



2 July



Source: Refinitiv

**Market data**

EPIC/TKR	PXC
Price (p)	29.96
12m High (p)	30.00
12m Low (p)	5.00
Shares (m)	62.46
Mkt Cap (£m)	18.71
EV (£m)	19.30
Free Float*	84.30%
Market	AIM

\*As defined by AIM Rule 26

**Description**

Phoenix Copper (PXC) is developing the former Empire deposit, and the surrounding area in central Idaho, into a potentially world-class copper and polymetallic mine. First production is expected in 2022.

**Company information**

Chairman	M. Edwards-Jones
CEO	Ryan McDermott
CFO	Richard Wilkins
CTO	Roger Turner
Director	Dennis Thomas

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[www.phoenixcopperlimited.com](http://www.phoenixcopperlimited.com)**Key shareholders**

Martin Hughes (Cheviot)	21.59%
Directors	8.70%
Hargreaves Lansdowne.	6.54%
Pershing Nominees	6.29%

**Diary**

Jul-Aug'20	Assay results
3Q'20	Updated resources

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# PHOENIX COPPER LTD

## Potentially world-class copper-gold-silver mine

PXC has consolidated the former Empire mine (which recovered a phenomenal 3.64% copper before WWII suspension), and five other former mines and deposits into a potentially world-class copper/precious metals project located in one of the most favourable mining regions, Idaho, US. The planned initial silver mine will provide cashflows to develop the extensive copper-gold-zinc mineralisation in the rest of the ore body. Our estimated DCF valuation (based on silver mine only) is 31p/share. Substantial development work has been done on a first-stage (shallow oxide ore) copper mine, for which we estimate a £17.3m NPV if greenlighted today.

- **Strategy:** PXC focuses on near-term cashflow and will maximise returns/minimise risk to shareholders by developing the Empire system in stages. The project's polymetallic nature has enabled PXC to change the phasing of mine development, substituting a silver mine for the previously planned open pit copper mine.
- **Silver mine:** Careful mine planning has reduced the capital cost to \$31.8m, versus the \$51m cost for the first copper mine. The new plan sees 23.0m oz silver equivalent (Ag Eq.) during 2022-31, with cash production costs of \$7.60/oz Ag Eq. Permitting is under way, and commissioning is expected in 2022.
- **Major upside potential:** Only ca.1% of Empire's potential ore system has so far been explored. Geologically, the deposit shows similarities with Antamina in Peru, the world's largest skarn-hosted copper mine. Further work will confirm whether there are additional copper-tungsten-molybdenum porphyry resources at depth.
- **Risks:** PXC is subject to the normal risks for a junior miner, including volatility in silver prices, identifying additional ore resources, operational risks in executing the mining plan, running processing facilities, and funding risks. However, we believe that jurisdictional risk is significantly reduced in PXC's case.
- **Investment summary:** Our DCF valuation is 31p/share, based solely on the silver mine, a cautious (for now) 15% discount rate and a long-term silver price of \$19.00/oz. PXC's share price is highly geared to the upside thesis for silver (and copper), with each \$1.00/oz adding an estimated 6.2p-6.3p/share.

**Financial summary and valuation**

Year end Dec (\$m)	2017	2018	2019	2020E	2021E	2022E
Sales	0	0	0	0	0	48.800
Underlying EBIT	-1.058	-1.654	-1.105	-1.282	-1.313	0.787
Reported EBIT	-1.058	-1.654	-1.105	-1.282	-1.313	0.787
Underlying PTP	-1,056	-1,652	-1,128	-1,380	-5,069	-2,708
Statutory PTP	-1,056	-1,652	-1,128	-1,380	-5,069	-2,708
Underlying EPS (p)	-8.20	-5.82	-2.76	-2.44	-3.30	7.15
Statutory EPS (p)	-8.20	-5.82	-2.76	-2.44	-3.30	7.15
Net (debt)/cash	1.904	0.113	-0.589	-0.953	-26.530	-8.895
Shares issued	16.498	28.121	40.862	56.436	82.086	82.086
P/E (x)	n/a	n/a	n/a	n/a	n/a	5.2
Dividend yield	n/a	n/a	n/a	n/a	n/a	n/a
FCF yield	n/a	n/a	n/a	n/a	n/a	64.6%

Source: Hardman &amp; Co Research

## Overview – the Empire “system”

*PXC floated on AIM in 2017 with clear strategy*

PXC was floated on London’s AIM market in June 2017, with a clear goal to execute the phased development of the former Empire copper mine and nearby ore bodies in central Idaho. PXC’s management team had screened numerous opportunities before identifying Empire as having the lowest manageable risks, combined with the greatest upside – specifically the potential for a world-class copper and precious metals project.

*Historical copper grades were phenomenal*

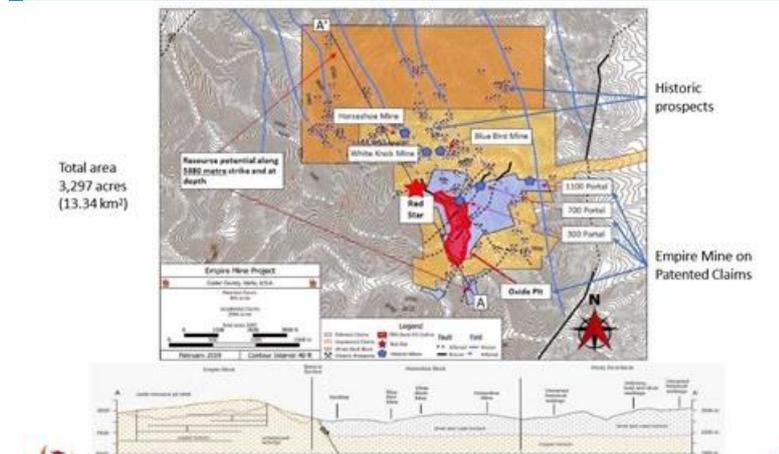
Grasping PXC’s potential requires an understanding of the historical context of the Empire mine. Before its closure due to WWII, mining at Empire focused on high-grade sulphide mineralisation. During 1901-42, 694,000 tons of ore were extracted, with the copper recovery at 3.64%. By purchasing adjacent claims, the company has enlarged the original 818-acre Empire property into 5,717 acres. PXC’s portfolio now includes:

- ▶ three other former mines – Horseshoe, Bluebird and the White Knob Mining Group (White Knob), which produced copper, gold, silver, lead, zinc and tungsten;
- ▶ the Red Star sulphide deposit – the site of the proposed silver mine – which is located north west of the Empire copper oxide deposit; and
- ▶ the Carlin-type (sediment-hosted hydrothermal) Navarre gold zone.

*Mineralisation currently extends for 5.4km*

Mineralisation at Empire extends along a 5.4km strike that trends north west from the Empire open pit (oxide deposit) via Red Star to the Horseshoe mine.

### Phoenix Copper – Empire and nearby mines and deposits



*Empire part of mineralised “system”*

It is becoming increasingly likely that Empire, and the surrounding mines and deposits, are part of a much larger mineralised “system”. The mineralisation identified and exploited so far is hosted in garnet-pyroxene endoskarn.

The key issues for PXC’s ongoing exploration programme going forward are:

- ▶ the scope of the endoskarn-hosted mineralisation, which is above, below and adjacent to the historical Empire mine workings; and
- ▶ whether there is also a large and accessible copper-tungsten-molybdenum porphyry ore body at depth.

*Most of world’s largest copper mines based on porphyry mineralisation*

Finding porphyry mineralisation could be highly significant, as most of the world’s largest copper mines are located on porphyry deposits. They are also the dominant source of molybdenum and a major source of gold production. Furthermore, it is estimated that less than 1% of the Empire system has been “exploited and explored” so far, and the entire 5.4km of current strike length is open at depth.

## Silver lining to short-term strategy change

### Initial plan was for open pit copper mine

In autumn 2019, PXC was working on a Feasibility Study for an open pit copper mine, based on near-surface oxide ore. This was to be a low-cost “starter mine”, which would:

- ▶ provide returns to PXC’s shareholders; and
- ▶ generate cashflows to develop the much larger and higher-grade sulphide endoskarn and (potentially) porphyry ore bodies beneath the oxide ore.

The intensification of US-Chinese trade tensions in the second half of 2019 and the sharp decline in the copper price towards \$2.50/lb necessitated an alteration in PXC’s near-term strategy, while the longer-term goal remains unchanged.

### Polymetallic nature of ore body was key to flexibility...new strategy focuses on Red Star silver mine

The change in strategy was facilitated by the polymetallic nature of the ore body at Empire and the zoned character of the mineralisation. Instead of starting with the copper from the oxide open pit, the new strategy focuses on mining silver-lead mineralisation in the Red Star discovery, with two advantages:

- ▶ The outlook for the silver price is looking considerably more upbeat. Silver is a monetary metal, as well as an industrial metal, and the Federal Reserve has joined other central banks in reverting to easier/unconventional monetary policies.
- ▶ The capital cost of the initial silver-lead underground mine with a flotation process plant is below \$30m, much lower than the \$51m cost for the copper mine.

Our new model for Phoenix Copper is based on the development of the Red Star deposit. The publication of a maiden inferred resource estimate for Red Star in May 2019 was based on the results of three drill holes. Nevertheless, it amounted to 103,500 tonnes of ore and more than 0.5m oz of contained silver.

### Empire – mineral resources and reserves (May 2019)

Inferred (t)	Ag (oz)	Au (oz)	Cu (oz)	Pb (t)	Zn (t)	Ag (g/t)	Au (g/t)	Cu (%)	Pb (%)	Zn (%)
103,500	577,000	2,800	338	3,988	957	173.4	0.85	0.33	3.85	0.92

Source: Phoenix Copper

### Current plan is to extract 1.6m tonnes of ore over 10 years

Further exploration work at Red Star has shown that the primary vein, extending south west to north east, is now measured at 320m and is open at both ends. The mineable width is estimated at 5m-7m. Channel sampling has reinforced PXC’s optimism that the 103,500-tonne resource can be enlarged to well over 1.0m tonnes. Indeed, the current Red Star mine plan incorporates 1.6m tonnes of ore over a 10-year life of mine (LOM), over two phases, as follows.

### Red Star mine – two phases of ore production (tonnes)

Phase 1 - 2022-26	639,000
Phase 2 - 2026-31	958,500
<b>Total ore production</b>	<b>1,597,500</b>

Source: PXC

### This year will see 20 drill holes and 1,500m along primary vein

The 2020 drilling programme at Red Star began on 28 April 2020, and involves an additional 20 holes and 1,500m of drilling along the primary vein. The twofold aim is:

- ▶ to enlarge the current 103,500-tonne resource to at least 650,000 tonnes at silver and lead grades that are equal or better than the existing resource; and
- ▶ to categorise as much of the new resource as possible in the “Measured” category.

*PEA likely to follow 2020 drilling programme...*

If the 2020 exploration is successful in enlarging the Red Star resource, we expect that PXC will undertake a Preliminary Economic Assessment (PEA), possibly followed by a Feasibility Study, although the latter might be skipped, as the underground mine will be straightforward. PXC is budgeting \$0.75m/p.a. of exploration expenditure in 2022-25 to develop a further 950,000-1.0m tonnes of ore for phase 2 production.

*...with development decision by year-end*

A development decision for the Red Star mine is expected by the end of 2020. Going forward, the deeper sulphide, and potential porphyry ore body and targets, will be the main focus of the ongoing exploration programme. This will allow PXC to evaluate multiple stages of mine development in the coming years.

## Key assumptions and valuation

Our current assumptions for Red Star's development include the construction of an underground silver mine with a flotation process plant, mine production of 450 tonnes of ore per day, and nearly 1.6m tonnes over a 10-year mine life. Annual production, in terms of silver equivalent ounces, is forecast at slightly over 2.4m oz.

### Red Star mine – key PXC assumptions

Initial mine life	10.0 years
LOM ore production (tonnes)	1,597,500
Silver average head grade (oz/tonne Ag Eq.)	16.0
Silver recovery	90.0%
Recovered silver equiv. p.a. (m oz)	2.410
LOM average silver price (\$/oz)	19.00
Royalty	5.0%
LOM average cash op. cost (\$/oz.)	7.60
Initial capital cost incl. working cap (\$m)	29.240
LOM sustaining capital (\$m)	16.0
Discount rate	15.0%

Source: PXC

*We assume mine is financed 80:20 on debt:equity basis*

After raising ca.\$2.54m in equity finance in 2019, we expect PXC to raise a further \$3.0m in 2020 and \$6.5m in 2021. In terms of financing mine construction/working capital and corporate expenses in 2021, we are assuming that the ca.\$32.5m aggregate cost is financed on an 80:20 debt:equity basis.

*We estimate free cashflow generation will be \$13m-\$18m p.a.*

When Red Star is commissioned, PXC should generate substantial free cashflow, i.e. ca.\$13m-\$18m p.a. during 2022-32. We estimate that PXC will be able to repay the \$27.3m of debt by the end of 2024, i.e. after three years.

*Our 31p/share valuation currently based on \$19.00/oz silver price and 15% discount rate*

We have valued PXC using a DCF model based on the silver mine only. It incorporates a cautious discount rate of 15% (which we will reduce on exploration success), mine production to 2031 and a long-term silver price of \$19.00/oz. On these assumptions, our fair value for the company is 31p/share, versus the current price of 29.96p.

Our valuation currently excludes the open pit copper mine, where development work is ongoing. We have previously estimated a £17.3m NPV, versus a current PXC market cap. of £18.7m, using copper and zinc prices of \$3.00/lb and \$1.20/lb, respectively. Recent small-scale testing of samples from the open pit using non-toxic ammonium thiosulphate reagent (instead of cyanide) resulted in high gold recoveries of 98% and silver of 70%-78%. If larger-scale testing is also successful, the mine's economics could be transformed – precious metals revenue streams could be incorporated into the mine plan from the beginning, without the need for lengthy permitting. The gross value of Measured & Indicated gold and silver resources in the open pit at a price of \$1,600/oz and \$19.00/oz for gold and silver, respectively, is £385.2m (\$477.7m).

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