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SHEFFIELD RESOURCES LTD (SFX AU, \$0.345. Market cap A\$119.6m)

Sale of non-core asset for \$24m and upgrade to our zircon price assumptions results in a 12% increase to our NPV₈, now \$1.62/share.

Several important events for Sheffield over the past week or so:

- Just announced, SFX has sold its 100% Eneabba project to Image Resources for an impressive cash consideration of \$24m (\$1m of this is payable following FIRB approval and conclusion of the transfer). SFX has ample tax losses to cover the sale, so it represents a value of 7c/share or 20% of the market cap of the company for an asset the market almost didn't know existed.
- This will allow SFX to easily fund its estimated \$10m equity contribution to the Kimberley Mineral Sands JV at FID. This is a real win for the company.
- On 19 November SFX advised that the Northern Australia Infrastructure Facility (NAIF) has completed a strategic assessment of the Thunderbird Mineral Sands Project, with Thunderbird now proceeding to NAIF's due diligence phase.
- Unlisted company, Kalbar Resources announced that the Environmental Effects Statement (EES) for its world-class Fingerboards project had been rejected by the Victorian Government. In our view Fingerboard's zircon in the ground for at least another 5 years, and perhaps forever. It also draws into question the future for two or three other Victorian projects. In an already very tight zircon market, this will further constrain zircon supply with a consequent increase in medium/long term pricing. SFX's Thunderbird is one of the very few fully permitted new projects world-wide. We have marked up our zircon price assumptions by US\$100/t

Incorporating \$24m to SFX's balance sheet and with a higher zircon price assumption has seen our valuation increase by 12% to \$1.62/share. The large share price discount seems quite unjustified with the finalisation of the BFS and a debt package now the only impediments.

Victoria now becomes an even riskier jurisdiction to permit mining:

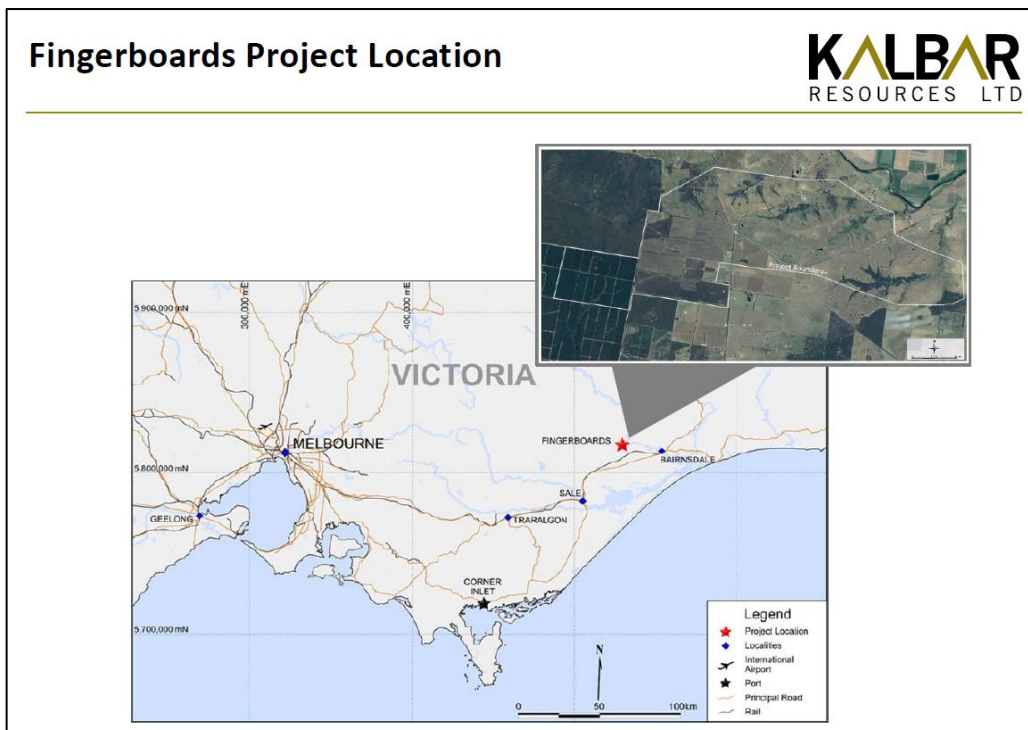
- We were surprised that the Victorian Minister for Planning rejected Kalbar's EES for its Fingerboards Zircon Project in Gippsland, Victoria. This assessment has been going on for well over 12 months, and it was widely believed that a development licence (a key requirement for a mining lease) would be awarded to the company, but with a number of pretty tough conditions.
- This was not to be, and the Minister rejected the application outright, based on:
 - Unacceptable environmental effects on native vegetation and biodiversity.
 - Impact on air quality.
 - Impact on neighbouring agriculture/horticulture.
 - The flow on effects to the local community's sense of place, cohesion and wellbeing.
- Sadly, it cements Victoria in premier position for the most difficult state in Australia to develop a mining operation, and perhaps one of the toughest globally. We'd be surprised if Kalbar (and its PE funders) don't challenge this decision. Resolution of this issue could take 5 years, and possibly a change of government.
- The 2019 updated BFS showed what a robust project this was. At ca. 133ktpa zircon, it was to supply around 10% of the world's requirement of zircon.

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- We now ask the question: does this decision place further permitting risk on the Murray Basin mineral sand projects currently seeking approval? These include:
 - WIM Resources' Avonbank project: 75-100ktpa zircon
 - Astron Resources' Donald project: ca. 120ktpa zircon and zircon in concentrates
 - Iluka's endeavours in the Murray Basin with the underground proposal for Balranald (we are sceptical here but it would be much easier to permit) and the Wimmera project (which is at a very early stage).
- We understand both Avonbank and Donald are going through permitting processes currently. Even if the projects are approved, the conditions attached may severely compromise the projects' economics.

Summary of Kalbar's Fingerboards Project



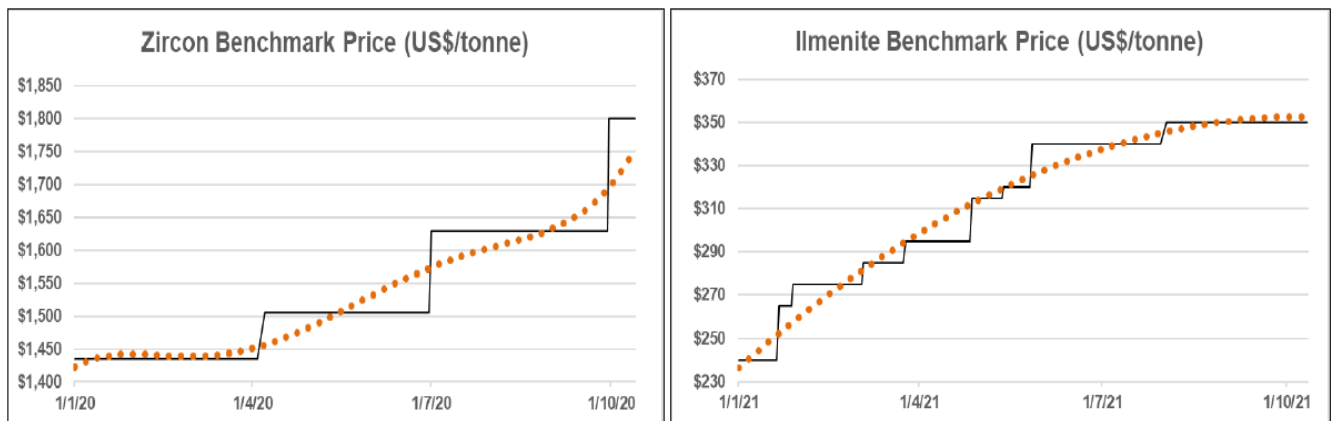
BFSU² completed September 2019 with following highlights:

- Avg. zircon in cons of 133ktpa (~10% global supply)
- Avg. REO in cons of 12.5ktpa (5% of global supply)
- Avg. Rutile in cons of 60ktpa
- Avg. Ilmenite in cons of 98ktpa
- 14-year mine life
- Up-front capital expenditure of \$213 million
- Avg. annual EBITDA¹ of \$260 million
- Post-tax Project NPV₈ of \$1.2 billion
- Post-tax IRR of 64%

Upgrade to our zircon price assumptions.

As we reported in our note in early November, the mineral sand commodities were early movers in the current cycle, largely responding to fundamental supply shortages. Over the past 5 years we have seen progressive production decline from key global mining operations, including the giant Richards Bay dredge/dry mining operation, and from two of Iluka's key operations, Jacinth-Ambrosia and Eneabba. Rutile and zircon production was also impacted with the temporary closure of Iluka's Sierra Rutile operations. Iluka (ILU:ASX) has been doing an excellent job managing zircon supply with swing production from reprocessed tails from the Eneabba tailings dams. This, together with small Asian suppliers, have been important swing production during these challenging times.

Our model has around 56% of Thunderbird's revenue from zircon concentrates and around 34% from ilmenite/HiTi products. Thunderbird is forecast to produce around 200ktpa on zircon concentrate in years 1 to 5. This translates to around 120Ktpa zircon, which will make it one of the world's larger zircon suppliers. Then then there is the likelihood of a Stage 2 expansion.



Zircon: prices now at 8 year highs

The rapid return of Chinese tile manufacturers — one of the largest consumers of zircon — shortly after the Chinese New Year holiday and the recovery of other markets following the Covid-19 outbreak have contributed to a strong uptick in demand this year.

At its interim results presentation ILU reported:

- 2Q zircon sales were up 70% YoY.
- A US\$70/t price increase locked in for 2Q with a further US\$125/t increase from 1 July.
- Chinese tile production is back at pre-pandemic levels and production lines in Spain, Italy, Brazil and Turkey are operating at 90% capacity.
- Indian capacity has been curtailed due to COVID.
- Customer inventories are reported to be low.

We note in Base Resources September quarterly that the company is expecting an additional US\$150/t into the September quarter and additional \$600/t in the December quarter, which will take price achievement for zircon to over US\$2000/t. Admittedly, this is for relatively small tonnages. (BSE produce 24-28ktpa). But it does throw some credibility into the very high prices being obtained by the small alluvial producers in Indonesia, which have been reporting numbers over \$2000/t for many months.

Origin	Spec.	Price on 12 November 2021	Price on 19 November 2021	Change	Destination	Unit	Basis
Iluka in Australia	(Zr,Hf)O ₂ ≥66%, TiO ₂ ≤0.1%, Fe ₂ O ₃ ≤0.1%	1785-1815	1785-1815	--	Xiamen, Tianjin, Shanghai, Zhanjiang, Guangzhou Port	USD/Ton	CIF China
Tronox in Australia (Tiwest)	(Zr,Hf)O ₂ ≥66%, TiO ₂ ≤0.15%, Fe ₂ O ₃ ≤0.07%	1810-1820	1810-1820	--	Xiamen, Tianjin, Shanghai, Zhanjiang, Guangzhou Port	USD/Ton	CIF China
Indonesia	(Zr,Hf)O ₂ ≥66%, TiO ₂ ≤0.1%, Fe ₂ O ₃ ≤0.1%	2200-2450	2200-2350	↓50	Xiamen, Tianjin, Shanghai, Zhanjiang, Guangzhou Port	USD/Ton	CIF China

Source: Ferroalloy.net.com

Zircon concentrate assumptions – underlying zircon price now \$1600/t

The following table shows our calculation for the approximate pricing of Thunderbird's zircon concentrate. This is based on the zircon and a mixed feedstock content and assumes a payability of around 75%. This translates to a concentrate price of US\$833/t (CIF basis). Note that these are BSCP estimates and now assume a \$1600/t long term zircon price (previously \$1500 for a mix of premium and standard zircon). This is up from US\$746/t (CIF) from our review in June and \$789/t earlier in the month.

Pricing of concentrate	
ZrO ₂ content	39%
Gross up to zircon content	59%
Zircon price assumed (US\$/t)*	1600
Value of zircon in concentrate	936
TiO ₂ in concentrate	25%
Value of feedstock mix (US\$/t)	500
Value of TiO ₂ in concentrate (US\$/t)	125
Monazite (approx)	50
Total contained value (US\$/t)	1111
Payability (approximate)	75%
Net value of concentrate (US\$/t)	833
*Premium + standard zircon	

This has pushed our fully funded, after-tax valuation for SFX up to \$1.74/share, up 20% from our previously reported estimate. It must be stressed that we are awaiting detail from the forthcoming updated BFS, now due in early 2022. This may affect our appraised valuation of the project.

The upward revision of our NPV8 is as a result of the following inputs:

- The increased pricing assumptions for zircon concentrate.
- The \$24m valuation for the non-core Eneabba project sold to Image. We now value this and the McCalls mineral sand project (the later still owned by SFX) at \$30m.

Our new valuation breakdown is as follows:

Thunderbird (NPV8), post tax	A\$m	\$ 1,119	
Ownership by SFX	%	50%	"Kimberley Mineral Sands"
Thunderbird (NPV8)	A\$m	\$ 560	Fully funded
Dampier project exploration (50%)	A\$m	\$ 25	Notional
Perth Basin exploration (100%)	A\$m	\$ 30	Eneabba (sold for \$24m) + other
PV of overheads for SFX	A\$m	-\$ 18	"<\$2m per year"
Cash (at September 2021)	A\$m	\$ 6	
SFX valuation	A\$m	\$ 603	
Number of shares, current	m	346	
New equity required	A\$m	\$ 10	Estimate
Number of new shares	m	31.3	Raised at 32c
Total number of shares	m	377	Post final raise
NAV adding new cash	A\$m	\$ 613	
NAV/share	A\$	\$ 1.62	

Note we have taken a conservative approach and retained the need for a small equity raise during 2022. With the sale of Eneabba, it's possible this won't be necessary.

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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 29 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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