BCI Minerals

Mardie PFS optimisation study

PFS optimisation study

Metals & mining

On 17 May BCI announced the results of its PFS optimisation study at its Mardie salt and potash project in north-western Australia. Relative to its earlier PFS study (the results of which were announced in June 2018), the principal differences are an increase in salt and sulphate of potash (SOP) production, by 14.3% and 33.3% respectively, and the development of a dedicated port at the Mardie site. While this has increased the project's capex estimate by 48.7% to A$498m, it has increased its pre-tax NPV_{10} by 67.2% and our estimate of post-tax NPV_{10} by A$111.2m to A$345.5m (or 86.9c per existing BCI share). At the same time, the project's operational lifespan has been extended to 60 years (from 30 years previously).

Year end	Revenue (A$m)	PBT* (A$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
06/17	64.3	6.0	1.9	0.0	10.5	N/A
06/18	33.0	(16.9)	(4.3)	0.0	N/A	N/A
06/19e	60.7	(7.0)	(1.4)	0.0	N/A	N/A
06/20e	59.8	(3.1)	(0.3)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles and exceptional items.

Mardie stand-alone valuation increases to 9.76cps

In our report Gold stars and Black holes: Analysing the discount: From resource to sanction, published in January 2019, we observed that, excluding outliers, the average valuation of companies at PFS stage is 9.9% of attributable NPV. On this basis (and assuming a post-tax NPV of 70% of pre-tax NPV of A$560m), an average valuation for Mardie would be A$38.8m, or 9.76 cents per share. However, if the DFS on Mardie, which is underway, is completed on approximately the same terms, we would expect this valuation to increase more than threefold, to c 30.9% of NPV, or 30.46c per share. This excludes the 19.51c at which we valued BCI's other operating assets in our Outlook report, BCI Minerals: Salt plus potash plus iron equals value, published on 7 February 2019. It also excludes the 2.43c value of BCI's other non-operating assets – ie Buckland (see BCI Minerals: Increasing iron ore royalties supporting Mardie, published on 16 April 2019).

Initiative broadens funding options

One additional consequence of its plans to develop a dedicated port at Mardie could be that BCI's potential for concessional debt funding via Australia's federal North Australia Infrastructure Facility (NAIF) is increased.

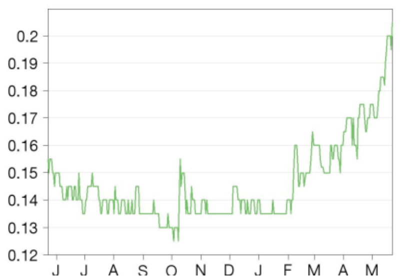
Valuation: Still almost 2x share price

In the wake of its quarterly activities report, we value the stream of dividends payable to BCI shareholders from Iron Valley and the development of Mardie at 35.13c (cf 31.62 previously). To this should be added a further 2.43c for its Buckland assets to take the total to 37.56c. Further upside then exists if iron ore prices remain at elevated levels beyond June and/or the Australian dollar remains at its currently depressed levels.

23 May 2019

Price	**A$0.20**
Market cap	**A$80m**
	A$1.4547/US$
Net cash (A$m) at 31 March 2019	35.4
Shares in issue	397.6m
Free float	63%
Code	BCI
Primary exchange	ASX
Secondary exchange	N/A

Share price performance



%	1m	3m	12m
Abs	17.1	36.7	32.3
Rel (local)	12.7	29.3	23.3
52-week high/low		A$0.20	A$0.13

Business description

BCI Minerals has two major assets in Western Australia, including a 100% interest in the Mardie salt and potash project and a royalty-type interest in the Iron Valley iron ore mine operated by Mineral Resources. It also has exploration tenements in iron ore and other minerals.

Next events

Q419 activity report	July 2019
Mardie DFS	Q4 CY19
Mardie investment decision	Q1 CY20

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Edison profile page

Mardie PFS optimisation

BCI is preparing a DFS for its Mardie salt and SOP project, which it expects to be completed in the final quarter of calendar year 2019. As part of the process, it has been investigating a number of optimisation opportunities relative to its PFS, which it has incorporated into the development case and compiled in a separate PFS optimisation study, the results of which are summarised in Exhibit 1. The main differences between the PFS and the PFS optimisation study are an increase in salt and SOP production by 14.3% and 33.3%, respectively, and the development of a dedicated export facility at the Mardie site (as opposed to trucking output to either Cape Preston East Port or the Dampier general cargo wharf for export).

Exhibit 1: Mardie optimised PFS parameters vs PFS

Assumption	PFS*	Optimised PFS	Change (%)
Inputs			
Salt production	3.5Mtpa	4.0Mtpa	+14.3
SOP production	75ktpa	100ktpa	+33.3
Seawater intake	132Glpa 4.2Mtpa salt 135ktpa SOP	147Glpa 4.7Mtpa salt 150ktpa SOP	+11.4 +11.9 +11.1
Concentrator pond area	70km^2	79km^2	+12.9
Crystalliser area	17km^2	20km^2	+17.6
Salt recovery	83%	85%	+2.5
SOP recovery	56%	67%	+19.6
Salt logistics	Trucked c 70km to Cape Preston East	Exported directly from Mardie Port	
SOP logistics	Trucked c 100km to Dampier Cargo Wharf	Exported directly from Mardie Port	
Capex estimate	A$335m	A$498m	+48.7
Sustaining capex	A$1.7m pa	A$6.0m pa	+252.9
Salt cash cost estimate	A$20/t	A$16/t	-20
SOP cash cost estimate	A$250/t	A$211/t	-15.6
Operating life	30yrs	60yrs	+100.0
Salt price	US$30/t FOB	US$30/t FOB	u/c
SOP price	US$500/t FOB	US$500/t FOB	u/c
Exchange rate	US$0.75/A$	US$0.70/A$	-6.7
Exchange rate	A$1.3333/US$	A$1.4286/US$	+7.1
Outputs			
Pre-tax NPV_{10}[1]	A$335m	A$560m	+67.2
Pre-tax NPV_8[2]	N/D	A$875m	N/A
IRR	20.1%	20.3%	u/c
Annual EBITDA	A$102m	A$155m	+52.0

Source: BCI Minerals, Edison Investment Research. Note: *The results of the Mardie PFS were announced to the market in June 2018.

Operational and capital cost estimates for the purposes of the PFS optimisation study were undertaken to an accuracy of ±25% (cf -15% to +25% for the PFS), qualifying it as an AACE Class 4 estimate (as before), as defined under Association for the Advancement of Cost Engineering Recommended Practice Number 18R-97 (ie a pre-feasibility study). In the meantime, Mardie's projected operational life of 60 years is predicated upon the grant of a mining licence for 21 years plus two extensions (3 × 21 = 63) minus three years for construction.

Capex

To achieve the increase in production, BCI and its independent experts increased the project footprint layout to 79km^2 for the concentrator ponds and 20km^2 for the crystallisers. Both of these

1 Using a 10% discount rate.

2 Using an 8% discount rate.

increased parameters were factored into the Environmental Review Document submitted to the Environmental Protection Agency (EPA) in April this year.

As a result, total capex for the Mardie project is now estimated to be A$498m (cf A$335m previously), comprising A$401m for the salt production circuit and port and A$97m for the SOP production circuit, with almost all of the increase accounted for by the inclusion of the Mardie port into the new project scope.

Exhibit 2: Mardie capex estimate by project component, PFS optimisation study vs PFS

	Salt capex		SOP capex		Total capex	
Description	**Previous (A$m)**	**Optimised (A$m)**	**Previous (A$m)**	**Optimised (A$m)**	**Previous (A$m)**	**Optimised (A$m)**
Concentrator and crystalliser ponds	62	70	15	16	77	86
Processing	25	29	46	50	71	79
Supporting infrastructure	14	18	4	5	18	23
Accommodation village	1		0		1	
Port	73	200	0	4	73	204
Temporary construction services	10		4		15	
Project management	14		7		21	
Owner's costs	28	51	4	14	32	65
Contingency	21	33	7	8	28	41
Total	**248**	**401**	**87**	**97**	**335**	**498**

Source: BCI, Edison Investment Research. Note: Totals may not add up owing to rounding.

The Mardie Port will comprise a trestle jetty with a conveyor (or light rail) and road, designed to traverse the intertidal zone for c 3km before extending into the ocean for a further 3.5km to reach ship loading infrastructure and a transhipment berth pocket. Salt will be conveyed in bulk form to the end of the jetty before being loaded onto transhipment vessels via a ship loader and transhipped to ocean going vessels anchored c 15 nautical miles (17 miles or 28km) offshore. SOP will be exported in a similar manner, albeit via a crane onto smaller vessels and packaged in bulka bags (that typically measure 90cm × 90cm × 120cm).

BCI's contracting strategy is designed to ensure it has adequate control over key production processes, but that non-production activities (eg accommodation, power supply, etc) are contracted out. Consequently, these are excluded from Mardie's capital cost estimate but are included in its opex estimate (below).

Opex

The main consequence of developing a dedicated port at the Mardie site is that it obviates road haulage costs, as shown in the updated schedule of operating costs reproduced below:

Exhibit 3: Mardie salt and SOP opex estimates (A$/t), PFS optimisation study vs PFS

	Salt		Potash	
Description	**Previous (A$/t)**	**Optimised (A$/t)**	**Previous (A$/t)**	**Optimised (A$/t)**
Production (Mardie site)	5.8	6.25	171.4	147.00
Haulage	3.3	0.00	7.1	0.00
Port handling & transhipment	5.3	4.85	20.0	12.20
Corporate & overheads	1.9	1.80	0.0	0.00
Contingency	1.6	1.30	19.9	15.90
C1 cash costs (FOB)	**17.9**	**14.20**	**218.4**	**175.10**
Marketing (2% of revenue)	0.8	0.85	12.8	14.30
State government royalty	*0.7	0.75	**16.0	17.85
Native title royalty (0.5% of revenue)	0.2	0.20	3.2	3.55
Cash costs (FOB)	**19.7**	**16.00**	**250.4**	**210.80**
Sustaining capex	0.3	1.00	10.0	20.00
All in sustaining costs (AISC)	**19.9**	**17.00**	**260.4**	**230.80**

Source: BCI. Note: *A$0.73/t for salt and **2.5% of revenue for SOP; totals may not add up owing to rounding.

Note that operating cost estimates have been calculated on a free on board (FOB) basis.

Valuation considerations

On the basis of the above assumptions and that the first full years of production are FY24 and FY26 for salt and SOP, respectively, we estimate the following valuations for the project (assuming a 30% standard rate of corporate tax in Australia):

Exhibit 4: Mardie valuation, Edison vs PFS optimisation study and PFS

	PFS		PFS Optimisation Study	
Item	Mardie PFS	Edison	Mardie optimised PFS	Edison
A$/US$	1.3333	1.4008	1.4286	1.4547
Project life (years)	30	30	60	60
Steady-state annual EBITDA (A$m)	102	111.7	155	153
Pre-tax NPV_{10} (A$m)	335	*396.0	560	595.5
Pre-tax NPV_{10} per existing BCI share (Australian cents)	84	99.6	140.9	149.8
Pre-tax NPV_8 (A$m)	N/D	N/D	875	930.2
Pre-tax NPV_8 per existing BCI share (Australian cents)	N/D	N/D	220.1	234.0
Pre-tax IRR (%)	20.1	20.7	20.3	20.0
Payback	5	5	5	5
Post-tax NPV_{10} (A$m)	N/D	*234.3	N/D	345.5
Post-tax NPV_{10} per existing BCI share (Australian cents)	N/D	58.9	N/D	86.9

Source: BCI, Edison Investment Research. Note: *Discounted back to the start of capex.

Note that the extent by which our NPV estimates exceed those of the formal studies can largely be explained by its adoption of a (weaker) prevailing forex rate in its calculations.

In our report Gold stars and Black holes: Analysing the discount: From resource to sanction, published in January 2019, we observed that, excluding outliers, the maximum and minimum valuations for companies with projects at different stages of development are as follows (Exhibits 166 and 173 of the original report):

Exhibit 5: Company EV as percent of attributable project NPV (%), by study type, ordinarily valued companies, excluding statistical outliers

Percent	Scoping study/PEA	PFS	BFS/DFS
Maximum	50.7	51.3	133.5
Mean	11.7	9.9	30.9
Minimum	-4.8	-15.4	-10.1

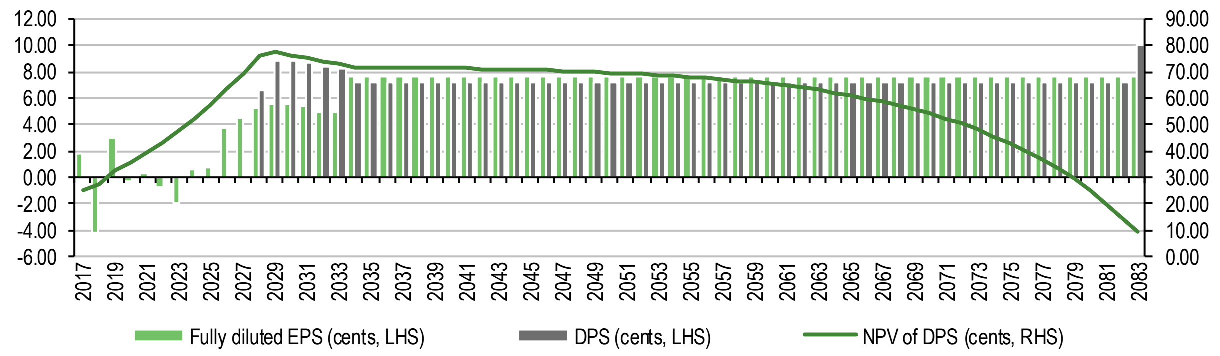
Source: Edison Investment Research

Assuming a post-tax NPV of 70% of pre-tax NPV of A$560m (as per its formal PFS optimisation study), an average valuation for BCI of 9.9% of Mardie's NPV (excluding its other assets) would be A$38.8m, or 9.76 cents per share (cf A$23.2m, or 5.84cps, previously). If the DFS on Mardie is completed on approximately the same terms, however, we would expect this valuation to increase more than threefold, to c 30.9% of NPV, or 30.46c per share (cf 18.22c/share, previously). Note that this excludes the 19.51c at which we valued BCI's other operating assets in our Outlook report, BCI Minerals: Salt plus potash plus iron equals value, published on 7 February 2019. It also excludes the 2.43c value of BCI's other non-operating assets (ie Buckland – see BCI Minerals: Increasing iron ore royalties supporting Mardie, published on 16 April 2019).

In the meantime, BCI has stated that it will advance development funding options for the project in detail during the preparation of the Mardie DFS. Currently, project development capex of A$498m is 'likely to be funded from a combination of project debt, equity, product offtake pre-commitments and via build-own-operate (or similar) models where feasible.' However, it has also said it 'will consider all feasible funding structures for the equity component including raising equity in BCI for investment into the project, or raising direct equity into the project'. In addition, its plans to develop a port at Mardie may attract concessional debt funding via Australia's federal NAIF.

Edison's financial model assumes that BCI funds Mardie via equity into the company, in which case we estimate that the company would have to raise A$195.3m (gross) in FY20 (cf c A$100m previously) to maintain a maximum leverage ratio (net debt/[net debt+equity]) of no more than 50% in FY23 when net debt to fund the project would peak at A$273.9m (cf A$191.9m previously) – some of the equity having been provided in the form of retained earnings from income from BCI's Iron Valley interests. If conducted at the current share price of A$0.195 (cf A$0.16 previously), our long-term estimates of BCI's earnings (maximum potential), dividends per share and valuation trajectory are then as follows:

Exhibit 6: BCI EPS and (maximum potential) DPS forecasts, FY18–83



Source: Edison Investment Research. Note: Income derived from Iron Valley and Mardie, combined; no contribution assumed from Buckland or any other assets.

Discounting at our customary discount rate of 10% per year, the (fully diluted) value of these cash flows to shareholders is 35.13 Australian cents (cf 31.62c at the time of our update note, BCI Minerals: Increasing iron ore royalties supporting Mardie, published on 16 April 2019) as at 1 July 2018, rising to 38.64c at 1 July 2019. To this should then be added a further 2.43c for its Buckland assets to take the total to 37.56c

Note that our valuation, on this basis, peaks at 80.12 Australian cents in FY28 (cf 70.66c previously), when EPS will be 5.77c (cf 5.43c previously), therefore putting BCI on a contemporary P/E ratio of 13.9x. Self-evidently, this valuation could increase further to the extent that iron ore prices remain at elevated levels beyond June 2019.

Other matters

Politics

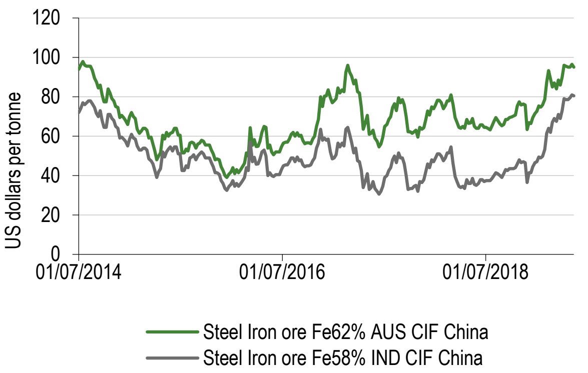
Last weekend, Australia concluded a general election in which all 151 seats in the House of Representatives (lower house) and 40 of the 76 seats in the Senate (upper house) were up for election (note that Australia enforces compulsory voting). In yet another upset to the pre-election polls, the incumbent minority coalition government, led by Prime Minister Scott Morrison, won a third three-year term against the Labor (*sic*) opposition, winning enough seats to form a right-of-centre Liberal majority government in its own right.

Australian interest rates are set by the Reserve Bank of Australia, which is independent. Nevertheless, on the basis of the Liberals' pre-election manifesto, the new government is expected to pursue economic policies that are consistent with low domestic interest rates to keep the Australian unit of currency weak in order to maintain the competitiveness of its exports – a policy that should align favourably with BCI's and Mardie's development initiatives.

Economics

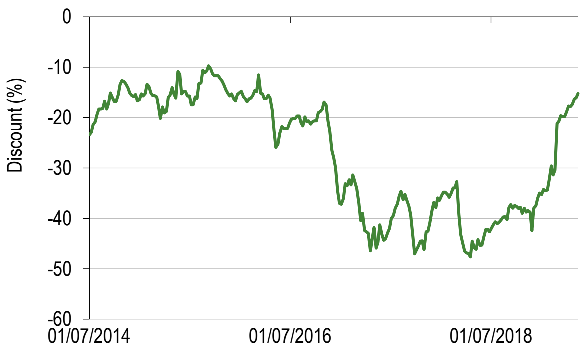
At the same time as the Australian dollar has been weakening in response to political considerations, the prices of both standard grade 62% iron ore and 58% lower grade ore have continued to exhibit material strength and the discount of the latter to the former has continued to narrow.

Exhibit 7: 62% iron ore price (US$/t) vs 58% iron ore price, July 2014–present



Source: Refinitiv, Edison Investment Research

Exhibit 8: Discount of 58% iron ore price vs 62% iron ore price, July 2014–present (%)



Source: Refinitiv, Edison Investment Research

Our forecasts for BCI for FY19 are predicated on a Q419 58% iron ore price of US$78.54/t, whereas (on current trends) the price actually looks likely to average US$79.46/t, as the shortage of iron ore supply as a result of Brazilian mine shutdowns in the wake of Vale's tailings dams disasters continues to squeeze prices higher. Self-evidently, the extent to which this trend continues into the future will affect our earnings forecasts and Iron Valley valuation positively, especially into FY20 and beyond.

Exhibit 9: Financial summary

A$000s	2015	2016	2017	2018	2019e	2020e
Year end 30 June	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS						
Revenue	281,211	151,279	64,324	33,029	60,737	59,775
Cost of Sales	(278,465)	(158,210)	(55,190)	(47,442)	(64,913)	(60,412)
Gross Profit	2,746	(6,931)	9,134	(14,413)	(4,176)	(637)
EBITDA	2,746	(6,931)	9,134	(14,413)	(4,176)	(637)
Operating Profit (before amort. and except.)	(26,090)	(12,622)	5,665	(17,330)	(7,093)	(3,554)
Intangible Amortisation	0	0	0	0	0	0
Exceptionals	(170,881)	(40,108)	(302)	0	17,818	0
Other	(2,935)	812	(5)	0	0	0
Operating Profit	(199,906)	(51,918)	5,358	(17,330)	10,725	(3,554)
Net Interest	(3,505)	(951)	311	420	98	413
Profit Before Tax (norm)	(29,595)	(13,573)	5,976	(16,910)	(6,995)	(3,141)
Profit Before Tax (FRS 3)	(203,411)	(52,869)	5,669	(16,910)	10,823	(3,141)
Tax	44,912	(27,086)	0	0	1,510	0
Profit After Tax (norm)	12,382	(39,847)	5,971	(16,910)	(5,485)	(3,141)
Profit After Tax (FRS 3)	(158,499)	(79,955)	5,669	(16,910)	12,333	(3,141)
Average Number of Shares Outstanding (m)	174.8	196.2	316.7	394.6	396.1	898.3
EPS - normalised (c)	7.1	(20.3)	1.9	(4.3)	(1.4)	(0.3)
EPS - normalised and fully diluted (c)	7.1	(19.5)	1.9	(4.3)	(1.3)	(0.3)
EPS - (IFRS) (c)	(90.7)	(40.8)	1.8	(4.3)	3.1	(0.3)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	1.0	-4.6	14.2	-43.6	-6.9	-1.1
EBITDA Margin (%)	1.0	-4.6	14.2	-43.6	-6.9	-1.1
Operating Margin (before GW and except.) (%)	-9.3	-8.3	8.8	-52.5	-11.7	-5.9
BALANCE SHEET						
Fixed Assets	154,904	86,546	78,059	85,768	78,669	190,312
Intangible Assets	60,237	33,618	33,063	43,615	39,433	44,433
Tangible Assets	94,667	52,928	44,996	42,153	39,236	145,879
Investments	0	0	0	0	0	0
Current Assets	102,374	23,204	46,429	20,270	42,607	112,907
Stocks	9,886	61	0	0	83	82
Debtors	24,427	13,694	10,053	7,213	14,976	14,739
Cash	67,671	9,449	36,376	13,057	27,548	98,086
Other	390	0	0	0	0	0
Current Liabilities	(77,222)	(21,769)	(12,107)	(9,373)	(12,279)	(11,864)
Creditors	(70,947)	(19,749)	(12,107)	(9,373)	(12,279)	(11,864)
Short term borrowings	(6,275)	(2,020)	0	0	0	0
Long Term Liabilities	(20,773)	(11,307)	(5,225)	(6,054)	(6,054)	(6,054)
Long term borrowings	0	0	0	0	0	0
Other long term liabilities	(20,773)	(11,307)	(5,225)	(6,054)	(6,054)	(6,054)
Net Assets	159,283	76,674	107,156	90,611	102,944	285,302
CASH FLOW						
Operating Cash Flow	(77,686)	(19,721)	11,860	(11,957)	(9,117)	(814)
Net Interest	(1,120)	0	0	0	98	413
Tax	44,912	(27,086)	0	0	1,510	0
Capex	(10,987)	(8,075)	(2,220)	(10,074)	(5,000)	(114,560)
Acquisitions/disposals	24,338	0	(5,151)	(1,288)	27,000	0
Financing	6,118	1,510	24,403	0	0	185,499
Dividends	(18,652)	0	0	0	0	0
Net Cash Flow	(33,077)	(53,372)	28,892	(23,319)	14,491	70,538
Opening net debt/(cash)	(94,473)	(61,396)	(7,429)	(36,376)	(13,057)	(27,548)
HP finance leases initiated	0	0	0	0	0	0
Other	0	(595)	55	0	0	0
Closing net debt/(cash)	(61,396)	(7,429)	(36,376)	(13,057)	(27,548)	(98,086)

Source: Company sources, Edison Investment Research.

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