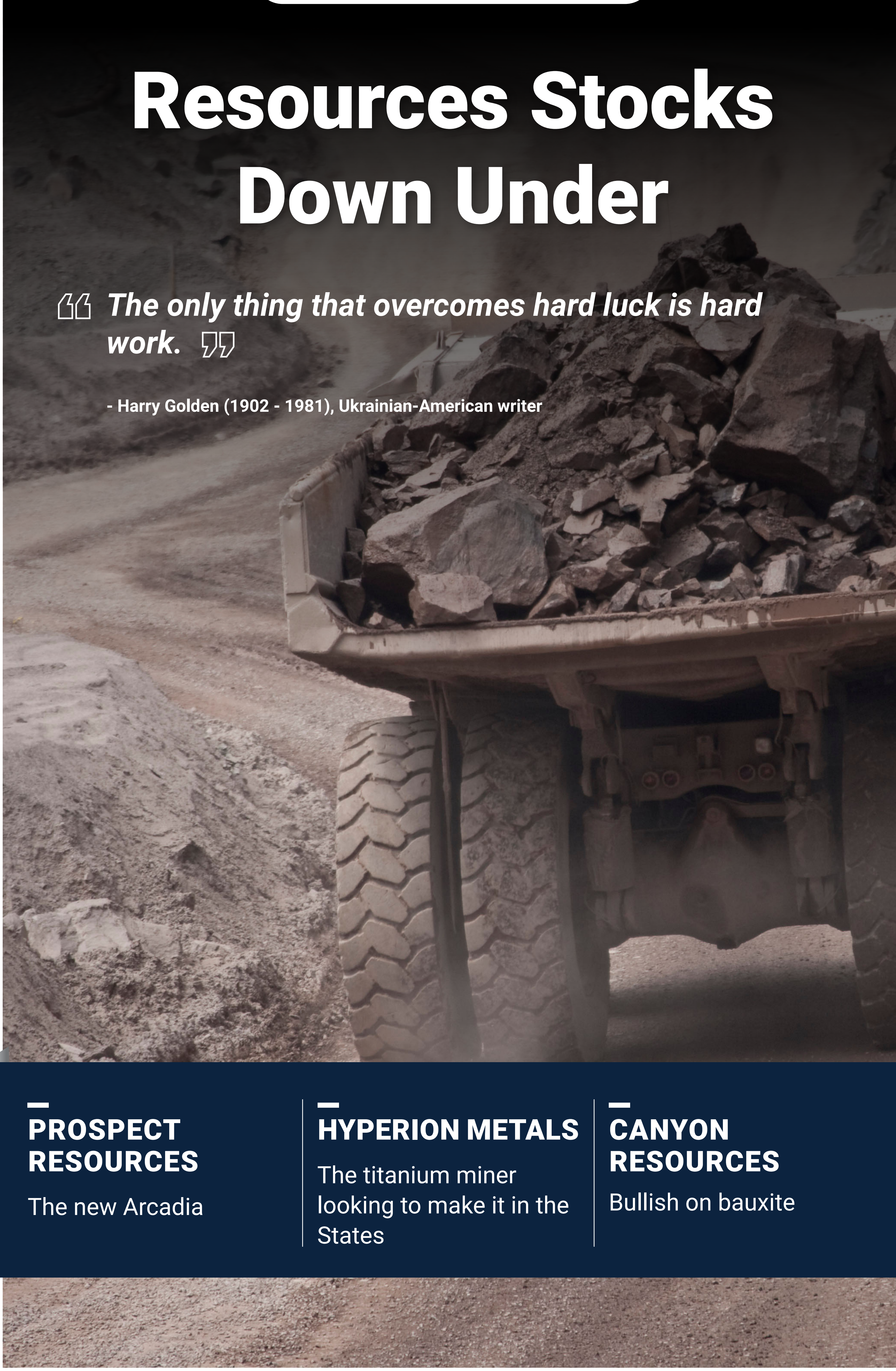
STOCKS DOWN UNDER

2 DECEMBER 2021



Resources Stocks Down Under

> *The only thing that overcomes hard luck is hard work.*
>
> \- Harry Golden (1902 - 1981), Ukrainian-American writer

PROSPECT RESOURCES

The new Arcadia

HYPERION METALS

The titanium miner looking to make it in the States

CANYON RESOURCES

Bullish on bauxite

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The new Arcadia

Stocks Down Under rating: ★★★★

ASX: PSC
Market cap: A$296M

52-week range: A$0.125 / A$0.775
Share price: A$0.725

Prospect Resources reckons it has found its company maker in Zimbabwe. That's right, Zimbabwe. Believe it or not, that southern African country is not a bad place to develop a new mine these days. Prospect's Arcadia Lithium Mine near Harare is one of the few advanced lithium projects in a country with fairly untapped lithium resources, giving it some extra credibility with offtake customers now that the company has improved Arcadia's economic outlook.

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Share price chart

Source: Tradingview

Petalite more than a pretty gemstone

You don't have to go far from where the action is in Zimbabwe to find the Arcadia Lithium Mine as it's only 38 km from the capital city of Harare. At Arcadia there's a hard-rock lithium resource of 72.7 million tonnes at 1.06% lithium oxide and 119 parts per million tantalum pentoxide for 770,200 of Li2O and 19.4Mlbs of Ta2O5 at a 0.2% Li20 cut-off grade. A high portion of Arcadia's resource is petalite, a lithium silicate mineral usually found in clay, which can be processed as a concentrate in Electric Vehicle and battery storage or ceramics, but it also makes for a nice gemstone. The open pit project is one of Africa's more advanced lithium projects with in-country support and a clear path to production.

Prospect has been getting ready to go with Arcadia for a while now and just released a Staged Optimised Feasibility Study (OFS) calling for the progressive construction of two 1.2 million tonne per annum processing modules. This approach neatly lowers the upfront capital costs required to get Arcadia off the ground, reducing execution and market risk.

Pre-production capital expenditure is estimated at US$140m for the first stage during the first four years and a further US$72m in the second stage. All In Sustaining Costs are estimated at US$405 per tonne of concentrate during the first stage and US$383/t during the second. Importantly, the project boasts strong economics with a pre-tax NPV10 of US$465m and pre-tax Internal Rate of Return of 35%.

Battery company seeks lithium partner

Since acquiring the project in mid-2016, Prospect has brought Arcadia to production stage in line with lithium market momentum and the significant tightening of the supply deficit. With the increase in lithium pricing incentivising new supply, Arcadia is now fully permitted with an on-site pilot plant producing high-purity petalite and spodumene concentrate for use in batteries and high-end ceramics. As existing petalite resources have declined over recent years, it's forecast that the company's petalite concentrate could supply 10% of the ceramics/glass market at premium prices, with low iron petalite concentrate sales in China ranging between US$1,300-1,400 per tonne. Prospect has already secured seven-year lock-in offtake agreements for 100,000tpa of petalite with Belgium-based Sibelco and 100,000tpa of spodumene with China's Sinomine Resources.

With those offtakes in the bag, Prospect's immediate concern is finding a strategic partner to fund the project's development to reduce debt while simultaneously optimising the Direct OFS. Mining is a key feature of Zimbabwe's growing economy and stability, with foreign investment and an increasing list of companies leading the momentum with new infrastructure, raising the company's strategic 'prospects' further. Arcadia's Special Economic Status also allows for a few advantages, including tax and royalty exemptions.

Forecast project economics are expected to be substantially improved via the direct 2.4Mtpa development pathway, which is currently the subject of a detailed study (the Direct OFS) scheduled for completion in Q4 2021. Current engagement with a range of strategic groups under a formal partnership process (being managed by Azure Capital and Vermillion Partners) is focused on the development and financing of Arcadia under the Direct OFS.

Zimbabwe on the rise

We've said it before in this magazine (most recently when we looked at Invictus Energy, ASX: IVZ, on 23 September) and we'll say it again: Zimbabwe should be on the radar screen of resources investors because President Emmerson Mnangagwa has been working on making the country worth their while since he took office in 2017. Prospect is expected to make a decision on Arcadia's staged or direct pathway once the optimised DFS is complete by year's end. Although Arcadia has been in operation at different times since the early '50s, there are several attached claims which have had very little development for nearly 40 years – although it's not clear yet if these will claims can be added to the resource later.

Excitement over Arcadia's advanced resource and quick development has brought the company's share price to a CY21 high of $0.47. But with the project's Special Economic Status giving Arcadia a few extra advantages – including some tax and royalty exemptions – Zimbabwe's support has evidently been critical to the Prospect's success so far. With Prospect already receiving much attention for its dual-lithium product and its solid cash position, following the 29 October 2021 $18m institutional placement at $0.40 per share, we expect greater interest once the optimised DFS and selected pathway is complete. Four stars.

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Source: Tradingview

Titanium the song was a hit from the French DJ and music producer David Guetta. Titanium the metal is on the US government's list of 35 critical minerals and as aerospace is recovering from 2020, demand for that metal is forecast to rise. The US imports almost all its titanium after the Trump administration declined to introduce tariffs, instead looking to get the product from Japan. This was after the closure of another ASX-listed mineral sands producer in 2016; Iluka Resources (ASX: ILU | see 18 September 2020 report), pulled out of a titanium project in Virginia to focus on rutile in Sierra Leone. Can Hyperion be the Aussie supplier that achieves the American Dream?

The Titan Project: big name, bigger potential

The Titan project covers a heavy mineral sands property in Tennessee near a town called New Johnsonville, in the western part of the state. On October 27 2021, management announced it had purchased a further 4,794 acres, bringing the total acreage to 10,905 acres. The new land comes with mineral rights reporting at 431Mt at 2.2% Total Heavy Minerals (THM), with the potential for an increase.

Heavy mineral sands is where you usually find titanium and ziron. These minerals originally grew in crystals in igneous or metamorphic rocks, but over millions of years, the rocks were weathered and eroded. The resulting 'heavy' minerals were washed into the sea, eventually finding their place within beach sand. As shorelines change over time, what was once a beach is no longer, which is why a project like Hyperion's in Tennessee is a long way from the ocean.

When people talk heavy minerals, they usually refer to rutile, leucoxene, zircon and monazite, all valuable commodities in the US domestic market. Rutile can be used as feedstock for titanium metals (we'll get into that), but it can also be used to supply the paint and pigment industry. Chemours, the world's largest pigment plant, lies just a stone throws away from the Titan Project. With a bullish private housing market, Hyperion can supply minerals such as zircon to the ceramics market, estimated to account for 50% of the global demand for zircon.

This is in conjunction with an established partnership with Energy Fuels (NDQ: UUUU), where Hyperion projects they can supply monazite for over A$5,000 per ton. Heavy mineral sands can be a lucrative business, with Iluka Resources performing well as the largest producer globally of zircon and titanium dioxide derived from rutile. But Taso Arima, Managing Director of Hyperion Metals and, before that, co-founder of Piedmont Lithium (ASX: PLL | see 19 July 2021 report), argues that the company can take it one step further, with an exclusively licensed process to create titanium metals in a zero carbon way, supplying the aerospace and defence sectors.

Titans of the industry? A long wait to find out.

Titanium metals commercial production has been dominated by the Kroll process for the past 70 years. It's considered highly energy-intensive, using high amounts of carbon and chlorine to break down titanium dioxide bonds from rutile to produce titanium sponge, which is smelted into ingots. Dr. Zak Fang from the University of Utah found another way to produce titanium from rutile, naming it the Hydrogen Assisted Magnesiothermic reduction (HAMR) process, exclusively licensed to Hyperion. This process uses hydrogen to destabilise the titanium oxide, making a reaction of magnesium and titanium oxide thermodynamically favourable (and removing the need for carbon). Basically, what this all means is that Hyperion has its hands on an exclusive license that could potentially shake things up for the titanium game, through a 53% lower energy consumption and zero carbon process. This is exciting, although it will be a long wait, as Hyperion aims to begin production using this process by 2030.

It seems the US is quite vulnerable when it comes to titanium. It is currently 100% reliant on imports for its titanium sponge, with approximately 90% of the US' demand for titanium sponge supplied by Japan. If anything were to happen to this supply chain, China would be the next go-to and we all know the relationship between the two. Titanium sponge is also incredibly difficult to store for the long term, with a short storage life and potential fire risks. It's safe to say that if Hyperion can produce titanium metals at a low cost domestically, they're well-positioned to be a key supplier for the aerospace and defence sector demand in the US.

Baby steps

Right now, we are waiting on a Scoping Study for a mine and processing plant in Tennessee as the company finishes its 3rd phase of drilling on the Titan properties. Hyperion has done well so far, identifying a strong need in the United States, and securing an exclusive license to HAMR. But it's time to put some firmer numbers under the opportunity, particular for investors who just came in on the $24m capital raise at $1.20 a share.

Hyperion Metals has the potential to capitalise on the United States' need to re-shore its titanium production, whilst being well-positioned to supply critical minerals in the housing and paint industry. With Taso Arima at the helm, there's a lot to look forward to for this company. We think it's a four-star play, but worth waiting until the stock finds the right level after the capital raising, probably around $1.00 a share.

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Share price chart

Source: Tradingview

Preparing for the first modern mine

You may only know Cameroon in West Africa for its football prowess – the country has made it to the FIFA World Cup more times than any other African team – but here's three other things you need to know. Firstly, it's a big exporter of oil, meaning there's money in the exchequer. Secondly, President Paul Biya has been running the country since 1982, so coups aren't really a thing here. And thirdly, in the middle of the country there's a lot of a bauxite, the mineral from which we get alumina and aluminium. Canyon Resources reckons its Minim Martap project, in the Adamawa region, can be the Next Big Thing in bauxite globally.

Canyon got hold of Minim Martap in August 2018 with the granting of exploration permits over deposits that had been known about since the 1950s. Before Minim Martap the company had been active since 2013 in a bauxite project next door called Birsok. Currently at Minim-Martap the ore reserve is 99 million tonnes grading 51% aluminium oxide within a broader resource of 1 billion tonnes at 43% aluminium oxide. The project also retains low amounts of reactive silica (2.6%) and high gibbsite (or aluminium hydroxide) content making it suitable for low temperature alumina refining. Alumina is commonly used in plastics, bricks and clay ware because of its strength.

In July 2020 Canyon released its Pre-Feasibility Study, which described Minim Martap as a potential long-term producer of high quality, low contaminant bauxite with a low-cost Stage 1 capital cost of US$120m for a 20-year, 5 million tonnes per annum operation. The PFS also highlights an average opex of US$35 per tonne and a Post-tax Net Present Value of US$290m (or A$399m) at a 10% discount rate. The IRR was a healthy 37%. Despite being a mineral rich country, Cameroon has been slow to expand its mining industry (artisanal mining makes up 95% of gold mining, for example). Minim Martap may help change all that.

Grade is king in green aluminium

Minim Martap is receiving a lot of attention, not just because of the size of the resource, but also because of its grade quality, which puts the project above many of its peers. Compared to Guinea, which accounts for 22% of the world's bauxite output, Cameroon is 'small beans', but another coup in Guinea in September 2021 (the third in under 40 years) has highlighted the fact that there needs to be another significant producer in West Africa.

While China is unsurprisingly driving demand for bauxite throughout Africa, global aluminium demand is set to grow by 50% over the next 30 years as aluminium's light weight, corrosive resistance and recyclability make it a 'greener' substitute in raw steel production. Guinea's political turmoil sent the aluminium price to a ten year high, but Canyon sees the project going ahead not because of the price of the end metal so much as Minim Martap's 51% aluminium oxide grading. This may attract a premium as China and other countries move toward environmentally friendly alumina production. Minim Martap's grade puts it at the top of the grade spectrum compared with peers in Guinea.

To take advantage of the current situation, Canyon has raised $6.2m in its August share placement priced at $0.08 per share to support its two-stage, two-port strategy, with ongoing discussions with port and rail authorities for initial DSO through the Port of Douala. But the company envisions a lower-cost, high tonnage route through access to the newly built Port of Kribi later on. In August, Canyon agreed to a strategic partnership with Chinese bauxite miner Metallurgical Corporation of China (MCC) and its engineering division to assist with finance, offtake and technical studies, providing the company with MCC's extensive experience in African bauxite. MCC is not the only show of support for Minim Martap, with its major shareholder, Peter Su, putting $5m into that placement. Su's connections to Chinese bauxite and alumina should further assist with accelerating offtakes and development.

Changing the game in Cameroon

Even with over a billion tonnes in the Minim Martap resource, there is still plenty of exploration upside here. In fact, if you go to Google Maps and search for Minim, you'll see the hundreds of dominant plateaus throughout the region the company is covering. So far, 12 plateaus are part of the resource, 2 are newly drilled and 62 are yet to be tested. As Canyon goes into its third year of exploration at Minim Martap, the company is working towards the Bankable Feasibility Study, financing options and environmental impact assessments to complete its Mining Convention with the Cameroon government, which Canyon remains confident of securing.

While problems in Guinea continue, the company is also confident of the continued growth in the bauxite price once the project is in production later in the decade, speculating that it will increase to an average of US$51 per tonne over the next 20 years. And while much of Canyon's product may end up in Chinese alumina factories, markets in Europe and Asia see aluminium as a key mineral needed to transition to a greener economy. The company will continue to develop existing road and rail infrastructure to make that happen. Four stars from us.

Pitt Street Research Pty Ltd

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Pitt Street Research Pty Ltd provides issuer-sponsored research for Small & Mid Cap companies and is founded on more than 40 years of combined experience researching companies in a range of different sectors.