EDISON

Freegold Ventures

Boldly going

Initiation of coverage

Metals & mining

Freegold's assets consist of the Golden Summit project and the Shorty Creek copper–gold project in Alaska. Tetra Tech's preliminary economic assessment (PEA) of Golden Summit demonstrated a pre-tax internal rate of return (IRR) of 20.0% and a post-tax NPV_5 of US$188m (US$1.08 per existing Freegold share) at a gold price of US$1,300/oz. However, Freegold is looking to augment economic returns to shareholders by expanding the oxide resource to support a doubled throughput rate in the early years of production. In the meantime, it believes that it has discovered a buried copper porphyry. Although relatively early stage (and subject to an appropriate risk warning – see page 22), we think that exploration at Shorty Creek to date could be indicative of an initial resource of c 0.8Mt of contained copper plus additional by-product credits and open at depth at just one of its exploration targets at Shorty Creek. We estimate these could be worth c US$11.8m (ie 139% of Freegold's current enterprise value [EV]) initially, if a resource can be brought to NI 43-101 standards (the goal of this year's drilling).

Year end	Revenue (US$m)	PBT* (US$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
12/16	0.0	(1.0)	(0.7)	0.0	N/A	N/A
12/17	0.0	(0.6)	(0.4)	0.0	N/A	N/A
12/18e	0.0	(0.8)	(0.4)	0.0	N/A	N/A
12/19e	0.0	(1.0)	(0.6)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles and exceptional items.

Cheap relative to project and to peers

Freegold's EV currently equates to just 4.5% of its external consultant-determined project NPV_5 (or 13.8% of our equivalent NPV_{10}), which compares with a mean of 35.7% for gold companies (excluding outliers – see pages 9–10) and 18.9% for companies at PEA stage of development.

Valuation: Cheap absolutely

When conducted at our long-term gold prices and fully diluted to reflect assumed future equity financing, all other things being equal, we estimate that the net present value (NPV) of the resulting stream of dividends to shareholders in Freegold from the development of the Golden Summit project, according to its PEA parameters (and at Edison's customary 10% discount rate), is 12.6 US cents per share in FY18, rising to a peak of 42.8c in FY37 (note: the same valuation is achieved by discounting project cash flows at 9.7%). However, this increases to 18.0/share in the event that Freegold is able to double its oxide resource to 1.2Moz, thereby supporting a doubling in early-stage production rates. In the meantime, investors can buy shares in Freegold at a price that equates to an almost unprecedented US$1.30 per Golden Summit resource ounce of gold. In addition, on the basis of exploration conducted to date, we estimate that Shorty Creek could contain in the order of 0.8Mt of contained copper (see Exhibit 34), with a value of US$11.2m (ie 132% of Freegold's current EV) if it can be brought to NI 43-101 standards and potentially as high as US$18.6m (ie 213% of Freegold's current EV).

20 August 2018

Price	**C$0.08**
Market cap	**C$14m**
	C$1.3133/US$
Net cash (US$m) end-March 2018	0.5
Shares in issue (000s)	174,019
Free float	86.3%
Code	FVL
Primary exchange	TSX
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(12.5)	(12.5)	(41.7)
Rel (local)	(11.5)	(13.5)	(46.3)
52-week high/low	C$0.14	C$0.06	

Business description

Freegold's focus is on copper and gold exploration near Fairbanks, Alaska. It holds both the Golden Summit project (on which a PEA was completed in January 2016) and the Shorty Creek copper–gold porphyry project, where potential by-products include gold, silver, cobalt and tungsten.

Next event

Shorty Creek metallurgical test-work	August 2018

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Edison profile page

Freegold Ventures is a research client of Edison Investment Research Limited

Investment summary

Company description: Alaskan copper–gold explorer

Freegold's focus is on copper and gold exploration near Fairbanks, Alaska. It holds both the Golden Summit project (on which a PEA was completed in January 2016) and the Shorty Creek project, which it acquired in July 2014. While it is still at a relatively early stage, Freegold believes that its exploration of Shorty Creek to date is consistent with its having discovered a new buried copper porphyry (see pages 18-22).

Valuation: Base case $0.126/share

At a gold price of US$1,300/oz and discount rate of 5%, Tetra Tech's PEA of Golden Summit demonstrated a pre-tax IRR for the project of 20.0%, a post-tax NPV of US$188m (US$1.08 per existing Freegold share) and a 3.3-year payback of US$88m in initial capital expenditure. When fully diluted to reflect assumed future equity financing, but all other things being equal, we estimate that the NPV of the resulting stream of dividends to shareholders in Freegold from the development of the Golden Summit project, according to the PEA parameters, is 12.6 US cents per share in FY18, rising to a peak of 42.8c in FY37.

Sensitivities: Potentially US$0.181/sh, rising to US$0.321/sh

From a quantitative perspective, our US$0.126/share 'base case' valuation of Freegold/Golden Summit (above) is sensitive in the order of ±62% and ±38% for a ±10% change to the gold price and unit costs, respectively. Otherwise, one of the results of 2017's exploration programme at Golden Summit was to demonstrate the potential to expand the current oxide resource to the north of the deposit, as well as to the south-west and west. On 7 June 2018, the company announced that planning had commenced on a drilling campaign with an upper-end target of doubling the oxide resource to c 1.2Moz – enough to support a doubling of production from the oxide portion of the project to c 100,000oz per annum. In this case, applying our customary discount rate, we calculate that the resulting stream of dividends to shareholders has an NPV of 18.1 cents per share in FY18, rising to 32.1 cents in FY24.

In the meantime, on the basis of the exploration conducted so far, we estimate that one of the target areas at Shorty Creek (Hill 1835) could contain in the order of 0.8Mt of contained copper (see Exhibit 34). Note that this is an unofficial, non-NI 43-101-compliant estimate. Should it be achieved, however – which is the goal of Freegold's 2018 drilling campaign at Shorty Creek – we estimate that, at a global average resource multiple of US$14.35 per tonne of contained copper, Shorty Creek alone would have a value in the order of US$11.8m (ie 139% of Freegold's current EV) and potentially as high as US$19.0m (ie 223% of Freegold's current EV).

Financials: US$0.5m net cash at end-March 2018

Freegold had US$0.8m in cash on its balance sheet as at 31 December 2017 and US$0.5m as at 31 March 2018. We estimate that it will burn c US$2.6m in FY18 and US$3.8m in FY19 – necessitating a degree of external funding from either banks or the equity markets in the short term.

Company description: Building Alaska

Freegold holds both the Golden Summit project (on which a PEA was completed in January 2016) and the Shorty Creek copper–gold porphyry project (see pages 18–23). Freegold's EV currently equates to just 4.5% of its external consultant determined project NPV_5, which compares with a mean of 35.7% for gold companies (excluding outliers – see pages 9–10) and 18.9% for companies at an equivalent PEA stage of development. This valuation also puts Freegold on a below-average resource multiple of just US$1.30 per resource ounce, excluding Shorty Creek, which alone (although subject to an appropriate risk warning – see page 22) we think could be worth US$11.2m at a global average in-situ copper resource multiple, or 132% of Freegold's current EV.

Golden Summit

The Golden Summit property is situated 18 miles (29km) north-east of the city of Fairbanks, Alaska in the north portion of the Fairbanks Mining District, which is a north-east trending belt of lode and placer gold deposits that comprise one of the largest gold-producing areas in the state. The property is composed of 50 unpatented claims, 94 unpatented federal claims and 268 State of Alaska claims, covering an area of 14,630 acres or 5,921 hectares.

History

Gold was discovered in the district in 1902, since which time over 9.5Moz of placer gold have been recovered, of which 71%, or 6.75Moz, have been recovered from streams that drain the Golden Summit project area. In addition, more than 80 lode gold occurrences have been documented, which have yielded a further 0.5Moz from past producing mines.

Freegold acquired an interest in Golden Summit in mid-1991 and conducted exploration including geologic mapping, soil sampling, trenching, rock sampling, geophysical surveys, core, reverse circulation and rotary air blast drilling. It made the initial discovery of widespread, low-grade gold mineralisation during the initial drilling programme on the prospect in 1995. Drilling completed by Freegold on the project between 1991 and 2009 totalled 26,902m of core and reverse circulation drilling in 214 holes (average 126m/hole) and 26,640 metres of rotary air blast drilling in 2,028 holes (average 13m/hole) before a comprehensive property compilation was undertaken in 2010. This compilation identified the potential to delineate a resource in the Dolphin area. A ground-based geophysical survey also indicated that the alteration in the Dolphin area is well defined by a low resistivity feature. This feature, in conjunction with soil geochemistry and reinterpretation of previous drill results, provided the guidance for resource definition and expansion in the Dolphin area, and drilling focused on resource definition commenced once again in 2011.

In 2011, Freegold announced a maiden resource of 0.7Moz, at a cut-off of 0.3g/t, in the Dolphin area, which it subsequently upgraded to 1.5Moz later the same year. Drilling at Cleary Hill resulted in this being expanded to 6.1Moz in 2012 and then again to 6.4Moz in 2013. In 2016, Freegold announced the results of a PEA of the project conducted by external consultants, Tetra Tech. The PEA envisaged a standalone valley heap leach operation focused on the oxide portion of the resource, with a staged approach to a larger milling scenario to treat sulphide material, with each stream operating at 10ktpd to produce 2.4Moz of gold doré over a 24-year mine life. Processing was to be achieved by heap leaching of the oxide material and flotation, followed by bio-oxidation for the sulphide material. At a gold price of US$1,300/oz, the PEA demonstrated a pre-tax IRR for the project of 20.0%, a post-tax NPV of US$188m (at a 5% discount rate) and a 3.3-year payback of US$88m in initial capital expenditure.

Geology

Setting

There are three main rock units found throughout the property, namely Fairbanks Schist, Chatanika Terrane and intrusive rocks. Both the Fairbanks Schist and Chatanika Terrane have been subjected to one or more periods of regional metamorphism. However, the intrusive bodies are post-metamorphism. Chatanika Terrane rocks lie structurally above the Fairbanks Schist and north of the Chatanika Thrust fault and comprise the northernmost portion of the property. Intrusive rocks are relatively minor on the property and are primarily represented by the Dolphin stock, although small granitic dykes are known in several locations. Initial diamond core logging identified five intrusive phases within the Dolphin stock:

- fine- to medium-grained, equigranular to weakly porphyritic biotite granodiorite;
- fine- to medium-grained, equigranular to weakly porphyritic hornblende-biotite tonalite;
- fine-grained biotite granite porphyry;
- fine-grained biotite rhyolite to rhyodacite porphyry; and
- rare fine-grained, chlorite-altered mafic dyke.

Small dykes of granodiorite cutting tonalite have been observed in core and altered granitic dykes cut both altered and unaltered granodiorite and tonalite, which suggests multiple phases of intrusion and hydrothermal alteration. Two (argon) radiometric age dates of two different styles of mineralisation (stockwork and shear) placed the timing of crystallisation and mineralisation between 88.3 and 90.1 million years ago – ie similar to Kinross's nearby Fort Knox mine (86.3–88.2Ma).

Mineralisation

Three styles of gold occurrences have been identified on the property:

- intrusive-hosted sulphide disseminations and sulphide-quartz stockwork veinlets (such as the Dolphin gold deposit);
- auriferous sulphide-quartz veins; and
- shear-hosted gold-bearing veinlets.

All three types are considered to be part of a large-scale, IRG system.

Reserves and resources

Of the 330 drill holes on the property, 185 (56%) penetrated the Dolphin stock solid and contributed to the resource estimate. The gold grade distribution identified multiple, overlapping populations. Erratic gold assays were capped at 88g/t. Uniform down-hole composites 3m in length were formed to honour the solid boundaries. The gold distribution of 3m composites also identified overlapping lognormal populations and an indicator approach was used for the estimate. Semivariograms for the high-grade gold indicator and low-grade background were produced and used to define and orient the various search ellipses. Grades for gold were interpolated into blocks of 10x10x5 metres by a combination of indicator and ordinary kriging. Specific gravities were assumed to be 2.51 above the oxide surface and 2.67 below it. Estimated blocks were classified, based on geologic and grade continuity, into the Indicated and Inferred categories.

As part of the PEA, a conceptual open pit, based on a gold price of US$1,300/oz, was developed and the resource estimate for blocks falling within this pit is also shown:

Exhibit 1: Golden Summit resource and input resource estimate (0.3g/t cut-off grade)

	Total resource			Contained within conceptual open pit only			Open pit resource as percentage of total resource		
	Mt	Grade (g/t)	Moz	Mt	Grade (g/t)	Moz	%	%	%
Oxide									
Measured			0.0			0.0	N/A	N/A	N/A
Indicated	18.0	0.66	0.4	16.2	0.66	0.3	89.9	100.0	89.9
Inferred	10.8	0.60	0.2	9.6	0.59	0.2	88.7	98.3	87.2
Total	**28.8**	**0.64**	**0.6**	**25.8**	**0.63**	**0.5**	**89.5**	**99.4**	**89.0**
Sulphide									
Measured			0.0			0.0	N/A	N/A	N/A
Indicated	61.8	0.65	1.3	45.3	0.70	1.0	73.3	107.7	78.9
Inferred	237.2	0.61	4.7	61.9	0.70	1.4	26.1	114.8	29.9
Total	**299.0**	**0.62**	**5.9**	**107.2**	**0.70**	**2.4**	**35.8**	**113.2**	**40.6**
Total									
Measured	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	N/A
Indicated	79.8	0.65	1.7	61.5	0.69	1.4	77.0	105.7	81.4
Inferred	248.1	0.61	4.9	71.5	0.69	1.6	28.8	112.4	32.4
Total	**327.9**	**0.62**	**6.5**	**133.0**	**0.69**	**2.9**	**40.6**	**110.8**	**45.0**

Source: Freegold Ventures, Edison Investment Research. Note: Totals may not add up due to rounding.

Note the almost complete incorporation of the oxide resource into the conceptual open pit shell, but the much lower incorporation of the sulphide resource – especially in the Inferred category – albeit at higher average grades.

Metallurgy

Metallurgical testing for the project commenced in 2012 with bottle roll tests performed by Kappes, Cassiday & Associates on 10 different drill samples, with the primary objective of obtaining a preliminary indication of the cyanide leaching characteristics of the oxide mineralogy within the deposit. A second set of tests on 279 drill core samples, running between 2013 and 2014, were performed by SGS Canada and were designed to investigate the various processing methods for the recovery of gold from sulphide materials. Additional bottle roll and column leach test-work was performed later in 2014 to investigate grind sensitivities on four drill core composites of different mineralogy and to examine the heap leach behaviour in the oxide material. The different composites were designated as oxide, transition, intrusive sulphide and hornfels sulphide. These composites were initially subjected to coarse bottle roll tests conducted at five different feed sizes.

Overall gold recoveries from standard 48-hour bottle roll tests and 120-hour bottle roll tests were as follows:

- Oxide material recovery averaged 88%.
- Transition material recovery averaged 57%.
- Intrusive material recovery averaged 56%.
- Hornfels sulphide material recovery averaged 45%.

Standard bottle roll test-work was carried out on a variety of grind sizes. However, recoveries did not increase substantially with finer grinds, with the exception of the transition material, which showed that recoveries of greater than 70% are achievable at a 75 micron (µm) grind size.

One column leach test was performed on the crushed oxide composite to determine heap leaching characteristics of the material (performed by McClelland Laboratories), which demonstrated gold extractions in excess of 80% within 14 days on coarse crushed material (80% <25mm), cf 85% over 65 days.

In summary, the programme found:

- Oxide material leaches readily and achieves good recoveries under standard heap leach parameters.
- Sulphide material responds favourably to multiple methods of oxidation and cyanidation.

Mining and processing

The mine has been scheduled to provide up to 3.5Mtpa of both oxide and sulphide material. It has been planned using diesel blasthole drills, large haul trucks and rope shovels, which are scheduled to operate around the clock, requiring four crews on 12-hour shifts for complete coverage. Oxide material (which forms a cap over the sulphide) will be mined for the first eight years of production. In the ninth year, sulphide material will also come online, with oxide mining then continuing until year 14 of a 24-year mine life.

During production, both oxide and sulphide material will be transported from the pit to the primary crusher located near the pit exit. After primary crushing, oxide and sulphide material will be transported by conveyor belt to their respective process areas to the south-east of the pit (for the oxide) and the north-west of the pit (for the sulphide).

The oxide will be processed via heap leach, while the sulphide will be processed in a 10,000tpd bio-oxidation plant, in which the ore will be crushed and ground prior to flotation and bio-oxidation of the sulphide concentrate. The oxidised slurry will then be sent to a carbon-in-leach circuit for cyanide leaching and recovery onto activated carbon. Finally, gold loaded onto the activated carbon will be recovered in the same elution circuit used for the oxide material to produce gold doré.

Infrastructure

Fairbanks is served by the Alaska Railroad, and is connected to Anchorage and Whitehorse (Canada) by well maintained, paved highways. Golden Summit itself is accessed via State Highway 2 and State Highway 6 (the Steese Highway). The site is also covered by a network of gravel roads that allow access to most areas of the property on a year-round basis.

A high-voltage electrical power line runs parallel to the highway and crosses the western portion of the property. Both landlines and a mobile network provide telephone services to the western portion of the property. Approximately 15 miles (24km) south of Fairbanks, the city of North Pole hosts a major oil refinery.

Climate (and mitigations)

The Fairbanks mining district is characterised by sub-freezing temperatures during 6–8 months of the year. Following winter, 4–6 months of warm summer weather prevails. Precipitation averages 13 inches (33cm), occurring mostly as snowfall between October and March.

Experience has shown that exploration drilling is possible year-round on the property. Otherwise, year-round leaching operations are considered feasible via the incorporation of design provisions for adding and maintaining heat in the process solutions and assuming the adoption of adequate operational methods. Appropriate design provisions include (among other things) the internal pond and pump recovery wells inherent in the proposed valley fill heap leach design that limits the loss of heat from solution compared to a design with an external pregnant solution pond. This would be at the expense of higher initial capital expenditure in order to incorporate a retaining structure for the confinement of the heap plus an especially robust liner system. Adequate operational methods include:

- adjustments to the heap loading schedule based on air and rock temperature monitoring to prevent the formation of ice lenses within the heap;
- the cross ripping of cells before leaching to break up frozen and/or compacted ground;

- the burial of solution emitter lines; and
- heat tracing and the insulation of solution tanks and pipelines.

Waste

Waste will be hauled by truck to the Mine Rock Storage Facility (MRSF), which has been designed to permanently contain 100% of the overburden and waste associated with the pit – c 239Mt of swelled material. The location of the MRSF is to the north-east of the pits and is built around the hill with a buffer around nearby creeks and streams.

Assumptions

For the purposes of our valuation of Freegold, we have assumed the following capital expenditure requirements at Golden Summit:

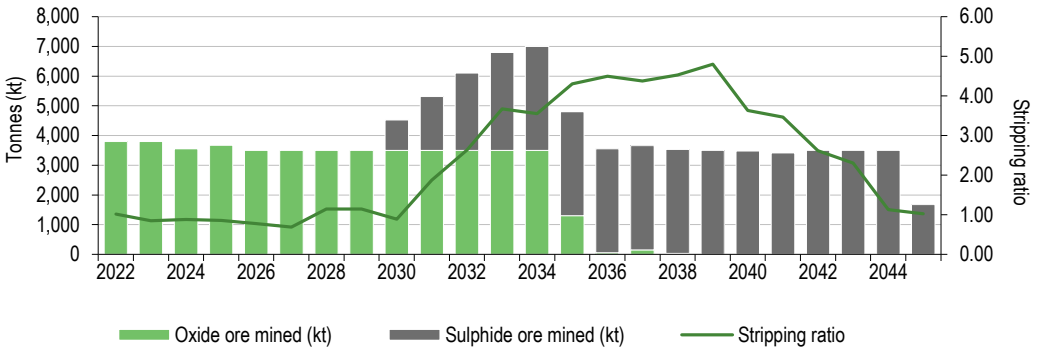
Exhibit 2: Golden Summit capex estimates

Item	Estimate in relation to initial oxide ore mining (US$m)	Estimate in relation to sulphide ore mining (US$m)	Sustaining capex estimate (US$m)	Total (US$m)	Percentage of total (%)
Mining	39.7	109.9	0.8	150.5	34.5
Crushing	3.9	9.9	0.0	13.8	3.2
Heap leach	11.4	0.0	23.7	35.1	8.0
Process plant	0.0	27.9	0.0	27.9	6.4
Tailings storage facility	0.0	67.8	0.0	67.8	15.5
Infrastructure	10.1	11.0	0.0	21.1	4.8
Construction	12.1	56.9	0.0	69.0	15.8
Indirect	3.9	15.3	0.0	19.2	4.4
Owner's costs	7.2	4.5	2.7	14.4	3.3
Closure costs	8.8	9.0	0.0	17.8	4.1
Total	**97.1**	**312.2**	**27.2**	**436.7**	**100.0**
Percentage of total (%)	22.2	71.5	6.2	100.0	
Capital intensity (US$/oz pa)*	1,827	2,764	N/A		
Capital intensity (US$/t pa)*	26.60	85.53	N/A		

Source: Freegold Ventures, Edison Investment Research. Note: Totals may not add up due to rounding. *See text below.

Operationally, we assume that there will be a four-year period of construction (which equates to the 'Estimate in relation to initial oxide ore mining' in Exhibit 2), after which mining operations will quickly ramp up to allow leaching of 3.5Mt of oxide material per annum exclusively for the first eight years of the mine's life. Capex relating to the sulphide portion of the project (equating to 'Estimate in relation to sulphide ore mining' in Exhibit 2) will start in the eighth year after the start of oxide mining and will continue for approximately four years thereafter. Mining of sulphide material will begin in the ninth year of operations and will ramp up to 3.5Mtpa over five years, after which the mining of oxide ore will be cut back (effectively) to zero for the remaining 10 years of the life of the mine:

Exhibit 3: Golden Summit mine schedule and gold yield, 2022–2045

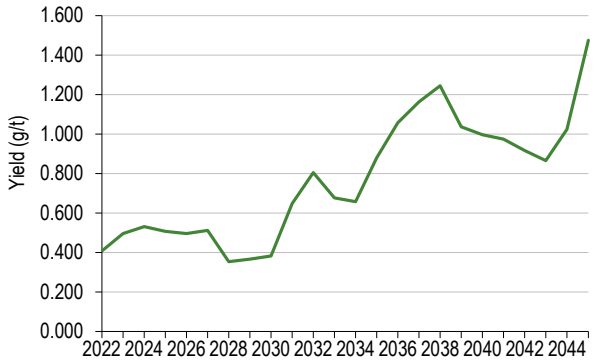


Source: Freegold Ventures, Edison Investment Research

Over the life of the mine, the stripping ratio will average 2.47 (weighted average) – composed of an average 0.92 (simple average) during the period of oxide ore mining and 3.08 (simple average) during the period of sulphide ore mining.

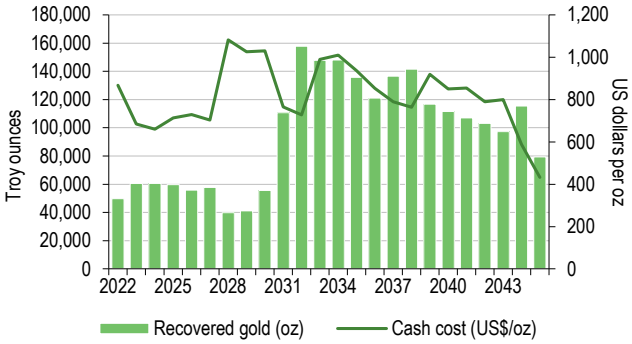
We anticipate metallurgical recovery to be 80% for oxide material and 90% for sulphide material, resulting in an average gold yield of 0.45g/t gold for oxide ore and 1.10g/t for sulphide ore (0.74g/t overall weighted average over the life of the mine) to produce an average of 53,151oz per annum for the first eight years of operations and an average of 117,826oz per annum over the balance of the life of the mine.

Exhibit 4: Golden Summit gold yield, FY22–45 (g/t)



Source: Freegold Ventures, Edison Investment Research

Exhibit 5: Golden Summit recovered gold (oz) and cash cost (US$/oz)



Source: Freegold Ventures, Edison Investment Research

Edison's principal operating cost assumptions are as follows:

Exhibit 6: Golden Summit cash cost assumptions

Cost	Assumption
Mining	US$3.04 per tonne of material moved (ore and waste)
Mining lease	US$8.2m pa for the first eight years of operations, falling to US$3.1m pa for the remaining life of mine
Crushing	US$0.37/t for oxide ore and US$1.44/t for sulphide ore
Heap leach	US$2.42/t average over the life of mine
Sulphide process plant	US$8.47/t
Tailings storage facility	US$0.5m per annum
Infrastructure	US$1.3m per annum

Source: Freegold Ventures, Edison Investment Research

On the basis of these assumptions, Golden Summit's weighted average cash cost of production over the life of the mine is US$817/oz (see Exhibit 5).

Other assumptions include a gold deduction of 0.1% to recovered gold, transport and insurance of US$4.00/oz and a refining cost of US$3.00/oz.

Taxes and royalties

The project is subject to 21% federal income tax (lowered from 35% after the passage of the “Tax Cuts and Jobs Act" on 20 December 2017), 9.4% Alaska state income tax, a property tax of 1.3%, a mining licence tax of 7% and an Alaska production royalty of 3%.

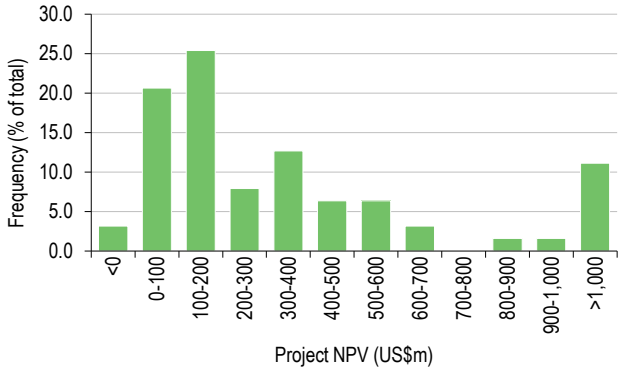
- Federal taxable income is calculated by subtracting all allowable operating expenses, overhead, depreciation, amortisation and depletion from current year revenues.
- State income tax is calculated in the same manner as federal tax. However, it takes 9.4% of taxable income after the deduction of federal income tax. In addition, the State of Alaska allows US$20m of exploration expenditures to be carried forward and recovered against state taxes due.
- Property tax is calculated at 1.3% of gross income less direct operating costs.
- Mining licence tax is 7% of taxable income.
- The Alaska production royalty is levied at a rate of 3% of net income. There is currently a 3.5-year tax holiday on the State of Alaska production royalty.

Finally, the project also attracts a private royalty equivalent to 2% of its net smelter return.

Golden Summit project valuation

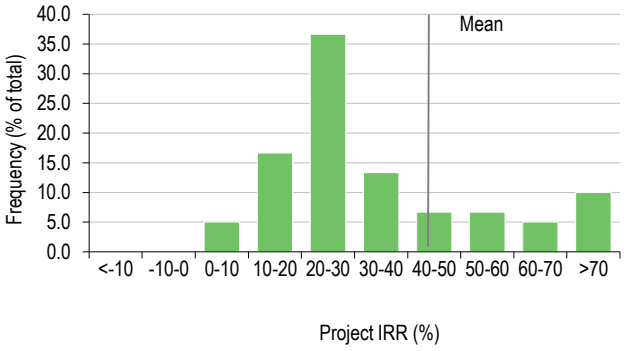
At a gold price of US$1,300/oz, a federal tax rate of 35% and a discount rate of 5% (so that it is comparable with the official PEA – see below), we calculate a pre-tax IRR for the project of 20.4%, a post-tax NPV of US$179.3m (or US$1.03 per existing Freegold share) and a 3.1-year payback of initial capital expenditure. Note that, at our customary 10% discount rate, all other things being equal, our estimate of the post-tax NPV_{10} of the Golden Summit project is US$61.5m (or US$0.354 per existing Freegold share). At the new federal tax rate of 21%, effective from 1 January 2018, we estimate that the project has an NPV_5 of US$186.2m and an NPV_{10} of US$63.8m. Note that the relatively small increases in each case (3.8% and 3.7%, respectively) reflect the fact that federal tax is not payable until late in the life of operations on account of early-stage profits being offset by historical tax losses. These compare with Tetra Tech’s PEA on Golden Summit, which demonstrated a pre-tax IRR for the project of 20.0%, a post-tax NPV of US$188m and a 3.3-year payback of US$88m in initial capital expenditure (being the US$97.1m ‘Estimate in relation to initial oxide ore mining’ in Exhibit 2, above, less closure costs). In our report, Mining overview: Unlocking the price to NPV discount, published in November 2017, we calculated a mean NPV for mining projects of US$433.1m and a mean IRR of 43.2%. For gold companies specifically, the equivalent means were US$276.1m and 42.5%, respectively. While the NPV and IRR for Golden Summit are therefore below mean levels, they are nevertheless within the modal (ie most common) intervals for each series of data (see below):

Exhibit 7: Histogram of mining companies' aggregate project NPVs (US$m), percentage of the total



Source: Edison Investment Research, company sources

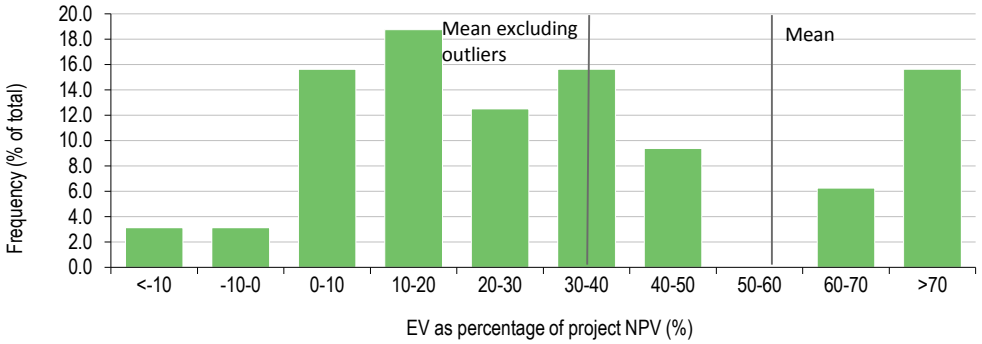
Exhibit 8: Histogram of mining companies' weighted average project IRRs (%), percentage of the total



Source: Edison Investment Research, company sources

As such, Golden Summit might be regarded as a fairly 'typical' project. At the same time, however, Freegold's current EV of US$8.5m equates to just 4.5% of the stated NPV_5 of the project. This compares with a mean valuation among gold companies of 57.8% of the aggregate value of their respective gold project NPVs or 35.7% if statistical outliers are excluded from the analysis:

Exhibit 9: Gold company EV expressed as a percentage of attributable project NPV (%)



Source: Edison Investment Research, Thomson Reuters Datastream, company sources

Moreover, Freegold remains cheap even if the analysis is adjusted to both exclude statistical outliers and to reflect its relatively early stage of development (ie PEA or scoping study):

Exhibit 10: Company EV as a percentage of attributable published project NPV (%), by study type, ordinarily valued companies, excluding statistical outliers

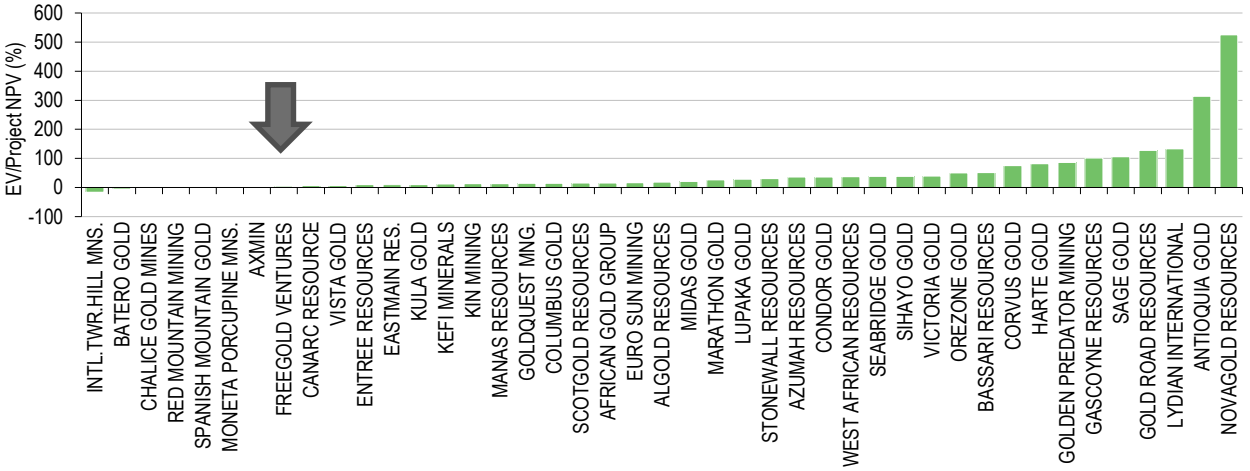
Percentage	Scoping study/PEA	PFS	BFS
Maximum	90.0	52.6	121.5
Mean	18.9	16.3	29.6
Minimum	(13.1)	(3.7)	2.6

Source: Edison Investment Research. Note: See Exhibit 141 on page 67 of Mining overview: Unlocking the price to NPV discount, published in November 2017.

At the mean valuation of 18.9% of attributable project NPV for companies at PEA stage of development, Freegold's EV may be expected to be US$35.4m – implying a share price of C$0.274 (cf C$0.07/share currently). On average, this EV would be expected to contract, to US$30.6m (implying a share price of C$0.237, assuming an unchanged number of shares and cash position) on publication of a PFS with the same results as its earlier PEA. This then expands once more, to US$55.6m (implying a share price of C$0.425, assuming an unchanged number of shares and cash position) upon publication of a BFS with the same results as the earlier PEA.

In fact, within a sample of 43 pre-production gold mining peers, Freegold has the eighth-lowest valuation in terms of its EV relative to its project NPV:

Exhibit 11: Freegold Ventures' EV as a percentage of project NPV, vs peers



Source: Edison Investment Research, company sources, Thomson Reuters Datastream

Freegold Ventures' base case valuation based on Golden Summit

In contrast to its project valuation above, our valuation of Freegold Ventures takes into account a number of other factors that affect cash flows to equity holders of the company in particular (as opposed to stakeholders in the project). The most important of these factors are summarised below:

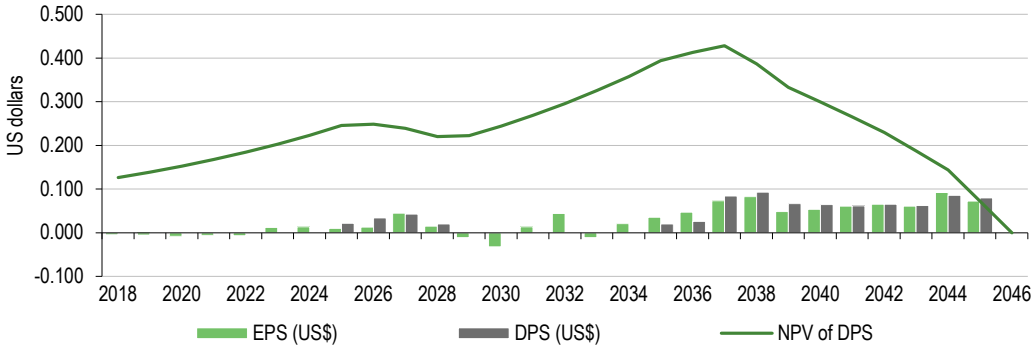
- The assumption of 50:50 debt:equity funding of the project, with any additional equity being raised at the share price currently prevailing. Note that, in order to achieve a 50% leverage ratio at the point of maximum net debt (in FY21), Freegold would be required to raise US$33.8m in FY20, which could be achieved, at the current time, by the issuance of 634.5m shares at C$0.07/sh, such that the total number of shares in issue in the immediate aftermath of the raising would be 808.5m (all other things being equal).
- Interest, which we assume is charged at a rate of 11% (vs 1% for credit balances).
- Central costs, which we assume will continue at least at existing levels in real terms.
- Working capital, which we model on the basis of 30 creditor days, 30 debtor days and stock turnover of 12x per annum (ie approximately 30 stock days).

In addition, we use the long-term gold prices set out in our note, Mining overview: Unlocking the price to NPV discount, published in November 2017 (and updated periodically). We then model cash flows to the company from the project and then to shareholders via dividends, once all debt relating to the project has been repaid and in anticipation of having to make adequate provision for anticipated closure costs.

On the basis of the above assumptions, we estimate that Freegold is capable of generating basic EPS of c 1.8 US cents in the period FY23–28 – during the period of oxide mining – and paying a dividend of c 3.0c in the period FY25–28 (once debt relating to the project has been fully repaid). We would then expect both to decline – and the dividend to be cut – during the period FY29–34 under the influence of capital expenditure relating to the sulphide project and associated interest. However, both would ultimately recover and, during the period FY35–45, we estimate that Freegold would generate basic EPS of c 6.3c and be capable of paying a dividend of c 6.4c per annum to

shareholders. Applying our customary 10% discount rate, we calculate that the resulting stream of dividends to shareholders has an NPV of 12.6 cents per share in FY18, rising to 24.8c in FY26, before pausing (during the period of the sulphide project construction) and then recovering to a peak of 42.8c in FY37.

Exhibit 12: Freegold Ventures forecast EPS and (maximum potential) DPS, FY18–46

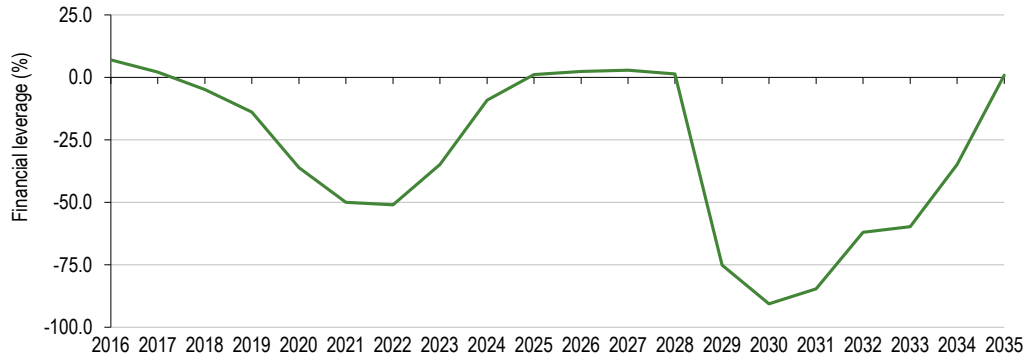


Source: Edison Investment Research

Note that the same valuation would be achieved by discounting project cash flows at the new federal rate of tax of 21% (see 'Golden Summit project valuation' on page 9, above) using a discount rate of 9.7% (fully diluted).

For the purposes of this valuation, the second-stage sulphide project is assumed to be entirely debt-funded on the basis of management's track record of success with the oxide project. On this basis, we estimate that financial leverage for the company (defined as net debt/[net debt+equity]) will peak at 90.7% in FY30, when debt will amount to US$123.8m, before dropping sharply after FY31. Given the relative costs of debt and equity, such a financing strategy would be more efficient for equity shareholders than raising additional equity funding in order to fund the sulphide project.

Exhibit 13: Freegold Ventures forecast financial leverage*, FY16–35



Source: Edison Investment Research. Note: *Defined as net debt/(net debt+equity).

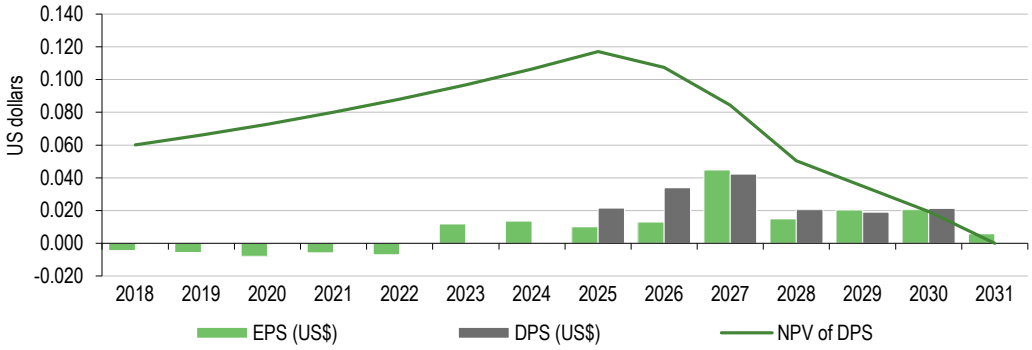
An alternative development strategy

Alternatively, we calculate that it would be possible for Freegold to develop only the oxide portion of the project over the same timeline until FY31.

In this case, basic EPS and the dividend in the period FY23–28 would be the same as for the full project. Self-evidently, the NPV of future dividends to shareholders would be lower as a result of adopting this development option – in this case 6.0 US cents per share – however, this return would be generated at much reduced financial risk in the form of the net debt otherwise required for the

development of the sulphide portion of the project. It is also instructive to note that the oxide portion of the project carries 48% of the potential value of the total project to shareholders.

Exhibit 14: Freegold Ventures forecast EPS and (maximum potential) DPS, FY18–31 (oxide portion of the project only)



Source: Edison Investment Research

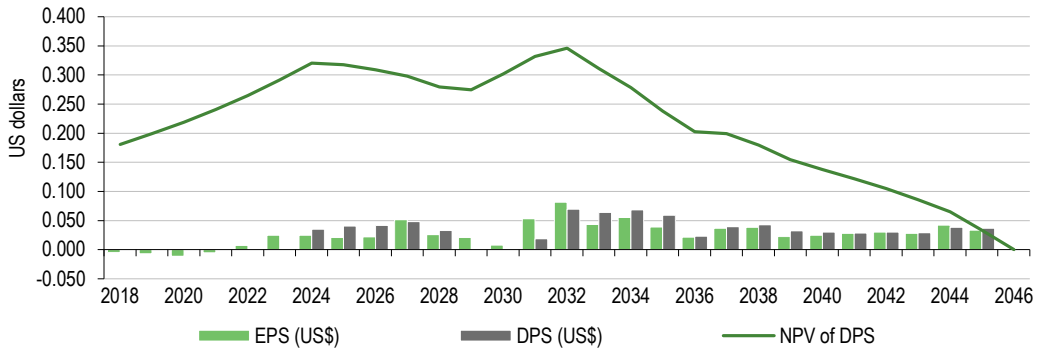
A second alternative development strategy – expanding the oxides

One of the results of 2017's exploration programme at Golden Summit was to demonstrate the potential for Freegold to expand the current oxide resource to the north of the deposit as well as to the south-west and west. On 7 June, the company announced that it was planning a drilling campaign – estimated to be in the order of 3,000m in 70-80 holes – to this end. In addition, it is planning for an initial drill test of an area located 1.5km to the west of the current Dolphin resource, where geophysical surveys and soil sampling in 2017 outlined an area of 1,500m x 300m characterised by a new resistivity anomaly coincident with anomalous geochemistry. Follow-up drilling is also being planned on what Freegold believes may be extension of the high-grade Cleary Hill Vein at the nearby Cleary Hill mine (which closed in 1942 after producing 281,000oz at a grade of 40.4g/t).

At its upper limit, Freegold is targeting a doubling of the oxide resource to c 1.2Moz – enough to support a doubling of production from the oxide portion of the project to c 100,000oz per annum and to render it a standalone project in its own right, with or without the subsequent inclusion of sulphide mining.

Assuming that the capital intensity of the oxide project remains unchanged (ie oxide capex is doubled for a doubled throughput rate) and that the sulphide portion of the project is included from FY30 (as before), we estimate that Freegold is capable of generating basic EPS of c 2.8c in the period FY23–28. This is compared to 1.8c under the existing PEA plan – during the period of oxide mining – and paying a dividend of c 4.1c in the period FY25–28 (once debt relating to the project has been fully repaid). We would then expect both to decline – and the dividend to be cut – during the period FY29–30 (cf FY29–34 previously) under the influence of capital expenditure relating to the sulphide project and associated interest. However, both would ultimately recover and, during the period FY31–45, we estimate that Freegold would generate basic EPS of c 3.9c and be capable of paying a dividend of c 4.1c per annum to shareholders. Applying our customary 10% discount rate, we calculate that the resulting stream of dividends to shareholders has an NPV of 18.1 US cents per share (cf 12.6 previously) in FY18. This rises to 32.1 cents in FY24 (vs 24.8 cents in FY26 previously), before pausing (during the period of the sulphide project construction) and then recovering to a peak of 34.6c in FY32 (cf 42.8c in FY37 previously).

Exhibit 15: Freegold Ventures forecast EPS and (maximum potential) DPS, FY18-46*

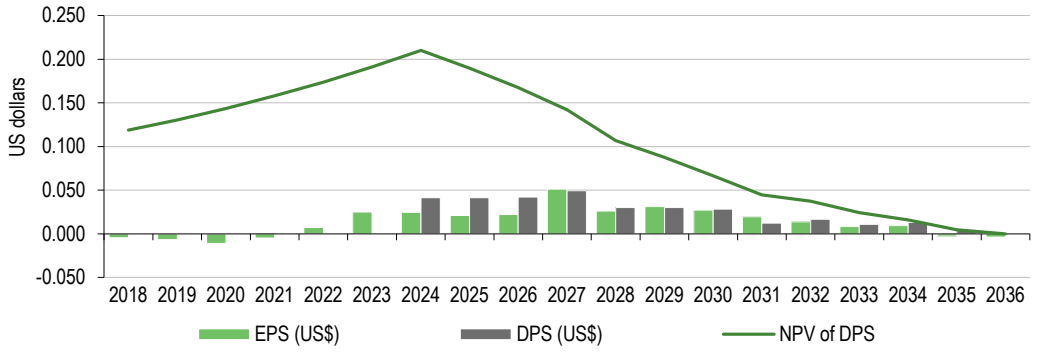


Source: Edison Investment Research. Note: *Expanded oxide portion of project.

Note that, once again, the sulphide project is assumed to be entirely debt-funded on the basis of management's track record of success with the oxide project. Owing to the increased equity base of the company, however, on account of its larger equity raising during the development of the oxide project, we estimate that financial leverage for the company (defined as net debt/[net debt+equity]) related to the sulphide project will peak at just 37.2% in FY29 (cf 90.7% in FY30 previously). At this point, debt will amount to US$63.0m (cf US$123.8m previously), before dropping sharply thereafter – ie reflecting materially reduced financial risk.

Alternatively, in the event that the oxide portion of the project is developed alone and the sulphide portion of the project is left undeveloped, we calculate an NPV of 11.9 US cents per share for the expanded oxide portion of the project alone (cf 18.1 US cents for the expanded oxide portion of the project plus the sulphide portion) in FY18, rising to 21.0 cents in FY24, before declining thereafter.

Exhibit 16: Freegold Ventures forecast EPS and (maximum potential) DPS, FY18–36*



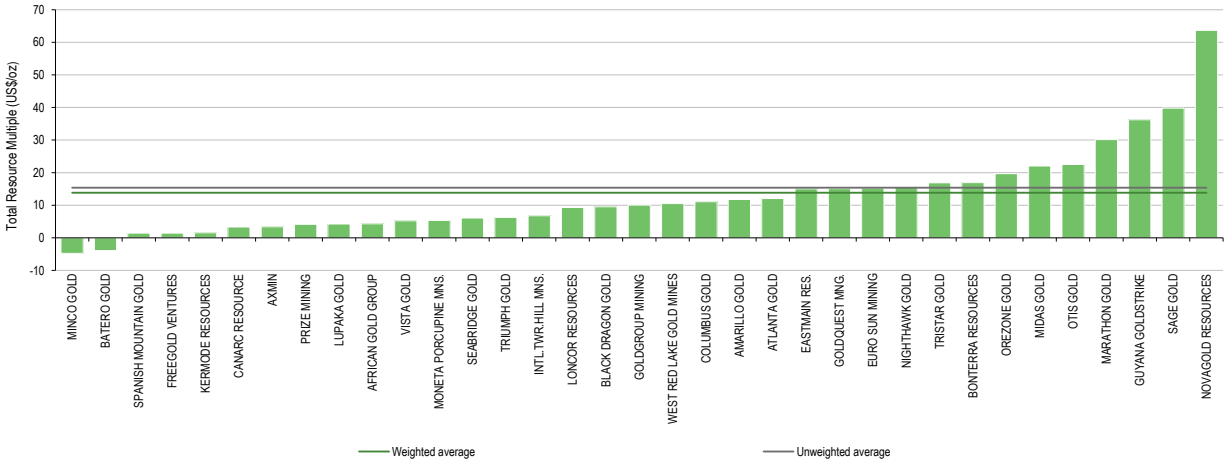
Source: Edison Investment Research. Note: *Expanded oxide portion of the project alone.

Note that, in this instance, the expanded oxide portion of the project accounts for 66% of the value of the expanded oxide and sulphide project combined.

Relative valuation

In addition to being cheap relative to the externally assessed value of its project (Exhibit 11), at US$1.30 per Golden Summit resource ounce, Freegold also has the fourth-lowest resource multiple relative to 35 Canadian-listed, pre-producing peers:

Exhibit 17: Freegold Ventures' resource multiple (US$/oz), vs peers



Source: Edison Investment Research, company sources, Thomson Reuters Datastream

Risks and sensitivities

In qualitative terms, the principal risks to which the Golden Summit project is immediately exposed include geographical/sovereign, geological, metallurgical, engineering, financing and management risk. In general terms, these may be summarised as execution risk – ie management's ability to bring the project to account within its geographical jurisdiction and the required technical parameters. Once in production, however, these risks will be perceived to have reduced and others, such as commercial, commodity price and global economic risks will become relatively more significant.

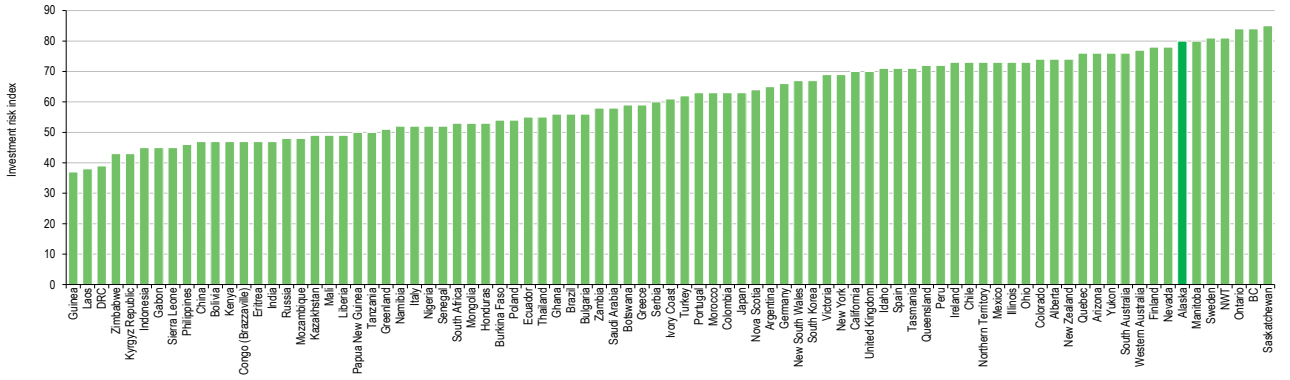
Alaska 49 sovereign risk

The US purchased Alaska from Russia on 30 March 1867 for US$7.2m (approximately US$0.02 per acre). The area went through several administrative changes before becoming an organised territory on 11 May 1912. It was admitted to the union as the 49th state of the US on 3 January 1959. Despite being the largest state by surface area, it is the third least-populous state (after Wyoming and Vermont) and the most sparsely populated – although it is also the 10th wealthiest, measured by per-capita income. Approximately half of Alaska's residents live in the metropolitan area of Anchorage (the state capital). In general, its economy is dominated by petrochemicals (accounting for over 80% of the state's revenues), mining and fishing. Although Alaska entered the union as a Democratic state, since the 1960s (arguably coinciding with the discovery of oil in Prudhoe Bay), it has been noticeably right-leaning in its politics, regularly supporting Republican candidates in presidential elections. As a result, the GOP has won the state's electoral college votes in all but one election in which it has participated – the exception being Lyndon Johnson's landslide victory in 1964. By contrast, state politics appears more balanced, with six Republicans and four Democrats having served the state as governor.

Approximately 65% of Alaska is owned and managed by the US federal government as public lands, including national forests, national parks and national wildlife refuges. The state of Alaska owns approximately 24% of the remaining land, while c 10% is owned by a series of Native corporations created under the Alaska Native Claims Settlement Act (ANCSA), which was signed into law by President Richard Nixon in December 1971. ANCSA was intended to solve longstanding issues regarding aboriginal land claims in Alaska, as well as to stimulate economic growth (not least by clarifying land ownership issues ahead of the building of oil and gas pipelines) and, at the time,

constituted the largest land claims settlement in US history. In essence, the settlement established Alaska Native claims to the land by transferring titles to 12 (later 13) Alaska Native regional corporations and over 200 local village corporations. As a result, the corporations hold title to (including subsurface title in many cases, which is a right denied to individual Alaskans) but cannot sell the land. The remaining 1% of land is owned by a variety of private interests, which (when Native corporations are excluded) makes Alaska the state with by far the lowest percentage of private land ownership in the US. Conversely, however, the clarification of the issue of land ownership in Alaska is highly attractive to mining companies, with the result that it scored 80.74 out of 100 and ranks 10th in the Fraser Institute's Index of Investment Attractiveness for the mining industry in 2017. It also scored 80 out of 100 and ranks sixth equal in the Mining Journal's Index of Investment Risk (also in 2017):

Exhibit 18: Mining Journal Risk Survey: Index of Investment Risk (Alaska highlighted)



Source: Mining Journal Risk Survey

Commercial risks

In addition to geographical/sovereign risk, the principal risks to which Freegold is exposed – from an empirical perspective – are financing costs, the gold price and costs. An empirical analysis of each of these, plus our valuation sensitivity to the discount rate applied to forecast dividend flows to shareholders of Freegold and the price of future, assumed equity financings is provided in the tables below.

Full project (sulphide plus oxide)

Exhibit 19: Edison valuation sensitivity to changes in the forecast price of gold (US$/oz)

Gold price change (%)	-20	-10	u/c	+10	+20
Valuation (US cents/share)	0.0	5.1	12.6	20.4	27.9
Change (%)	-100.0	-59.5	0.0	+61.9	+121.4

Source: Edison Investment Research.

Exhibit 20: Edison valuation sensitivity to changes in unit cash costs (%)

Change in unit cash costs (%)	+20	+10	u/c	-10	-20
Valuation (US cents/share)	3.6	8.1	12.6	17.3	21.8
Change (%)	-71.4	-35.7	0.0	+37.3	+73.0

Source: Edison Investment Research

Exhibit 21: Edison valuation with respect to the discount rate applied (%)

Discount rate (%)	0	5	10	15	20	25	30
Valuation (US cents/share)	82.7	30.1	12.6	6.0	3.2	1.9	1.2

Source: Edison Investment Research

Exhibit 22: Edison valuation with respect to the assumed price of future equity funding

Share price (C$)	0.05	0.07	0.09	0.11	0.13	0.15	0.17
Share price (US$)	0.038	0.053	0.069	0.084	0.099	0.114	0.129
Valuation (US cents/share)	9.6	12.6	15.3	17.6	19.8	21.7	23.4

Source: Edison Investment Research

Oxide-only project

Exhibit 23: Edison valuation sensitivity to changes in the forecast price of gold (US$/oz)

Gold price change (%)	-20	-10	u/c	+10	+20
Valuation (US cents/share)	0.0	2.7	6.0	9.3	12.7
Change (%)	-100.0	-55.0	0.0	+55.0	+111.7

Source: Edison Investment Research.

Exhibit 24: Edison valuation sensitivity to changes in unit cash costs (%)

Change in unit cash costs (%)	+20	+10	u/c	-10	-20
Valuation (US cents/share)	2.0	3.9	6.0	8.0	10.2
Change (%)	-66.7	-35.0	0.0	+33.3	+70.0

Source: Edison Investment Research

Exhibit 25: Edison valuation with respect to the discount rate applied (%)

Discount rate (%)	0	5	10	15	20	25	30
Valuation (US cents/share)	15.9	9.6	6.0	3.9	2.5	1.7	1.2

Source: Edison Investment Research

Expanded oxide project (including sulphides)

Exhibit 26: Edison valuation sensitivity to changes in the forecast price of gold (US$/oz)

Gold price change (%)	-20	-10	u/c	+10	+20
Valuation (US cents/share)	7.3	12.6	18.1	23.6	28.8
Change (%)	-59.7	-30.4	0.0	+30.4	+59.1

Source: Edison Investment Research.

Exhibit 27: Edison valuation sensitivity to changes in unit cash costs (%)

Change in unit cash costs (%)	+20	+10	u/c	-10	-20
Valuation (US cents/share)	12.9	15.5	18.1	20.7	23.3
Change (%)	-28.7	-14.4	0.0	+14.4	+28.7

Source: Edison Investment Research

Exhibit 28: Edison valuation with respect to the discount rate applied (%)

Discount rate (%)	0	5	10	15	20	25	30
Valuation (US cents/share)	81.0	36.1	18.1	10.0	5.9	3.8	2.5

Source: Edison Investment Research

Exhibit 29: Edison valuation with respect to the assumed price of future equity funding

Share price (C$)	0.05	0.07	0.09	0.11	0.13	0.15	0.17
Share price (US$)	0.038	0.053	0.069	0.084	0.099	0.114	0.129
Valuation (US cents/share)	13.3	18.1	22.6	26.9	31.0	34.8	38.5

Source: Edison Investment Research

Expanded oxide project (excluding sulphides)

Exhibit 30: Edison valuation sensitivity to changes in the forecast price of gold (US$/oz)

Gold price change (%)	-20	-10	u/c	+10	+20
Valuation (US cents/share)	5.1	8.4	11.9	15.3	18.5
Change (%)	-57.1	-29.4	0.0	+28.6	+55.5

Source: Edison Investment Research.

Exhibit 31: Edison valuation sensitivity to changes in unit cash costs (%)

Change in unit cash costs (%)	+20	+10	u/c	-10	-20
Valuation (US cents/share)	8.5	10.2	11.9	13.5	15.2
Change (%)	-28.6	-14.3	0.0	+13.4	+27.7

Source: Edison Investment Research

Exhibit 32: Edison valuation with respect to the discount rate applied (%)

Discount rate (%)	0	5	10	15	20	25	30
Valuation (US cents/share)	32.0	19.1	11.9	7.6	5.1	3.5	2.4

Source: Edison Investment Research

Shorty Creek

Shorty Creek is located in the Livengood-Tolovana mining district, approximately 125km north-west of Fairbanks, by road. It lies c 4km south of the now abandoned gold mining town of Livengood and the all-weather, paved Elliott Highway and to the south of the Tolovana River.

Within the 100km^2 property, five main targets have been identified to date, denoted Hill 1835, Hill 1710, Hill 1890, Steel Creek and Quarry.

Description

The physiography of the property may be characterised as moderately hilly, with elevations ranging from 150m along the Tolovana River to c 510m. Rather remarkably, given its current climate, this area of Alaska was not glaciated during the last ice age. However, it was close to the boundary of the continental ice and winds from the cold ice mass deposited a variably thick layer of aeolian silt over most of the interior of Alaska. Permafrost is present, although it typically only occurs as discontinuous lenses on steep, poorly drained, north-facing slopes.

History

Placer (alluvial) gold was discovered on Livengood Creek in 1914 and placer mining has been conducted in the district on a near-continuous basis ever since. While the most productive creeks for gold historically have been located to the north of the Tolovana River, one notable exception is the Wilbur Creek, which is located to the south (the same side as Shorty Creek). Placer gold was reported to have been discovered at Wilbur Creek in 1906, with first production occurring in 1926. Thereafter, production took place intermittently until the late 1980s. However, high-grade gold veins were also reported to have been mined artisanally from pits and shallow shafts along the creek prior to the Second World War.

The earliest recorded post-war exploration of Shorty Creek itself occurred in 1972 and it was the subject of a number of programmes by operators up until 1990. Notably, during this period, Fairbanks and Asarco drilled 20 holes with an average depth of 104m/hole in an effort to evaluate the gold potential of the Hill 1835 area. Located on the northern edge of the magnetic high at Hill 1835, only the1990 holes were assayed for copper at the time. There was little substantive

exploration work between 1990 and 2005. However, limited programmes were undertaken by Kennecott and AngloGold Ashanti. In addition, the Alaska Division of Geological and Geophysical Surveys conducted airborne surveys over the Livengood Mining District in the late 1990s, which it then followed up with mapping and geochemical sampling in 2001 and 2003 in the area to the north of the Elliott Highway.

Freegold acquired the property in July 2014 after a data review noted that holes were just starting to encounter copper mineralisation near the bottom of the holes drilled in 1990. As a result, it immediately commenced geophysical and geochemical surveys over the Hill 1835 and a portion of the Hill 1710 target areas. These identified a significant chargeability anomaly with coincident copper and molybdenum in the Hill 1710 area and a copper and gold geochemical anomaly flanked by a chargeability anomaly in the Hill 1835 area. In 2015, the company undertook a diamond drilling campaign on Hill 1835. A total of 1,253m were drilled and three holes were completed of the five attempted. The first hole discovered that copper mineralisation extended beyond the depth of the previous Asarco drilling, while the third hole confirmed the association of the copper mineralisation with the magnetic high at Hill 1835, intersecting 91.4m at 0.55% copper. Two additional holes were drilled at Hill 1835 during 2016 and intersected 434.5m at 0.36% Cu and 409.5m at 0.29% Cu. In 2016, Freegold also undertook drilling in the Hill 1710 area, which is a large 6km long magnetic feature. Four holes were drilled, each spaced approximately 400m apart. Each hole intersected anomalous copper with copper values increasing towards the northeast and established the presence of porphyry style mineralisation. During 2017, Freegold drilled five additional holes in Hill 1835 and one in the Steel Creek area (which is similarly associated with a large magnetic anomaly, measuring 2.0km by 2.5km), which returned anomalous values of copper, gold, silver, cobalt and tungsten consistent with Hill 1835 (see the 'Recent exploration' section below).

Regional geology

Shorty Creek is located within the Livengood Terrane, which is a complex and poorly understood belt of Paleozoic through Cretaceous sedimentary, metamorphic and intrusive rocks that is bound to the north by the north-east trending Kaltag fault and the north-west trending Tintina fault, and to the south by the regionally extensive Yukon Tanana Terrane. The intrusive rocks are regionally extensive in the Tintina Gold belt to the west, among others, where they are regarded as being spatially and probably genetically associated with widespread gold and base metal mineralisation. In this case, Shorty Creek's location to the south of the Tintina fault may also be significant in that these rocks are believed to have been displaced 430km to the west in the late Cretaceous and Tertiary periods – ie during the mid-Cretaceous period, the Livengood area was situated approximately in the position of Dawson City, which was the epicentre of the Klondike gold rush in 1896. Rocks of the Shorty Creek project are hosted within the Wilbur Creek unit, which is a folded sequence of flysch sediments (a sequence of shales believed to have accumulated in moderate to deep marine waters). The Wilbur Creek flysch overlies a thrust package of south dipping Lower Paleozoic carbonates, volcanics and pelitic (ie a metamorphosed clay) rocks that host the Livengood gold project five miles to the north of Shorty Creek. The rocks of the Wilbur Creek flysch were then cut by north-east and north-south structures, the largest of which are the Minto and Ranney Hollow faults.

A variety of igneous bodies also occur within, and peripheral to, the property and biotite hornfels (contact metamorphic rocks that have been baked by the heat of intrusive igneous masses) and lesser diopsidic hornfels are widespread in the area. Field evidence suggests that hornfelising precedes hydrothermal alteration, brecciation and mineralisation. Although very little intrusive rock is exposed within the Shorty Creek property, the widespread and often weak to intense hornfelising of the sediments (particularly in the Hill 1835 area) is suggestive of a significant intrusive body nearby. Intrusive porphyritic rock with stockwork veining is present at the Quarry target.

Local geology

Outcrop exposures containing anomalous gold mineralisation were discovered at Hill 1835 in 1985. Other prospects with anomalous gold, copper, arsenic and molybdenum include Hills 1890, 1870 and 2161 at the head of the Wilbur Creek and the eponymous Shorty Creek copper-molybdenum prospect.

The most intense hydrothermal alteration and anomalous metal geochemistry at Shorty Creek are concentrated at Hill 1835, where the normally dense sub-Arctic vegetation is absent or greatly reduced, which is conventionally interpreted to be on account of metal toxicity. At this location, exposures of the shear zone are several hundred feet wide and are marked by intense brecciation, silicification and gold sulphide mineralisation. Field observations indicate that this is a normal fault zone, which has undergone multiple periods of movement, resulting in silica and sulphide introduction with sample results indicating that precious metal grades correlate with the intensity of the brecciation and alteration, while copper grades appear to be inversely correlated to them.

The protolith (ie original) rocks at Hill 1835 were shale and siltstone of the Wilber Creek flysch. These were then silicified before undergoing brecciation (breccia is a rock composed of broken fragments of minerals or rock cemented together by a fine-grained matrix that can be similar to, or different from, the composition of the fragments). Mineralisation is hosted by structurally and possibly stratigraphically controlled silicified breccias, quartz stockworks and fractures. The apparent restriction of some breccias to specific stratigraphic units suggests that host rock porosity and permeability may also exert some control on precious and base metal mineralisation.

Pyrite, pyrrhotite, chalcopyrite, arsenopyrite and bornite have all been identified by drilling to date. Gold values tend to be higher near the top of the drill holes and in more intensely altered sediments, and some of the strongest mineralisation is coincident with the presence of small granite or quartz porphyry intrusive dykes. By contrast, copper mineralisation tends to increase with depth. In addition to the copper, gold and silver mineralisation, the presence of both cobalt and tungsten has been noted. In total, the area of silicification, brecciation and geochemical enrichment amounts to 1,700 x 600 metres and remains open at both ends. Post-mineral faulting has offset mineralisation in a consistent fashion across all three alteration/mineralisation zones. Moreover, the airborne magnetic map indicates a strong magnetic signature, which can be used to identify future drill targets.

Recent exploration

Freegold commenced drilling at Hill 1835 in 2015 with the objective of testing both ground and airborne geophysical anomalies, as well as to determine if the mineralisation thus far identified extended below the 150m depth drilled by Asarco in 1989–90. Hole 15-01 successfully intersected copper mineralisation beyond this depth, while hole 15-02 intersected the pyritic halo outside the main magnetic feature and hole 15-03 not only discovered significant copper mineralisation (91.4m at 0.81% copper equivalent, CuE), but also demonstrated that copper mineralisation was associated with the magnetic high associated with the hill. Drilling in 2016 continued to demonstrate this association and also successfully intersected wide (>400m) mineralisation to a depth of at least 520m, with grades increasing towards the north-east of the prospect. Exploration in 2016 also included drilling on Hill 1710 (of which 1.2km of the 6km magnetic feature were tested) as well as additional ground magnetics and soil sampling, which identified two additional target areas within the project area. Freegold drilled five additional holes on Hill 1835 in 2017. These represented significant step-outs (average 100m) relative to previous holes and continued to demonstrate the size and grade potential of Hill 1835 by intersecting broad zones of copper mineralisation consistent with the results of the 2016 drilling campaign in addition to significant by-product credits of gold, silver, cobalt and tungsten. In addition to drilling at Hill 1835 in 2017, one hole was completed in the Steel Creek area of Shorty Creek. Steel Creek lies 1.5km north-east of Hill 1835 and is defined by a

large magnetic anomaly measuring 2.0 x 2.5km. Hole 17-06 was drilled into the centre of this magnetic feature and returned anomalous copper values (as well as a suite of by-product metals) consistent with Hill 1835.

A summary of the drill holes completed to date by Freegold at Hill 1835 is provided in the table below:

Exhibit 33: Hill 1835 drill intercept summary

Hole number	From (m)	To (m)	Interval (m)	CuE (%)	Cu (%)
SC15-03			91.4	0.81	0.55
SC16-01			434.5	0.64	0.36
SC16-02			409.5	0.49	0.29
SC17-01	83.0	443.0	360.0	0.42	0.24
SC17-02	77.0	485.0	408.0	0.42	0.27
SC17-03	116.0	362.2	246.2	0.36	0.20
SC17-04	308.5	500.5	192.0	0.25	0.11
SC17-05	209.0	495.3	286.3	0.44	0.21
Averages			**303.5**	**0.47***	**0.27***

Source: Freegold Ventures, Edison Investment Research. Note: *Interval weighted.

All eight of the above holes were drilled in the magnetic zenith associated with Hill 1835. All eight encountered mineralisation and all eight ended in mineralisation.

Interpretation

Notwithstanding the 'noise' created by earlier exploration programmes on the property, and in contrast to typical copper-gold mineralisation hitherto encountered in Alaska, Freegold believes that its drilling to date is consistent with having intersected the upper portions of buried porphyry mineralisation at Hill 1835. Regional scale structures often control clusters of porphyry systems, which manifest themselves as magnetic lows owing to magnetite-destructive alteration, associated with mineralisation. Primary controls are structural features such as faults, shears, fractures and breccias. Secondary controls are often porous volcanic and/or sedimentary units, bedding plane contacts and unconformities. Breccias provide channel pathways for hydrothermal fluids originating from deeper porphyry copper systems and commonly carry elevated values of gold and silver. Significantly, multiple generations of veins and hydrothermal breccias are common. Evidence in support of this interpretation at Shorty Creek includes the long mineralised intersections, the fact that the project is known to encompass several porphyritic intrusives, which extend approximately 10km in diameter, and the presence of crackled (or crackle) zones, veins, stockworks, breccia pipes and elevated grades of tungsten again at Hill 1835. While virtually undocumented in Alaska, hitherto, mineralised porphyry systems of this scale are not uncommon in large porphyry systems, such as Bingham District (Utah), the Central Mining District (New Mexico), Los Bronces (Chile) and Chuquicamata (also Chile).

Scale

Assuming that Freegold's geological model for Shorty Creek is correct and that samples so far reflect the upper portions of buried porphyry mineralisation, it is likely that the three-dimensional shape encompassing the porphyry mineralisation approximates an elliptical cylinder (assuming no major offsetting faulting or narrowing) which, in plan view, defines an ellipse with a major axis of c 325m and a minor axis of c 238m.. That being the case, it is possible to make an initial estimate of the size and extent of mineralisation thus far encountered, as follows:

Exhibit 34: Edison estimate of potential Shorty Creek resource at Hill 1835 target area	
Assumed shape	**Elliptical cylinder**
Major axis (m)	325.00
Minor axis (m)	237.50
Area of ellipse at surface (m^2)	242,485
Depth (m)	434.5
Volume (m^3)	105,359,529
Density (t/m^3)	2.9
Estimated tonnage (t)	305,542,634
Average grade Cu (%)	0.27
Average grade CuE (%)	0.47
Estimated contained Cu (t)	821,133
Source: Edison Investment Research.	

Note that this model is completely open at depth. All other things being equal, therefore, this estimate will inevitably rise as more, deeper holes are drilled into the deposit. In the event that additional holes correlate well with both each other and existing holes, in terms of grade, it will also confer greater confidence in terms of geological continuity, allowing greater depth extrapolation and therefore also a similar expansion in interpreted size.

Potential initial Shorty Creek valuation

Risk warning

Drilling at Hill 1835 is still very early stage, with the spacing between holes averaging 120m and a large untested area remaining. Freegold's consultant has recommended that it conduct c 4,000m of additional drilling at Hill 1835 in eight holes (500m/hole) to further test the magnetic anomaly and to provide enough definition to compile an inferred mineral resource. In the meantime, in our experience, estimates such as those in Exhibit 34 have an accuracy of ±75% and (hopefully) it is self-evident that they are not NI 43-101-compliant, but rather an initial indication of potential size to provide investors with an order-of-magnitude of the possible resource at Shorty Creek, on which they can then base subsequent investment decisions.

Potential valuation

In our report, Mining overview: Unlocking the price to NPV discount, published in November 2017, we calculated an average in-situ resource multiple for pre-production copper companies of US$14.35/t, on which basis it calculates that the resource estimated above, in Exhibit 34, could have the following valuation (at global average rates):

Exhibit 35: Edison estimate of potential Hill 1835 resource valuation	
Assumed shape	**Elliptical cylinder**
Estimated contained Cu (t)	821,133
Resource multiple (US$/t)	14.35
In-situ resource valuation (US$m)	11.8
Source: Edison Investment Research	

Note that these valuations are contingent upon the resource at Hill 1835 being ultimately compiled to NI 43-101 standards.

In Mining overview: Unlocking the price to NPV discount, we also noted that those companies with the highest resource ratings were also those with below-average contained resources (see Exhibit 71 on page 37 of the original report). While not statistically significant at the 5% level in 2017 (note that it was statistically significant at this level in October 2016), it could imply a higher resource multiple for Freegold's resource at Shorty Creek – by our estimation US$23.11/t – in which case the in-situ value of the total resource would be US$19.0m. Within this context, investors should note that SolGold – a comparable London-listed company, exploring at least one copper porphyry in

Ecuador – is trading on an equivalent resource multiple of US$80.00/t for a resource of 1,080Mt at an average grade of 0.48% Cu, containing 5.15Mt of contained copper, of which c 40% is in the indicated resource category.

Financials

Freegold had US$0.8m in cash on its balance sheet as at 31 December 2017 and US$0.5m as at 31 March and we estimate that it will burn c US$2.6m in FY18 and US$3.8m in FY19 – thus, presumably, necessitating a degree of short-term financing from either banks or the equity markets.

Note that our 'base case' financial model assumes that Freegold will raise US$33.8m (gross) via the issue of 634.5m shares notionally at the current price (17 August) of C$0.07 (US$0.053) in FY21 in order to develop the Golden Summit project.

Exhibit 36: Financial summary

US$000s	2016	2017	2018e	2019e	2020e	2021e
December	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS						
Revenue	0	0	0	0	0	0
Cost of Sales	0	0	0	0	0	0
Gross Profit	0	0	0	0	0	0
EBITDA	(967)	(636)	(771)	(771)	(771)	(771)
Operating Profit (before amort. and except.)	(978)	(645)	(781)	(781)	(781)	(781)
Intangible Amortisation	0	0	0	0	0	0
Exceptionals	14	318	0	0	0	0
Other	21	(16)	(0)	0	0	0
Operating Profit	(942)	(343)	(781)	(781)	(781)	(781)
Net Interest	8	5	3	(203)	(618)	(2,091)
Profit Before Tax (norm)	(970)	(641)	(778)	(984)	(1,399)	(2,872)
Profit Before Tax (FRS 3)	(935)	(339)	(778)	(984)	(1,399)	(2,872)
Tax	0	0	0	0	0	0
Profit After Tax (norm)	(949)	(657)	(778)	(984)	(1,399)	(2,872)
Profit After Tax (FRS 3)	(935)	(339)	(778)	(984)	(1,399)	(2,872)
Average Number of Shares Outstanding (m)	129.5	152.2	174.0	174.0	174.0	491.3
EPS - normalised (c)	(0.7)	(0.4)	(0.4)	(0.6)	(0.8)	(0.6)
EPS - normalised and fully diluted (c)	(0.7)	(0.4)	(0.3)	(0.4)	(0.6)	(0.5)
EPS - (IFRS) (c)	(0.7)	(0.2)	(0.4)	(0.6)	(0.8)	(0.6)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	N/A	N/A	N/A	N/A	N/A	N/A
EBITDA Margin (%)	N/A	N/A	N/A	N/A	N/A	N/A
Operating Margin (before GW and except.) (%)	N/A	N/A	N/A	N/A	N/A	N/A
BALANCE SHEET						
Fixed Assets	34,015	36,765	38,565	41,365	53,366	125,147
Intangible Assets	33,638	36,396	36,396	36,396	36,396	36,396
Tangible Assets	377	369	2,169	4,970	16,970	88,751
Investments	0	0	0	0	0	0
Current Assets	2,392	898	51	51	51	51
Stocks	0	0	0	0	0	0
Debtors	7	66	0	0	0	0
Cash	2,306	780	0	0	0	0
Other	79	51	51	51	51	51
Current Liabilities	(650)	(664)	(545)	(545)	(545)	(545)
Creditors	(650)	(664)	(545)	(545)	(545)	(545)
Short term borrowings	0	0	0	0	0	0
Long Term Liabilities	(835)	(221)	(2,072)	(5,856)	(19,255)	(62,456)
Long term borrowings	0	0	(1,842)	(5,616)	(19,006)	(62,198)
Other long term liabilities	(835)	(221)	(230)	(239)	(249)	(258)
Net Assets	34,922	36,778	36,000	35,016	33,617	62,198
CASH FLOW						
Operating Cash Flow	(462)	(666)	(815)	(762)	(762)	(762)
Net Interest	8	5	3	(203)	(618)	(2,091)
Tax	0	0	0	0	0	0
Capex	(2,464)	(2,827)	(1,810)	(2,810)	(12,010)	(71,791)
Acquisitions/disposals	31	0	0	0	0	0
Financing	4,823	1,963	0	0	0	31,452
Dividends	0	0	0	0	0	0
Net Cash Flow	1,935	(1,525)	(2,622)	(3,774)	(13,390)	(43,191)
Opening net debt/(cash)	(371)	(2,306)	(780)	1,842	5,616	19,006
HP finance leases initiated	0	0	0	0	0	0
Other	(0)	0	0	0	(0)	0
Closing net debt/(cash)	(2,306)	(780)	1,842	5,616	19,006	62,198

Source: Company data, Edison Investment Research

Contact details	Revenue by geography
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Management team

Director, president and CEO: Kristina Walcott	Vice-president, exploration and development: Alvin W Jackson
Prior to her appointment as president and CEO, Ms Walcott was Freegold's VP business development in which position (since March 2005) she was responsible for identifying and acquiring new business opportunities in the mining sector. In the 20 years before that she worked in various capacities in the junior mining industry, including as general manager of Orex Labs, as mines land manager for Pacific North West Capital and at CanAlaska Uranium (both Vancouver-based mineral exploration companies with extensive land positions in the US). In addition, she was actively involved in the geophysical contracting industry where she assisted in remote-site field geophysical surveys for both major and junior mining firms.	Mr Jackson has over 40 years of experience in mineral exploration and mine development and was directly involved in the exploration and development of two major gold deposits and one porphyry copper deposit, all of which subsequently became producers. In particular, prior to joining the board of Freegold in March 2010, Mr Jackson was instrumental in the development of EuroZinc Mining Corporation, which acquired the Aljustrel zinc-lead project and the Neves-Corvo copper mine in southern Portugal and grew to a market capitalisation of over C$1.8bn before merging with Lundin Mining in 2006.
Chairman: Gary Moore	**Chief financial officer: Gordon Steblin**
Mr Moore is a graduate from the University of British Columbia from the Faculty of Commerce (1976) and from the MBA programme (1982). He has held junior and senior executive positions with various companies, including Agra Industries, Canuck Resources, Trionics Technology, Trivest Management, Global Securities Corporation, Pacific International Securities and HTI Ventures. He is also a director of Goldcliff Resource Corporation.	Mr Steblin has over 20 years of financial experience in the junior mining/exploration sector. Originally, he obtained a Bachelor of Commerce degree in 1983 from the University of British Columbia (UBC), and in 1985 he became a certified general accountant. In addition to his position at Freegold, he is also the chief financial officer of the Elysee Development Corp and Arctic Hunter Energy, both of which are TSX-V listed companies.

Principal shareholders	(%)
RCF Management	12.13
Royal Bank of Canada	7.55
Global Strategy Financial	1.26
A W Jackson Esq	1.00
Smith & Williamson	0.58
Ms K J Walcott	0.40
G Hanks Esq	0.12

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