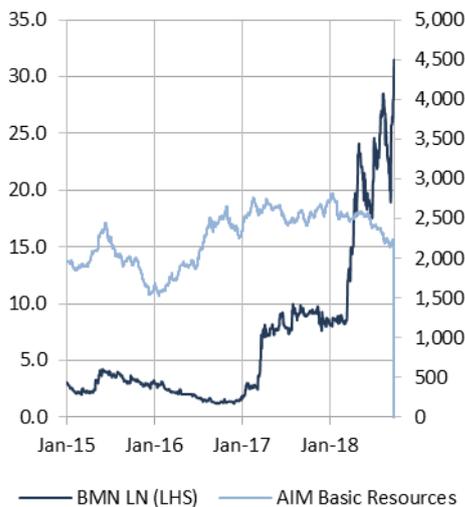


10 October 2018

Stock Data

Ticker	BMN LN
Share Price:	27.9p
Market Cap:	£309m

Price Chart



Vanadium prices continue to rise on shortage of vanadium pentoxide as new rules on vanadium in steel come into force in China

Valuation: we have raised our valuation to **37p** from **34p** on higher than expected ferro-vanadium prices for this year and raised expectations for ferro-vanadium through 2019.

(Bushveld Minerals now hold 74% of Vametco)

- Vanadium prices continue to rise driven by China's drive to reduce pollution and new standards increasing the proportion of vanadium used in steel for construction, mainly rebar.
- China's Green Shield strategy has caused many major steel producers to switch to cleaner and higher grade Australian iron ore which contains much less vanadium for byproduct production
- Ferro-vanadium prices jumped another 6% higher to US\$112-116/kgV in Western Europe this week according to Metal Bulletin.
- Asian Metals also report a vanadium of US\$117.5/kgV for ferrovanadium in China.
- The Metal Bulletin report US\$104-110/kgV for China.
- Metal Bulletin's trade log gives a useful view of the trade in ferro-vanadium and vanadium pentoxide with trades showing up to 28 September.

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Vametco plant assuming 100% ownership		2017	2018	2019	2020	2021	2022
Price V2O5	\$/lb	6.4	19.5	10.3	7.9	7.9	7.86
Ferro Vanadium	US\$/kg	32.6	82.2	45.0	35.0	35.0	35.00
Vanadium sales	kg	2721	2850	3750	4370	5000	5,000
Sales	US\$m	82.0	216.4	155.9	141.3	161.7	161.70
Operating costs	US\$m	58.2	98.2	79.1	88.8	100.0	100.03
Operating costs	US\$/kg	21.4	34.5	21.1	20.3	20.0	20.01
Operating profit	US\$m	23.7	118.2	76.9	52.5	61.7	61.67
Pre-tax profit	US\$m	23.5	117.2	75.5	51.0	60.1	60.04
tax	US\$m	6.7	33.4	21.5	14.5	17.1	17.11
Post-tax profit	US\$m	16.8	83.8	54.0	36.5	43.0	42.93
EPS	US\$/c/s	1.5	7.6	4.9	3.3	3.9	3.868
PE	x	24.0	4.8	7.5	11.1	9.4	9.4
EV/EBITDA	x	17.0	3.4	5.3	7.7	6.5	6.5
EBITDA	US\$m	23.74	118.19	76.87	52.48	61.67	61.67
Free Cash Flow	US\$m	23.49	114.70	75.49	51.01	60.12	60.04
Attributable Cash Flo	US\$m	74.00%	17.38	84.88	55.86	37.75	44.49

*SP Angel act as Nomad and broker to Bushveld Minerals. *An SP Angel mining analyst and nomad have visited the Vametco vanadium mine and processing facilities in South Africa.

Bushveld Minerals Cont....

Model Assumptions:

- The high price of vanadium is reporting to be causing some substitution of ferrovanadium with ferroniobium though this does not appear to be affecting the rise in prices at this stage.
- Asian Metals in Beijing report a shortage of vanadium pentoxide is driving prices and this will not change in the short term.
- We also expect some incremental increases in production from primary vanadium producers though primary vanadium only makes up 17% of the global supply.
- Some new byproduct production from graphite production may also come to the market in future years though difficulties in vanadium extraction from this source may delay its introduction.
- We are raising our price assumptions for vanadium to US\$82.17/kgV from US\$77.8/kgV for 2018 and to US\$45/kgV from US\$35/kgV for 2019.
- We are looking at the potential impact of ferro-vanadium substitution with ferro-niobium in the steel industry though we suspect this is may only apply at relatively high price levels.



*Source: Metal Bulletin

- The South African rand remains relatively weak partly due to the impact of South African government statements on the reclamation of farms without compensation and government inaction relating to violence on South African farms.
- The spot rand price is at 14.587 against the US dollar. We assume the spot rand rate for 2019 onwards in our modelling vs a rate of 14.2 previously

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