SPEC BUY

Current Price	$0.12
Target Price	$0.32

Ticker:		SVM
Sector:		Materials
Shares on Issue (m):		276.8
Options (m):		26.3
Market Cap ($m):		34.6
Net Cash ($m):		7.0
Enterprise Value ($m):		27.6
52 wk High/Low:	$0.16	$0.07
12m Av Daily Vol (m):		0.69

Malawi Graphite Resources

	Tonnes Mt	Grade % TGC	Graphite Mt
Malingunde	65.1	7.1	4.6
Duwi	85.9	7.1	6.1

Development Stage	Scoping Study

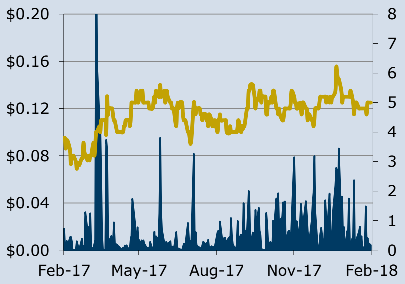
Key Metrics

Capex	US$29m
Steady State EBITDA	A$27mpa
First Production	H1 2020

Board

Ian Middlemas	Chairman
Julian Stephens	Managing Director
Mark Pearce	Non-Executive Director

Share Price Graph and Ave Trading Vol. (msh)



Please refer to important disclosures at the end of the report (from page 11)

Thursday, 1 March 2018

Sovereign Metals

High margin graphite – Site Visit

Analysts | Matthew Keane

Quick Read

Sovereign Metals (SVM) is a rapidly emerging graphite developer with projects in Central Malawi. The Company's most advanced project, Malingunde (100% SVM), is differentiated from other graphite developments by its shallow saprolite host rock which lends itself to free dig mining and negates primary crushing. This results in sector low operating and capital costs. The June 2017 Scoping Study outlined a 44ktpa graphite concentrate operation with upfront development capex of US$29m and average opex of US$301/t (product tonne) over a 17-year mine life. SVM is taking a rational approach to development, intending to produce an undisruptive quantum of product and a focus on established graphite markets such as refractory products. Argonaut sees potential for a low-cost operation able to weather volatile graphite price cycles. Low upfront capex should also decrease financing risk. SPEC BUY recommendation with a $0.32 target price.

Event & Impact | Positive

Malingunde – Saprolite the cost differentiator: Graphite at Malingunde is hosted in an unconsolidated saprolite with free dig potential down to 20-30m. Mineralisation commences just a few metres below surface and the shallow dip leads to a low strip ratio (0.5:1). The saprolite host will reduce front end (comminution) plant capex as well as reduce excavation and power requirements, thus lowering opex.

Quality product: Malingunde has a current resource of 65.1Mt @ 7.1% total graphitic carbon (TGC) at a 4% cut-off, containing a higher-grade resource of 8.9Mt @ 9.9% TGC at a 7.5% cut-off. Initial test work shows that Malingunde has one of the largest coarse flake product distributions outside Tanzania with nearly 50% in the Jumbo and Super Jumbo flake categories. Metallurgical test work has been able to generate 95-97% contained carbon products across all flake sizes using a conventional (flotation) flow sheet.

Scoping Study - High margin potential: The Malingunde Scoping Study outlined a 475ktpa plant producing 44ktpa of 97% TGC concentrate over 17 years. The study targeted a higher-grade portion of the saprolite resource (8Mt @ 10% TGC). Development capex is estimated at US$29m, including US$10m in contingencies, with life of mine (LOM) total operating costs of US$301/t. This generates high margins against Argonaut's conservative basket price of US$800/t. We derive a $73m post-tax NPV_{12} and a 41% IRR for the project.

Regional scale play: We believe there is high potential for repeats of Malingunde on SVM's large ~2,000km^2 land holding in southern Malawi. The Company has already defined a hard rock resource of 85.9Mt @ 7.1% TGC at the Duwi Project to the northeast of Malingunde. SVM controls about 40km of strike along the Malingunde trend which is highly prospective for additional saprolite hosted graphite deposits.

Recommendation

Argonaut values SVM at $0.32/sh and assigns a SPEC BUY recommendation. We apply a conservative US$800/t basket graphite price to our NPV_{12} Malingunde project model. Applying current prices of US$1,100-1,200/t increases our valuation to $0.54-0.61/sh.

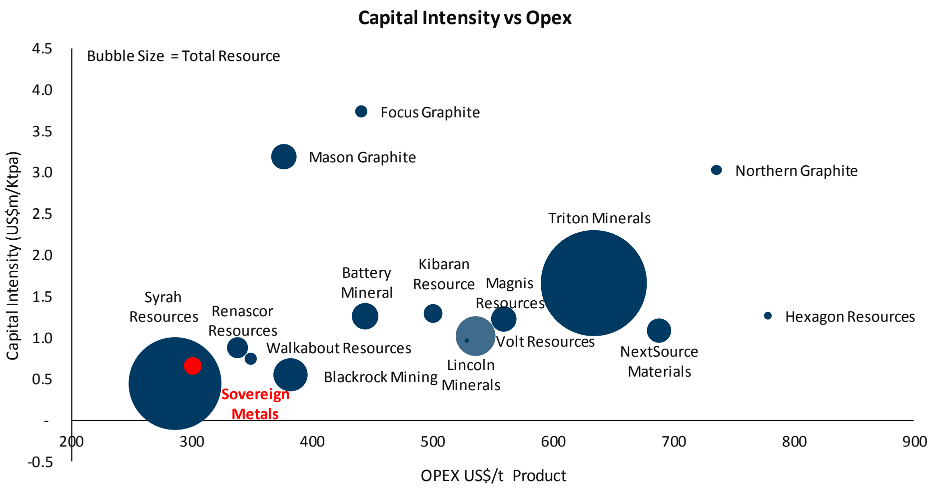
Investment Highlights

Low capital intensity, low opex graphite potential

The free digging, free milling saprolite host rock at Malingunde results in low upfront capex and low operating costs. On this basis the project stands out from its listed peers.

READ MORE

Figure 1: Comparison of capital intensity and operating costs of listed graphite producers and developers



Source: Argonaut, Company reports

Regional scale graphite play

SVM has amassed a district scale graphite play in Central Malawi with high potential for further discoveries.

READ MORE

Low cost transport solution

Argonaut is confident that SVM has found a low-cost rail/logistics solution (~US$65/t) to transport graphite concentrate to the Nacala port in Mozambique.

READ MORE

Leveraged to batteries, but focussed on traditional markets

Lithium ion batteries for electric vehicles (EVs) represent the highest growth sector for graphite demand. However traditional markets still make up 85% of total graphite demand. Whilst this stock remains leveraged to growing EV demand, SVM is taking a rational approach and focussing on traditional industrial graphite markets such as refractories and expendables.

READ MORE

Project overview

SVM has a regional scale graphite play in Central Malawi…

Argonaut recently visited SVM's regional scale graphite assets in Central Malawi. The Company has amassed a land holding of ~2,000km^2 around the country's capital Lilongwe. The eastern tenements have outcropping graphitic gneiss hosting hard rock mineralisation such as the Duwi Deposit (86Mt @ 71% TGC). To the west, deep weathering has broken-down the host geology generating saprolite/saprock above fresh rock mineralisation, as seen at the Malingunde deposit. Note that weathering has not degraded the unreactive graphite, therefore flakes are preserved. The friable saprolite extends to an average 25m vertical depth. Malingunde is the world's largest reported saprolite-hosted graphite deposit with 65Mt @ 7.1% TGC, comprising 28.8Mt saprolite. SVM has accumulated approximately 40km strike along the prospective Malingunde trend following a recent acquisition of additional tenements to the south.

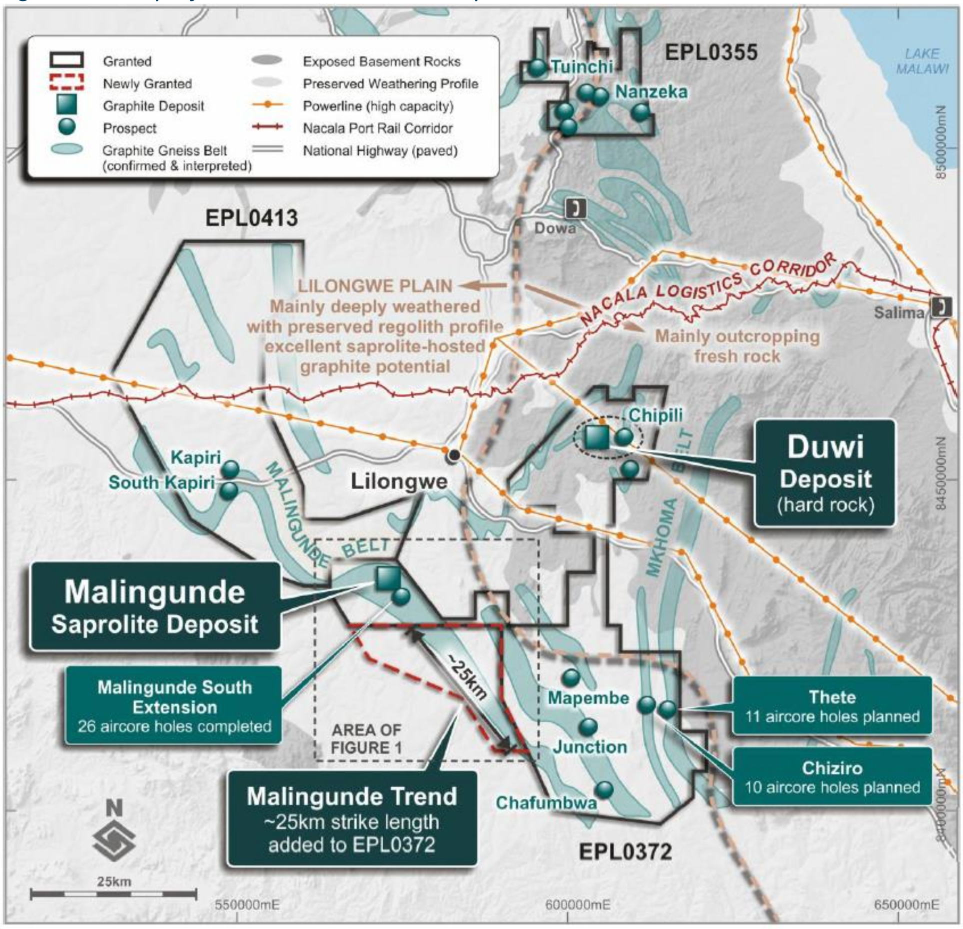
…with the worlds largest saprolite hosted deposit of 28.8kt @ 7.1% TGC at Malingunde

While Malawi is a landlocked country, we believe SVM has a viable transport solution via existing rail to export graphite through ports in Mozambique (detailed below). Malingunde is intersected by existing sealed roads and is 21km from a major electrical substation, making grid power a future consideration. Near surface groundwater should be accessible for processing requirements and close proximity (~20km) to Lilongwe provides access to key support services.

SVM has ~40km strike length along the Malingunde geological trend…

…as well as hard rock deposits and prospects to the East.

Figure 1: SVM project location and asset map



Source: SVM

Positive Scoping Study

The Scoping Study outlined production of 44kt concentrate for 17 years…

The June 2017 Malingunde Scoping Study outlined a 475ktpa plant producing 44ktpa of 97% TGC concentrate over 17 years. The study focused on a higher-grade portion of the saprolite resource (8Mt @ 10% TGC). Development capex is estimated at US$29m, including US$10m for contingencies and indirect costs. LOM total operating costs, incorporating transport and logistics were estimated at US$301/t.

…with industry low capital intensity…

…and lowest quartile operating costs

Table 1: Malingunde estimated capex (upper) and opex (lower)

	Capital Costs
	US$m
Mining	0.4
Capitalised pre-strip	1.6
Processing	10.7
Infrastructure	3.0
Tailings	3.3
Total	**19.0**
Indirect & contingency	*9.9*
Total development capital	**28.9**
Deferred & sustaining	6.1
Total life of mine capital	**35.0**

	Operating Costs		
	LOM total (US$m)	Unit cost (US$/t Feed)	Unit cost (US$/t Conc.)
Mining	32	3.9	42
Processing	94	11.7	126
G&A	51	6.3	69
Transport & Logistics	48	6.0	65
Total	**225**	**27.9**	**301**

Source: SVM

Mining and Processing

Due to the soft rock type, mining will be free digging…

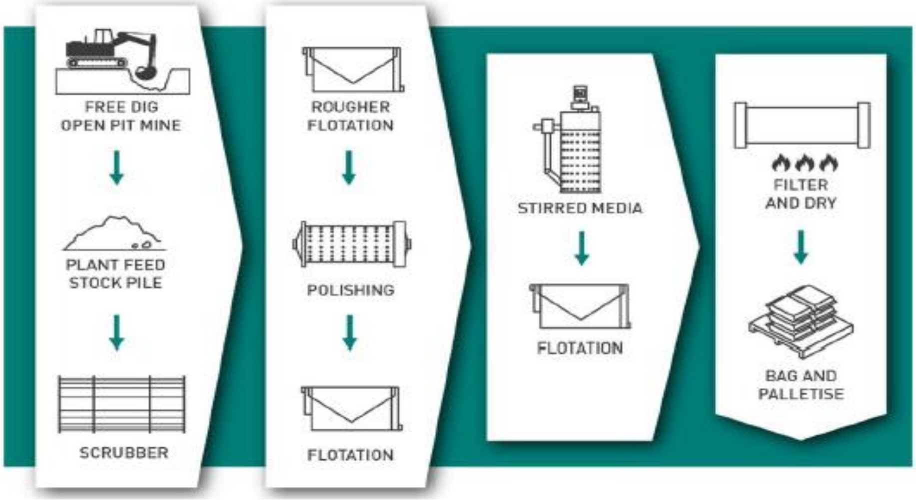
Mining will likely use a conventional truck and shovel setup with relatively small equipment (i.e. ~1,200t excavator and >100t dump trucks). Mining depths will be shallow with a low waste to ore strip ratio of ~0.5:1. Ore will be free digging with no requirement for drilling and blasting.

…and processing free milling

The initial design for processing comprises scrubbing, rougher flotation, polishing grind, cleaner flotation then drying screening and packaging. Notable, there is no primary crushing or grinding due to the soft saprolite ore. The back end of the plant uses conventional circuits common to existing graphite operations. The plant will produce a range of concentrates at varying graphite flake sizes with 95-97% TGC.

Figure 2: Malingunde process flow sheet based on SGS test work

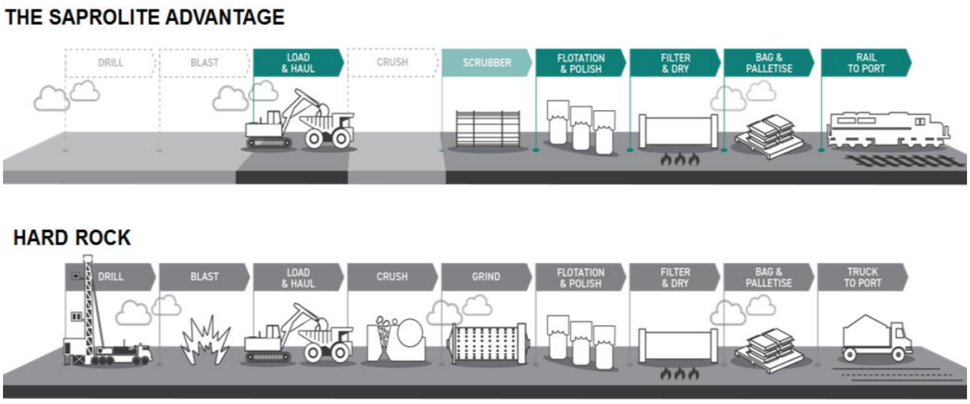
SVM plan to use a conventional process flow sheet…



Source: SVM

Figure 3: The mining and processing steps which are negated by soft saprolite ore versus hard rock.

…however, drilling, blasting and primary crushing can be avoided due to soft ore



Source: SVM

Infrastructure solution

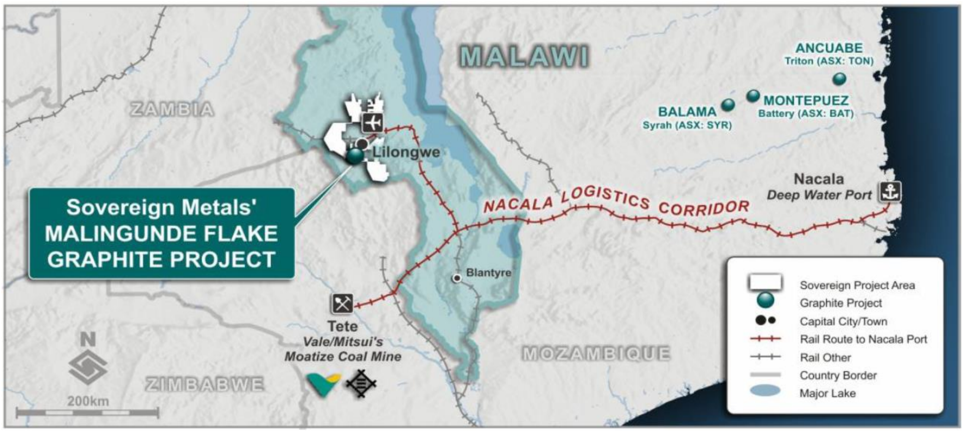
The Company has an MOU with CEAR for rail transport, port handling and logistics…

…for a competitive rate of ~US$65/t

SVM is aiming to export graphite concentrate through the Nacala deep water port in neighbouring Mozambique. In October 2017, the Company entered into a non-binding agreement with Central East African Railways (CEAR) for rail freight, port access and port handling services. CEAR is the joint operator of the Nacala Corridor which runs 988km from Lilongwe to Nacala. Stakeholders of the concession include Vale and Mitsui who transport coal via rail from the Tete /Moatize joint venture in western Mozambique. Total mine gate to port logistic costs are estimated at US$65/t with an allowance of 100ktpa. Argonaut's site visit coincided with a site visit by rail specialist Grindrod Rail who are conducting a rail assessment for SVM. East-West rail from Tete to Nacala is in generally good condition, however the north-south spur line to Lilongwe is operating, but in a poorer condition. However, this line is currently undergoing a US$70m upgrade, funded by a consortium of international companies and investors. It is due to be completed well before any production from Malingunde. Graphite will be bagged and most likely transported in sealed 20ft containers. Nacala has established sea container handling facilities.

Graphite concentrate will be transported to Nacala port via rail

Figure 4: Malingunde product access to port via rail.



Source: SVM

Product will likely be transported to a rail siding in Lilongwe…

…then containerised for transport

Figure 5: Rail siding located in Lilongwe (25km from Malingunde)

Source: Argonaut

Nacala is an established deep water container handling port

Figure 6: Images of facilities at Nacala Port in Mozambique

Source: Correndor De Desenvolvmento Do Norte (CDN)

Low risk market strategy

SVM is targeting traditional refractory and expandable markets…

…but remains leveraged to growing battery demand

SVM is applying a low risk market strategy by targeting existing industrial markets, including refractory, foundry and expandable graphite products. Whilst the battery market offers the highest demand growth, driven by the proliferation of EVs, traditional markets still constitute 70-80% of the total market. While the prospect of selling into the battery graphite market is by no way being excluded, the Company has no immediate plans to develop advanced processing, such as Spheroidisation for downstream battery products. We believe SVM will not need to explore the battery market for offtake as its high quality, large flake product should attract high demand from existing markets. Note that larger flakes oxidise slower thus increasing usage life.

Malingunde has a high distribution of jumbo and super jumbo flake sizes…

Table 2: Malingunde metallurgical test results by flake size

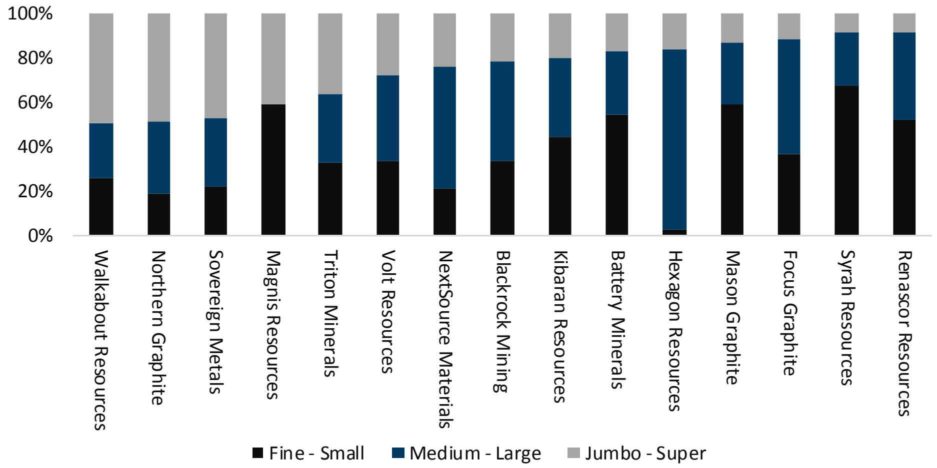
MALINGUNDE 2017 FLOTATION RESULTS – TEST #F13				
PARTICLE SIZE		C (%)	Distribution (wt. %)	Flake Category
Tyler Mesh	(µm)			
+ 32	+ 500	97	14	Super jumbo
+ 48	+ 297	96	33	Jumbo
- 48 + 80	- 297 + 177	97	25	Large
- 80 + 100	- 177 + 149	97	6	Medium
- 100 + 200	- 149 + 74	97	17	Small
- 200	- 74	95	5	Amorphous
TOTAL		97	100	

Source: SVM

The Malingunde flake distribution compares favourably to other listed graphite developers and producers with one of the highest proportions in the Jumbo and Super Jumbo mess sizes. We also note that the project has a very low proportion of amorphous (non-flake/crystalline graphite).

…which compares favourably to other listed graphite plays

Figure 7: Listed graphite developer and producer flake size distribution



Source: Argonaut, Company Reports

District scale play

Argonaut sees a high potential for further graphite discoveries on SVM's large tenement holding…

Argonaut sees a high probability of further large-scale graphite discoveries given the scale of SVM's tenement holding, the lack of exploration, and shallow cover which masks saprolite surface expression. We highlight that SVM has successfully pegged 80% of the prospective area in Central Malawi. Key target areas include:

South Malingunde: Air Core (AC) drilling in late-2017 identified high grade extensions to the south of the Malingunde deposit with long intercepts including; 21m @ 14.8% TGC and 12m @ 14.5% TGC

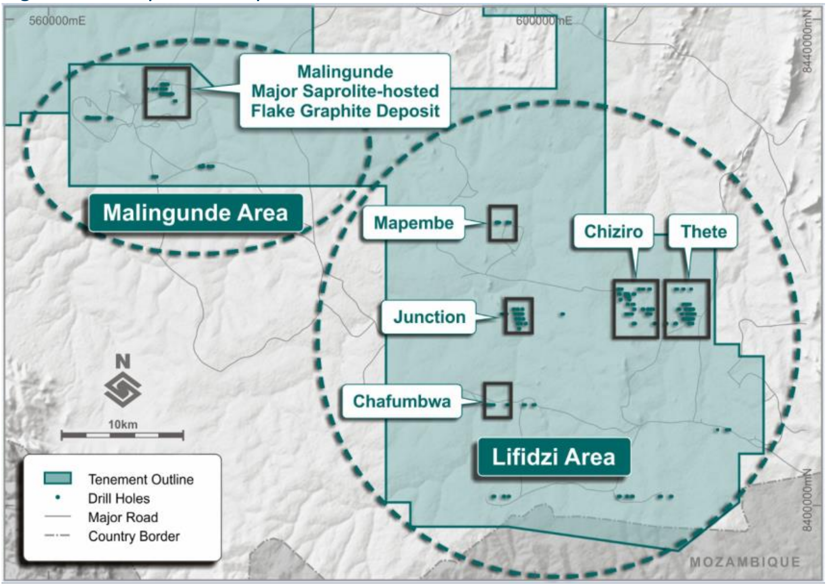
Chiziro: High grade graphite has been exposed in a local borrow pit. SVM attempted to drill this prospect prior to the last wet season, but had to abandon the program due to rain. Argonaut visited this prospect during our site visit and noted the presence of near surface very high-grade mineralisation.

25km Southern Extension Tenement: We also regard the newly acquired lease to the south with 25kms of prospective host rock to be an attractive target for future exploration (see Figure 1 above).

…with very few identified targets tested to date

Other regional targets, which were identified prior to the Malingunde discovery and require follow up, include Mapembe, Thete, Chafumbwa and Junction. SVM is likely to refocus on regional exploration once the Malingunde Definitive Feasibility Study (DFS) Ore Reserve drill-out is completed in late-2018.

Figure 8: Prospective exploration sites



Source: SVM

Development timeline

Argonaut predicts first production in H1 2020

A Prefeasibility Study (PFS) on the Malingunde project is currently underway, due for completion by the end of Q2 2018. This should be followed by a DFS in late 2018. An Environmental Impact Assessment (EIA) is being prepared in conjunction with the DFS and also expected to be completed late-2018. Subsequently, a Mining Licence application will be lodged and hopefully attained in Q1 2019. If construction commences in H1 2019 (subject to permitting and financing), the project should be in production by H1 2020.

Malawi is a developing, but stable jurisdiction…

…likely to offer incentives for new mining ventures such and Malingunde

Malawi an emerging jurisdiction

Malawi is an emerging mining and exploration jurisdiction. The country has an established Mining Act, however we flag this is under review. No materially negative changes are expected from the new Act such as higher royalties or mandatory Government free carried interest. Malawi has a 30% corporate tax rate, 5% royalty on minerals and offers allowances for 10-year Stability Agreements with miners. Historically, the only international listed mining venture was Paladin Energy's (PDN) Kayelekera mine in the north (est. 2009 and placed on care and maintenance in 2014). The country is keen to attract new investment which could lead to attractive development agreements for ventures such as Malingunde.

Argonaut values Malingunde at $67.1M, applying a conservative basket price of US$800/t…

…and derives a sum of parts NAV of $0.32/sh

Valuation

Argonaut derives a post-tax $67.1m NPV_{12} valuation for the Malingunde Project applying a conservative basket graphite price of US$800/t and assuming 100% debt funding. We value the Duwi deposit at $15.3m based on an EV/Resource of $2.5/t TGC and assign $20m to the exploration potential of SVM's district scale land holding in Malawi. Our Duwi valuation is significantly discounted to the sector average EV/Resource of ~10/t TGC. Our sum of parts valuation for SVM is $0.32/sh. We note that applying current prices for Malingunde flake distribution would achieve a basket price of US$1,100-1,200/t, increasing our project NPV_{12} to $129-149m and our SVM valuation to $0.54-0.61/sh.

Table 3: Argonaut's sum of parts valuation for SVM

NAV Valuation		
Sum of Parts	AUD M	AUD / Share
Malingunde Deposit	67.1	0.24
Duwi Deposit	15.3	0.06
Exploration upside	20.0	0.07
Corporate NPV	(22.1)	(0.08)
Cash	7.0	0.03
Debt	-	-
Sub Total	87	0.32

Source: Argonaut

A summary of Argonaut's model and model inputs are tabled below.

Table 4: Argonaut model annual summary

Measure	Metric	2018	2019	2020	2021	2022	2023	//	2037
FX	AUD/USD	0.72	0.72	0.72	0.72	0.72	0.72		0.75
Graphite Basket Price	US$/t	800	800	800	800	800	800		800
Throughput	kt	0	0	238	475	475	475		475
Grade	% TGC	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%		10.0%
Recovery	%	90%	90%	90%	90%	90%	90%		90%
Concentrate Production	ktpa	0	0	22	44	44	44		44
Revenue	A$m	0.0	0.0	23.8	47.5	47.5	47.5		47.5
Capex	A$m	0.0	33.3	8.3	0.5	0.5	0.5		0.5
Opex	A$m	0.0	0.0	9.2	18.4	18.4	18.4		18.4
Project level EBITDA	A$m	0.0	0.0	12.6	25.2	25.2	25.2		25.2
Project Free Cashflow	A$m	0.0	-33.3	3.6	17.9	17.9	17.9		17.9

Source: Argonaut

Malingunde returns an attractive IRR of 41%...

Table 5: Argonaut model inputs versus the SVM Scoping Study

Measure	Metric	Scoping Study	Argonaut Estimate
First Production	Yr	NA	Q1 2020
Mine Life	Yrs	17	17
Inventory	Mt	8.00	8.3
Throughput	ktpa	475	475
Grade	% TGC	10%	10%
Recovery	%	90%	90%
Annual Production	Concentrate (kt)	44	43
Pre-Production Capex	US$m	29	30
FOB Cost	US$/t Concentrate	301	301
AISC	US$/t Concentrate	NA	371
EBITDA Margin	%	NA	53%
Basket Graphite Price	US$/t	Varied	800
Pre-tax NPV_{12}	US$m	NA	73
Post-tax NPV_{12}	US$m	NA	48
Post-tax IRR	%	NA	41%

Source: Argonaut, SVM

Sensitivities

Argonaut provides sensitivities to key variable below.

…and is leveraged to mine life extension and higher prices

Table 6: Argonaut SVM model sensitivities

Capex and Opex

Opex US$/t \ Capex US$m	25	30	35	40
250	83	79	74	69
301	72	67	62	58
350	61	56	51	46
400	49	45	40	35
450	38	33	28	24

Mine Life and Throughput Rate

Milling Rate Mtpa \ Mine Life	10	17	20	25
0.400	52	52	52	52
0.475	67	67	67	67
0.500	72	72	72	72
0.800	133	133	133	133
1.000	173	173	173	173

At current graphite pricing, our model derives an NPV_{12} of $129m to $149m

Price and FX

FX AUD/USD \ Basket Price US$/t	600	800	1,000	1,200
0.70	27	69	111	154
0.72	26	67	108	149
0.75	25	64	104	143
0.80	23	60	97	134
0.85	22	57	92	126

Grade and Recovery

Recovery % \ Grade %TGC	8%	10%	12%	15%
80%	39	56	73	99
85%	44	62	80	107
90%	48	67	86	115
92%	50	69	89	118
95%	52	72	93	123

Source: Argonaut

Key risks

Key risks to this stock include:

Country Risk

Malawi is one of the poorest countries globally with underdeveloped infrastructure. However, this risk is largely offset by recent and ongoing rail infrastructure upgrades and SVM's proximity to the more developed capital of Lilongwe. While civil crime is low by African standards, the country corruption risk ranks 122 of 180 countries globally. We also note that a new Mining Act is in draft (and has been for some time) with changes yet to be defined.

Development risk

While Malingunde is advancing rapidly, it is still early stage having just competed a Scoping Study with a ±35% accuracy. Further studies may lead to material changes in the project development strategy.

Financing risk

While SVM requires low development capital relative to its graphite peers, the US$29m is still high relative to the current market capitalisation (US$35m). We also note that the capital requirements may increase with further studies and flag the tail storage facility (TSF) as the most likely item to increase. That said, the high margin nature of the operation should support a high percentage of debt financing.

Social risk

We noted on our site visit that Malingunde is located close to existing villages which may require relocation planning and funding. We believe SVM may look to exclude minor zones in the south of the deposit to avoid major disruption to existing residents. This is unlikely to have a material impact on the projects mine life or head grade. We also note that the population requiring relocation is very small (est. <200 people) with very basic dwellings. The proposed open pit mine is located on agricultural land which will require either land acquisition or a means of compensation for lost utilisation.

Figure 9: Malingunde site: Left agricultural land, Right proximal local village

Source: SVM

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Important Disclosure
Argonaut holds or controls 357,272 SVM shares.

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