

## EQUITIES

<b>South32</b>	<b>Outperform</b>
Market cap	A\$17,145m
Price	A\$3.42
Price Target	A\$3.80
TSR	17%
<b>Alumina</b>	<b>Outperform</b>
Market cap	A\$5,205m
Price	A\$2.41
Price Target	A\$2.70
TSR	25%
<b>OZ Minerals</b>	<b>Outperform</b>
Market cap	A\$3,048m
Price	A\$9.44
Price Target	A\$12.40
TSR	34%
<b>Independence Group</b>	<b>Neutral</b>
Market cap	A\$2,445m
Price	A\$4.14
Price Target	A\$4.10
TSR	2%
<b>Sandfire Resources</b>	<b>Outperform</b>
Market cap	A\$1,101m
Price	A\$6.97
Price Target	A\$8.00
TSR	18%
<b>Western Areas</b>	<b>Outperform</b>
Market cap	A\$615m
Price	A\$2.25
Price Target	A\$2.70
TSR	21%
<b>Clean TeQ Holdings</b>	<b>Outperform</b>
Market cap	A\$343m
Price	A\$0.46
Price Target	A\$1.10
TSR	139%
<b>Metals X</b>	<b>Outperform</b>
Market cap	A\$310m
Price	A\$0.45
Price Target	A\$0.80
TSR	78%
<b>Panoramic Resources</b>	<b>Outperform</b>
Market cap	A\$183m
Price	A\$0.37
Price Target	A\$0.72
TSR	89%

## Australian Base Metal Miners Gold boost and A\$ relief

### Key points

- ▶ We are upgrading earnings forecasts for the base metal miners to incorporate increases in our gold price outlook and softer A\$/US\$.
- ▶ The softer A\$/US\$ improves the earnings outlook for S32 and AWC, with boosts to dividends likely positive catalysts for both stocks.
- ▶ OZL remains our preferred pure play copper stock, with PAN and WSA preferred for nickel exposure over IGO.

### Event

- Our commodities and economics teams have made upgrades to our precious metals forecasts and downgraded our A\$ outlook. Short-term changes were generally modest with, medium-term outlooks improved the most.

### Impact

- **Improved earnings outlook:** Incorporating the softer outlook for the A\$/US\$ and the stronger gold price has translated to material upgrades to our earnings estimates for the Australian Base Metal Miners. IGO is the main benefactor, with earnings rising 27% and 28% for FY20 and FY21, while OZL sees earnings upgrades for 10-21% for CY19-CY21. The softer A\$ boosts earnings for SFR, WSA, MLX and PAN by over 12-19% for FY20 and 14-36% for FY21. S32 and AWC's earnings rise <10% over the next three years.
- **Modest recovery underway:** Base metals equities have come under significant pressure since October 2018 with stocks down 2-25%. However the sector has seen a modest recovery in the early part of 2019. The 27% and 21% bounces in CLQ and MLX are the highlights, with other base metal miners up 4-9%. We note that the recovery in CLQ's share price is despite continued weakness in cobalt prices.

### Outlook

- **Capital management key catalysts for S32 and AWC:** The softer A\$ has boosted the earnings outlook for both S32 and AWC. Spot alumina prices remain volatile and present a risk to the near-term earnings outlook for both stocks. However with a boost to capital management, likely through increased dividends, presents a positive near-term catalyst for both S32 and AWC.
- **OZL gold exposure boosts the upside:** The increases to our gold price forecasts have translated to material upgrades to earnings for OZL for the next three years. We see the release of the updated feasibility studies for the Brazilian growth projects as a key near-term positive catalyst for OZL. SFR and MLX both look cheap at current levels, with an improving production performance at Nifty a key catalyst for MLX.
- **PAN and WSA preferred for nickel:** We reiterate our preference for PAN and WSA for pure play nickel, with the softer A\$/US\$ delivering material earnings upgrades for both stocks. We see the successful return to full production as a key catalyst for PAN while WSA offers the greatest leverage to our medium-term bull case for nickel. IGO benefits from the upgrades to our gold price forecasts, but we struggle to see a positive catalyst for the stock outside of exploration success that extends the mine life of Nova.

### Updating our gold and A\$ forecasts

- Our commodities team have [revised our 2019-20 forecasts precious metal price forecasts](#) higher by 6-12%, and now expect a new cycle peak of \$1,450/oz in CY20.

**Fig 1 Changes to our gold price forecasts**

Y/E Dec	1Q/19	2Q/19	3Q/19	4Q/19	1Q/20	2Q/20	3Q/20	4Q/20	1Q/21	2Q/21	3Q/21	4Q/21
New gold US\$/oz	1,250	1,275	1,350	1,400	1,425	1,450	1,450	1,400	1,375	1,375	1,350	1,350
Old gold US\$/oz	1,175	1,200	1,250	1,250	1,275	1,300	1,325	1,350	1,325	1,325	1,300	1,325
Change	6%	6%	8%	12%	12%	12%	9%	4%	4%	4%	4%	2%

Source: Macquarie Research, January 2019

- [Additionally, our economics team have updated our A\\$ forecasts](#). We are now forecasting A\$ to remain broadly around its current level (low US\$0.70s), on average, over the next couple of years.

**Fig 2 Changes to our A\$/US\$ exchange rate forecasts**

Y/E Dec	1Q/19	2Q/19	3Q/19	4Q/19	1Q/20	2Q/20	3Q/20	4Q/20	1Q/21	2Q/21	3Q/21	4Q/21
New A\$/US\$	0.71	0.71	0.72	0.72	0.72	0.72	0.73	0.73	0.74	0.74	0.75	0.75
Old A\$/US\$	0.70	0.71	0.73	0.74	0.75	0.76	0.77	0.78	0.78	0.78	0.78	0.78
Change	1%	0%	(1%)	(3%)	(4%)	(5%)	(5%)	(6%)	(5%)	(5%)	(4%)	(4%)

Source: Macquarie Research, January 2019

### Changes to A\$ and gold drive earnings A\$

- The above changes to our precious metal and A\$ forecasts have been positive due to a weakened A\$ outlook as well as a strengthened precious metal forecasts. The impact to FY20-22/CY19-21 was generally positive, with changes to A\$ and gold thereafter negligible. Changes to FY/CY19 were generally modest, with medium term outlooks impacted the most. Companies with material exposure to gold and with A\$ denominated cost were the most leveraged to the changes.
- Again, as with our earnings changes, companies with material exposure to gold and with A\$ denominated costs saw the greatest change in price target. IGO's target price increased 8% to \$4.10, with SFR, WSA and OZL increasing by 4%, PAN's price target increased 3%, while our price target for MLX and AWC remained unchanged. Updates to our equity raising assumptions for CLQ have driven an 8% reduction in our price target. S32's ASX and LSE target prices remain unchanged, while changes in the ZAR have driven an increase in our JSE target price to R37.60.

**Fig 3 A\$ downgrades and precious metals upgrades drive earnings upgrades**

June Y/E	FY19e	FY20e	FY21e	FY22e	FY23e	Price target
S32	3%	4%	7%	3%	0%	0%
IGO	4%	27%	28%	10%	1%	8%
SFR	0%	12%	14%	8%	4%	4%
WSA	(5%)	12%	18%	6%	0%	4%
CLQ	0%	0%	(4%)	4%	0%	(8%)
MLX	(5%)	19%	36%	2%	0%	0%
PAN	0%	16%	16%	7%	0%	3%

December Y/E	CY19e	CY20e	CY21e	CY22e	CY23e	Price target
AWC	2%	6%	6%	1%	1%	0%
OZL	10%	21%	14%	0%	0%	4%

Source: Macquarie Research, January 2019

- In general changes have been small in quantum while coming off a small base has meant that the percentage changes have been large. We go into our updates in more detail below.

### Earnings changes in detail

- Our earnings forecasts for S32 have increased by 3%, 4%, 7% and 3% in FY19-22 respectively, due mainly to changes in our A\$ forecasts. Our ASX and LSE target prices remain unchanged at \$3.80, and £2.10, while changes in the ZAR exchange rate has driven an increase in our JSE target price to R37.60.

**Fig 4 S32 Earnings changes**

Earnings	FY19e	FY20e	FY21e	FY22e	FY23e	FY24e	Price target
Net profit (US\$m) - old	1,257	1,245	1,230	1,172	1,164	1,181	3.80
Net profit (US\$m) - new	1,294	1,291	1,312	1,207	1,165	1,175	3.80
Change	3%	4%	7%	3%	0%	(1%)	0%

Source: Macquarie Research, January 2019

- We have updated our estimates to incorporate the changes to our A\$ forecasts, cuts to our A\$ outlook have resulted in upgrades to our earnings outlook. Our earnings forecasts have improved by 2%, 6%, 6%, 1%, and 1% in CY19-23 respectively. We have not made any changes to our target price.

**Fig 5 AWC Earnings changes**

	CY19e	CY20e	CY21e	CY22e	CY23e	CY24e	Price target
Net profit (US\$m) - old	680	592	452	380	385	346	2.70
Net profit (US\$m) - new	692	626	478	382	387	346	2.70
Change	2%	6%	6%	1%	1%	0%	0%

Source: Macquarie Research, January 2019

- Commodity price mark-to-market and updates to our gold and A\$ forecasts have driven near-term cuts to our earnings outlook for OZL, which have been more than offset by improvements to our CY19-21 earnings forecasts by 10%, 21% and 14% respectively. An improvement to our earnings outlook has driven an increase in our target price by 4% to \$12.40.

**Fig 6 OZL Earnings changes**

Y/E December	CY18e	CY19e	CY20e	CY21e	CY22e	CY23e	Price target
Net profit (A\$m) - old	254	207	346	431	697	689	11.90
Net profit (A\$m) - new	249	227	417	493	699	691	12.40
Change	(2%)	10%	21%	14%	0%	0%	4%

Source: Macquarie Research, January 2019

- Improvements to our gold forecasts and cuts to our A\$ outlook have resulted in an increase in our FY19-23 earnings estimates for IGO. Our earnings outlook improves by 4%, 27%, 28%, 10% and 1% in FY19-23 respectively. An improvement in our earnings outlook has resulted in an increase to our target price by 8% from \$3.80 to \$4.10

**Fig 7 IGO Earnings changes**

Y/E June	FY19e	FY20e	FY21e	FY22e	FY23e	Price target
Net profit (A\$m) - old	97	136	142	144	167	3.80
Net profit (A\$m) - new	101	173	182	159	168	4.10
Change	4%	27%	28%	10%	1%	8%

Source: Macquarie Research, January 2019

- Changes to our A\$ and gold forecasts have resulted in an improvement in our earnings outlook for SFR. Our earnings forecasts improve by 12% in FY20, 14% in FY21, 8% in FY22, and 4% in FY23. An increase to our earnings forecasts has resulted in an increase to our target price by 4% from \$7.70 to \$8.00.

**Fig 8 SFR Earnings changes**

Y/E June	FY19e	FY20e	FY21e	FY22e	FY23e	Price target
Net profit (A\$m) - old	102	157	200	125	6.6	7.70
Net profit (A\$m) - new	103	177	228	134	6.9	8.00
Change	0%	12%	14%	8%	4%	4%

Source: Macquarie Research, January 2019

- We have updated our WSA forecasts to reflect the changes to our A\$ forecasts. Marking-to-market has reduced our FY19 earnings forecast by 5%, with a worsened A\$ outlook resulting in an improvement of 12%, 18% and 6% to our FY20-22 earnings estimates respectively. The improvement to our medium term outlook has resulted in an increase to our target price by 4% from \$2.60 to \$2.70.

**Fig 9 WSA Earnings changes**

Y/E June	FY19e	FY20e	FY21e	FY22e	FY23e	Price target
Net profit (A\$m) - old	15	61	73	83	111	2.60
Net profit (A\$m) - new	14	68	86	88	112	2.70
Change	(5%)	12%	18%	6%	0%	4%

Source: Macquarie Research, January 2019

- We have updated our earnings outlook for CLQ to reflect changes to our A\$ forecasts, changes in the 2QFY19 activities report, we have also adjusted our capital raise assumptions to include a A\$380m equity raising in 1QFY20. This has led to an increase in FY21 losses and an improvement in FY22 earnings. Our target price has decreased 8% from \$1.20 to \$1.10 due to our updated equity raise assumptions.

**Fig 10 CLQ Earnings changes**

Earnings changes	FY19e	FY20e	FY21e	FY22e	FY23e	Price target
Net profit (A\$m) - old	(17)	(20)	(88)	27	376	1.20
Net profit (A\$m) - new	(17)	(20)	(92)	29	375	1.10
Change	(0%)	0%	(4%)	4%	(0%)	(8%)

Source: Macquarie Research, January 2019

- We have made changes to our earnings forecasts for MLX, taking into account changes to our precious metals and A\$ forecasts. Commodity price mark-to-markets have resulted in a 5% downgrade to our FY19 NPAT estimates, while upgrade to our precious metals forecasts, and a weakening in our A\$ outlook have driven 19% 36% and 2% improvements in our earnings forecasts for FY20-22 respectively. Our target price remains unchanged at \$0.80.

**Fig 11 MLX Earnings changes**

Earnings changes	FY19e	FY20e	FY21e	FY22e	FY23e	Price target
Net profit (A\$m) - old	24.8	65.9	57.6	135.6	109.4	0.80
Net profit (A\$m) - new	23.4	78.3	78.5	137.9	109.9	0.80
Change	(5%)	19%	36%	2%	0%	0%

Source: Macquarie Research, January 2019

- Updates to our A\$ forecasts have resulted in upgrades to our FY20-22 earnings forecasts. Our forecasts increases by 16% in FY20 and FY21 while FY22 improves 7%. The improvement in our earnings outlook results in an increase in our target price by 3% to \$0.72.

**Fig 12 PAN Earnings changes**

Y/E June	FY19e	FY20e	FY21e	FY22e	FY23e	FY24e	Price target
Net profit (A\$m) - old	(17.9)	26.9	57.9	65.8	66.8	71.4	0.70
Net profit (A\$m) - new	(18.0)	31.1	67.3	70.6	66.8	70.8	0.72
Change	0%	16%	16%	7%	0%	(1%)	3%

Source: Macquarie Research, January 2019

**Upcoming quarterly reports**

- We note, MLX, OZL, SFR, IGO and PAN are yet to release their full quarterly reports. AWC and S32 have reported their quarterlies, while MLX has pre-released its production results.

**Fig 13 Upcoming announced quarterly dates**

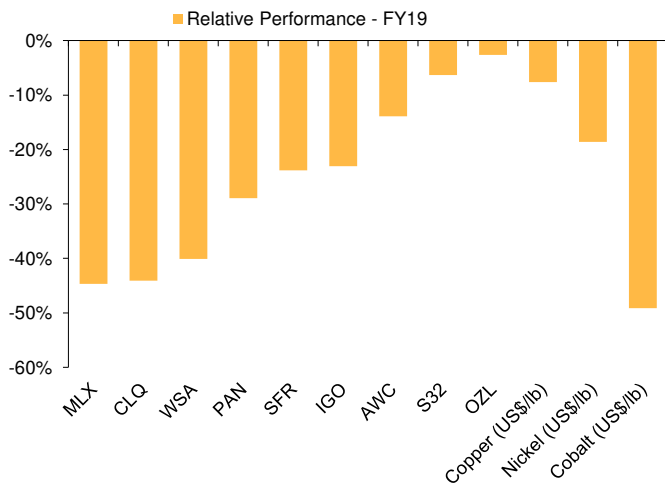
Quarterly date	Company
Wednesday, 23 January 2019	MLX
Thursday, 24 January 2019	OZL
<b>WEEK</b>	<b>END</b>
Monday, 28 January 2019	Australia Day Public Holiday
Tuesday, 29 January 2019	
Wednesday, 30 January 2019	SFR
Thursday, 31 January 2019	IGO PAN

Source: Macquarie Research, January 2019

**Relative performance of the base metal miners**

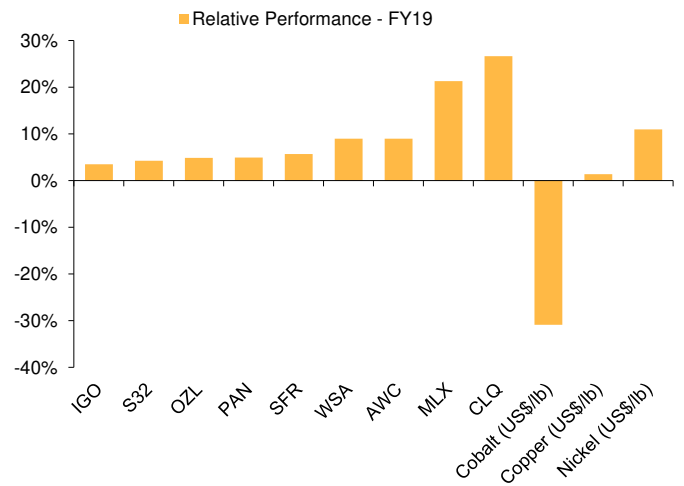
- Base metal prices, in particular cobalt, have come under pressure as the US/China “trade war” sparked a global risk-on market sell-off due to concerns over the outlook for global growth. Copper and nickel have outperformed cobalt of FY19, with nickel performing worse than copper in the same period. We note, OZL has outperformed of our base metals mining coverage universe in FY19, OZL has been our key pick in the sector due to possessing both growth options as well as high margins.
- However, since the start of CY19 we have seen a reversal of fortunes, as the sector has seen a modest recovery in the early part of 2019. The 27% and 21% bounces in CLQ and MLX are the highlights, with other base metal miners up 4-9%. We note that the recovery in CLQ’s share price is despite continued weakness in cobalt prices.

**Fig 14 OZL best relative performer on the ASX in FY19**



Source: Bloomberg, Macquarie Research, January 2019

**Fig 15 FY19 laggards outperforming in CY19**



Source: Bloomberg, Macquarie Research, January 2019

Fig 16 South32 summary financials

		South32									Year end: Jun			Rating: Outperform				Up/dn	TSR																																																																																																																																																																										
ASX: S32	Price: (A\$ps)	3.42	Mkt cap: (A\$m)		17,145					Diluted shares (m)	5,013					11%	17%																																																																																																																																																																												
LSE S32	Price: (£\$ps)	1.91	Mkt cap: (US\$m)		12,282									10%	16%																																																																																																																																																																														
JSE S32	Price: (ZARps)	33.75												11%	17%																																																																																																																																																																														
ASSUMPTIONS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e	ASSUMPTIONS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e																																																																																																																																																																										
Exchange Rate A\$/US\$	0.73	0.75	0.78	0.72	0.72	0.74	0.77	0.78	Commodity prices																																																																																																																																																																																				
Exchange Rate USDBRL	3.68	3.23	3.30	4.15	4.59	3.99	3.50	3.50	Aluminium (US\$/lb)	0.70	0.80	0.97	0.92	0.96	0.97	0.98	1.00																																																																																																																																																																												
Exchange Rate USDZAR	14.42	13.58	12.79	14.19	14.42	14.86	15.26	15.31	Alumina (US\$/t)	250	295	422	455	400	385	349	353																																																																																																																																																																												
RATIO ANALYSIS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e	Manganese ore (US\$/mtu)	2.90	5.69	6.90	6.38	5.38	5.55	5.65	5.75																																																																																																																																																																											
Diluted share capital m	5,324	5,367	5,230	5,084	5,084	5,084	5,084	5,084	Ferromanganese (US\$/t)	825	1,207	1,668	1,530	1,290	1,330	1,355	1,380																																																																																																																																																																												
EPS (diluted and pre sig. items) USc	2.6	21.4	25.3	25.3	25.4	25.8	23.7	22.9	Nickel (US\$/lb)	4.23	4.60	5.65	5.70	6.63	7.26	7.94	8.39																																																																																																																																																																												
P/E x	94.5x	11.5x	9.7x	9.7x	9.6x	9.5x	10.3x	10.7x	Thermal coal (US\$/t)	53.42	80.51	100.03	100.14	75.00	68.00	66.00	66.00																																																																																																																																																																												
CFPS USc	18.7	34.0	25.0	28.8	32.7	32.3	31.1	29.9	Coking coal (US\$/t)	86.88	171.97	202.77	200.59	165.00	150.00	155.00	152.50																																																																																																																																																																												
P/CF x	18.3x	10.0x	13.7x	11.9x	10.5x	10.6x	11.0x	11.4x	Silver (US\$/oz)	15.32	17.86	16.72	15.01	16.19	17.00	18.00	19.00																																																																																																																																																																												
DPS USc	1.0	10.0	13.5	14.7	12.7	12.9	11.9	11.5	Lead (US\$/lb)	0.78	0.96	1.10	0.91	0.87	0.86	0.82	0.83																																																																																																																																																																												
Dividend yield %	0.4%	4.1%	5.5%	6.0%	5.2%	5.3%	4.9%	4.7%	Zinc (US\$/lb)	0.80	1.15	1.44	1.13	1.01	0.96	0.96	1.02																																																																																																																																																																												
Franking Level %	0%	50%	96%	100%	100%	100%	100%	100%	Production by commodity																																																																																																																																																																																				
Book value per share US\$ps	1.77	1.91	2.05	2.10	2.20	2.32	2.41	2.50	Alumina																																																																																																																																																																																				
P/Book value x	1.4x	1.3x	1.2x	1.2x	1.1x	1.1x	1.0x	1.0x	Worsley (kt)		3,961	3,892	3,764	3,969	3,965	3,965	3,965	3,965																																																																																																																																																																											
R.O.E. (pre sig items) %	-17%	12%	12%	12%	12%	11%	10%	9%	Hillside (kt)		1,335	1,329	1,304	1,316	1,370	1,430	1,430	1,430																																																																																																																																																																											
R.O.A. (pre sig items) %	3%	11%	12%	12%	12%	11%	10%	9%	Total alumina (kt)		5,296	5,221	5,068	5,285	5,335	5,395	5,395	5,395																																																																																																																																																																											
Interest Cover x	0.2x	-0.9x	-1.0x	-1.0x	-1.0x	-1.0x	-1.0x	-1.0x	Aluminium																																																																																																																																																																																				
EBITDA per share US\$ps	0.21	0.45	0.48	0.51	0.69	0.70	0.64	0.61	Hillside (kt)		697	714	712	720	720	720	720	720																																																																																																																																																																											
EV/EBITDA x	10.6x	4.4x	4.1x	4.4x	4.3x	3.9x	3.9x	3.7x	Bayside (kt)		0	0	0	0	0	0	0	0																																																																																																																																																																											
ROIC %	1.5%	10.5%	7.1%	5.5%	6.7%	7.1%	6.1%	6.1%	Moal (kt)		266	271	271	269	273	273	273	273																																																																																																																																																																											
FCF Yield %	6%	15%	12%	10%	11%	11%	10%	10%	Alumar (kt)		0	0	0	0	0	0	0	0																																																																																																																																																																											
EARNINGS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e	Total aluminium (kt)		963	985	983	989	993	993	993	993																																																																																																																																																																										
Sales Revenue US\$m	5,812	6,950	7,549	7,533	7,399	7,689	7,690	7,767	Coal																																																																																																																																																																																				
Other Revenue US\$m	0	0	0	0	0	0	0	0	South Africa Energy Coal (mt)		31.7	28.9	27.3	29.0	30.3	33.4	32.3	26.6																																																																																																																																																																											
Total Revenue US\$m	5,812	6,950	7,549	7,533	7,399	7,689	7,690	7,767	Illawarra Coking Coal (mt)		8.4	7.1	4.2	6.5	7.1	8.0	8.0	8.0																																																																																																																																																																											
Operating Costs US\$m	(4,826)	(4,822)	(5,434)	(5,342)	(5,167)	(5,357)	(5,507)	(5,632)	Manganese ore																																																																																																																																																																																				
Operational EBITDA US\$m	986	2,128	2,115	2,191	2,232	2,331	2,184	2,135	GEMCO (kt)		3,071	2,994	3,396	3,356	3,360	3,360	3,360	3,360																																																																																																																																																																											
Associates US\$m	(23)	312	521	495	381	397	404	405	Hotazel (kt)		1,711	2,038	2,145	2,041	2,052	2,052	2,052	2,052																																																																																																																																																																											
Corporate & Other Costs US\$m	168	(29)	(120)	(100)	(103)	(106)	(108)	(111)	Total manganese ore (kt)		4,782	5,032	5,541	5,397	5,412	5,412	5,412	5,412																																																																																																																																																																											
Underlying Ebitda US\$m	1,131	2,411	2,516	2,586	2,510	2,623	2,479	2,428	Other																																																																																																																																																																																				
D&A US\$m	(775)	(763)	(742)	(746)	(709)	(756)	(775)	(781)	Cerro Matoso Nickel (kt)		36.8	36.5	43.8	40.5	35.8	35.2	32.8	32.8																																																																																																																																																																											
Underlying Ebit US\$m	356	1,648	1,774	1,840	1,800	1,865	1,704	1,647	Cannington Silver (moz)		21.4	15.6	12.5	12.0	10.9	12.4	12.4	12.4																																																																																																																																																																											
Adjustments US\$m	(1,797)	147	(55)	0	0	0	0	0	Cannington Lead (kt)		173.2	132.1	104.4	96.2	94.0	106.3	115.7	137.5																																																																																																																																																																											
Profit from Operations US\$m	(1,441)	1,795	1,719	1,840	1,800	1,865	1,704	1,647	Cannington Zinc (kt)		79.0	70.4	41.3	50.7	57.8	71.8	61.8	75.0																																																																																																																																																																											
Net Interest US\$m	(104)	(171)	(100)	(122)	(81)	(151)	(153)	(156)	Hermosa Silver (moz)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																																																																																																																																																																											
Profit Before Tax US\$m	(1,545)	1,624	1,619	1,719	1,719	1,714	1,551	1,491	Hermosa Lead (kt)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																																																																																																																																																																											
Tax Expense US\$m	(70)	(393)	(287)	(425)	(428)	(402)	(344)	(326)	Hermosa Zinc (kt)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																																																																																																																																																																											
Minorities US\$m	0	0	0	0	0	0	0	0	EBITDA BY COMMODITY																																																																																																																																																																																				
Net Earnings US\$m	(1,615)	1,231	1,332	1,294	1,291	1,312	1,207	1,165																																																																																																																																																																																					
Earnings Adjustments US\$m	1,753	(85)	(5)	0	0	0	0	0	<table border="1"> <thead> <tr> <th>Projects</th> <th>US\$m</th> <th>US\$</th> <th>A\$m</th> <th>A\$/sh</th> <th>GBPm</th> <th>GBP</th> <th>ZARm</th> <th>ZAR</th> </tr> </thead> <tbody> <tr> <td>Worsley Alumina</td> <td>2,579</td> <td>0.51</td> <td>3,533</td> <td>0.70</td> <td>1,969</td> <td>0.39</td> <td>34,559</td> <td>6.89</td> </tr> <tr> <td>South Africa Aluminium</td> <td>3,106</td> <td>0.62</td> <td>4,255</td> <td>0.85</td> <td>2,371</td> <td>0.47</td> <td>41,619</td> <td>8.30</td> </tr> <tr> <td>Moal Aluminium</td> <td>710</td> <td>0.14</td> <td>972</td> <td>0.19</td> <td>542</td> <td>0.11</td> <td>9,512</td> <td>1.90</td> </tr> <tr> <td>Brazil Aluminium</td> <td>257</td> <td>0.05</td> <td>352</td> <td>0.07</td> <td>196</td> <td>0.04</td> <td>3,441</td> <td>0.69</td> </tr> <tr> <td>South Africa Energy Coal</td> <td>120</td> <td>0.02</td> <td>165</td> <td>0.03</td> <td>92</td> <td>0.02</td> <td>1,610</td> <td>0.32</td> </tr> <tr> <td>Illawarra Metallurgical Coal</td> <td>522</td> <td>0.10</td> <td>715</td> <td>0.14</td> <td>399</td> <td>0.08</td> <td>6,996</td> <td>1.40</td> </tr> <tr> <td>Australia Manganese</td> <td>1,621</td> <td>0.32</td> <td>2,220</td> <td>0.44</td> <td>1,237</td> <td>0.25</td> <td>21,720</td> <td>4.33</td> </tr> <tr> <td>South Africa Manganese</td> <td>474</td> <td>0.09</td> <td>650</td> <td>0.13</td> <td>362</td> <td>0.07</td> <td>6,355</td> <td>1.27</td> </tr> <tr> <td>Cerro Matoso</td> <td>1,099</td> <td>0.22</td> <td>1,506</td> <td>0.30</td> <td>839</td> <td>0.17</td> <td>14,730</td> <td>2.94</td> </tr> <tr> <td>Cannington</td> <td>334</td> <td>0.07</td> <td>458</td> <td>0.09</td> <td>255</td> <td>0.05</td> <td>4,480</td> <td>0.89</td> </tr> <tr> <td>Hermosa</td> <td>1,220</td> <td>0.24</td> <td>1,671</td> <td>0.33</td> <td>931</td> <td>0.19</td> <td>16,343</td> <td>3.26</td> </tr> <tr> <td>Third party products</td> <td>29</td> <td>0.01</td> <td>39</td> <td>0.01</td> <td>22</td> <td>0.00</td> <td>382</td> <td>0.08</td> </tr> <tr> <td>Group and unallocated</td> <td>(804)</td> <td>(0.16)</td> <td>(1,101)</td> <td>(0.22)</td> <td>(614)</td> <td>(0.12)</td> <td>(10,771)</td> <td>(2.15)</td> </tr> <tr> <td>Cash</td> <td>1,645</td> <td>0.33</td> <td>2,254</td> <td>0.45</td> <td>1,256</td> <td>0.25</td> <td>22,049</td> <td>4.40</td> </tr> <tr> <td>Debt</td> <td>(848)</td> <td>(0.17)</td> <td>(1,162)</td> <td>(0.23)</td> <td>(647)</td> <td>(0.13)</td> <td>(11,363)</td> <td>(2.27)</td> </tr> <tr> <td>Net Equity Value (@ 10% Nom)</td> <td>12,064</td> <td>2.41</td> <td>16,526</td> <td>3.30</td> <td>9,209</td> <td>1.84</td> <td>161,661</td> <td>32.25</td> </tr> <tr> <td>Price Target (50% 6.0x EV/Ebitda/50% NPV)</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">AUD</td> <td>3.80</td> <td>GBP</td> <td>2.10</td> <td>ZAR</td> <td>37.60</td> <td colspan="6"></td> </tr> </tbody> </table>										Projects	US\$m	US\$	A\$m	A\$/sh	GBPm	GBP	ZARm	ZAR	Worsley Alumina	2,579	0.51	3,533	0.70	1,969	0.39	34,559	6.89	South Africa Aluminium	3,106	0.62	4,255	0.85	2,371	0.47	41,619	8.30	Moal Aluminium	710	0.14	972	0.19	542	0.11	9,512	1.90	Brazil Aluminium	257	0.05	352	0.07	196	0.04	3,441	0.69	South Africa Energy Coal	120	0.02	165	0.03	92	0.02	1,610	0.32	Illawarra Metallurgical Coal	522	0.10	715	0.14	399	0.08	6,996	1.40	Australia Manganese	1,621	0.32	2,220	0.44	1,237	0.25	21,720	4.33	South Africa Manganese	474	0.09	650	0.13	362	0.07	6,355	1.27	Cerro Matoso	1,099	0.22	1,506	0.30	839	0.17	14,730	2.94	Cannington	334	0.07	458	0.09	255	0.05	4,480	0.89	Hermosa	1,220	0.24	1,671	0.33	931	0.19	16,343	3.26	Third party products	29	0.01	39	0.01	22	0.00	382	0.08	Group and unallocated	(804)	(0.16)	(1,101)	(0.22)	(614)	(0.12)	(10,771)	(2.15)	Cash	1,645	0.33	2,254	0.45	1,256	0.25	22,049	4.40	Debt	(848)	(0.17)	(1,162)	(0.23)	(647)	(0.13)	(11,363)	(2.27)	Net Equity Value (@ 10% Nom)	12,064	2.41	16,526	3.30	9,209	1.84	161,661	32.25	Price Target (50% 6.0x EV/Ebitda/50% NPV)					AUD		3.80	GBP	2.10	ZAR	37.60						
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Price Target (50% 6.0x EV/Ebitda/50% NPV)					AUD		3.80	GBP	2.10	ZAR	37.60																																																																																																																																																																																		
Underlying Earnings US\$m	138	1,146	1,327	1,294	1,291	1,312	1,207	1,165																																																																																																																																																																																					
CASHFLOW		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e																																																																																																																																																																																				
Profit from Operations US\$m	(1,441)	1,795	1,719	1,840	1,800	1,865	1,704	1,647																																																																																																																																																																																					
Interest/Tax/D&A US\$m	2,451	(187)	(93)	(296)	(181)	(192)	(126)	(106)																																																																																																																																																																																					
Working Capital/other US\$m	(13)	219	(317)	(78)	42	(29)	2	(20)																																																																																																																																																																																					
Net Operating Cashflow US\$m	997	1,827	1,309	1,466	1,662	1,644	1,580	1,522																																																																																																																																																																																					
Capital Expenditure (gross) US\$m	(466)	(359)	(492)	(838)	(823)	(820)	(833)	(789)																																																																																																																																																																																					
Acquisitions/(Disposals) US\$m	46	7	135	(1,457)	0	0	(27)	0																																																																																																																																																																																					
Dividends received/other US\$m	112	368	464	604	467	484	489	492																																																																																																																																																																																					
Free cash flow (US\$m)	689	1,843	1,416	(225)	1,307	1,308	1,210	1,225																																																																																																																																																																																					
Dividends US\$m	0	(244)	(708)	(749)	(642)	(627)	(622)	(592)																																																																																																																																																																																					
New Equity US\$m	(4)	(238)	(338)	(269)	0	0	0	0																																																																																																																																																																																					
Debt Drawdown/(Repayment) US\$m	(96)	89	(73)	(81)	(13)	(7)	6	(20)																																																																																																																																																																																					
Net Financing Cashflow US\$m	(100)	(393)	(1,119)	(1,100)	(655)	(634)	(616)	(612)																																																																																																																																																																																					
Net change in cash US\$m	589	1,450	297	(1,325)	652	674	594	613																																																																																																																																																																																					
BALANCE SHEET		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e																																																																																																																																																																																				
Cash US\$m	1,225	2,675	2,970	1,645	2,297	2,971	3,565	4,179																																																																																																																																																																																					
PP&E & Mine Development US\$m	8,651	8,373	8,196	9,638	9,687	9,683	9,698	9,635																																																																																																																																																																																					
Other US\$m	3,498	3,685	3,967	3,749	3,653	3,787	3,793	3,831																																																																																																																																																																																					
Total Assets US\$m	13,374	14,733	15,133	15,033	15,637	16,441	17,056	17,644																																																																																																																																																																																					
Debt US\$m	913	1,035	929	848	835	828	834	814																																																																																																																																																																																					
Total Liabilities US\$m	3,952	4,498	4,424	4,365	4,446	4,624	4,779	4,932																																																																																																																																																																																					
Total Net Assets / Equity US\$m	9,422	10,235	10,709	10,668	11,191	11,817	12,277	12,712																																																																																																																																																																																					
Net Debt / (Cash) US\$m	(312)	(1,640)	(2,041)	(797)	(1,462)	(2,143)	(2,731)	(3,365)																																																																																																																																																																																					
Gearing (net debt/(nd + equity)) %	(3%)	(19%)	(24%)	(8%)	(15%)	(22%)	(29%)	(36%)																																																																																																																																																																																					
Gearing (net debt/equity) %	(3%)	(16%)	(19%)	(7%)	(13%)	(18%)	(22%)	(26%)																																																																																																																																																																																					

Source: S32, Macquarie Research, January 2019

Fig 17 Alumina summary financials

Alumina																		
ASX: AWC	Price: (A\$ps)	2.41	Mkt cap: (US\$m)	5,205	Year end: Dec				Rating: Outperform				Up/dn	TSR				
			Mkt cap: (A\$m)	6,940	Diluted shares (m)				Target (A\$/sh): 2.70				12%	25%				
ASSUMPTIONS		CY14	CY15	CY16	CY17a	CY18e	CY19e	CY20e	CY21e	ASSUMPTIONS	CY14	CY15	CY16	CY17a	CY18e	CY19e	CY20e	CY21e
Exchange Rate	A\$/US\$	0.90	0.75	0.74	0.77	0.75	0.72	0.73	0.75	<b>Commodity prices</b>								
Exchange Rate	US\$/BRL	2.39	3.28	3.47	3.19	3.66	4.43	4.72	3.47	Bauxite, CFR China (US\$/t)	68	59	47	49	50	50	48	48
Exchange Rate	EUR/US\$	1.33	1.11	1.11	1.13	1.18	1.11	1.08	1.08	Alumina, FOB Aus (US\$/t)	330	301	254	354	474	408	398	365
AWC RATIO ANALYSIS										Aluminium (US\$/t)	1,865	1,663	1,604	1,968	2,111	2,078	2,128	2,133
Diluted share capital	m	2,806	2,824	2,880	2,879	2,879	2,879	2,879	2,879	Aluminium (US\$/lb)	0.85	0.75	0.73	0.89	0.96	0.94	0.97	0.97
EPS (basic)	US¢	(3.50)	3.16	(1.05)	11.80	23.04	24.05	21.75	16.60	Alumina/Aluminium Ratio (%)	18%	18%	16%	18%	22%	20%	19%	17%
EPS (underlying)	US¢	3.25	9.18	2.94	12.61	24.00	24.05	21.75	16.60	PRODUCTION AND SHIPMENT SUMMARY (AWAC SHARE)								
P/E	x	(nmf)	57.3x	-172.4x	15.3x	7.8x	7.5x	8.3x	10.9x	<b>Bauxite production (mt)</b>								
P/CF	x	16.1x	8.8x	44.2x	5.6x	3.5x	2.9x	3.0x	3.5x	Huntly	22.60	22.75	23.30	23.90	21.95	23.50	23.50	23.50
DPS	US¢	1.6	6.3	6.0	13.5	22.7	23.8	23.0	20.2	Willowdale	8.80	8.95	9.00	9.30	8.92	9.00	9.00	9.00
<b>Dividend yield</b>	<b>%</b>	<b>0.9%</b>	<b>3.5%</b>	<b>3.3%</b>	<b>7.5%</b>	<b>12.6%</b>	<b>13.2%</b>	<b>12.7%</b>	<b>11.2%</b>	Porto Trombetas (MRN)	3.18	3.08	2.31	1.66	1.83	1.83	1.83	1.83
P/Book value	x	2.1x	2.6x	2.6x	2.3x	2.0x	1.6x	1.3x	1.2x	Juruti	4.60	4.70	5.20	5.60	6.85	7.50	7.50	7.50
R.O.E. (pre sig items)	%	(3%)	5%	(1%)	15%	25%	21%	16%	11%	Sangaredi	3.40	3.40	3.60	3.60	3.67	4.13	4.13	4.13
R.O.A. (pre sig items)	%	(3%)	4%	(1%)	15%	24%	20%	15%	10%	Suriname	2.70	1.60	0.00	0.00	0.00	0.00	0.00	0.00
EV/EBITDA	x	(nmf)	55.9x	(nmf)	15.1x	7.7x	7.5x	8.3x	11.0x	Jamaico	1.68	0.74	0.00	0.00	0.00	0.00	0.00	0.00
FCF Yield	%	1%	2%	3%	5%	13%	13%	13%	11%	<b>Reported Bauxite Production (mt)</b>	<b>46.96</b>	<b>45.22</b>	<b>43.41</b>	<b>44.06</b>	<b>43.22</b>	<b>45.96</b>	<b>45.96</b>	<b>45.96</b>
AWAC SUMMARY										Ma'aden	0.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Revenue	US\$m	5,862	5,380	4,057	5,274	6,561	6,119	6,216	4,863	<b>Total AWAC Bauxite Production (mt)</b>	<b>47.18</b>	<b>46.22</b>	<b>44.41</b>	<b>45.06</b>	<b>44.22</b>	<b>46.96</b>	<b>46.96</b>	<b>46.96</b>
EBITDA	US\$m	301	989	394	1,633	2,753	2,772	2,548	1,992	<b>Third Party Bauxite Shipments (mt)</b>	<b>3.18</b>	<b>1.75</b>	<b>6.30</b>	<b>6.60</b>	<b>6.33</b>	<b>6.61</b>	<b>9.46</b>	<b>9.46</b>
Net Profit	US\$m	(243)	318	49	901	1,743	1,784	1,619	1,250	Alumina production (mt)								
Post-tax exceptional charges/(gains)	US\$m	479	385	306	66	75	0	0	0	Wagerup	2.70	2.70	2.82	2.74	2.72	2.85	2.85	2.85
<b>Underlying Earnings</b>	<b>US\$m</b>	<b>236</b>	<b>704</b>	<b>355</b>	<b>967</b>	<b>1,818</b>	<b>1,784</b>	<b>1,619</b>	<b>1,250</b>	Kwinana	2.30	2.30	2.35	2.07	2.06	2.35	2.40	2.40
Operating cash flow	US\$m	476	809	(24)	1,105	1,686	1,943	1,895	1,539	Pinjarra	4.27	4.29	4.20	4.58	4.38	4.25	4.25	4.25
Capex	US\$m	(238)	(178)	(130)	(192)	(250)	(218)	(225)	(130)	São Luis (Alumar)	1.45	1.47	1.48	1.48	1.45	1.50	1.50	1.50
<b>Free cash flow</b>	<b>US\$m</b>	<b>316</b>	<b>581</b>	<b>118</b>	<b>922</b>	<b>1,489</b>	<b>1,801</b>	<b>1,741</b>	<b>1,468</b>	Point Comfort	1.87	1.95	0.21	0.00	0.00	0.00	0.00	0.00
Capital contributions from partners	US\$m	143	77	194	274	402	0	0	0	San Ciprian	1.52	1.63	1.58	1.59	1.59	1.60	1.60	0.00
<b>Dividends and distributions paid</b>	<b>US\$m</b>	<b>(302)</b>	<b>(268)</b>	<b>(590)</b>	<b>(857)</b>	<b>(2,077)</b>	<b>(1,801)</b>	<b>(1,741)</b>	<b>(1,468)</b>	Suralco	1.15	0.75	0.00	0.00	0.00	0.00	0.00	0.00
Net proceeds from debt	US\$m	(85)	(50)	(5)	17	56	0	0	0	<b>Reported Alumina Production (mt)</b>	<b>15.26</b>	<b>15.09</b>	<b>12.64</b>	<b>12.45</b>	<b>12.20</b>	<b>12.55</b>	<b>12.60</b>	<b>11.00</b>
<b>Net change in cash</b>	<b>US\$m</b>	<b>49</b>	<b>294</b>	<b>(281)</b>	<b>381</b>	<b>(164)</b>	<b>(0)</b>	<b>(0)</b>	<b>0</b>	Jamaico (Clarendon)	0.64	0.28	0.00	0.00	0.00	0.00	0.00	0.00
Cash and equivalents	US\$m	238	532	251	632	467	467	467	467	Al Baitha/ Ma'aden	0.15	0.21	0.39	0.37	0.44	0.45	0.45	0.45
PP&E	US\$m	4,772	3,692	3,634	3,754	3,432	3,375	3,319	3,203	<b>Total AWAC Alumina Production (mt)</b>	<b>16.05</b>	<b>15.58</b>	<b>13.03</b>	<b>12.82</b>	<b>12.63</b>	<b>13.00</b>	<b>13.05</b>	<b>11.45</b>
Debt	US\$m	67	10	2	5	78	78	78	78	Aluminium production (kt)								
<b>Net assets</b>	<b>US\$m</b>	<b>5,819</b>	<b>4,871</b>	<b>4,800</b>	<b>5,451</b>	<b>5,038</b>	<b>5,021</b>	<b>4,898</b>	<b>4,680</b>	Point Henry	81	0	0	0	0	0	0	0
Gearing (net debt/(nd + equity))	(%)	(3%)	(12%)	(5%)	(13%)	(8%)	(8%)	(9%)	(9%)	Portland	188	163	154	112	185	160	160	160
										<b>Total Aluminium Production (kt)</b>	<b>269</b>	<b>163</b>	<b>154</b>	<b>112</b>	<b>185</b>	<b>160</b>	<b>160</b>	<b>0.00</b>
AWC EARNINGS																		
Revenue	US\$m	0	0	1	1	1	0	0	0	NPV VALUATION (AWC share)								
Other income	US\$m	2	0	0	0	0	0	0	0	Assets	US\$m	US\$/sh	A\$m	A\$/sh				
<b>Share of profit/(loss) of associates</b>	<b>US\$m</b>	<b>(74)</b>	<b>110</b>	<b>18</b>	<b>360</b>	<b>681</b>	<b>712</b>	<b>646</b>	<b>498</b>	Huntly	797	0.28	997	0.35				
Net costs	US\$m	(12)	(15)	(40)	(13)	(17)	(22)	(23)	(23)	Willowdale	231	0.08	289	0.10				
<b>EBITDA</b>	<b>US\$m</b>	<b>(84)</b>	<b>95</b>	<b>(21)</b>	<b>348</b>	<b>665</b>	<b>690</b>	<b>623</b>	<b>475</b>	Wagerup	952	0.33	1,190	0.41				
Depreciation & Amortisation	US\$m	0	0	0	0	0	0	0	0	Kwinana	694	0.24	867	0.30				
<b>EBIT</b>	<b>US\$m</b>	<b>(84)</b>	<b>95</b>	<b>(21)</b>	<b>348</b>	<b>665</b>	<b>690</b>	<b>623</b>	<b>475</b>	Pinjarra	1,380	0.48	1,725	0.60				
Net finance costs	US\$m	(14)	(7)	(9)	(8)	(5)	(5)	(6)	(6)	Portland	(18)	(0.01)	(23)	(0.01)				
<b>Profit before tax</b>	<b>US\$m</b>	<b>(99)</b>	<b>88</b>	<b>(30)</b>	<b>340</b>	<b>659</b>	<b>684</b>	<b>618</b>	<b>469</b>	Juruti	209	0.07	261	0.09				
Tax expense	US\$m	(1)	0	0	0	4	8	9	9	Porto Trombetas (MRN)	7	0.00	9	0.00				
<b>Net Profit</b>	<b>US\$m</b>	<b>(98)</b>	<b>88</b>	<b>(30)</b>	<b>340</b>	<b>663</b>	<b>692</b>	<b>626</b>	<b>478</b>	São Luis (Alumar)	927	0.32	1,159	0.40				
Post-tax exceptional charges/(gains)	US\$m	189	170	115	23	28	0	0	0	Sangaredi	69	0.02	86	0.03				
<b>Underlying Earnings</b>	<b>US\$m</b>	<b>91</b>	<b>258</b>	<b>85</b>	<b>363</b>	<b>691</b>	<b>692</b>	<b>626</b>	<b>478</b>	San Ciprian	136	0.05	170	0.06				
AWC CASH FLOW										Point Comfort	0	0.00	0	0.00				
<b>Cash receipts from AWAC</b>	<b>US\$m</b>	<b>20</b>	<b>63</b>	<b>151</b>	<b>279</b>	<b>756</b>	<b>720</b>	<b>697</b>	<b>587</b>	Al Baitha/ Ma'aden	175	0.06	218	0.08				
Finance costs	US\$m	(12)	(7)	(6)	(9)	(7)	(5)	(6)	(6)	Undeveloped Resources	93	0.03	116	0.04				
Other operating	US\$m	(16)	(12)	(27)	(11)	(19)	(22)	(21)	9	WA Gas Prepayment	228	0.08	285	0.10				
<b>Net operating cash flow</b>	<b>US\$m</b>	<b>(8)</b>	<b>45</b>	<b>118</b>	<b>260</b>	<b>731</b>	<b>693</b>	<b>670</b>	<b>590</b>	Gas Transmission Prepayment	88	0.03	110	0.04				
Return of capital	US\$m	99	43	82	64	35	0	0	0	AWAC net cash	244	0.08	305	0.11				
Investments in associates	US\$m	(42)	(2)	(48)	(80)	(92)	(7)	(7)	(7)	AWAC cash	40	0.01	50	0.02				
Other investing	US\$m	0	0	0	0	0	0	0	0	AWAC debt	(98)	(0.03)	(122)	(0.04)				
<b>Free cash flow</b>	<b>US\$m</b>	<b>49</b>	<b>86</b>	<b>152</b>	<b>243</b>	<b>673</b>	<b>687</b>	<b>663</b>	<b>583</b>	Corporate overheads	(710)	(0.25)	(888)	(0.31)				
Net proceeds from share issues	US\$m	0	0	0	(2)	(1)	0	0	0	<b>DCF Valuation (WACC 11% Nom)</b>	<b>5,445</b>	<b>1.89</b>	<b>6,806</b>	<b>2.36</b>				
Net proceeds from debt	US\$m	(41)	10	(20)	0	0	50	0	0	<b>Price Target (5.5x EV/EBITDA multiple)</b>	<b>2.00</b>							
Dividends paid	US\$m	0	(108)	(135)	(210)	(515)	(751)	(679)	(633)									
Other financing/FX	US\$m	(8)	(2)	2	0	(1)	0	0	0									
<b>Net change in cash</b>	<b>US\$m</b>	<b>1</b>	<b>(15)</b>	<b>(1)</b>	<b>31</b>	<b>155</b>	<b>(15)</b>	<b>(17)</b>	<b>(50)</b>									
AWC BALANCE SHEET																		
Cash and equivalents	US\$m	25	9	9	40	195	181	164	114									
Other current assets	US\$m	4	3	3	2	1	1	1	1									
Investment in associates	US\$m	2,515	2,098	2,106	2,321	2,538	3,257	3,910	4,415									
Other Non-current assets	US\$m	0	0	0	0	0	0	0	0									
<b>Total Assets</b>	<b>US\$m</b>	<b>2,543</b>	<b>2,111</b>	<b>2,118</b>	<b>2,363</b>	<												

Fig 18 OZ Minerals summary financials

OZ Minerals											
ASX: OZL	Price: (A\$ps)	9.44		Year end: Dec				Rating: Outperform	Up/dn	TSR	
	Mkt cap: (A\$m)	3,048		Diluted shares (m)				322.9	Target: 12.40	31%	34%

ASSUMPTIONS		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e	
A\$/US\$	(x)	0.74	0.77	0.75	0.72	0.73	0.75	0.78	
US\$/BRL	(x)	3.49	3.19	3.69	4.43	4.72	3.48	3.50	
Copper	(US\$/lb)	2.21	2.80	2.96	2.95	3.02	3.31	3.76	
Gold	(US\$/oz)	1,248	1,257	1,269	1,319	1,431	1,363	1,363	
RATIO ANALYSIS		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e	
Diluted share capital	m	301.7	298.6	325.3	325.3	325.3	325.3	325.3	
EPS (diluted and pre sig. items)	A¢	44.5	77.4	80.0	69.9	128.3	151.7	214.8	
P/E	x	21.2x	12.2x	11.8x	13.5x	7.4x	6.2x	4.4x	
CFPS	A¢	97.5	114.8	143.4	135.5	222.6	250.9	337.6	
P/CF	x	9.7x	8.2x	6.6x	7.0x	4.2x	3.8x	2.8x	
DPS		20.0	20.0	22.0	20.0	20.0	47.0	87.0	
Dividend yield	%	2.1%	2.1%	2.3%	2.1%	2.1%	5.0%	9.2%	
Franking Level	%	50%	100%	100%	100%	100%	100%	100%	
Book value per share	x	7.80	8.43	8.89	9.27	10.23	11.26	12.62	
P/Book value	x	1.2x	1.1x	1.1x	1.0x	0.9x	0.8x	0.7x	
R.O.E. (pre sig items)	%	5%	9%	8%	8%	13%	13%	17%	
R.O.A. (pre sig items)	%	6%	11%	10%	9%	14%	15%	18%	
Interest Cover	x	(18x)	(37x)	(41x)	(54x)	(380x)	(206x)	(73x)	
EBITDA per share	A\$ps	1.24	1.81	1.79	1.64	2.60	3.04	4.02	
EV/EBITDA	x	6.4x	4.3x	4.4x	5.4x	3.3x	2.5x	1.4x	
Free cash flow yield	%	6%	6%	5%	(6%)	(8%)	4%	17%	31%
EARNINGS		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e	
Sales Revenue	A\$m	823	1,023	1,108	1,090	1,637	1,881	2,326	
Other Revenue	A\$m	0	0	0	0	0	0	0	
Total Revenue	A\$m	823	1,023	1,108	1,090	1,637	1,881	2,326	
Operating Costs	A\$m	(388)	(431)	(456)	(505)	(715)	(814)	(964)	
Operational EBITDA	A\$m	435	592	652	585	922	1,067	1,361	
Exploration Expense/Write-offs	A\$m	(24)	(21)	(37)	(20)	(42)	(43)	(9)	
Corporate & Other Costs	A\$m	(37)	(32)	(31)	(33)	(33)	(34)	(44)	
EBITDA	A\$m	374	539	583	532	847	990	1,309	
D&A	A\$m	(209)	(219)	(243)	(226)	(277)	(317)	(365)	
EBIT	A\$m	165	321	340	306	570	673	944	
Net Interest	A\$m	9	9	8	6	2	3	13	
Significant Items	A\$m	(27)	0	(6)	0	0	0	0	
Profit Before Tax	A\$m	148	329	343	312	572	676	957	
Tax Expense	A\$m	(40)	(98)	(100)	(84)	(154)	(182)	(258)	
Minorities	A\$m	0	0	0	0	0	0	0	
Reported NPAT	A\$m	108	231	243	227	417	493	699	
Significant Items	A\$m	(27)	0	(6)	0	0	0	0	
Adjusted NPAT	A\$m	134	231	249	227	417	493	699	
CASHFLOW		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e	
Net Profit	A\$m	134	231	249	227	417	493	699	
Interest/Tax/D&A	A\$m	226	240	157	208	324	330	409	
Working Capital/other	A\$m	(67)	(129)	61	6	(17)	(7)	(9)	
Net Operating Cashflow	A\$m	294	343	466	441	724	816	1,098	
Capex	A\$m	(125)	(197)	(434)	(674)	(604)	(311)	(151)	
Acquisitions	A\$m	3	0	(222)	0	0	0	0	
Other	A\$m	0	0	0	0	0	0	0	
Free cash flow	A\$m	172	146	(189)	(233)	120	505	948	
Dividends Paid	A\$m	(61)	(60)	(68)	(65)	(65)	(116)	(216)	
Debt	A\$m	0	0	0	0	0	(80)	0	
Equity Issuance	A\$m	(7)	(7)	0	0	0	0	0	
Other	A\$m	(1)	(5)	2	0	0	0	0	
Net Financing Cashflow	A\$m	(69)	(72)	(65)	(65)	(196)	(216)		
Net change in cash	A\$m	103	74	(254)	(298)	55	309	731	
BALANCE SHEET		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e	
Cash	A\$m	656	729	475	177	233	542	1,273	
PP&E & Mine Development	A\$m	991	1,176	2,079	2,527	2,854	2,848	2,634	
Other	A\$m	984	921	997	860	1,023	1,070	1,203	
Total Assets	A\$m	2,631	2,826	3,552	3,564	4,110	4,460	5,110	
Debt	A\$m	0	0	0	0	0	0	0	
Total Liabilities	A\$m	276	310	660	550	783	795	1,004	
Total Net Assets / Equity	A\$m	2,354	2,516	2,892	3,014	3,327	3,664	4,106	
Net Debt / (Cash)	A\$m	(656)	(729)	(475)	(177)	(233)	(542)	(1,273)	
Gearing (net debt/(nd + equity))	%	(39%)	(41%)	(20%)	(6%)	(8%)	(17%)	(45%)	
Gearing (net debt/equity)	%	(28%)	(29%)	(16%)	(6%)	(7%)	(15%)	(31%)	

ATTRIBUTABLE MINE OUTPUT		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e
<b>Copper Production (kt)</b>								
Prominent Hill	kt	116.9	112.0	109.6	100.2	85.9	59.3	50.5
Carrapateena	kt	0.0	0.0	0.0	0.0	60.1	69.6	69.6
Antas	kt	0.0	0.0	6.2	16.0	16.5	16.5	16.5
Pedra Branca	kt	0.0	0.0	0.0	0.0	0.0	21.6	34.2
CentroGold	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pantera	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0
West Musgrave	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total copper production	kt	116.9	112.0	115.8	116.1	162.5	167.0	170.8
<b>Gold Production (koz)</b>								
Prominent Hill	koz	118.3	126.7	128.4	109.5	120.5	151.2	161.5
Carrapateena	koz	0.0	0.0	0.0	0.0	70.4	81.8	81.8
Antas	koz	0.0	0.0	4.9	9.1	9.4	9.4	9.4
Pedra Branca	koz	0.0	0.0	0.0	0.0	0.0	16.6	24.3
CentroGold	koz	0.0	0.0	0.0	0.0	0.0	10.7	145.7
Pantera	koz	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total gold production	koz	118.3	126.7	133.3	118.6	200.3	269.7	422.7
<b>AISC</b>								
Prominent Hill	(US\$/lb)	1.15	1.23	1.17	1.30	1.43	1.51	1.74
Carrapateena	(US\$/lb)					0.84	1.02	1.09
Antas	(US\$/lb)			1.81	1.53	1.47	1.97	1.81
Pedra Branca	(US\$/lb)						1.84	1.80
CentroGold	(US\$/oz)						902	864
<b>COPPER EQUIVELANT PRODUCTION OUTLOOK</b>								

EBITDA BY MINE (A\$m)		CY16	CY17	CY18e	CY19e	CY20e	CY21e	CY22e
Prominent Hill	A\$m	148	329	343	312	572	676	957
Carrapateena	A\$m	0	0	0	0	0	0	0
Antas	A\$m	0	0	0	0	0	0	0
Pedra Branca	A\$m	0	0	0	0	0	0	0
CentroGold	A\$m	0	0	0	0	0	0	0
Pantera	A\$m	0	0	0	0	0	0	0
West Musgrave	A\$m	0	0	0	0	0	0	0

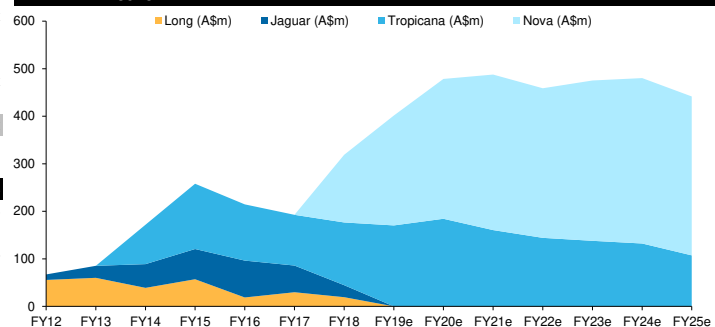
EQUITY DCF VALUATION		Spot prices		Macquarie forecasts	
Projects		A\$m	A\$ps	A\$m	A\$ps
Prominent Hill		1,191	3.66	1,282	3.94
Carrapateena		1,579	4.85	1,665	5.12
Antas		180	0.55	233	0.72
Pedra Branca		239	0.73	281	0.86
CentroGold		230	0.71	156	0.48
Australia Resources		84	0.26	84	0.26
Brazil Resources		20	0.06	20	0.06
Listed investments		12	0.04	12	0.04
Forwards		(21)	(0.06)	(17)	(0.05)
Corporate		(356)	(1.10)	(356)	(1.10)
Net cash (debt)		475	1.46	475	1.46
Net Equity Value (@ 9.0% WACC)		3,633	11.17	3,834	11.79
Price Target (50/50 Blend of 5.0x EV/Ebitda and NPV)					12.40

Source: OZL, Macquarie Research, January 2019



Fig 19 Independence Group summary financials

Independence Group								
ASX: IGO	Price: (A\$ps)	4.14			Year end: Jun	Rating: Neutral	Up/dn	TSR
	Mkt cap: (A\$m)	2,445			Diluted shares (m)	590.5	Target: 4.10	(1%) 2%
ASSUMPTIONS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Exchange Rate (A\$/US\$)		0.73	0.75	0.78	0.72	0.72	0.74	0.77
Nickel price (US\$/lb)		4.23	4.60	5.65	5.70	6.63	7.26	7.94
Gold price (US\$/oz)		1,167	1,258	1,297	1,241	1,406	1,400	1,350
RATIO ANALYSIS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Diluted share capital	m	448.1	581.8	589.6	593.1	593.1	593.1	593.1
EPS (diluted and pre sig. items)	A¢	9.3	9.0	8.4	17.0	29.2	30.7	26.7
P/E	x	44.3x	46.0x	49.0x	24.4x	14.2x	13.5x	15.5x
CFPS	A¢	18.9	10.4	46.1	63.8	71.3	66.6	62.6
P/CF	x	21.9x	39.8x	9.0x	6.5x	5.8x	6.2x	6.6x
DPS	A¢	2.0	2.0	3.0	11.0	20.0	22.0	19.0
Dividend yield	%	0.5%	0.5%	0.7%	2.7%	4.8%	5.3%	4.6%
Franking Level	%	100%	100%	100%	100%	100%	100%	100%
Book value per share	x	3.25	2.98	3.02	3.12	3.23	3.34	3.39
P/Book value	x	1.3x	1.4x	1.4x	1.3x	1.3x	1.2x	1.2x
R.O.E. (pre sig items)	%	3%	3%	3%	5%	9%	9%	8%
R.O.A. (pre sig items)	%	2%	3%	4%	6%	10%	10%	8%
Interest Cover	x	-60.4x	-70.1x	8.8x	-56.2x	-20.9x	-14.3x	-8.8x
EBITDA per share	A\$ps	0.31	0.26	0.58	0.60	0.73	0.74	0.72
EV/EBITDA	x	19.0x	17.3x	7.2x	6.2x	4.5x	3.9x	3.6x
FCF Yield	%	(13%)	(8%)	7%	12%	14%	14%	13%
EARNINGS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Sales Revenue	A\$m	412	419	766	730	809	848	854
Other Revenue	A\$m	4	1	12	0	0	0	0
Total Revenue	A\$m	416	420	777	730	809	848	854
Operating Costs	A\$m	(226)	(228)	(369)	(315)	(319)	(349)	(386)
Operational EBITDA	A\$m	189	192	408	415	491	500	469
Exploration Expense/Write-offs	A\$m	(20)	(20)	(39)	(40)	(36)	(37)	(23)
Corporate & Other Costs	A\$m	(29)	(21)	(29)	(21)	(21)	(21)	(22)
EBITDA	A\$m	140	151	340	354	434	441	424
D&A	A\$m	(100)	(90)	(252)	(212)	(198)	(199)	(221)
EBIT	A\$m	41	61	88	141	236	243	203
Net Interest	A\$m	1	1	(10)	3	11	17	23
Profit Before Tax	A\$m	41	62	78	144	247	260	226
Tax Expense	A\$m	0	(9)	(28)	(43)	(74)	(78)	(68)
Minorities	A\$m	0	0	0	0	0	0	0
Adjusted NPAT	A\$m	42	52	50	101	173	182	159
Significant Items (post tax)	A\$m	(101)	(35)	3	0	0	0	0
Reported NPAT	A\$m	(59)	17	53	101	173	182	159
CASHFLOW		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Net Profit	A\$m	(59)	52	50	101	173	182	159
Interest/Tax/D&A	A\$m	82	86	275	245	254	218	211
Working Capital/other	A\$m	61	(77)	(53)	33	(4)	(5)	1
Net Operating Cash flow	A\$m	85	61	272	379	423	395	371
Capex	A\$m	(209)	(235)	(135)	(115)	(101)	(57)	(56)
Investments	A\$m	(204)	(21)	36	22	16	16	0
Sale of PPE and Other	A\$m	0	0	0	0	0	0	0
Free cash flow	A\$m	(328)	(196)	173	285	338	354	316
Dividends Paid	A\$m	(13)	(18)	(12)	(30)	(106)	(118)	(130)
Debt	A\$m	265	(71)	(57)	(57)	(57)	(29)	0
Equity Issuance	A\$m	0	274	0	0	0	0	0
Other	A\$m	0	0	0	0	0	0	0
Net Financing Cash flow	A\$m	252	185	(69)	(87)	(163)	(147)	(130)
Net change in cash	A\$m	(76)	(10)	104	199	175	207	186
BALANCE SHEET		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Cash	A\$m	46	36	139	337	512	720	905
PP&E & Mine Development	A\$m	1,518	1,658	1,493	1,374	1,261	1,103	938
Exploration	A\$m	108	60	70	79	94	109	138
Total Assets	A\$m	2,007	2,208	2,175	2,245	2,336	2,419	2,466
Debt	A\$m	266	197	141	86	29	0	0
Total Liabilities	A\$m	552	476	396	395	419	439	457
Total Net Assets / Equity	A\$m	1,456	1,733	1,779	1,850	1,917	1,981	2,009
Net Debt / (Cash)	A\$m	220	161.3	2	(252)	(484)	(720)	(905)
Gearing (net debt/(nd + equity))	%	13%	9%	0%	(16%)	(34%)	(57%)	(82%)
Gearing (net debt/equity)	%	15%	9%	0%	(14%)	(25%)	(36%)	(45%)
ATTRIBUTABLE MINE OUTPUT		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Nova Production and costs								
Nickel in concentrate	(kt)	0.0	3.5	22.3	27.6	27.7	27.7	27.0
Copper in concentrate	(kt)	0.0	2.1	9.5	11.9	11.9	11.9	10.7
Cobalt in concentrate	(kt)	0.0	0.1	0.7	0.9	0.9	0.9	1.0
C1 cash costs	(A\$/lb)	nm	nm	2.86	2.30	2.43	2.44	3.04
AISC	(US\$/lb)	nm	nm	3.54	2.39	2.37	2.42	2.94
Tropicana production and costs								
Tropicana (100%)	(koz)	448.1	431.6	467.1	528.1	503.5	515.0	535.1
Tropicana (IGO share)	(koz)	134.4	129.5	140.1	158.4	151.0	154.5	160.5
C1 cash costs	(US\$/oz)	502	590	521	441	491	600	629
AISC	(US\$/oz)	678	877	824	713	750	716	744
EBITDA BY PROJECT		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Long (A\$m)		41	61	88	141	236	243	203
Jaguar (A\$m)		1	1	(10)	3	11	17	23
Tropicana (A\$m)		135	140	312	351	417	424	421
Nova (A\$m)		61	80	252	212	198	199	221
RESERVES AND RESOURCES (ATTRIBUTABLE)		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Nickel reserves								
Project (kt)								
Long								
Nova								
Total nickel reserves (kt)								
Nickel resources								
Project (kt)								
Long								
Nova								
Total nickel resources (kt)								
Gold reserves								
Project (kt)								
Tropicana (IGO share)								
Total gold reserves (koz)								
Gold Resources								
Project (kt)								
Tropicana (IGO share)								
Total gold resources (koz)								
Copper reserves								
Project (kt)								
Nova								
Total copper reserves (kt)								
Copper Resources								
Project (kt)								
Nova								
Total copper resources (kt)								
EQUITY DCF VALUATION		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Projects								
Nova								
Tropicana								
Undeveloped Resources								
Regional exploration								
Unpaid capital								
Corporate/forwards								
Net cash (debt)								
Net Equity Value (@ 9.0% WACC)								
Price Target (50/50 Blend NPV (1.4x for gold) and 5.0x (FY18) EV/Ebitda)								



Source: IGO, Macquarie Research, January 2019

Fig 20 Sandfire Resources summary financials

Sandfire Resources								
ASX: SFR	Price: (A\$ps)	6.97		Year end:	Jun	Rating: Outperform	Up/dn	TSR
	Mkt cap: (A\$m)	1,101		Diluted shares (m)	158.0	Target: 8.00	15%	18%

ASSUMPTIONS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Exchange Rate (A\$/US\$)		0.73	0.75	0.78	0.72	0.72	0.74	0.77
Spot Copper Price (US\$/lb)		2.22	2.44	3.06	2.88	2.95	3.14	3.55
Gold price (US\$/oz)		1,167	1,258	1,297	1,241	1,406	1,400	1,350
RATIO ANALYSIS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Diluted share capital	m	157.1	157.7	158.0	159.2	159.2	159.2	159.2
EPS (diluted and pre sig. items)	A\$	30.5	49.2	77.9	64.4	111.0	143.3	84.3
P/E	x	22.8x	14.2x	9.0x	10.8x	6.3x	4.9x	8.3x
CFPS	A\$	82.9	138.3	154.5	141.8	219.5	253.9	154.7
P/CF	x	8.4x	5.0x	4.5x	4.9x	3.2x	2.7x	4.5x
DPS	A\$	11.0	18.0	27.0	24.0	40.0	48.0	0.0
Dividend yield	%	1.6%	2.6%	3.9%	3.4%	5.7%	6.9%	0.0%
Franking Level	%	100%	100%	100%	100%	100%	100%	100%
Book value per share	x	2.44	2.80	3.37	3.74	4.55	5.54	6.06
P/Book value	x	2.9x	2.5x	2.1x	1.9x	1.5x	1.3x	1.2x
R.O.E. (pre sig items)	%	12%	18%	23%	17%	24%	26%	14%
R.O.A. (pre sig items)	%	13%	20%	26%	20%	28%	30%	17%
Interest Cover	x	11.2x	30x	-97.8x	-109.3x	-88.9x	-58.0x	-20.3x
EBITDA per share	A\$ps	1.10	1.47	1.92	1.83	2.55	3.02	1.78
EV/EBITDA	x	6.3x	4.2x	2.8x	2.8x	1.4x	0.5x	0.3x
FCF Yield	%	4%	12%	13%	7%	28%	34%	20%

EARNINGS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Sales Revenue	A\$m	486	533	607	627	753	820	511
Other Revenue	A\$m	1	2	1	0	0	0	0
<b>Total Revenue</b>	<b>A\$m</b>	<b>486</b>	<b>535</b>	<b>608</b>	<b>627</b>	<b>753</b>	<b>820</b>	<b>511</b>
Operating Costs	A\$m	(281)	(274)	(265)	(292)	(311)	(316)	(210)
<b>Operational EBITDA</b>	<b>A\$m</b>	<b>205</b>	<b>261</b>	<b>342</b>	<b>335</b>	<b>442</b>	<b>504</b>	<b>301</b>
Exploration Expense/Write-offs	A\$m	(25)	(23)	(32)	(36)	(29)	(15)	(11)
Corporate & Other Costs	A\$m	(7)	(6)	(6)	(7)	(7)	(7)	(6)
<b>EBITDA</b>	<b>A\$m</b>	<b>173</b>	<b>231</b>	<b>304</b>	<b>292</b>	<b>406</b>	<b>481</b>	<b>284</b>
D&A	A\$m	(99)	(117)	(130)	(148)	(158)	(162)	(101)
<b>EBIT</b>	<b>A\$m</b>	<b>74</b>	<b>114</b>	<b>174</b>	<b>144</b>	<b>248</b>	<b>320</b>	<b>183</b>
Net Interest	A\$m	(7)	(4)	2	1	3	6	9
<b>Profit Before Tax</b>	<b>A\$m</b>	<b>67</b>	<b>110</b>	<b>176</b>	<b>145</b>	<b>251</b>	<b>325</b>	<b>192</b>
Tax Expense	A\$m	(22)	(35)	(55)	(44)	(75)	(98)	(58)
Minorities	A\$m	2	2	2	1	1	1	0
<b>Adjusted NPAT</b>	<b>A\$m</b>	<b>47</b>	<b>78</b>	<b>123</b>	<b>103</b>	<b>177</b>	<b>228</b>	<b>134</b>
Significant Items (post tax)	A\$m	1	0	0	0	0	0	0
<b>Reported NPAT</b>	<b>A\$m</b>	<b>48</b>	<b>78</b>	<b>123</b>	<b>103</b>	<b>177</b>	<b>228</b>	<b>134</b>

CASHFLOW		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
<b>Net Profit</b>	<b>A\$m</b>	<b>48</b>	<b>78</b>	<b>123</b>	<b>103</b>	<b>177</b>	<b>228</b>	<b>134</b>
Interest/Tax/D&A	A\$m	96	120	117	134	178	178	56
Working Capital/other	A\$m	(14)	21	4	(10)	(5)	(2)	56
<b>Net Operating Cashflow</b>	<b>A\$m</b>	<b>130</b>	<b>218</b>	<b>244</b>	<b>226</b>	<b>349</b>	<b>404</b>	<b>246</b>
Capex	A\$m	(85)	(86)	(87)	(61)	(43)	(34)	(24)
Investments	A\$m	4	(0)	(12)	(92)	0	0	0
Sale of PPE and Other	A\$m	0	0	0	0	0	0	0
<b>Free cash flow</b>	<b>A\$m</b>	<b>49</b>	<b>132</b>	<b>145</b>	<b>73</b>	<b>306</b>	<b>370</b>	<b>223</b>
Dividends Paid	A\$m	(19)	(22)	(33)	(38)	(47)	(70)	(52)
Debt	A\$m	(71)	(51)	(0)	0	0	0	0
Equity Issuance	A\$m	(0)	2	5	0	0	0	0
Other	A\$m	0	0	0	0	0	0	0
<b>Net Financing Cashflow</b>	<b>A\$m</b>	<b>(90)</b>	<b>(71)</b>	<b>(29)</b>	<b>(38)</b>	<b>(47)</b>	<b>(70)</b>	<b>(52)</b>
<b>Net change in cash</b>	<b>A\$m</b>	<b>(41)</b>	<b>61</b>	<b>117</b>	<b>35</b>	<b>259</b>	<b>301</b>	<b>170</b>

BALANCE SHEET		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Cash	A\$m	66	127	243	278	537	837	1,008
PP&E & Mine Development	A\$m	407	369	331	336	222	94	17
Exploration	A\$m	18	22	24	28	40	46	51
<b>Total Assets</b>	<b>A\$m</b>	<b>559</b>	<b>576</b>	<b>671</b>	<b>710</b>	<b>874</b>	<b>1,055</b>	<b>1,102</b>
Debt	A\$m	52	2	2	0	0	0	0
<b>Total Liabilities</b>	<b>A\$m</b>	<b>175</b>	<b>134</b>	<b>139</b>	<b>114</b>	<b>150</b>	<b>173</b>	<b>138</b>
<b>Total Net Assets / Equity</b>	<b>A\$m</b>	<b>384</b>	<b>442</b>	<b>532</b>	<b>596</b>	<b>724</b>	<b>882</b>	<b>964</b>
Net Debt / (Cash)	A\$m	(14)	(125)	(242)	(278)	(537)	(837)	(1,008)
Gearing (net debt/(nd + equity))	%	(4%)	(39%)	(83%)	(88%)	(286%)	(1,869%)	2,309%
Gearing (net debt/equity)	%	(4%)	(28%)	(45%)	(47%)	(74%)	(95%)	(105%)

EQUITY DCF VALUATION		Spot prices	Macquarie forecasts
Projects		A\$m	A\$ps
DeGrussa		774	4.86
Black Butte		58	0.37
DeGrussa/Monty resources		41	0.26
Other resources/Exploration		46	0.29
Unpaid capital		0	0.00
Corporate/forwards		(22)	(0.14)
Net cash (debt)		217	1.36
<b>Net Equity Value (@ 8% WACC)</b>		<b>1,115</b>	<b>7.00</b>
<b>Price Target (50/50 Blend of NPV and 3.0x FY19 EV/Ebitda)</b>			<b>8.00</b>

ATTRIBUTABLE MINE OUTPUT		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
<b>Copper Production (equity)</b>								
DeGrussa	kt	68.2	67.1	64.9	67.0	78.6	83.3	48.1
Black Butte	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Copper (kt)</b>	<b>kt</b>	<b>68.2</b>	<b>67.1</b>	<b>64.9</b>	<b>67.0</b>	<b>78.6</b>	<b>83.3</b>	<b>48.1</b>
Payable Copper Production	mlb	144.3	141.8	137.1	141.6	166.4	176.3	101.7
<b>Gold (koz)</b>		<b>37.6</b>	<b>38.6</b>	<b>39.3</b>	<b>40.0</b>	<b>39.8</b>	<b>38.2</b>	<b>27.3</b>
Cash Copper Price	US\$/lb	2.22	2.44	3.06	2.88	2.95	3.14	3.55
<b>Net Cash Cost (per pay lb Cu)</b>	<b>US\$/lb</b>	<b>0.95</b>	<b>0.95</b>	<b>0.96</b>	<b>0.96</b>	<b>0.85</b>	<b>0.84</b>	<b>1.01</b>
Notional Cash Margin	US\$/lb	1.27	1.50	2.10	1.91	2.10	2.30	2.54
<b>AISC</b>	<b>US\$/lb</b>	<b>1.45</b>	<b>1.52</b>	<b>1.39</b>	<b>1.30</b>	<b>1.16</b>	<b>1.15</b>	<b>1.38</b>
<b>Mine Ebit</b>								
DeGrussa	A\$m	136	133	194	196	289	346	203
Black Butte	A\$m	0	0	0	0	0	0	0

RESERVES AND RESOURCES (ATTRIBUTABLE)							
<b>DeGrussa Reserves</b>							
Project	Mt	% Cu	Cu (kt)	g/t Au	Au (koz)		
DeGrussa open pit	2.7	1.3%	35	0.5	46		
DeGrussa underground	5.8	4.4%	255	1.7	313		
Monty	0.6	9.3%	52	1.5	27		
<b>Total copper reserves (kt)</b>	<b>9.1</b>	<b>3.8%</b>	<b>342</b>	<b>1.3</b>	<b>386</b>		
<b>DeGrussa Resources</b>							
Project	Mt	% Cu	Cu (kt)	g/t Au	Au (koz)		
DeGrussa open pit	2.8	1.3%	37	0.6	50		
DeGrussa underground	4.9	5.6%	274	2.1	334		
Monty	0.7	9.4%	69	1.6	55		
<b>Total copper resources (kt)</b>	<b>8.4</b>	<b>4.5%</b>	<b>380</b>	<b>1.6</b>	<b>439</b>		
<b>Other Assets</b>							
Project	Mt	% Cu	Cu (kt)	g/t Ag	Ag (koz)	% Co	Co (kt)
Black Butte	18.0	5.4%	596	2.0	7,980	0.23%	18
Thaduna	5.5	2.2%	119	4.7	829		
Green Dragon	2.6	1.2%	31	1.6	134		
<b>Total Other resources</b>	<b>26.1</b>	<b>2.9%</b>	<b>746</b>	<b>10.7</b>	<b>8,943</b>	<b>0.07%</b>	<b>18</b>
<b>NSW Resources</b>							
Project	Mt	% Cu	Cu (kt)	g/t Au	Au (koz)		
Temora	216.6	0.3%	728	1.9	2,208		
<b>Total Other resources</b>	<b>216.6</b>	<b>0.3%</b>	<b>728</b>	<b>1.9</b>	<b>2,208</b>		

Source: SFR, Macquarie Research, January 2019

Fig 21 Western Areas summary financials

Western Areas											
ASX: WSA	Price: (A\$ps)	2.25		Year end: Jun				Rating: Outperform	Up/dn	TSR	
	Mkt cap: (A\$m)	615		Diluted shares (m)				273.5	Target: 2.70	20%	21%

ASSUMPTIONS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Exchange Rate	A\$/US\$	0.73	0.75	0.78	0.72	0.72	0.74	0.77	0.78
Nickel price	US\$/lb	4.23	4.60	5.65	5.70	6.63	7.26	7.94	8.39
Nickel price	A\$/lb	5.81	6.10	7.29	7.95	9.21	9.87	10.38	10.76

RATIO ANALYSIS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Diluted share capital	m	245.1	275.3	277.1	276.8	276.8	276.8	276.8	276.8
EPS (diluted and pre sig. items)	Ac	-6.2	-15.2	4.3	5.0	24.7	31.1	31.9	40.3
P/E	x	-36.1x	-14.8x	52.4x	45.3x	9.1x	7.2x	7.1x	5.6x

ATTRIBUTABLE MINE OUTPUT		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
<b>Nickel Production (equity)</b>									
Flying Fox	kt	11.1	8.8	9.1	8.6	8.6	8.6	7.7	0.0
Spotted Quoll	kt	13.6	13.8	12.0	12.5	13.2	14.2	14.2	11.2
New Morning	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
Cosmos	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9
<b>Nickel in Concentrate</b>	<b>kt</b>	<b>24.7</b>	<b>22.6</b>	<b>21.1</b>	<b>21.1</b>	<b>21.8</b>	<b>22.9</b>	<b>22.0</b>	<b>25.9</b>

C1 Cash Costs		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Cash Nickel Price	US\$/lb	4.23	4.60	5.65	5.70	6.63	7.26	7.94	8.39
<b>Net Cash Cost (per pay lb Ni)</b>	<b>US\$/lb</b>	<b>2.03</b>	<b>2.18</b>	<b>2.53</b>	<b>2.51</b>	<b>2.54</b>	<b>2.66</b>	<b>2.83</b>	<b>2.88</b>
Notional Cash Margin	US\$/lb	2.21	2.42	3.13	3.20	4.10	4.60	5.11	5.51

OPERATIONAL OUTLOOK		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
<b>Operational EBIT Contribution (pre hedging)</b>									
Flying Fox	A\$m	(2)	3	18	6	34	40	38	0
Spotted Quoll	A\$m	(2)	10	15	22	71	89	95	78
Cosmos	A\$m	0	0	0	0	0	0	0	48

RESERVES AND RESOURCES (ATTRIBUTABLE)				
<b>High grade reserves</b>				
Project (kt)		Mt	% Ni	Ni (kt)
Flying Fox		0.7	3.9%	29
Spotted Quoll		1.8	4.0%	72
<b>Total high grade reserves (kt)</b>		<b>2.5</b>	<b>4.0%</b>	<b>101</b>
Odysseus		8.1	2.0%	165
<b>High grade resources</b>				
Project (kt)		Mt	% Ni	Ni (kt)
Flying Fox		1.9	4.8%	89
Spotted Quoll		1.9	5.6%	105
<b>Total high grade resources (kt)</b>		<b>3.7</b>	<b>5.2%</b>	<b>194</b>
<b>Low grade reserves</b>				
Project (kt)		Mt	% Ni	Ni (kt)
Diggers South		2.0	1.4%	29
Digger Rocks		0.1	2.0%	2
<b>Total low grade reserves (kt)</b>		<b>2.1</b>	<b>1.5%</b>	<b>31</b>
<b>Low grade resources</b>				
Project (kt)		Mt	% Ni	Ni (kt)
Flying Fox		5.0	0.8%	41
New Morning		6.2	1.4%	88
Diggers South		10.0	1.0%	100
Cosmos - Odysseus and AM		10.4	2.6%	265
Cosmos - Mt Goode		52.9	0.6%	327
Other		0.9	1.8%	16
<b>Total low grade resources (kt)</b>		<b>85.4</b>	<b>1.0%</b>	<b>837</b>

CASHFLOW		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Net Profit	A\$m	(27)	19	12	14	68	86	88	112
Interest/Tax/D&A	A\$m	23	58	61	57	77	58	56	70
Working Capital/other	A\$m	5	(23)	(7)	0	(1)	(1)	2	(4)
<b>Net Operating Cashflow</b>	<b>A\$m</b>	<b>1</b>	<b>54</b>	<b>66</b>	<b>71</b>	<b>144</b>	<b>143</b>	<b>145</b>	<b>177</b>
Capex	A\$m	(35)	(22)	(49)	(45)	(71)	(92)	(158)	(105)
Investments	A\$m	(24)	33	0	0	0	0	0	0
Sale of PPE and Other	A\$m	0	0	0	0	0	0	0	0
<b>Free cash flow</b>	<b>A\$m</b>	<b>(58)</b>	<b>65</b>	<b>17</b>	<b>26</b>	<b>73</b>	<b>51</b>	<b>(13)</b>	<b>72</b>
Dividends Paid	A\$m	(9)	0	(5)	(5)	(16)	(22)	(30)	(27)
Debt	A\$m	(125)	(0)	(0)	0	0	0	0	(1)
Equity Issuance	A\$m	73	0	0	0	0	0	0	0
Other	A\$m	0	0	0	0	0	0	0	0
<b>Net Financing Cashflow</b>	<b>A\$m</b>	<b>(62)</b>	<b>(0)</b>	<b>(6)</b>	<b>(5)</b>	<b>(16)</b>	<b>(22)</b>	<b>(30)</b>	<b>(28)</b>
<b>Net change in cash</b>	<b>A\$m</b>	<b>(120)</b>	<b>65</b>	<b>11</b>	<b>20</b>	<b>57</b>	<b>29</b>	<b>(43)</b>	<b>44</b>

BALANCE SHEET		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Cash	A\$m	76	140	152	172	229	258	215	259
PP&E & Mine Development	A\$m	280	239	232	210	213	232	319	339
Exploration	A\$m	80	87	98	113	128	143	158	173
<b>Total Assets</b>	<b>A\$m</b>	<b>489</b>	<b>519</b>	<b>571</b>	<b>594</b>	<b>688</b>	<b>777</b>	<b>823</b>	<b>960</b>
Debt	A\$m	0	0	1	1	1	1	1	0
<b>Total Liabilities</b>	<b>A\$m</b>	<b>55</b>	<b>60</b>	<b>83</b>	<b>97</b>	<b>139</b>	<b>164</b>	<b>152</b>	<b>204</b>
<b>Total Net Assets / Equity</b>	<b>A\$m</b>	<b>434</b>	<b>459</b>	<b>488</b>	<b>497</b>	<b>549</b>	<b>613</b>	<b>671</b>	<b>756</b>
Net Debt / (Cash)	A\$m	(75)	(140)	(151)	(171)	(228)	(257)	(214)	(259)
Gearing (net debt/(nd + equity))	%	(21%)	(44%)	(45%)	(53%)	(71%)	(72%)	(47%)	(52%)
Gearing (net debt/equity)	%	(17%)	(30%)	(31%)	(34%)	(42%)	(42%)	(32%)	(34%)

EQUITY DCF VALUATION		Spot Prices		Macquarie	
Projects		A\$m	A\$ps	A\$m	A\$ps
Flying Fox		90	0.33	146	0.53
Spotted Quoll		205	0.74	305	1.10
New Morning		(0)	(0.00)	14	0.05
Cosmos		(26)	(0.09)	165	0.60
Undeveloped Resources		109	0.39	97	0.35
Kidman Resources		28	0.10	28	0.10
Corporate/forwards		(58)	(0.21)	(58)	(0.21)
Net cash (debt)		151	0.54	151	0.54
<b>Net Equity Value (@ 9% WACC)</b>		<b>498</b>	<b>1.80</b>	<b>848</b>	<b>3.07</b>
Price Target (50/50 blend NPV and 4.0x EV/Ebitda)					<b>2.70</b>

Source: WSA, Macquarie Research, January 2019

Fig 22 Clean TeQ Holdings summary financials

Clean TeQ Holdings							
ASX : CLQ	Price: (A\$ps)	0.46		Year end: Jun	Rating: Outperform	Up/dn	TSR
	Mkt cap: (A\$m)	343		Diluted shares (m)	746.2	ASX Target: A\$1.10	139% 139%
TSX : CLQ	Price: (C\$ps)	0.45				TSX Target: C\$1.10	147% 147%
ASSUMPTIONS		FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Exchange Rate	A\$/US\$	0.78	0.72	0.72	0.74	0.77	0.78
Nickel Price	(US\$/lb)	5.65	5.70	6.63	7.26	7.94	8.39
Cobalt Price	(US\$/lb)	35.65	29.00	19.75	20.75	28.00	37.00
RATIO ANALYSIS		FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Diluted share capital	m	623.2	758.9	1,518.9	1,518.9	1,518.9	1,518.9
EPS (diluted and pre sig. items)	A¢	-2.6	-2.3	-1.3	-6.0	1.9	24.7
P/E	x	-17.9x	-20.4x	-34.9x	-7.6x	24.5x	1.9x
CFPS	A¢	(1.1)	(2.1)	(1.3)	(6.0)	2.6	36.0
P/CF	x	-41x	-21.6x	-36.8x	-7.7x	18.0x	1.3x
DPS	A¢	0.0	0.0	0.0	0.0	0.0	0.0
Dividend yield	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Franking Level	%	0%	0%	0%	0%	0%	0%
Book value per share	x	0.40	0.31	0.39	0.33	0.35	0.59
P/Book value	x	1.1x	1.5x	1.2x	1.4x	1.3x	0.8x
R.O.E. (pre sig items)	%	-6%	-7%	-3%	-18%	5%	42%
R.O.A. (pre sig items)	%	-7%	-7%	-1%	-1%	7%	24%
Interest Cover	x	11.0x	11.4x	-1.9x	-0.2x	1.5x	6.7x
EBITDA per share	A\$ps	-0.03	-0.02	-0.01	-0.01	0.13	0.45
EV/EBITDA	x	-11.3x	-16.6x	-52.1x	-135.3x	10.6x	2.3x
Free cash flow yield	%	(30%)	(32%)	(103%)	(198%)	(5%)	77%
EARNINGS		FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Sales Revenue	A\$m	4	5	4	4	408	1,039
Other Revenue	A\$m	0	0	0	0	0	0
<b>Total Revenue</b>	<b>A\$m</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>408</b>	<b>1,039</b>
Operating Costs	A\$m	0	0	0	0	(191)	(339)
<b>Operational EBITDA</b>	<b>A\$m</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>217</b>	<b>701</b>
Exploration Expense/Write-offs	A\$m	0	0	0	0	0	0
Corporate & Other Costs	A\$m	(21)	(23)	(16)	(19)	(22)	(22)
<b>EBITDA</b>	<b>A\$m</b>	<b>(17)</b>	<b>(18)</b>	<b>(12)</b>	<b>(15)</b>	<b>195</b>	<b>678</b>
D&A	A\$m	(1)	(1)	(1)	(1)	(33)	(49)
<b>EBIT</b>	<b>A\$m</b>	<b>(18)</b>	<b>(19)</b>	<b>(13)</b>	<b>(16)</b>	<b>163</b>	<b>630</b>
Net Interest	A\$m	2	2	(7)	(76)	(107)	(94)
<b>Profit Before Tax</b>	<b>A\$m</b>	<b>(16)</b>	<b>(17)</b>	<b>(20)</b>	<b>(92)</b>	<b>55</b>	<b>536</b>
Tax Expense	A\$m	0	0	0	0	(27)	(161)
Minorities	A\$m	0	0	0	0	0	0
<b>Adjusted NPAT</b>	<b>A\$m</b>	<b>(16)</b>	<b>(17)</b>	<b>(20)</b>	<b>(92)</b>	<b>29</b>	<b>375</b>
Significant Items (post tax)	A\$m	0	0	0	0	0	0
<b>Reported NPAT</b>	<b>A\$m</b>	<b>(16)</b>	<b>(17)</b>	<b>(20)</b>	<b>(92)</b>	<b>29</b>	<b>375</b>
CASHFLOW		FY18	FY19e	FY20e	FY21e	FY22e	FY23e
<b>Net Profit</b>	<b>A\$m</b>	<b>(16)</b>	<b>(17)</b>	<b>(20)</b>	<b>(92)</b>	<b>29</b>	<b>375</b>
Interest/Tax/D&A	A\$m	2	1	1	1	60	209
Working Capital/other	A\$m	7	0	0	0	(49)	(37)
<b>Net Operating Cashflow</b>	<b>A\$m</b>	<b>(7)</b>	<b>(16)</b>	<b>(19)</b>	<b>(91)</b>	<b>39</b>	<b>547</b>
Capex	A\$m	(78)	(95)	(704)	(1,293)	(76)	(11)
Investments	A\$m	0	0	0	0	0	0
Sale of PPE and Other	A\$m	0	0	0	0	0	0
<b>Free cash flow</b>	<b>A\$m</b>	<b>(85)</b>	<b>(111)</b>	<b>(723)</b>	<b>(1,384)</b>	<b>(37)</b>	<b>537</b>
Dividends Paid	A\$m	0	0	0	0	0	0
Debt	A\$m	(3)	0	972	852	(29)	(513)
Equity Issuance	A\$m	152	2	372	0	0	0
Other	A\$m	0	0	0	0	0	0
<b>Net Financing Cashflow</b>	<b>A\$m</b>	<b>149</b>	<b>2</b>	<b>1,345</b>	<b>852</b>	<b>(29)</b>	<b>(513)</b>
<b>Net change in cash</b>	<b>A\$m</b>	<b>64</b>	<b>(109)</b>	<b>622</b>	<b>(532)</b>	<b>(67)</b>	<b>24</b>
BALANCE SHEET		FY18	FY19e	FY20e	FY21e	FY22e	FY23e
Cash	A\$m	153	44	665	133	66	90
PP&E & Mine Development	A\$m	19	113	816	2,109	2,153	2,115
Exploration	A\$m	77	77	77	77	77	77
<b>Total Assets</b>	<b>A\$m</b>	<b>262</b>	<b>257</b>	<b>1,612</b>	<b>2,403</b>	<b>2,463</b>	<b>2,601</b>
Debt	A\$m	0	0	972	1,824	1,795	1,282
<b>Total Liabilities</b>	<b>A\$m</b>	<b>10</b>	<b>20</b>	<b>1,022</b>	<b>1,905</b>	<b>1,937</b>	<b>1,699</b>
<b>Total Net Assets / Equity</b>	<b>A\$m</b>	<b>252</b>	<b>237</b>	<b>590</b>	<b>498</b>	<b>526</b>	<b>902</b>
Net Debt / (Cash)	A\$m	(153)	(44)	307	1,691	1,729	1,192
Gearing (net debt/(nd + equity))	%	(153%)	(23%)	34%	77%	77%	57%
Gearing (net debt/equity)	%	(61%)	(18%)	52%	340%	328%	132%

ATTRIBUTABLE MINE OUTPUT		FY18	FY19e	FY20e	FY21e	FY22e	FY23e
<b>Clean TeQ Sunrise Nickel &amp; Cobalt</b>							
Nickel	(t)	0	0	0	0	8,797	20,673
Cobalt	(t)	0	0	0	0	1,870	4,394
Scandium	(t)	0	0	0	0	10	10
<b>C1 Cash costs</b>							
Clean TeQ Sunrise Nickel & Cobalt (US\$/lb)		nm	nm	nm	nm	0.28	(3.26)
<b>AISC</b>							
Clean TeQ Sunrise Nickel & Cobalt (US\$/lb)		nm	nm	nm	nm	1.49	(1.94)

REVENUE MIX - MACQ	
Nickel	56%
Cobalt	44%

REVENUE MIX - SPOT	
Nickel	44%
Cobalt	56%

NICKEL/COBALT RESERVES AND RESOURCES					
<b>Reserves</b>					
<b>Clean TeQ Sunrise</b>	Mt	Ni (%)	Ni (kt)	Co (%)	Co (kt)
Proved	65.5	0.65%	425.0	0.10%	65.0
Probable	81.9	0.49%	400.0	0.08%	65.0
<b>Total Reserves</b>	<b>147.4</b>	<b>0.56%</b>	<b>825.0</b>	<b>0.09%</b>	<b>130.0</b>
<b>Resources</b>					
<b>Clean TeQ Sunrise</b>	Mt	Ni (%)	Ni (kt)	Co (%)	Co (kt)
Measured	68.8	0.63%	436.0	0.10%	69.0
Indicated	93.9	0.47%	437.0	0.08%	75.0
Inferred	20.6	0.23%	48.0	0.09%	18.0
<b>Total Resources</b>	<b>183.3</b>	<b>0.50%</b>	<b>921.0</b>	<b>0.09%</b>	<b>162.0</b>

SUM-OF-THE-PARTS NPV		Spot prices		Macquarie forecasts	
Projects	A\$m	A\$ps	A\$m	A\$ps	A\$ps
Clean TeQ Sunrise Nickel & Cobalt	8	0.01	1,204	0.79	
Unpaid capital & Equity Raising	380	0.25	380	0.25	
Resources	107	0.07	120	0.08	
Corporate	(139)	(0.09)	(139)	(0.09)	
Cash	104	0.07	104	0.07	
Debt	0	0.00	0	0.00	
<b>Net Equity Value (@ 10% real WACC, 12.6% Nomina)</b>	<b>460</b>	<b>0.30</b>	<b>1,669</b>	<b>1.10</b>	

PRICE TARGET		TSX LISTING	ASX LISTING
<b>Clean TeQ Holdings</b>	<b>C\$ps</b>		<b>A\$ps</b>
<b>PRICE TARGET (1.0x NPV)</b>	<b>1.10</b>		<b>1.10</b>

Source: CLQ, Macquarie Research, January 2019

Fig 23 Metals X summary financials

Metals X								
ASX: MLX	Price: (A\$ps)	0.45		Year end: Jun		Rating: Outperform	Up/dn	TSR
	Mkt cap: (A\$m)	310		Diluted shares (m)		689.1	Target: 0.80	78%
	Mkt cap: (US\$m)	234						78%
ASSUMPTIONS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Exchange Rate	A\$/US\$	0.73	0.75	0.78	0.72	0.72	0.74	0.77
Copper	(US\$/lb)	2.22	2.44	3.06	2.88	2.95	3.14	3.55
Tin	(US\$/lb)	7.12	9.02	9.36	8.96	9.81	10.72	10.43
Nickel	(US\$/lb)	4.23	4.60	5.65	5.70	6.63	7.26	7.94
RATIO ANALYSIS		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Diluted share capital	m	453.4	595.4	611.2	689.1	689.1	689.1	689.1
EPS (diluted and pre sig. items)	A¢	-5.3	-7.1	-4.0	3.4	11.4	11.4	20.0
P/E	x	-8.5x	-6.3x	-11.3x	13.2x	4.0x	4.0x	2.2x
CFPS	A¢	10.6	1.9	3.4	5.2	13.7	16.2	24.0
P/CF	x	4.3x	23.4x	13.2x	8.7x	3.3x	2.8x	1.9x
DPS	A¢	0.0	1.0	0.0	0.0	3.0	3.0	6.0
Dividend yield	%	0.0%	2.2%	0.0%	0.0%	6.7%	6.7%	13.3%
Frinking Level	%	0%	0%	0%	0%	0%	100%	100%
Book value per share	x	0.87	0.33	0.28	0.36	0.46	0.54	0.69
P/Book value	x	0.5x	1.3x	1.6x	1.2x	1.0x	0.8x	0.7x
R.O.E. (pre sig items)	%	-6%	-21%	-14%	9%	25%	21%	29%
R.O.A. (pre sig items)	%	-5%	-5%	-9%	6%	17%	15%	25%
Interest Cover	x	150.8x	12.5x	-29.7x	-40.4x	-46.4x	-37.9x	-55.7x
EBITDA per share	A\$ps	0.08	0.04	0.00	0.08	0.18	0.18	0.30
EV/EBITDA	x	8.8x	11.4x	133.0x	3.9x	1.6x	1.5x	0.5x
Free cash flow yield	%	(19%)	(31%)	(4%)	3%	14%	10%	35%
PRODUCTION DATA		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Renison Bell/Rentails (MLX share)								
Renison Bell	(kt)	3.2	3.5	3.4	3.6	3.8	3.8	3.8
Rentails	(kt)	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Total Tin	(kt)	3.2	3.5	3.4	3.6	3.8	3.8	5.4
Cash costs	(US\$/lb)	4.82	4.06	4.19	3.77	3.75	3.93	4.20
AISC	(US\$/lb)	6.87	6.56	6.57	5.80	5.80	6.11	6.29
Nifty								
Copper produced	(kt)	0.0	24.8	15.7	23.9	37.8	37.8	42.0
Cash costs	(US\$/lb)	0.00	1.80	2.73	1.75	1.65	1.69	1.82
AISC	(US\$/lb)	0.00	2.44	3.43	2.51	2.41	2.40	2.61
RENISON BELL PRODUCTION OUTLOOK		NIFTY PRODUCTION OUTLOOK						
RESERVES AND RESOURCES (ATTRIBUTABLE)								
Tin Reserves								
Project		Mt	Sn (%)	(kt)	Cu (%)	(kt)		
Renison Bell		6.8	1.01%	69	0.22%	15		
Rentails		22.3	0.44%	99	0.23%	51		
<b>Total Tin Reserves</b>		<b>29.1</b>	<b>0.58%</b>	<b>168</b>	<b>0.23%</b>	<b>66</b>		
Tin Resources								
Project		Mt	Sn (%)	(kt)	Cu (%)	(kt)		
Renison Bell		16.4	1.31%	216	0.21%	34		
Rentails		23.2	0.44%	103	0.23%	53		
Mt Bischoff		1.7	0.54%	9				
<b>Total Tin Resources</b>		<b>41.3</b>	<b>0.79%</b>	<b>328</b>	<b>0.21%</b>	<b>87</b>		
Copper Reserves								
Project		Mt	Cu (%)	(kt)				
Nifty		13.9	1.71%	238				
<b>Total Copper Reserves</b>		<b>13.9</b>	<b>1.71%</b>	<b>238</b>				
Copper Resources								
Project		Mt	Cu (%)	(Cu kt)	Co (%)	Co (kt)		
Nifty - Sulphide		47.2	1.51%	713				
Nifty - Oxide		4.3	0.87%	38				
Nifty - Heap Leach		3.3	0.74%	25				
Maroochydore - Oxide		43.1	0.91%	394	0.04%	17		
Maroochydore - Sulphide		5.4	1.66%	90	0.04%	2		
<b>Total Copper Resources</b>		<b>103.4</b>	<b>1.22%</b>	<b>1,259</b>	<b>0.02%</b>	<b>19</b>		
Nickel Reserves								
Project		Mt	Ni (%)	Ni (kt)	Co (%)	Co (kt)		
Wingellina		168.4	0.93%	1,561	0.07%	123		
<b>Total Nickel Reserves</b>		<b>168.4</b>	<b>0.93%</b>	<b>1,561</b>	<b>0.07%</b>	<b>123</b>		
Nickel Resources								
Project		Mt	Ni (%)	Ni (kt)	Co (%)	Co (kt)		
Wingellina		182.6	0.92%	1,684	0.07%	131		
Claude Hills		33.3	0.81%	270	0.07%	23		
<b>Total Nickel Resources</b>		<b>215.8</b>	<b>0.91%</b>	<b>1,953</b>	<b>0.07%</b>	<b>154</b>		
EQUITY DCF VALUATION								
		Spot prices		Macquarie forecasts				
Projects		A\$m	A\$ps	A\$m	A\$ps	A\$m	A\$ps	
Renison Bell		293	0.42	234	0.34			
Nifty		283	0.41	383	0.56			
Corporate		(114)	(0.17)	(114)	(0.17)			
Investments		11	0.02	11	0.02			
Options and forwards		(0)	(0.00)	(0)	(0.00)			
Cash		56	0.08	56	0.08			
Debt		(10)	(0.01)	(10)	(0.01)			
<b>Core asset NPV</b>		<b>518</b>	<b>0.75</b>	<b>559</b>	<b>0.81</b>			
Rentails		93	0.14	49	0.07			
Wingellina Nickel Resources		61	0.09	54	0.08			
		43	0.06	39	0.06			
<b>Net Equity Value (WACC @ 9.4%)</b>		<b>716</b>	<b>1.04</b>	<b>701</b>	<b>1.02</b>			
<b>Price Target (50/50 Blend of 4.0x Ebitda and NPV)</b>								<b>0.80</b>
BALANCE SHEET		FY16	FY17	FY18	FY19e	FY20e	FY21e	FY22e
Cash	A\$m	39	50	31	89	126	135	210
PP&E & Mine Development	A\$m	277	118	129	119	124	156	158
Exploration	A\$m	165	5	11	22	33	44	54
<b>Total Assets</b>	<b>A\$m</b>	<b>599</b>	<b>283</b>	<b>261</b>	<b>363</b>	<b>440</b>	<b>500</b>	<b>616</b>
Debt	A\$m	44	8	10	10	10	10	10
<b>Total Liabilities</b>	<b>A\$m</b>	<b>204</b>	<b>84</b>	<b>91</b>	<b>114</b>	<b>124</b>	<b>129</b>	<b>141</b>
<b>Total Net Assets / Equity</b>	<b>A\$m</b>	<b>395</b>	<b>199</b>	<b>170</b>	<b>250</b>	<b>315</b>	<b>371</b>	<b>475</b>
<b>Net Debt / (Cash)</b>	<b>A\$m</b>	<b>5</b>	<b>(42)</b>	<b>(21)</b>	<b>(79)</b>	<b>(116)</b>	<b>(125)</b>	<b>(200)</b>
Gearing (net debt/(nd + equity))	%	1%	(26%)	(14%)	(47%)	(58%)	(51%)	(73%)
Gearing (net debt/equity)	%	1%	(21%)	(12%)	(32%)	(37%)	(34%)	(42%)

Source: MLX, Macquarie Research, January 2019

Fig 24 Panoramic Resources summary financials

Panoramic Resources									
ASX: PAN	Price: (A\$ps)	0.46		Year end: Jun		Rating: Outperform	Up/dn	TSR	
	Mkt cap: (A\$m)	227		Diluted shares (m)		494.5	Target: 0.72	57%	
<b>ASSUMPTIONS</b>									
Exchange Rate	A\$/US\$	0.75	0.78	0.72	0.74	0.77	0.78		
Nickel Price	US\$/lb	4.60	5.65	5.70	6.63	7.26	7.94	8.39	
Nickel Price	A\$/lb	6.10	7.29	7.95	9.21	9.87	10.38	10.76	
<b>RATIO ANALYSIS</b>									
Diluted share capital	m	428.6	465.8	494.5	494.5	494.5	494.5		
EPS (diluted and pre sig. items)	Ac	(2.0)	(0.6)	(3.6)	6.3	13.6	14.3	13.5	
P/E	x	(22.8x)	(73.6x)	(12.7x)	7.3x	3.4x	3.2x	3.4x	
CFPS	Ac	(2.9)	(2.3)	(3.3)	9.5	20.2	22.6	21.2	
P/CF	x	(16.1x)	(19.6x)	(13.8x)	4.8x	2.3x	2.0x	2.2x	
DPS	Ac	0.0	0.0	0.0	4.0	10.0	11.0		
<b>Dividend yield</b>									
Dividend yield	%	0.0%	0.0%	0.0%	0.0%	8.7%	21.7%	23.9%	
Franking Level	%	0%	0%	0%	0%	0%	0%	0%	
Book value per share	x	0.26	0.18	0.16	0.23	0.37	0.43	0.48	
P/Book value	x	1.8x	2.5x	2.9x	2.0x	1.3x	1.1x	1.0x	
R.O.E. (pre sig items)	%	(8%)	(3%)	(23%)	28%	37%	33%	28%	
R.O.A. (pre sig items)	%	(6%)	(8%)	(11%)	17%	28%	30%	31%	
Interest Cover	x	138.0x	(12.9x)	(10.4x)	11.5x	41.5x	2,058.0x	(197.3x)	
EBITDA per share	A\$ps	(0.02)	(0.02)	(0.03)	0.13	0.21	0.24	0.27	
EV/EBITDA	x	(26.8x)	(22.5x)	(15.8x)	3.8x	1.6x	1.1x	0.8x	
Free cash flow Yield	%	(6%)	(7%)	(22%)	6%	32%	36%	32%	
<b>EARNINGS</b>									
Sales Revenue	A\$m	8	0	0	167	227	246	262	
Other Revenue	A\$m	1	2	0	0	0	0	0	
Total Revenue	A\$m	9	2	0	167	227	246	262	
Operating Costs	A\$m	(10)	(5)	(8)	(97)	(116)	(119)	(123)	
Operational EBITDA	A\$m	(1)	(4)	(8)	70	111	126	139	
Exploration Expense/Write-offs	A\$m	(1)	(1)	(2)	(1)	(1)	(1)	(1)	
Corporate & Other Costs	A\$m	(6)	(4)	(6)	(6)	(6)	(6)	(7)	
EBITDA	A\$m	(8)	(9)	(16)	63	103	118	131	
D&A	A\$m	(1)	(0)	(0)	(29)	(34)	(35)	(36)	
EBIT	A\$m	(9)	(9)	(16)	34	69	83	95	
Net Interest	A\$m	0	(1)	(2)	(3)	(2)	(0)	0	
Profit Before Tax	A\$m	(9)	(10)	(18)	31	67	83	95	
Tax Expense	A\$m	0	0	0	0	0	(13)	(29)	
Minorities	A\$m	1	7	0	0	0	0	(0)	
Adjusted NPAT	A\$m	(9)	(3)	(18)	31	67	71	67	
Significant Items (post tax)	A\$m	9	(38)	0	0	0	0	0	
Reported NPAT	A\$m	1	(41)	(18)	31	67	71	67	
<b>CASHFLOW</b>									
Net Profit	A\$m	1	(41)	(18)	31	67	71	67	
Interest/Tax/D&A	A\$m	(3)	(2)	(0)	29	34	42	40	
Working Capital/other	A\$m	(10)	32	2	(13)	(2)	(1)	(2)	
Net Operating Cashflow	A\$m	(12)	(11)	(16)	47	100	112	105	
Capex	A\$m	(1)	(4)	(47)	(34)	(29)	(30)	(31)	
Investments	A\$m	1	1	13	0	2	0	0	
Sale of PPE and Other	A\$m	0	0	0	0	0	0	0	
Free cash flow	A\$m	(12)	(14)	(50)	13	72	82	74	
Dividends Paid	A\$m	0	0	0	0	0	(49)	(45)	
Debt	A\$m	(1)	(1)	40	(10)	(20)	(10)	0	
Equity Issuance	A\$m	14	20	0	0	0	0	0	
Other	A\$m	0	0	0	0	0	0	0	
Net Financing Cashflow	A\$m	13	19	40	(10)	(20)	(59)	(45)	
Net change in cash	A\$m	1	5	(11)	3	52	22	29	
<b>BALANCE SHEET</b>									
Cash	A\$m	21	25	14	18	70	92	121	
PP&E & Mine Development	A\$m	30	28	75	80	75	70	65	
Exploration	A\$m	92	46	34	35	34	35	36	
Total Assets	A\$m	146	121	153	196	250	273	306	
Debt	A\$m	1	0	40	30	10	0	0	
Total Liabilities	A\$m	34	35	74	84	69	62	67	
Total Net Assets / Equity	A\$m	112	86	79	112	182	211	239	
Net Debt / (Cash)	A\$m	(20)	(25)	26	12	(60)	(92)	(121)	
Gearing (net debt/(nd + equity))	%	(21%)	(42%)	24%	10%	(49%)	(77%)	(103%)	
Gearing (net debt/equity)	%	(18%)	(30%)	32%	11%	(33%)	(44%)	(51%)	
<b>ATTRIBUTABLE MINE OUTPUT</b>									
<b>Production forecasts</b>									
Nickel in concentrate	(kt)	0.0	0.0	1.6	8.8	11.4	11.0	10.9	
Copper in concentrate	(kt)	0.0	0.0	1.1	5.5	5.9	5.7	5.6	
Cobalt in concentrate	(kt)	0.0	0.0	0.1	0.6	0.9	0.9	0.9	
<b>Cost forecasts</b>									
C1 cash costs	(A\$/lb)	nm	nm	nm	3.52	2.90	2.69	2.23	
AISC	(A\$/lb)	nm	nm	nm	6.45	5.08	4.98	4.59	
<b>OPERATIONAL OUTLOOK</b>									
<b>SAVANNAH REVENUE MIX</b>									
<b>RESERVES AND RESOURCES (ATTRIBUTABLE)</b>									
<b>Nickel reserves</b>									
Project (kt)						Mt	% Ni	Ni (kt)	
Savannah						8.2	1.37%	113	
Total nickel reserves (kt)						8.2	1.37%	113	
<b>Nickel resources</b>									
Project (kt)						Mt	% Ni	Ni (kt)	
Savannah						13.9	1.63%	226	
Total nickel resources (kt)						13.9	1.63%	226	
<b>PGM Resources</b>									
Project (koz)						Mt	g/t PGM	PGM (koz)	
Thunder Bay						10.4	2.2	732	
Panton						14.3	4.6	2,110	
Total PGM resources (koz)						24.7	3.6	2,842	
<b>EQUITY DCF VALUATION</b>									
Projects						Spot Prices	Macquarie Forecasts		
Savannah Nickel						A\$m	A\$ps	A\$m	A\$ps
						137	0.28	357	0.72
Horizon Gold						(1)	(0.00)	9	0.02
Nickel resources						14	0.03	17	0.03
PGM Resources						2	0.00	4	0.01
Investments						1	0.00	2	0.00
Unpaid capital						0	0.00	0	0.00
Forwards						10	0.02	(9)	(0.02)
Corporate						(11)	(0.02)	(11)	(0.02)
Net cash (debt)						(11)	(0.02)	(11)	(0.02)
Net Equity Value (@ 10% WACC)						143	0.29	358	0.72
Price Target								(1x NPV)	0.72

Source: PAN, Macquarie Research, January 2019

## Important disclosures:

Recommendation definitions	Volatility index definition*	Financial definitions
<p><b>Macquarie – Asia, USA, Canada, Europe and Mazi Macquarie (SA):</b>            Outperform – expected return &gt;10%            Neutral – expected return from -10% to +10%            Underperform – expected return &lt;-10%</p> <p><b>Macquarie - Australia/New Zealand</b>            Outperform – expected return &gt;10%            Neutral – expected return from 0% to 10%            Underperform – expected return &lt;0%</p> <p>Note: expected return is reflective of a Medium Volatility stock and should be assumed to adjust proportionately with volatility risk</p>	<p>This is calculated from the volatility of historical price movements.</p> <p><b>Very high–highest risk</b> – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.</p> <p><b>High</b> – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.</p> <p><b>Medium</b> – stock should be expected to move up or down at least 30–40% in a year.</p> <p><b>Low–medium</b> – stock should be expected to move up or down at least 25–30% in a year.</p> <p><b>Low</b> – stock should be expected to move up or down at least 15–25% in a year.            * Applicable to select stocks in Asia/Australia/NZ/Canada</p> <p><b>Recommendations</b> – 12 months  <b>Note:</b> Quant recommendations may differ from Fundamental Analyst recommendations</p>	<p>All "Adjusted" data items have had the following adjustments made:            Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives &amp; hedging, IFRS impairments &amp; IFRS interest expense            Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends &amp; minority interests</p> <p><b>EPS</b> = adjusted net profit / efpowa*  <b>ROA</b> = adjusted ebit / average total assets  <b>ROA Banks/Insurance</b> = adjusted net profit / average total assets  <b>ROE</b> = adjusted net profit / average shareholders funds  <b>Gross cashflow</b> = adjusted net profit + depreciation            *equivalent fully paid ordinary weighted average number of shares</p> <p>All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).</p>

## Recommendation proportions – For quarter ending 31 December 2018

	AU/NZ	Asia	RSA	USA	CA	EUR	
Outperform	53.56%	57.51%	47.06%	48.65%	69.08%	51.23%	(for global coverage by Macquarie, 4.12% of stocks followed are investment banking clients)
Neutral	31.09%	30.24%	34.12%	46.22%	26.32%	39.41%	(for global coverage by Macquarie, 1.92% of stocks followed are investment banking clients)
Underperform	15.36%	12.25%	18.82%	5.14%	4.61%	9.36%	(for global coverage by Macquarie, 0.47% of stocks followed are investment banking clients)

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