Company update

1 May 2019

BMN LN	Mining & Metals

Source: LSE

Market data

Price (p)	24.8
12m High (p)	48.2
12m Low (p)	17.7
Shares (m)	1,119.1
Mkt Cap (£m)	277.5

Company summary

Bushveld Minerals is an AIM-quoted mineral resource development and production company. The group's key asset is a majority controlling interest in the Vametco vanadium operation in South Africa. Bushveld also has thermal coal interests via its wholly-owned Lemur Resources subsidiary and tin exposure via a 17.5% stake in AfriTin Mining Ltd.

Key forecasts*

	2017	2018e	2019e
Sales (£m)	2.2	144.4	136.4
EBITDA (£m)	0.7	81.1	74.7
EBITDA, adj** (£m)	0.7	59.2	54.6
EPS (GBp)	(0.1)	3.9	3.2
EV/EBITDA (x)	na	3.0	3.3
EV/EBITDA adj** (x)	na	4.2	4.5
P/E (x)	na	6.3	7.7
Net cash (£m)	1.4	30.9	81.5

* Do not include proposed Vanchem acquisition
**Equity-attributable adjusted EBITDA

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Bushveld Minerals*

Vanchem acquisition opens door to 10,000t pa

The proposed US$68m cash acquisition of Vanchem opens a capital efficient route to Bushveld's stated goal of growing to a 10,000t pa low-cost primary producer of vanadium while providing an expeditious development path for its substantial Mokopane greenfield resource. Moreover, whilst diversifying Bushveld's operational base (lowering its risk profile), Vanchem will widen the group's vanadium product mix and offers a platform to potentially develop vanadium electrolyte manufacturing capacity in-house, supporting Bushveld's ambitions in the redox-flow battery space. We believe the deal will prove earnings and valuation accretive – the target assets generated pre-tax profit on recommencing production last year, and the US$133m gross cost of acquisition and subsequent refurbishment/development capex is substantially lower than the cUS$300m estimated capex of developing Mokopane as a standalone operation.

- **Immediate growth and diversification:** Vanchem offers immediate production growth and operational diversification, adding 960t of current annualised output to Bushveld's c3,000t pa production base at Vametco.
- **Capital efficient production expansion:** Current operations utilise just one of Vanchem's three kilns, equating to just 20-25% of the facility's capacity. Bushveld believes a US45m refurbishment spend over five years could see the entire facility fully operational at a steady-state production rate of 4,200t pa.
- **Fast-tracks Mokopane:** The proposed acquisition will expedite the development of Bushveld's Mokopane project (200km north of Vanchem), which over time will become the primary source of feedstock for Vanchem. Transporting an ore concentrate from Mokopane for further beneficiation at Vanchem could reduce the capex to develop Mokopane to just US$20m, versus the US$298m previously estimated to develop it as a standalone operation of not dissimilar scale.
- **Diversifies product mix:** Vanchem can produce various vanadium oxide concentrates, ferrovanadium (FeV) and vanadium chemicals, adding diversity to Vametco's Nitrovan product. Its operational flexibility offers potential for future vanadium electrolyte manufacturing without compromising cost efficiency, enhancing Bushveld's ambitions in the redox-flow battery space.

The proposed transaction is thus consistent with Bushveld's stated strategy of acquiring low-cost, scalable brownfield assets in South Africa to expedite development of its substantial, and high-grade, resource base. **Moreover, with the 4,200t pa potential of an integrated Vanchem-Mokopane added to the phased expansion of Vametco to c5,000t pa, the deal brings Bushveld's 10,000t pa production goal into sharp focus.** The transaction is subject to regulatory approvals, but the majority payment (to be funded from internal cash flows and debt if necessary) and closure is expected no later than 31 October 2019.

Valuation: We await details on opex structure and timing of the planned Vanchem-Mokopane refurbishment/development ahead of incorporating in our forecasts and valuation. However, we believe the acquisition will prove accretive to both, assuming cost structure is not dissimilar to Vametco. Bushveld is trading at an EV of just 3.3x our 2019 consolidated EBITDA estimate (after revising down our near-term V price assumptions for recent market pullback), and our free cash-flow estimate currently yields 18%. Our current 45p valuation includes just 25% of our NPV estimate of Bushveld's attributable share of Mokopane. We believe the NPV of an integrated Vanchem-Mokopane operation would likely exceed our current estimate of Mokopane standalone, while the acquisition would also lower development risk.

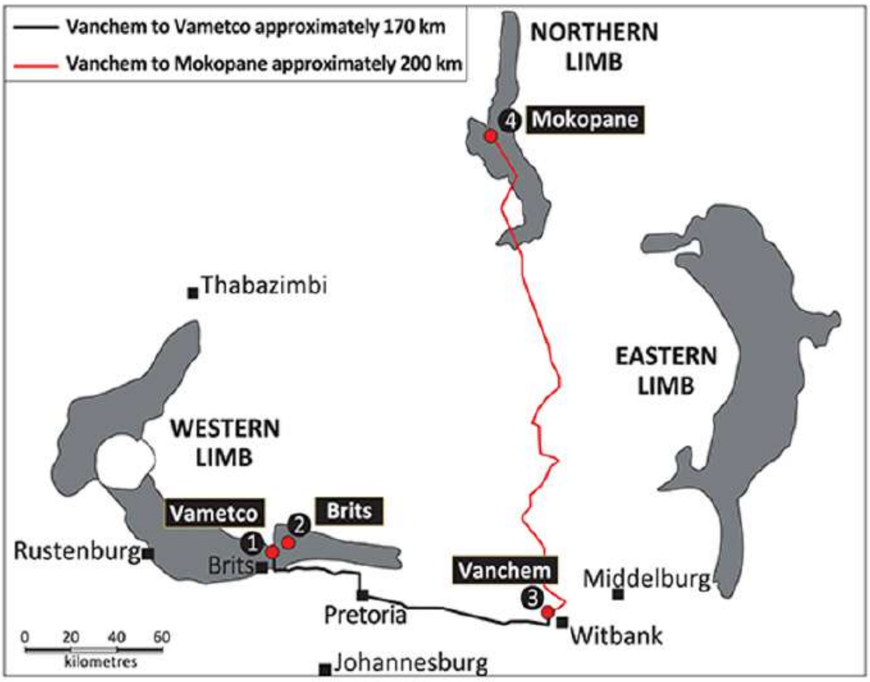
Brownfield acquisition to materially increase Bushveld's vanadium production capabilities in South Africa

Bushveld has agreed to acquire, for US$68m in cash, the Vanchem vanadium processing facility in South Africa, and two related businesses, from international steel and raw materials group Duferco.

Vanchem is a low-cost primary vanadium plant located near Witbank in South Africa, approximately 170km by road east-southeast of Bushveld's own Vametco operation and 200km south of its greenfield Mokopane project (Figure 1).

The plant employs a similar salt roast beneficiation process as that used at Vametco, but can produce a range of vanadium products. It currently produces at an annualised rate of approximately 960t through the processing of third-party-sourced magnetite ore. Current operations utilise just one of three kilns, equating to just 20-25% of installed kiln capacity. Bushveld plans a five-year refurbishment programme to utilise all three kilns, growing Vanchem's overall production rate to 4,200t pa. It plans to source ore feed from Mokopane, which will be developed as a simple mine and ore concentrating operation.

Figure 1: Expands and complements the group's Bushveld vanadium presence



Source: Bushveld Minerals

Transaction key terms

The acquisition comprises three assets to be bought as one indivisible transaction:

- the Vanchem processing plant, the vanadium production business of Vanchem Vanadium Products (VVP), a subsidiary of Duferco
- the ferrovanadium production business of South African Japan Vanadium Proprietary Ltd (SAJV), a wholly owned subsidiary of VVP and Duferco;
- and Ivanti Resources (Pty) Ltd, a subsidiary of Duferco which has economic rights to certain secondary vanadium units treated within the Vanchem plant

The US$68m agreed purchase price is adjustable for working capital movements in the business being acquired up to the completion date (which has a short-stop date of 31 July 2019 and a long-stop date of 31 October 2019). The total consideration is payable in two tranches:

- US$6.8m in cash immediately, to be held in escrow pending completion of the proposed transaction
- US$61.2m in cash (plus or minus working capital adjustments as described above) on closing of the transaction (no sooner than 31 July 2019, and no later than 31 October 2019)

In addition, VVP will be entitled to 50% of Ivanti waste-reprocessing profits for 12 months post completion of the transaction.

The transaction is subject to regulatory approvals and certain conditions precedent. A break fee equivalent to the US$6.8m escrow amount is payable in the event of non-completion under certain circumstances.

Financing through internal cash flow and debt

The initial US$6.8m escrow payment is being funded from existing cash resources (we estimate Bushveld ended 2018 with a consolidated cash position of around £31m). The US$61.2m balance will be funded through existing cash, future cash flow from Vametco and, to the extent necessary, debt facilities (for which Bushveld is currently in negotiations).

Vanchem: long-established vanadium production facilities

The Vanchem facility has been operating since the late 1970s, processing a combination of ore feed from the Mapochs vanadium mine to the northeast and vanadium-bearing slag material from the adjacent Highveld Steel & Vanadium (HS&V) operations. HS&V closed Mapochs in 2015, halting Vanchem's main source of feed supply which ultimately resulted in the plant being placed under care and maintenance later that year. After being taken out of business rescue by Duferco, the Vanchem plant was partially re-started in Q3 2018, using magnetite ore procured from third parties as feedstock. It is currently producing at a rate of around 80t V per month (equating to an annualised rate of 960t).

The Vanchem plant employs the industry-standard salt-roast beneficiation process and can produce a range of vanadium products including oxide concentrates, FeV and vanadium chemicals. Installed equipment includes: a mill and magnetic separation concentrator for treating magnetite or feed; a roast/leach facility with three kilns; an ammonium poly-vanadate precipitation plant; a de-ammoniation/vanadium-trioxide plant; vanadium pentoxide (V_2O_5) flake production facilities; ferrovanadium production capacity (including an electric smelting facility); and a vanadium chemical production facility.

VVP's unaudited FY2018 accounts showed pre-tax profit of R142m (US$10m using a US$1:R14 exchange rate assumption) and gross assets of R1,174m (US$84m).

SAJV: complementary business adds operational flexibility

SAJV is located at the mothballed HS&V operations site, approximately 10km from the Vanchem plant. It comprises an alumino-thermic smelting facility (which converts V_2O_5 to FeV) located adjacent to Vanchem's electric smelting facility (which converts vanadium trioxide to FeV).

SAJV's unaudited FY2018 accounts showed pre-tax profit of R7m (US$0.5m) and gross assets of R28m (US$2m).

Ivanti: waste retreatment enhances overall vanadium recovery

Calcine waste from Vanchem is deposited on a dump facility close to the plant. Owing to the water content in the calcine, rainfall and dust suppression requirements, additional leaching of the residual vanadium units takes place on the calcine dump. This leachate is pumped and further processed at the Vanchem plant, contributing significantly to the plant's overall vanadium recovery.

Ivanti owns the economic benefits of the calcine dump and profits therefrom, generating revenue through the sale of the leachate to Vanchem for further treatment.

Ivanti's unaudited FY2018 accounts (which capture the performance of the calcine benefits following on from the limited recommissioning of the Vanchem plant from the September quarter) showed pre-tax profit of R10m (US$0.7m) and gross assets at year-end of R55m (US$4m).

Figure 2: Vanchem has flexibility to produce a range of vanadium products

Source: Bushveld Minerals

Bushveld's post-acquisition integration plans target 4,200t pa

Vanchem has enough ore supply from third parties to support its current level of production for some time, though Bushveld retains the option to supply the plant with magnetite concentrates from Vametco in the near term.

Bushveld estimates that Vanchem's production rate can be raised to 4,200t pa through a US$45m refurbishment programme to be rolled out over a five-year period from completion of the transaction. This will comprise three phases, designed to progressively bring the other two kilns and all associated production units into full production while investing in appropriate environmental management infrastructure.

Feedstock ore for the expanded operation is planned to be sourced from Bushveld's 64%-owned Mokopane project, which lies 200km to the north of Vanchem with established road and rail infrastructure between the two. Development of this 298Mt resource as a mining and simple ore concentrating (magnetic separation) can commence on receipt of a mining licence, at a capital cost estimated by Bushveld of just US$20m. The purchase of Vanchem therefore facilitates and supports the development of Mokopane at lower cost (a 2016 PFS estimated capex of US$298m to develop the project on a standalone basis at a scale of 5,300t V pa) and in shorter order than would be achievable otherwise, with Vanchem and Mokopane set to become a fully-integrated mining and processing business, like Vametco.

Bushveld plans to fund the estimated Vanchem refurbishment capex of US$45m (over a five years) and Mokopane development capex of US$20m through a combination of internal cash flows and, to the extent necessary, debt facilities (currently being negotiated).

Together with a previously disclosed planned expansion of production capacity at Vametco to c5,000t pa, the refurbishment of Vanchem and integration with Mokopane would thus put Bushveld well on course to achieving its 10,000t pa low-cost vanadium production ambition.

V fundamentals remain solid despite market correction

The proposed acquisition of Vanchem will materially increase Bushveld's exposure to vanadium, a commodity that we continue to believe has highly compelling fundamentals despite a recent market retracement.

Vanadium prices have fallen sharply since mid-March, coming off what had hitherto appeared an established plateau around the US$70-75/kg V (FeV basis) level to a low of around US$40-45/kg in mid-April. As of publishing, prices appear to have found support around the US$45-50/kg level. In our view, the downwards volatility, reportedly on relatively low volumes, over recent weeks reflects a combination of four main factors:

1) a slowdown in Chinese buying in Q1 2019 following domestic stockpiling in Q4 2018 ahead of the introduction of more stringent steel rebar manufacturing laws (which prompted a spike in prices to an all-time high in late November 2018). Media reports suggest this was exacerbated by a seasonal slow-down in steel manufacturing around the Chinese New Year in February, but also by Chinese steel mills awaiting the implementation in April of an announced reduction in VAT for manufacturers before restocking raw materials;

2) a degree of tolerance being shown by Chinese authorities in the stringency of enforcement of new rebar strength regulations, which came into force in November 2018;

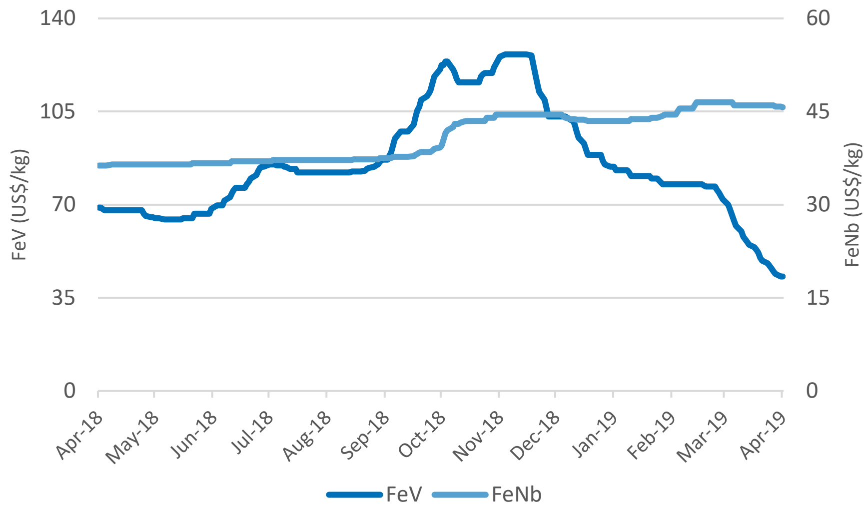
3) some degree of substitution with ferroniobium amongst rebar manufacturers given the sharp increase in ferrovanadium prices across 2018 (Figures 3 and 4);

4) and, potentially, some increase in co-production from magnetite iron-steel operations (given haematite iron-ore production interruptions in Brazil) and primary supply from stone-coal (vanadium-bearing shales) operations given the high prevailing vanadium prices through 2018

Figure 3: Chinese imports of FeNb and intensity of usage have increased with global FeV prices over the past two years

Source: CRU

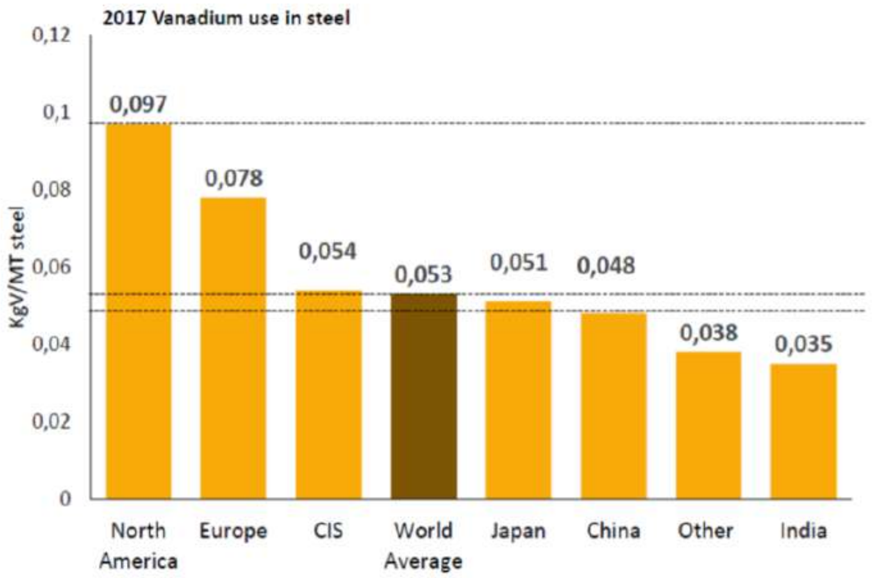
Figure 4: FeNb prices continued to rise across Q1 2019 as FeV prices receded



Source: Bloomberg and vandiumprice.com

We think all four factors could prove transient. We expect trading volumes in China to recover as steelmakers return to the market, and we also believe that the new regulations on rebar standards will be increasingly enforced over time. The latter should drive up specific vanadium consumption rates in China closer to levels prevalent in developed economies (Figure 5), in turn materially increasing global demand. Were China to move to global average levels of vanadium usage in steel, we estimate global vanadium demand could increase by around 4kt (equating to c4% of the 2018 market). Were it to reach European or North American levels, global demand could rise by 20-40kt (equating to over 20-40% of the current market).

Figure 5: Chinese intensity of vanadium usage in steel greatly lags developed world



Source: Bloomberg and vandiumprice.com

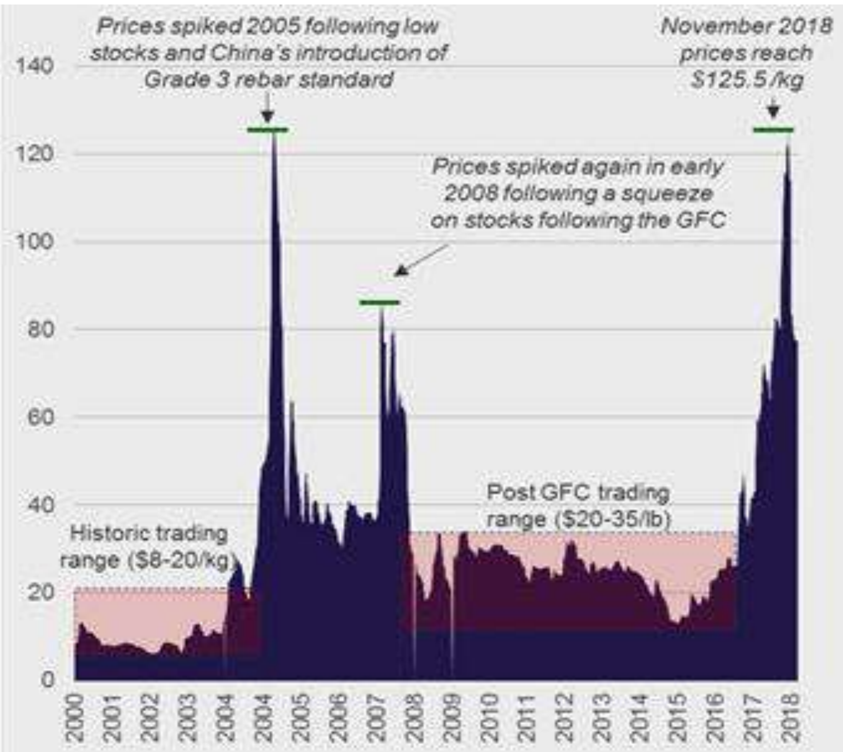
While some substitution with ferroniobium by the steel market has undoubtedly occurred (according to commodity consultant CRU, Chinese imports of FeNb increased by around 6-8kt in Q4 2018 alone), we believe this may be reaching its limit. The niobium market is even more concentrated than the vanadium market (one mine accounts for c80% of supply, creating obvious supply risks for end users) and is operating at close to capacity (though the dominant producer has announced expansion plans). Moreover, given the relative price movements of these two steel raw materials over recent months, the economic case for substitution is diminishing.

We also believe that current vanadium pricing levels make the economics of the commercial roll-out of vanadium redox-flow battery (VRFB) technology far more compelling than when vanadium was sitting at the elevated levels of late last year. We have long argued that the emerging VRFB end-use market could pick up slack in demand from the traditional steel end-use market given lower vanadium pricing makes the technology far more viable.

On the supply side of the equation, we believe the recent pullback in pricing will curtail attempts to increase typically high-cost stone-coal primary production, which has historically been a swing source of global supply. We also think it diminishes the prospects of greenfield primary projects attracting finance to develop.

We are therefore cautiously optimistic that prices will recover somewhat from current levels in the near-to-medium term, and that long-term 'normalised' prices will exceed historic averages owing to the structural change in the market that has played out over recent years (greatly diminished co-product supply growth capacity given the global move away from vanadium-bearing magnetite-based steelmaking in favour of non-vanadium-bearing haematite iron-ore-based steel mills). We note that, over the past 20 years, vanadium prices have spiked on three distinct occasions (in 2005, 2008 and 2018), bridged by periods of relatively lower pricing and volatility levels. Interestingly, the average pricing level in post-spike 'normalised' periods tends to exceed that of prior periods.

Figure 6: Historically, price spikes have been followed by periods of lower volatility

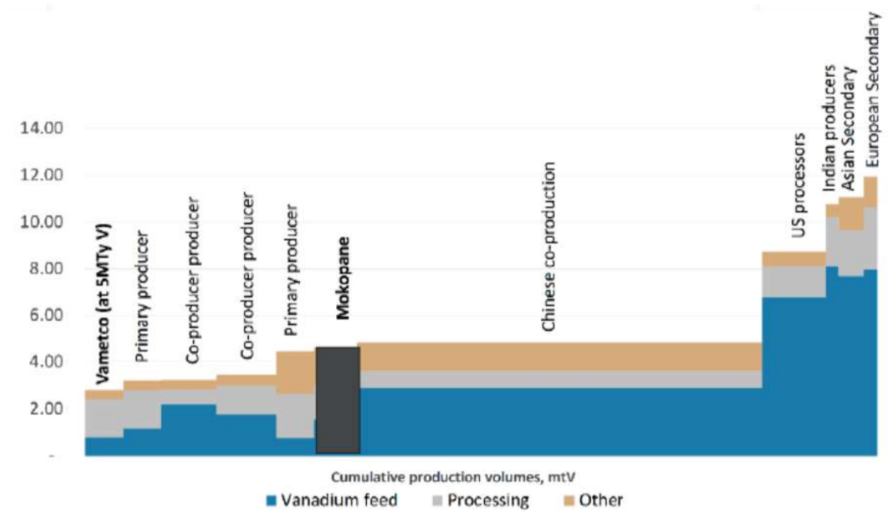


Source: CRU

Despite being somewhat higher than the ten-year average market price of just over US$30/kg, **we thus continue to believe US$45/kg V to be an appropriate long-term FeV pricing assumption** to use in our equity forecasts. However, reflecting the sharp market pullback over recent weeks, **we have lowered our 2019 FeV price assumption from US$80/kg V previously to US$60/kg** (some cUS$10-15/kg higher than current market pricing, but US$10/kg lower than the year-to-date average), and have brought our long-term deck of US$45/kg forward by one year, to 2021.

Given Vametco's inherent low-cost structure – which will place it firmly towards the bottom end of the industry cost curve once optimally expanded (Figure 7) – and the expected low operating costs of Vanchem-Mokopane, we believe Bushveld will continue to be able to maintain solid margins even at current vanadium market pricing levels.

Figure 7: Vanadium production cost curve (V_2O_5 basis – US$/lb)



Source: Bushveld Minerals

Valuation

We have updated our pre-Vanchem deal sum-of-parts valuation for our downwardly revised near-term vanadium price assumptions and a rolling forward our cash-flow model. We maintain our long-term vanadium pricing assumption of US$45/kg (FeV basis, from 2021). The net result is a risked NAV estimate of 45p, which represents over 80% upside to Bushveld's current share price.

*Figure 8: Base-case sum-of-the-parts valuation**

		Unrisked US$m	Risk multiple	Risked US$m	Risked GBp/s
Vametco (BMN attributable)	$NPV_{10\%}$	531	1.00x	531	36.5
Mokopane (BMN attributable)	$NPV_{10\%}$	307	0.25x	77	5.3
Brits	nominal	25		25	1.7
AfriTin Mining (17.5%)	market	4		4	0.3
Lemur Resources	nominal	10		10	0.7
Corporate G&A	$NPV_{10\%}$	(28)		(28)	(1.9)
EV		**849**		**619**	**42.5**
Cash (end-2018)	estimate	41		41	2.8
NAV		**890**		**660**	**45.4**

**Assumes long-term (from 2021) US$45/kg V price and R14.00:US$1 FX rate* *Source: ARC estimates*

Figures 9-10 illustrate the sensitivity of our risked NAV estimate to vanadium price and ZAR:USD exchange rate assumptions. Note that our NAV would remain comfortably positive at FeV prices considerably below current market levels.

Figure 9: Risked NAV (GBp) sensitivity to V price (flat from 2020) and FX rate*

		Ferrovanadium price (US$/kg V)						
		25	**35**	**45**	**55**	**65**	**75**	**85**
USD/ZAR rate	**12.00**	12	26	41	56	72	87	102
	13.00	14	28	43	58	74	89	104
	14.00	15	30	**45**	60	75	91	106
	15.00	17	32	47	62	77	92	108
	16.00	18	33	48	63	78	94	109

**Our base-case NAV assumes a long-term FeV price of US$45/kg from 2021* *Source: ARC estimates*

Figure 10: Risked NAV (GBp) sensitivity to V (flat from 2020) and discount rate*

		Ferrovanadium price (US$/kg V)						
		25	**35**	**45**	**55**	**65**	**75**	**85**
Discount rate	**15%**	12	22	32	42	53	63	73
	12%	14	26	39	52	65	77	90
	10%	15	30	**45**	60	75	91	106
	8%	18	35	53	72	90	108	127
	5%	22	47	71	97	122	147	172

**Our base-case NAV assumes a long-term FeV price of US$45/kg from 2021* *Source: ARC estimates*

We will update our valuation on completion of the Vanchem acquisition and once more detail emerges on operating costs and timing of the proposed integration with Mokopane. However, **our preliminary analysis suggests the NPV (inclusive of purchase cost) of an integrated Vanchem-Mokopane operation at 4,200t pa is likely to be higher than our current NPV estimate of Mokopane on the standalone 2016 PFS case**. Moreover, Vanchem's status as an established producer would greatly reduce the delivery risks attached to our Mokopane valuation.

Summary operating and financial forecasts

Figures 11-15 below and over page summarise our base-case operating and financial forecasts for the next three years, updated to incorporate our revised vanadium pricing assumptions.

As with our valuation, we will update our forecasts on completion of the Vanchem acquisition and once more detail emerges on the operating economics for the proposed integration with Mokopane. However, **given Vanchem is currently producing at a rate of 960t pa, and generated pre-tax profit in its first few months of re-commencing operations in 2018, we would expect the acquisition to prove accretive to earnings**.

Figure 11: Summary Vametco operational forecasts and macro assumptions

		2017*	2018E	2019E	2020E	2021E	2022E
Vametco vanadium production	t	2,649	2,560	3,000	3,400	4,200	5,000
V_2O_5 equivalent	t	4,729	4,570	5,356	6,069	7,498	8,926
Vanadium sales	t	2,721	2,573	3,000	3,400	4,200	5,000
Ferrovanadium market price assumption	US$/kg V	32.60	81.20	60.00	52.50	45.00	45.00
Cash production costs (on-site costs & freight)	US$/kg V	16.42	19.65	17.07	16.40	15.00	14.31
Total cash costs (incl royalties, marketing & G&A)	US$/kg V	20.94	30.30	24.92	23.28	20.82	19.92
Operating cash margin	%	*30%*	*60%*	*58%*	*55%*	*53%*	*55%*
All-in costs (incl depreciation)	US$/kg V	21.49	31.64	26.45	25.24	22.39	21.10
All-in margin	%	*29%*	*58%*	*55%*	*51%*	*49%*	*52%*
South African Rand	ZAR:USD	13.30	13.20	14.00	14.00	14.00	14.00
GB Sterling	USD:GBP	1.29	1.34	1.30	1.30	1.30	1.30

**Bushveld did not assume majority control of Vametco until end 2017* *Source: ARC estimates*

Figure 12: Summary Bushveld Minerals consolidated income statement

Year-end 31 Dec		2017*	2018E	2019E	2020E	2021E	2022E
Revenue	£m	2.2	144.4	136.4	135.2	143.2	170.5
Cost of sales	£m	(1.1)	(48.9)	(50.6)	(55.4)	(61.0)	(68.5)
Other income	£m	0.0	0.9	0.8	0.8	0.9	1.0
Selling & distribution costs	£m	(0.2)	(6.4)	(6.3)	(6.5)	(7.2)	(8.6)
G&A and other costs	£m	(3.9)	(11.5)	(9.1)	(9.1)	(9.1)	(9.1)
Operating profit/(loss)	**£m**	**(3.0)**	**78.5**	**71.2**	**65.1**	**66.8**	**85.4**
Net finance costs	£m	(0.8)	(0.7)	(0.4)	(0.4)	(0.2)	0.0
Impairments	£m	(0.5)	0.0	0.0	0.0	0.0	0.0
Share of profit/(loss) from associates*	£m	3.6	0.0	0.0	0.0	0.0	0.0
Tax	£m	(0.0)	(23.4)	(21.1)	(24.3)	(26.5)	(29.0)
Net profit/(loss)	£m	**(0.7)**	**54.4**	**49.6**	**40.4**	**40.1**	**56.4**
Minority interests	£m	(0.3)	(15.6)	(14.1)	(11.7)	(11.5)	(15.7)
Attributable net profit/(loss)	£m	**(1.0)**	**38.8**	**35.5**	**28.7**	**28.5**	**40.7**

**Bushveld did not assume majority control of Vametco until end 2017* *Source: ARC estimates*

Figure 13: Summary Bushveld Minerals consolidated cash flow statement

		2017*	2018E	2019E	2020E	2021E	2022E
Operational CF before WC changes	£m	(2.9)	56.1	53.5	45.9	45.3	60.9
Working capital changes	£m	(1.1)	(20.1)	7.0	0.1	(2.4)	(4.4)
Cash flow from operations	**£m**	**(4.1)**	**36.0**	**60.5**	**46.0**	**42.9**	**56.5**
Capex	£m	0.0	(8.5)	(7.5)	(11.5)	(4.8)	(2.3)
Other	£m	3.3	(16.9)	(2.0)	(1.6)	(20.2)	0.0
Cash flow from investing activities	**£m**	**3.3**	**(25.3)**	**(9.5)**	**(13.1)**	**(25.0)**	**(2.3)**
Equity issue and warrant exercises	£m	1.7	18.8	0.0	0.0	0.0	0.0
Net borrowings	£m	6.4	(5.1)	0.0	0.0	0.0	0.0
Dividends to minorities	£m	0.0	0.0	0.0	(17.6)	(23.9)	(14.4)
Other	£m	0.0	(0.7)	(0.4)	(0.4)	(0.2)	0.0
Cash flow from financing activities	**£m**	**8.1**	**13.0**	**(0.4)**	**(18.0)**	**(24.1)**	**(14.4)**
Increase/(decrease) in cash	£m	7.3	23.7	50.6	14.9	(6.3)	39.8

**Bushveld did not assume majority control of Vametco until end 2017* *Source: ARC estimates*

Figure 14: Summary Bushveld Minerals consolidated balance sheet

		2017*	2018E	2019E	2020E	2021E	2022E
Cash	£m	7.2	30.9	81.5	96.3	90.1	129.9
P,P&E	£m	32.9	38.8	42.8	49.2	48.9	46.7
Intangible assets	£m	45.1	45.9	46.2	46.2	46.2	46.2
Other assets	£m	33.8	49.9	40.2	41.0	43.3	48.3
Total assets	**£m**	**119.1**	**165.5**	**210.7**	**232.7**	**228.6**	**271.2**
Payables	£m	15.0	9.4	24.2	31.3	21.8	24.7
Debt	£m	5.8	0.0	0.0	0.0	0.0	0.0
Other liabilities	£m	18.8	23.8	25.4	26.8	7.0	7.0
Total liabilities	**£m**	**39.6**	**33.1**	**49.6**	**58.1**	**28.8**	**31.7**
Shareholders' equity	£m	52.5	89.7	104.4	123.8	161.4	199.8
Non-controlling interests	£m	27.0	42.6	56.7	50.8	38.4	39.7
Total equity	£m	79.5	132.3	161.1	174.6	199.8	239.5
Total liabilities & equity	**£m**	**119.1**	**165.5**	**210.7**	**232.7**	**228.6**	**271.2**

**Bushveld did not assume majority control of Vametco until end 2017* *Source: ARC estimates*

Figure 15: Key financial measurements and ratios

		2017E*	2018E	2019E	2020E	2021E	2022E
EBITDA	£m	0.7	81.1	74.7	70.2	71.8	89.9
EBITDA margin	%	30%	56%	55%	52%	50%	53%
EBIT	£m	0.1	78.5	71.2	65.1	66.8	85.4
EBIT margin	%	3%	54%	52%	48%	47%	50%
EPS	GBp	(0.1)	3.9	3.2	2.6	4.1	5.8
Net profit margin	%	na	27%	26%	21%	20%	24%
Free cash flow	£m	(0.8)	10.7	51.0	32.9	17.9	54.2
Net cash/(debt)	£m	1.4	30.9	81.5	96.3	90.1	129.9
EV/EBITDA (fully consolidated)	x	na	3.0	3.3	3.5	3.4	2.7
EV/EBITDA (equity attributable)	x	na	4.2	4.5	4.8	4.7	3.7
P/E	x	na	6.3	7.7	9.5	6.1	4.2
FCF yield	%	na	3.8%	18.4%	11.9%	6.4%	19.5%

**Bushveld did not assume majority control of Vametco until end 2017* *Source: ARC estimates*

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