

12 Dec 2014

SHEFFIELD RESOURCES LIMITED (SFX)

'Elephant' project thundering towards development

Sheffield Resources Ltd has released an updated resource estimate for the Thunderbird mineral sands project. As expected, based on recently disclosed drill results, the resource is significantly larger. The high grade (7.5% cut-off) resource has increased by ~340Mt to 1.1Bt and the global resource (3% cut-off) has increased by ~585Mt to 3.2Bt. Grade fell slightly (HM 11.8%, from 12.1%), but not significantly, and not in the area likely to be mined first (mine should have at least a 32 year life). Thunderbird is a significant mineral sands project that can add considerable global supply of sulphate ilmenite and zircon (circa 5-10% pa). Another way of thinking about the size of the project is that the high-grade zone in-situ zircon has increased by \$4.7b. The total in-situ VHM value is now ~A\$55b.

Potential for current project economics to get even better

The resource includes a significant new high-grade component in the near-surface, up-dip region of the deposit. This component, comprising an extra 120Mt @ 12.0% HM contains 1.1Mt of zircon and 3.7Mt of ilmenite and will increase the proportion of mine-life that has a very low strip ratio (less than 0.3x). This has an obvious positive impact to the project economics, but also leaves the possibility/flexibility that the project could be downsized to reduce start-up capital. We have modelled a scenario for a 10mtpa operation, followed by an expansion to 20mtpa in year five. We assume higher total capex, but reduce start-up capital to ~\$250m (from \$375m in our base case). This could reduce our start-up equity component by around 30% for a pre-tax NPV₁₂ (unfunded) of ~\$360m. Note, our base case model assumes a start-up 20Mtpa operation.

Saleable products, more met work due shortly

The Company has shown potential final products from early met work to TZMI, and Chinese marketing group Ruidow Information Technology Co Ltd. Their feedback on marketing was a) the primary zircon product meets the premium classification for the requirements of the ceramic zircon sector; b) primary ilmenite product is a suitable feedstock for the sulphate-route TiO₂ pigment process, or as a feed for either titanium sulphate- or chloride-slag manufacture. The low levels of alkalis and chromium also make this an attractive feedstock for blending with ilmenite from other deposits with higher levels of these contaminants. The Company is currently completing a 15t bulk sample test, with results expected in January 2015.

Strategically important deposit

Thunderbird is a significant mineral sands project that can add considerable global supply. Such a large addition would surely reduce selling prices below what they would otherwise settle at. Back-of-the envelope calculations suggest every \$100/t reduction in zircon prices reduces the NPV₈ of a 300ktpa zircon producer by ~\$300m, and adds ~\$1.2b of value to the ~1.2mtpa zircon end user base.

Retain Buy

The PFS for Thunderbird is expected in March 2015. We have a twelve month price target of \$1.90 and have a Buy recommendation.

Share Price	\$0.70
Preliminary valuation	\$1.58
Price Target (12 month)	\$1.90

Brief Business Description:

Mineral sands developer plus an exciting multi-commodity exploration portfolio (Fraser Range Ni, Oxley potash, Nth Pilbara iron ore).

Hartleys Brief Investment Conclusion

The Dampier project is large (could add 5-10% pa of global zircon supply) and scoping study economics to develop are very compelling.

Chairman & MD

Will Burbury (Exec-Chairman)

Bruce McQuitty (MD)

Top Shareholders

Will Burbury - The Burbury Family A/C 5.9%

Bruce McQuitty 5.8%

David Archer Family Super Fund 5.8%

Company Address

Level 1, 57 Havelock Street

West Perth, WA 6005

Issued Capital 134.4m

- fully diluted (itm) 142.1m

Market Cap A\$94.1m

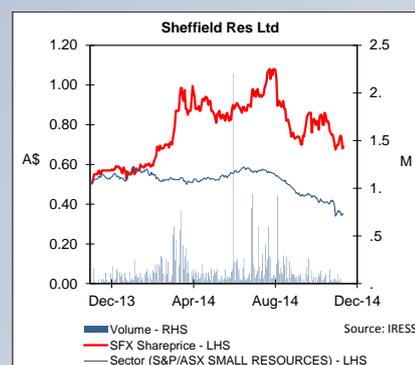
- fully diluted A\$99.4m

Cash (30 Sep 14a) A\$8.7m

Debt (30 Sep 14a) A\$0.0m

EV A\$85.4m

	FY17e	FY18e	FY19e
EBITDA	-8.4	141.7	160.8
Op Cash Flw	-8.2	192.7	141.4
Norm NPAT	-22.4	96.0	97.8
CF/Share (cps)	-3.1	73.6	54.0
EPS (cps)	-8.6	36.6	37.3
P/E	-8.2	1.9	1.9



Trent Barnett

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Hartleys has assisted in the completion of a capital raising for Sheffield Resources Limited ("Sheffield") in the last 12 months for which it has earned fees. Hartleys has also provided corporate advice within the past 12 months and continues to provide corporate advice to Sheffield, for which it has fees and continues to earn fees. Analyst has a beneficial interest in SFX shares.

Sheffield Res Ltd					Share Price		12 December 2014					
SFX					\$0.700		Buy					
Key Market Information							Directors					
Share Price					\$0.700		Company Information					
Market Capitalisation - ordinary					A\$94m		Will Burbury (Exec-Chairman)					
Net Debt (cash)					-\$9m		Level 1, 57 Havelock Street					
Market Capitalisation - fully diluted					A\$99m		Bruce McQuitty (MD)					
EV					A\$87m		West Perth, WA 6005					
EV inc. assumed new capital					A\$462m		David Archer (Technical Director)					
Issued Capital					134.4m		+61 8 6424 8440					
Options					7.6		www.sheffieldresources.com					
Issued Capital (fully diluted inc. all options)					142.1m							
Issued Capital (fully diluted inc. all options and new capital)					270.4m							
Valuation					\$1.58							
12month price target					\$1.90							
P&L							Top Shareholders					
	Unit	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19	m shares %						
Net Revenue	A\$m	0.0	0.0	276.3	332.3	Will Burbury - The Burbury Family A/C						
Total Costs	A\$m	-8.0	-8.4	-134.6	-171.5	Bruce McQuitty						
EBITDA	A\$m	-8.0	-8.4	141.7	160.8	David Archer Family Super Fund						
- margin		-	-	51%	48%							
Depreciation/Amort	A\$m	-4.1	-14.0	-20.9	-21.1							
EBIT	A\$m	-12.1	-22.4	120.8	139.7							
Net Interest	A\$m	0.0	0.0	0.0	0.0							
Pre-Tax Profit	A\$m	-12.1	-22.4	120.8	139.7							
Tax Expense	A\$m	0.0	0.0	-24.8	-41.9							
Normalised NPAT	A\$m	-12.1	-22.4	96.0	97.8							
Abnormal Items	A\$m	0.0	0.0	0.0	0.0							
Reported Profit	A\$m	-12.1	-22.4	96.0	97.8							
Minority	A\$m	0.0	0.0	0.0	0.0							
Profit Attrib	A\$m	-12.1	-22.4	96.0	97.8							
Balance Sheet							Reserves & Resources					
	Unit	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19		Bt	Grade	Metal (Mt)	Attr.		
Cash	A\$m	243.8	31.6	220.3	357.7	Dampier	2.62	6.5%	72.0	100.0%		
Other Current Assets	A\$m	0.0	0.0	3.8	4.6	- high grade	0.74	12.1%	35.9	100.0%		
Total Current Assets	A\$m	243.8	31.6	224.1	362.3	Eneabba	0.30	2.2%	5.8	100.0%		
Property, Plant & Equip.	A\$m	95.3	281.2	260.4	239.3	McCalls	4.43	1.2%	53.0	100.0%		
Exploration	A\$m	30.3	34.3	38.3	42.3	Production Summary						
Investments/other	A\$m	0.0	0.0	0.0	0.0		Unit	Jun 16	Jun 17	Jun 18	Jun 19	
Tot Non-Curr. Assets	A\$m	125.6	315.6	298.7	281.6	Mill Throughput	Mt		0.00	15.90	20.80	
Total Assets	A\$m	369.4	347.2	522.8	643.9	Strip Ratio	x			0.24	0.24	
Short Term Borrowings	A\$m	-	-	-	-	HM grade	%			10.2%	10.2%	
Other	A\$m	5.2	5.4	85.1	108.4	Zircon Recovery	%			71.0%	71.0%	
Total Curr. Liabilities	A\$m	5.2	5.4	85.1	108.4	Total VHM production	kt			536.0	701.1	
Long Term Borrowings	A\$m	200.0	200.0	200.0	200.0	Zr production	kt			103.6	135.6	
Other	A\$m	-	-	-	-	Hi-Ti production	kt			16.3	21.4	
Total Non-Curr. Liabil.	A\$m	200.0	200.0	200.0	200.0	Sulph. Ilmenite production	kt			416.0	544.2	
Total Liabilities	A\$m	205.2	205.4	285.1	308.4	Revenue to Cost ratio	yr			2.4	2.1	
Net Assets	A\$m	164.2	141.8	237.7	335.5	Mine Life	Mt			31.3	30.3	
Net Debt	A\$m	-43.8	168.4	-20.3	-157.7	Ilmenite	% rev.			35.2%	34.6%	
Cashflow							Zircon	% rev.			58.9%	59.6%
	Unit	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19	Hi-Ti production	% rev.			5.9%	5.8%	
Operating Cashflow	A\$m	-3.8	-8.2	217.5	183.3	Costs						
Income Tax Paid	A\$m	0.0	0.0	-24.8	-41.9		Unit	Jun 16	Jun 17	Jun 18	Jun 19	
Interest & Other	A\$m	0.0	0.0	0.0	0.0	Rev milled tonne	\$A/t			17.4	16.0	
Operating Activities	A\$m	-3.8	-8.2	192.7	141.4	Cost per milled tonne	\$A/t			7.1	7.1	
Property, Plant & Equip.	A\$m	-100.0	-200.0	0.0	0.0	EBITDA / tonne milled ore	\$A/t			8.9	7.7	
Exploration and Devel.	A\$m	-8.0	-4.0	-4.0	-4.0	C1: Operating Cash Cost = (a)	\$A/t final product			220	217	
Other	A\$m	0.0	0.0	0.0	0.0	(a) + Royalty = (b)	\$A/t final product			235	231	
Investment Activities	A\$m	-108.0	-204.0	-4.0	-4.0	C2: (a) + depreciation & amortisation = (c)	\$A/t final product			258	247	
Borrowings	A\$m	200.0	0.0	0.0	0.0	(a) + actual cash for development = (d)	\$A/t final product			220	217	
Equity or "tbc capital"	A\$m	149.8	0.0	0.0	0.0	C3: (c) + Royalty	\$A/t final product			274	262	
Dividends Paid	A\$m	0.0	0.0	0.0	0.0	(d) + Royalty	\$A/t final product			235	231	
Financing Activities	A\$m	349.8	0.0	0.0	0.0	Price Assumptions						
Net Cashflow	A\$m	238.0	-212.2	188.7	137.4		Unit	Jun 16	Jun 17	Jun 18	Jun 19	
Shares	Unit	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19	AUDUSD	A\$/US\$	0.94	0.91	0.90	0.93	
Ordinary Shares - End	m	261.9	261.9	261.9	261.9	Ilmenite	US\$/t	215.3	214	208	195	
Ordinary Shares - W'ted	m	197.7	261.9	261.9	261.9	Zircon	US\$/t	1299.8	1360	1407	1365	
Diluted Shares - W'ted	m	197.7	261.9	261.9	261.9	Rutile	US\$/t	1281.4	1233	1200	1133	
Ratio Analysis							Leucoxene	US\$/t	961.0	925	900	850
Cashflow Per Share	A\$ cps	-1.9	-3.1	73.6	54.0	Avg selling price / VHM produced	A\$/t			515	474	
Cashflow Multiple	x	-36.5x	-22.5x	1.0x	1.3x	Sensitivity Analysis						
EV (+ cap.) / EBIT	x	-38.1x	-20.6x	3.8x	3.3x		Valuation	FY18 NPAT				
EV (+ cap.) / EBITDA	x	-57.7x	-54.9x	3.3x	2.9x	Base Case	1.55	96.0				
Earnings Per Share	A\$ cps	-6.1	-8.6	36.6	37.3	Spot Prices	1.00 (-35.5%)	60.5 (-37.0%)				
Price to Earnings Ratio	x	-11.4x	-8.2x	1.9x	1.9x	Spot USD/AUD 0.83, Ilmenite \$157/t, Zircon \$1050/t, Rutile \$950/t.						
Dividends Per Share	AUD	-	-	-	-	AUDUSD +/-11.07 / 2.12 (-30.8% / 37.4%)		78.9 / 116.8 (-17.8% / 21.7%)				
Dividend Yield	%	0.0%	0.0%	0.0%	0.0%	Ilmenite +/-10% 1.74 / 1.36 (12.3% / -12.3%)		102.8 / 89.1 (7.1% / -7.1%)				
Net Debt / Net Debt + Equity	%	-36%	54%	-9%	-89%	Zircon +/-10% 1.85 / 1.25 (19.3% / -19.4%)		106.8 / 85.1 (11.3% / -11.3%)				
Interest Cover	x	-	-	-	-	Rutile +/-10% 1.55 / 1.55 (0.0% / 0.0%)		96.0 / 96.0 (0.0% / 0.0%)				
Return on Equity	%	na	na	40%	29%	Leucoxene +/- 2.09 / 1.00 (35.3% / -35.2%)		115.7 / 76.4 (20.6% / -20.4%)				
							Operating Cost 1.28 / 1.81 (-17.3% / 17.2%)		87.7 / 104.2 (-8.6% / 8.6%)			
							Unpaid Capital					
							Year Expires	No. (m)	\$m	Avg price	% ord	
							30-Jun-15	0.0	0.0	0.00	0%	
							30-Jun-16	1.9	0.4	0.21	1%	
							30-Jun-17	1.7	0.2	0.14	1%	
							30-Jun-18	0.5	1.3	2.55	0%	
							30-Jun-19	1.9	1.5	0.81	1%	
							30-Jun-20	0.0	0.0	0.00	0%	
							TOTAL	6.0	3.5	0.58	4%	
							Valuation					
									\$m	/shr		
							100% Eneabba (pre-tax NAV at disc. rate of 12%)		0	0.00		
							100% Dampier (pre-tax NAV at disc. rate of 12%)		686	2.54		
							100% McCalls (pre-tax NAV at disc. rate of 14%)		0	0.00		
							Other Assets/Exploration		5	0.02		
							Forwards		0	0.00		
							Corporate Overheads		-89	-0.33		
							Net Cash (Debt)		9	0.03		
							Tax (NPV future liability)		-187	-0.69		
							Options & Other Equity		2	0.01		
							Total		427	1.58		
Analyst: Trent Barnett							Last Updated: 11/04/2014					
+61 8 9268 3052												
"tbc capital" could be equity or debt. Our valuation is risk-adjusted for how this may be obtained.												
Sources: IRESS, Company Information, Hartleys Research												

Fig. 1: SFX Resource

Thunderbird Resource NEW:				Mineral Assemblage				In-situ (Mt)				In-situ (A\$b)*				In-situ (\$b)*					
Mt	HM%	Slimes	O/size	Zircon	HiTi	Luec.	Ilmenite	Zircon	HiTi	Luec.	Ilmenite	Zircon	HiTi	Luec.	Ilmenite	Total	Zircon	HiTi	Luec.	Ilmenite	
HIGH GRADE (7.5% cut off)																					
M&I	955	11.9%	15.1%	10.1%	7.9%	2.4%	2.2%	28%	9.0	2.7	2.5	32.0	13.0	3.2	2.2	6.6	25.0	52.1%	12.8%	8.8%	26.3%
inferred	125	10.8%	14%	9%	7.7%	2.4%	2.2%	28%	1.0	0.3	0.3	3.8	1.5	0.4	0.3	0.8	2.9	51.4%	12.9%	8.9%	26.7%
Total	1,080	11.8%	15%	10%	7.9%	2.4%	2.2%	28%	10.1	3.1	2.8	35.8	14.5	3.6	2.5	7.4	27.9	52.0%	12.8%	8.8%	26.4%
GLOBAL (3.0% cut off)																					
M&I	2,625	7.0%	16.1%	9.1%	8.9%	2.9%	3.6%	28%	16.4	5.3	6.6	51.7	23.7	6.2	5.8	10.6	46.3	51.2%	13.4%	12.5%	23.0%
inferred	580	5.6%	16%	9%	8.8%	3.0%	4.1%	28%	2.9	1.0	1.3	9.1	4.1	1.1	1.2	1.9	8.3	49.7%	13.7%	14.1%	22.6%
Total	3,205	6.8%	16.1%	9%	8.9%	2.9%	3.7%	28%	19.3	6.3	8.0	60.8	27.8	7.3	7.0	12.5	54.6	50.9%	13.4%	12.8%	22.9%

* selling prices Zircon A\$1440/t, Rutile A\$1161/t, Leucosine A\$875/t, Ilmenite A\$206/t.

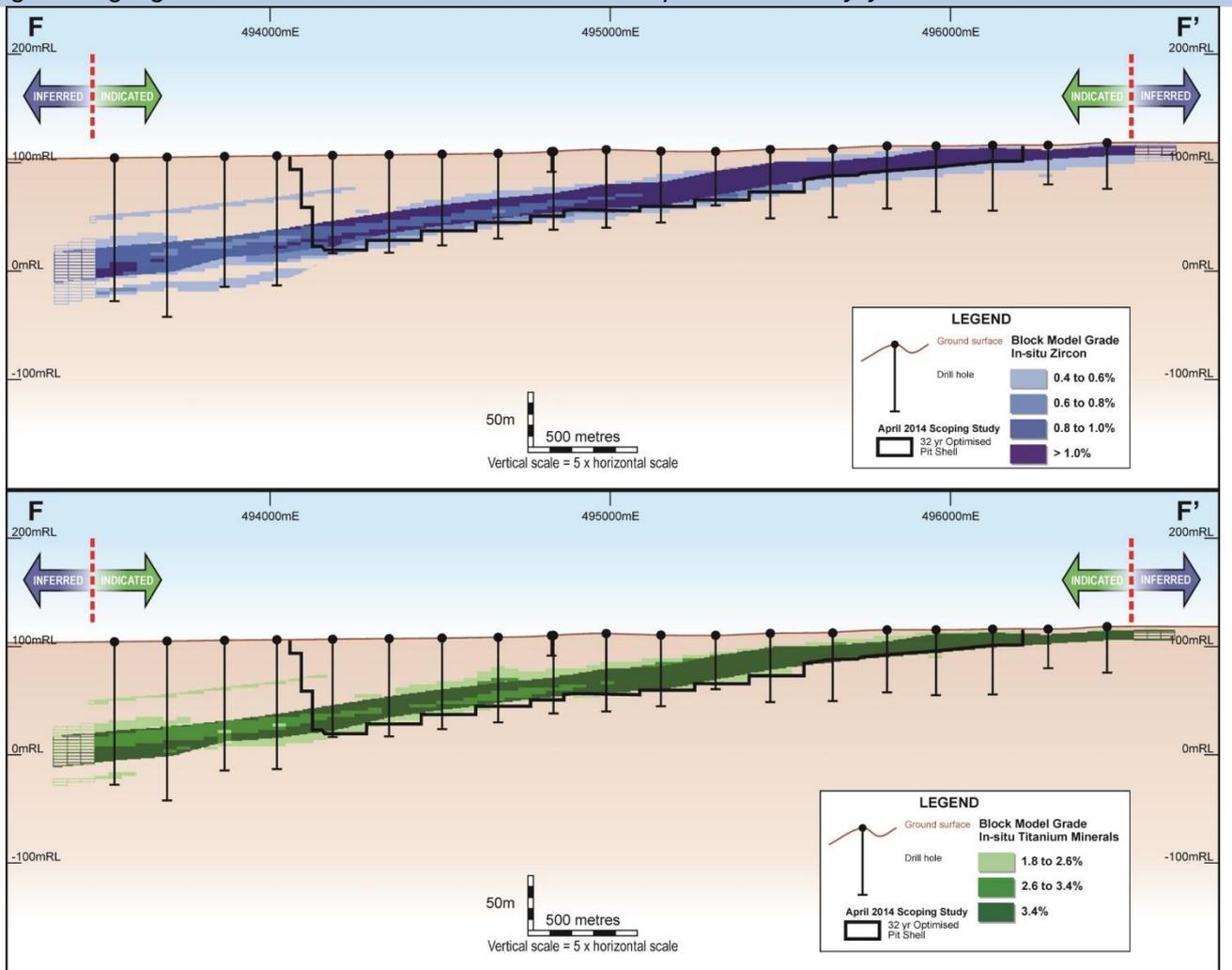
Thunderbird Resource OLD:				Mineral Assemblage				In-situ (Mt)				In-situ (A\$b)*				In-situ (\$b)*					
Mt	HM%	Slimes	O/size	Zircon	HiTi	Luec.	Ilmenite	Zircon	HiTi	Luec.	Ilmenite	Zircon	HiTi	Luec.	Ilmenite	Total	Zircon	HiTi	Luec.	Ilmenite	
HIGH GRADE (7.5% cut off)																					
M&I	575	12.5%	16%	11%	7.6%	2.3%	2.0%	28%	5.4	1.7	1.4	20.2	7.8	1.9	1.3	4.1	15.2	51.6%	12.7%	8.3%	27.4%
inferred	165	10.9%	14%	10%	7.6%	2.5%	2.2%	29%	1.4	0.4	0.4	5.2	2.0	0.5	0.3	1.1	3.9	50.4%	13.4%	8.9%	27.4%
Total	740	12.1%	16%	11%	7.6%	2.4%	2.1%	28%	6.8	2.1	1.8	25.4	9.8	2.5	1.6	5.2	19.1	51.3%	12.9%	8.5%	27.4%
GLOBAL (3.0% cut off)																					
M&I	1,880	6.8%	17%	9%	8.3%	2.7%	2.9%	28%	10.7	3.5	3.7	36.0	15.4	4.0	3.2	7.4	30.1	51.2%	13.4%	10.8%	24.6%
inferred	740	5.7%	15%	9%	8.5%	2.9%	3.5%	29%	3.6	1.2	1.5	12.1	5.2	1.4	1.3	2.5	10.4	49.8%	13.7%	12.5%	24.0%
Total	2,620	6.5%	16.5%	9%	8.4%	2.8%	3.1%	28%	14.3	4.7	5.2	48.2	20.6	5.5	4.6	9.9	40.5	50.8%	13.5%	11.3%	24.5%

* selling prices Zircon A\$1440/t, Rutile A\$1161/t, Leucosine A\$875/t, Ilmenite A\$206/t.

% difference				Mineral Assemblage				In-situ (Mt)				In-situ (A\$b)*				In-situ (\$b)*					
Mt	HM%	Slimes	O/size	Zircon	HiTi	Luec.	Ilmenite	Zircon	HiTi	Luec.	Ilmenite	Zircon	HiTi	Luec.	Ilmenite	Total	Zircon	HiTi	Luec.	Ilmenite	
HIGH GRADE (7.5% cut off)																					
M&I	66%	-4%	-6%	-9%	5%	4%	9%	0%	66%	65%	74%	59%	66%	65%	74%	59%	65%	1%	0%	5%	-4%
inferred	-24%	-1%	0%	-10%	1%	-4%	0%	-3%	-24%	-28%	-25%	-28%	-24%	-28%	-25%	-28%	-26%	2%	-3%	1%	-3%
Total	46%	-3%	-4%	-8%	4%	2%	7%	-1%	48%	45%	52%	41%	48%	45%	52%	41%	46%	1%	-1%	4%	-4%
GLOBAL (3.0% cut off)																					
M&I	40%	3%	-6%	0%	7%	7%	24%	0%	54%	54%	78%	44%	54%	54%	78%	44%	54%	0%	0%	16%	-7%
inferred	-22%	-2%	7%	0%	4%	3%	17%	-2%	-20%	-20%	-10%	-25%	-20%	-20%	-10%	-25%	-20%	0%	0%	13%	-6%
Total	22%	4%	-3%	0%	6%	6%	20%	-1%	35%	34%	53%	26%	35%	34%	53%	26%	35%	0%	0%	13%	-6%

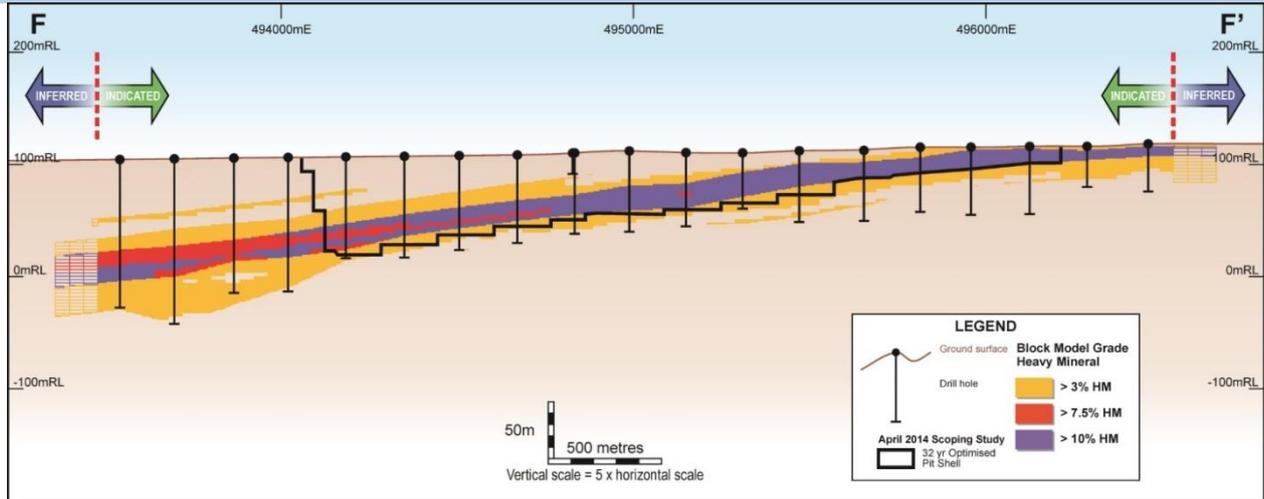
Source: SFX, Hartleys Research

Fig. 2: High grade zircon and titanium with low strip ratio in early years



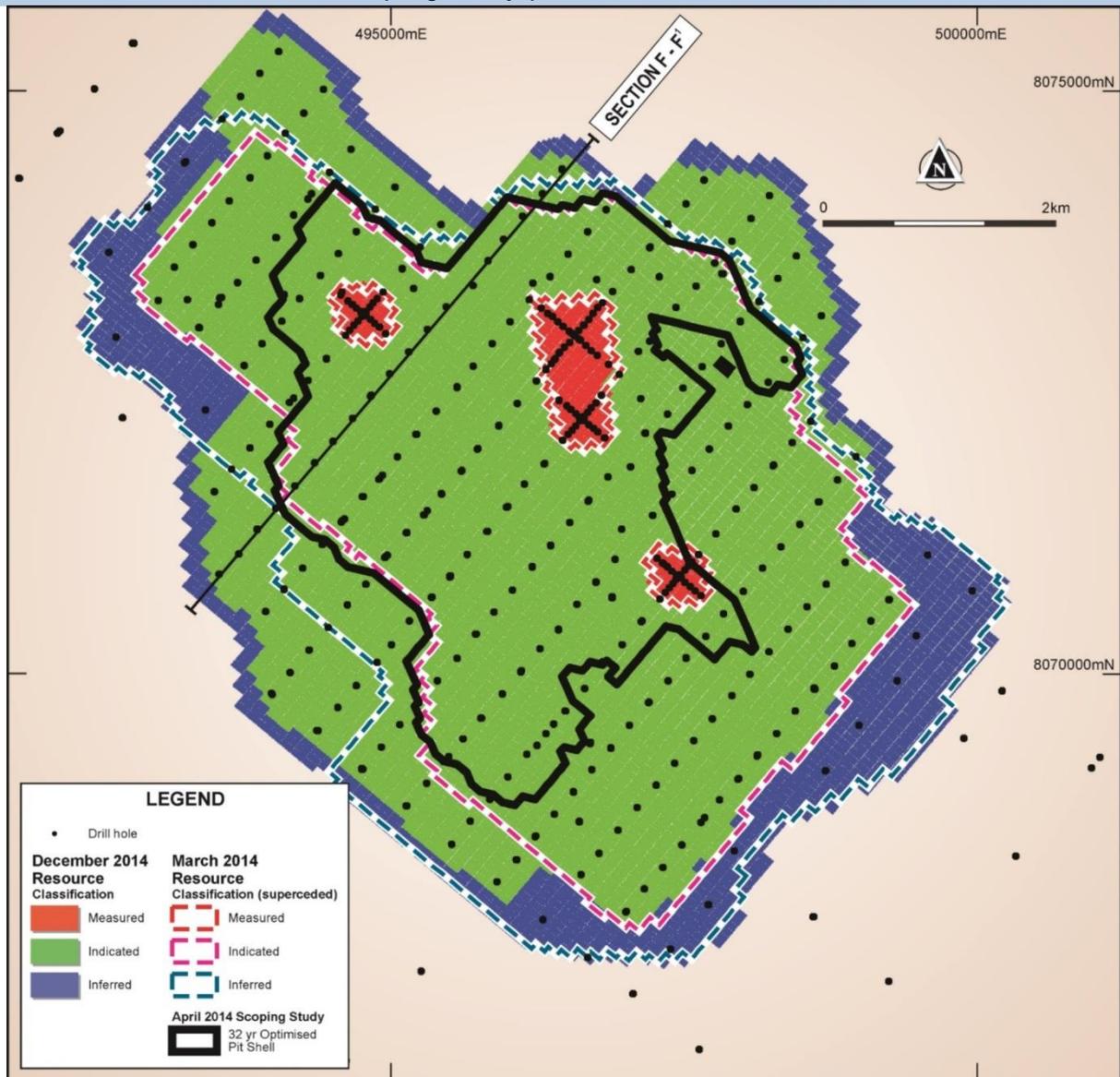
Source: SFX

Fig. 1: Cross Section showing new resource and old scoping study pit shell



Source: SFX

Fig. 2: New resource and old scoping study pit shell



Source: SFX

Fig. 3: Scoping study and Hartleys assumptions

Production Assumptions:					
	Scoping Study (14 April 2014)	Hartleys Base	Hartleys Difference v. scoping	Hartleys using spot prices	Hartleys Spot v. Hartleys Base
Mining inventory					
Mining inventory	669.0Mt	697.1Mt	4.2%		
Mining inventory grade	10.2%	10.2%	0.0%		
Zircon in-situ mining inventory grade	0.83%	0.81%	-2.9%		
- first 10 years	n/a	0.92%	nm		
Leuc. in-situ mining inventory grade	0.27%	0.21%	-21.3%		
- first 10 years	n/a	0.21%	nm		
Ilmenite in-situ mining inventory grade	2.92%	2.89%	-1.2%		
- first 10 years	n/a	2.91%	nm		
Mined Zircon	n/a	167.7kt pa	nm		
- first 10 years	n/a	190.4kt pa	nm		
Mined Leuc./HiTi	n/a	44.2kt pa	nm		
- first 10 years	n/a	44.6kt pa	nm		
Mined Ilmenite	n/a	600.2kt pa	nm		
- first 10 years	n/a	605.5kt pa	nm		
Mining & processing					
Average Mining Rate	20.8Mt pa	20.8Mt pa	0.0%		
Strip ratio LOM	0.64x	0.65x	1.5%		
- first 10 years	0.24x	0.24x	0.0%		
Mine Life	32.0yrs	32.0yrs	0.0%		
HMC processed	2132kt pa	2222kt pa	4.2%		
HMC production	1477kt pa	1539kt pa	4.2%		
- recovery	69%	69%	0.0%		
Recoveries Zircon	n/a	71%	nm		
Recoveries Leuc./HiTi	n/a	48%	nm		
Recoveries Ilmenite	n/a	90%	nm		
Production Zircon	118.2kt pa	119.0kt pa	0.7%		
- first 10 years	135.1kt pa	135.2kt pa	0.1%		
Production Leuc./HiTi	21.7kt pa	21.2kt pa	-2.2%		
- first 10 years	n/a	21.4kt pa	nm		
Production Ilmenite	545.0kt pa	540.2kt pa	-0.9%		
- first 10 years	n/a	545.0kt pa	nm		
Total production saleable product	684.9kt pa	680.5kt pa	-0.6%		
Financials					
Zircon selling price	US\$1475/t	US\$1309/t	-11.3%	US\$1050/t	-19.8%
Leuc/HiTi selling price	US\$870/t	US\$795/t	-8.6%	US\$713/t	-10.4%
Ilmenite selling price	US\$185/t	US\$187/t	1.0%	US\$159/t	-14.7%
AUD/USD	0.90cents	0.91cents	1.0%	0.83cents	-8.3%
Zircon contribution to revenue	62%	57%	-5.0 pts	55%	-1.7 pts
Leuc/HiTi contribution to revenue	2%	6%	3.9 pts	7%	0.5 pts
Ilmenite contribution to revenue	36%	37%	1.1 pts	38%	1.2 pts
LOM revenue	\$10,010m	\$9,633m	-3.8%	\$8,680m	-9.9%
Unit Revenue	\$456.7/t	\$442.4/t	-3.1%	\$398.7/t	-9.9%
EBITDA	\$140m pa	\$128.8m	-8.0%	\$100.1m	-22.3%
- first 10 years	\$187m pa	\$162.7m	-13.0%	\$128.9m	-20.8%
Unit cash costs	\$252.3/t	\$253.1/t	0.3%	\$251.5/t	-0.6%
Unit EBITDA margins	44.8%	42.8%	-4.4%	36.9%	-13.7%
Rev./Cost Ratio	1.8x	1.7x	-3.4%	1.6x	-9.3%
Pre-production capex (inc conting. & studies)	\$309.2m	\$321.2m	3.9%	\$321.2m	0.0%
Valuation					
Decision to mine	CY16	CY16		CY16	
First production	CY17	Sep qtr 2017		Sep qtr 2017	
Discount rate	n/a	12%		12%	
Capital requirement	n/a	\$374m		\$374m	
pre-tax NPV, unfunded, dec. to mine	n/a	\$657m		\$436m	-33.6%
pre-tax IRR, dec. to mine	n/a	42.1%		32.4%	
New shares	n/a	129.9m		144.2m	11.0%
- assumed raising price	n/a	\$1.15/shr		\$1.04/shr	
pre-tax NAV, funded, today	n/a	\$686m		\$490m	-28.6%
per diluted share	n/a	\$2.52/shr		\$1.71/shr	-32.1%
corporate o/head, tax	n/a	-\$0.95/shr		-\$0.71/shr	-25.2%
SFX valuation NPV12	n/a	\$1.57/shr		\$1.00/shr	-36.4%
SFX valuation NPV8	n/a	\$2.62/shr		\$1.77/shr	-32.4%

Source: Sheffield Resources, Hartleys Estimates

Fig. 4: SFX Price Target

Price Target Methodology	Weighting	Spot	12 mth out
NPV ₁₂ consensus prices	45%	\$1.58	\$1.88
NPV ₁₂ at spot commodity and fx prices	15%	\$1.00	\$1.20
NPV ₁₂ consensus prices, 10mtpa startup	5%	\$1.13	\$1.27
NPV ₈ consensus prices	20%	\$2.62	\$2.74
NPV ₈ at spot commodity and fx prices	3%	\$1.77	\$1.80
8.0x FY18 (EV + capital) / EBIT	5%	\$2.95	\$2.95
4.0x FY18 (EV + capital) / EBIT	5%	\$1.16	\$1.16
Net cash backing	2%	\$0.06	\$0.06
Risk weighted composite		\$1.70	
12 Months Price Target		\$1.90	
Shareprice - Last		\$0.700	
12 mth total return		171%	

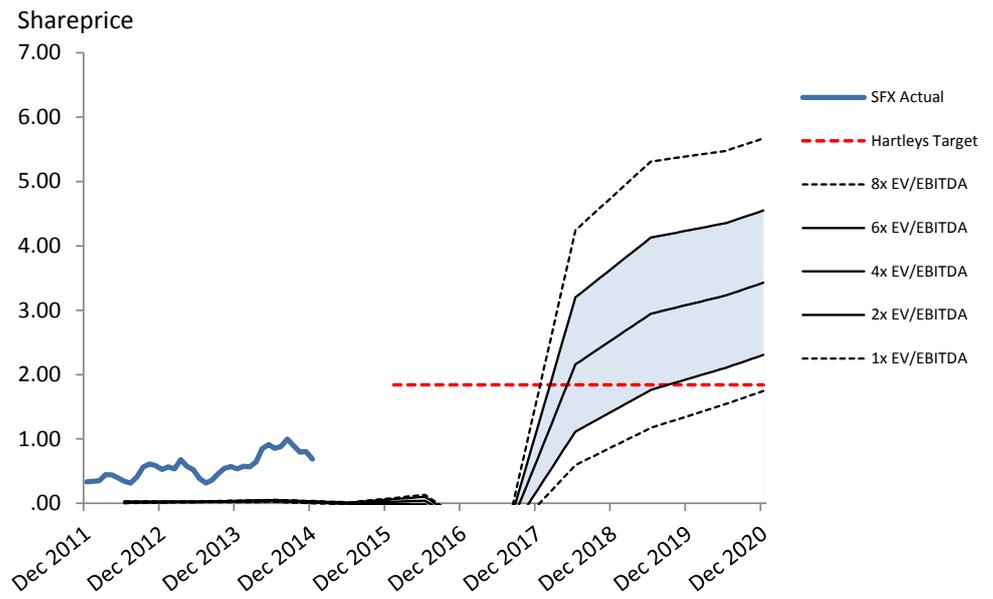
Source: Hartleys Estimates

Fig. 5: Key assumptions and risks for valuation

Assumption	Risk of not realising assumption	Downside risk to valuation if assumption is incorrect	Comment
First production in late CY17 for Thunderbird	High	Moderate	The construction period for any future mine is expected to be long with significant approval and construction timeframes.
Mineral sands prices in line with sell-side consensus	Moderate	Significant	The consensus is for modestly improving prices
32 year mine life	Moderate to high	More likely to be upside	Our model assumes only the old high grade resource is mined, and has not been upgraded for the new resource nor includes any of the low grade resource. It's is likely that our mine life assumption is significantly too conservative.
Capex for Thunderbird is 60:40 debt/equity	Low to Moderate	upside/downside risk is equal as we are conservative on our assumption for equity dilution. Its also possible a much higher proportion of debt funding is available (80:20)	Capital requirements are large for a company of this size and there is risk that SFX will not be able to raise sufficient funds, although as the studies have progressed it seems an increasingly lower risk that SFX will not be able to fund development
Operating costs	Moderate	Moderate	We are happy with our operating cost assumptions
No value for other projects	High	Upside	Our valuation is based only on the Thunderbird project. Although it seems difficult to see the equity market attributing much value for the other projects in the near term, it should be remembered that potentially asset sales could fund a large proportion of the development studies.
Conclusion	<i>We believe are assumptions are reasonable. We are particularly conservative on mine life (resource conversion), which has potential to add significant value.</i>		

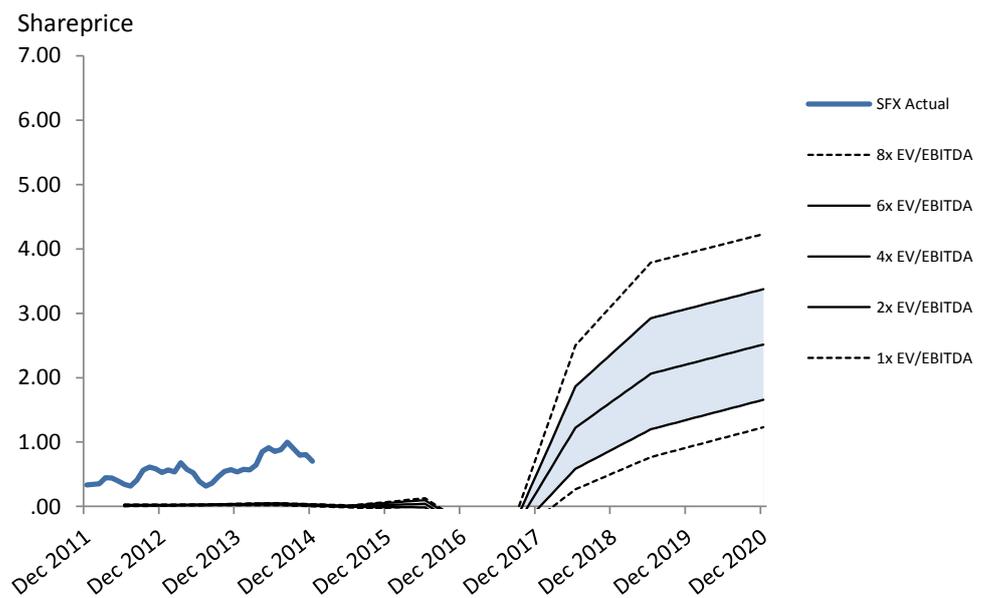
Source: Hartleys Research

Fig. 6: Using Hartleys base case commodity forecasts



Source: Hartleys Research, IRESS

Fig. 7: Using spot commodity prices



Source: Hartleys Research,

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Reduce / Take profits	It is anticipated to be unlikely that there will be gains over the investment time horizon but there is a possibility of some price weakness over that period.
Sell	Significant price depreciation anticipated.
No Rating	No recommendation.
Speculative Buy	Share price could be volatile. While it is anticipated that, on a risk/reward basis, an investment is attractive, there is at least one identifiable risk that has a meaningful possibility of occurring, which, if it did occur, could lead to significant share price reduction. Consequently, the investment is considered high risk.

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