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Retail analysis of the Colin Bird portfolio of companies, prepared for

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Introduction

Good afternoon and welcome to this compilation of articles, covering five companies in which Colin holds a senior director position.

A digital version of this document can be found online at FTSEAIM.CO.UK, the home of London’s junior resource sector.

The unabridged articles were originally published on investingstrategy.co.uk.

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Before you start reading, a few caveats:

* This report is not financial or investing advice, and no responsibility is taken for accuracy within. Please conduct your own research and make your own decisions.
* There are some important first steps to consider before investing in AIM shares, or in [mining shares](https://investingstrategy.co.uk/mining/how-to-invest-in-junior-mining-shares-best-platforms-in-2023/). Generically, these centre around [developing financial resilience and diversification](https://investingstrategy.co.uk/other-investments/5-steps-to-consider-before-you-start-investing-in-2023s-bear-market/).
* While these companies appear to be a solid opportunities at this price level, they remain small caps. This means [higher risk](https://investingstrategy.co.uk/mining/understanding-risks-of-junior-mining-shares/) than those associated with larger companies, but with correspondingly larger potential upside.

Let’s dive in.

The African Pioneer EDIT

*Originally published on 11th April 2024*

**African Pioneer has many assets to consider — but two stand out at present.**

Here we go again. Welcome to this week’s EDIT, where I take a comprehensive look at a small cap company — usually one where sentiment has beaten it down, but where the fundamentals remain reasonably strong and near-term catalysts are on the horizon.

African Pioneer relaunched its IPO in mid-2021 at 3.5p per share — and has since fallen to less than 2p. It’s worth noting, however, that the stock has remained relatively stable since June 2023, and it is far from the only junior resource company with solid fundamentals, which has been beaten down by the weak investing environment.

African Pioneer: copper boom

The good news for would-be investors is that African Pioneer is solely focused on copper. Of course, the company’s tenure is prospective for multiple metals both base and precious, but the singular focus is on what is arguably the most important metal in the world, excluding iron.

If you aren’t aware of the impending copper supply gap, then you need to get out more.

S&P Global thinks global demand for copper will double to 50 million metric tons by 2035 — creating a supply gap of 10 million tons. Bloomberg expects this gap will hit 14 million tons by 2040, with demand for refined copper growing by 53% by 2040 while supply will only rise by 16%.

Goldman Sachs research shows that miners need to collectively invest $150 billion in the next decade to plug the copper gap, while also noting that regulatory approval for new copper mines has fallen to its lowest in a decade.

In the 1990s, copper exploration grassroots budgets ranged from 50-60% of overall copper annual budgets; this had fallen to just 34% by 2021. And it takes 16 years — on average, according to an estimate of sources — to discover and develop a new copper mine.

The majors are instead focused on buying up established assets. Multi-billion-dollar deals are ongoing to reduce costs and bring producing mines on board. BHP bought ASX copper producer Oz Minerals for a hefty premium, while Newmont’s record bid for Newcrest may be primarily about gold synergies but also brings the major huge copper deposits.

But it doesn’t matter who owns the mines. There’s still the same number of producing assets in existence.

Consider Rio Tinto’s new Oyu Tolgoi mine in Mongolia. Wood Mackenzie analysts estimate that the equivalent of 12 new equivalent copper mines will be needed to come online by 2030 to meet expected demand. Yet Oyu is being touted as one of the most important copper deposits in the world, and development from bare earth to near production has been extremely hard.

Trafigura — the world’s largest copper trader — CEO Jeremy Weir noted at last year’s World Copper Conference that ‘if we don’t have enough copper, it could seriously short circuit the energy transition.’ And the International Copper Association thinks that while global supply is expected to jump by 26% to 38.5 million tonnes annually by 2035, it will likely still fall 1.7% short of demand — even assuming that recycling rates increase exponentially.

Ivanhoe founder Robert Friedland famously thinks that more than 700 million MT of copper will need to be mined in the next 22 years just to maintain typical 3.5% GDP growth, without even considering the electrification of the global economy. This is equivalent to all the copper ever mined in history.

Globally, 21 million metric tons of copper are mined every year, but it’s not going to be enough. Over the next 20 years, the International Energy Agency expects it to become a dominant mineral alongside graphite and nickel, with demand set to treble by 2040 as net-zero goals accelerate.

Meanwhile, emerging markets such as Zambia are seeing output accelerate. Zambian Finance Minister Situmbeko Musokotwane recently enthused that ‘copper is the new oil.’ And CRU Group analyst Adam Khan notes that Zambia could add nearly 1 million tons of copper production per year over the next decade.

In 2021, the shortage gap — the difference between copper mined and demand — came to just 2% of production, enough to push up copper prices by 25%. 2035’s gap could be at least ten times as much.

Copper recently hit a high not seen since January 2023.

Disruptions at many major mines are forcing smelters to pay higher prices to obtain mined ore, and Chinese plants which produce most of the world’s refined copper are moving closer to implementing a joint output cut. Many smelters are no longer able to operate profitably as they have to fight for ore, and many will cease processing.

Simultaneously, investors are becoming more optimistic about China — the manufacturing purchasing managers index in March just registered the highest reading in a year.

What do the big names say right now?

* Goldman Sachs — copper prices will hit $10,000 per tonne by the year-end on robust Chinese demand and the ‘ongoing supply-side shock.’

Bank of America — analyst Michael Widmer notes that ‘the much-discussed lack of mine projects is becoming an increasing issue for copper. This, along with investment in green technologies and a rebound of the global economy, should lift prices to US$10,250/t (465c/lb) by the fourth quarter.’

* Macquarie — revised down its copper supply forecast by 1 million tonnes for 2024 since last September. Argues ‘lower production is likely to have a lagged ripple effect through the supply chain.’
* Citi — ‘copper’s second secular bull market this century is being driven by booming decarbonisation-related demand growth. Only higher prices will solve these deficits.’ They point out that the 2000s bull run saw copper rise fivefold in three years and note there could be ‘explosive price upside’ again over the next three years.
* Morgan Stanley — ‘elevated mine supply disruptions point to a deficit of 700,000 tonnes and should start to feed through to refined production too,’ and they predict a $10,200 per tonne copper price by Q3.
* Trafigura — chief economist Saad Rahim thinks that ‘if you look at the demand that is coming from data centers and related to that from AI, that growth has suddenly exploded’ and argues there could be another one million ton demand as a result on top of the expected current four to five million ton supply gap by 2030.

At some point it gets a bit overdone, but every single person in the world of copper expects demand and pricing to rise as supply continues to remain constrained.

African Pioneer assets

African Pioneer’s copper assets can be split into three distinct divisions:

* Botswana — Kalahari Copperbelt
* Namibia — Matchless Copperbelt
* Zambia — Central African Copperbelt

In Zambia there is also potential for cobalt, in Botswana silver and in Namibia, gold.

It’s worth noting some of the finds made by other companies in these belts.

1. Kalahari is 800km by 250km and stretches from Northern Botswana into eastern Namibia — and Cupric Canyon’s world-class Khoemacau Copper-Silver Project, Sandfire Resources T3 deposit and its A4 Dome prospect were all found here.
2. Matchless is a 350km belt which includes producing mines at Matchless and Otjihase (on care and maintenance since 2015) which contained a total combined resource of >16Mt @ 2.2% Cu & 1.2g/t Au. It also boasts the Hope-Gorob-Vendome deposit cluster, and African Pioneer’s Ongombo and Ongeama Projects adjacent to Otjihase mine.
3. The Central African Copperbelt is widely regarded as the largest and most prolific sediment-hosted copper province on the planet — and African Pioneer has a 100% interest in five large-scale exploration licences, four of them in the western extension of the Copperbelt, covering 2,366.3 square kilometres centred around the town of Mwinilunga.

Specifically, LEL27771 lies just 10 kilometres from the Luamata copper-cobalt deposit which has been subject to recent pilot-scale mining. Some of these licences were covered by reconnaissance exploration by majors, including Anglo American and MinMetals, but little follow-up was undertaken.

Recent updates

16 February saw African Pioneer release an update on key operations within the Central African Copperbelt. To start with, you need the basic details on the long-standing option agreement with First Quantum:

1. During the initial 18 month option period First Quantum has the right but not the obligation to spend US500,000 on each of the exploration licences 27767-HQ-LEL, 27768-HQ-LEL, 27770-HQ-LEL, and 27771-HQ-LEL. At this stage First Quantum will not have earned any shares in subsidiary African Pioneer Zambia, just the right to proceed to take one or more of the properties into the First Earn In Period by issuing an Option Exercise Notice.
2. During the First Earn In Period, First Quantum then has 2 years when it has the right but not the obligation to prepare a Technical Report in respect of the Zambian Projects demonstrating an Indicated Mineral Resource of at least 300,000 tonnes of contained copper. First Quantum is to fund the Technical Report. Once the Technical Report is issued First Quantum has the right to be issued shares equal to a 51% shareholding in African Pioneer Zambia. This will also trigger the Second Earn-In Period.
3. In the Second Earn-In Period, First Quantum shall have the right but not the obligation to complete all necessary mining, metallurgical and development studies to establish a mine at the Property and make a public announcement that it intends to proceed towards commercial development of a Mine on the Property. First Quantum is to fund all costs related to the Decision to Mine. Once First Quantum announces a Decision to Mine it has the right to be issued shares in African Pioneer Zambia to increase their 51% shareholding in African Pioneer Zambia to 75%.

The update saw the business note that under First Quantum Minerals’ option agreement with the company’s 80% owned subsidiary, African Pioneer Zambia:

* First Quantum has delivered a notice to exercise their option over the two licences subject to the Option Agreement, which had not previously been exercised, on top of the first two already exercised (one remains outside of the agreement). This is a good sign.
* These newly option exercised exploration licences are 27770-HQ-LEL and 27768-HQ-LEL. As announced on 26 October 2023, options over licences 27767-HQ – LEL and 27771-HQ – LEL have already been exercised. These licences are located less than 100km from First Quantum’s Sentinel copper mine.
* The first earn-in period during which First Quantum has to prepare a Technical Report demonstrating an Indicated mineral resource of at least 300,000 tonnes of contained copper for First Quantum to earn a 51% shareholding in African Pioneer Zambia has been extended to 28 February 2026.

In other words, FQM wants to explore more, and wants more time on the ground without being rushed.

Executive Chairman Colin Bird noted that ‘the initial period under the Option Agreement has been extremely successful for both First Quantum and AFP with the Western Foreland and Kamoa-style mineralising environment being established as well as near surface mineralisation in the fold- and thrust domain further to the east on some of our licences.’

For clarity, First Quantum have not yet earned a shareholding in African Pioneer Zambia — and the First Earn In Period can be further extended by 12 months if First Quantum incur $2 million of expenditure towards preparing the Technical Report which will include expenditure in excess of the Qualifying Expenditure of US$500,000 per Exercised Licence already incurred by First Quantum to give them the right to exercise the Exercised Licences.

It’s well worth mentioning that Bird, who among other ventures founded Jubilee Metals, founded and floated Kiwara which discovered copper in northwest Zambia — and was sold to First Quantum within 30 months of being formed, for $260 million.

Ongombo copper-gold project

The 7 February update on 85%-owned Ongombo was largely an update on Permitting and Ore Processing test work. The project is located within Exclusive Prospecting Licence EPL 5772, just 40 kilometres northeast of capital city Windhoek, Namibia.

The good news is that EPL 5772 has just been renewed for two years, and the awaited Environmental and Social Impact Assessment (ESIA) is at an advanced stage of completion. And Mining Licence 240 was granted to AFP on 10 August 2022 for 20 years, covering a portion of EPL 5772 and approximately one third of the open pit resource. An extension to the Mining License was submitted on 6 September 2022, to encompass the wider Resource Area.

African Pioneer is now completing the permitting process by way of the near-term submission of an Environmental and Social Impact Assessment (ESIA) and the Environmental Management Plan (EMP).

For context, Ongombo now has an Independent updated total (gross) Indicated Mineral Resource Estimate (MRE) of 5.7Mt at 1.1% Cu Equivalent (CuEq), 0.94% Cu and 0.23g/t Au and a substantial Inferred underground potential Resources of 23Mt at 1.1% CuEq, 0.95% Cu and 0.24g/t Au — this was announced almost a year ago.

I’ve covered the difference between an indicated and inferred MRE in depth here.

Encouragingly, expenditure thus far of approximately $480,000 on direct drilling costs ahead of the Mineral Resource update represents a unit resource development cost for the additional announced 100,000 tonnes of contained copper metal was approximately $4.8 per tonne of contained metal.

The company is now in ‘advanced discussions’ with ‘multiple parties’ on project level funding of the project. I’d argue this asset is the most likely to be developed first — and it’s key to consider what this might look like.

On funding, I’d say that a company with a £4.2 million market cap is not going to be able to build a working mine through dilution, so a partner with deep pockets will be necessary. But perhaps not too deep.

Bird notes that as the wider resource includes 930 Kt at 0.57% Cu and 0.19g/t Au open pit potential resource:

*‘potential for a ‘starter’ mine using low-cost open-pit methods. We plan to combine XTR with laser dry sorting technology to separate ore from waste and generate a high-grade concentrate for transport to an in-country processing plant for final separation before metal recovery. We are now sequencing the primary development infrastructure and the process flowsheet. As we advance towards the completion of the ESIA we expect to soon be in a position to move towards project implementation and the completion of development financing.’*

Here’s some key facts:

* the location and design of marginal ore and dry tailings storage areas have been identified within the ESIA.
* low water demand and modern XTR sorters and gravity concentrators have been shown to be amenable by Steinert (Germany’s competent engineers). Laser tests confirmed the potential to differentiate between ore and waste with induction sensor tests returning the required response to distinguish waste and ore fractions.
* AFP intends to use XTR sorting to initially process crushed ore for transportation to an external flotation plant, where the copper and gold will be recovered into concentrates for export for final smelting. This hugely reduces potential capex and is only possible due to how close the asset is to infrastructure.
* In parallel, with metal recovery testwork, Addison Mining Services has indicated significant increases in resources with further scope for another meaningful increase in the project’s CuEq grade, contingent upon follow-up work to test gold content in the East/Ost Shoots.
* AFP has approved a short drill programme to twin some historic Goldfields Namibia holes to assess potential content. Goldfields Namibia often did not assay for gold but in some of their drill holes in areas of East/Ost Shoots that were assayed for gold they returned values ranging from 9.6g/t Au over 0.17m to 0.12g/t Au over 1.1m.
* AFP has engaged the services of a highly experienced mining engineer with a career in narrow orebody exploitation in African projects, to plan how to optimise both the mining methodology most suited to the narrow orebody, and the primary development required to ensure access to sufficient ore to maintain production.

Botswana review

Sandfire Resources was previously exploring AFP’s Botswana licences within the Kalahari Copperbelt, but while this is old news, Sandfire has notified the Company that it will not be exercising its option under its Option Agreement.

AFP is awaiting an expenditure report from Sandfire for the option period so it can review Sandfire’s Exploration Commitment which was to fund $1 million on the Included Licences within the Option Period with 60% of the Exploration Commitment to be on drilling and assay costs.

If the Exploration Commitment is not spent, any shortfall will be paid by Sandfire to African Pioneer. And Sandfire has confirmed that they will provide Exploration Information that it holds in relation to the Licences.

It’s not all bad news — while the exploration on the licences did not indicate prospectivity for a large scale mining operation, the AFP Board believes that there is prospectivity for a smaller to medium sized mining operation within the range of 5,000 to 10,000 tonnes of contained copper per annum.

In other words, very profitable for smaller scale miners but simply not large enough to interest a company the size of Sandfire.

In addition, all the Company’s Botswana prospecting licences are being reviewed by an external geological consultant with specific expertise of Botswana copper geology and further work will be based on recommendations generated by the review.

Management and finances

Executive Chairman is Colin Bird — 40 years of experience and has significant experience working in Zambia and Botswana since the 1970s. Colin Bird founded and floated Jubilee Metals, is Chairman and CEO of Galileo Resources, Chairman at Xtract Resources Plc, and Executive Chairman of Bezant Resources.

As noted above and most importantly, Bird founded and floated Kiwara, which discovered copper in northwest Zambia. The company was sold for $260million to First Quantum.

Finance Director is Raju Samtani, who was previously finance director of Kiwara and has decades of experience, including three years as Group Financial Controller at marketing services agency WTS Group, where he was appointed by the Virgin Group to oversee their investment in the WTS Group.

Business Development Director is Christian Cordier, who has worked with many major international mining houses over the years, including in investments in listed companies in the United Kingdom, Australia and Southern Africa as well as private mining operations. He has ‘extensive experience in sourcing natural resource projects and nurturing them through the value curve.’

In terms of finances, half-year results to 30 June 2023 saw AFP lose £301,000 after tax, slightly up on the prior comparable period. It held £390,000 at period end, though raised funds in June 2023 to the tune of £790,000 including a £140,000 directors subscription to start **drilling at Ongombo and exploration in the Kalahari Copperbelt.**

**And the company recorded the net asset value of assets at £5.24 million — which is possibly an underestimate now copper is hitting the headlines.**

**It’s worth noting this raise was at 2.25p, with Bird enthusing that ‘**we are confident that we can increase the overall value of the project by some further general drilling aimed at further copper additions, but more importantly the east shoot can be brought earlier into the mine plan by further judicious drilling to define both overall quantum and gold content, which was not defined in the past.’

The bottom line

African Pioneer has:

* Various licences prospective for copper across Botswana, Zambia and Namibia
* An option agreement with First Quantum covering four licences in Zambia, to whom the Chair has previously sold a copper asset for $260 million
* The highly developed Ongombo project with advanced project funding discussions ongoing in Namibia
* The proven ability to negotiate agreements with multiple majors
* the potential for small scale mining at the Botswana licences
* a bull market for copper
* dozens of operators looking for exploratory copper assets across Africa, leaving its £5.24 million NAV arguably underpriced

Yes, this is not a Jubilee Metals, even if Bird founded that as well. But as an exploratory option in Zambian copper with large potential upside, it’s top tier.

The Galileo Resources EDIT

*Originally published on 17th April 2024*

Galileo Resources is advancing multi-commodity properties across a diverse portfolio, including promising copper assets in Zambia.

Welcome to this week’s EDIT, where I spend the day doing a deep dive into a single small cap stock — with the aim of creating a condensed investment case within a single article. This week, it’s Galileo Resources, which has held up remarkably well through this period of weak junior resource sentiment.

Galileo Resources shares have nearly doubled over the past five years, including the pandemic-era minicrash and subsequent pandemic-based rocket to 2.3p in January 2021. The stock has bounced around over the past few years, but the 1p level remains a baseline of sorts.

Let’s dive in.

Galileo Resources: Investing Strategy

Galileo sets out its stall very clearly: the model is to acquire assets with large data bases generated by major companies and abandoned for strategic, corporate, technical, and other reasons which ‘do not necessarily reflect the potential value of the projects.’

This is an eminently sensible policy, especially in the current market where getting hold of the capital to develop assets without any initial data is becoming ever harder. Having taken a look at the asset portfolio, a common theme is that Galileo acquires assets in jurisdictions considered investor unfriendly, and then waits for the political tide to turn — as it has in Zambia.

Galileo now holds interests to varying degrees in the following assets:

* Luansobe Copper Project, Zambia
* Shinganda Copper & Gold Project, Zambia
* Western Foreland Copper Project, Zambia
* Kashitu Zinc Project, Zambia
* Kamativi Lithium and Bulawayo Gold Projects, Zimbabwe
* Kalahari Copper Belt Project, Botswana
* Ferber Project, Nevada (US)
* Glenover Project, South Africa

Unlike other EDITs, I am not going to go deeply into the investment cases for these metals — the copper supply gap was recently covered in depth for African Pioneer, Gold is at a record price and some of the bullish factors are in Greatland Gold’s coverage, and I have also covered where lithium will go next here.

It’s a good idea to read them all as it helps to understand how well Galileo is positioned.

I would note on gold that Citi’s prediction of $3,000 may well come true. The weaponisation of US dollars has seen China sell US treasuries and buy gold instead, alongside record buying at central banks across the world. And the US debt/deficit problem isn’t going away. Slowly, this may be eliminating one safe haven, which is having the artificial effect of inflating gold as investors who once split their cash between the US dollar and gold now opt only for the latter.

However, as gold theories seem to be changing to fit the narrative (high rates should have seen the metal fall), take predictions with more than a pinch of salt.

Galileo Resources asset base

Going through every detail would come close to a doctoral dissertation in terms of length, so I have tried to bring together the most salient points. As a primer, my opinion remains that copper is the red hot commodity of 2024 — if in doubt, just Google ‘copper price.’

After Zambian government reforms, it’s also my view that the country is the ‘place to be.’ Operators are scrambling to get hold of prospective licences now that the rules have changed — and Galileo pre-empted this and got there first.

For context, Zambia now charges:

* Flat corporation tax at 30%.
* Mineral royalty up to 10% but this can be deducted from corporation tax.
* Export duty for precious metals and some critical minerals at 15%, though this usually does not apply to copper.
* Withholding tax at 15%, but are dividends not included within this anymore.

Of course, you also benefit from cheaper labour and opex costs. And in copper specifically, imports on equipment is duty free, miners can deduct 100% of capex in the first year instead of having to spread it out over its lifespan (the UK did something similar to expensing recently), there is zero VAT on copper exports, you can claim VAT input on tax paid for capex, you can carry forward losses for an entire decade, and you can claim input tax for pre-production expenditure for five years...

All of which sends the strong message: Zambia will tax you fairly, encourage you to get started, and wants your investment. President Hakainde Hichilema has set a target to expand copper production from 800,000 tonnes per year to 3 million tons by 2030 — and Jubilee’s expansion, Anglo’s JV deal with ARC, the new railway being built, the major discovery, the major Kobold discovery, the fight for assets — all of it points to a red hot few years in the country.

With that being said, I have split the assets into Zambia and non-Zambia — and have covered key recent news as succinctly as possible.

Zambia assets

**Luansobe** — in which Galileo owns a 75% interest — is situated 15km from Mufulira Mine in the Zambian Copperbelt which produced over 9Mt of copper. It forms part of the north-western limb of the northwest - southeast trending Mufulira syncline, and is arguably a strike continuation of Mufulira, with copper mineralisation hosted in the same stratigraphic horizons.

On 9 February 2023, Galileo announced a new Inferred Mineral Resource for the project estimated by external consultants Addison Mining Services:

* Approximately 5.8 million tonnes gross at 1% total Cu above a cut-off grade of 0.25% total Cu for 56,000 tonnes of contained Cu, potentially amenable to open pit mining.
* Approximately 6.3 million tonnes gross at 1.5% total Cu above a cut-off grade of 1% total Cu for 97,000 tonnes of contained Cu, potentially amenable to underground mining.

Since then, work has continued towards development of a potential open pit mine plan.

**Shinganda** — covers part of a major 10 kilometre structural trend with two previously developed small-scale open pit copper-gold mines. Limited historic drilling on the property is reported to have intersected 1.07% Cu over a true width of 28.3m at shallow depth within supergene copper oxides. Drilling on the structure within the Shinganda property further to the west by Vale recorded a 2m interval @ 3.93% Cu, 1.72g/t Au.

Limited historical drilling and sampling at Shinganda returned best intercepts of up to 50.3m @ 1.54% Cu from 21m downhole depth in drill hole SHDD002, and a peak of 33.90g/t Au was returned from a composite grab sample in an exploration pit.

The current drilling program remains on track, with seven holes completed so far, totalling 890m in advance. The latest hole, SHDD017, has revealed extensive alteration and brecciation with associated copper mineralization within the Shinganda Fault Splay system.

This hole, designed to test the IOCG deposit potential, encountered a wide zone of hydrothermal alteration and mineralisation over a 264.5m interval. Mineralisation occurs in clusters and disseminations associated with brecciation and veining, confirmed by pXRF analysis.

Follow-up drilling is designed to explore the mineralised zone and test iron alteration clusters and IP targets identified by previous studies. Additionally, other short holes drilled to test outcropping occurrences intersected shallow oxide mineralization with anomalous copper, with samples being sent for laboratory assay.

Chairman and CEO Colin Bird enthused this was a

*‘particularly impressive hole….the nature of the host environment is not typical for traditional Copperbelt mineralisation which leads us to believe that this could be a totally different style of mineralisation. There is good district evidence for IOCG-type mineralisation and we are targeting drilling with this model in mind. The next hole will be sited 100m away to test for mineral style repetition and continuity.’*

**Kashitu** — a new four-year small-scale exploration licence was issued in February 2022 for this project. However, it remains essentially in limbo. While Galileo has made contact with various interested parties including potential providers of third-party processing capacity for the on-site open pittable high-grade willemite, the removal of access to parts of the Kashitu licence for small-scale and artisanal miners could have a profound impact on livelihoods in the area.

Translated, this means while the plan is to continue to identify targets for further drilling, the most important factor is to get the local population on board with a business plan.

**NW Zambia Joint Venture** — in September 2023, Galileo entered into a JV with Cooperlemon Consultancy to explore for copper at exploration license 28001-HQ-LEL in Northwest Zambia.

The licence covers some 52,000 hectares and runs along the Angolan-Zambian border. It’s closely associated with the perceived Western Foreland geological district boundary that potentially hosts Kamoa - Kakula deposits in Northwest Zambia.

Under the joint venture agreement Galileo agreed it will earn a 65% interest by making an immediate cash payment of US$230,000 to Cooperlemon, and funding exploration expenditure of at least $750,000 over an initial — Phase 1 — eighteen-month period on the Licence. Exploration activities will include physical tasks such as mapping, soil geochemistry, geophysics, and drilling, as well as desktop studies, laboratory analysis, and data interpretation.

If Phase 1 exploration results demonstrate the continuity of mineralisation at grades suggesting potential for future development of a Mineral Resource of at least 500,000 tonnes of contained copper, with an internal rate of return of at least 25% and a payback period not exceeding 42 months, a second two-year — Phase 2 — exploration period will follow.

Ex-Zambia assets

**Kalahari Copperbelt** — Galileo recently announced the discovery of three promising copper targets following a Terraleach soil survey on its PL253/2018 license.

These targets align with known copper-hosting structures and are near existing copper mineralisation on neighbouring licenses. The findings are supported by public data on nearby deposits and Galileo's successful use of metal-ion geochemistry.

By overlaying Galileo and Cobre soil anomaly maps, the targets appear contiguous and associated with similar geological features. The company is now considering its strategy for further exploration leading to drilling of these promising targets, as the combined strike length exceeds 6km.

Bird noted he is *very pleased that our immediate neighbour Cobre Limited has been selected for the 2024 "BHP Xplor Program". This is indeed a commendation reflecting the Company's efforts and the quality of its Copper Belt licences. Importantly, current published information quite clearly shows our new targets to be contiguous with known targets and mineralisation on these highly prospective licences.’*

Shortly afterwards, the company identified two additional targets on licenses PL039/2018 and PL040/2018 in the southeastern basin margin. Previous scout drilling revealed the correct lithological sequence associated with mineralisation, prompting further soil sampling — which led to the discovery of these new targets.

The new targets, situated in the 'Galileo Fold,' share a geological setting similar to areas drilled by Khoemacau and Arc Minerals, adjacent to the Mowana Fold axis. For context, Khoemacau reported drill intercepts at Mowana including 4.3m @ 1.65% Cu and 6.1m @ 2.56% Cu, while Arc's scout holes yielded intervals up to 3.65% Cu.

Independent assessment suggests that the Galileo Fold shares the prospectivity of the Mowana Fold, with PL039/2018 exhibiting anomalous soil results associated with the plunge nose of the Galileo Fold structure, while PL040/2018 has three geochemical targets, with the southern target extending over 2.8km.

Bird advises these *‘new targets are very encouraging particularly when you consider that the copper values in soils on PL39/2018 define an area independently assessed to be directly analogous to the Khoemacau/Arc Mowana Fold prospect…the scale of our discoveries should also not be overlooked for example, the southern target on PL40/2018 is the same size as Khoemacau's Zone 5 target. In the coming months we will undertake further work to pin down drilling targets in this exciting area.’*

It’s worth noting that Galileo sold some nearby licences to Sandfire in 2021, which have subsequently seen significant work — and there is therefore a natural buyer/JV partner for additional work.

**Zimbabwe assets** — Galileo recently announced it has fulfilled conditions required to acquire an additional 51% interest in BC Ventures, and now owns 80% of the business, which in turn owns the Kamativi Lithium Project in Southwest Zimbabwe and two gold licenses, known as the Bulawayo Gold Project, situated close to Bulawayo, through its wholly owned Zimbabwe subsidiary, Sinamatella Investments.

It's always fun untangling subsidiaries. The company has recently applied to Zimbabwe authorities for a three-year renewal of all three exploration licenses until March 2027.

The Kamativi Lithium Project comprises EPO 1782, covering 520 square kilometres, and which lies on the Kamativi Belt directly adjacent to, and along strike from, the historic Kamativi tin- tantalum mine which operated from 1936 to 1994.

The Kamativi Mine produced 37,000 tonnes of tin and 3,000 tonnes of tantalum ore from pegmatites, and in 2018 Chimata Gold Corp announced a new JORC compliant Indicated Mineral Resource of 26Mt @ 0.58% Li2O within the Kamativi mine tailings, confirming that the mine contained significant quantities of lithium. Moreover, this mine has recently been brought back into production for hard rock lithium.

The Sinamatella licence area encloses extensions and splays of the Kamativi Tin Mine host unit, including mapped pegmatites, and it has been anecdotally reported that there are old tin-fluorite workings within the Sinamatella property. The licence area also contains a large extent of the pre-Cambrian Malaputese Formation which is considered to be strongly prospective for VMS hosted copper, surrounding the old Gwaii River Copper Mine and including numerous other copper prospects and occurrences.

Little exploration has been carried out on this licence area over the past few decades, but there is very good historical data available to advance exploration for lithium prospects — and it’s in a very prospective area.

In a further recent update on Kamitivi, assays have been received from ALS Chemex for its 10-hole Phase 1 angled drilling programme — which took place over an area of about 1km x 0.5km, and shows extensive lithium enhancement focussed on cross-cutting pegmatites and within mica-schist host rock.

Hole KSDD001 — confirmed by assays at ALS Global Laboratories — included a zone of 4m @ 1.03% Li2O from 35m depth in a discordant pegmatite within a wide 63.94m zone assaying 0.26% Li2O across both pegmatites and mica-schist host rock. Thin section and XRD mineralogical examination also confirmed the presence of spodumene mineralisation in the KSDD001 intercept — though further work will be required to identify the nature of more widespread lithium mineralisation within the host rock.

Further exploration will focus on cross-cutting pegmatite/aplite dykes, as well as the source of the widespread lithium occurrences both within the current Target 1 and at four other identified target zones on the property.

Bird notes that *‘an unusual feature of this discovery is the spread of highly anomalous lithium through the mica schist host rock as opposed to being solely contained within the pegmatite. We have no doubt that discordant pegmatites are the drivers to lithium content and our mapping programmes have located more discordant pegmatites than previously recognised…we plan to undertake further drilling for lithium and tin based on this Phase 1 drilling outcome and results of the mapping work.’*

It’s also worth noting that Galileo plans to explore targets close to the historic Gwaii Copper Mine in the southern part of the licence, where new soil anomalies have been identified. These will be followed up at the same time as the lithium programme.

In Bulawayo, the stated aim is to explore for resources to support the development of a large scale mine. The licences adjoin and enclose a number of small-scale gold mines on pre-existing mining permits which provides the opportunity to integrate the production from these operations which have a total historic production reported as more than 1Moz Au.

Follow-up soil sampling of a number of geophysical targets delineated by Galileo's previously reported ground geophysical surveys have defined a number of new targets marginal to the Queen's Gold Mine area (not part of Galileo's licence area), where historical gold production >44,000 ounces was reported up to 1984, when reliable record keeping ceased.

A total of 2,455 soil samples were sent for laboratory analysis last year, with results peaking at 2.1g/t Au. An anomalous 5 square kilometre area with gold-in-soil values up to 680ppb Au has been highlighted over a number of structures delineated by the aeromagnetic survey to the southeast of the Queen's Mine area, with further anomalous zones indicated along-strike from the Queen's Mine area mineralisation within consistent and prospective greenstone lithology.

The bottom line

Galileo Resources has built a significant asset base, much of it within Zambia, and much focused on copper — which is potentially about to go stratospheric.

With multiple plans for assays, potential mines, joint ventures, Copperlemon et al, it’s well placed to benefit from a perfect storm.

TheBezant Resources EDIT

*Originally published on 13th May 2024*

**Bezant Resources is another beaten-down microcap with significant near-term potential. Here’s why.**

Good morning, and welcome to another EDIT — a series of articles in which I attempt to concisely explain the comprehensive investment case for a single company in the small cap sector. With my focus currently on copper and southern Africa, Bezant Resources (LON: BZT) is next up.

Bezant shares have more than halved over the past year — and now stand at roughly 0.02p each — with a market capitalisation of circa £2 million.

Clearly, this is not a stock you are going to throw your life savings into. But much like Mila Resources (which is up by 50% since I covered it last month), Bezant has strong potential as a recovery play — based on a couple of hoped-for near-term catalysts.

Let’s dive in.

Bezant Resources: the flagship

While Bezant may not consider itself to have a flagship — and prefers to be viewed as multicommodity — the flagship is very arguably its 70%-owned Hope and Gorob Copper Project.

These mineral deposits are situated within the Namib Desert of Namibia — itself within the Swakopmund district of the Erongo region. Capital city Windhoek is roughly 250km northeast and Walvis Bay (Namibia’s main port) about 120 km northwest. And the entire project can be accessed via gravel roads.

The flagship has enjoyed significant exploration spend through nine different companies over more than a century. Bezant itself has drilled 28 diamond holes over 2,680m across 2020 and 2023 — and a further 118 diamond holes were drilled by Kuiseb Mining covering almost 40,000m between 2006 and 2008. There was also significant drilling activity during the 1970s, and much of this historical work has been used to help derive the recently updated MRE.

For context, in a late October RNS, Bezant released an updated indicated and inferred Mineral Resource Estimate (MRE) for the asset — you can read more on what these terms mean here.

Completed by Addison Mining Services to JORC standard, the MRE now comprises a gross 15 million tonnes at 1.2% Cu, for 190,000 tonnes of Cu estimated across the Hope, Gorob Vendome and Anomaly deposits.

Breaking this down, the asset boasts:

* An **Indicated** Resource of 1.24 million tonnes at 1.6% Cu and 0.4 g/t Au at the Hope deposit.
* An **Inferred** Resource of circa 14 million tonnes at 1.2% Cu across the Hope, Gorob, Vendome and Anomaly deposits, including approximately 3 million tonnes at 1.7% Cu and 0.4 g/t Au at Hope.

It’s worth noting that this estimate ignored gold content (excluding Hope) as historic holes simply were not assayed for gold — however Addison did note that based on Bezant’s own drillholes, there could reasonably be gold grades averaging between 0.2 to 0.4 g/t Au across the asset — which given the current gold price could significantly impact on profit margins.

Addison also identified the potential for open pit extraction, with an open pit resource of 2.4 million tonnes — and also the potential (assuming favourable copper grades from further drilling) of increasing the size of the open pit amenable resource for a further 700,000 to 1 million tonnes. For perspective, they consider that an open pit operation that could support five years mine life at an annual rate of 500,000 tonnes per year.

Further, it postulated that in the future, underground mining could be feasible by using a former concrete lined shaft with additional access from the base of the open pit — and that the 190,000 tonnes of contained copper in the MRE could be significantly increased both by drilling further untested areas, and also by drilling to increase gold credits to improve the CuEq grade.

Chairman and CEO Colin Bird enthused that he was ‘very pleased with the outcome of our work over the last two years and we now have a JORC (2012) resource, which our consultant agrees is both capable of significant increase and equivalent copper value.’

The CEO also noted that the company had been ‘active on all aspects of the factors which goes toward building a mine. We are confident that we now have sufficient information, resource modelling, financial modelling and environmental innovative approach to bring a small mine into production.’

Of course, there is no better time to be building a copper mine than in 2024. I’ve gone into the copper supply gap in detail before, but the basic premise is that there isn’t enough. Merger activity is heating up, the metal itself continues to rise in value, and the supply gap is only going to get worse.

Then on 9 February, investors got an update — Bezant had undertaken a Social and Environmental Impact Assessment (scoped, managed and undertaken by EnviroNam Consultants), which had been submitted to interested and affected parties — and now anticipated a near-term issue of a Mining Licence.

The Holy Grail of the junior resource sector.

In the meantime, Bezant has been busy. It’s already completed significant ore sorting, magnetic separation, and flotation test work, and is now advancing multiple workstreams so that if and when the licence lands, it can get into production as soon as possible. In addition to the below, contract negotiations linked to initial development are also underway **including project based financing.**

Current ongoing work:

* Metallurgical test work to include drilling of further PQ sized core samples from selected positions in the Hope deposit to generate a 1-tonne composite sample. Ore sorter design, magnetic separation, and final design floatation test work and circuit optimisation studies.
* A southern African specialist group has been appointed to provide final opencast mine design and production profiles, that will be used for tendering of the mining contract as well as implementation.
* Several contract mining contractors that have offered their services have been approached with a view to supplying an outsourced opencast mining solution. These include contractors that have expressed interest in providing a total logistics solution (including pre-concentrate transport).
* On completion of the opencast mine design, the decline access and underground mine design are to be completed and external consultants have been approached to assist with this work stream. An underground mining engineer has been appointed to supervise mine design.
* A potential provider has been approached to supply a design for a hybrid renewable energy solution for the mine site. The supplier has also indicated interest in funding and supplying the solution on an IPP basis (financed off the balance sheet).
* A potential supplier has submitted a budget, design and costing for the supply of major infrastructure including accommodation and workshops.

It’s worth noting that at the most recent placing, the company noted it was targeting an 8,000 tpa open pit operation and was ‘concluding arrangements for non-equity financing for the mining operation.’

Most recently on 14 March, Bezant announced that that the EPL 7170 licence has been renewed for 2 years from 22 October 2023, pending the obtaining of an environmental clearance certificate from the Ministry of Environment, Forestry and Tourism.

And most importantly:

*‘in* ***anticipation of a near-term issue by the Namibian Ministry of Mines & Energy of a Mining Licence*** *the Company is continuing with the work programmes and negotiations in relation to financing and the acquisition of equipment and existing infrastructure referenced in its 9 February 2024 and 4 December 2023 announcements.’*

Other key Bezant projects

Eureka project, Argentina — maintaining licence holding costs, and has continued dialogue with third parties interested in acquiring or earning into the project.

Kanye manganese project, Botswana — focus remains on a preliminary Mineral Resource Estimate and then follow-up drilling. In the meantime, the environmental management plan has been renewed through to 29 January 2025. Drilling has thrown up results including 6m @ 28.64% MnO from 6m depth in hole MS-RC-12 at the Moshaneng prospect.

Mankayan copper-gold project, the Philippines (24.2%-owned) — IDM International (through Crescent Mining Development Corporation) is continuing to work on initial Pre-Feasibility Studies, which they expect to complete later in 2024.

There are two MREs for the asset, though one is out of date and the second not an updated JORC statement according to AIM rules. However, for guidance purposes, previous part owner Mining and Minerals Industries Holding released an updated MRE prepared by Derisk Geomining stating that:

*‘Mankayan is now estimated to have combined Mineral Resources of 793 million tonnes containing 2.8 million tonnes of copper, 9.6 million ounces of gold and 20 million ounces of silver. It has Indicated Mineral Resource of 638 million tonnes @ 0.37% Cu, 0.40g/t Au and 0.90g/t Ag, and Inferred Mineral Resource of 155 million tonnes @ 0.29% Cu, 0.30g/t Au and 0.5g/t Ag.’*

Currently, the spotlight remains firmly on Hope and Gorob — but Mankayan also holds clear potential.

Finances

Investors have some decent insight into the finances. Let’s start with interim results to 30 June 2023 — the company generated a loss of £463,000 over these six months after tax and held circa £365,000 in cash at the time.

It would not take a mathematical genius to guess the next move, and sure enough, on 4 December 2023 came the inevitable fundraising. 3.2 billion shares were issued to raise some £800,000 — £758,000 via brokers and £42,000 via subscription — including £15,000 from Bird and £12,000 from CFO Raju Samtani.

Then on 5 March, the company agreed with longstanding backer and investor Sanderson Capital Partners to extend the repayment date for the £700,000 drawn down under the unsecured convertible loan funding facility entered into with Sanderson Capital on 22 November 2021.

The £700,000 drawdown is now repayable by 31 July 2025 and convertible by the Lender at the fixed price of 0.06p per share. That’s more than three times the current share price, and a 140% premium to the recent placing price.

No further amounts can be drawn down under the Facility. The Company has an option to convert all or part of the £700,000 drawdown if the Company's share price exceeds 0.14 pence for 10 or more business days. Sanderson (and associates) owns 6.69% of Bezant’s shares.

So — we can assume a monthly cash burn of circa £77,000, which when you consider the cash position at end the end of June and placing capital — gives roughly a six month runway to get the mining licence and financing in place.

The bottom line

Bezant Resources sports a small market capitalisation with a very near-term catalyst. And the company has enough cash at hand for the time being.

Patently, the near-term trajectory and share price turnaround is going to rely on gaining both a mining licence and funding for Hope and Gorob.

This may come sooner rather than later.

The Xtract Resources Edit

*Originally published on 30th April 2024*

**Xtract’s Zambia new exploration JVs could bear fruit soon — while the economics at Bushranger continue to improve as copper soars.**

Good morning, and welcome to this week’s EDIT — a series of articles in which I attempt to concisely explain the comprehensive investment case for a single company in the small cap sector. With my focus currently on copper and southern Africa, Xtract Resources (LON: XTR) is next on the list.

Xtract shares rose sharply in the pandemic years as Bushranger RNSs dropped left, right and centre, but they have fallen since, hitting nearly 7p in April 2022 — and dipping to around 1p per share today.

This may be an excellent entry point.

Let’s dive in.

Xtract Resources: Manica sale and cash implications

Before taking a look at some of the key assets, it’s worth considering the recent sale of Manica and what it means in terms of future cashflow.

The proposal was announced on 24 January and subsequently executed on 22 February 2024. Xtract agreed to sell its 23% net profit share interest in the asset to Mozambique partner MMP, on the following basis:

**‘Up to $15 million in cash in regular staged payments to 1 March 2027.’**

Executive Chairman Colin Bird noted that while the project was already producing it would now ‘be transitioning to the complex ore phase which has not yet been fully scoped or technically and financially modelled. We do not want to be exposed to this risk, particularly in exciting copper times for our Company.’

It’s probably also worth mentioning that under the previous regime, Xtract held the asset’s licence, but MMP made the managerial decisions — which also made Xtract liable for any issues, despite a lack of influence over them.

The focus is now on the Zambian exploration activities. Presumably, millions of dollars in cash over the next three years will help immensely — and in particular, with the thorny problem of raises at discounts currently plaguing the sector.

Before anyone starts complaining about what ‘up to $15 million’ actually constitutes, including when payments are staged and at what milestones, here’s the deal:

Under the agreement, Xtract will be paid:

* 12 quarterly instalments of $750,000 from 1 March 2024, with the last payment 1 December 2026
* A further $3 million in cash before 1 March 2027
* An additional $3 million deferred consideration payable in three instalments through 2025-26, should MMP decide to build a sulphide plant

But the bottom line is that you have cash coming in every quarter from this sale — making exploration of other assets much more palatable. Was selling this producing project a good idea? I suppose investors will only know in hindsight.

But for context, there is a February 2017 DFS for the open pit operation of the Fair Bride deposit at Manica — completed by Minxcon and based on a SAMREC-compliant open pit resource of 13.95Mt at 1.76g/t Au for 789Koz Au and an underground resource of 5.66Mt at 2.6g/t Au for 473Koz Au.

On the other hand, the sale avoids additional geological risk alongside significant potential liability — and provides funding to significantly develop Xtract’s exploratory portfolio.

And $12-15 million buys you an awful lot of exploration.

Bushranger

Bushranger — in New South Wales, Australia — occurs within the Rockley-Gulgong Belt of the Macquarie Arc within the Lachlan Fold Belt. It contains two Xtract resources — Racecourse with a combined indicated and inferred Mineral Resource of 512Mt, and Ascot (1km to the south) with a maiden 87Mt, both at 0.22% copper equivalent at a 0.1% cut-off grade.

The belt is home to world-class porphyry copper-gold deposits, including Cadia-Ridgeway and North Parkes, epithermal gold deposits such as McPhillamy’s and Tomingle, and VHMS deposits including Woodlawn. Unsurprisingly, it’s also well-positioned for infrastructure, staff, and pro-mining politics.

Over 35,000 metres of diamond core drilling has now been completed by Xtract on Bushranger since acquiring the asset — which now contains more than 1.3Mt of copper equivalent metal, **with the shallower high-grade zone at the Racecourse prospect hosting a total of 191Mt @ 0.33% CuEq at a 0.2% CuEq cut-off.**

In late 2023, Xtract released a comprehensive pit optimisation and financial modelling study, specifically considering the economics surrounding extracting the copper and gold.

The business engaged Optimal Mining Solutions — which counts Rio Tinto, BHP and Yancoal among its clients — to investigate various potential scenarios, including a 5Mtpa, 20Mtpa or 25Mtpa open pit mining operation, focussed on the extraction of shallow higher-grade mineralisation.

The key finding was that Racecourse can be economically mined at mining rates of 20Mpta, or greater, and at copper prices of US$10,000/t and above. For context, copper is now finally closing in on this magic number and is expected to rise higher through the 2020s as the supply gap emerges.

The study also concluded that the highest net present value is AU$363m, processing ore above 0.10% CuEq at 20mtpa with a sale price of US$11,000/t. Of course, this assumption may be too conservative; Trafigura is the world’s largest copper trader and sees $12,000 as a distinct possibility.

Further, Optimal noted that optimising the processing plant capacity, capital costs, operating costs and metallurgical recoveries could greatly improve the economic outcomes of mining Racecourse — though the orebody is not amenable to ore sorting. The Ascot mineral resource was found to be not economically viable due to its smaller size and depth from surface, though this target remains in the early stages of exploration.

For context, the discovery of Ascot could confirm that Bushranger hosts multiple copper-gold porphyry systems — and these yet-to-be-found new discoveries could greatly enhance the economics over time — with several untested targets already waiting to be drilled.

The current focus is now on further improvements in metallurgical recovery, including potentially alternative ore pre-concentration methods. It’s worth noting that pre-ore concentration that does not involve ore sorting could be game-changing. For context, processing costs are modelled at circa 50% of total opex due to the grade at Racecourse, and any reduction in material going through later stages of any plant would heavily reduce wear and tear — and therefore opex costs.

Given that large deposits like Bushranger require more capex than standard — and that improved metallurgical understanding could have large effects on both capex and opex — more due diligence will need to be completed as even more favourable numbers seem achievable.

But the bottom line is that Optimal concluded that:

**‘due to the large size and relatively low grade of the Racecourse deposit, conditions are expected to be excellent for efficient and productive mining.’**

And Bird enthused that ‘the final results from the Bushranger Study show that the currently defined Mineral Resources on the Bushranger Project have the potential to be the basis of a large scale, economic mining operation, producing significant free cash flows.’

Under the study, 16 cases covering copper price points ranging from $8,000/t to $11,000/t, two different cut-off grades, and two mining rates were assessed. Case 12 — of 25Mtpa mining rate, $11k/t copper sale price and 0.10% CuEq cut-off grade — provided the highest cashflow of circa AU$1.9 billion.

However, case 17 where opex was set at AU$8.41/t milled generates an additional AU$425M in free cash flow, demonstrating how much better the economics of the project could be given further study.

The big question, of course, is of a JV or asset sale as the copper price creeps up. Bushranger is surrounded by ore-hungry plants and the moment copper crosses $10,000; it will hit radars.

Zambian copper

Covering every aspect of the Zambian copper exploration is perhaps a task best devoted to a Trappist monk, but I can cover the key aspects here.

The Zambian government — including the President — has been very clear that it wishes to more than triple copper production from the present 830,000 tpa to 3 million tpa by the end of the decade.

Please consider these pieces covering Zambia and copper here — they have significant detail on both.

On 8 February, Xtract announced an update on its exploration JV with consultancy firm Cooperlemon — which has been running since August 2023 — covering large scale exploration licences 29123-HQ-LEL and 30459-HQ-LEL in Northwest Zambia.

These two licences are both located within the Western Foreland geological district that hosts the Kamoa-Kakula deposit and the Central Fold and Thrust Belt — covering a combined 107,000 hectares — in an area where competition for licences continues to heat up as copper rises amid the supply deficit, the region continues to boast world class assets, and Zambian politics become ever more copper-friendly.

Licence 29123 - HQ - LEL is located to the west of the ‘perceived’ boundary between the Western Foreland and Fold Belt, while Licence 30459 - HQ - LEL is both coincident with the boundary and may also include part of the Fold Belt.

Importantly, Xtract believes there is scope for the discovery of potentially high-grade Kamoa-style mineralisation at depth and lower grade Kolwezi-type mineralisation at or near-surface. This is key — I explain why below.

Exploration of the licences has been started with the recent acquisition of a major historic database created by Anglo American, which should enable a cost-effective and fast-track programme.

Bird notes that:

*‘We have recently embarked on an intensive exploration campaign targeting a discovery of commercial grade and tonnage of copper in a region of NW Zambia that is not only the subject of* ***more intense competition than I have ever known for exploration ground*** *but also the focus of attention for most of the world's major mining companies. NW Zambia is a proven host for large scale copper deposits and the geology of our Joint Venture ground is highly prospective. Zambia as a nation has set ambitious targets for copper production to underpin its economic progress and Xtract intends to become a part of that story initially by being the only junior company operating its own Joint Venture licences on a self-financing and independent basis.’*

It’s important to understand why there is intense competition for licences in this area — in terms that the average investor can understand without needing a degree in metallurgical studies.

Here’s the breakdown:

* the general geology of the licence areas is arguably dominated by the Western Foreland succession (Kamoa-style mineralisation), alongside the neighbouring Lufilian Fold Thrust Belt that plays host to lower grade, bulk tonnage, near-surface mineralisation.
* this geology is similar to that of the Kamoa-Kakula deposit operated by Ivanhoe Mines in neighbouring DROC, with the licence areas projected to have continuity with the geology of DROC, and entirely surrounded by ground under licence to, or within, partnerships or joint ventures between local companies and titans including Rio Tinto, Anglo American, First Quantum Minerals and Ivanhoe Mines.
* On 27 November 2023, Ivanhoe announced 'greenfield' prospecting rights for exploration over more than 22,000 square kilometres in the Angolan provinces of Moxico and Cuando Cubango — immediately to the west of Xtract’s licences and believed to be similar to Kamoa-Kakula.
* The nearby Kakula Mine in DROC is among the world's highest-grade copper mines with deep, high-grade copper mineralisation.

Under the JV, there is phased investment as is typical:

* Phase 1 — the Company will earn a 65% interest in the JV by funding exploration expenditure over two years at least $2 million.
* Phase 2 — if the Phase 1 exploration results suggest the potential for the future development of a Mineral Resource of at least 500,000t of contained copper, then Phase 2 will cover two more years of exploration and a budget of $3 million.
* Xtract will be the operator of the licences for the 4-year duration. Should the licences be sold in Phase 1, then Xtract will have a 55% interest in the Joint Venture. A sale requires the agreement of both Xtract and Cooperlemon.
* Should either or both of the Joint Venture licences advance to a point where they reveal commercially viable copper assets that are suitable for development, then the licences will be moved to a new entity to be owned 75% by Xtract and 25% by Cooperlemon.

Remember, Xtract has access to unique historic data sets generated by Anglo American — which pre-date any proper understanding of the Western Foreland geological setting. This should fast-track the exploration and also save an estimated $1.5 million in exploration costs during Phase 1.

Does this all sound a bit expensive? Don’t worry — the Manica sale means that Phase 1 exploration commitments are completely funded — while the $3 million for Phase 2 perhaps chimes nicely with the $3 million lump sum to be paid to Xtract by March 2027.

Then on 3 April, Xtract announced it had entered into an option and JV agreement with Oval Mining, which is acting in cooperation with Cooperlemon to earn-in up to a 70% interest in the Silverking copper mine and accompanying exploration licence 26673-HQ-LEL— covering circa 82 square kilometres within the Mumbwa District of the Central Province of Zambia.

Under the JV terms:

* Xtract has an option period of 18 months to earn an initial 51% in the licence — as long as Xtract spends $500,000 in exploration. This second joint venture will then be formally established between Xtract and Cooperlemon.
* Xtract may withdraw at any time during the option period but will lose its right to earn 51% in the Licence, and cede any technical information to Cooperlemon.
* Once Xtract has spent $500,000, it may then increase its interest in the licence to 70% by agreeing to spend a further $1,000,000 over two years on exploration and development — though this is subject to Cooperlemon's right to maintain its interest in the licence through an option to earn back up to 70% by participating in such ongoing expenditure.
* Management and compliance of the Silverking licence will be the responsibility of Cooperlemon.

In a sign the parties have actually paid attention to the details, they have also agreed a plan for every eventuality:

1. If the Licence cannot support an inferred resource of at least 300,000 tonnes, then the parties can start-up a small mining project, leaving Xtract's interest at 70% and responsible for all development costs.
2. In an inferred resource of more than 300,000 tonnes of contained copper is found, then Xtract's beneficial interest shall remain either at 70%, or its respective interest at the date of the resource estimate.
3. If an inferred resource of more than 500,000 tonnes of contained copper is reported, then any subsequent sale of the project to a third-party will result in an equal share of the disposal proceeds between the parties (with some caveats).

This is an interesting model — as the best result for Xtract is either 499,000 tonnes or well over 600,000 tonnes. But the key point is that there is optionality regardless of what is found (a common Colin Bird theme), and a pre-agreed structure to prevent any future problems materialising.

For example, I would imagine that small scale mining would involve simply blasting, crushing, and sorting the ore before sending it to be processed at feed hungry plants nearby.

On Silverking, mineralisation is characterised by deep levels of oxidation, breccia, vein and stockwork hosted copper mineralisation — and is distinguished by high-grade supergene enrichment, also found in the nearby Kitumba deposit. For perspective, China’s Sinomine just announced a massive investment to acquire a 65% interest in Kitumba in March.

Encouragingly, the former open pit and underground mine extends to a mining depth of just 70m and based on underground mapping and historic diamond and reverse circulation drilling is believed to remain open both down-dip and along strike. Historically, Silverking has seen drill intercepts including 50m @ 5.47% Cu in borehole SVKRC002 from 55m to 105m depth. Mineralised intercepts also peaked at 52.2% Cu over a 1m drilled interval.

Past geochemical, magnetic and IP ground geophysical surveys conducted by Glencore have already identified several high priority targets warranting follow-up (hence the reduced exploration spend). For example, a second breccia pipe located 800 metres from the main Silverking orebody was identified and **has not been explored**.

Interestingly — and hidden deep down in an overlooked RNS — Glencore did commission an in-house non-JORC resource estimate, completed by an external consultant — this non-compliant resource reported an estimate of 268,971 tonnes at 2.7% Cu at a 0.5% Cu cut-off for the main Silverking breccia pipe only.

Xtract's plan is to test the depth extension of the Silverking breccia pipe, alongside the nearby secondary pipe, and then general licence exploration.

Bird noted that ‘this agreement is consistent with the Company's stated mission of acquiring exploration resources which have significant copper showings, considerable upside potential and occur in proximity to current or potential mines. Silverking certainly satisfies all of the criteria, and we are excited about the prospects for a future discovery.’

While this is very prospective, it’s important to note that Glencore’s study is not to AIM standards, and that historic exploration is often rife with errors. But it’s hard not to get excited.

The bottom line

The bottom line tends to be financial — so let’s briefly consider the money. In the six months to 30 June 2023, Xtract had admin and operating expenses of just over £1 million and held £380,000 in cash at the end of the period.

These expenses have presumably fallen since the gold asset was sold off — and the regular income should keep the party going without needing to ask the market for cash. As a reminder, there’s 12 quarterly instalments of $750,000 from 1 March 2024, with last payment 1 December 2026 — or $3 million a year, for three years, more than covering exploration expense.

Then there’s the additional $3 million in cash before 1 March 2027, and perhaps a further $3 million deferred consideration payable in three instalments through 2025-26 should MMP decide to build a sulphide plant.

The key point is that the company is very well funded.

You have Bushranger, with the copper price making the asset more attractive by the day — and two JVs with Cooperlemon within incredibly prospective Zambian copper zones, which could lead to asset sales or small mining operations.

Given the cash surplus, Xtract will likely be scoping out further licences as well.

For copper and for Zambia, 2024 is the year.

TheKendrick Resources Edit

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Kendrick Resources is an illiquid microcap with significant potential for high-risk investors. Here’s why.

Here we go again. Kendrick Resources (LON: KEN) is the latest to receive the ‘EDIT’ treatment — but this company is a very different proposition to the much larger entities covered over the past few months.

Kendrick shares have fallen by more than 80% since its relaunch IPO in May 2022. At the time, the company successfully fundraised £3.25 million at 3.25p per share — and the stock is now changing hands for less than 0.5p.

Some of this fall can be attributed to the wider negative market sentiment. Some is due to the collapse of the nickel price (though the focus is on the vanadium assets these days).

And some is arguably down to the fact that nobody has ever heard of it. There are probably more reasons, but I am looking at a fundamental valuation of a microcap — and from where I’m sitting, there is significant upside potential for high-risk investors with a long-term mindset.

Let’s dive in.

Kendrick Resources: understanding Vanadium

While Kendrick does have some exploratory nickel interests, the reality is that the nickel market is in such a dire state that these assets have little near-term value to investors. Indonesia has — with the help of a trigger-happy China — been developing dirty nickel projects at such a pace that BHP, which has some of the lowest cost nickel operations in the world, has taken a $2.5 billion impairment on its West Australian operations and is considering a full closure.

While activists are attempting to force metal traders to make a distinction between clean and dirty nickel, this is unlikely to happen in the near future — and by extension, the nickel assets Kendrick owns are not going to be near-term catalysts in a market this dire.

They do still have value, but this will likely only crystallise years from now.

Happily, the good news is that the company also has exploratory Vanadium assets, where the near-term prospects are far, far better. In fact, vanadium is the reason for this Edit — much like Jubilee’s Chrome, Golden Metal’s Tungsten or Sovereign’s Titanium, junior resource investors looking for a junior with a specific metal are going to want to add a little Kendrick — because unlike gold, lithium or copper explorers, there are simply very few vanadium explorers.

And this offers a diversification opportunity.

Vanadium is a transition metal which is used in specific applications within steelmaking, energy storage and aerospace. Perhaps the most important use case is in vanadium redox flow batteries (VRFBs); as global demand for renewable energy such as solar or wind power continues to rise, so too is the need for accompanying energy storage.

Vanadium demand for VRFBs is predicted to grow at a CAGR of 57% through to 2030.

Vanadium has a unique ability to store and release energy efficiently, alongside a long lifespan and high charging cycle efficiency. It’s also very heat resistant and durable, making perfect as a key ingredient in steelmaking. At the end of 2023, the global vanadium market was worth $46.2 billion, and it is expected to more than double over the next decade due to demand in the EV industry.

It’s worth a quick comparison to lithium — lithium batteries are much lighter and charge much faster. Lithium is not going to be replaced by vanadium in family cars, but vanadium electrolytes are non-flammable and have 5 times as long lifespans. VRFBs also have lower energy density and higher initial costs — making lithium perfect for anything portable and vanadium preferable for anything static.

However, it’s still the steel-making which dictates vanadium’s price, which is pretty much entirely determined by Chinese demand. China’s property sector is in trouble — a massive global problem which could explode at any time — but vanadium will nevertheless remain linked to rebar steel demand. It seems that Chinese growth should start to improve again in 2024, and with it, vanadium prices.

But longer-term, the key point to understand is that demand for vanadium over the next decade is going to increase as VRFB demand rises, while simultaneously, quality mines are not coming online.

Global vanadium consumption increased from 109,835 tons in 2019 to 112,157 tons in 2020. And at a CAGR of 2.7% steel production through to 2030, one project the size of flagship Airijoki needs to go into production every 3 years.

This positions Kendrick well — for a £1 million company.

The Vanadium flagship

By far the most advanced Vanadium asset on the books is Airijoki, located in Vittangi, Sweden.

There is already a JORC resource at the asset, comprising 44.3 Mt @ 0.4% V2O5, in-situ, containing 5.9 Mt of magnetite averaging 1.7% V2O5 (in magnetite concentrate) for 100,800 tonnes of contained V2O5 based on a 13.3% mass recovery of magnetite concentrate and a 0.7% V2O5 cut-off grade, on a 100% equity basis (and net attributable basis).

This is a pretty promising start — a decent overall quantity, with more than half of the V2O5 concentrated in the magnetite at 1.7% — making the economics of extraction very reasonable. And the 13.3% projected recovery rate is also in line with major projects of this type.

However, the resource is at this stage only inferred, rather than indicated or measured. There is relatively low confidence in the accuracy of these numbers, but then again, you are talking about a microcap.

And Kendrick is continuing to extend the asset, having recently reported assays on 8 February, which confirmed additional vanadium mineralisation to the north of the current resource. It has also gained access to a further five contiguous exploration licences, which could further expand the resource.

The business has now switched away from further drilling to expand the current Mineral Resource and towards ‘focusing on the development and implementation of an appropriate strategy to build a sustainable vanadium business.’

While this does not completely rule out further drilling, the plan is to build strategic alliances with iron ore and vanadium processors within Scandinavia — an alignment of sorts with end users of vanadium, principally in the Vanadium Redox battery sphere. The general idea is to become a ‘significant contributor to the supply of vanadium in the Scandinavian battery arena.’

Within the eight 1,394m scout diamond holes drilled at the Airijoki 200 license towards the end of 2023, seven intersected vanadium. Two highlights include:

* 0.52% V2O5 - whole rock (1.77% V2O5 - magnetite concentrate) over 28.80m from 77.55m
* 0.72% V2O5 - whole rock (2.15% V2O5 - magnetite concentrate) over 12.00m from 89.50m

Kendrick now expects the JORC resource could be extended for a further two kilometres north.

The company now feels it has proven the resource to the point where it has achieved a critical mass of resource tonnes and grade — so the plan now is to ‘build alliances and establish long-term commercial cooperation agreements necessary to ensure a market for future vanadium production.’

Executive Chairman Colin Bird noted at the time ‘the fact that we have a number of other high quality defined drill targets on the as-yet largely untested licences comprising the Airijoki project, bodes well for future resource growth.’

Espeladen Nickel

Espeladen in Norway is another ‘advanced’ project at Kendrick, and again, the company has recently extended the mineralisation at the asset — including the delineation of new nickel drill targets at Stormyra based upon positive findings from ground magnetic and electromagnetic surveys.

These targets boast a magnetic signature similar to that expressed of the already known mineralisation — the first, an extra 500 metres of untested south easterly extension of the Stormyra orebody that can be drilled with the objective of increasing the existing in-house resource tonnage — and the second, a strong conductive body at depth further to the southeast which could potentially represent deeper mineralisation reflecting the source of nickel-bearing fluids in the complex.

These are two viable drill targets ready to go, and there remains a further 10 drill-defined anomalies waiting to be tested.

Bird notes that ‘the opportunity to build on the historical mineral resource of 1.1Mt at 1.1% Ni and 0.50% Cu is looking extremely likely, placing Stormyra as the forefront deposit within the Espedalen Complex for development…our preliminary investigations over the Complex have enhanced the Espedalen project and provide clear evidence for the development of an as yet undetermined resource tonnage most likely at cumulative grades exceeding 1% Ni with a significant copper and possibly cobalt by-product.’

Management & Finances

In the management team, there are two names to pick out.

Colin Bird is Executive Chairman — a man with 40+ years of experience in mining. Bird famously founded Kiwara Resources and sold its Zambian copper asset to First Quantum for $260 million back in 2009.

Incidentally, Bird is once again positioning in the Zambian copper space — with some interesting opportunities at low prices. On the other hand, he works in exploratory junior resource, and so has come up empty before; but this is the nature of exploring.

Martyn Churchouse is Managing Director — a geologist also with 40+ years of experience in mining, including the classic MSc in Mining & Exploration from the Camborne School of Mines. Martyn has been around the AIM mining block a few times and has significant experience in African exploration.

There are also three non-executive directors, with a variety of skill sets.

Interim results for the six months to 30 June 2023 saw Kendrick record a £244,000 loss after tax, and a £791,000 cash position. This assumes a cash burn of circa £40,000 per month, and as nine months have since passed, you can expect there to be roughly £400,000 in the bank.

Of course, drilling is not cheap — but the company has now decided to move away from this expense and towards the next phase where capex/opex will presumably be funded from elsewhere. And it’s worth noting the net asset value at the time of these results; a solid £5.36 million which likely has increased since June due to the drilling results.

Is there a need for cash? Not in the immediate term, though the company needs to get a deal of some kind over the line in 2024.

The wider investment case

Kendrick has 10 assets at hand — Airijoki and Espeladen have enjoyed the most recent news, though the [Koitelainen Vosa Vanadium Project in](https://www.kendrickresources.com/koitelainen-vosa-project/) **Finland is also arguably worth noting.**

**This asset boasts** 116.4Mt, containing 5.8 million tonnes of magnetite @ 0.3% V2O5 (In-Situ) and @ 2.3%V₂O₅ (in magnetite concentrate), for 131,000 tonnes of V2O5 based on 5.0% mass recovery of magnetite concentrate. Again, this is a tidy resource to have on the books — and there’s seven further assets to consider.

The good news for would-be investors is that all of the assets are in Scandinavia — where mining sentiment is far better than most of Europe — and all-weather railways run close to most of the assets. In particular, the Kiruna Mining Hub in Northern Sweden gives Kendrick access to all the contractors/consultants and skill the company could want, while there is also a major nickel smelter operating in southern Norway.

The bottom line

The grand plan is to build a centralised plant in Finland to process vanadium magnetite concentrates from both Airijoki and Koitelainen into V2O5 flake or VRFB electrolytes for sale into Europe — taking advantage of the reduced capex costs of a central plant, alongside relatively low opex. For context, the company puts its power costs at approximately 10c/kwh.

Airijoki is just 4km from infrastructure, and Koitelainen only 15km. And then there’s the upgrade factor to consider; upgrading to magnetite concentrate grade will yield significant financial benefits, and the grades at the assets are already very good.

Of course, to make this happen, Kendrick needs a partner to come on board. This has been the focus since mid-February.

While there can be no guarantees, Kendrick currently sports a market capitalisation just above £1 million. And there is virtually no liquidity in the stock (and an 11% spread) — one good bits of news, a few trades, and the company could rise much closer to its IPO price.

Once again this is not a central portfolio stock. But a small non-core position to tuck away for the longer-term may be a good idea.

Summary

It is no secret that the past couple of years have not been kind to the junior resource sector. There are plenty of well documented reasons for this, not least a lack of liquidity, elevated interest rates, the huge outperformance of big US tech stocks, and the emergence of cryptocurrency as a new asset class competing for risk money.

However, times are changing. The long-awaited copper supply gap is now here. Most recently, hedge fund manager Pierre Andurand has made the astonishing prediction that copper could reach $40,000 per ton within the next four years.

But it is not just copper. The world’s developed countries are set on decarbonisation. The organic demand from emerging economies is also growing. And there has been a chronic underinvestment in the exploration and development of new deposits of critical minerals.

Many of the discoveries made by this portfolio of companies would have been enough to see sizable capital gains in the past — and those days may be coming back.

Further, southern African countries are becoming hotspots for investment, in particular Zambia and Botswana. Colin has spent years carefully acquiring some of the most promising critical mineral assets across these countries, often with large sets of historical data and for little initial investment.

This investment may soon pay off.