Deposit	Classification	Cut off (THM%)	Material (Mt)	In Situ HM (Mt)	THM (%)	HM Assemblage					Non Valuable HM (%)
						Ilmenite (%)	Altered Ilmenite (%)	Zircon (%)	HiTi / Rutile (%)	Leuco-xene (%)	
Retiro	Exploration Target	2.0	250	10	3.9	49	5	5	3	0	38
	Exploration Target	1.0	380	12	3.0	49	5	5	3	0	38

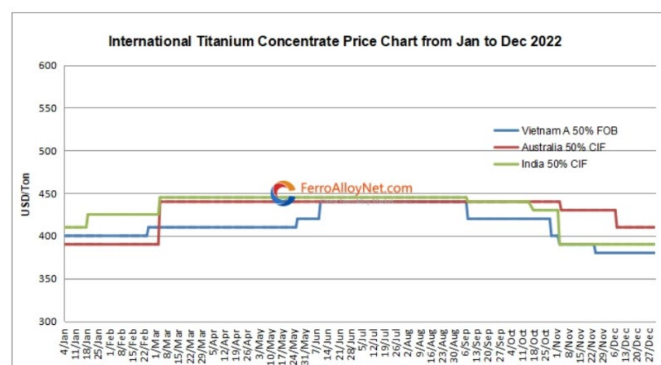
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						Ilmenite (%)	Altered Ilmenite (%)	Zircon (%)	HiTi / Rutile (%)	Leucos-xene (%)	
Bujuru	Exploration Target	2.0	250	10	4.0	53	6	6	3	0	32
	Exploration Target	1.0	340	11	3.3	53	6	6	3	0	32

Source: SFX release February 2023

- So, in total, an Exploration Target of 500 to 720Mt at a total heavy mineral grade of 3.3-4% and with an ilmenite-dominated mineral assemblage. Clearly a large volume of exploration data will take some time to digest, but with limited additional work, it's possible we could see a JORC (2012) Resource quite quickly.
- In Appendix 1 we compare the South Atlantic Exploration Target tonnes and grades against other resources for projects already in or close to production. Perhaps the best comparison regarding grades would be Kenmare's Tier 1 ilmenite project, Moma, in Mozambique (KMR LSE). Resource tonnes are much larger (although reserve tonnes are significantly less). Grades are quite similar to those of Retiro and Bujuru. Moma is a dredge operation, and we'd imagine South Atlantic would follow a similar path.
- We understand that past explorers of the South Atlantic project had successfully prepared HM concentrates from bulk samples, but little information is available regarding recoveries of the HM. The suggestion here is that the metallurgical recoveries are acceptable, but we await further information.
- Assuming say a conversion of 50% of the current Exploration Target to a mining inventory, at a typical 20mtpa production rate a minimum 15 year mine life could be suggested. This scale is comparable to Thunderbird (Phase 2), the recently commissioned Coburn mine of Strandline (STA ASX) and KMR's Moma project.

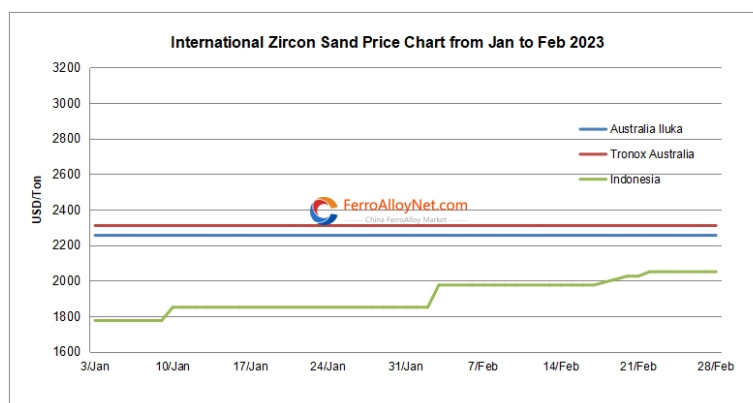
Ilmenite – pricing remains robust

- Ilmenite makes up around 50% of the South Atlantic THM fraction and around 78-79% of the valuable heavy mineral assemblage. Reference is made to "sulphate ilmenite" which will suit the large number of sulphate pigment producers globally.
- Ilmenite pricing has responded to a tightening feedstock market, reflecting the increasing maturity of the sector, and not helped with a ban on coastal mining in India in recent years. Prices have soundly outperformed expectations and show little sign of weakening significantly. Ilmenite (together with zircon and rutile) appear to be very attractive commodities going forward.



Zircon – inventories remain tight

- As we've discussed in past papers, the outlook for zircon is very positive. Based on our estimates some 65% of Thunderbird's revenue is derived from zircon. Based on grades from the South Atlantic Exploration Target, zircon revenues could be around 35%. This mineral – an opacifier for ceramic whitegoods – appears to be strongly supply constrained. This is reflected in robust pricing from the major suppliers, Iluka, Tronox and Richards Bay Minerals.
- As SFX noted in its December quarterly, premium zircon from major producers moved from c.US\$1,350 per tonne in mid-2019 through to c.US\$2,200 per tonne during Q3 2022 and remained around this level in Q4 2022.
- Demand softness in China first observed in Q3 2022 continued in Q4 2022. The market in Europe weakened in Q4 2022 due to energy supply constraints.
- However global zircon supply remains balanced, and inventory levels are low, limiting the pressure on prices with major producer prices expected to soften in early 2023 but remain above US\$2,000 per tonne, well above long term price forecasts.



- Short term pricing pressure was seen in late 2022 with Indonesian prices under pressure. However the re-emergence of the Chinese economy has driven these prices higher. There is no sign that the major Australian suppliers, Iluka and Tronox, have changed their pricing stance, with premium zircon prices still well over US\$2000/t (CIF).

The deal

The South Atlantic option is inexpensive. In summary SFX can earn into the project from a local private company with good mining credentials. SFX has negotiated an option to acquire a 20% interest in RGM, a privately-owned Brazilian miner and the 100% owner of the South Atlantic Project in Brazil, via an initial option contribution of just US\$2.5m, with further staged payments totalling US\$12.5m based upon the achievement of key milestones.

Ultimately SFX could move to 80% (and potentially 100%) with the delineation of JORC resources, a DFS and the conclusion of project financing.

Under the terms of the deal the maximum expenditure commitment to July 2024 is US\$7.5m (ca. A\$11m), so now easily fundable by SFX.

To us, this looks like an exceptionally attractive deal to earn into what would become a quality, and possibly low cost source of sulphate ilmenite. And SFX has certainly not ‘bet the farm’ to earn into the project as we’ve seen elsewhere in the industry.

The equity issue

The early stages of SFX’s growth strategy will be funded with the recent capital raising of around A\$30m with \$18m from a placement at 50c (now complete) and a 1:14 rights issue (also at 50c).

Our valuation

We have edged up our value for the project as we roll ‘Year 1’ to 2023 and with the addition of \$68m in equity into Thunderbird from the partners. We had also taken a fairly conservative assumption on production and sales in the projects first year of production. Given what appears to be an ‘on time/on budget’ construction schedule, we have pulled a little more production into 2023 anticipating a rapid start for the project in 4Q23.

We note that STA’s Coburn mineral sands project appears to be ramping up very quickly and expect something similar for Thunderbird.

Our project valuation (fully funded, 100% basis) has increased from just under \$1.5bn to \$1.65bn.

Our valuation per share, now \$2.15/share (and previously \$2.25/share), takes 50% equity in the project valuation and dilutes for the recent equity raise (with an additional 60.8m shares raising ca. A\$30m).

[We are currently undertaking a review of our Thunderbird model but do not expect much change from our current estimates.]

FINANCIAL SUMMARY **Sheffield Resources Limited (SFX.AX)**

Share Price	A\$/sh	0.49	Target Price	n/a
Shares on Issue	m	414	Upside / (Downside)	n/a
Market Cap (A\$m)	A\$m	203	Dividend Yield	0%
Net Debt / (Cash) (A\$m)	A\$m	(35)	Total Return Forecast	n/a
Enterprise Value (A\$m)	A\$m	168		

Profit & Loss	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Sales and Other Income	A\$m	139	174	192	184	238
Expenses	A\$m	(45)	(97)	(104)	(104)	(126)
EBITDA	A\$m	94	77	88	80	112
D&A	A\$m	(12)	(22)	(18)	(18)	(22)
EBIT	A\$m	82	55	70	62	90
Interest	A\$m	(11)	(12)	(10)	(13)	(12)
Tax	A\$m	(21)	(13)	(18)	(15)	(23)
NPAT	A\$m	50	30	42	34	54

Cashflow	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Cash From Operations	A\$m	94	77	88	80	112
Interest	A\$m	(11)	(12)	(10)	(13)	(12)
Tax	A\$m	(21)	(13)	(18)	(15)	(23)
Working Capital	A\$m	(3)	(6)	(2)	3	(8)
Net Cash From Operations	A\$m	60	45	59	56	68
Capex	A\$m	(60)	(9)	(17)	(73)	(41)
Exploration	A\$m	-	-	-	-	-
Acquisitions / Investments	A\$m	-	-	-	-	-
Free Cash Flow	A\$m	(1)	37	41	(18)	27
Borrowings (repayment of borrowings)	A\$m	69	(18)	(35)	107	(41)
Equity	A\$m	-	-	-	-	-
Dividend	A\$m	-	-	-	-	-
Net Increase / (Decrease) in Cash	A\$m	68	18	6	89	(14)

Balance Sheet	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Cash	A\$m	158	177	183	272	258
Receivables	A\$m	11	14	15	15	19
Inventory	A\$m	7	9	10	9	12
PP&E	A\$m	157	144	143	198	217
Other	A\$m	116	116	116	116	116
Assets	A\$m	450	459	467	610	623
Creditors	A\$m	11	14	15	15	19
Borrowings	A\$m	145	127	92	199	158
Other	A\$m	1	1	1	1	1
Liabilities	A\$m	157	142	108	214	178
Net Assets	A\$m	292	317	358	396	445

Liquidity & Leverage	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Borrowings	A\$m	145	127	92	199	158
Net Debt / (Cash)	A\$m	(13)	(50)	(91)	(73)	(100)
Gearing: Net Debt / (Net Debt + Equity)	%	-5%	-19%	-34%	-23%	-29%
Net Debt / EBITDA	x	(0.1)x	(0.6)x	(1.0)x	(0.9)x	(0.9)x
EBIT Interest Cover	x	7.8x	4.4x	7.0x	4.9x	7.3x

Per Share Data	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Shares Out (m)	414	414	414	414	414
EPS (¢)	12.1¢	7.1¢	10.1¢	8.3¢	13.1¢
Dividend (¢)	-	-	-	-	-
Payout Ratio (%)	0%	0%	0%	0%	0%
Book Value (A\$/share)	0.71	0.77	0.86	0.95	1.07
Operating Cash Flow (A\$/share)	0.14	0.11	0.14	0.13	0.16
Free Cash Flow (A\$/share)	(0.00)	0.09	0.10	(0.04)	0.07
EBITDA (A\$/share)	0.23	0.19	0.21	0.19	0.27

Valuation Metrics	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
P/E (x)	4.1x	6.9x	4.8x	5.9x	3.7x
Dividend Yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%
EV / Sales	1.2x	1.0x	0.9x	0.9x	0.7x
EV / EBITDA	1.8x	2.2x	1.9x	2.1x	1.5x
EV / EBIT	2.1x	3.1x	2.4x	2.7x	1.9x
FCF Yield (%)	-0.3%	18.0%	20.2%	-8.8%	13.3%

Operating Metrics (%)	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
EBITDA Margin	68%	44%	46%	43%	47%
EBIT Margin	59%	31%	36%	34%	38%
Net Profit Margin	36%	17%	22%	19%	23%
ROIC	29%	20%	26%	19%	26%
Return on Assets	11%	6%	9%	6%	9%
Return on Equity	17%	9%	12%	9%	12%
Effective Tax Rate	30%	30%	30%	30%	30%

Key Assumptions	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Non-mag Concentrate (US\$/t)	852	887	828	759	739
Mag Con (US\$/t)	119	137	133	131	111
NM Finisher mag (US\$/t)	115	117	113	109	104
AUDUSD	0.70	0.70	0.70	0.70	0.70

Production	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Mag Con (kt)	600	654	747	759	1,058
Non-mag Concentrate (kt)	150	179	209	213	297
Paramagnetic Concentrate (kt)	50	77	90	91	127

Valuation	A\$m	Equity	Risk	A\$m	A\$/share
Thunderbird	1,656	50%	100%	828	2.00
Exploration	83	50%	100%	41	0.10
Corporate Costs	(18)	100%	100%	(18)	(0.04)
Net Cash (Debt)	35	100%	100%	35	0.08
Total	1,756			887	2.15
WACC					8.0%
FPO Shares					407
Options					2
Performance Rights					5
Fully Diluted SOI					414

Our SFX forecasts are based on a 50% equity share of KMS which owns 100% of the Thunderbird project. The data displayed represents 50% of all components of the production, P&L, cashflow and balance sheet (adding assets as at December 2021). Accounting standards will require SFX to equity account its interest in KMS, which will therefore report dividend and interest income and overhead costs only. This standard provides limited transparency and so we have decided to proceed with this more visible reporting method.

Appendix 1. Resource comparatives in the Mineral Sands sector

		Mining type	Resource/reserve (Mt)	HM (%)	Contained mineral (%)			Contained mineral (Mt)		Cutoff grade (%)
					Ilmenite	Zircon	Rutile	Feedstock	Zircon	
Moma	Kenmare	Dredge	6324	2.9%	2.4%	0.2%	0.1%	155.1	10.1	n/a
Thunderbird**	Sheffield/Yansteel	Dry	3230	6.9%	1.9%	0.6%	0.4%	74.3	18.4	3%
QMM	RIO	Dredge	1300	n/a	4.3%	0.2%		55.9	2.6	n/a
Richards Bay Minerals*	RIO	Dredge/dry	1393	n/a	2.3%	0.3%		32.0	4.2	n/a
Grand Cote	Eramet	Dredge	1847	1.4%	1.0%	0.1%	0.0%	18.7	2.6	1%
Coburn	Strandline	Dry	1606	1.2%	0.6%	0.0%	0.0%	9.5	0.4	0.8%
Eucla (JA+)	Iluka	Dry	242	4.8%	2.8%	1.2%	0.1%	7.1	2.9	n/a
Kwale	Base	Hydraulic	205	1.9%	1.0%	0.1%	0.0%	2.0	0.2	1%
South Atlantic	SFX earning	?Dredge	500	4.0%	2.0%	0.2%	0.2%	11.0	1.0	2%
South Atlantic	SFX earning	?Dredge	720	3.1%	1.6%	0.2%	0.2%	12.3	1.1	1%
* Reserves only for RBM, otherwise resources. Latest available figures.										
**HiTi + Leucoxene for Thunderbird										
Projects highlighted with a grey background are located in Africa										

Source: Company reports

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Dr Chris Baker, an authorised representative of BSCP, certifies that the advice in this report reflects his honest view of the company. He has 32 years investment experience in wholesale capital markets. He worked as a mining analyst for brokers BZW and UBS for 11 years and has a further 16 years' experience as a mining analyst and portfolio manager with Colonial First State and Caledonia Investments. He now provides independent financial advice on a part time basis. He may own securities in companies he recommends but will declare this when providing advice. He currently owns shares in SFX. He is remunerated by BSCP but is not paid a specific fee for providing this report. BSCP, its directors and consultants may own shares and options in SFX and may, from time to time, buy and sell the securities of SFX.

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Appendix 1

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