

# JUPITER MINES LTD.

## Manganese Pure Play with a 24% Dividend Yield

### INVESTMENT THESIS

Tshipi is the largest manganese mine in South Africa (by P&P Reserves), a country that supplies 50% of the world's seaborne manganese, a key input in the steel production process. Given Tshipi's at-surface, low-cost nature, it is one of the most profitable manganese mines globally. Jupiter owns a beneficial 49.9% interest in the mine, 49.9% of the manganese product, and pays out effectively the entire portion of its attributable after-tax profits from the mine in the form of dividends to its shareholders. In the most recent fiscal year-ended February 28/19, Jupiter paid dividends totalling \$0.075/share, equating to a current yield of 24.1%. Based on current Proven & Probable reserves, Tshipi has a mine-life of 26 years. Jupiter targets a payout ratio of +70% and carries no debt. We are initiating coverage with a Buy rating and a \$0.65/share price target.

### VALUATION

Our target is based on a blended 75/25 multiple of 1.0x NAVPS<sub>7.5%</sub>, and 6.0x FY2021E CFPS.

### KEY POINTS

- **Steady State Production at 3.6 MMtpy** – Tshipi has consistently grown production since operations began in late-2012. In the most recent fiscal year, the conventional drill-blast-load-haul open-pit mine produced 3.5 MMt, at the consistent grade of 36% Mn.
- **Expansion to 5.0 MMtpy** – Mining operations and the state-of-the-art rail load-out facility can handle an ultimate production rate of 5.0 MMtpy. A small-scale expansion to the crushing circuit is being evaluated at present.
- **Infrastructure Constraints** – Tshipi has been allocated 2.1 MMtpy of rail capacity, with the remaining production from the mine (~1.5 MMtpy) being trucked to various ports.

### Recommendation:

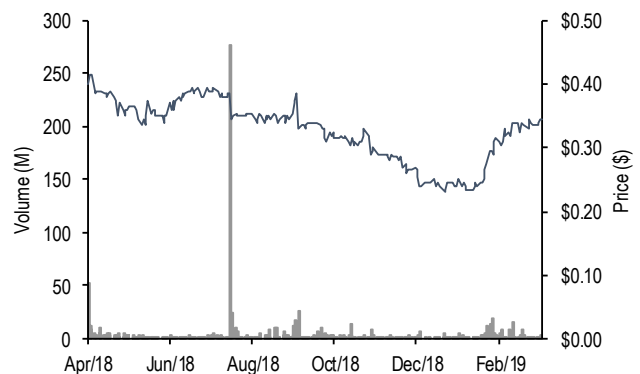
**BUY**

Symbol/Exchange:	JMS-ASX
Sector:	Metals & Mining
<i>All dollar values in AU\$ unless otherwise noted.</i>	
Current price:	\$0.32
One-year target:	\$0.65
Return to Target:	57%
Cash on hand:	\$72.8 MM
Total Cash Incl. Tshipi Attribute:	\$100.0 MM

### Financial summary

Shares O/S (MM)	1,959.0	52-week range	\$0.43 - 0.23	
Market cap (\$MM)	\$626.9	Avg. daily vol. (000)	4,970	
Market float (\$MM)	\$448.3	Fiscal year-end	28-Feb	
	<b>2018A</b>	<b>2019A</b>	<b>2020E</b>	<b>2021E</b>
Manganese Production (Kt)	3,640	3,449	3,300	3,600
Manganese Sales (Kt)	3,340	3,511	3,300	3,600
Average CIF Price (\$/dmu)	\$4.65	\$6.43	\$6.02	\$6.50
Production Cost (\$/dmu)	\$2.71	\$3.10	\$3.42	\$3.40
Distribution (\$/share)	\$0.05	\$0.08	\$0.06	\$0.07
EPS	\$0.04	\$0.09	\$0.06	\$0.08
CFPS (before w/c)	\$0.05	\$0.09	\$0.06	\$0.08

Source: Company Reports and Cantor Fitzgerald Estimates



**Company profile:** Jupiter Mines owns a 49.9% beneficial interest in the world class and exceptionally profitable Tshipi open-pit manganese mine located in the Kalahari Manganese Field in South Africa.

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See disclosure and a description of our recommendation structure at the end of this report.

## SUMMARY AND RECOMMENDATION

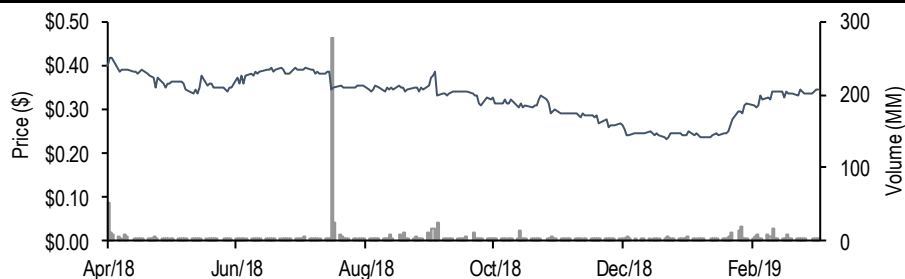
We are initiating coverage of Jupiter Mines Ltd. (JMS-ASX) with a Buy recommendation and a target price of \$0.65/share based on a 75/25 blended valuation of 1.0x NAVPS<sub>7.5%</sub> and 6.0x FY2021E CFPS. Important to note, this is a near-term, 52-week target price, and there are many initiatives that can and likely will be undertaken by Jupiter over the longer-term that would drive our NAVPS/CFPS estimates, and target price considerably higher. Our DCF-based NAVPS is driven via a long-term manganese (37% Mn grade) price deck of US\$5.00/dmtu CIF (cost insurance freight), and our FY2021E CFPS estimate is driven via a shorter-term price forecast of US\$6.50/dmtu CIF. The current manganese spot price (37% dmtu) is quoted at US\$6.20/dmtu CIF (via Metal Bulletin). Jupiter Mines has the ideal combination of a world-class low-cost operating mine, a multi-decade mine life, an excellent working relationship with its Black Economic Empowerment (“BEE”) partner, low-cost conduits in which to grow organically, pristine balance sheet, attractive valuation, and 24% dividend yield. Moreover, we have a definitively bullish view on the manganese price based on the supply/demand fundamentals over the short, medium, and long-term. Jupiter is a company that appeals to virtually every type of institutional investor, given its steep discount to NAVPS (value driven), visible low-cost growth (growth/momentum driven), and double digit dividend yield (fixed income). We are initiating coverage with a Buy rating and \$0.65/share price target and highlight a number of investment highlights and upcoming catalysts over the short-term and long-term that should drive outperformance in the share price. These include:

- **24% Dividend Yield:** Jupiter declared dividends totalling \$0.075/share (\$147 MM of which \$49 MM is payable) over its most recent fiscal year ended February 28/19, equating to a current yield of 24.1%. We note that over the last three years, Jupiter has paid out a total of \$300 MM in dividends and buybacks, well over 50% of its current market cap. While the company has a dividend payout ratio policy of 70%, since its IPO in mid-2018, the payout ratio has been in excess of 90%.
- **Cashed-Up, No Debt:** Jupiter Mines exited FY/19 with \$72.8 MM in cash, and an additional \$27.2 MM in attributable cash within the 49.9%-owned Tshipi subsidiary. Jupiter and Tshipi carry no debt of any kind, and the Tshipi mine has no significant/sizeable capital requirements over the near-term.
- **Long Mine Life:** Based on the 2018 Proven & Probable reserves, that are in the process of being updated, open-pit operations at Tshipi have a 26-year mine life. Based on total JORC compliant resources, the open-pit and potential future underground component at Tshipi would have a total mine-life in excess of 100 years.
- **Low-Cost De-bottlenecking Ongoing:** The mine is already exceptionally profitable, but there are a number of de-bottlenecking initiatives currently underway that will lower costs and improve economics at the margin. These are discussed in more detail later in the report, and include connecting to lower-cost grid power (while keeping current diesel generators in reserve), adding a conveyor from the secondary crusher to the rail load out facility (in lieu of trucking the

crushed material), and accessing low-cost material in the “Boundary Pillar” area.

- **Expansion Potential to 5.0 MMtpy:** The Tshipi mine currently operates at ~3.6 MMtpy, but most of the key infrastructure, namely the rail load out facility, has been engineered and built to handle a production rate of 5.0 MMtpy. An expansion to this rate would be a relatively simple and low-cost process, with the main requirements being an additional primary and secondary crusher operating in parallel with the existing crushing units. All mining and maintenance is done on a contract basis, and, as such, the mining rate could be ramped-up exceptionally quickly and with little additional CAPEX. A Feasibility Study is currently underway to evaluate the expansion to 5.0 MMtpy.
- **Increase in Rail Allocation to Unlock Significant Value:** Discussed in more detail later in the report, Transnet is South Africa’s government-owned freight system that effectively controls transportation logistics throughout the country (rail lines, ports, pipelines, etc.). While Transnet has been an excellent partner to Jupiter/Tshipi, the mine currently receives rail capacity allocation of 2.1 MMtpy, well below its current production rate of 3.6 MMtpy. Any and all material produced at the mine in excess of the currently allocated 2.1 MMtpy rail capacity is trucked, at much higher cost, to seven terminals across four ports in South Africa. Transporting material via the Transnet railway system is approximately ZAR300/tonne (US\$0.60/dmtu) less expensive than trucking the same material to the nearest port in South Africa. To put this in context, total cash operating costs at Tshipi in the most recent fiscal quarter were reported at US\$2.27/dmtu. As such, any additional rail capacity allocation that Jupiter/Tshipi may receive from Transnet in the future is immediately and significantly impactful to margins, earnings, and cash flow.
- **Attractive Valuation:** Jupiter Mines is currently trading well below intrinsic value at 0.45x NAVPS<sub>7.5%</sub>, and in-line with its peers on a P/CFPS basis (3.9x FY2021E vs. peer average of 3.7x forward year). This is despite the fact that Jupiter has a longer-life asset (Tshipi), superior operating margins, pristine balance sheet, and offers a dividend yield of 24%, a full order-of-magnitude higher than any other company in its peer group (Exhibit 21).
- **Manganese Macroeconomic Outlook:** Manganese price indices have approximately doubled over the last three years. The rally can be attributed to both a rise in demand from steel alloy smelters that is expected to continue to trend upwards, and environmental restrictions that boosted manganese ore imports in China. With China’s reduced domestic supply, having fallen by approximately 23% from 2016 levels, a vacuum is created for South African exporters. Several other key supply-side catalysts lend support to continued tight supply-demand conditions that should facilitate manganese price stability. In the medium- and long-term, a number of mine reserves will be depleted, and others forced underground – triggering a shift in the cost-curve, which will likely result in displacement of low-grade producers.

- **Potential for Regional Consolidation:** Tshipi and Mamatwan are both located at the far southern end of the prolific Kalahari Manganese Field, that covers an outcropping area 15 km in width (East-West) and 30 km in length (North-South). The entire 23,000 hectare KMF (including non-outcropping manganese occurrences) is known to contain approximately 80% of the world's in-situ manganese resources, including several smaller scale producing and past-producing open-pit and underground mines. The opportunity may exist in the future for Jupiter Mines to acquire these projects and/or operations, and leverage its existing infrastructure and mining expertise.
- **Potential to Increase Stake in Tshipi?:** At present, Tshipi is 50.1% owned by Jupiter's BEE-partner, Main Street 774 (Pty) Ltd. The requirement for Tshipi in South Africa, as it relates to commercial-scale mining operations, is for the BEE partner to maintain a minimum economic interest of 26.0%. As such, up to a 24.1% economic interest (50.1% less: 26.0%) in the Tshipi Mine may be available for sale at some point in the future with Jupiter being the most logical buyer. Depending on terms, this could potentially be a source of significant accretion for Jupiter's shareholders at some point in the future.

**Exhibit 1. Share Performance since IPO**

Source: FactSet, Cantor Fitzgerald

## BRIEF COMPANY OVERVIEW AND HISTORY

The Kalahari Manganese Field in South Africa is known to contain approximately 80% of the world's in-situ manganese resources. Jupiter Mines owns a 49.9% beneficial interest in the world class and exceptionally profitable Tshipi open-pit manganese mine located in the Kalahari, directly adjacent to (and adjoining) South32's (S32-ASX, Not Covered) Mamatwan operation. It is important to note that the Tshipi orebody is contiguous with, and is the direct extension of, the Mamatwan operation that has been producing manganese for over 50 years. The Tshipi mine began commercial production in late 2012, and has since ramped up to its current nameplate capacity of 3.5 MMtpy, making it the single largest South African manganese mining operation, and the third largest exporter of manganese globally. Jupiter's partner (the 50.1% owner of Tshipi) is the Black Economic Empowerment group (discussed in detail later in this report) Main Street 774 (Pty) Ltd. that is 74%-owned by Ntsimbintle Holdings (Pty) Ltd. and 26%-owned by OM Holdings Ltd. Jupiter Mines is an exceptionally lean company, with only three employees. It is headquartered in Perth, Australia, and listed on the Australian Stock Exchange. A brief company history is outlined below:

2010: On March 1, 2010, Jupiter Mines announced a proposal to acquire 49.9% of the Tshipi Kalahari Manganese Project in South Africa

- from a group of investors including Pallinghurst Resources Ltd. On April 12, 2010, Jupiter Mines received shareholder approval to acquire Tshipi. On November 8, 2010, Jupiter completed the acquisition, and under the terms of the transaction, issued 1.16 BB restricted shares at AU\$0.211/share to Pallinghurst and several other investors in consideration for the 49.9% stake in the Tshipi project.
- 2011: In January of 2011, Jupiter conducted a capital raising of \$150 MM to complete permitting and begin construction of the Tshipi project. On September 14, 2011, construction activities officially commenced at site. By the end of the year, the original Open-Pit Mining Contract was awarded, and pre-stripping was well underway.
- 2012: To fully fund the construction process, in July of 2012, Jupiter raised an additional \$76 MM via a private placement and rights issue. Construction of the mine continued to progress. The rail siding and load-out station was commissioned in Q3/12, the process plant foundation and structure preparation was undertaken, and concrete earth works commenced. On October 16, 2012, the first manganese ore was produced at the mine, three weeks ahead of schedule. By exit November, 2012, the first train was loaded with manganese ore and transported to Port Elizabeth by Transnet. The first seaborne vessel containing Tshipi manganese ore was loaded in December, 2012. The CAPEX spent at Tshipi to complete the mine/process plant/rail load-out facility totalled approximately ZAR 2 BB (\$200 MM) on a 100%-basis. We note that Jupiter's Black Economic Empowerment ("BEE") partner (discussed in more detail later in this report) financed 50.1% of this amount with Jupiter financing the remainder.
- 2013: All construction was completed at Tshipi, and the mine began to ramp-up operations to the targeted rate of 2.4 MMtpy.
- 2014: Production at Tshipi more than doubles year-over-year to over 2.0 MMt of manganese ore.
- 2015: Given weak manganese prices in 2015, Tshipi underwent a number of cost-cutting initiatives and production curtailments to maintain profitability. The mine produced and sold over 1.5 MMt of manganese ore, and maintained positive cash flows in every quarter, despite weakness in the manganese market.
- 2016: Manganese prices rebounded strongly in 2016, and Tshipi was able to take advantage, ramping production back up to 2.3 MMt. Tshipi had a record year in terms of revenue and profitability. The mine began an expansion to 3.6 MMtpy.
- 2017: In February 2017, on the back of its record 2016, Tshipi made its first shareholder distribution of ZAR 1 BB (~\$100 MM). Tshipi distributed a further ZAR 500 MM (~\$50 MM) in September 2017.
- 2018: 2018 was another record year for Jupiter as the Tshipi mine was able to yet again ramp-up production and deliver into a strengthening

manganese price environment. Building on this momentum, Jupiter IPOd on the Australian Securities Exchange, and began trading on April 18, 2018. Sales in the 2018 fiscal year (ended February 28, 2018) totaled 3.3 MMt, and Tshipi distributed another ZAR 1.1 BB (~\$110 MM) to shareholders in March 2018

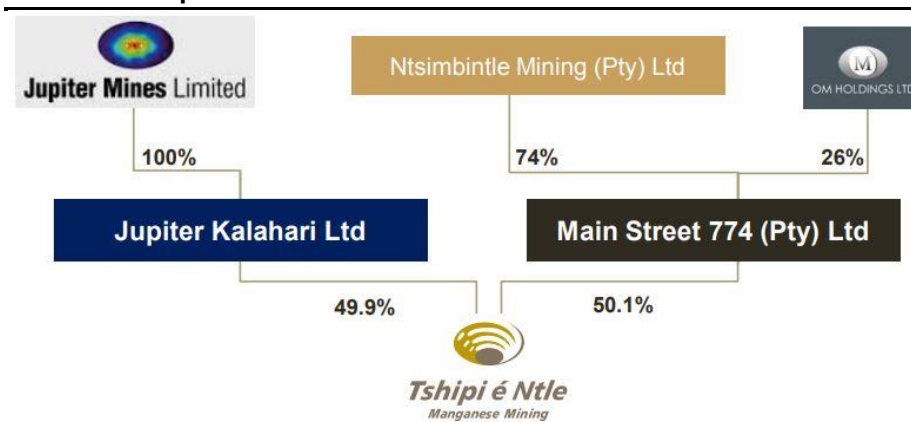
2019: In its 2019 fiscal year (ended February 28, 2019) Tshipi distributed another ZAR 2.1 BB (~\$210 MM) to shareholders, and a further ZAR 1.1 BB (~\$110 MM) in March 2019 (FY 2020). Since initial production began, Tshipi has distributed a total of ZAR 5.8 BB (~\$580 MM) to shareholders, equating to a return of approximately 290% of the original capital back to shareholders. On February 19, 2019, Jupiter declared a final FY2019 dividend of \$0.025/share (\$49 MM) that will be made on May 21, 2019 to shareholders of record as of May 6, 2019.

**Exhibit 2. Jupiter Dividend Distribution History**

Parameter	Unit	FY2017	FY2018	FY2019
Distributions to Jupiter shareholders	A\$ million	\$71	\$82	\$147
Jupiter yield	%	12%	14%	24%
Jupiter yield on IPO price (\$0.40)	%	9%	11%	19%
Average manganese price	US\$/dmtu	\$4.37	\$4.69	\$6.00

Source: Jupiter Mines

**Exhibit 3. Corporate Structure**



Source: Jupiter Mines

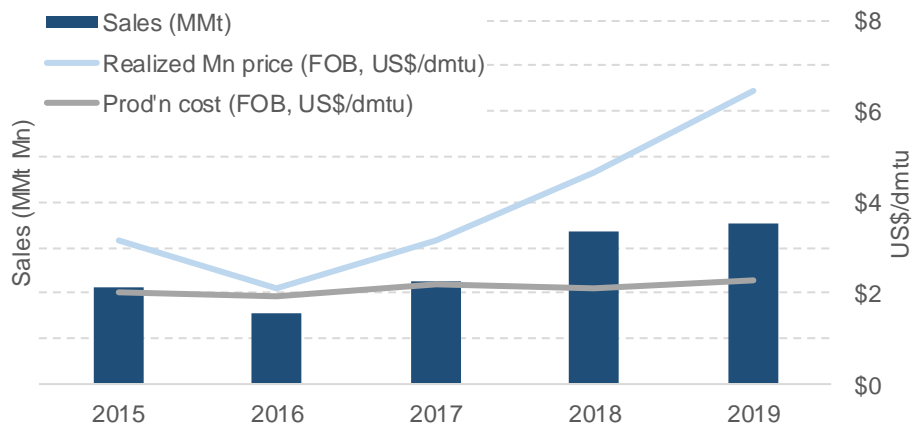
**BLACK ECONOMIC EMPOWERMENT (“BEE”) PARTNER**

Jupiter’s BEE partner is Main Street 774 (Pty) Ltd, a broad-based black economic empowerment special purpose vehicle with its major shareholder (74%) being Ntsimbintle Mining (Pty) Ltd. Ntsimbintle, also a BEE company, was created in 2003 to pursue exploration and mining opportunities in the South African manganese sector. It was awarded prospecting rights by the Government of South Africa over portions of the Mamatwan permit that BHP at the time had let lapse. In 2006, Ntsimbintle commenced prospecting on the Mamatwan permit, eventually “proving-up” the western extension of Mamatwan, which became the Tshipi orebody. The Tshipi orebody is contiguous with and is the direct extension of the Mamatwan operation. In 2007, Ntsimbintle formed a joint-venture with Pallinghurst and its co-investors, pursuant to which, Pallinghurst

acquired the 49.9% interest in Tshipi. In 2010, Ntsimbintle concluded an agreement with OM Holdings (OMH-ASX, Not Covered), which resulted in OM Holdings acquiring a direct 26% shareholding in Main Street, with the remaining 74% continuing to be held by Ntsimbintle. OM Holdings is a publically listed manganese producer and metals trader with operating interests in South Africa (Tshipi mine), Australia (Bootu Creek mine), and Malaysia (Sarawak smelter project), and offices in Singapore, Australia, China, and Bermuda. We note that Jupiter's BEE partner Ntsimbintle Mining funded its 50.1% of the initial CAPEX at Tshipi of ZAR 1 BB (\$100 MM), largely from the cash it raised via selling the 26% stake to OM Holdings. Jupiter Mines funded the remaining ZAR 1 BB (\$100 MM) to build Tshipi (its 49.9% stake).

#### Exhibit 4. Tshipi Recent Production/Cost/Margin History

Fiscal Year	2015	2016	2017	2018	2019
(AUD, unless stated otherwise)	2/28/2015	2/28/2016	2/28/2017	02/28/18	02/28/19
Production (MMt)	2.43	1.39	2.33	3.64	3.45
Ore grade (% Mn)	37%	37%	37%	37%	37%
Sales (MMt)	2.11	1.54	2.27	3.34	3.51
Prod'n cost (\$/tonne ore sold)	84.91	99.18	108.62	100.13	114.70
<b>Realized Mn price (FOB, US\$/dmt)</b>	<b>\$3.16</b>	<b>\$2.10</b>	<b>\$3.15</b>	<b>\$4.65</b>	<b>\$6.43</b>
<b>Prod'n cost (FOB, US\$/dmtu)</b>	<b>\$2.03</b>	<b>\$1.94</b>	<b>\$2.20</b>	<b>\$2.09</b>	<b>\$2.27</b>
Gross margins (%)	56%	8%	43%	122%	184%



Source: Cantor Fitzgerald

#### 24% DIVIDEND YIELD

Jupiter paid dividends totalling \$0.075/share (\$147 MM) over its most recent fiscal year ended February 28/19, equating to a current yield of 24.1%. We note that over the last three years, Jupiter has paid out a total of \$300 MM in dividends and buybacks, well over 50% of its current market cap. While the company has a dividend payout ratio policy of 70%, since its IPO in mid-2018, the payout ratio has been in excess of 90%. Dividends are typically paid-out to shareholders on a semi-annual basis. Originally, the distributions were in the form of share buybacks, which enjoyed tax advantaged status, but more recently (since Jupiter IPOed) the dividends have been entirely in the form of cash distributions. The dividends will likely continue in this form going forward. Over the 2020 FY, we forecast Jupiter to pay out another \$0.0575/share (~\$113 MM) in dividends. Over the longer term, we conservatively model in a dividend payout ratio of 80%

and based on our long-term manganese price deck of \$5.00/dmtu forecast yearly dividends of \$66 MM, or \$0.0339/share.

### CASHED-UP, NO DEBT, STRONG MARGINS

Jupiter Mines exited FY/19 with \$72.8 MM in cash, and an additional \$27.2 MM in attributable cash within the 49.9%-owned Tshipi subsidiary. Jupiter and Tshipi carry no debt of any kind, and the Tshipi mine has no significant/sizeable capital requirements over the near-term. Jupiter typically keeps \$5-10 MM in cash for working capital purposes (salaries, corporate office expenses, etc.) and distributes the remainder (cash received from its 49.9%-interest in Tshipi) in the form of dividends to its shareholders. Given the exceptionally strong margins at Tshipi, and the current mine life of 26 years, we expect Jupiter to continue to pay consistent sizeable dividends for decades to come.

#### Exhibit 5. Tshipi/Mamatwan Orebody Facing North



Source: Cantor Fitzgerald

### TSHIPI: GEOLOGICAL OVERVIEW

The Tshipi Mine is located on the southern extremity of the Kalahari Manganese Fields (“KMF”), which covers an area of approximately 23,000 hectares. The KMF is known to contain approximately 80% of the world’s in-situ manganese resources. It is important to note that the Tshipi orebody is contiguous with and is the direct extension of South32’s (formerly BHP) Mamatwan operation that has been producing manganese for over 50 years (Exhibit 5). The KMF is dominated by the Hotazel geological formation comprising three sedimentary manganese layers interbedded with banded iron formations. Of the three sedimentary manganese layers, the lower manganese deposit is the best developed and laterally continuous. The middle and upper manganese orebodies act as stratigraphic markers rather than potential mining targets given the relatively low manganese content contained in these layers. The layers are described below:

- **The lower manganese orebody (“LMO”)** consists of banded, very fine-grained braunite-kutnahorite lutite, containing concretionary ovoids, laminae and lenticles of Mn-calcite with which hausmanite is



commonly associated. The LMO is 37.5 m thick on average, dips toward the north-west at an average of 7°, and is subdivided based on geological features and metal content, into six sub-zones termed “N, C, M, Z, Y, X”. The grouped N, C, and M zones average 19.5 m thickness, with 37.5% Mn grade and Mn/Fe ratio of 8.5. This constitutes the average grade ore mined by Tshipi. The overlying Z, Y and X zones contain 31.0% Mn and have a Mn/Fe ratio of 5. This constitutes Tshipi’s low-grade ore that is either mined and blended with average grade ore, or sold as standalone low-grade product.

- **The middle manganese orebody (“MMO”)** is generally less than 1 m in thickness and of low manganese content.
- **The upper manganese orebody (“UMO”)** exhibits variable thickness from several meters to several tens of meters with sympathetic increases in manganese content.

#### Exhibit 6. Tshipi Mineral Reserve and Resource Statement

Tshipi (100% Basis) Category	Tonnage (MMt)	Grade (%Mn) (%Fe)		Contained Metal (BBlb Mn) (MMt Fe)	
Proven & Probable	86	36.3%	0.0%	69.2	0.0
Measured & Indicated	222	33.8%	4.8%	165.3	10.6
Inferred	237	32.5%	5.0%	170.3	12.0
<b>Total Resource</b>	<b>460</b>	<b>33.1%</b>	<b>4.9%</b>	<b>335.6</b>	<b>22.6</b>

Source: Jupiter Mines Ltd.

### TSHIPI: RESERVE AND RESOURCE OVERVIEW

The Mineral Corporation completed the most recent JORC-compliant Resources and Ore Reserves Statement for the Tshipi deposit on December 31, 2017. The estimation was constrained to a FOB selling price of US\$4.00/dmtu Mn. Accordingly, the Tshipi deposit comprises 86 MMt in P&P Reserves grading 36.3% Mn, which equates to 69.2 BBlb of contained Mn. Inclusive of the Reserves are 222 MMt in M&I Resources grading 33.8% Mn, which equates to 165.3 BBlb of contained Mn; and 237 MMt Inferred Resources grading 32.5% Mn, which equates to 170.3 BBlb of contained Mn. A revised P&P Reserve and Resource estimate is pending. We note that based on current reserves, Tshipi has a mine-life of 26 years. Based on total resources (M&I + Inferred), mining has the potential to continue at Tshipi for 100+ years (pending higher manganese prices, and the eventual transition to underground mining after year 26).

### TSHIPI: MINING OPERATIONS OVERVIEW

The Tshipi mine is operated as a conventional open-pit via drill-and-blast and load-and-haul mining techniques. Aveng Moolmans, one of the largest open cut mining contractors in Africa, carries out all mining operations on a contract-operator fixed-cost per bank cubic metre (“BCM”) basis. The agreement extends until August 2024, and is renewable provided Tshipi gives three months’ prior notice of such renewal. Aveng Moolmans also conducts all maintenance on its own mobile equipment. Mining is currently being conducted at the rate of 3.6 MMtpy (ore) at a strip ratio averaging 10.4:1 (in BCM terms). The mobile equipment fleet is currently comprised of 51 trucks, 6 drills, and 3 excavators, and mining is conducted at bench heights of 10m in ore and competent waste rock, and 5m in the soft clay layers. Waste rock is hauled approximately 2.3km to two

dumps (one to the north and one to the west) and whenever possible, Tshipi also practices ongoing in-pit backfill. We note that the 3.6 MMtpy mining rate can be easily scaled up, but is currently constrained by primary crushing capacity; and Tshipi's rail allocation with Transet (discussed in detail later in this report). The current expected life of mine ("LOM") is 26 years, incorporating the current production rate and the last published Proven & Probable reserve base of 86.41 MMt. A new P&P reserve calculation is currently being prepared, and will likely showcase an increase closer to the 100 MMt level (Cantor estimate). Tshipi produces consistent grade material averaging 36.5%, which targets two manganese ore products in its LOM plan including 36.5% Mn "Lumpy" (85% of production) and 35.5% Mn "Fines" (15% of production). Lumpy is generally defined as Mn product >6mm in size, and Fines as the same Mn product, but at a size fraction of <6mm. These grades fall well within the contracted range of 35-38% and 36-38% for high-grade fines and high-grade lumpy, respectively. Tshipi employs flexible and scalable logistics operations allowing for a rapid response to ramp-up export quantities depending on market conditions. A combination of rail and road logistics (FY18: 68% via rail; 32% via road) transport the processed manganese ore from the mine to four ports: the Port of Saldanha and the Port of Cape Town to the southwest, Port Elizabeth to the south, and the Port of Durban to the southeast. Mining costs are under a fixed price contract of approximately (it has escalators) ZAR 65/BCM, equating to US\$1.70/tonne moved (ore and waste) or US\$0.52/dmtu. Cantor Fitzgerald conducted a due-diligence site visit to the Tshipi mine on February 29, 2019 (Exhibits 5, 7, 10-11).

#### **Exhibit 7. Tshipi Open Pit Operations (Facing North West)**



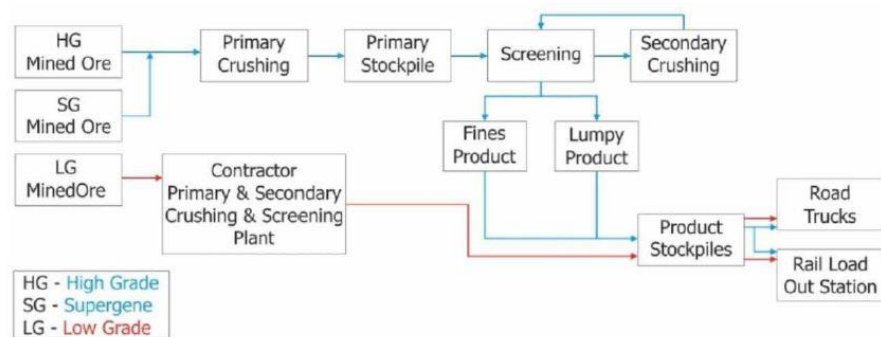
Source: Cantor Fitzgerald

#### **TSHIPI: PROCESSING OVERVIEW**

The principal contractor operating the processing facilities is African Mining and Crushing ("AMC"); the firm has personnel on-site to operate the fixed and mobile crushing and screening facilities. AMC processes the high-grade Run of Mine ("RoM") ore in the Tshipi-owned primary and secondary crushers and screening units to produce lumpy (6-75 mm and 36.5% Mn) and fines (<6 mm and 35.5% Mn) product. Low-grade lumpy material (6-75 mm and 33% Mn) is processed in an AMC-operated primary and secondary crushing and screening plant, which is stockpiled separately from the high-grade streams. In 2021, AMC will transfer operatorship of the secondary crushing and screening plant, or

GP500s plant, to Tshipi. In addition to AMC, Motsi Civils, a BEE group, is contracted to oversee materials handling of saleable ore from the processing facilities to the loadout stockpiles. The stockpiles are loaded either directly into road trucks for despatch via the road weighbridges, or fed to the state-of-the-art rail Load-Out Station (“LOS”) feed conveyors (discussed in more detail later in the report). Despatch material is tested for grade control via pressed pellet X-Ray Fluorescence (“XRF”) spectrometry to ensure the blend of material is up to par or to otherwise adjust the blend according to the contract requirement standards. The low-grade product is stockpiled and either blended with the higher grade-product when necessary or sold when the market demands it. The processing flowsheet is relatively straightforward, and consists of a primary crusher with nameplate capacity of 3.6 MMtpy, followed by a conveyor to the screening circuit, secondary crushing, and then contracted haulage to the LOS and its feed conveyors. The single largest expansionary capital project that will be undertaken by Tshipi/Jupiter this year, is installing a conveyor system from the secondary crusher to the LOS, in lieu of the truck haulage that currently takes place. For an upfront capital requirement of ZAR 85 MM (\$8.5 MM), the very modest expansion will eliminate a significant amount of ore re-handling, and save approximately ZAR 50 MM (\$5 MM) per annum or US\$1.05/t (US\$0.03/dmtu) in operating costs. At present, the mine and processing facility operate independently of the national grid by generating its own power using five synchronized diesel generators and a single standby generator that have a collective generating capacity of 10 MVA. Operations at Tshipi require approximately 4,800 kW of power, consuming 135,000l of diesel per month. Tshipi sources the mine’s fuel supply at a discount via its contract with Chevron South Africa, which extends until February 28, 2020. The contract provides for all tanks, pumps, and safety equipment. Tshipi/Jupiter is in the process of connecting to the South African electrical grid (owned/operated by the State-owned Eskom) that is projected to result in power cost savings of approximately ZAR 16 MM (\$1.6 MM) per annum or US\$0.33/t (US\$0.01/dmtu).

**Exhibit 8. Tshipi Processing Flow Sheet**



Source: Jupiter Mines

**TSHIPI: INFRASTRUCTURE OVERVIEW**

The main access to the site is along the all-weather D3457 road that joins with the provincial R380 road. Construction of the Tshipi mine was completed in 2012, but several infrastructure improvements have been undertaken in the years that followed. In 2017, a new GP500s crusher and two subsidiary parallel dry screening systems were installed to reduce the number of operating units and amount of product re-handling, departing from the original wet screening process. Perhaps most importantly, the Company installed an 8 km private railway

loop between the regional railway line and Tshipi's silo/loading area. The railway loop is fully electrified from the Transnet Freight Rail ("TFR") turnout, is designed to only energize the trains when loaded, and can accommodate two full trains. The rapid load terminal ("RLT"), comprising a silo above the rail complete with 600 tonnes of storage and a measuring flask for a single wagon, can load a train *in 3-4 hours (vs. 12-13 hours for peers)* or, equivalently, up to 5 MMtpy. This is one of Tshipi's competitive advantages over all of its South African peers, and a significant contributing factor to its best in class operating costs. The main RLT silo is fed from two parallel 110 cm conveyor belts that are loaded in parallel tunnels below the product stockpile. The outgoing loop of Tshipi's rail section can accommodate 100 tonne wagons; however, the TFR main line is only equipped to accommodate 63 tonne wagons at the present time. This extra capacity was engineered and built pro-actively by Jupiter/Tshipi to accommodate any future rail capacity allocated by Transnet. In terms of costs and logistics, it is far more efficient to move tonnage via the RLT and Transnet rail than it is to truck the material to any of the four ports in South Africa. At present, Jupiter/Tshipi have been allocated 2.1 MMtpy of rail capacity, and the remainder (1.5 MMtpy) is trucked to various rail spurs and ports in the country. Utilizing the RLT on site at Tshipi in lieu of trucking, saves ZAR 300/t equating to \$3.43/t or US\$0.60/dmtu.

#### Exhibit 9. Tshipi 8km Dedicated Rail Line



Source: Google Earth, Cantor Fitzgerald

**Exhibit 10. Tshipi Rail Load-Out Terminal (RLT)**

Source: Cantor Fitzgerald

**Exhibit 11. Tshipi Crushing/Processing Plant**

Source: Cantor Fitzgerald

**EXPANSION AND LOW COST DE-BOTTLENECKING**

Jupiter Mines is in the process of completing a Feasibility Study on an expansion scenario at Tshipi to the potential rate of 5.0 MMtpy (up from the current rate of 3.6 MMtpy). As we noted previously in this initiation report, mining operations can be easily scaled up via additional mobile equipment, and the RLT is already sized to handle 5.0 MMtpy. The bottleneck lies with the crushing unit, namely the primary crusher that has a nameplate capacity of 3.6 MMtpy. While we do not include an expansion to 5.0 MMtpy in our DCF-based NAVPS or production profile for Jupiter Mines, it should be noted that the expansion itself would be a relatively low-cost and a comparatively simple undertaking, requiring an additional primary and secondary mobile crusher (operating in parallel with the existing units) and associated conveyors and infrastructure. While an expansion to the 5.0 MMtpy rate is the longer-term goal, it is largely dependent on Tshipi's

ability to access additional rail capacity, a limiting factor that is entirely dependent on Transnet, and not Jupiter or Tshipi. That said, a number of smaller expansions or “de-bottlenecking” initiatives are underway that will improve efficiency, and lower costs in the near-term. These include:

- **Conveyor Install to RLT:** Over the course of this calendar year Tshipi/Jupiter will be installing a dedicated conveyor system from the secondary crusher to the Load-Out-Station and RLT, in lieu of the truck haulage that currently takes place. For an upfront capital requirement of ZAR 85 MM (\$8.5 MM), the very modest expansion will eliminate a significant amount of ore re-handling, and save approximately ZAR 50 MM (\$5 MM) per annum or US\$1.05/t (US\$0.03/dmtu) in operating costs.
- **Connection to Grid Power:** At present, the mine and processing facility are powered via five synchronized diesel generators and a single standby generator that have a collective generating capacity of 10 MVA. Operations at Tshipi require approximately 4,800 kW of power, consuming 135,000l of diesel per month. Tshipi/Jupiter is in the process of connecting to the South African electrical grid (owned and operated by the State-owned Eskom) that is projected to result in power cost savings of approximately ZAR 16 MM (\$1.6 MM) per annum or US\$0.33/t (US\$0.01/dmtu) in operating costs. The cost of this optimization was budgeted at ZAR 60 MM (\$6 MM).
- **“Boundary Pillar” Extraction:** Years of two separate companies (Tshipi é Ntle and South32/BHP) mining the same ore body has resulted in a north-south barrier between the operations (Tshipi and Mamatwan). This barrier is collectively referred to as the “Boundary Pillar,” an area of the Tshipi-Mamatwan orebody containing an estimated 5 MMt (net to Tshipi) grading 36% Mn. Tshipi and Mamatwan have arranged a joint mining plan to access this low-cost material.

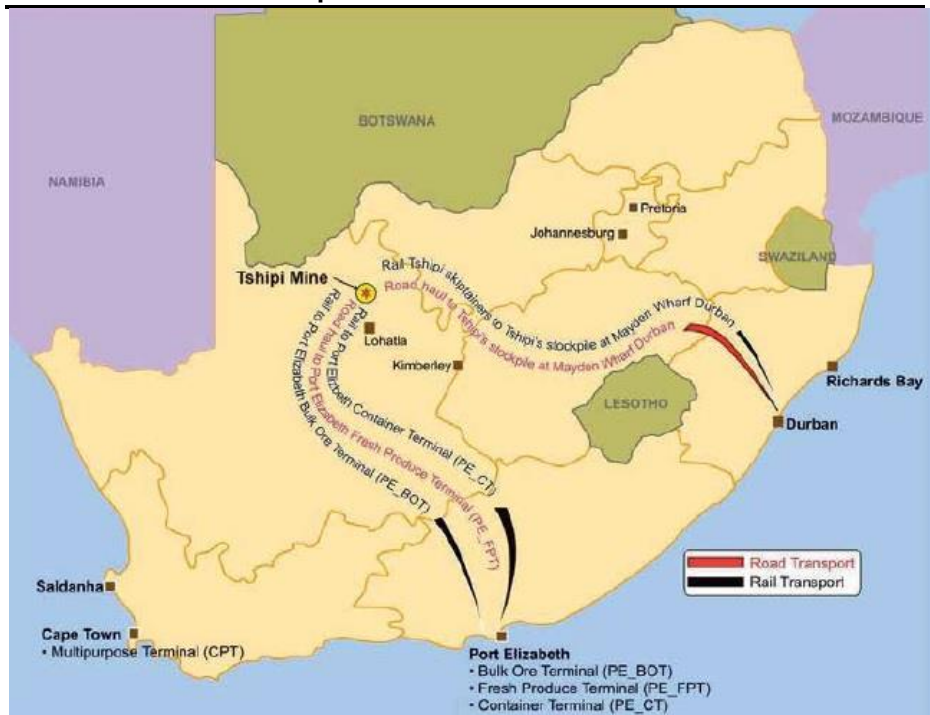
**Exhibit 12. Boundary Pillar between Tshipi and Mamatwan**

Source: Jupiter Mines

**MORE RAIL ALLOCATION WOULD UNLOCK VALUE**

Tshipi is among several South African manganese ore producers/exporters involved in the second long-term agreement with state-owned Transnet's Freight Rail operating division. In 2013, under its Manganese Export Capacity Allocation ("MECA 2") program, Transnet originally agreed to allocate Tshipi with 1.1 MMtpy in rail capacity. In the years that followed, this capacity was subsequently increased in several stages to the current capacity allocation of 2.1 MMtpy, and is renewable until 2023. The rail transports the manganese from the Tshipi RLT to the Hotazel area through the Saldanha multi-purpose terminal, and Port Elizabeth multi-purpose ore railway lines. We note that given the RLT in place at Tshipi, and its ability to load rail containers 4-5x faster than any other manganese operation in the Country, Jupiter/Tshipi is a preferred customer of Transnet. That said, Transnet's pattern has been to allocate additional capacity, whenever available, as equally as possible across the entire South African manganese production industry. Given the cost savings and production capacity of the RLT, Tshipi/Jupiter benefit from incremental additional rail capacity far more than any of its peers. In 2017, Transnet's contractual rail tariff for Tshipi was ZAR 478.19/tonne, whereas the average road transport to port cost is ZAR 775/tonne. Tshipi will effectively realize ZAR 300/tonne in savings on any additional allocated rail capacity. Not only would this be immediately accretive to current production plans (of Tshipi's current output of 3.6 MMtpy, only 2.1 MMtpy is allocated for rail), additional rail capacity would unlock significant additional value in the production expansion to 5.0 MMtpy.

**Exhibit 13. Road/Rail Map**



Source: Jupiter Mines

**POTENTIAL FOR REGIONAL CONSOLIDATION**

Tshipi and Mamatwan are both located at the far southern end of the prolific Kalahari Manganese Field, which covers an outcropping area 15 km in width (East-West) and 30 km in length (North-South). The entire 23,000 hectare KMF (including non-outcropping manganese occurrences) is known to contain approximately 80% of the world’s in-situ manganese resources, including several smaller scale producing and past-producing open-pit and underground mines (Exhibit 14). The opportunity may exist in the future for Jupiter Mine’s to acquire these projects and/or operations, and leverage its existing infrastructure and mining expertise

**Exhibit 14. Kalahari Manganese Operations/Projects**

Mine	Major Shareholder	CY 2017E Production (Mt)	Method
1 Mamatwan	Samancor	2,7	OC
2 UMK	Renova / Majestic Silver	2,0	OC
3 Perth	Sebilo Resources	n.a.	n.a.
4 Kudumane	Kudumane Res. / Asia Minerals	1,5	OC
5 Kalagadi	Kalagadi Manganese	0,0	UG
6 Gloria	Assmang	0,7	UG
7 Nchwaning	Assmang	2,9	UG
8 Wessels	Samancor	0,9	UG



Source: Jupiter Mines

**POTENTIAL TO INCREASE STAKE IN TSHIPI?**

At present, Tshipi is 50.1% owned by Jupiter’s BEE-partner, Main Street 774 (Pty) Ltd. The requirement for Tshipi in South Africa, as it relates to commercial-scale mining operations, is for the BEE partner to maintain a minimum economic interest of 26.0%. As such, up to a 24.1% economic interest (50.1% less: 26.0%)



in the Tshipi Mine may be available for sale at some point in the future with Jupiter being the most logical buyer. Depending on terms, this could potentially be a source of significant accretion for Jupiter's shareholders at some point in the future.

## BALANCE SHEET

Jupiter Mines exited FY/19 with \$72.8 MM in cash, and an additional \$27.2 MM in attributable cash within the 49.9%-owned Tshipi subsidiary. Jupiter carries no debt of any kind, and the Tshipi mine has no significant/sizeable capital requirements over the near-term. Subsequent to fiscal year-end, the Company announced a dividend of \$0.025 per share that will be payable on May 21, 2019. We forecast an additional dividend of \$0.0325 that will be payable in FYQ3/20 (quarter ended November 30, 2019). Jupiter Mines is subject to a 5% withholding tax on all dividends received from its South African subsidiary. Tshipi is subject to a South African corporate income tax rate of 28%, and a revenue-based royalty, up to a maximum rate of 7%.

### Exhibit 15. Shares Subject to Voluntary Escrow

Escrowed Shareholder	Number of Shares escrowed (assuming maximum subscription to Offer)
Pallinghurst Steel Feed (Dutch) B.V.	145,845,372
POSCO Australia GP Pty Ltd	112,044,320
EMG Jupiter L.P.	85,446,062
HJM Jupiter L.P.	98,263,429
FRK Jupiter L.P.	93,406,454
POSCO Australia Pty Ltd	22,948,152
Red Rock Resources plc	18,524,914
Priyank Thapliyal	21,129,387
<b>Total</b>	<b>597,608,090</b>

Source: Jupiter Mines

## OWNERSHIP AND SHARE STRUCTURE

Institutional shareholders account for 22.14% of all shares outstanding. Notable institutional shareholders include APG Asset Management NV (14.76%), Regal Funds Management Pty Ltd. (4.99%), Oasis Crescent Capital (Pty) Ltd. (1.36%), and Vanguard Investments Australia Ltd. (0.57%). With the exception of APG Asset Management NV who acquired shares in 2011, the majority of the institutions acquired JMS equity in the mid- to latter part of 2018. Insiders account for 28.48% of all outstanding shares (source: Factset); noteworthy insiders include Pallinghurst Consolidated Cayman Ltd. (7.44%), a wholly-owned subsidiary of Gemfields Group Limited ("Gemfields"), POSCO (6.89%), Hjm Jupiter Lp (5.02%), Frk Jupiter Lp (4.77%), and Emg Jupiter Lp (4.36%). Hjm Jupiter Lp and Frk Jupiter Lp are both wholly-owned subsidiaries of American Metals and Coal International ("AMCI"). At present there are 1,958.99 MM common and diluted shares outstanding and a 68.8% float. We note that a number of institutional accounts invested in Jupiter Mines pre-IPO, and entered into a voluntary Escrow Agreement at that time. At present, 597.6 MM shares are subject to this agreement (shareholders in Exhibit 15). The Escrow Release Conditions will be satisfied on 50% of the Escrowed Shares when Jupiter Mines announces its fiscal year-end 2019 financial results (by May 31, 2019). The

remaining 50% of the Escrowed Shares will meet the Release Conditions when Jupiter Mines announces its fiscal H1/2020 financial results (by October 31, 2019). We note that all of the institutional shareholders subject to the voluntary Escrow Agreement have made approximately 290% returns on their initial investment from the Jupiter dividends alone. More recently, on April 15, 2019, Pallinghurst Consolidated entered into a conditional agreement to sell its entire 7.44% equity stake in Jupiter Mines to Hjm Jupiter and Frk Jupiter in two tranches, after each of the relevant escrow periods expire. This transaction will be completed at \$0.30 per JMS share. Post completion of the transaction, AMCI's (via Hjm and Frk) stake in Jupiter will increase to 17.23%. According to Mr. Sean Gilbertson, the CEO of Gemfields, "the sale of Gemfield's [Pallinghurst's] remaining minority stake in Jupiter Mines is consistent with the Board's strategy for Gemfields to be focussed on African coloured gemstones." With Tshipi operating more profitably at the present time than at any other point in its history, we do not expect any significant selling "pressure" when the Escrow Release Conditions are satisfied, though acknowledge that the Escrowed Shares themselves presumably act as an overhang on the stock at the present time.

#### Exhibit 16. Net Asset Value Estimate

Asset (AU\$)	Value (\$MM)	\$ Per Share	% of NAV
Tshipi	\$1,160.3	\$0.59	84%
Marketing <sup>1</sup>	\$101.4	\$0.05	7%
Iron Ore (5% in-situ value) <sup>1</sup>	\$25.7	\$0.01	2%
Total Mining Assets	\$1,287.5	\$0.66	93%
Cash + S/T Investments	\$100.0	\$0.05	7%
Current Debt + S/T Leases	-	\$0.00	-
Long Term Debt + L/T Leases	-	\$0.00	-
Future Equity Financing	-	\$0.00	-
Future Debt Financing	-	\$0.00	-
	\$100.0	\$0.05	7%
Net Asset Value	\$1,387.5	\$0.71	
P/NAV		0.45x	

<sup>1</sup>See Appendix 1  
Source: Cantor Fitzgerald

#### P/NAVPS VALUATION

Based on a near-term (2021) manganese price forecast of US\$6.00/dmtu CIF and long-term (2022+) price deck of US\$5.00/dmtu CIF, we calculate a NAVPS<sub>7.5%</sub> estimate for Jupiter Mines of \$0.71/share. This also incorporates a ZAR/AUD FX exchange rate of 10:1. Our long-term manganese price forecast is admittedly bullish and well above consensus estimates of \$4.06/dmtu. A brief macroeconomic outlook on the manganese market is provided later in this report. Given its large reserve and resource base, and multi-decade mine life, Tshipi's NPV is highly sensitive to the underlying manganese price, with every 10% move in the commodity spot price resulting in our NAVPS estimate for Jupiter Mines changing by 15.1%. We note that the Tshipi life-of-mine (long term) mine plan and Proven & Probable reserve estimate were both engineered and calculated utilizing a price deck of US\$4.00/dmtu. Our NAVPS estimate is outlined in Exhibit 16, and sensitivities to our long-term price deck is provided in Exhibit 17. It is important to note that in our production profile and DCF-based NAVPS for Jupiter Mines we do not expand the Tshipi Mine's production rate beyond the current 3.6 MMtpy. This is to maintain a level of conservatism in our model.

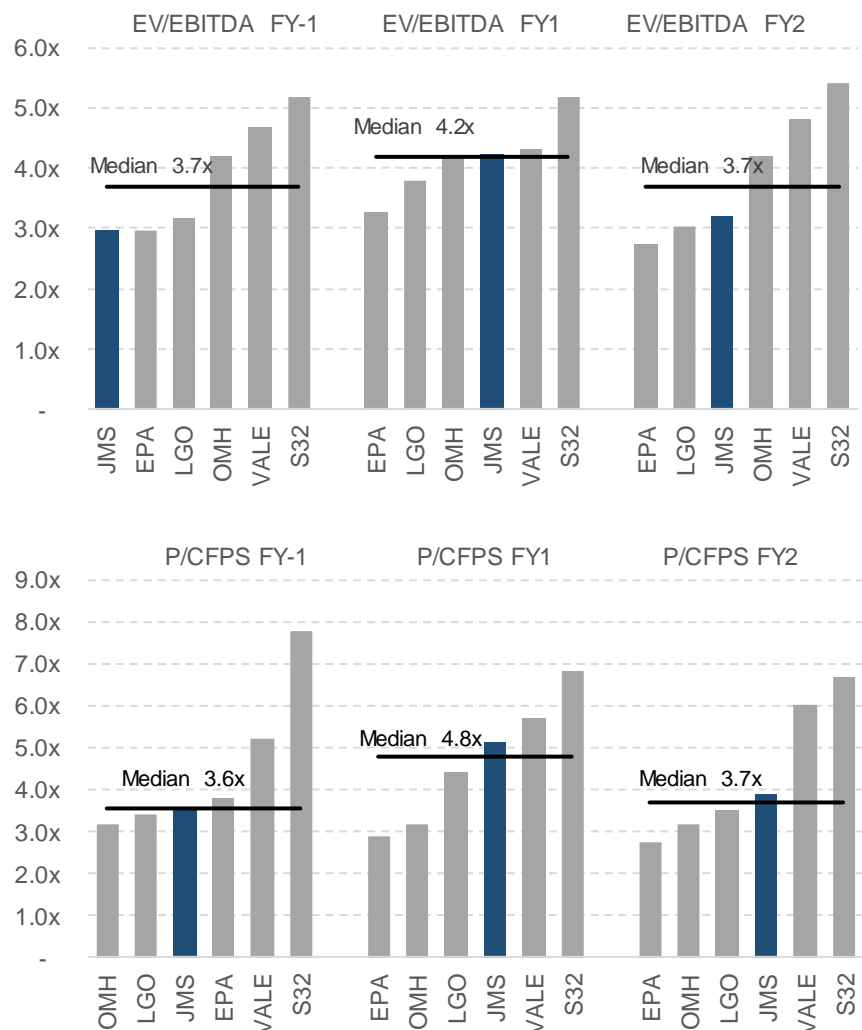
There are two drivers in the future that would move our NAVPS considerably higher, namely; an expansion to 5.0 MMtpy (Jupiter has committed to completing a Feasibility Study to this effect in CY H2/19), and increased rail allocation from Transnet (timing uncertain).

**Exhibit 17. NAVPS Sensitivities**

Long-Term CIF Mn Price (US\$/dmu)	Discount Rate in NAVPS			
	5.0%	7.5%	10.0%	12.5%
\$4.00	\$0.56	\$0.49	\$0.45	\$0.41
\$4.50	\$0.71	\$0.60	\$0.53	\$0.47
\$5.00	\$0.85	<b>\$0.71</b>	\$0.61	\$0.54
\$5.50	\$1.00	\$0.82	\$0.69	\$0.60
\$6.00	\$1.14	\$0.92	\$0.77	\$0.66
\$6.50	\$1.28	\$1.03	\$0.85	\$0.73
\$7.00	\$1.43	\$1.14	\$0.93	\$0.79

Source: Cantor Fitzgerald

**Exhibit 18. EV/EBITDA and P/CFPS Multiples**

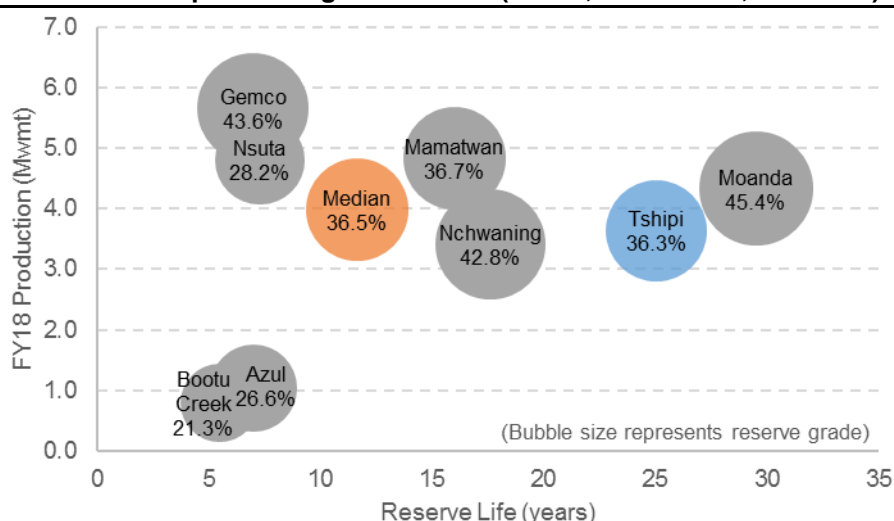


Source: Cantor Fitzgerald, Bloomberg, FactSet

### EV/EBITDA AND P/CFPS VALUATION

For the purposes of valuation, we define CFPS for Jupiter Mines as the company’s 49.9% economic interest in the operating cash flows generated from the Tshipi mine, less changes in non-cash working capital. This is consistent with our CFPS valuation methodologies on mining companies that own a majority interest in their operations. Based on our near-term manganese price forecast of \$6.00/dmtu (FY2020) and \$6.50/dmtu (FY2021) we forecast CFPS for Jupiter Mines of \$0.06 and \$0.08, respectively. Based on JMS-ASX’s most recent closing price, the stock is currently trading at 5.4x FY2020E and 3.9x FY2021E CFPS. We note that with every 10% move in the underlying realized manganese price, our CFPS estimates change by 17.8% and 21.1% in FY2020E and FY2021E, respectively.

**Exhibit 19. Tshipi vs. Manganese Peers (Grade, Production, Mine Life)**



Source: Cantor Fitzgerald, Company Reports

### VALUATION IN-LINE WITH PEERS, DESERVES PREMIUM

Admittedly, there is no perfect comparable for Jupiter (single asset, South Africa, manganese pure-play producer), but there are a number of publically traded mining companies producing manganese and/or other metals supplying the steel market. These include South32, Eramet (EPA-NYSE, Not Covered), Largo Resources (LGO-TSX, Not Covered), Vale (VALE-NYSE, Not Covered), and OM Holdings. In terms of EV/EBITDA and P/CFPS, Jupiter Mines trades effectively in-line with the peer group median (Exhibit 18). In our view, Jupiter Mines is superior to the majority of its nearest comparables for a variety of reasons, including significantly higher dividend yield, better gross margins, healthier balance sheet (no debt), and in many cases, a longer mine-life. On this basis, it is easy to justify paying a higher/premium multiple to own Jupiter Mines. Should Tshipi continue to operate at steady-state, and manganese prices remain at current levels, given Jupiter’s dividend distributions alone, would net investors a 100% return on invested capital in less than 3.5 years on an asset (Tshipi) with an operating life (based on Proven & Probable reserves alone) of 26-years. In our view, the only justifiable reason as to why Jupiter does not already command a significant premium, is likely a result of perceived investor sentiment overhang related to the Escrowed Shares and the upcoming Escrow Release Conditions being met. We do *not* expect anywhere near the full 300 MM shares to be

immediately sold at exit May 2019 (when they come off Escrow), but do expect the stock to step-change immediately higher if and when the perceived overhang is removed. In any case, given the attractive and sustainable dividend yield, the strong profitability of the company, and the excellent margins and long mine-life of Tshipi, we consider Jupiter Mines a very compelling investment at the present time, prior to the Escrow Release Conditions being met.

### TARGET PRICE METHODOLOGY

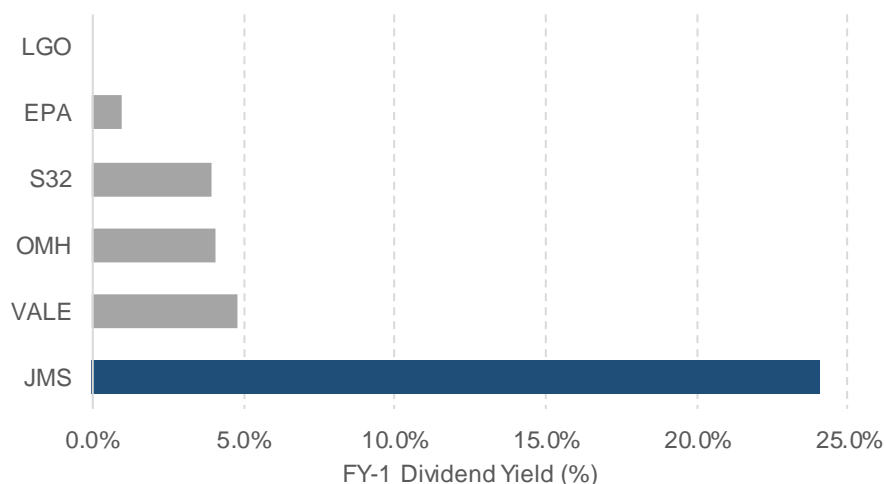
We value Jupiter Mines based on a 75/25 blend of 1.0x NAVPS<sub>7.5%</sub> (intrinsic value) and 6.0x 2021E CFPS (a one point multiple premium to the peer group). Given the 26-year mine life (based on Proven & Probable reserves) and a resource base at Tshipi (Measured & Indicated + Inferred) that could potentially support a +100 year mine life, we believe it is prudent to more heavily weight the target price to NAVPS as opposed to CFPS. Note in our NAVPS we also include modest value for Jupiter’s South African-based manganese marketing business, and “option value” for its non-core Iron Ore projects in Australia.

#### Exhibit 20. Target Price Breakdown

Figures in A\$	Weight	Multiple	
Target P/NAV, Net Cash, 75% Blend	75%	1.00x	\$0.53
Target P/CFPS (2021E), 25% Blend	25%	6.00x	\$0.12
		<b>Target, rounded:</b>	<b>\$0.65</b>
<b>Upside to Target</b>			<b>50.8%</b>

Source: Cantor Fitzgerald

#### Exhibit 21. Current Dividend Yield Relative to Comps.



Source: Cantor Fitzgerald, Bloomberg, FactSet

### RECAP OF INVESTMENT THESIS

Jupiter Mines has the ideal combination of a world-class low-cost operating mine, a multi-decade mine life, an excellent working relationship with its majority partner, low-cost conduits in which to grow organically, pristine balance sheet, attractive valuation, and 24% dividend yield. Moreover, we have a definitively bullish view on the manganese price based on the supply/demand fundamentals over the short, medium, and long term. Jupiter is a company that appeals to virtually every type of institutional investor, given its steep discount to NAVPS

(value driven), visible low-cost growth (growth/momentum driven), and double digit dividend yield (fixed income). We point to a number of investment highlights and upcoming catalysts over the short-term and long-term that should drive outperformance in the share price. These include

- **24% Dividend Yield:** Jupiter declared dividends totalling \$0.075/share (\$147 MM of which \$49 MM is payable) over its most recent fiscal year ended February 28/19, equating to a current yield of 24.1%. We note that over the last three years, Jupiter has paid out a total of \$300 MM in dividends and buybacks, well over 50% of its current market cap. While the company has a dividend payout ratio policy of 70%, since its IPO in mid-2018, the payout ratio has been in excess of 90%.
- **Cashed-Up, No Debt:** Jupiter Mines exited FY/19 with \$72.8 MM in cash, and an additional \$27.2 MM in attributable cash within the 49.9%-owned Tshipi subsidiary. Jupiter and Tshipi carry no debt of any kind, and the Tshipi mine has no significant/sizeable capital requirements over the near-term.
- **Long Mine Life:** Based on the 2018 Proven & Probable reserves, that are in the process of being updated, open-pit operations at Tshipi have a 26-year mine life. Based on total JORC compliant resources, the open-pit and potential future underground component at Tshipi would have a total mine-life in excess of 100 years.
- **Low-Cost De-bottlenecking Ongoing:** The mine is already exceptionally profitable, but there are a number of de-bottlenecking initiatives currently underway that will lower costs and improve economics at the margin. These include connecting to lower-cost grid power (while keeping current diesel generators in reserve), adding a conveyor from the secondary crusher to the rail load out facility (in lieu of trucking the crushed material), and accessing low-cost material in the “Boundary Pillar” area.
- **Expansion Potential to 5.0 MMtpy:** The Tshipi mine currently operates at ~3.6 MMtpy, but most of the key infrastructure, namely the rail load out facility, has been engineered and built to handle a production rate of 5.0 MMtpy. An expansion to this rate would be a relatively simple and low-cost process, with the main requirements being an additional primary and secondary crusher operating in parallel with the existing crushing units. All mining and maintenance is done on a contract basis, and, as such, the mining rate could be ramped-up exceptionally quickly and with little additional CAPEX. A Feasibility Study is currently underway to evaluate the expansion to 5.0 MMtpy.
- **Increase in Rail Allocation to Unlock Significant Value:** Transnet is South Africa’s government-owned freight system that effectively controls transportation logistics throughout the country (rail lines, ports, pipelines, etc.). While Transnet has been an excellent partner to Jupiter/Tshipi, the mine currently receives rail capacity allocation of 2.1 MMtpy, well below its current production rate of 3.6 MMtpy. Any and all material produced at the mine in excess of the currently allocated 2.1 MMtpy rail capacity is trucked, at much higher cost, to seven terminals

across four ports in South Africa. Transporting material via the Transnet railway system is approximately ZAR300/tonne (US\$0.60/dmtu) less expensive than trucking the same material to the nearest port in South Africa. To put this in context, total cash operating costs at Tshipi in the most recent fiscal quarter were reported at US\$2.27/dmtu. As such, any additional rail capacity allocation that Jupiter/Tshipi may receive from Transnet in the future is immediately and significantly impactful to margins, earnings, and cash flow.

- **Attractive Valuation:** Jupiter Mines is currently trading well below intrinsic value at 0.45x NAVPS<sub>7.5%</sub>, and in-line with its peers on a P/CFPS basis (3.9x FY2021E vs. peer average of 3.7x forward year). This is despite the fact that Jupiter has a longer-life asset (Tshipi), superior operating margins, pristine balance sheet, and offers a dividend yield of 24%, a full order-of-magnitude higher than any other company in its peer group (Exhibit 21).
- **Manganese Macroeconomic Outlook:** Manganese price indices have approximately doubled over the last three years. The rally can be attributed to both a rise in demand from steel alloy smelters that is expected to continue to trend upwards, and environmental restrictions that boosted manganese ore imports in China. With China's reduced domestic supply, having fallen by approximately 23% from 2016 levels, a vacuum is created for South African exporters. Several other key supply-side catalysts lend support to continued tight supply-demand conditions that should facilitate manganese price stability. In the medium- and long-term, a number of mine reserves will be depleted, and others forced underground – triggering a shift in the cost-curve, which will likely result in displacement of low-grade producers.
- **Potential for Regional Consolidation:** Tshipi and Mamatwan are both located at the far southern end of the prolific Kalahari Manganese Field, that covers an outcropping area 15 km in width (East-West) and 30 km in length (North-South). The entire 23,000 hectare KMF (including non-outcropping manganese occurrences) is known to contain approximately 80% of the world's in-situ manganese resources, including several smaller scale producing and past-producing open-pit and underground mines. The opportunity may exist in the future for Jupiter Mines to acquire these projects and/or operations, and leverage its existing infrastructure and mining expertise.
- **Potential to Increase Stake in Tshipi?:** At present, Tshipi is owned (50.1%) by Jupiter's BEE-partner, Main Street 774 (Pty) Ltd. The requirement for Tshipi in South Africa, as it relates to commercial-scale mining operations, is for the BEE partner to maintain a minimum economic interest of 26.0%. As such, up to a 24.1% economic interest (50.1% less: 26.0%) in the Tshipi Mine may be available for sale at some point in the future with Jupiter being the most logical buyer. Depending on terms, this could potentially be a source of significant accretion for Jupiter's shareholders at some point in the future.

## INITIATING COVERAGE WITH A BUY RATING

We are initiating coverage of Jupiter Mines Ltd. with a Buy recommendation and a target price of \$0.65/share based on a 75/25 blended valuation of 1.0x NAVPS<sub>7.5%</sub> and 6.0x FY2021E CFPS. Important to note, this is a near-term, 52-week target price, and there are many initiatives that can and likely will be undertaken by Jupiter over the longer-term that would drive our NAVPS/CFPS estimates, and target price considerably higher. As such, our target price has a bias to the upside.



## INVESTMENT RISKS

Investing in mining and exploration companies is inherently risky. Commodity, geological, operational, regulatory, or financing risks on projects could result in delays in development or production, impact economics or disrupt shipment schedules.

### *Commodity Risk*

The Company derives nearly all of its income from dividend receipts distributed via its shareholding interest in Tshipi é Ntle, operator of the Tshipi manganese mine. There is a risk that manganese prices could decline in the interim as a result of supply growth, a slowdown in growth of or demand for steel from Asia or China, or any number of other factors. Should the price of manganese decline significantly, the value of Jupiter Mines Ltd.'s interests in Tshipi é Ntle would be adversely impacted.

### *Currency Risk*

Dividends or distributions received by Jupiter Mines have historically been paid in Rand. The Australian dollar or other currency equivalent of future dividends with respect to Jupiter Mines Ltd.'s shares in Tshipi would be adversely affected by any future decline in the value of the Rand against the US dollar or the Australian dollar.

### *Geologic Risk*

Results of drilling at Tshipi Mine could prove to be disappointing and thus negatively affect the viability of the operation. The lack of future exploration success may impact upside potential of the Company. Manganese ore reserve and mineral estimates are subject to uncertainties and may not be recoverable in full.

### *Regulatory Risk*

In accordance with applicable South African laws, policies, and regulations, Tshipi is required to obtain the proper permits and licenses in order to conduct exploration activities, develop projects, and ultimately process ore. We believe that Jupiter Mines Ltd. will continue to be diligent in its selection of top-tier partners with well-established operating histories.

### *Political Risk*

Tshipi é Ntle is in compliance with the South African government's Broad-Based Black Economic Empowerment requirements for prospecting and mining rights. We believe that the relevant South African governing bodies will continue with its favourable view towards Tshipi é Ntle operating the Tshipi mine. However, Tshipi é Ntle, and Jupiter Mines Ltd. through its shareholding interests, is exposed to general legislative uncertainty and risk of political interference.

## **APPENDIX I. OTHER ASSETS/BUSINESS SEGMENTS**

### **JUPITER S.A.: MANGANESE MARKETING**

In 2016, Jupiter entered into a take or pay off-take agreement with Tshipi é Ntle. In addition to the income received from Tshipi dividend distributions, Jupiter receives a 3.0% marketing commission based on the value of the sale of its 49.9% share of Tshipi's manganese ore production (on an FOB basis). Though the marketing income pales in comparison to the dividend receipts from Tshipi, it has historically provided a stable and steady cash flow capable of covering corporate general and administration costs. The purchase price of the manganese ore is at market price, including adjustments for grade quality. Jupiter's external marketing arm ("Jupiter S.A.") is registered in South Africa to facilitate the sale of its share of manganese ore, primarily to customers based in Asia. The manganese marketing business segment is managed out of South Africa. We value it at \$101.4 MM, based on a DCF of the life-of-mine production from Tshipi.

### **CENTRAL YILGARN IRON ORE PROJECT**

In addition to Jupiter's shareholder interests in Tshipi Mine, the Company holds 100% interest in the Central Yilgarn Iron Ore projects ("CYIP"). The exploration projects, covering approximately 490 km<sup>2</sup>, are located in 110 km northwest of Menzies in Kalgoorlie, Australia. The CYIP comprise two project areas, Mount Ida and Mount Mason, that neighbour existing infrastructure in the area, including the Leonora to Esperance railway line, and the Port of Esperance. In January 2018, Jupiter Mines commissioned SRK Consulting to conduct an independent Geologist Report to update the mineral resources for Mt Ida and Mount Mason. The two projects are currently on care and maintenance; however, the Company is set to review its strategic options given the mounting demand for high-grade iron ore feed. We value the non-core Iron Ore projects at \$25.7 MM, based on in-situ "option" value.

### **MOUNT IDA MAGNETITE PROJECT GEOLOGY**

The Mt Ida deposit is characterised by shallow-dipping and sub-parallel banded iron formation ("BIF") units contained in South, Central, and North zones. The defined mineralisation extends for approximately 3 km along strike and is over 1 km wide in the South zone; 1 km along strike exceeds 600 m in width in the North zone; and 3 km along strike and is over 1.5 km wide in the Central zone. The average unit thickness is 25 m for the South zone and 40 m for the both the North and Central zones. The deepest BIF units are approximately 340 m below the surface for the South and Central zones, while the deepest intersection in the North zone is approximately 250 m below the surface.

### **MOUNT IDA MAGNETITE PROJECT ECONOMICS**

Jupiter completed a Scoping Study and Preliminary Economic Assessment ("PEA") for the shallow open-pit Mt Ida deposit in March 2011. The deposit boasts exceptional grade and quality concentrate that can likely command a premium to iron ore benchmark prices. The study outlines a 20-year mine life for an open-pit contract operation mining 25 MMtpy run-of-mine ("ROM") ore to produce 10 MMtpy of magnetite concentrate at a grade of 68% Fe. The production profile assumes a waste to ore strip ratio of 1.5:1 and process recoveries averaging 43.4% by weight, based on previous test work. The capex

totals \$1,583 MM, which includes an on-site concentrator for \$897.0 MM (including a 20% contingency). The magnetite concentrate would be pumped from Mt Ida to a rail load out site south of Menzies where the concentrate would be dewatered, filtered, and transported via train to the Port of Esperance. The operating cost projections are \$16.73/t conc. (\$6.53/t ore) mined/crushed, \$25.47/t conc. processed, \$19.28/t conc. for transport and port, and \$1.28/t conc. for G&A. The total cash costs amount to \$62.78/t of conc. free on board (“FOB”). The PEA includes a 5% concentrate royalty and assumes third party power via 120 MW gas fired power station at Menzies reticulated to the site. The existing Goldfields Gas Transmission Pipeline would provide the gas to the power station. Other major infrastructure required for the operation already exists and requires little upgrading. At a concentrate price of \$110/t, the project NPV<sub>8%</sub> is \$1,685 MM with an IRR of 19.8%. The initial Scoping Study incorporated a maiden Inferred mineral resource of 530 MMt grading 31.9% containing 169.07 MMt Fe at the Central zone, representing only 30% of the magnetite mineralization strike length. SRK’s 2018 estimate demonstrates a total resource of 1,314 MMt grading 29.9% Fe containing 392.3 MMt Fe. The estimate comprises Indicated resources of 1,062 MMt grading 30.23% Fe containing 272.3 MMt Fe; and Inferred resources of 784.0 MMt grading 28.5% Fe containing 223.2 MMt Fe.

## **MOUNT MASON HEMATITE PROJECT**

In March 2011, Jupiter announced the completion of a scoping study and a Preliminary Economic Assessment (“PEA”) for Mt Mason. The study outlined a 4-year mine life, with a 2.0 to 1 strip ratio open-pit contract operation mining 1.5 MMtpy direct ore shipping (“DSO”) hematite. The estimated initial cost was \$75.8 MM, and cash costs were \$51.08/t, inclusive of a royalty of 5%. Based on a base DSO price of \$108.67/t, the project had a NPV<sub>8%</sub> of \$106.18 MM and an IRR of 67%. Following the robust economics of the PEA, the Company completed and released a full Feasibility Study at the end of 2012. Jupiter completed baseline surveys to establish regional context for an Environmental Impact Assessment (“EIA”). However, Jupiter suspended the Feasibility Study optimisation work at the end of 2014 as iron ore prices began a descent to all-time lows. Though the study indicated robust economics, and iron ore has since experienced improved market conditions, the project has remained on care and maintenance. The current JORC-compliant mineral resource estimation is reported at a cut-off grade of >55% Fe. The Measured and Indicated resources at Mount Mason comprise 5.9 MMt at 60.1% Fe and lesser amounts of SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> containing 3.7 MMt Fe. The Inferred resources provide an additional 0.3 MMt at 58.4% Fe containing 0.2 MMt Fe.

## APPENDIX II. SENIOR MANAGEMENT TEAM (JUPITER)

**Priyank Thapliyal – CEO & Executive Director:** Priyank Thapliyal worked alongside Mr. Anil Agarwal (owner) to implement strategies that led to the creation of Vedanta Resources plc, a FTSE 100 company. Priyank went on to co-found Pallinghurst Advisors LLP where he was instrumental in delivering the Company its steel feed strategy via Jupiter. That has led to the creation of the flagship Tshipi Mine.

**Melissa North – CFO & Executive Director:** Ms. Melissa North joined Jupiter in 2012 as Group Financial Controller. Prior to joining Jupiter, Ms. North held various roles in finance management and business advisory services over almost a decade, including Group Financial Controller positions within the Chime Communications Group (London) and other large media agencies in the United Kingdom.

## SENIOR MANAGEMENT TEAM (TSHIPI)

**Ezekiel Lotlhare – CEO:** Mr. Lotlhare began his career in 1999, working as a process metallurgist for Hotazel Manganese Mines. Ezekiel has subsequently filled a variety of positions – being production manager of Lonmin Platinum (the world’s third largest producer of platinum), plant manager at Hotazel Manganese Mines, Operations Manager for Tau Mining Consultants, General Manager for Tshipi Borwa Mine to his most recent position of CEO at Tshipi é Ntle Manganese Mining (Pty) Ltd.

**Carel Malan – CFO:** Mr. Malan received his first exposure to the mining industry while at Ernst & Young. After three years with the firm in Gauteng, Carel requested a transfer to Bermuda where he spent one year before joining Tshipi, in January 2012. Carel was appointed as CFO of Tshipi in May 2014. In October 2015 Carel resigned from Tshipi é Ntle to pursue other interests. However, his interest in mining and an in-depth knowledge and experience of Tshipi é Ntle’s business model brought him back to the company, in October 2016, when he was reappointed as CFO.

## BOARD OF DIRECTORS (JUPITER)

**Brian Gilbertson – Chairman, Non-Executive Chairman:** Mr. Gilbertson was appointed as a Director of the Company on June 22, 2010. He was Managing Director of Rustenburg Platinum Mines Ltd in the 1980’s. Late he was the Executive Chairman of Gencor Ltd in the 1990’s, where he led the restructuring of the South African mining industry into post-Apartheid era. During this period, he held ultimate responsibility for Impala Platinum Holdings, for Samancor Ltd, and for Trans-Natal Coal Corporation. In 1997, Gencor Ltd restructured its non-precious metals interests as Billiton plc. In 2001, Billiton plc merged with BHP Ltd to create what is widely regarded as the world’s premier resources company, BHP Billiton plc. Mr. Gilbertson was appointed its second Chief Executive on July 1, 2002. In late 2003, Mr. Gilbertson led Vedanta Resources plc to the first primary listing of an Indian company on the LSE in the second largest IPO of the year (US\$876 MM). He served as Chairman of Vedanta until July 2004. He was appointed President of Sibirsko-Uralskaya Aluminium Company (SUAL), the smaller aluminium producer in Russia and led that company into the US\$30 BB merger with RUSAL and the alumina assets of Glencore International A.G., creating the largest aluminium company in the world. Mr. Gilbertson established

Pallinghurst Advisors LLP and Pallinghurst (Cayman) GP L.P. during 2005 and 2007 respectively, to develop opportunities on behalf of a group of natural resource investors.

**Paul Murray – Independent Non-Executive Director:** Paul is a founding director of Jupiter Mines Limited and was Chairman at the time of formation in August 2003. Paul was appointed as a Director of the Company on 20 August 2003. He has served continuously since that time as Chairman of both the Audit Committee and the Remuneration and Nomination Committee.

**Yeongjin Heo – Non-Executive Director:** Mr. Heo was appointed as a Director of the Company on 4 February 2019. He is the President of POSCO Australia Pty Ltd, a significant shareholder of the Company. After joining POSCO in 1995, Mr. Heo worked across the strategic planning and raw materials areas. Mr. Heo brings significant experience in the resource industry to Jupiter.

**Andrew Bell – Independent Non-Executive Director:** Mr. Bell was appointed as a Director of the Company on 4 June 2008. Mr Bell is Chairman of Red Rock Resources plc, and Regency Mines plc, being companies listed on the AIM market of the London Stock Exchange Ltd. He was a natural resources analyst in London in the 1970s, then specialized in investment and investment banking covering the Asia region

**Priyank Thapliyal – CEO, Executive Director:** (See section on Senior Management).

**Melissa North – CFO, Executive Director:** (See section on Senior Management).

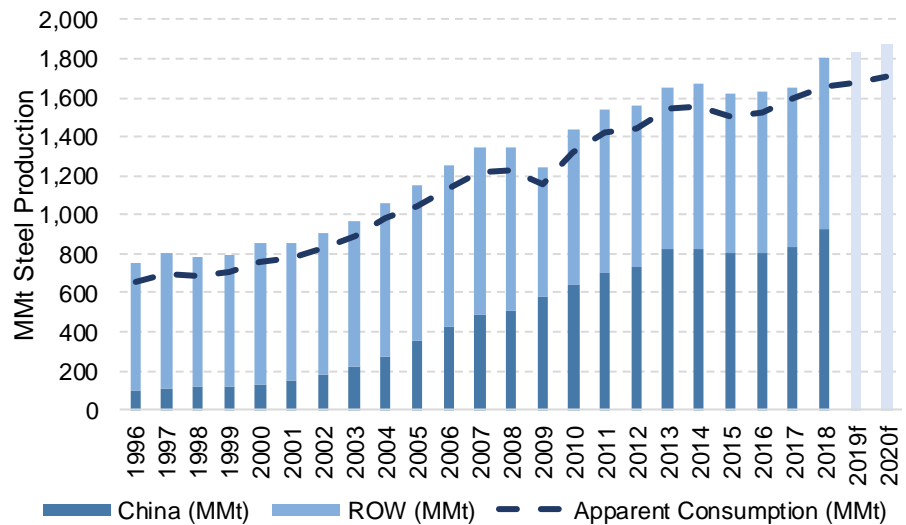
### APPENDIX III. BRIEF MANGANESE DEMAND OUTLOOK

The predominant use of manganese ore is as feedstock in steel production processes, which has represented 90% of manganese consumption over the previous decade. Evidently, the production of crude steel is the single most important factor influencing the demand for manganese ore. Manganese acts as an alloying agent to improve yield strength and flexibility of steel and removes oxygen and sulphur in the steelmaking process. Most importantly, there are no substitutes with the ability to impart the desired qualities to particular steel products. In light of growing projections of steel scrap availability in China, it is important to note that steel scrap recycling via electric arc furnace plants still requires manganese feed. On average, all global crude steel material produced contains 1.0-1.5% manganese content. It is no surprise then that demand for manganese is congruent with that of steel, making crude steel production a fair proxy for the future demand of manganese.

In 2018, global steel production was lifted by strong economic growth, an ongoing pickup in industrial production, and robust production in China. The dramatic increase in production translated into a significant upsurge for manganese ore prices. In the short term, demand for manganese ore is likely to continue to be linked to the pace of Chinese restocking inventories at the ports. In the medium and long term, demand will be underpinned by sustained Chinese crude steel output and growing output and consumption in other emerging economies.

- Despite the U.S.'s 25% steel tariffs, China saw 11.6% YoY growth in 2018 steel production (2017: 3%), meanwhile world steel production rose by 7% YoY (2017: 3.9%). The Chinese government introduced a number counter measures to offset the impact of the U.S. trade tariffs. The most notable measure is increased spending on infrastructure that led to immediate activity in the sector, which is expected to have a rising impact over time.
- The environmental policies undertaken in China over the last several years aim to tackle air pollution by curbing capacity of crude steel by 100-150 MMtpy by 2020 (2018 production was +800 MMt). A significant source of this capacity would come from shutting down the illegal, low-quality induction furnace operations. The reduced capacity combined with less competitive exports, a result of the U.S. tariffs, subdued growth that allowed the ROW (Rest of World) to benefit. However, these impediments on Chinese steel production were offset by a drop in local manganese ore supply (explained below).
- With regard to consumption and production outside of China, growth is likely to come from other emerging economies, specifically India. India's consumption growth is underpinned by rapid urban population growth, substantial investment in infrastructure and housing, and its growing manufacturing sector. Though China's production growth may have reached its peak, India has set a capacity target of 300 MMt of steel by 2030, equivalent to a CAGR of 13%. Consequently, the demand for manganese ore is expected to see commensurate growth of 10 MMtpy in the near-term.

**Exhibit 22. Crude Steel Production and Apparent Consumption**



Source: WSA, Cantor Fitzgerald Estimates.

**BRIEF MANGANESE SUPPLY OUTLOOK**

Manganese price indices have approximately doubled over the last three years. The rally can be attributed to both a rise in demand from steel alloy smelters, which is expected to continue to trend upwards, and environmental restrictions that boosted manganese ore imports in China. During the global crude steel market’s rebound, the manganese market exhibited highly cyclical behaviour. The explanation for this is straightforward: During the periods of peak prices, marginal suppliers re-opened mines to flood the market, ultimately driving down prices. This, coupled with the Chinese restocking inventories at the main ports of Tianjin and Qinzhou created a volatile recovery for manganese prices. Manganese ore inventories at the main ports of Tianjin and Qinzhou have since be restocked, totalling 3.2 MMt as of Q1/2019. However, prices remain buoyant in 2019 as demand continues to move neck and neck with supply. Several key supply-side catalysts lend support to continued tight supply-demand conditions that should facilitate manganese price stability.

➤ **China’s declining domestic ore supply:**

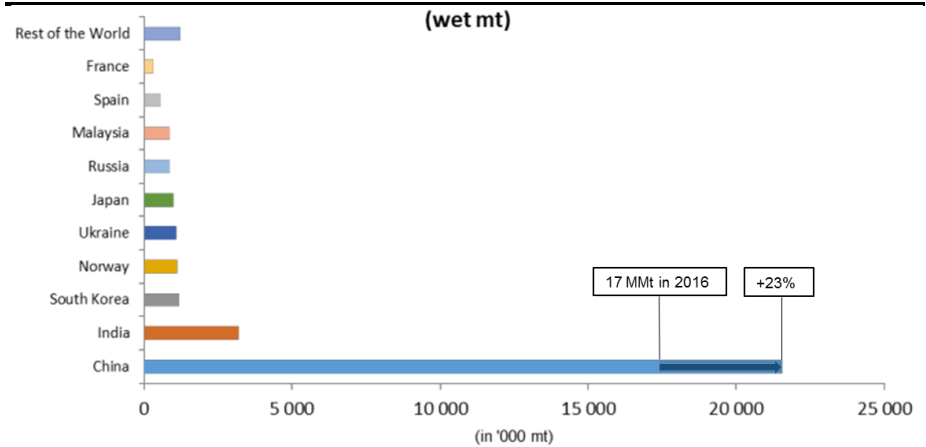
- In the age of China’s radical shift in environmental policy, it is not just the big players that are getting the brunt end of it. China has been cracking down on domestic manganese miners, which has hampered production across medium- and small-sized mines in 2017/18. China’s total output has fallen by approximately 23% from 2016 levels. Currently, only a select few licensed, large manganese miners remain active in China. Note that with China’s reduced domestic supply – comprising low-grade deposits – a vacuum is created for foreign exporters.

➤ **A shift in the cost-curve:**

- In the medium- and long-term, a number of mine reserves will be depleted, and others forced underground – triggering a shift in the cost-curve, that will likely result in displacement of low-

grade producers. Notwithstanding mine production headroom, mine-to-port product logistics remain a key factor limiting national output. It is incumbent producers with established logistics channels that are well-positioned to respond to improved market demand.

**Exhibit 23. Top 10 Manganese Importing Countries in 2017**



Source: International Mn Institute



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### *Disclosures as of April 18, 2019*

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The analysts responsible for this research report do not have, either directly or indirectly, a long or short position in the shares or options of Jupiter Mines.

The analyst responsible for this report has conducted a due-diligence site visit to the Tshipi Mine on February 29, 2019.

### *Analyst certification*

The research analyst whose name appears on this report hereby certifies that the opinions and recommendations expressed herein accurately reflect his personal views about the securities, issuers or industries discussed herein.

### *Definitions of recommendations*

**BUY:** The stock is attractively priced relative to the company’s fundamentals and we expect it to appreciate significantly from the current price over the next 6 to 12 months.

**BUY (Speculative):** The stock is attractively priced relative to the company’s fundamentals, however investment in the security carries a higher degree of risk.

**HOLD:** The stock is fairly valued, lacks a near term catalyst, or its execution risk is such that we expect it to trade within a narrow range of the current price in the next 6 to 12 months. The longer term fundamental value of the company may be materially higher, but certain milestones/catalysts have yet to be fully realized.

**SELL:** The stock is overpriced relative to the company’s fundamentals, and we expect it to decline from the current price over the next 6 to 12 months.

**TENDER:** We believe the offer price by the acquirer is fair and thus recommend investors tender their shares to the offer.

**UNDER REVIEW:** We are temporarily placing our recommendation under review until further information is disclosed.

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