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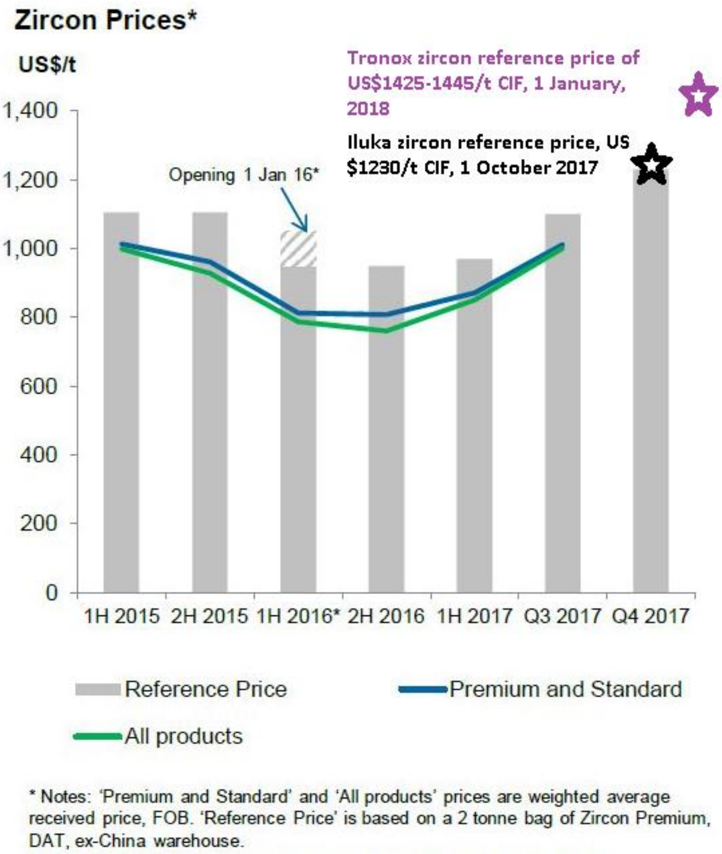
Sheffield Resources Ltd (SFX AU, $0.66. Market cap A$191m)

Tronox pushes premium zircon prices 9.5% to US$1425-1445/tonne

- The New Year for zircon started with a bang. Tronox Ltd increase its premium zircon reference price by around 9.5% to US$1425-1445/t (CIF basis).



Source: Base figure from Iluka investor presentation, November 2017

- With the completion of the interim equity funding last year, our unrisked valuation increased to A$1.92/share (previously $1.71), driven by lower than forecast dilution by the recent (and a future) equity raise. See report for funding assumptions.
- Finalisation of frustrating delays to the Native Title issues and the grant of a mining lease over SFX's 100%-owned Thunderbird project are critical for the on-going rerating of SFX. However, this issue is not yet on the critical path. Importantly, initial civil works have already begun.

Investment Summary

Commodity overview

- Major zircon producer, Tronox, increased premium zircon prices by around 9.5% to a range of US$1425-1445/t (CIF) from 1 January 2018. This action is reflective of a continuing tight supply/demand outlook for the commodity.
- On the demand side, there is a general view emerging that zircon intensity of use in the ceramic industries is increasing. Demand growth of 3% per year is forecast in our modelling.
- Our modelling of recent mine restarts (especially the Jacinth – Ambrosia mine of Iluka) and declines in producer inventory confirms the view presented recently by Iluka that the current supply deficit will continue to magnify. This may translate into further price strength for zircon over the next 12-24 months
- We now believe that zircon will move into supply/demand balance in 2020 driven by new mining operations incentivised by higher prices. Long-term commodity price assumptions for zircon at US$1400/t and premium sulphate ilmenite of US$220/t are unchanged.

Sheffield/Thunderbird update

- SFX has been able to accelerate activities at its 100%-owned Thunderbird project following an A$32m equity raise and the establishment of a US$175-200m project debt facility. (See Pulse Markets report dated November 2017 for our views).
- Early works on the mine site have commenced, with access roads and an employee's camp under construction. (See P10).
- Despite issues with Native Title, we believe SFX will be in a position to start construction of Thunderbird in mid-2018, with first commissioning in 3-4Q2019.
- A second appeal to the Federal Court in December was upheld. The challenge by one of the native title groups related to a point of law, which in our view remains ambiguous. The case is to be returned to the National Native Title Tribunal during 1Q18 for a final judgement. Native Title is the last obstacle to the granting of a mining lease. (See P9 for further details).

Sheffield valuation

- There has been no change to our valuation of A$1.92/share valuation for SFX. This is based on the above commodity price assumptions, a USD exchange rate of 0.75 and specific funding assumptions. (See P13).
- Critical to the project's viability is finalisation of the Taurus debt package. This is likely to be reliant on product offtake contracts (binding contracts now cover around 50% of stage 1 revenues – see P8) and mining lease grant.
- We also see the potential for a sell-down of the project to an end-user. Our scenario analysis (P14) presents a range of alternatives, as we see them.
- The recent purchase of the Toliara mineral sands project in Madagascar by Base Resources confirms that Sheffield provides an inexpensive exposure to a "Tier 1" project.

Rerating of Sheffield

- A positive medium outlook for the mineral sands commodity cycle provides and attractive backdrop to the sector.
- We envisage on-going rerating of SFX as the current Native Title issue is resolved and the company moves into final funding and the construction and production phase of Thunderbird.

Developments in the global zircon markets

The last 2 months has seen a number of high profile events which continue to point to zircon supply shortfalls. This should not come as any surprise. A tight zircon market has now been evident for the past 18 months.

Tronox lifts zircon pricing by 9.5% in 2018

The current market tightness has translated to a further 9.5% price rise from one of the key zircon suppliers, Tronox, which has a ca. 17% market share globally. The US$130 price hike in the Iluka reference price, as announced in November last year, will remain in place until 1 April 2018. However, it would not surprise us to see another US$130/t price lift, or possibly more, beyond that date. The demand lull into Chinese New Year (starting 16 February) will have passed, and the Chinese property market, while possibly softening, seems still to be growing at above trend levels.

Nothing yet from the third largest global zircon producer, Rio Tinto.

International Premium Zircon Sand Market Price by Origin on 2 January 2018

Origin	Specification	Price	Change	Destination	Remarks
Iluka in Australia	$(Zr.Hf)O_2 \geq 66\%, TiO_2 \leq 0.1\%, Fe_2O_3 \leq 0.1\%$	1290-1300	--	Xiamen,Tianjin, Shanghai,Zhanjiang, Guangzhou Port	CIF,USD/T
Tronox in Australia (Tiwest)	$(Zr.Hf)O_2 \geq 66\%, TiO_2 \leq 0.15\%, Fe_2O_3 \leq 0.07\%$	1425-1445	**+125**	Xiamen,Tianjin, Shanghai,Zhanjiang, Guangzhou Port	CIF,USD/T
Indonesia	$(Zr.Hf)O_2 \geq 66\%, TiO_2 \leq 0.1\%, Fe_2O_3 \leq 0.1\%$	1280-1300	--	Xiamen,Tianjin, Shanghai,Zhanjiang, Guangzhou Port	CIF,USD/T
Tronox in South Africa(Namakwa)	$(Zr.Hf)O_2 \geq 66\%, TiO_2 < 0.12\%, Fe_2O_3 < 0.06\%$	1405-1415	**+125**	Xiamen,Tianjin, Shanghai,Zhanjiang, Guangzhou Port	CIF,USD/T
RBM in South Africa	$(Zr.Hf)O_2 \geq 66\%, TiO_2 < 0.15\%, Fe_2O_3 < 0.1\%$	1200-1230	--	Xiamen,Tianjin, Shanghai,Zhanjiang, Guangzhou Port	CIF,USD/T
Vietnam	$(Zr.Hf)O_2 \geq 65\%, TiO_2 \leq 0.15\%, Fe_2O_3 \leq 0.1\%$	1100-1120	--	Xiamen,Tianjin, Shanghai,Zhanjiang, Guangzhou Port	CIF,USD/T

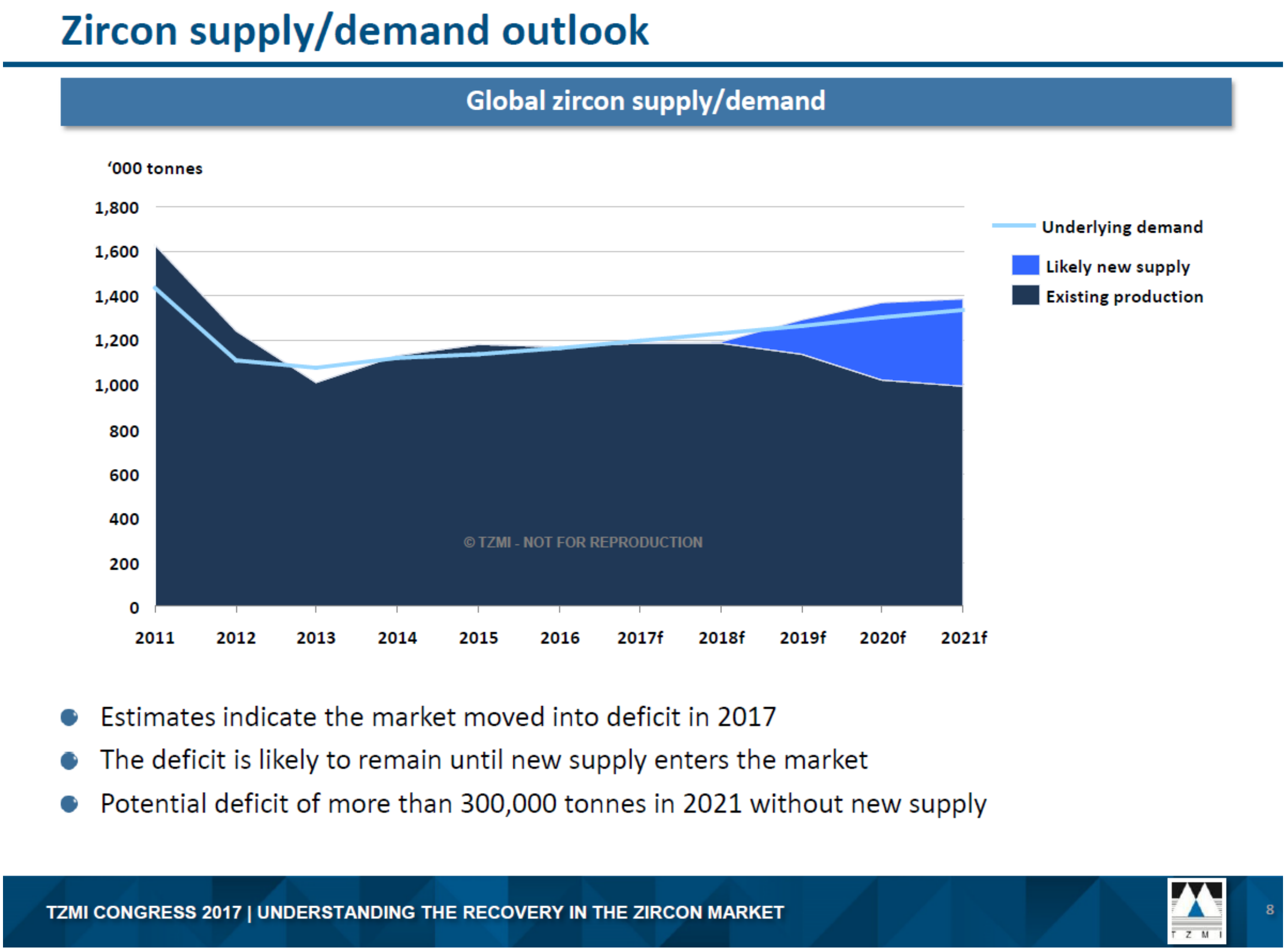
Source: Ferroalloynet.com, 2 January 2018

The 2017 TZMI Conference, Hong Kong

At last year's TZMI Conference (Hong Kong, December 2017), the consultant reported that they believed zircon moved into supply deficit during 2017. This deficit could move to over 300,000 tonnes by 2021 (some 25-30% of demand) without new supply. Importantly, TZMI are forecasting a return to demand growth following 5-6 years of static demand, largely driven by thrifting by the ceramic manufacturers. Demand is expected to grow by 2.8% per year into 2021 with specialty end-users above trend, ceramics on trend and refractory and foundry end users below tend.

China is forecast to remain the dominant consuming region, but with high rates of growth out of India. TZMI concedes that substitution concerns are real, but innovation and high-quality applications are seeing increased zircon usage. This is echoed by market-leader Iluka (see below)

The conference concluded with the statement that the zircon market is at "an interesting turning point". We concur with that view. We would argue that the deficit was starting to appear in 2016, as Iluka's J-A and Murray Basin mines and Rio Tinto's RBM all delivered declining production. It really was only high levels of inventory which kept the supply balance in place.



Source: TZMI Congress 2017. Understanding the recovery in the Zircon Market. Gavin Diener.

Iluka Investor Day, 10 November 2017

In the 25 years we have been covering Iluka, this is one of the most detailed and analytical presentations delivered by the company. The conclusion: zircon will be in "significant supply deficit" from 2019 and "consumers simply have not seen it coming". They see no new mine "white knights" in the short term.

We found the following points interesting.

Demand

- Iluka presented a stronger demand estimate compared to TZMI (by around 50kt pa).
- ILU state that there is currently no inventory build in zircon and that there has been an inability from producers to respond, generating favourable pricing conditions.
- Iluka presented detail regarding substitution of zircon for other compounds. In summary:
    - They see only 2% of the zircon market where substitution risk is real (in sand castings). In other words, much of the easy substitution has already occurred.
    - In around 50% of applications (mainly ceramics) is there a medium to low risk of substitution.
    - In the balance (48%, mainly chemicals) there is negligible risk of substitution.
- Iluka believe – and this should be caveated with the fact that the company is the largest producer in the world – that substitution of zircon has reached its technical limit.
- The rise of digital printing in the production of high quality ceramic tiles is supporting an increased intensity of use in tile-making.
- Increasingly, architects are employing large zircon-rich, porcelain tiles for high-end decorative use. A random search of the internet – not to mention a walk through several modern buildings – demonstrates the use of large ceramic tiles in place of dimension stone (eg marble and granite). These larger tiles are demanding higher intensity of zircon use to ensure strength and rigidity in the kiln.

Source: https://www.montolit.com/gres-porcelain-is-climbing-walls/

Supply

- ILU confirmed information from other market sources: that the artisanal producers in Kalimantan are providing swing production, in response to the recent price surge. ILU believe they have the capacity to generate around 2000 tonnes per month.

- Iluka can see a limited number of high quality zircon and rutile projects globally. Those that exist are generally in higher sovereign risk locations and are likely to deliver higher unit costs due to grade and distance to infrastructure.
- Otherwise, the ILU/TZMI sourced tabulation of new sources of supply contained few new entrants that we hadn't already factored into our estimates.
- The restart of the Eucla Basin operations by ILU has always been in our numbers but not at the levels suggested in ILU's recent release. In theory, even without the 30% concentrator upgrade and without high-grading, the J-A operations could be producing at over 160ktpa (on a pure zircon basis) for perhaps 3 years. We have used a more cautious number for 2018 and 2019, and have not applied the concentrator upgrade until 2020. Note that this upgrade has still not been sanctioned.

As shown on the accompanying supply/demand analysis, we have included the Image Resources/Boonanarring project in WA, which has recently been sanctioned. (However, it has yet to be debt financed, and final environmental permits are still awaited).

Zircon forecast supply (pure zircon equivalent basis)			**2016e**	**2017e**	**2018e**	**2019e**	**2020e**
Country	Location	Company					
Australia	Eucla Basin	Iluka	0	0	140	140	170
S.Africa	Namakwa	Tronox	120	120	120	120	120
S.Africa	Richards Bay	Rio Tinto	105	125	113	101	91
Mozambique	Mozambique	Kenmare Resources	52	80	80	80	80
Senegal	Grande Cote	TiZir (Eramet/MDM JV)	50	60	70	70	70
Australia	Western/Eastern Aust.	Cristal Mining	60	60	70	70	70
Australia	Thunderbird	Sheffield	0	0	0	20	70
USA	Florida	Chemours	65	65	65	65	65
S.Africa	Fairbreeze	Tronox	30	40	40	50	55
Madagascar	Port Dauphin	QMM	50	50	50	50	50
Australia	Fingerboards	Kalbar	0	0	0	5	50
Australia	Boonanaring	Image Resources	0	0	10	20	32
Australia	Perth Basin	Iluka	130	75	50	30	30
Kenya	Kwale	Base Resources	30	38	38	30	30
Australia	Murray Basin,NSW	Cristal Mining	20	20	30	30	30
S.Africa	Tormin	Mineral Commodities Ltd	32	25	25	25	25
Brazil	Mataraca, Paraiba	Millennium Inorganic Chemicals	25	25	25	25	25
Indonesia	Various	Various	-	5	24	24	24
Australia	Western Australia	Tronox	22	22	20	20	20
India	Tamil Nadu	Tata Steel	20	20	20	20	20
Ukraine	Vilnohirsk	Vilnohirsk SMMP	30	25	15	15	15
USA	Mission South	Southern Ionics	15	15	15	15	15
Australia	Dardanup	Doral Mineral Sands	15	15	15	15	15
Vietnam	Thua Thien Hue Province	Thua Thien Hue Mineral Corp (I	11	11	11	11	11
India	Kerala/Orissa	Indian Rare Earths Limited	10	10	10	10	10
		Total	**1,295**	**1,112**	**1,108**	**1,105**	**1,192**
		Growth in supply	*7.1%*	*-14.1%*	*-0.4%*	*-0.2%*	*7.9%*
		Growth in demand		*3.0%*	*3.0%*	*3.0%*	*3.0%*
		Surplus/deficit		24	-13	-49	4

Note: forecast production of >10ktpa in 2020 included in the table.

Important points form this table include the following:

- RBM's Zulti South project. We still have no clarity on the future of this project, but it is unlikely to be in production until 2021. Managers Rio Tinto need this project to avoid significant value destruction of this once grand asset. Our estimate of 91ktpa from 2020 is guesswork, but coincidently it is of the same quantum as estimated by Iluka.

- The following issues need to be evaluated to further understand supply-side risk (up and down):
    - Potential delays in the commencement of production from Kalbar's Fingerboards project in Victoria, where permitting is underway.
    - Delays in permitting at SFX's Thunderbird project due to Native Title issues.
    - The emergence of production from the WIM deposits of the Murray Basin of Western Victoria. We note that Astron's Donald project (the old WIM250) is now permitted, and positive noises are being made about the metallurgical performance of this fine-grained deposit.
    - In this regard ILU spent time talking about their strategic advantage in the Murray Basin, highlighting their now-idled concentrator and Hamilton Mineral Separation Plant. It would not surprise us to see ILU's new management refocus on the Murray Basin. We understand that drilling has recommenced on Iluka's own deposits, and resources will be reported during 2018. However, we don't see these deposits in production until well after 2020.
    - This change of strategy implies that the controversial Balranald deposit of ILU might well be abandoned.
- Our supply deficit is certainly starting to shrink (once as large at 100kt in 2020) as higher zircon and feedstock prices are incentivising future production. That said, we concur with Iluka that the industry appears to be in significant supply deficit for the short term. However, we do see that the supply deficit will begin to disappear by 2020 assuming the ramp-up profiles for the new projects remain in life with company projections. The track record of new projects over the past 10 years suggests that these assumptions will be optimistic, and the deficit might be with us for longer than forecast.

Sheffield Resources' off-take agreements – 75% of premium zircon and 100% of ZIC now under binding agreement

Marketing of industrial minerals such as zircon and ilmenite is not like many other commodities, such as the base metals or even the bulks, such as iron ore and coal. For these commodities there is a futures market, and future deliveries can be used to hedge volumes and prices.

Mineral sands are much more end-user facing, and there are (to our knowledge) no futures market with any depth. It is therefore critical that projects of this type are secured with binding offtake agreements.

The company has secured binding offtake agreements for the supply of premium zircon and zircon-in-concentrate (ZIC) with 4 parties:

1. Ruby Ceramics Pvt Ltd (India) for a minimum of 6,000tpa.
2. Sukaso Ceracolors Ceramics Pvt Ltd (India) for a minimum 12,000tpa.
3. CFM Minerales s.a. (Spain) for 4,000tpa, with an option for a further 2,000tpa.
4. Nanjing Rzisources International Trading Co. (China), 15,000tpa premium zircon and 23,000tpa ZIC over 5 years.

This takes total offtake under binding agreement for premium zircon to 75% and 100% of ZIC for Stage 1. This is a very positive outcome, and underlines (1) the quality of the project and (2) the strong demand for zircon away from conventional producers.

We have not yet seen debt providers Taurus sign off on the facility. But undoubtedly one of the conditions precedent for this facility is a secure sales book. This has now largely been achieved.

Frustrating delays to a final Native Title determination.

A second appeal by the Native Title group to the Federal Court was upheld, and has put the issue back to the National Native Title Tribunal (NNTT). This came as a surprise to the company, and to ourselves. However, as SFX says, this outcome should not be interpreted that Sheffield did not negotiate in good faith. It simply questions whether the decision-making process was appropriately handled. The court has instructed that the issue go back to the NNTT for a final review recognising the conclusions from the appeal.

As a reminder, the first appeal to a single Federal Court judge was denied. In this second appeal – to the full bench of the Federal Court – the appeal was upheld, but not unanimously.

The issue largely surrounds a letter sent to the native title group after the lodgement of the FADA (Future Act Determination Application– the submission to the NNTT) and whether SFX continued to act in good faith in their action of sending a letter directly to the native title group (rather than their lawyer) shortly afterwards. The letter simply said that the issue was going to the NNTT as the two groups had reached an impasse, and that SFX's earlier offers (which are confidential) still remain on the table.

The Federal Court judgement - 42 pages of legalese - discusses a variety of issues. Key to the judgement is whether Sheffield actually needed to continue to negotiate in good faith after lodgement of the FADA. The court found that the good faith obligation does continue to apply after lodgement of a FADA and for that reason the NNTT must now take the letter into account. What is interesting in the judgement is that there are comparatively few precedents, and many of them are over 10 years old.

So this is the point of law which was tested, and the NNTT judgement was found to have not interpreted the wording of the Act appropriately with regard to the period post the lodgement of the FADA. But remember, it was not a unanimous decision.

So it's now back to the NNTT ("in 1Q18"…hopefully early in the quarter) for what we hope is a final decision on this point of law.

None of this is slowing SFX's progress. Early works on the access road and camp site have started. The recently acquired camp should be in place early in 2018. While the NNTT issue is a speedbump, it is not yet on the critical path for construction of the project.

Following the judgement the CEO of the Kimberley Land Council was quoted (The Australian 23/12/17) as saying that this is not about opposing development. It is all about ensuring claimants are making well informed decisions. Furthermore he said that there was no agreement covering cultural heritage nor compensation. It is our understanding that the mining area has full heritage clearance from the traditional owners, and there is indeed a compensation deal on the table.

Commencement of Early Works

In early December Sheffield announced the start of initial works and site access arrangements to support the Thunderbird project. This is being undertaken under a WA Minor and Preliminary Works Licence. This will allow the installation of a large accommodation village over the next few months in readiness for the start of construction in 2Q18.

Sheffield has provided the following images which illustrates the progress being made. What impresses us is the clear involvement of the Traditional Owners, both in the pre-clearance survey and now in direct employment by the company and contractors.

Pre Clearance Survey for Heritage, Flora and Fauna with Traditional Owners

Work Ready Participants – Derby

Final finishing for Village Access Road

Clearing at Village Site under Minor or Preliminary Works Approvals

Local Contractor at Village Site

Working within the Wet Season activities

Valuation of Thunderbird – now at $1.92/share

Our valuation for SFX (on an unrisked basis) remains at A$1.92/share. This is based on the following assumptions:

- Critical commodity price assumptions of US$1400/t for premium zircon and US$220/t for sulphate ilmenite.
- A$/US$ of 0.75.
- Stage 1 capex of A$350m, with LOM capex of A$545m (excluding sustaining capex).
- Project level gearing of 50%.
- A sell-down of 20% equity at project level at a 50% discount to project NPV.
- A total equity raise of A$102m (including last year's raise of A$32m), so a balance of around $70m, to be raised in 1H18. Here we have assumed 100% of the equity raise will be issued at A$0.70/share, in line with the recent raising.

Thunderbird (NPV10), post tax	A$m	$ 565.6	
Add back capex	A$m	$ 350.0	
Less working capital		-$ 20.0	
Thunderbird (NPV10)	A$m	$ 895.6	Unfunded NPV
Mine site exploration	A$m	$ 10.0	Notional
Equity NPV	A$m	$ 905.6	
Project debt	A$m	-$ 175.0	50% debt/equity
NPV less debt	A$m	$ 730.6	
Ownership by SFX	A$m	80%	Sell down equity in project
Implied SFX equity	A$m	$ 584.5	
Cash	A$m	$ 10.0	Current
PV of corporate costs	A$m	-$ 80.0	Estimate
Other exploration	A$m	$ 10.0	Notional
Corporate NAV	A$m	$ 524.5	
Number of shares	m	180.5	
New equity, say	A$m	$ 102.0	Estimate, incl interim raise
Number of new shares	m	145.7	Incl interim raise
Total number of shares	m	326.2	
NAV adding new cash	A$m	$ 626.5	
NAV/share	A$	$ 1.92	

Scenario analysis

Finalisation of the debt package (and we would be surprised if the Taurus due diligence finds any issues with the Hatch-led BFS), together with the recent A$32m equity raise has suddenly given SFX a better degree of flexibility regarding the funding of Thunderbird.

To us there appear to be a number of options now available to Sheffield. These may include the following.

Base case, 50% project gearing, with an 20% sell-down to outside interests at a 50% discount to NAV, with ca. $70m in new equity raised at 70c or perhaps $1/share (share price currently 75c).

Increasing project gearing to 75%, but with a sell-down of 20%. Note that the Taurus debt package is not fully drawn under our financing assumption (A$230m vs $175m).

Gearing at 50% and 75%, no sell-down, with a $70-160m equity raise at $1/share

(Unrisked)	NAV/share (A$)	Equity required (A$m)*
Base case, equity raised at A$0.70/share	$1.92	70
Base case, equity raised at A$1/share	$2.13	70
Project gearing at 75%, selldown to 80%	$2.15	0
Gearing at 50%, equity raise at A$1/share, no selldown	$2.23	160
Gearing at 75%, equity at A$1/share, no selldown	$2.31	70
* In addition to the recent A$32m raise at 70c.		

Not surprisingly the largest increase in value to shareholders sits with a highly geared project and equity raised at a higher than current share price.

What is interesting is that under a scenario of a 20% sell-down and 75% project gearing – potentially a risky scenario – SFX would need no more equity to complete Stage 1 of Thunderbird. No doubt the board will be evaluating all options.

What do we learn from Base's purchase of Toliara?

Bae Resources (BSE AU, not covered). a small cap, East African producer, announced the acquisition of the Toliara mineral sands project located in Madagascar. The Ranobe deposit is the key deposit, and it high grade ilmenite, with lesser by-product rutile and zircon. We have known this project for many years, when it was in WTR Resources, and ultimately secured by a private equity group. It has long been expected to IPO at some stage.

It appears that there has still not been a PFS completed on the project, which is surprising given its long exploration history.

Key points regarding the project itself:

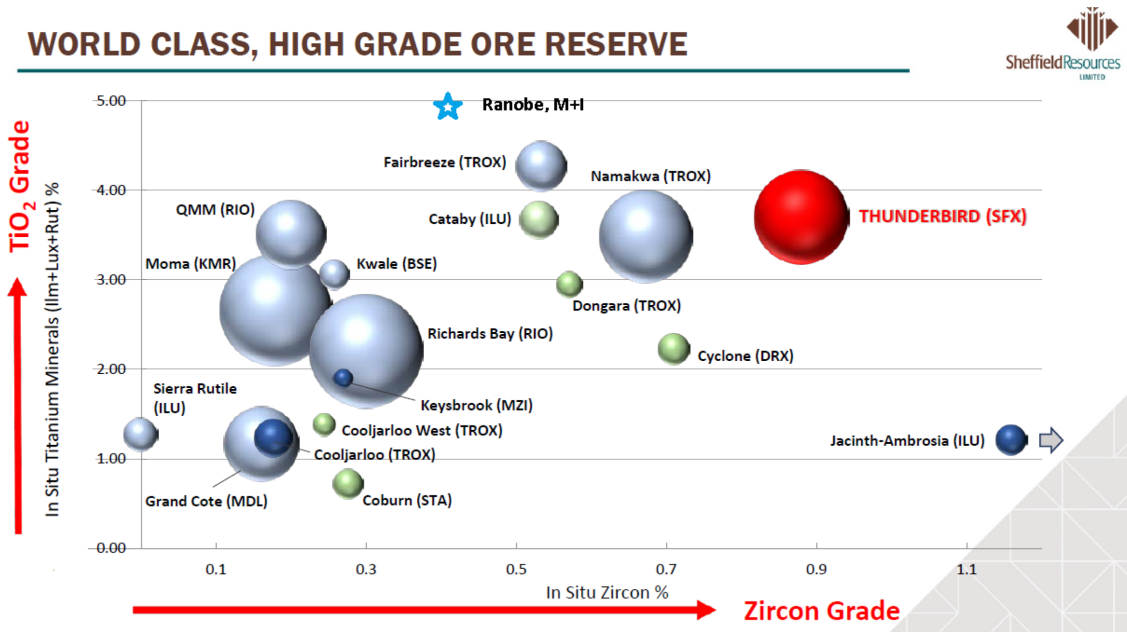
- Toliara/Ranobe is located in the SW of Madagascar, some 50-60km away from port infrastructure. A new road is to be constructed to port.
- The resource is large (857mt) which BSE state is suitable for a 40 year plus mine life.

- The deposit outcrops and the strip ratio is negligible. BSE believe that it will generate a first quartile revenue to cost ratio.
- The deposit is dominated by ilmenite which makes up 58% of the in situ value of measured and indicated resources. The balance is rutile (8%) and zircon (34%).
- We have no information on the quality of the ilmenite, but assume it to be similar to that mined by Rio Tinto at QMM in the far south of Madagascar. This material is typically 48% TiO2 material, suitable for the production of slag or for the sulphate pigment markets.
- There is no information on the quality of zircon.
- The deposit is low in slimes.
- A mining lease covers the deposit and environmental permits are in place. Land acquisition (at undisclosed cost) is underway, and is expected to be complete in mid 2018.
- BSE are to complete a PFS at the end of 2018, and a BFS in 3Q19. First production – all going well – is suggested to be 3Q2021.
- There has been no estimate of capital cost as yet.

The acquisition terms are US$75m cash immediately for 85% of the project, and a further $17m once fiscal terms and FID are finalised. The balance of 15% comes to BSE automatically after 2 years, or BSE can purchase this equity earlier with the payment of US$15m. (In this analysis, we have assumed an acquisition cost of US$102m).

How does this compare with SFX and its Thunderbird project? The following cross plot, from Sheffield, attempts to put Ranobe in perspective against its peers. It is certainly high in TiO2, but only mid-field in zircon content. Note that these data are all for proven and probable reserves. (We believe comparing resource grades is potentially misleading). In the absence of reserve grades for Ranobe (as there still isn't a PFS available) we have used the deposits measured and indicated resource grades.

The comparison is a little bit 'apples and pears' in that for example Sierra Rutile is dominated by higher value rutile (ca. US$900/t) whereas Ranobe is dominated by ilmenite (US$150-200/t).



Source: Sheffield Resources, TZMI conference presentation, November 2017

So how does Toliara/Ranobe compare with SFX's Thunderbird deposit, and what about the US$102m purchase price against SFX's current EV of around US$119m? Again, note that the following comparison is based on Thunderbird's proven and probable reserves and Ranobe's M+I resources.

		SFX/Thunderbird	Toliana acquisition by BSE
		Proved and Probable	Measures and Indicated
Ore tonnes	Mt	680.5	612.0
HM tonnes	Mt	76.8	40.8
HM grade	%	11.3	6.7
Assemblage			
Ilmenite	%	27.4	72.0
Rutile	%	0	2.0
HiTi	%	4.7	0.0
Zircon	%	7.7	6.0
Contained mineral			
Ilmenite	Mt	21.04	29.38
Rutile	Mt	0.00	0.82
HiTi	Mt	3.61	0.00
Zircon	Mt	5.91	2.45
Price assumptions			
Ilmenite	US$/t	170	170
Rutile	US$/t	900	900
HiTi	US$/t	700	700
Zircon	US$/t	1200	1200
In situ value/tonne ore	US$/t	19.40	14.16
EV or price paid	US$m	119.3	102.0
EV or price paid per US$1000 of insitu value	US$	9.04	11.77

(Note we have used commodity prices quoted by BSE in their announcement. We have also assumed 100% of product is valued as final product, not concentrate).

Both are large deposits, and hold attractive grades. The in-situ value of Thunderbird at US$13.2Bn is around 50% larger than Ranobe. The in-situ value per tonne of ore for Thunderbird is US$19.40, or 37% higher than Ranobe's in-situ value, helped by a higher zircon grade.

Based on SFX's current EV, investors are paying around US$9 per US$1000 of in situ value for Thunderbird. This is around 23% less expensive than the BSE acquisition cost for Toliara.

We are left to conclude that either BSE has paid a full price for the Toliara project, or that Sheffield, with its 100% equity in a world class, zircon-rich mineral sands deposit is inexpensive. We don't need to be reminded that Thunderbird has a completed BFS, its debt funding is in place and much of the product offtake already positioned in binding agreements with customers. Base has yet to go down that tortuous path with Toliara.

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