KEFI Minerals

Contractors chosen

Beyond Tulu Kapi

Metals & mining

On 13 October, KEFI announced that it had appointed Sedgman as its preferred processing plant contractor at Tulu Kapi. Inter alia, Sedgman's scope of work includes an estimated cost of c US$63m for a 1.5-1.7Mtpa plant, which compares favourably with the DFS and our most recent cost estimates and throughput rates. To expedite the development of the project further, early front-end engineering and design (FEED) work is reported to have started. Similarly, on 14 October, KEFI announced that it had appointed African Mining Services (a subsidiary of Ausdrill) as its preferred mining contractor. Sedgman and Ausdrill are both established names in their respective industry specialisations with a recognised capability in Africa.

Year end	Revenue (£m)	PBT* (£m)	EPS* (p)	DPS (p)	P/E (x)	Yield (%)
12/13	0.0	(0.9)	(0.4)	0.0	N/A	N/A
12/14	0.0	(2.6)	(0.4)	0.0	N/A	N/A
12/15e	0.0	(1.8)	(0.1)	0.0	N/A	N/A
12/16e	0.0	(6.1)	(0.3)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding intangible amortisation and exceptional items.

Blue sky

Two areas of incremental, blue-sky potential exist at Tulu Kapi – a potential 10-20koz heap leach operation on low-grade, near-surface oxide material and a potential 40-50koz operation on 300koz of underground resources at a grade of c 6g/t. On the other side of the Red Sea, KEFI currently has a 40% interest in a 733koz resource at Jibal Qutman, which we estimate would be worth US$4.5m (0.17p per share) if valued at the average of its London peers, given its resource categorisations or US$2.8m (0.10pp) at the average global cost of discovery of its resources, or US$1.3m (0.05pp) if valued at KEFI's prevailing resource multiple of US$4.18/oz (with self-evident upside potential in the event of additional, future development). In addition to Jibal Qutman, KEFI has 24 further licences pending in a newly re-emerging gold district, which management likens to Western Australia before it was pegged, including the potentially significant Hawiah VMS target.

Valuation: 43.6% IRR in sterling terms over 12 years

Our current valuation of KEFI is 2.34p/sh, based on the net present value of (maximum potential) dividends payable to shareholders as a result of an investment into the company at the prevailing share price of 0.38p. This rises to 3.42p/sh in FY19, when the first potentially substantive dividend is payable, and equates to a resource multiple of US$66.32 per attributable in-situ resource ounce. However, KEFI estimates that its cost of discovery of resource ounces is less than US$10/oz overall and less than US$5/oz in Ethiopia. As such, rather than remaining a single-asset company, KEFI's strategy is to selectively leverage its cash flow into exploration. Contingent on its being successful, we estimate that KEFI's share price could rise as high as 5.61p in FY19 (which would put it on a contemporary P/E ratio of 4.9x FY19 EPS and an average of 6.4x FY18-26 EPS).

11 November 2015

Price	**0.40p**
Market cap	**£7m**
	US$1.5370/£
Net cash (£m) at 30 June 2015	1.0
Shares in issue	1,744.4m
Free float	89.5%
Code	KEFI
Primary exchange	AIM
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(5.9)	(46.7)	(63.6)
Rel (local)	(4.1)	(43.1)	(62.7)
52-week high/low		1.33p	0.43p

Business description

KEFI Minerals is an exploration and development company focused on gold and copper deposits in the highly prospective Arabian-Nubian Shield – principally the 95%-owned Tulu Kapi project in Ethiopia and, to a lesser extent, the 40%-owned Jibal Qutman project in Saudi Arabia.

Next events

Financing details	Q415
JORC resource update	End November

Analyst

Charles Gibson +44 (0)20 3077 5724

mining@edisongroup.com

Edison profile page

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Investment summary: Pushing ahead

In our update note on KEFI in October, we considered the effect of its proposed 25% expansion of the plant capacity at Tulu Kapi to 1.5Mtpa and concluded that this should make it capable of generating average after-tax earnings of c £25m pa (vs £20m pa previously) and free cash flow of £34m pa (vs £32m previously). Excluding funding, we calculated an updated project NPV_{10} of £78.8m (vs £68.0m previously), or 4.5p/share (4.3p attributable) at our long-term gold prices. Including funding, we calculated that KEFI shareholders should expect maximum potential dividends of c 0.69p/share pa, with a value of 2.59p/share over the life of operations (similarly using a 10% discount rate), rising to 3.79p/share in FY19.

Since then, KEFI's share price has fallen from 0.53p to 0.38p, despite the fact that it has announced the appointment of both preferred mining and plant contractors at Tulu Kapi and provided an update on its exploration activities.

Preferred plant contractor

On 13 October, KEFI announced that it had appointed Sedgman as its preferred contractor for plant construction and start-up at Tulu Kapi. Inter alia, Sedgman's scope of work includes an 'estimated cost of c US$63m for 1.5-1.7Mtpa depending on ore-type from year to year to be refined during the FEED stage'. Sedgman's work was already reportedly responsible for increasing forecast production at Tulu Kapi to 105,000oz pa in the first five years of production. As well as potentially expanding plant throughput capacity by a further 13.3%, the cost estimate also compares favourably with both the definitive feasibility study (DFS) estimate of a total cost of US$61m for a 1.2Mtpa plant and our most recent processing capex estimate of US$65.6m. To expedite the development of the project yet further, early front-end engineering and design (FEED) work by Sedgman is already reported to have started.

Similarly, on 14 October, KEFI announced that it had appointed African Mining Services (AMS, a wholly-owned subsidiary of Ausdrill) as its preferred contractor for mine establishment and operation. Ausdrill's scope of work covers pre-mining earthworks as well as the life-of-open-pit mining operations, with a contractual payment rate based on the number of cubic metres of material delivered.

Sedgman and Ausdrill are both Australian with a recognised capability in Africa and are established names in their respective industry specialisations.

Exploration developments

While developing Tulu Kapi remains KEFI's immediate priority, there are a number of exploration prospects that provide potential for the incremental and marginal expansion of KEFI's gold output in the future.

Tulu Kapi

Two of the potential areas of expansion are at Tulu Kapi itself.

Heap leach

Prior exploration drilling by Nyota has already extended the limits of mineralisation by up to 4km to the west of the Tulu Kapi pit. At 1.3-1.5g/t in-situ, the grade of this mineralisation was too low to be included in the development plan for the mine. However, its width (typically 10-14m wide) and oxide nature potentially qualify it as the basis of an incremental heap leach operation. To this end, 24-

hour, coarse crush (>6mm), cyanide leach bottle roll metallurgical tests (a proxy for column leach tests) have been completed on selected trench samples and demonstrate a recovery of c 94%. Management estimates that resources containing 100-200koz of gold could be amenable to exploitation by such methods and could therefore support an operation producing 10-20koz gold pa for approximately 10 years.

Underground

In addition to a potential heap leach operation, c 300koz of resources exist at depth at Tulu Kapi in the indicated and inferred categories at grades of approximately 6g/t. These resources are 'open' down plunge. In this case, the higher grade could be attributed to either a tighter structure or a hotter environment on formation. Nevertheless, the widths of the structures typically exceed 4m and are therefore amenable to underground mining. Moreover, the higher grades contribute to higher metallurgical recoveries, typically in the range 93-94%.

While developments are obviously still at an early stage, a preliminary mine plan envisages an incremental, high-grade underground mining operation at Tulu Kapi, processing 320,000t of ore per year to produce 40-50koz recovered gold pa to complement the initial open-pit mining plan.

Saudi Arabia

Background

The Arabian side of the Arabian-Nubian Shield (ANS) is the source of some of man's earliest known mining activities, including the Mahd adh Dhahab ('Cradle of Gold') mine, which is the leading gold mining area in the Arabian peninsula, in the Al Madina province of the Hejaz region of Saudi Arabia, between Mecca and Medina. Gold was first mined in the area around 5,000 years ago in the form of swarms of gold-bearing quartz veins and the site has been identified as one of the possible locations of King Solomon's mines, where archaeologists have found a large abandoned gold mine, c 1Mt of waste rock and thousands of ancient stone hammers and grindstones. Inter alia, the area inspired the earliest-known map, the Turin Papyrus, which the Egyptians used to mine gold in Egypt and north-east Sudan.

In general, the ANS consists of Precambrian crystalline rocks and hosts various minerals in a diverse range of deposit formations, including gold, copper, zinc, tantalum, silver, and potash, which can be found in mesothermal gold, polymetallic, quartz vein gold and volcanogenic massive sulphide (VMS) ores.

KEFI currently has a 40% interest in a 733koz resource at Jibal Qutman on the Arabian side of the ANS. In our August initiation report, we estimated that Jibal Qutman would be worth US$4.5m, or 0.17p per share to KEFI, if valued at the average of its London peers, given its resource categorisations (with self-evident upside potential in the event of additional, future development). At the average global cost of discovery of its resources, it would be worth US$2.8, or 0.10p per share.

The Saudi Arabian government has stated that it wishes to grow the mining sector materially in the foreseeable future. Where before all activity was conducted by the state-controlled Saudi Arabian Mining Company (Ma'aden), it has now been de-regulated and opened up to overseas investors (eg Barrick, among others), although Ma'aden remains the largest operator, with five gold mines currently in production and a further five planned.

Unlike many other jurisdictions, no royalties are levied on production in Saudi Arabia. Moreover, a requirement to demonstrate advance funds to underwrite future works (a requirement managed by ARTAR for G&M, see below) acts as an effective barrier to entry for the more opportunistic junior explorers. On the other hand, up to 75% of the capital costs of strategic projects (eg the first privately-funded gold mine) are eligible for Saudi Industrial Development Fund (SIDF) debt funding at minimal rates of interest (eg below 2%), which would leave KEFI (or any other company) needing to fund only 40% of 25% of the total capital cost of the project to maintain its interest. In the meantime, KEFI states that the cost of exploration in Saudi Arabia is close to US$40 per metre of reverse circulation (RC) drilling and US$100/m of diamond drilling (cf c US$160/m in Ethiopia).

Commercial and technical

KEFI's interest in Saudi Arabia began with the formation of a 40:60 joint venture, called Gold & Minerals, with the Saudi construction and investment group ARTAR (the vehicle of the Al-Rashid family). Despite its 'junior' financial interest, KEFI nevertheless operates all G&M's assets in Saudi Arabia, while ARTAR provides administrative, logistic and professional services advice.

The US Geological Survey and the French BRGM have jointly compiled approximately 60 years' worth of geological data on Saudi Arabia. In total, they documented over 5,000 historic mining sites in the country. Although this information is not typically generally available, it has been made available to KEFI, which has subsequently made 24 licence applications over areas with old workings and begun early-stage trenching programmes.

Jibal Qutman (gold)

Jibal Qutman is in the central southern region of Saudi Arabia, on the Nabitah-Tathlith fault zone of the Arabian-Nubian Shield (a 300km-long structure with multiple outcrops at surface) and along which BRGM mapped over 40 mineral occurrences. KEFI's management likens the area to Western Australia and, in particular, Kalgoorlie before it was pegged, but without the attendant problems of a settled population and private land ownership. Gold mineralisation at Jibal Qutman itself is hosted in a series of quartz veins in six separate ore bodies, denoted the Main Zone, the South Zone, the West Zone, 3K Hill, 5K Hill and Pyrite Hill. The main vein dips to the east at an angle of c 45°, surrounded by parallel veins that form stringer zones around it.

An infill drill programme on 25m centres began in late June 2015, comprising 5,415m of reverse circulation (RC) drilling on five of Jibal Qutman's six mineralised zones, with the aim of converting resources from the inferred into the indicated category and also adding additional oxide material via the drilling of zones proximal to the proposed pits. Column leach metallurgical tests on the oxide portion of the resource have indicated gold recoveries of c 73%, as a result of which KEFI envisages developing the area via a string of pits mining oxidised material for heap leach processing. To this end, it is preparing a mining licence application at Jibal Qutman (for which a maiden reserve statement will be required) and trying to fast track a further four licences. Management estimates that approximately 200koz of Jibal Qutman's 290koz oxide resource will form the basis of the first open pit, supporting an operation producing c 30-40koz on average per year over the life of the initial mine at a metallurgical recovery rate of c 73%. Cash operating costs on the initial resource are similarly estimated at US$600/oz (putting it in the lowest cost tercile of global gold production), while capex is estimated at US$30m. In due course, the addition of four other mining licences could support a proportionally larger production base using a modular development model. Ideally, management would like pre-production preparation to be completed by the end of CY16, such that construction and development crews at Tulu Kapi could then be seamlessly transferred from Ethiopia to Saudi Arabia in FY17.

Hawiah (copper and base metals)

Seven of KEFI's 24 licences are on the 120km Mamilah-Wadi Bidah Volcanogenic Mineral belt. BRGM and the USGS documented c 30 VMS deposits in the region, historically, of which at least one was subsequently drilled and found to contain copper at a grade in excess of 2%.

KEFI's Hawiah deposit is on a 6km gold mineralised gossan and is interpreted to overlie a copper-gold-zinc massive sulphide target. An initial 53-trench surface sampling programme over a 6km horizon demonstrated early evidence for the presence of metals in the form of visible staining. As a result, a major geophysical survey was conducted over the southern half of the gossanous horizon, which identified a large geophysical anomaly (approximately 2,000m long and 300m high) also potentially indicating the presence of metals. Although the modular development of near-surface gold oxide deposits will be KEFI's immediate (chronological) priority in Saudi Arabia therefore, the potential scale of a VMS at Hawiah has made it a priority exploration and commercial focus for KEFI in H215 and CY16, with copper the main target.

Infrastructure

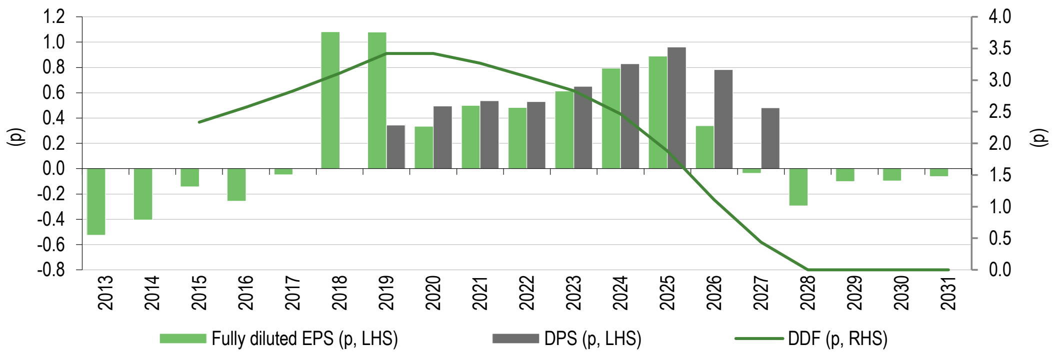
Hitherto, a significant constraint to the developing mining industry in Saudi Arabia has been a lack of access to water. However, Ma'aden has now commissioned a 430km, 18-inch pipeline to carry treated waste water to the Taif Makkah Region. Management believes that water is also potentially available via artesian sources or via trucking (note, there is a precedent for trucking water in Saudi Arabia, where fuel costs as low as US$0.09 per litre make this almost uniquely feasible).

In addition to cheap trucking costs, the low cost of fuel also results in a low power cost of c 2-3 US cents per kWh for generated electricity. This means that the development of KEFI's Saudi Arabian assets will result in its operating in very low-cost jurisdictions with respect to power and labour, in particular, on both sides of the Red Sea, and thereby allow it to maintain total cash costs in the lower half of the global cost curve.

Valuation

In our October update note we concluded that the net present value of the (maximum potential) dividend stream to investors in KEFI shares was 2.59p (using our long-term gold prices and a 10% discount rate), rising to 3.79p/share in FY19, the year of the first (potential) substantive dividend payment. The current valuation, using the same methodology and assumptions, is 2.34p/sh, rising to 3.42p/sh, as shown in the graph below.

Exhibit 1: Edison estimate of life-of-mine KEFI EPS and (maximum potential) DPS



Source: Edison Investment Research. Note: DDF = discounted dividend flow.

This 3.42p valuation equates to a resource multiple of US$66.32 per attributable in-situ resource ounce for what will then be a debt-free company. However, KEFI estimates that its cost of discovery is less than US$10/oz of resources overall and less than US$5/oz in Ethiopia. As such, rather than remaining a single-asset company, KEFI's strategy is to selectively leverage its cash flow into exploration. If it is able to do this to the extent that it can demonstrate a track record in replenishing reserves and resources to the point at which its producing life extends indeterminately, it is likely to start to be valued on a multiple-type basis by the market, rather than a discounted cash or dividend flow basis. Contingent on its being successful, we estimate that the market will apply a lower discount rate in valuing KEFI's cash and/or dividend flows, thus allowing its share price to rise –

potentially as high as 5.61p, in our opinion. This would put it on a contemporary P/E multiple of 4.9x FY19 EPS and an average of 6.4x FY18-26 EPS (vs 8.04x for the FTSE Mining index currently).

Financials

At 30 June, KEFI had cash of £1.0m on its balance sheet (cf £0.6m on 31 December 2014) after a cash burn of £3.6m in H115.

The company is considering several options on sequencing its development funding but for the purposes of our valuation, we have assumed one further equity raise of US$5m in FY15 at the prevailing share price. On the basis of these assumptions, we estimate that KEFI will have a maximum funding requirement (likely to be satisfied predominantly by debt) of £39.7m (excluding streaming) in FY17. Streaming will create an additional contingent liability in KEFI's accounts, which we estimate at around £27.8m at its maximum extent in FY17. However, streaming is associated with less risk than debt (and is not considered as debt by the lending banks), as it has neither associated debt-service covenants nor a fixed repayment schedule.

Exhibit 2: Financial summary

£000s	2013	2014	2015e	2016e	2017e
Year-end 31 December	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS					
Revenue	0	0	0	0	40,490
Cost of Sales	(927)	(2,071)	(1,697)	(1,971)	(31,580)
Gross Profit	(927)	(2,071)	(1,697)	(1,971)	8,910
EBITDA	(927)	(2,071)	(1,697)	(1,971)	8,910
Operating Profit (before amort. and except.)	(927)	(2,189)	(1,857)	(5,815)	2,543
Intangible Amortisation	0	0	0	0	0
Exceptionals	(442)	(379)	(200)	0	0
Other	0	0	0	0	0
Operating Profit	(1,369)	(2,568)	(2,057)	(5,815)	2,543
Net Interest	4	(413)	10	(292)	(3,337)
Profit Before Tax (norm)	(923)	(2,602)	(1,847)	(6,107)	(794)
Profit Before Tax (FRS 3)	(1,365)	(2,981)	(2,047)	(6,107)	(794)
Tax	0	0	0	0	0
Profit After Tax (norm)	(923)	(2,602)	(1,847)	(6,107)	(794)
Profit After Tax (FRS 3)	(1,365)	(2,981)	(2,047)	(6,107)	(794)
Average Number of Shares Outstanding (m)	493.4	952.4	1,917.9	2,600.5	2,600.5
EPS - normalised (p)	(0.4)	(0.4)	(0.1)	(0.3)	(0.1)
EPS - normalised and fully diluted (p)	(0.4)	(0.4)	(0.1)	(0.3)	(0.0)
EPS - (IFRS) (p)	(0.3)	(0.3)	(0.1)	(0.2)	(0.0)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	-	-	-	-	22.0
EBITDA Margin (%)	-	-	-	-	22.0
Operating Margin (before GW and except.) (%)	-	-	-	-	6.3
BALANCE SHEET					
Fixed Assets	7,152	9,299	15,756	60,859	78,833
Intangible Assets	6,900	9,139	10,688	9,800	8,912
Tangible Assets	252	160	3,844	49,835	68,697
Investments	0	0	1,224	1,224	1,224
Current Assets	4,014	1,061	508	3,648	6,788
Stocks	0	0	0	1,687	3,374
Debtors	655	335	422	1,875	3,328
Cash	3,279	640	0	0	0
Other	80	86	86	86	86
Current Liabilities	(3,363)	(3,202)	(2,296)	(2,300)	(2,434)
Creditors	(3,363)	(3,202)	(2,296)	(2,300)	(2,434)
Short term borrowings	0	0	0	0	0
Long Term Liabilities	0	0	(2,650)	(44,871)	(67,534)
Long term borrowings	0	0	(2,650)	(15,593)	(39,712)
Other long term liabilities	0	0	0	(29,278)	(27,822)
Net Assets	7,803	7,158	11,318	17,336	15,653
CASH FLOW					
Operating Cash Flow	(1,424)	(2,006)	(2,690)	(5,107)	5,904
Net Interest	4	(413)	10	(292)	(3,337)
Tax	0	0	0	0	0
Capex	(877)	(3,133)	(7,505)	(49,835)	(25,229)
Acquisitions/disposals	(1,083)	(750)	0	0	0
Financing	4,735	3,663	6,895	13,012	0
Dividends	0	0	0	0	0
Net Cash Flow	1,355	(2,639)	(3,290)	(42,221)	(22,663)
Opening net debt/(cash)	(1,924)	(3,279)	(640)	2,650	44,871
HP finance leases initiated	0	0	0	0	0
Other	0	0	0	0	(0)
Closing net debt/(cash)	(3,279)	(640)	2,650	44,871	67,534

Source: Company sources, Edison Investment Research

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