



**Breakaway  
Research**

August 2017

Stephen Bartrop | Research Manager  
[sbartrop@breakawayinvestmentgroup.com](mailto:sbartrop@breakawayinvestmentgroup.com)

[www.breakawayresearch.com](http://www.breakawayresearch.com)

## Company Information

ASX Code	IMA
Share Price (4 July 2017)	\$0.10
Ord Shares	571.3m
<b>Market Cap (undiluted)</b>	<b>\$57.1m</b>
Options	3.0m
<b>Market Cap (fully diluted)</b>	<b>\$57.4</b>
Est. Cash (31 July 2017)	\$5.7m
Cash from option expiry*	\$0.3m
Total Debt	\$4.1m
<b>Enterprise Value</b>	<b>\$56.2m</b>

## Directors

Chairman (Non-Exec)	Bob Besley
Managing Director	Patrick Mutz
Director (Non-Exec)	George Sakalidis
Director (Non-Exec)	Chong Veoy Soo
Director (Non-Exec)	Peter Thomas
Director (Non-Exec)	Chaodian Chen
Director (Non-Exec)	Fei Wu

## Significant Shareholders

Murray Zircon Pty Ltd	28.3%
Orient Zircon Res Aust	9.4%
Million Up Ltd	5.9%

Source: Company – as at 31<sup>st</sup> July 2017

## Company Details

Address	Ground Floor, 23 Ventnor Ave WEST PERTH, WA 6005
Phone	+61 (0) 8 9485 2410
Web	<a href="http://www.imageres.com.au">www.imageres.com.au</a>

## Price Chart



Source: Commsec

# Image Resources (IMA)

*Take note, here is an emerging mineral sands producer!*

Recommendation: **BUY**

## Key Points

- **Image Resources has completed a positive feasibility study on its Boonanarring/Atlas mineral sands project north of Perth, WA. The location is close to infrastructure and the extensive detail in the study leaves minimal risk in terms of the Company not meeting its production and financial targets.**
- **First production is as early as March 2018 with key parameters including:**
  - **Zircon dominated revenue base**
  - **Low capex at A\$56.7m (including sustaining capex)**
  - **Heavy Mineral Concentrate (HMC) production at 220,000tpa**
  - **100% offtake agreement for all HMC products**
  - **Conventional dry mining operation using mining contractors**
- **Breakaway Research financial modeling indicates that the project generates healthy returns and strong cash flows which flow through to the Company's financial forecasts and value. These include:**
  - **Forecast NPAT \$15m - \$25m pa**
  - **Forecast cash flows \$15 - \$25m pa**
  - **Future P/E falling to less than 5 times in two years**
  - **Future P/CF falling to 3.4 times in one year**
  - **NPV per share is 13.8 cents per share using long term AUD/USD = 0.75**
- **These 'base case' forecasts exclude significant additional value that can be generated through operational enhancements, mine life extensions, and new dry mining opportunities. There is potentially a significant dredging project nearby which may be the Company's next focus for Phase 2 growth.**
- **Funding is being finalized during September for a debt/equity split assumed to be 50:50. Our valuation includes dilution for a raise at the current share price and which could be conservative given future positive announcements that may include the debt financing terms from a leading Australian bank and a project 're-valuation' given the currently higher commodity prices.**
- **The recent announcement by Iluka that it has increased its Zircon Reference Price by US\$130/t to US\$1,100/t is a sign of an improving zircon market.**

*The development of the Boonanarring project is a major step forward as the Company transitions to a producer and generates earnings and cash flows. This allows the Company to then pursue a strong growth path given it has a portfolio of projects that can be accelerated.*

*Hence, Breakaway Research has a **BUY** recommendation on Image Resources.*



## Company Overview

Long history in mineral sands in the Perth Basin ...

The equity component of the financing may occur quickly  
.....

Image Resources ("IMA") was ASX listed on 4 July 2002 and in recent years has attained an enviable track record of successful mineral sands exploration in the Perth Basin, immediately north of Perth. The Company is now transforming to producer status with first mineral sands production scheduled for March 2018.

The final hurdle is financing the relatively modest capex of A\$56.7m and which will be a combination of debt and equity – we have assumed 50:50. The Board has approved Managing Director Patrick Mutz to secure this financing and he has engaged PCF Capital Group to assist with the debt portion. A recent placement raising \$3.0m at 9 cents per share has enabled the Company to order long lead items.

In terms of raising the equity portion, this will be conducted in September and we believe there will be keen interest in participation by the local funds. We would also expect the Company may offer its shareholders participation in a rights issue. Therefore from an investor perspective, with the financial robustness of the project, the financing could be completed relatively quickly and investors waiting for the financing may miss out. Hence, we recommend investing now as the price is supported by the valuation metrics and it may also allow participation in a future rights issue if the Company decides to proceed down this fund raising path.

## Boonanarring/Atlas Projects Overview

Simple dry mining operation starting with the Boonanarring deposit  
....

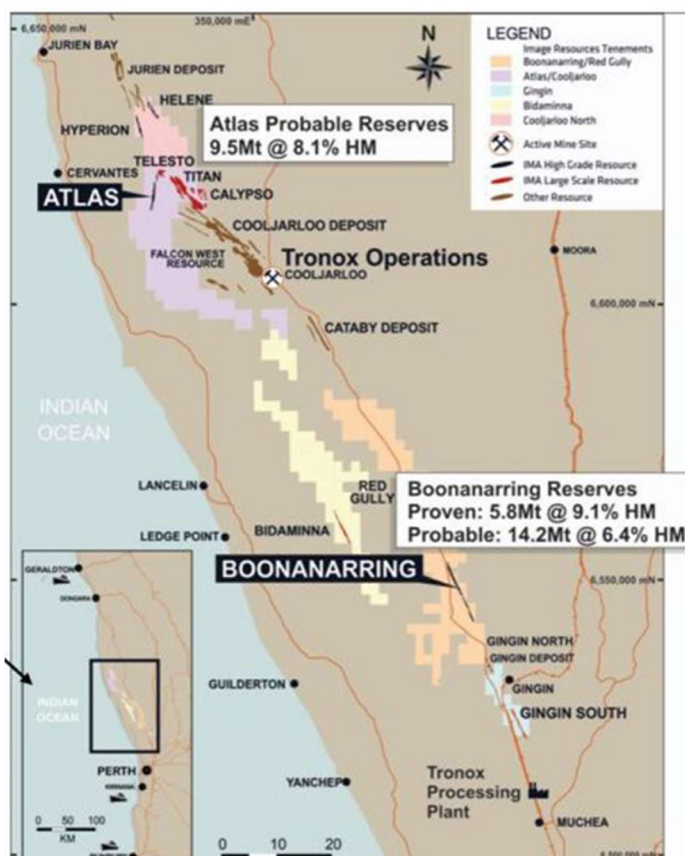
The Boonanarring and Atlas Project is located north of Perth and involves the sequential mining of the Boonanarring mineral sands deposit followed several years later by the mining of the Atlas deposit (see Figure 1.). The mining process is relatively simple involving dry mining (excavators and trucks) feeding a Wet Concentration Plant which will be located near the Boonanarring deposit.

The Wet Concentration Plant utilises conventional wet gravity separation at a processing rate of 500 dry tonnes per hour to recover the heavy minerals into a Heavy Mineral Concentrate (HMC). This HMC is then sold under an off-take agreement and shipped to China through the port of Bunbury.

Figure 1. Location map of the two deposits (Source: Company).

Key project parameters include a pre-tax NPV of A\$135m...

However, this increases to +A\$190m with Illuka's recently increased zircon reference price...



Key project parameters reported by the Company are:

- Low project capital cost estimate of A\$52M inclusive of ~\$8M for resalable land;
- Project Pre-Tax NPV of A\$135M at 8% discount rate;
- Project Pre-Tax IRR of 64%;
- Payback period of 22 months;
- Off-Take Agreement for 100% of products/revenue in place;
- Relocatable capital equipment to produce HMC already acquired;
- First production targeted for March 2018;

The project revenues are dominated by zircon sales (+70%) and it has been highly encouraging that leading zircon producer, Illuka Resources, recently increased its Zircon Reference Price by US\$130 per tonne to US\$1,100 effective from 1 July 2017. The Company's



parameters outlined above do not include this price increase which is estimated to increase the pre-tax NPV by \$60m to over \$190m.

Breakaway Research has modelled the project's impact on the earnings and cash flows at a Company level and at a per share basis (see Figure 2).

Financial Year		FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Deposit			Boonanarring	Boonanarring	Boonanarring	Boonanarring	Boonanarring	Atlas	Atlas
<b>Production</b>									
HMC shipped - forecast	t		175000	300000	240000	200000	200000	190000	220000
Cumulative tonnes shipped	t		175000	475000	715000	915000	1115000	190000	410000
<b>Mineral Content</b>									
Zircon	t		54621	85081	55151	67263	48829	26496	19927
Rutile	t		3828	5669	5420	5003	4622	13953	16604
Ilmenite	t		94206	153764	147867	101603	109294	98779	109469
Leucoxene	t		1872	4984	3057	2265	1799	5293	9275
Recoveries (TiO <sub>2</sub> )			3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
<b>TiO<sub>2</sub> Product Breakdown</b>									
% ilmenite suitable for chloride process			33%	33%	33%	33%	33%	33%	33%
% ilmenite suitable for sulphate process			67%	67%	67%	67%	67%	67%	67%
<b>Forecast Prices</b>									
Ilmenite(Sulphate)	US\$/t		150	165	172	174	174	185	185
Ilmenite (Chloride)	US\$/t		171	191	215	234	250	258	258
Leucoxene	US\$/t		527	606	729	754	750	750	750
Rutile	US\$/t		753	865	1041	1077	1071	1070	1070
Zircon (standard)	US\$/t		1065	1065	1065	1112	1206	1405	1405
AUD/USD		0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
<b>Revenue Breakdown</b>									
Ilmenite (Chloride)	US\$m		5.18	9.44	10.22	7.64	8.78	8.19	9.08
Ilmenite(Sulphate)	US\$m		9.10	16.33	16.37	11.38	12.24	11.76	13.04
Leucoxene	US\$m		0.95	2.91	2.15	1.65	1.30	3.83	6.71
Rutile	US\$m		2.78	4.73	5.44	5.20	4.78	14.41	17.14
Zircon (standard)	US\$m		56.14	87.44	56.68	72.18	56.83	35.92	27.02
<b>Revenue Total</b>	US\$m	0.00	74.14	120.85	90.86	98.05	83.93	74.11	72.99
Revenue Total	A\$m	0.00	97.55	159.02	119.55	129.01	110.43	97.52	96.03
Less									
Profit share costs in processing	A\$m	0.00	4.88	7.95	5.98	6.45	5.52	4.88	4.80
Realisation costs	A\$m	0.00	10.76	18.45	14.76	12.30	12.30	11.69	13.53
Add									
Interest revenue	A\$m	0.07	0.40	1.02	1.45	1.90	2.45	3.27	3.87
Total revenue	A\$m	0.07	82.31	133.64	100.26	112.15	95.06	84.23	81.57
<b>Costs</b>									
Mining costs	A\$m		32.46	55.65	39.52	37.10	37.10	16.68	19.32
Processing cash costs	A\$m		5.37	9.21	7.37	6.14	6.14	5.26	6.09
Land Access	A\$m		0.09	0.15	0.12	0.10	0.10	0.11	0.13
Native Title Payments	A\$m								
Site Administration	A\$m		3.12	5.34	4.27	3.56	3.56	5.05	5.85
Logistics	A\$m		11.60	19.89	15.91	13.26	13.26	13.60	15.75
Royalties	A\$m		4.10	7.02	5.62	4.68	4.68	2.93	3.39
Mineral Rehabilitation Fund Levy	A\$m		0.02	0.03	0.02	0.02	0.02	0.02	0.02
Corporate costs	A\$m	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Total costs	A\$m	3.00	59.75	100.29	75.83	67.86	67.86	46.66	53.56
<b>EBITDA</b>	A\$m	-2.93	22.56	33.35	24.43	44.29	27.20	37.57	28.01
Depreciations & Amortisation	A\$m	0.50	7.05	6.62	6.23	5.88	7.53	6.96	6.45
EBIT	A\$m	-3.43	15.51	26.73	18.20	38.41	19.67	30.60	21.56
Interest expense	A\$m	0.98	1.79	1.49	1.24	1.03	0.86	0.72	0.60
Profit before tax	A\$m	-4.40	13.73	25.24	16.96	37.38	18.81	29.89	20.96
Tax	A\$m	0.00	4.12	7.57	5.09	11.21	5.64	8.97	6.29
<b>NPAT</b>	A\$m	-4.40	9.61	17.67	11.87	26.16	13.16	20.92	14.67
<b>Share Price &amp; Metrics</b>									
Share price	A\$	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Shares on issue	m	571.3	921.3	921.3	921.3	921.3	921.3	921.3	921.3
EPS	cents per share	-0.77	1.04	1.92	1.29	2.84	1.43	2.27	1.59
P/E	times	-13.0	9.6	5.2	7.8	3.5	7.0	4.4	6.3
Cash flow	\$m	-3.90	16.65	24.29	18.10	32.05	20.69	27.88	21.13
Cash flow per share	cents per share	-0.68	2.92	2.64	1.96	3.48	2.25	3.03	2.29
P/CF	times	-14.6	3.4	3.8	5.1	2.9	4.5	3.3	4.4
<b>Cash Flow Statement</b>									
EBITDA	A\$m	-2.93	22.56	33.35	24.43	44.29	27.20	37.57	28.01
Less	A\$m								
Tax paid	A\$m	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest paid	A\$m	0.98	1.79	1.49	1.24	1.03	0.86	0.72	0.60
Gross cash flow	A\$m	-3.90	20.77	31.86	23.19	43.26	26.33	36.85	27.42
Project capex	A\$m	56.70				19.60			
Sustaining capex	A\$m		1.25	1.25	1.25	1.25	0.38	0.38	0.38
Exploration	A\$m	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Total capex	A\$m	58.20	2.75	2.75	2.75	22.35	1.88	1.88	1.88
Equity raised	A\$m	35.00							
Dividends paid	A\$m								
Debt drawn down	A\$m	30.00							
Debt repayment	A\$m		5.00	4.17	3.47	2.89	2.41	2.01	1.67
Net cash flow after financing	A\$m	2.90	13.02	24.94	16.97	18.01	22.05	32.96	23.87
Cumulative cash	A\$m	2.90	15.92	40.86	57.83	75.84	97.89	130.85	154.72



Figure 2. Financing forecasts for Image Resource (Source: BR)

## Financial Modelling

Breakaway Research's financial analysis (Figure 2) includes relatively conservative assumptions as follows:

- \$35m equity is raised – probably in September 2017. This is assumed to be at 10 cents per share.
- Loan facilities will be secured from a major Australian bank(s) for \$35m.
- We have incorporated Illuka's revised zircon reference price (less freight & processing costs).
- Project parameters outlined in the feasibility study have generally been utilised.

The results presented in the brown shaded area of Figure 2 indicate that the project returns flow through to the Company making it an attractive investment. Key findings are:

- Earnings increase rapidly in the next two years and approach \$20m pa. There is an earnings slump to \$11.8 in FY21 before earnings rebound to \$26m in FY22 and represents the impact of the mine schedule and orebody grades. Our belief is that this earnings slump is unlikely to occur. While the Company does recognise it falls out of the modelling, the Company has plenty of time to rectify this situation through other production measures.
- Ignoring the earnings slump in FY21, the Price/Earnings ratios indicate a relatively cheap stock, particularly around 5 times earnings in FY20.
- Cash flows are strong with gross cash flow increasing to the \$20m to \$30m pa range while cash flow after capex is in the \$15m to \$20m pa range.
- Price to cash flow ratios are cheap at 3-4 times gross cash flow from FY19 and are likely to underpin the short term share price performance.
- We have not assumed that the Company will declare future dividends as it has a number of exciting growth project which it is likely to finance. Hence the modelling simply shows the build-up of substantial cash reserves.

As mentioned, with the revised zircon prices, the Company expects that the pre-tax NPV of the project is now likely to exceed \$190m. We have created a matrix of post-tax NPV valuations per share highlighting the sensitivity of these valuations to both changes in commodity prices and exchange rates (Figure 3a).

AUD/USD	Mineral Sand Price Sensitivities			
	-5%	Base Case	5%	10%
0.70	0.154	0.202	0.248	0.295
0.72	0.129	0.175	0.221	0.266
0.74	0.104	0.150	0.195	0.240
0.76	0.080	0.126	0.170	0.214
0.78	0.056	0.102	0.147	0.189
0.80	0.033	0.080	0.124	0.166

Figure 3a. Breakaway Research's post-tax NPV estimations per IMA share (Source: BR).

Assuming a long term AUD/USD of 0.75 and base case mineral sand prices, we estimate IMA has an NPV of 13.8 cents per share.

Breakaway Research has expanded this matrix to incorporate an extended Boonanarring case where the mine life of this project is extended by two years prior to the relocation of the plant to the Atlas deposit.

The financial modelling has incorporated conservative assumptions ...

Earnings and cash flows rapidly increase after production commences mid-2018....

The project alone has a value of 13.8 cents per IMA share assuming base case commodity prices and a long term AUD/USD = 0.75....



This is not unreasonable as noted in the next section, the Boonanarring deposit is known to extend 5 to 6km north of the main deposit.

*We have no doubt that IMA will be able to extend the life of Boonanarring deposit before it relocates to Atlas...*

AUD/USD	Mineral Sand Price Sensitivities			
	-5%	Base Case	5%	10%
0.70	0.190	0.245	0.299	0.353
0.72	0.161	0.215	2.994	0.320
0.74	0.132	0.186	0.238	0.289
0.76	0.104	0.158	0.209	0.260
0.78	0.078	0.130	0.182	0.231
0.80	0.051	0.104	0.155	0.204

Figure 3b. Breakaway Research's post-tax NPV estimations per IMA share on an expanded case where the mine life of Boonanarring is extended by 2 years (Source: BR).

In our view, this provides a more realistic assessment as to how mining is likely to proceed as there is a strong incentive for the Company to delay moving the plant to the lower grade Atlas deposit.

Breakaway Research believes that the earnings and cash flow forecasts and the NPV fully underpins the value of Image Resources at the current share price and supports our *Buy* recommendation. However it excludes any value for growth projects which have been outlined in the next section. These contribute significant value on top of current base case valuation.

*Growth projects provide significant additional value...*

### Growth Projects

Once operational, there are incremental improvements that have already been identified by the Company. These include extending the mine life at Boonanarring, and later at Atlas as well as other dry mining opportunities in the region. Dry mining opportunities include:

- Boonanarring extensions – mineralisation is known to extend 5-6 km to the north of the main deposit but requires testing.
- Red Gully– 6Mt @ 7.7% HM containing 15.5% zircon & rutile.
- Regans Ford – 9.9Mt @ 9.6% HM containing 14.3% zircon & rutile.
- Cooljarloo North – 15.2Mt @ 5.3% HM containing 14.0% zircon & rutile
- Gingin South – 8.1Mt @ 6.1% HM containing 13.5% zircon & rutile
- Gingin North – 2.4Mt @ 5.5% HM containing 9.1% zircon & rutile

*The Bidaminna Dredging Project would deliver another 'step-change' in the Company's value ...*

The ability to extend the mining beyond the current 8 year period will have significant positive ramifications for the project and Company's NPV valuation.

However a major new project that will provide a 'quantum' change in valuation for the Company is the development of the nearby Bidaminna Dredging Project (see Figure 4).

This exciting growth project is adjacent to the Boonanarring project but the important difference is that this deposit is wet and capable of supporting a dredging operation. Another mineral sands producer, Tronox, operates two dredges on separate projects in the region. The advantage of dredges is that the mining costs are much lower than dry mining costs and the volumes mined can be larger.





Image Resources has identified four positive features of the Bidaminna deposit which make it particularly attractive as a dredging project. These are:

1. It is coarse grained with low slime content.
2. The heavy mineral component has a high level of valuable minerals, i.e. 25% to 67% leucoxene, low trash content.
3. The heavy minerals are disseminated and do not require attrition prior to concentration.

While the Bidaminna has a mineral resource of 45 million tonnes at 3.0% heavy minerals with the heavy minerals containing 6.5% zircon and rutile, the Company has an exploration target of 100 million tonnes. However it is not inconceivable that with further exploration, the deposit could contain in excess of 200 million tonnes and at this level, the project would have a 15 year mine life.

Figure 4. The location of the Bidaminna dredging project and other dry mining opportunities (Source: Company).

### Boonanarring/Atlas Projects Review

Image Resources has completed a Bankable Feasibility Study ("BFS") on the development of the Boonanarring and Atlas mineral sands deposits by Battery Limits Consultancy Group.

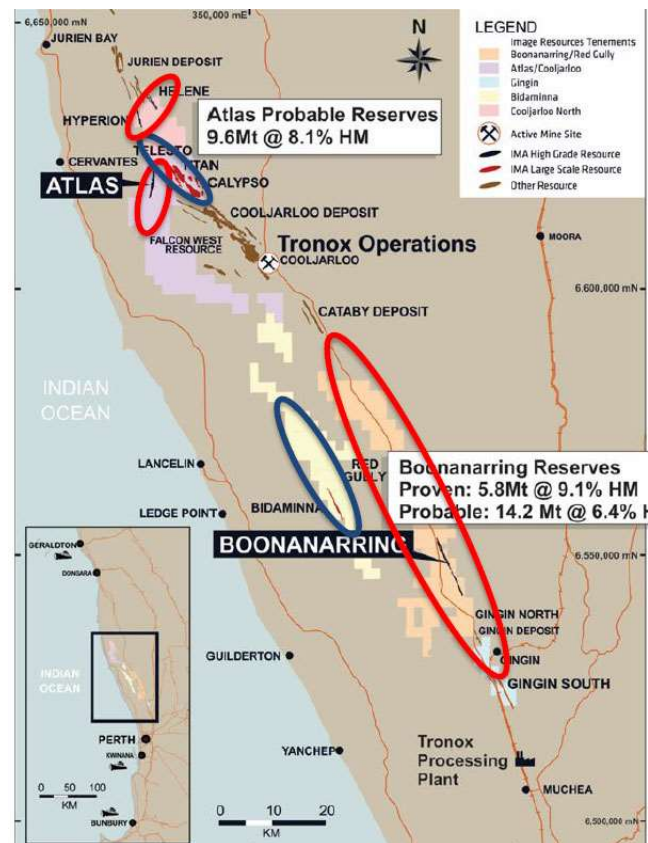
Study assumptions include dry, open cut mining and conventional wet gravity separation at a processing rate of 500 dry tonnes per hour to recovery the Heavy Minerals into Heavy Mineral Concentrate (HMC) for direct sale under an off-take agreement. Mining will begin at Boonanarring and the processing plant will be located near the mid-point of the 13 km long deposit and will remain in place for the life of mine.

Mining will be conducted by a qualified mining contractor incorporating concurrent tailings disposal and rehabilitation of mined-out areas. After mining is completed at Boonanarring, the mining fleet and processing equipment will be relocated to Atlas. Total life of the current reserves for both deposits is 8+ years with significant opportunities for mine life extension, especially with regard to high grade extensions of the deposit at Boonanarring. Near Atlas are the Hyperion and Helene deposits of which Helene is within potential pumping distance of Atlas.

HMC product will be transported to Bunbury for bulk loading and shipping to the mineral separation plant owned by the off-taker.

The BFS was started in July 2016 as a process of updating Image's 2013 feasibility study to a bankable standard and to incorporate the wet concentration plant and ancillary equipment purchased in June 2016, as well as updating all costs, assumptions and commodity prices.

While more detailed feasibility findings are available from IMA's announcements, in this review Breakaway Research has focused on the more salient aspects of the study.



Consultancy Group  
Battery Limits has  
assisted IMA in  
completing a BFS ....

Heavy Mineral  
Concentrate (HMC) is  
exported from the  
Port of Bunbury....

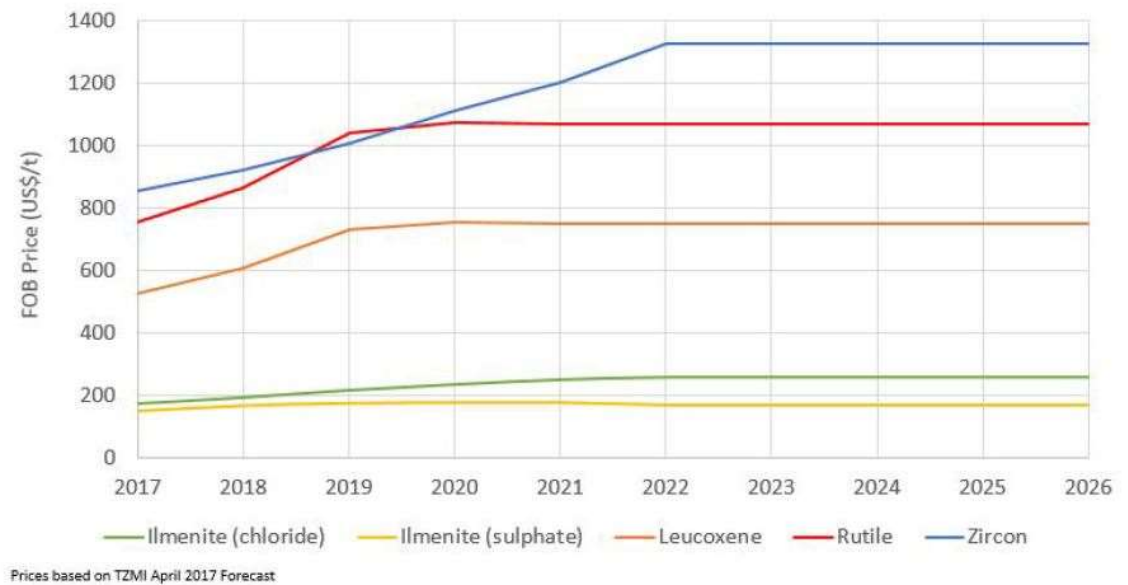


Forecast zircon prices have now been exceeded by Iluka's recent lifting of the Zircon Reference Price ....

## Mineral Sands Prices

The forecast zircon and titanium minerals (rutile, leucoxene & ilmenite) prices used in the BFS have been forecast by respected mineral sands forecaster, TZMI (see Figure 5).

Figure 5. Forecast commodity prices used in the BFS (Source: Company).



Breakaway Research has incorporated the next zircon pricing in its forecasts ...

As mentioned, on the 24<sup>th</sup> May 2017 Iluka Resources (ASX: ILU) advised the market that it had increased the Zircon Reference Price by US\$130 to US\$1,100 effective 1<sup>st</sup> July 2017. This is encouraging as the forecast zircon price used in the BFS doesn't increase above US\$1000/t until 2019.

In our financial modelling we have incorporated the new price structure for the next two years after deducting processing and freight costs.

Boonanarring has a high percentage of zircon in its heavy mineral fraction ...

## Reserves and Resources

The Boonanarring mine resource is presented in Figure 6.

The Boonanarring resource below and the Atlas resource have been plotted by TZMI on a TiO<sub>2</sub> mineral grade versus zircon grade chart in Figure 7. It demonstrates that the Boonanarring resource and to a lesser extent, the Atlas resource, have higher proportions of more valuable zircon in the heavy mineral fraction than many other deposits.



The higher zircon content is evident in comparison to many other deposits....

Classification	Ore Tonnes (Millions)	THM %	Slimes %	Oversize %	% of total heavy mineral			
					Zircon	Rutile	Leucoxene	Ilmenite
Strandline mineralisation								
Measured	7.8	8.2	14	6.6	20.1	2.2	1.9	47.3
Indicated	19.5	6.0	17	8.0	21.6	2.4	1.8	50.2
Inferred	6.3	5.2	18	6.8	15.3	3.9	3.2	59.5
Sub-total	33.5	6.3	17	7.5	20.2	2.6	2.0	50.8
Overlying mineralisation								
Indicated	6.6	3.2	21	10.7	5.7	2.8	3.2	46.1
Inferred	3.6	3.3	25	12.5	2.7	2.3	4.0	25.5
Sub-total	10.2	3.2	23	11.4	4.6	2.6	3.5	38.5
Combined Strandline and Overlying								
Measured	7.8	8.2	14	6.6	20.1	2.2	1.9	47.3
Indicated	26.1	5.3	18	8.7	19.2	2.5	2.0	49.6
Inferred	9.9	4.5	21	8.9	11.9	3.5	3.5	50.3
Total	43.7	5.6	18	8.4	18.1	2.6	2.2	49.1

Figure 6. Boonanarring resource (Source: Company).

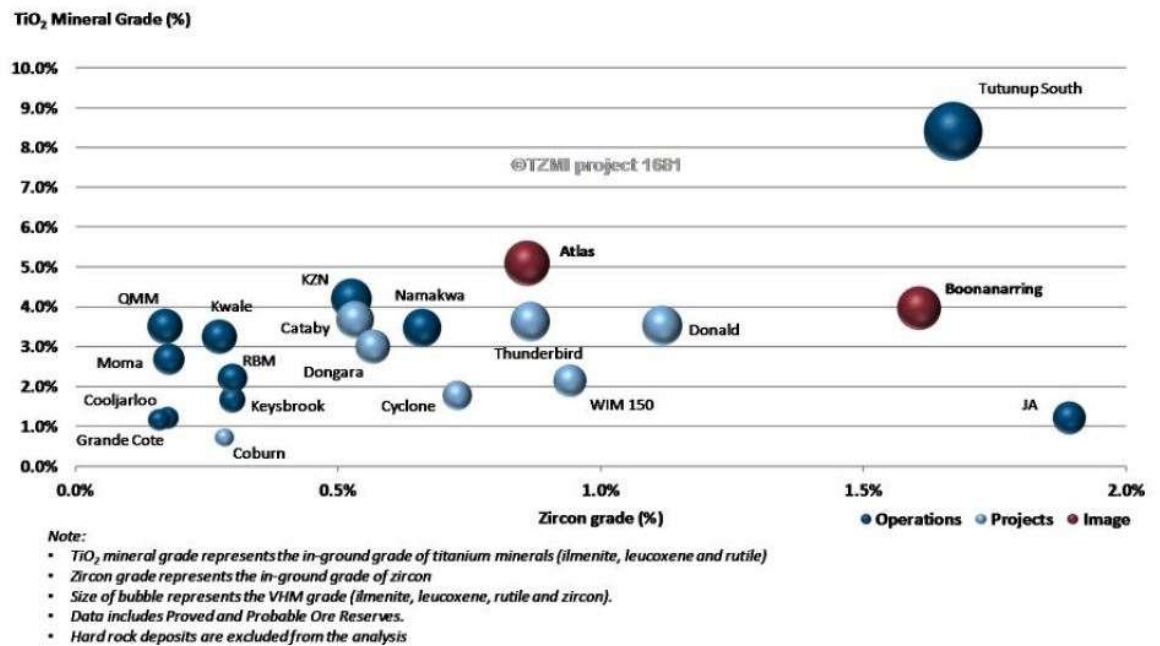


Figure 7. TiO<sub>2</sub> mineral grade plotted against the zircon grade for various resources (Source: BatteryLimits).

## Capital Costs

We have used total Project Capital in our modelling ...

The capital costs of the Boonanarring project are presented in Figure 8. In our modelling we have used the Total Project Capital.





IMA has the advantage of already owning a wet processing plant which will be relocated from South Australia....

Capital Costs	Boonanarring A\$M	Atlas A\$M	Project A\$M
Total Plant	31.1	19.6	50.7
Capitalised Operating Costs & Other Development Capital	20.6	-	20.6
<b>Total Development Capital</b>	<b>51.7</b>	<b>19.6</b>	<b>71.3</b>
Sustaining & other Capital	5.0	1.5	6.5
<b>Total Project Capital</b>	<b>56.7</b>	<b>21.1</b>	<b>77.8</b>

Figure 8. Capital costs (Source: BatteryLimits).

In comparison with other mineral sands projects as outlined in Figure 9, the capital costs are low and this reflects the fact that the Company already has a wet processing plant located in South Australia.

Mining will use contractors to feed ore into a Slurry Mining Unit....

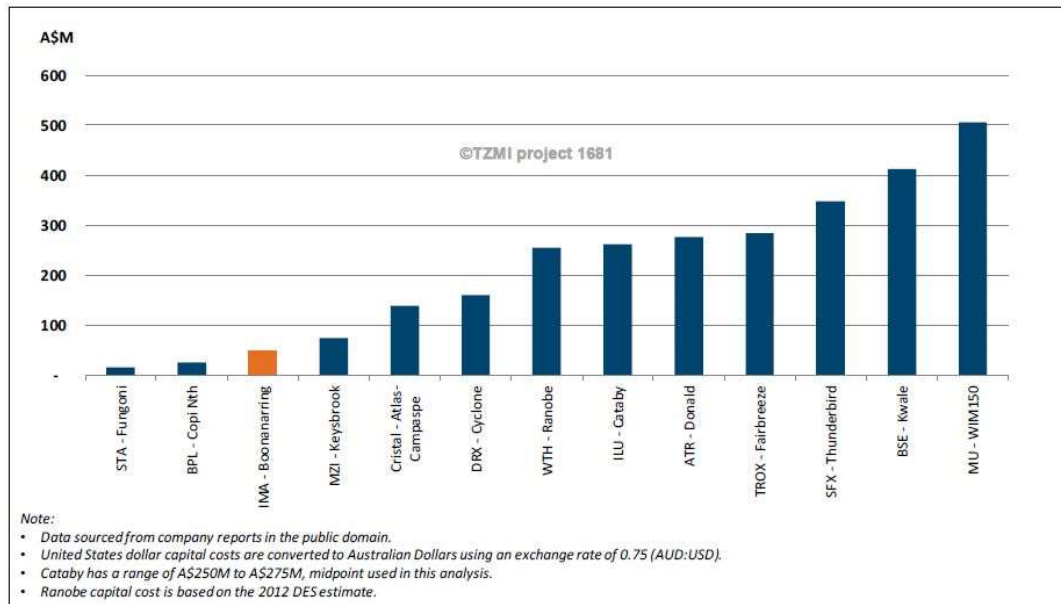


Figure 9. Project capital cost comparison (Source: BatteryLimits).

## Operating Costs & Revenue

The BFS reports that the Boonanarring mining schedule has been designed on a mining rate ranging to 3.7 Mtpa ore fed into a Slurry Mining Unit (SMU) and 3.0 Mtpa of Rougher Head Feed (RHF) at the Wet Concentrating Plant. Mining is to be conducted by a mining contractor with relevant experience in mineral sands mining. The mining schedule has been developed to extract the higher-grade sections of the deposits first to maximise early cash flows.

Ore processing is scheduled to commence in March 2018 although we have assumed it commences in July 2018 for our financial modelling. The BFS estimates that production output will average 220 ktpa of HMC for a total of 1,115 kt over the life of mine (LOM). Over the life of the current ore reserves at Boonanarring, the HMC is expected to contain approximately 610 kt of ilmenite, 310 kt of zircon, 25 kt of rutile and 14 kt of leucoxene.



## Atlas Relocation

Mining and processing of Atlas is currently scheduled to commence in 2023. The study envisages production at an average of 210 ktpa of HMC for a total of 711 kt LOM. Over the life of the current ore reserves at Atlas, the HMC is expected to contain approximately 340 kt of ilmenite, 67 kt of zircon, 50 kt of rutile and 27 kt of leucoxene.

The LOM production by product from Boonanarring and Atlas is shown in Figure 10.

Boonanarring is the higher grade deposit....

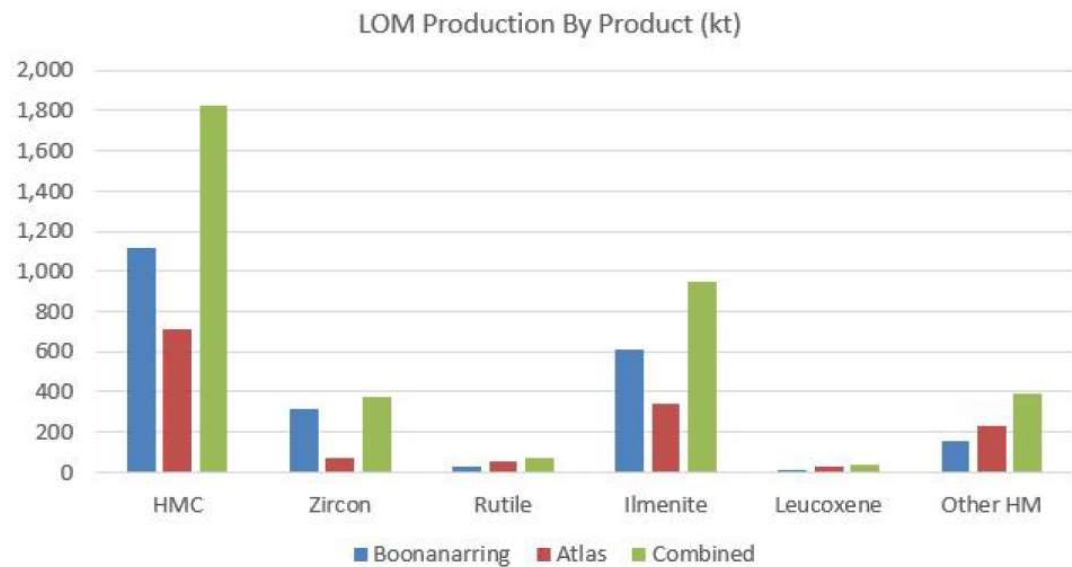


Figure 10. Life mine production quantities from each deposit (Source: BatteryLimits).

Mining costs dominate operating costs....

We have summarised the operating costs and revenues from Boonanarring in Figure 11. It presents a project dominated by the mining costs out of total costs followed by logistic costs while revenues are dominated by zircon production.

Zircon revenue dominates total revenue....

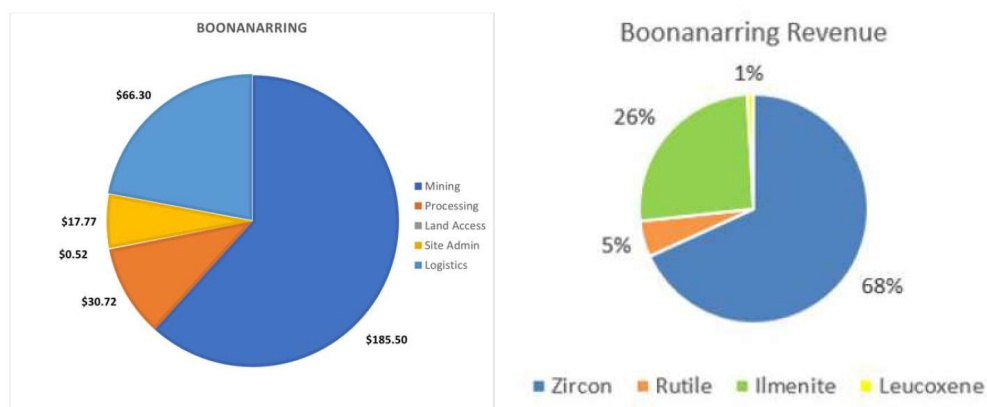


Figure 11. Boonanarring production cost and revenue breakdown (Source: BatteryLimits).

We have included a photo of the wet concentrating plant owned by IMA and currently located in South Australia (Figure 12). This will be relocated to the Boonanarring site as part of the project development.



Figure 12. Image's wet concentrating plant currently located in South Australia (Source: Company)

### Offtake Agreement

The Company has secured an offtake agreement for 100% of the Heavy Mineral Concentrate (HMC) to be produced for the life of the Project with established HMC processing company Shantou Natfort Zirconium and Titanium Co., Ltd (Natfort) in China. The pricing is at commercial terms and will be based on then-current relevant market prices for contained zircon, rutile, leucoxene and ilmenite and with full value paid for the contained  $\text{TiO}_2$  products on a shipment by shipment basis.

IMA reports that the HMC pricing structure has been reviewed and endorsed by TZMI as being market-based and utilising standard industry protocols for the pricing HMC. This offtake is an arm's length, market-based arrangement which contractually secures 100% of the revenue for the project.

The selling of HMC is unusual but it does save the Company further processing costs and does not tie up additional working capital. Payment is relatively quick with a part payment of cash as soon as each shipment of HMC departs the Bunbury port.

While offtake agreement involves the export and sale of HMC, we understand that there is flexibility to further process the HMC in Australia. This could involve utilising Tronox's processing facilities nearby but is not essential for the project's viability.

### Market Capitalisation & Enterprise Value

The fully diluted market capitalisation of Image Resources is \$57.4m and the enterprise value is estimated at \$55.5m (Figure 13). Cash reserves are estimated at \$5.3m following a recent placement (\$3.28m) less forecast June quarter expenditure reported in the Company's March quarterly cash flow report.

*Arm's-length offtake  
with market based  
pricing...*



Enterprise value is  
\$56.2m...

Parameter		Value
Share price	A\$	0.10
Shares issued	m	571.3
Market capitalisation (undiluted)	A\$m	57.1
Options	m	3.0
Market capitalisation (fully diluted)	A\$m	57.4
<b>Less</b>		
Cash at 31 Jul 2017	A\$m	5.0
Cash raised from option exercise	A\$m	0.3
<b>Add</b>		
Debt	A\$m	4.1
<b>Enterprise value</b>	<b>A\$m</b>	<b>56.2</b>

Figure13. Enterprise value calculation

The issued options are summarised in Figure 14 and are not significant.

Expiry	Number issued	Exercise Price	Amount Raised
04-Dec-18	1,500,000	0.085	127,500
04-Dec-18	1,500,000	0.100	150,000
Total	3,000,000	0.093	277,500

Figure 14. Issued options.

Experienced Board....

## Image Resources Director Backgrounds

The Board includes members have a wealth of mineral development and exploration experience covering a variety of commodities.

### Chairman Robert Besley

Bob is a geologist with more than 40 years' experience in the minerals industry in Asia, the Middle East, North and South America, Australia and the Pacific Rim. He spent 13 years with Unocal, seven of those as Manager of Minerals for Australia and the Pacific and was General Manager of Australmin Holdings Limited when that company developed a minerals sands project in eastern Australia and a gold mine in Western Australia. Bob founded and was Managing Director of CBH Resources Limited from its initial ASX listing as a junior to when it was an important Australian zinc/lead/silver producer. He was a founding Director of Kimberley Metals Ltd and is currently Chairman of Silver City Minerals. Bob has served on a number of Government and Industry advisory boards.

### Managing Director Patrick Mutz

Patrick has more than 30 years of international mining industry experience in technical (metallurgist), managerial, consulting and executive roles in all aspects of the industry. He has operational experience in open cut, underground, and in-situ mining and related processing, on projects in the USA, Germany, Africa



and Australia. Since his arrival in Australia from the USA in 1998, he has served as CEO / Managing Director of a number of publicly listed and private mining companies primarily involved with project development and company transitioning from exploration to production. Mr Mutz is a Fellow of the AusIMM and a member of the Australian Institute of Company Directors. He holds a Bachelor of Science (Honours) and an MBA from the University of Phoenix in the US. Patrick joined Murray Zircon as a senior advisor in early 2012 and served as its Chief Operating Officer during the pivotal transition period from development to operational status in the latter part of 2012. In February 2013 he was invited to take on the role as CEO and to lead the company on its goal of becoming South Australia's newest mineral sands mining company.

#### ***Executive Director - Exploration***

##### ***George Sakalidis***

George is an exploration geophysicist with over 30 years' industry experience. His career has included extensive gold, diamond, base metals and mineral sands exploration. He has been involved in a number of significant mineral discoveries, including the Three Rivers and Rose gold deposits, the Dongara Mineral Sands Deposits, the Boonanarring-Gingin South-Helene Mineral Sands Deposits in WA and he was involved in the tenement applications over the Silver Swan nickel deposit. He was also involved with the tenement application for the recently discovered Monty Copper mineralisation adjacent to the Degruessa Copper deposit. He is a founding Director and is currently an Executive Director of Image (since listing on 4 July 2002) and Meteoric Resources NL (since listing on 16 July 2004). George has also been a founding director of ASX listed companies Emu NL, Magnetic Minerals Limited (taken over by Ticor in 2003), Magnetic Resources NL and Potash West NL.

#### ***Non- Executive Director***

##### ***Chong Veoy (Aaron) Soo***

Mr Soo has been a long term supporter and shareholder in Image. Mr Soo is an advocate and solicitor practising in West Malaysia with 16 years of experience in legal practice and is currently a partner in Stanley Ponniah, Ng & Soo, Advocates & Solicitors.

#### ***Non- Executive Director***

##### ***Peter Thomas***

Peter Thomas having served on ASX listed company boards for some 30 years and has been a non-executive director of Image since 10 April 2002. He resigned as Chair on 29 October 2014. For over 30 years until June 2011, Mr Thomas ran a legal practice on his own account specialising in corporate and commercial advice to listed explorers and miners. Peter currently a director of listed companies Emu NL and Middle Island Resources Limited and recently of Magnetic Resources NL (resigned July 2013) and Meteoric Resources NL (resigned September 2014).

#### ***Non- Executive Director***

##### ***Chaodian Chen***

Mr Chen founded Orient Zirconic in 1995 and has built the company into a leading company in the zirconium industry. He served as President and Chairman of the company until mid-2013 when China National Nuclear Corporation (CNNC) became the largest shareholder in Orient Zirconic. He became the Chairman of Murray Zircon when the company was founded in 2011 as a result of Orient Zirconic's first investment in mining in Australia. Mr Chen is the Vice President of China non-ferrous metals industry association titanium zirconium & Hafnium Branch. He holds an EMBA degree and is a Certified Engineer. He also owns a number of patents involving the processing of zircon.

#### ***Non- Executive Director***





### *Fei (Eddy) Wu*

Mr Wu has solid operational experience in the Australian resource and mining industry. He specialises in combining the strengths of Australian upstream mining with Chinese downstream processing and end use to optimise the strategy for resource development and maximise the resource value. As the first CEO of Murray Zircon, he built and led the team to complete the development and start-up at the Mindarie mineral sands project in late 2012. Mr Wu was appointed as a Non-Executive Director of Murray Zircon in early 2013. He is currently the CEO and a Director of Queensland Mining Corporation Limited and the CEO of WIM Resources Pty Ltd. Eddy graduated from the University of Science and Technology, Beijing. He holds a Master's Degree in Commerce (Finance) from the Australian National University and a Master's Degree in Science from Cass Business School, City University London.

### *Breakaway's View*

*Company is at a turning point....*

Image Resources is at a turning point with project development, future production and cash flows in less than 12 months. At the moment we are in a holding pattern as the market waits to see how the project financing is going to occur and what, if any, dilution may stem from the raising.

While this creates uncertainty, there are factors which may in fact lead to an increase in the share price over the next two months and these include:

- Improving commodity markets which we anticipate will occur over the next few months
- A reassessment of the project in a higher commodity price regime
- The finalisation of the terms of the debt financing from major Australian banks

*Valuation metrics support the current share price...*

However from an investment perspective we need to assess the current share price against our valuation metrics. Under this scenario we believe that our financial modelling forecasts indicate that the current share price is attractive in relation to future earnings and cash flows as well as on an NPV per share basis – particularly on long term forecast exchange rates. This NPV also increases under a scenario where the Boonanarring mine life is extended by two years and which is not considered unreasonable given the mineralisation is known to continue to the north of the main deposit.

*Considerable growth is offered beyond the current development....*

The confidence that this research provides for investing at around the current share price is comforting to investors. While Boonanarring has arguably the highest heavy mineral and zircon grades of the undeveloped deposits in Australia, the Company also offers considerable growth options beyond the base case valuation. These range from Boonanarring and Atlas mine life extensions, other dry mining opportunities in the region as well as large scale dredging projects like Bidaminna. We believe that once the first project (Boonanarring) is developed and generating a healthy cash flow then the market will start to factor in the value of these other projects. This will stem from the Company announcing a heightened level of activities on these projects and progressing operational enhancements.

Hence Breakaway's recommendation for Image Resources is a **Buy**.



### **Analyst Verification**

I, Stephen Bartrop, as the Research Analysts, hereby certify that the views expressed in this research accurately reflect our personal views about the subject securities or issuers and no part of analyst compensation is directly or indirectly related to the inclusion of specific recommendations or views in this research.

### **Disclosure**

Breakaway Research Pty Ltd and the Breakaway Investment Group (AFSL 290093) may receive corporate advisory fees, consultancy fees and commissions on sale and purchase of the shares of Image Resources Limited and may hold direct and indirect shares in the company. It has also received a commission on the preparation of this research note.

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#### **Breakaway Research Pty Ltd**

ABN: 39 602 490 906, is an authorised representative of:

Breakaway Investment Group AFSL 290093 ABN 84 127 962 387

T+61293928010 F+61292792727

PO Box H116 Australia Square

Sydney, NSW 2001

Suite 505, 35 Lime Street,

Sydney, NSW 2000