

# Tiger Resources

**Metals & mining**
**3 February 2017**

## Roaring back

On 10 January, Tiger announced that it had achieved production for FY16 of 23,119t of copper cathode. While this was within updated guidance of 23.0-23.6kt, it was below earlier guidance of 25.0-26.5kt after a number of setbacks curtailed output. While 2016 therefore witnessed management fighting a series of metaphorical fires, an elegant solution to the central metallurgical problems, utilising the newly established tank leach capacity from the earlier de-bottlenecking exercise, has stabilised Tiger and leaves it poised for an eventual recovery in output to 32.5ktpa.

## Tribulations and solutions

Tiger's tribulations included the run-of-mine heap going 'blind' during FY16 as a result of excessive fine material forming an impenetrable layer to the leach solvent and resulting in significant delay to the recovery of metal. While the short-term solution was to scarify and re-mine the heap, the more elegant longer-term solution was to utilise newly established tank leach capacity to treat the fines that would otherwise have been directed towards the heap. This re-engineering of the process flow route will coincide with the restart of mining at the main Kipoi pit. At the same time, management is to use a small decant pond relating to the tank leach circuit as an intermediate leach solution pond, while construction of a new (permanent) pond is brought forward in mitigation of the acid leak from the existing pond in October.

## Copper returns to favour

Tiger's operational recovery comes at a time when copper is once again returning to favour among investors. Against almost universally bearish expectations for copper's prospects this time a year ago, in fact the red metal outperformed silver (the analysts' erstwhile favourite), nickel, lead, gold and platinum as well as uranium, in the event rising by 17.4% in US dollar terms in 2016. Not for the first time, the anticipated 'wave' of supply failed to materialise, while (in the latter half of the year) its prospects were materially boosted by the election of Donald Trump as President in the US and expectations for a reflation in the American economy.

## Valuation: EV/EBITDA multiple materially cheap

Tiger's book value as at end-June 2016 amounted to 7c per share. Consensus estimates for EPS currently do not exist. However, Tiger's trailing 12-month EV/EBITDA ratio of 10.1x is at a 39.2% discount to the average of a sample of its peers. This is currently forecast to narrow fractionally over the next two years, to 31.6%, but is still anticipated to remain well above its historical average of 22.0%. Cash flows are anticipated to be positive in the order of 1c per share.

### Consensus estimates

Year end	Revenue (US\$m)	EBITDA (US\$m)	EPS (c)	DPS (c)	EV/EBITDA (x)	P/E (x)
12/14	143.4	39.0	0.34	0.00	6.2	8.8
12/15	146.4	25.1	(1.52)	0.00	9.6	N/A
12/16e	128.0	26.2	N/A	0.00	9.2	N/A
12/17e	158.0	46.0	N/A	0.00	5.2	N/A

Source: Company sources, Bloomberg, Edison Investment Research

**Price** **A\$0.04**
**Market cap** **A\$78m**

US\$0.7671/A\$

### Share price graph



### Share details

Code	TGS
Listing	ASX
Shares in issue	1,938.2m

### Business description

Tiger has established itself as a leading independent producer, developer and explorer of copper in the DRC copper belt via its 95% interest in the open cast Kipoi mine near Lubumbashi. After producing copper concentrate in 2011-14, Tiger has now transitioned to the production of LME grade A equivalent cathode.

### Bull

- Elegant solution to metallurgical problems.
- Mining to restart at Kipoi main deposit.
- Copper back in favour.

### Bear

- DRC sovereign risk.
- US\$181.4m net debt at end-December 2016.
- Likely short-term teething disruptions.

### Analysts

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## Tribulations and solutions

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### Background

Tiger is developing the Kipoi project in the DRC in stages. Stage 1 involved processing high-grade oxide copper mineralisation through a heavy media separation (HMS) plant. This began in mid-2011 and ceased in October 2014, after Tiger successfully commenced the production of copper cathode at its Stage 2 solvent extraction electro-winning (SX-EW) plant at Kipoi in May 2014. Note that no mining was required for the first two years of Stage 2 operations as material was initially sourced from reject floats, slimes and medium-grade ore stockpiles from Stage 1.

### The tank leach initiative

In July 2015, Tiger completed a de-bottlenecking study aimed at taking annual capacity from 25,000tpa copper cathode to 32,500tpa from Q117 (the limiting factor being the electro-winning capacity in the circuit). Central to the plan's success was Tiger's ability to increase production during the wet season, in particular, which runs from approximately December to April every year, when big events (eg 65mm of rain in two hours) are able to materially impair operations. One of the key initiatives in managing such wet season risk was the expansion of the tank leach circuit to supplement existing operations. Estimated capital expenditure to bring the tank leach circuit into production was US\$25m, including 14 electro-winning cells and a tailings storage facility. Completion was targeted for Q416 and (notwithstanding some delays occasioned by infrastructure import delays and an unusually heavy wet season) the electro-winning circuit was duly commissioned in October (note: the tank leach is in the process of being commissioned).

### Tribulation 1 and (short-term) solution 1

At the same time as the tank leach project was being mooted, Tiger was also embarking on a whole ore heap leach operation to process historically stockpiled material. As a result, after the wet season in 2016, from April to June, Tiger began to operate a run-of-mine heap. Owing to the level of fine material (fines) delivered to the heap, however, a compacted, impenetrable layer formed, which prevented any recovery whatsoever and the heap went 'blind'.

While the immediate solution – which was to scarify and re-mine the heap – was technically relatively simple, it nevertheless disrupted Tiger's production schedules to the point at which it formally downgraded its production guidance for the year to 23.0-23.6kt copper cathode, from 25.0-26.5kt previously.

### Tribulation 2 and (short-term) solution 2

At almost exactly the same time as the tank leach expansion was reaching its conclusion, on 15 October, operations staff reported a seepage of process solution from the toe of the eastern embankment of the intermediate leach solution (ILS) pond. The immediate leak was quickly dealt with. In the medium term, however, the ILS pond required buttressing on four walls, which was complicated by the fact that the ILS and the PLS (pregnant leach solution) ponds share a common wall and any errors in the remedial works which resulted in the loss of the PLS would have presented Tiger with a major crisis.

In order to protect the integrity of the PLS, management's immediate solution was to use a small decant pond that was developed as part of the tank leach expansion as a temporary ILS. As a new ILS was being planned for anyway, the medium-term solution was simply to bring plans for this pond forward by 12 months. It had originally been hoped to complete the new ILS before the onset of the current wet season. However, environmental permitting delays meant that this was not possible and, as such, the commissioning of the new ILS has now been put back until after the end of the current rainy season.

## **Integrated solution**

In mitigation of the above tribulations, in the longer term, management's solution is to use tank leach capacity to treat fines from the whole ore leach process to stabilise operations at Kipoi and create a base from which output can expand once again from current levels towards the target output rate of 32,500t pa. As part of this process, management plans to double capacity at the tank leach circuit to 100t per hour (c 800ktpa). While this will not increase copper cathode output (which is constrained by the capacity of the electro-winning cells), it will nevertheless increase flexibility within the operation and create a platform for potential further expansions.

## **Timelines**

Tiger forecast production of 25,000t in 2015, but ultimately outperformed this target by 4.6% to deliver 26,151t during the 12-month period. The tribulations of 2016 resulted in production then falling by 11.6%, to 23,119t. No formal guidance yet exists for 2017; all other things being equal, however, production should be at least as high as in 2015 (ie c 26,000t) and potentially as high as 30,500t, depending on the eventfulness of the ramp-up at the tank leach circuit. Assuming that this is ultimately successfully achieved in 2017, however, the first year of full production at the new, higher output rate of 32,500tpa will be 2018.

## **Exploration and exploitation**

Tiger has an interest in a number of highly prospective projects covering 1,900km<sup>2</sup> of the DRC copper belt including the Kipoi, Lupoto and La Patience projects. Immediate activity is focused on the 12km north-west to south-east trending Kipoi fault line, within which the Kipoi Central pit is centrally located. Gross resources amount to 1,062kt of contained copper, of which 84% is contained in the Kipoi project, with reserves of 644kt. This alone will support production for in excess of 10 years, after which Tiger plans to blend in material from Kileba and Judiera to increase the life of operations to at least 16 years.

On account of its prior commercial relationship with DRC parastatal, Gecamines, Tiger has performed relatively little exploration over the course of the past four to five years. Now that Gecamines is neither a shareholder nor a joint venture partner, however, Tiger will return to active exploration, with a target of adding resource tonnes to its inventory, before converting them into reserves, at which point it will either extend the life of operations (initially) or, assuming sufficient success, double the size of the project.

In the meantime, additional potential exists in the form of cobalt that has built up in the leach circuit and which will either require bleeding or recovering and to which end Tiger is currently investigating the potential for a 1,000tpa cobalt hydroxide plant.

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