

Is the mining & metals sector prepared for a global downturn?

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Is the mining & metals sector prepared for a global downturn?

ussia's actions in Ukraine fueled an unprecedented rally in mineral and metal prices earlier this year, with multiple metals breaking historical records. However, this rally was short-lived. Within six months, metal prices collapsed back to 2020 levels in the most volatile first half of the year. There are myriad factors that are lining up to cap mineral and metal prices in the coming months, the most significant of which, we believe, is the rapid deterioration of the global economy.

In recent times, the mineral commodities cycle has been out of synchronization with the global macro-economic cycle—this time the cycles appear to be converging. With the prospect of global downturn looming, we ask the question, "Is the mining & metals sector prepared?" Is the sector truly resilient to disruption in supply chain, inflationary pressures, headwinds on demand, increased funding costs and of course, the drive to net-zero? Or will China's fiscal and monetary policies and the latest legislative developments in US and EU regulation provide enough support to the sector so that miners and the rest of the supply chain can capably respond to market conditions? Can the ESG agenda and decarbonization projects contribute to the long-term sustainability of the sector itself?

We are thinking critically about what a downturn means and whether this could, in fact, be a major opportunity to distinguish the sector from its traditionally dominant counterpart, the oil & gas sector. We hope you find *Mining & Metals 2022: Putting the resilience rhetoric to the test* a stimulating read.



Rebecca Campbell
Partner, Global Head of
Mining & Metals White & Case



The mineral commodities cycle, in recent times, has been out of synch with the global macro-economic cycle—this time the cycles appear to be converging

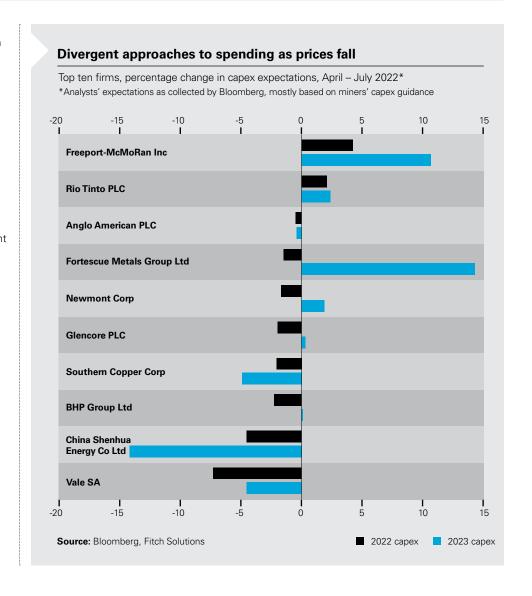
Decarbonizing in a downturn: Can the mining & metals sector afford (not) to change?

Softening commodity prices and economic headwinds may deter miners and metal companies from deploying the significant capital expenditure required to decarbonize. Partner **Rebecca Campbell** and associate **Paddy Mohen** discuss the risks in deferring these capital-intensive decarbonization projects, and the rewards that early movers toward a carbon-free mining & metals sector can obtain.

chieving a mining & metals sector with net-zero carbon emissions will require a transformation to the ways that minerals are extracted, processed, refined, brought to market and incorporated into the global supply chain. This transformation will require clean technology to be integrated into new mines, metal refineries and related transport infrastructure, as well as into existing projects, particularly when a long mine life remains.

While the capital costs of clean technology are dropping, the upfront capital costs of green technologies remain invariably higher than the costs of their conventional counterparts. Developing major capital projects is challenging in the best of markets, and analysts expect that most of the major mining firms will reduce their capital expenditure in the coming year as commodity prices soften and economic headwinds blow.

While deferring major capital projects may help mining & metal companies conserve cash and minimize debt as the sector enters less favorable market conditions, deferring the capital projects necessary to decarbonize risks creating future issues and missed opportunities for slow movers in the sector.





Early movers, on the other hand, are likely to have advantages in solidifying their positions as market leaders in a new net-zero mining & metals sector. As BlackRock CEO Larry Fink wrote in his 2022 annual letter to CEOs: "Every company and every industry will be transformed by the transition to a net-zero world. The question is, will you lead, or will you be led?"

The wall of regulation for a low-carbon economy is coming, currently led by Europe, and this momentum is unlikely to be dissipated by a downturn in the sector. On the other side of the downturn, mining & metals companies that defer the decarbonization of their operations will find themselves lagging as decarbonization targets and requirements tighten.

For those with the vision to push forward with the transformation now, there are a number of



"Every company and every industry will be transformed by the transition to a net-zero world. The question is, will you lead, or will you be led?"

Larry Fink, CEO, BlackRock

dedicated sources of capital available to support projects with strong ESG credentials, as well as other options for companies to strengthen their capital structure to enable strategic projects to proceed.

While not without risk, there is potential in a number of areas for mining & metals companies to allocate their capital and push

forward with capital projects to decarbonize the sector. Even if there is a downturn, these projects are likely to play out well in the long, and in some cases even the nearer term, for those companies with the vision and capacity to move now.

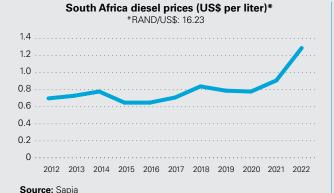
Renewable power solutions

The last decade has seen solar PV, onshore wind and lithium-ion battery storage systems move from being high-cost and novel technologies to being established technologies with substantially reduced capital costs. Over the same period, prices for diesel and gas, the traditional sources of energy for mining & metals projects, have been at times volatile. The most recent spike in global oil & gas prices is the latest shock in a long history of unpredictable fossil fuel prices.

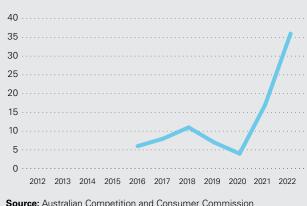
Advances in lithium-ion battery storage technology and dramatic drops in the capital costs of

Average costs of energy feedstock used for mining & metals projects

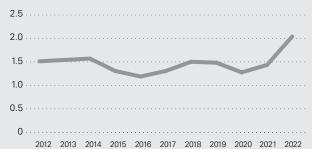
2022 prices averaged as at end July 2022





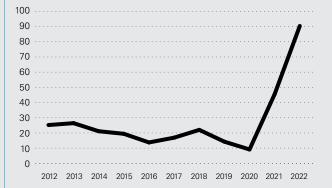


Australia diesel prices (AUD per liter incl GST)



Source: TaxFP

European TFF natural gas spot prices (EUR/MWh)



Source: Fitch Solutions

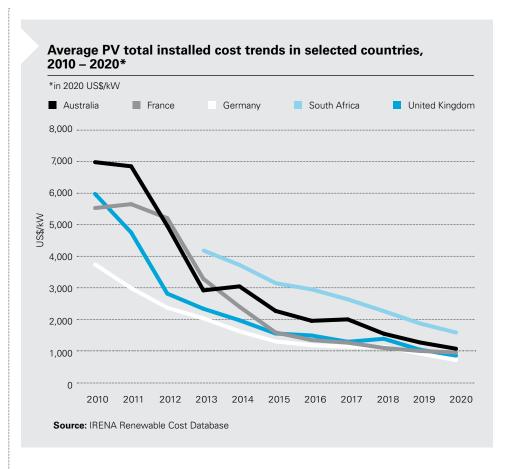
installing solar PV, have made 100 percent-green renewable energy captive power solutions a real possibility for miners in locations with good sunlight hours and irradiation. While upgrading or replacing existing power solutions may not be top of the agenda for mining & metals companies heading into a downturn, there are advantages for those who do.

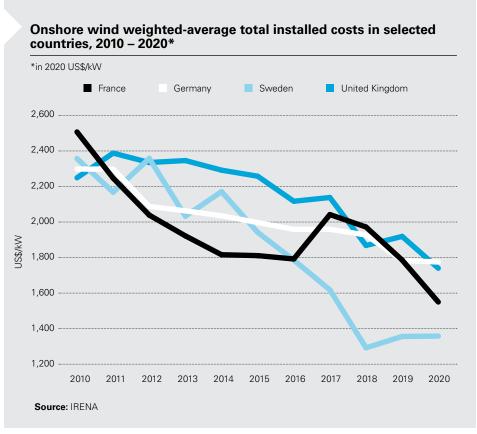
As well as dramatically reducing a mining site's scope 1 and 2 emissions, a captive renewable power solution utilizing sunshine reduces and stabilizes a project's operational expenditure, by cutting diesel and natural gas consumption, and reducing the exposure to fluctuations in global oil & gas prices.

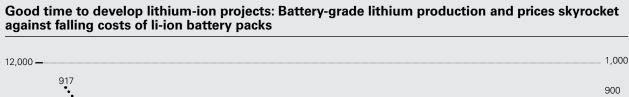
The reliability of grid power and transport of fuel feedstock are major issues for many miners, particularly in remote locations and developing countries. A captive renewable power solution with energy storage overcomes both these issues. Depending on local regulatory and grid connection requirements, captive power systems may even be able to generate additional revenues for projects by selling surplus power back to the public electricity grid.

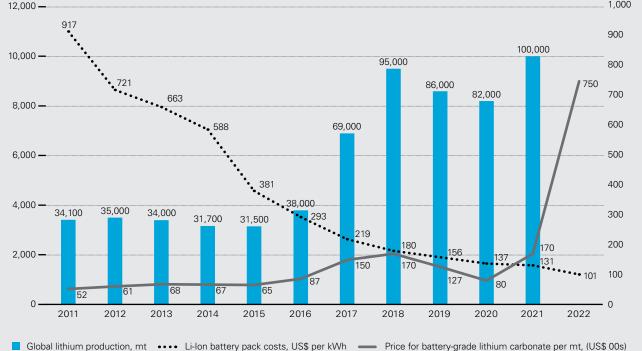
Currently, the number and capacity of reputable manufacturers and suppliers of solar, wind and energy storage equipment are limited, and these companies are already experiencing unprecedented demand for their products. Early movers will be able to take advantage of current capital costs to install, which despite global demand are near historic lows, and will have lead-time advantages and will entrench relationships with suppliers.

On the other hand, late comers may in the future struggle or pay higher prices to execute capital projects necessary to decarbonize their power solutions. This could especially be the case if future regulatory changes cause a huge rush in orders, or the availability of lithium and other key metals necessary for a transition to a low-carbon economy do not keep pace with rising demand, particularly with the rise of EVs and green hydrogen projects.









The following following following per my to the following followin

Source: Statista, S&P Global Commodity Insights, the U.S. Geological Survey, LME Lithium Hydroxide CIF (Fastmarkets MB)

Supply chain and vertical re-integration of the sector

Electrifying processes onsite and moving to renewable power sources are just one way for the mining & metals sector to reduce its scope 1 and 2 emissions. More challenging aspects of the emissions created by mining & metals projects and their supply chain await technologically proven and commercially available solutions to enable the sector to fully decarbonize. For instance, heavy haulage onsite trucks and the seaborne transport of bulk commodities currently remain very much fossil fuel-dependent.

To tackle these problems, some mining & metal companies are becoming more involved in their supply chains, supporting research and development, and making more venture capital-style investments to try and find ways to transition the sector to net-zero.

For example, Fortescue Metals Group recently announced a partnership with German-Swiss



Lithium carbonate prices have risen from \$5,000 per ton in July 2020 to about \$70,000 per ton in July 2022

Source: Market data

equipment manufacturer Liebherr for the development and supply of green mining haul trucks, which will integrate zero-emission power system technologies currently being developed by Fortescue Future Industries and Williams Advanced Engineering.

The best timing and value of any R&D or venture capital-style investment is inherently uncertain, and companies may be hesitant to make such investments in the face of an impending downturn. However, for those that persevere with these investments during the downturn, there could be significant advantages, as the sector emerges from the downturn and regulations tighten around carbon emissions and supply chain transparency.

Intellectual property for green technology could be vested in or controlled by miners who are early movers and invest in or collaborate with R&D in this space. This IP could be used by early movers as a competitive advantage in a

tightening regulatory environment, or as an additional source of revenue if they choose to sell or license the technology for use in the wider sector.

Those companies that find a solution to the carbon emissions caused by the seaborne transport of bulk commodities will help mining & metals companies navigate incoming regulations such as the EU Due Diligence Directive and the EU Carbon Border Adjustment Mechanism, and help future-proof their access to markets that penalize carbon-intensive imports.

The Cargo Owners for Zero Emissions Vessels (coZEV) is a recently established initiative designed to enable major seaborne freight customers to come together to accelerate the decarbonization of marine shipping. To date, a number of major sea freight customers including Amazon and Ikea have signed up to the initiative, but no mining or metal companies have yet added their names.

As a general market downturn

and rising interest rates compound general disruption and cash flow issues in the global supply chain, mining & metal companies with resilient balance sheets and capital structures may find there are strategic M&A opportunities to acquire impacted suppliers, allowing major mining & metal companies to vertically re-integrate their supply chains. Greater vertical integration will help companies buffer supply chain disruptions and make these companies well placed in a post-downturn market with greater regulatory requirements around transparency on supply chain and carbon emissions.

Opportunities to diversify into new and emerging products and markets

The push to decarbonize the mining & metals sector and other heavy industries has also opened the door for the creation of new products and markets, with green hydrogen, green ammonia and green metals projects all emerging.

In particular, over the past two years, green hydrogen has been pushed as a potentially transformational fuel to power heavy industry in a green and sustainable way, including in the mining & metals sector. There is also continued heavy interest in the development of green hydrogen projects as well as an emerging range of global policy and regulatory initiatives to support these projects.

Fortescue Metals Group, through its subsidiary Fortescue Future Industries, is so far the biggest player in the sector to move into the green hydrogen space, exploring potential projects in its home market of Australia, as well as abroad, including recently in Djibouti.

The emergence of green steel is also an age-defining development in the decarbonization of the metals sector, and existing and new players will invariably fill this market as it develops. Reducing the sector's emissions by expanding the extraction and recycling of metals from waste is an area that will grow and offer new opportunities for sector participants, as reflected by Glencore's announcement earlier this year that it was partnering with a major recycler in the lithium-ion battery recycling sector.

The capital costs of developing green hydrogen, green ammonia and green metals projects are considerable. While these new products present great promise for a low-carbon mining & metals sector and wider economy, the market is still very much in its infancy, which may make mining & metals companies reluctant at the current time to commit to the considerable capital expenditure required to construct these projects and bring these products to market.

A wider global downturn may also depress the value that the market is willing and able to pay for green hydrogen, green ammonia and green metal products, challenging the economic viability and bankability of these projects. However, despite the current economic headwinds, some companies are pushing forward with capital investments in projects to deliver these new products, and may ultimately be vindicated for a range of reasons.

Hydrogen plants, ammonia refineries, steel mills, alumina refineries and even major recycling facilities all have multi-year design and construction phases, meaning that projects cannot be brought to market swiftly to react to changing consumer demands. If existing customers of hydrogen, steel and alumina are prepared to pay a price premium for a recognized "green" version of these products, then early movers in the construction of these plants will have a captive market, at least for an initial period.

A shortage in raw materials necessary to manufacture energy storage systems and electrolysers necessary for green hydrogen projects could hit and delay players who defer capital investment in these projects until the downturn has passed.

Fast-moving startup companies, such as H2 Steel in the green steel sector, may emerge as major players in these new markets. Transitions in other markets, such as the shift in the motor industry to electric vehicles, has shown that early movers and startups, such as Tesla, can capture market share from incumbent majors if those incumbents are slow to transition.

Allocating capital to secure a (place in the) low-carbon economy

Whether developing and constructing major green hydrogen or green metals plants, or upgrading and retrofitting equipment and power sources at existing mining projects, the capital expenditure required to decarbonize the mining & metals sector will undoubtedly be significant, and there will be those that in a downward market either hold back, or for various reasons are simply unable to press ahead with, the necessary capital projects.

For companies that do move forward, these works should not be viewed simply as a cost, but also as an opportunity to gain both short and medium-term competitive advantages in the market, and ultimately as an investment to secure a place in the new low-carbon economy that is expected to span all industries and sectors.

As mining & metals companies grapple with difficult capital expenditure budgets and allocations for the coming years, they would do well to consider another question posed by Fink in his 2022 letter: "How are you preparing for and participating in the net-zero transition? As your industry gets transformed by the energy transition, will you go the way of the dodo, or will you be a phoenix?"



"As your industry gets transformed by the energy transition, will you go the way of the dodo, or will you be a phoenix?"

Larry Fink, CEO, BlackRock

Quest to bolster critical mineral supply will persist through economic downturn

A steady supply of minerals critical to the energy transition must be ensured through the expected recession, as partners **Oliver Wright**, **David Bond** and associate **Matt Solomon** discover.

echnologies underlying the energy transition—including wind turbines, solar panels, electricity networks and electric vehicles (EVs)—rely upon sufficient access to critical minerals such as copper, lithium, nickel, cobalt, graphite, and rare earth elements.

As demand for these critical minerals skyrockets, and as governments increasingly view reliable access to these materials in national security as well as economic terms, bolstering supply chains has risen to the top of domestic policy agendas around the world. In order to support economies' transition to clean energy, governments are enacting policies to bolster domestic or friendly supply chains, often backed by significant funding.

What are critical minerals?

There is no definitive, global list of "critical minerals." The US Geological Survey issues an annual list, as defined by the US Energy Act 2020, drawn up using three evaluations. These include a quantitative evaluation of supply risk where sufficient data were available; a semi-quantitative evaluation of whether the supply chain had a single point of failure; and a qualitative evaluation when other evaluations were not possible.

Based on these criteria, the 2022 Final List of Critical Minerals includes 50 minerals, including aluminum, cobalt, graphite, iridium, lithium, magnesium, nickel, niobium, platinum, tin, titanium, tungsten and zinc. The White House said these minerals are "essential to economic or national security and vulnerable to disruption."



2m tons

Demand for lithium for use in lithium-ion batteries is expected to quadruple by 2030 to two million tons annually

Source: Market data

Other countries have different criteria of what defines a critical mineral, based on unique geological, trade and other contexts. As of 2020, 73 minerals had been identified as critical in 25 separate assessments.

Critical mineral production and processing is highly concentrated in a small number of countries, and often countries with significant perceived political risk. For example, rare earth elements such as neodymium and dysprosium—used in EVs, wind turbines and other technologies—are concentrated in China, Vietnam and Russia. A significant proportion of the world's cobalt is sourced from the Democratic Republic of the Congo.

Regardless of the location of the mines, China is the top processor of most critical minerals relevant to the energy transition, and also leads in the production of key intermediary products such as battery cells, polysilicon and wind turbine components.

A subset of these minerals are central to the energy transition, and are required in huge quantities. According to the International Energy Agency, because green power generation requires many times more mineral inputs than the fossil fuel-based equivalent, the average amount of mineral resources needed for a new unit of power generation capacity has increased by 50 percent since 2010. Alongside this, the share of renewables in new investment has also risen.

In order to keep pace with the projected growth of renewable energy production, EV sales and other elements of the global energy transition, the supply of critical minerals needs to expand rapidly. For example, demand for lithium, for use in lithium-ion batteries, is expected to quadruple by 2030 to two million tons annually, but at its current pace, mining capacity will fall short by 700,000 tons. Similarly, copper supply is projected to fall 4.7 million tons short of demand by 2030.

In addition to a desire to close the projected deficits, some governments are compelled to develop production capacity to mitigate potential geopolitical and economic risks inherent in certain critical mineral supply chains.



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Government priorities

Investment in clean energy is, generally, a winning political issue. While the traditional energy sectors—and the communities reliant upon them—represent a powerful political constituency in many countries, most voters support at least a measured energy transition.

For example, the majority of Americans across the political spectrum support development of renewable energy sources, and two-thirds support incentives to increase the use of electric and hybrid vehicles.

The Biden administration has identified critical minerals as a key economic and national security priority and has moved quickly on the policy front to support these efforts. Polling also suggests broad popular support for the energy transition, and policies enacted to support it, in Europe, Canada and elsewhere.

As is often the case, it seems that political will follows public opinion. As long as advancing the energy transition is perceived as being politically popular, funding will continue to flow in that direction, regardless of the larger macroeconomic context.

US government approach

On August 16, 2022, US president Joe Biden signed the Inflation Reduction Act (IRA) 2022 into law. In addition to implementing core components of Biden's agenda on healthcare and tax reform, the IRA includes several funding provisions aimed at bolstering domestic and regional production of and demand for critical minerals—confirming that the US government is prepared to dedicate significant resources to the energy transition.

The IRA makes substantial revisions to the EV tax credit to require regional sourcing of critical minerals used in EV batteries. Section 13401 of the IRA revises the existing US tax credit of US\$7.500 for purchases of new EVs. Eligibility for the revised credit, which will apply to both EVs and fuel cell or "clean" vehicles, will be contingent on the final assembly of the vehicle occurring in North America; initially, at least 40 percent of the vehicle battery's critical minerals originating from a US free trade agreement partner, or being recycled in North America; and specified percentages

of the battery's components being manufactured in North America. Vehicles that satisfy this requirement will receive a tax credit of US\$3,750.

The IRA will also provide an additional tax credit of US\$3,750 if at least 50 percent of the battery's components are manufactured or assembled in North America—increasing to 100 percent by 2029. Additionally, after a short transition period, the IRA will make vehicles ineligible for the credit if the vehicle battery contains any critical minerals or components sourced from countries such as China and Russia.

The IRA introduces a new "advanced manufacturing" tax credit for domestic production of critical minerals. This tax credit would



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apply with respect to each eligible component that is produced by the taxpayer within the US and sold by the taxpayer to an unrelated person during the tax year.

Critical minerals are among the eligible components to which the tax credit would apply; the amount of the tax credit would be equivalent to 10 percent of the costs incurred by the taxpayer in producing the critical mineral. The new tax credit would also apply to several downstream products, including solar energy components, wind energy components, power inverters and battery components. The tax credit is projected to result in tax expenditures of approximately US\$30 billion.

The IRA has additionally introduced a US\$500 million appropriation for "enhanced" use of the Defense Production Act (DPA), which Biden recently invoked to support critical mineral production. The sponsors of the bill indicated that this appropriation is intended in part to support the president's recent action concerning

critical minerals, which enabled the US Department of Defense to use DPA funds to encourage domestic mining and processing of such materials.

Finally, the IRA authorizes US\$40 billion in loan guarantees under Title XVII of the Energy Policy Act of 2005. This enables the Secretary of Energy to make loan guarantees for projects that "avoid, reduce, utilize or sequester" air pollutants or anthropogenic emissions of greenhouse gases; and employ "new or significantly improved technologies" as compared to commercial technologies in service in the US. The authorization could bolster recent efforts to leverage the Title XVII program to support domestic production of critical minerals.

These new programs are in addition to existing loan and grant programs, such as under the Department of Energy's Loan Programs Office, which have recently been utilized for the first time to fund critical mineral processing projects in the US.

Australian critical minerals initiatives

Australia's mining sector is vital to the country's overall economic health: it is the largest sector by share of national GDP, and minerals and fuels comprise more than half of all exports.

While Australia's top mineral products include iron ore, coal, gold and aluminum, the government has prioritized both the mining and processing of critical minerals and, because of its geological makeup, Australia is well positioned to capitalize on this. The country is already the largest global producer of lithium, providing half of the world's supply; the second-largest producer of cobalt; and the fourth-largest producer of rare earth elements.

In March 2022, the Australian government announced the 2022 Critical Minerals Strategy, seeking to grow the sector, expand downstream processing and meet future global demand. The strategy comprises three prongs.

To support private companies, the government established an AUD 2 billion critical minerals facility to provide financing to private companies. So far, the facility has provided loans to graphite mining and processing facilities and a rare earth elements refinery, among others.

The government also introduced the Critical Minerals Accelerator Initiative, meant to support early and mid-stage projects, with grants for feasibility studies, engineering design work, pilot testing, and other activities.

The strategy commits AUD 50 million in research and development funding through the new National Critical Minerals Research and Development Centre, and an additional AUD4 million to scope investment proposals for regional critical minerals hubs.

While not specifically allocating new funding, the government outlined additional international initiatives to cohere new global supply chains running through Australia, and attracting new foreign investment in the mining sector.

In addition, as part of the new AUD 15 billion National Reconstruction Fund, prime minister Anthony Albanese committed AUD 1 billion in investment through loans, equity, and guarantees for resources value-adding and mining science. Seen in the context of an overall lukewarm economic scenario, the continued allocation of funds to critical minerals and the energy transition demonstrates the Australian government's clear priorities.

European initiatives

The European Commission issued an Action Plan on Critical Raw Materials in 2020, which it said was focused on "actions to reduce Europe's dependency on third countries, diversifying supply from both primary and secondary sources, and improving resource efficiency and circularity while promoting responsible sourcing worldwide."

The action plan, which itself is aligned with the EU's Green Deal and Industrial Strategy plans, sets the framework for subsequent critical mineral-related policy measures, including the establishment of funding initiatives.

Europe contains significant deposits of certain critical minerals, detailed in the action plan. For example, Germany is a major producer of gallium, used in semiconductors and LEDs; Finland contributes half of the germanium consumed by EU countries, which is a component in fiber-optic technology; and France produces more than a quarter of the EU consumption of iridium, which goes into liquid crystal display screens.

However, the EU is a net exporter only of hafnium and indium, and remains highly dependent on China, Russia and other countries for most minerals necessary for clean energy technologies.

There exist EU-level financing opportunities for critical mineral projects, with more to come. The European Investment Bank offers financing to a range of industrial and energy projects, including those relating to the supply chain of critical raw materials needed for low-carbon technologies in the EU, and does not finance fossil fuel projects.

Significantly, a new European Raw Materials Fund is reportedly set to launch in 2023 with an initial investment of approximately €2 billion, and aims to devote €100 billion toward critical mineral production.

While details on the funding sources, timeline and eligibility criteria are not yet released,



August 16, 2022

US president Joe Biden signed the Inflation Reduction Act (IRA) 2022 into law the fund could be an important continent-wide vehicle to support new mining and processing projects.

In addition, the EC is developing a Raw Materials Act, which would accelerate permitting and otherwise support European production of critical minerals. Whether or not the proposed act is tied to new funding programs, the keen legislative focus on strengthening supply chains for critical minerals points to the economic potential in Europe, as well as intensifying regional anxieties around overdependence on adversarial governments for these materials

The EU-wide initiatives are bolstered at country level. For example, in France, the government has inaugurated a dedicated fund under the France 2030 investment plan to support critical mineral projects, which has thus far provided funding of €550 million to 40 projects.

In Spain, the Circular Economy Action Plan, backed by an investment package worth €1.5 billion, includes a plan to promote the reuse and recycling of raw materials in order to decrease the country's dependence on imports.

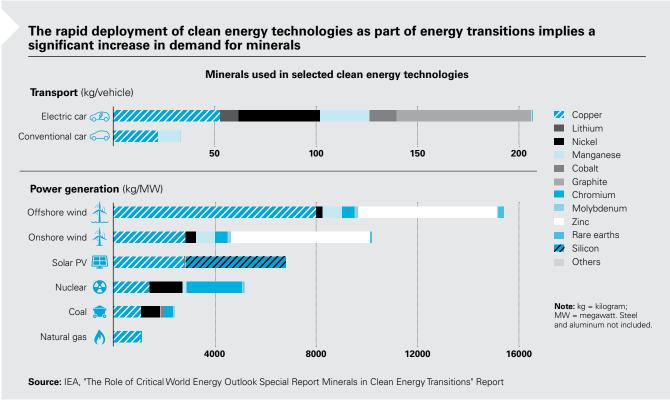
The global scene

The US, Australia and the EU are not the only regions of the world that are spending enthusiastically on initiatives to support the domestic production and processing of critical minerals. In addition to the examples above, similar initiatives can be found globally.

For example, Canada has introduced a range of grant programs, and research and development spending. The UK published a critical

US Geological Survey 50 critical minerals

Aluminium		Indium	Palladium	
Antimony	├ Erbium	Iridium	Platinum	├ Thulium
Arsenic	> Europium	Lanthanum	Praseodymium	Tin
Barite	→ Fluorspar	Lithium	Rhodium	Titanium
Beryllium	Gadolinium		Rubidium	Tungsten
Bismuth	Gallium	Magnesium	Ruthenium	Vanadium
Cerium	Germanium	Manganese	Samarium	
Cesium	Graphite	Neodymium	Scandium	
Chromium	Hafnium		Tantalum	 Zinc
Cobalt		➢ Niobium	Tellurium	Zirconium
ırce: IEA				Newly added in 20

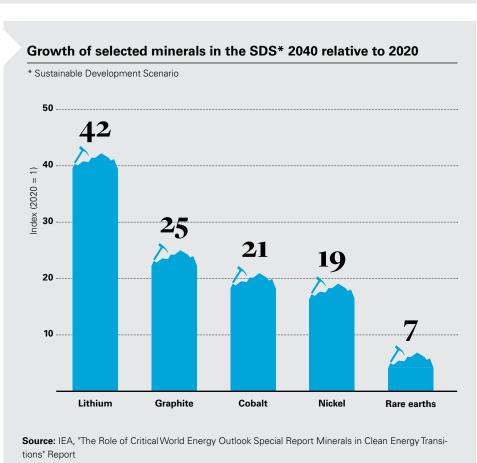


mineral strategy in July 2022, which includes plans to allocate financial support to develop its minerals capabilities and rebuild the country's skills in mining and minerals.

Japan released its international resource strategy back in 2020, noting that there needed to be more investment in upstream equities, and develop infrastructure and human resources in this area.

Whether driven primarily by anxiety regarding Chinese dominance of critical mineral supply chains, or by a premonition of immense economic opportunity, funding and regulatory support for critical mineral development has risen to the top of the economic priority list, where it will remain for the foreseeable future, despite foreboding economic forecasts. Funding programs alone will not suffice, as permitting and other regulatory bottlenecks threaten to slow critical mineral mining projects.

However, given the political momentum, the participants in the mining & metals sector, especially those focused on the extraction and processing of critical minerals, are well positioned to not only survive, but thrive in the current macro-economic environment.



How mining & metals companies can make ESG work in a downturn

Mining & metals companies have been increasingly focusing on enhancing their environmental, social and governance credentials in recent years as part of the energy transition. But with a global recession looming, will they be able to maintain their commitment? Partners Allan Taylor and Preeti Nana, and associate Janina Moutia-Bloom discuss.

■ he mining & metals industry, often considered a villain in the context of environmental sustainability, is now seen as a critical part of the solution. Investors and consumers increasingly recognize the industry as not only a first source of emissions in the value chain, but as a provider of critical raw materials needed for the global energy transition.

The way in which mining & metals companies position themselves in preparation for

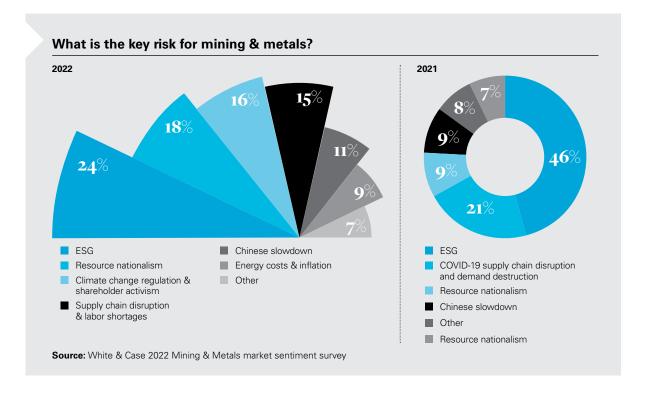
the energy transition, particularly against the backdrop of an expected recession, will determine their sustainability, and could make or break their competitive advantage over the next decade. Boards should consider how to build on existing environmental, social and governance (ESG) frameworks to ensure they are future-proofed for, and resilient against, tomorrow's economic realities.

Ensuring that ESG is fully integrated into long-term business

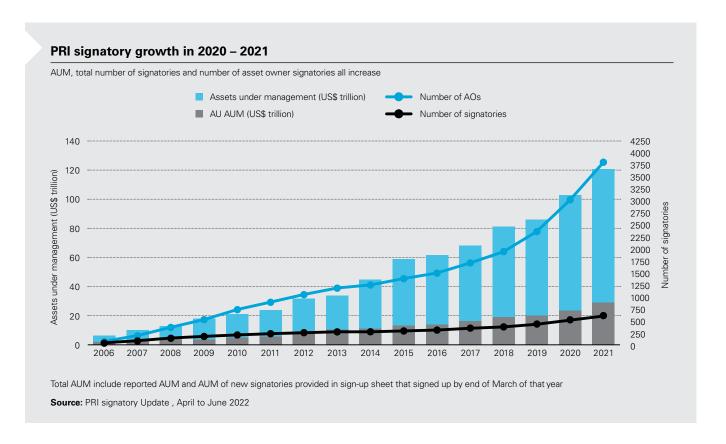
strategies as a means to add value, rather than seeing it as a discretionary cost to be cut, will be a critical component in this goal.

Testing ESG's resilience in a downturn

This will be the first real downturn where ESG is a focal point for stakeholders. In our 2022 Mining & Metals market sentiment survey 24 percent of respondents viewed ESG issues as the biggest threat, rising to approximately 40 percent







when climate-related activism and regulation is included. The perception of these risks may increase as the industry faces the anticipated global economic slowdown.

While *The Economist* recently argued that ESG investing "is a broken system [which] needs urgent repairs," it also emphasised that ESG seeks to make "firms and their owners accountable for their negative externalities." The high-profile ESG engagement priorities of BlackRock and State Street, as well as more than 5,000 investor signatories (as of April 2022) to the Principles of Responsible Investment, underscore the strength and breadth of investor commitment in this area, as do related proxy voting and activism trends.

ESG factors can create both risks and opportunities. Within the mining & metals sector, boards have been engaged in tackling a vast range of ESG issues for some time, including the approach to energy transition and greenhouse gas emissions, working conditions in supply chains, tailings management, worker and community health and safety, and compliance with ever-increasing reporting obligations.

However, during an economic

downturn, leaders will need to decide which of these themes to prioritize, define the targets to be achieved, and set out expected timeframes—all against the backdrop of market and economic uncertainty.

Many still see an inherent trade-off between choosing a more sustainable future and achieving business growth and profit. They see ESG-related spending—a capital expense to reduce energy use, opting for renewable energy, paying living wages and so on—as purely cost, not investment.

Ahead of and during any recession, companies will be under considerable pressure to manage ESG factors while continuing to meet quarterly expectations. The deeper the challenge an executive team faces, the more tempting it becomes to cut corners, so boards must ensure governance standards remain aligned with market realities.

Is ESG core or discretionary for the mining & metals sector?

There is a growing body of evidence to demonstrate that taking ESG matters seriously is fundamental to resilience and long-term business



5,020

Signatories to the Principles of Responsible Investment as of September 2022

Source: PRI

success, as well as improving investment returns. Companies with strong ESG credentials have the ability to outperform peer groups and the wider market.

Mining & metals companies are spending heavily on efforts to reduce emissions or meet other targets, hoping for a payoff down the road. For example, investing in decarbonization requires significant upfront capital costs, but these can be offset through tax incentives and favorable financing terms. Decarbonization efforts can also improve energy efficiency, which has a direct impact on operating costs and margins, and reduce the risk of negative repercussions on a company's share price or regulator-enforced penalties.

Net-zero and the energy transition, along with the demand for energy transition technologies and minerals, will drive demand—and enormous annual growth in market value—for metals and critical minerals including nickel, lithium and copper. The shift to net-zero will require more mining, not less, and ESG drivers such as strong social licenses, responsible divestitures and tax transparency will all be critical for a company's continued success.

A global economic slump would mean a new wave of cost-cutting in mining & metals, in both operations and in capex, at a time of further spending commitments to meet increasing ESG demands from multiple stakeholders. Chief financial officers are under pressure overseeing companies' capital spending plans, as they enter unknown territory by allocating funds to projects that carry big price tags, cover long time horizons and yield returns that are sometimes hard to quantify.

Companies often make these investments before new regulations are proposed or consumer choices change, adding to the difficulty of finding the right balance. From a cost perspective, it is about balancing the trade-off between necessary expenditure and potential losses brought by ignoring or mismanaging ESG factors. ESG is no longer optional or a point of differentiation; it is now the minimum operating standard, especially in the mining & metals sector.

Once management determines the appropriate level of corporate investment in ESG in light of the expected returns or losses avoided during a recession, it then becomes critical for the company to communicate its approach to ESG priorities as part of its overall business strategy, through annual reports, proxy statements, sustainability reports or other public materials.

A continuing focus on "E"

The 2022 Accenture Global Institutional Investor Study of ESG in Mining found 59 precent of investors want miners to aggressively pursue decarbonization and be market leaders in that effort. Approximately 63 percent of mining & metals investors said they would be willing to divest or avoid investing in mining companies that fail to meet their decarbonization targets or fail to pursue sufficient decarbonization activities

This study found that environmental initiatives that are rated "important" by mining & metals investors in driving a significant valuation premium include lowering scope 3 emissions, targeting carbon neutrality by 2050, producing energy-critical metals and producing no coal. A substantial majority—seven out of ten—of the largest mining & metals companies are publicly aiming for carbon neutrality by 2050.

Other relevant factors included investing in revolutionary technology and digitalization. having an exceptional safety record, and diversifying the board, management and workforce.

Transitioning from "take, make and waste" to "take, make, recover and reuse" will enhance core revenue and maximize the value of end-of-life materials. Recycled materials will shift down the cost curve, reducing supply costs and hedging against



63%

Of mining & metals investors said they would be willing to divest or avoid investing in mining companies that fail to meet their decarbonization targets or fail to pursue sufficient decarbonization activities.

Source: Accenture's Global Institutional Investor Study of ESG in Mining, 2022 volatility in raw material pricing. Likewise, companies can use their circularity processes to attract sustainability-focused customers.

Companies without a systematic approach to addressing material ESG gaps, or those who are unable to show an actual impact, are finding that it is more difficult to secure funding. This can also be a barrier to entry on stock exchanges, to obtaining permits or insurance coverage. attracting talent and maintaining a social license to operate.

For example, to be bankable, mine development projects will need to take into account ESG and sustainability best practice at every stage from inception to mine decommissioning, and throughout the supply chain. Mining & metals companies may also be unable to access other forms of capital in a downturn if they cannot convince investors that ESG remains a priority.

The importance of "G" in a downturn

Robust and innovative corporate governance approaches are critical for getting on the front foot with ESG. In order to achieve defined ESG goals, it is important to embed ESG in organizational structures and operations. In this way, ESG should be seen as a competitive advantage and a source of value-add, rather than a risk to be tackled or a cost to reduce.





"Nothing adds more value for us in the medium term than improving operational performance and recovering cost competitiveness versus our peers"

Alberto Calderon, CEO, AngloGoldAshanti

Good governance is at the core of this, particularly in a downturn. AngloGoldAshanti CEO Alberto Calderon recently said: "Nothing adds more value for us in the medium term than improving operational performance and recovering cost competitiveness versus our peers."

There has been a shift from a focus on ESG compliance and reporting to bolder commitments with measurable targets, as well as greater transparency in reporting. Much of this has also been driven by increasing regulatory compliance obligations, such as the Task Force on Climate-Related Financial Disclosures.

Mining & metals companies should also move reporting from the global corporate level to a more granular, mine-site level. While many mining companies mention the UN Sustainable Development Goals in their sustainability reporting, few have actually integrated these targets into their business strategies, according to a Responsible Mining Foundation report that assessed 38 large-scale mining companies.

Reducing business risks around a company's ESG footprint can help reduce the likelihood of reputational damages, a loss of the social license to operate or regulatory costs. The latter can negatively impact share prices—the fatal dam collapse in Brazil and the destruction of ancient aboriginal heritage sites in Australia are clear examples of the potential consequences of getting it wrong.

A focus on the "G," and keeping ESG as a priority board agenda item, especially in a recession, can help manage costs, improve engagement with stakeholders, diversify supply chains, improve performance as compared to peers and help in the "war for talent," to build a sustainable and resilient business. In this way,

mining & metals companies can make better long-term investment decisions, maintain stronger balance sheets, and see more consistent valuations and returns.

The longer-term view social and sustainable

The path ahead for the social dimension is less clear than for decarbonization or energy and water efficiency, but equally critical. There is a range of social issues to consider and minefields to negotiate, including health and education, community access to clean water and sanitation, building respect in the workplace, working against bribery and corruption, and avoiding conflicts of interest. Importantly, the "S" is closely connected with how mining & metals businesses are managed.

Our 2022 Mining & Metals market sentiment survey identified local community impact, including human rights issues, as the area most likely to face scrutiny from investors and regulators related to ESG and sustainability issues. Tailings management and water usage were also cited as very important.

In positioning for the energy transition, maintaining a robust

Rising number of stand-alone decarbonization announcements in the mining sector AUM, total number of signatories and number of asset owner signatories all increase All announcements — Decarbonization commitment — Progress announcements Number of announcements 12 14 2019 2020 2021 Source: Accenture Research; 2021 is year-to-date June 30, 2021

Mining worker climbing

social license to operate is more essential than ever for success. The demand for critical minerals will outstrip supply in the near term.

To meet this shortfall, miners will have to develop more mines, often in previously unmined regions. As they seek to expand, companies will need to put even more effort into meeting community expectations and building trust.

Businesses will also need to develop and embed appropriate policies, governance structures and tools to mitigate human rights risks within their operations and across their supply chains. There are already initiatives in this area, such as the Global Battery Alliance, which seeks to establish a social and responsible battery value chain, safeguarding human rights as well as promoting environmental sustainability.

As issues related to human rights, corruption, bribery and provenance play out at a macro level across the mining & metals sector, companies should ensure that their focus extends to the enterprise level as well. For example, while digitization and automation have opened up significant productivity possibilities for mining & metals companies, they can also put companies at greater risk of cyberattacks and privacy breaches. The proliferation of social media also increases the potential for reputational damage.

Tax collection continues to be a clear government priority, particularly with the need to fund fiscal deficits that were required to mitigate the impact of the pandemic. This will likely be even more heavily scrutinized in the throes of a recession.

Mining & metals companies should continue to prioritize tax transparency and governance as a key focus within the business, giving them the chance to highlight their significant financial contributions to their communities and the resulting improvements in education, infrastructure and so on.

Effective and proactive stakeholder engagement processes and enhanced relationships with communities will become critical. Monitoring and analysis of companies' involvement in ESG controversies is increasing as part of the risk assessment process, supporting investors in understanding where gaps may exist between public ESG commitments, and operational practice.

By putting these controls in place, companies can enhance and strengthen their reputations as valued and responsible partners in the regions in which they operate. This can serve to open up new opportunities and markets for miners looking to extend the life of mines, move into new jurisdictions and seek new leases.

A continuing and vital journey

ESG factors will inevitably shape the future landscape for mining & metals companies. If a business allows itself to become an ESG laggard, it is unlikely to survive, particularly if peers lead the way.

In the event of an economic downturn, ESG projects may see some short-term erosion as businesses look to trim costs, but longer term, the focus on ESG issues will only be renewed and enhanced. If the mining & metals sector wants to be seen as leading the path to net-zero and achieving the energy transition, all stakeholders will need to put their ESG strategy front and center, with the same focus applied to ESG as to the extraction of minerals





Effective and proactive stakeholder engagement processes and enhanced relationships with communities will become critical for mining & metals companies

Chinese battery material companies remain active despite economic downturn

China is looking beyond its borders to maximize the returns from the minerals needed to make the energy transition happen, say partners John Tivey and Paul Tang and associate Xuefeng Wu.

hina is one of the biggest producers of the critical minerals and rare earth elements that are essential to the energy transition—those used in the manufacture of elements such as electric vehicle (EV) batteries, and to construct offshore and onshore wind and solar power plants.

As production in these areas around the world scales up, China's central role in mining the minerals essential to these new technologies is helping the country meet its carbon-neutrality targets and satisfying the growing appetite for minerals such as lithium, nickel and cobalt, and metals including copper and zinc

The electric vehicles link

2022 has seen Chinese miners solidify their market-leading position in the EV sector as well as others central to the energy transition, through contracts and deals in both established and emerging minerals markets

For example, in January 2022, the Chilean government awarded BYD a contract to extract 80,000 metric tons of lithium over the next 20 years. BYD is one of the largest automotive companies in China and recently announced its intention to fully focus on EVs. Also in January, Zijin Mining Group completed its acquisition of Neo Lithium Corp. and took over the Tres Quebradas (3Q) Lithium Project in Catamarca Province, Argentina.

In June 2022, Jiangxi Ganfeng Lithium, the largest Chinese lithium producer, which already owns two major lithium assets in Argentina, moved to acquire the Pozuelos and Pastos Grandes Lithium Project, a pre-development salt lake asset in Salta Province, Argentina.

Chinese miners are also ambitiously searching for "white gold" outside of the "lithium triangle" region of Argentina, Bolivia and Chile. In April 2022, Zhejiang Huayou Cobalt acquired the Acadia lithium mine in Zimbabwe while in May, Zijin Mining bought a 15 percent stake in the Manono lithium-tin project in the Democratic Republic of the Congo (DRC). The Manono project is believed to contain one of the world's largest lithium-rich deposits capable of development through open-pit mining.



Chinese companies are the predominant foreign investors in the nickel sector in Indonesia, the world's largest producer of the mineral. Just this year, Huayou and Ningbo Contemporary Brunp Lygend (CBL), a subsidiary of Contemporary Amperex Technology Co. Limited (CATL), which currently holds the title of the world's largest EV battery maker, both announced a number of high-profile initiatives. This activity shows there is an ever-deeper foray into the nickel downstream value chain by Chinese companies.

Chinese companies also have interests in 15 of the 19 cobalt mines in the DRC, where approximately two-thirds of the world's cobalt is produced. China Molybdenum (CMOC), one of the largest cobalt producers globally, is pressing ahead aggressively in the DRC by expanding its Tenke Fungurume cobalt and copper mine, and developing the adjacent, green field Kisanfu cobalt mine that it co-invested in with CATL. CMOC expects Kisanfu to begin operation in the first quarter of 2023.

The level of activity by Chinese battery material companies can be starkly contrasted with the backdrop of a slowing Chinese economy. However, despite this economic slowdown and the temporary impact on EV demand caused by COVID-19 lockdowns, the fundamental outlook on the growth of the Chinese EV industry remains bright given the huge and resilient demands in China.

This optimism is also reflected in the ever-rising lithium price and generally solid copper and nickel prices during the past 12 months.

Key battery trends

Increasingly, leading Chinese battery makers are strategically setting up their production facilities to be closer to key markets. This allows them to be more adaptable and recentive to the needs of their customers and directly leverage local or regional incentive policies for EV industry participants.

Following the establishment of its German cell plant in 2018, CATL announced in August 2022 the construction of a €7.3 billion (US\$7.27 billion) battery plant in Hungary, with an estimated capacity of 100 GWh. Construction is expected to commence by the end of 2022.

Huayou and CBL's upcoming nickel processing joint ventures

Initiatives	Participants	Country
Tripartite smelting joint venture in Indonesia to produce mixed hydroxide participate. Bilateral arrangement between Huayou and Ford Motor to supply battery processor material.	Huayou, Ford Motor, PT Vale	Indonesia, US
Tripartite smelting joint venture in Indonesia to produce mixed hydroxide participate. Bilateral downstream processing joint venture in China between Huayou and Volkswagen.	Huayou, Volkswagen, Tsingshan Holding	Indonesia, China
Battery industry chain projects covering nickel mining and processing, EV battery materials, EV battery manufacturing and battery recycling.	CBL, PT Aneka Tambang and PT Industri Baterai Indonesia	Indonesia

Lithium prices have spiked sky-high Price of battery-grade lithium carbonate per metric ton in U.S. dollars 60,000 50.000 US Dollars per metric 40 000 -30.000 20,000 10,000 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2010 2021 2022 Prices for 2010 – 2021 are annual averages from the US Geological Survey. Price for 2022 is from S&P Global Commodity Insights on May 4, 2022 Source: US Geological Survey; Canary Media



Source: White & Case

Leading Chinese battery makers are strategically setting up their production facilities to be closer to key markets to be more receptive to the needs of their customers

CATL pointed out that the new plant is closely situated near a number of European automotive companies, and that it would be supplying both cells and modules to its prospective customers.

Envision AESC, another leading Chinese battery company, announced in March a plan to co-invest with Mercedes Benz in a US battery plant to provide battery cell modules to the company's new all-electric vehicles targeting the US market.

Meanwhile, in line with automotive manufacturers' desire to secure raw material supply, Chinese battery material suppliers are expanding their businesses into the downstream value chain and forging closer cooperation with end-users.

For example, CBL's Indonesian battery industry chain projects are not limited to the production of EV battery materials, but cover other integrated processes, including battery manufacturing and battery recycling.

Likewise, the joint ventures in Indonesia between Huayou, nickel producer Tsingshan, and German car manufacturer Volkswagen will enable both the upstream smelting of nickel intermediate product in Indonesia and the downstream refining of intermediate product into precursor and cathode materials in China.

A wider view

While the EV sector might be the main target of investment right now, China remains a key player in the production of other minerals, metals and rare earths, which are key to reducing the global carbon footprint. Indeed, a 2020 report from the European Commission described China's role in the supply of rare earths to produce magnets for wind turbine generators as "quasi-monopolistic."

In December 2021, China merged three state entities to create the China Rare Earth Group, which according to reports will control approximately two-thirds of Chinese rare earth production—or about a third of global supply. It is yet unclear whether the new group will focus



Chinese minerals companies have positioned themselves to manage their input costs across the supply chain and their exposure to material negative movements in offtake prices in the event of a global downturn

on domestic supply, production and refinement of rare earths, or whether it will also look at investing overseas.

Rare earths can be found across the world, giving plenty of opportunity for Chinese companies to move internationally should they wish to expand beyond the plentiful domestic supply of these minerals. There is already, of course, Chinese money in foreign rare earth production—for example, US-based MP Materials is minority-owned by Chinese company Shenghe Resources, which buys MP's rare earth concentrate for processing in China.

Shenghe also signed a non-binding memorandum of understanding with Australia's RareX in February 2021, paving the way for potential Chinese investment in RareX's projects and joint investments in refineries outside of China.

China is also a major supplier of metals such as zinc and copper, which form other important parts when it comes to constructing renewable energy power plants. Chinese companies are major investors in copper and zinc mines in regions such as Africa and South America, and in the first months of 2022, China became a net exporter of zinc for the first time as the energy price crisis hit European producers.

Global uncertainty and the renewal of Chinese COVID-19 lockdowns impacted zinc prices in particular in the second guarter of 2022, but analysts expect a rise in demand as



US\$6.4m

S&P Global predicts that the FV sales in China will reach 6.4 million units in 2022, more than double the 2021 levels

government stimuli kick in. There is no doubt that China will remain a key player in this market too, both in terms of domestic production and overseas investment.

Even amid the economic downturn, Chinese battery mineral companies continue to invest in record numbers of overseas projects in order to secure resources required for the EV and renewable energy industries. They have also begun to set up localized production facilities to serve key markets, and to extend their cooperation with end-users in the industry to the downstream end of the minerals and metals processing value chain.

By ensuring access to upstream resources and developing integrated supply chains with co-investment by offtakers of the production of the supply chain, Chinese minerals companies have not only addressed security of supply risks and the need to address ESG expectations of customers with respect to their supply chain, they have also positioned themselves to manage their input costs across the supply chain and their exposure to material negative movements in offtake prices in the event of a global downturn.

As such, Chinese miners are well positioned for the global downturnas well as the inevitable rebound and the accelerated transition from internal combustion to EV vehicles. and to renewable energy, that will accompany it.

New energy vehicle charging, China



Opportunities in a downturn: Capital raising and getting the "right" M&A deal done

Partners Kamran Ahmad, Rebecca Campbell, David Lewis, and associates Michael Fitzpatrick and James Foo explore the dynamics, opportunities and challenges faced by participants in the mining & metals supply chain in playing both offense and defense in an economic downturn.

espite the heady profits reported by many in 2021 and the first half of 2022, all participants in the mining & metals supply chain are likely to face considerable headwinds in the coming months.

Ongoing supply chain disruption, inflation, volatile markets, increased external funding costs and falling commodity prices in response to an expected global economic slowdown will have an impact on every participant. As inflationary pressures, combined with declining prices, impact the ability of mining & metals companies to meet their capital and operating expenditure requirements, companies should seek to ensure that they are maximizing their chances of raising additional capital.

On the flip side, and perhaps counterintuitively, off the back of strong commodity prices and a sustained period of relatively modest capital expenditure and M&A, an economic downturn may present those with stronger balance sheets with opportunities to make strategic acquisitions and pursue various growth options.

Capital raising

It is never easy to raise financing for the mining & metals sector. With various funding lines now harder to access—at least in certain core mining markets—it has become all the more important to assess the key determinants for a successful financing.

Borrowers who successfully



In a downturn, fortune favors the bold, with companies that make significant acquisitions outperforming those that do not

implement and demonstrate their ESG and sustainability initiatives become more attractive to investors and financiers alike. In light of a tightening of the capital markets in a potential economic downturn, ESG will become an even more important consideration to be able to attract investors and lenders

For example, in circumstances where a project's economics may not meet the requirements of commercial bank lenders, attracting capital from a development finance institution will incur more onerous ESG requirements in order to comply with those institutions' mandate to promote sustainable development Similarly, a borrower seeking support from export credit agencies will need to comply with the export credit agencies' ESG policies. Accordingly, when a financing involves a mix of commercial banks, development finance institutions or export credit agencies, some commercial banks will rely on the ESG requirements of the development finance institutions or export credit agencies.

In recent years, a nascent area for the mining & metals sector is the ability to access sustainability-linked financings. Previously, sustainability-linked financings were seen almost as a contradiction. However, with a growing recognition of the need for mining projects to drive the energy transition and shift to net-zero carbon, lenders—especially export credit agencies and the European banks that are traditionally large lenders to the mining project finance market—are now able to access previously unavailable internal pools of capital for sustainability or energy transition-linked financing

Any assessment of a project's suitability for equity or debt capital markets financing will be assessed against the internal ESG criteria of each prospective investor, while credit approvals for a bank-financed project will typically require the project to comply with global environmental and social standards, which will also reflect the bank's own internal ESG policies.

Solar panels at sand mine, Germany



Therefore, projects that meet ESG sustainable lending criteria are more likely to attract interest from a wider range of investors and financiers. This could include projects producing clean energy or energy transition minerals such as lithium, platinum group metals or manganese, or are aimed at achieving sustainability performance targets.

Alternative financings and flexible capital structures

Given the increasingly onerous investment and lending criteria from traditional sources of funding, along with a decreasing pool of commercial bank lenders that are willing to lend to mining projects, the past decade has seen a proliferation of alternative financing providers, including stream and royalty financing.

Stream and royalty providers typically have a higher risk/reward appetite compared to commercial bank lenders, and typically become involved in a mining project at an earlier stage of development, seeking a quasi-equity return on their investment. In any economic downturn, such sources of alternativefinancingarelikelytobecome increasinglyimportant, along with adopting a capital and financing structure that enablesaccesstothesefundingsources.

When entering into any development stage stream or royalty financing, it will be particularly important for mining & metals companies arrangements that will need to be put in place alongside the stream or royalty, or in the future. A well-designed and documented



US\$3.1bn

Rio Tinto's US\$3.1-billion bid for Turquoise Hill Resources issued on on August 24. 2022

capital structure, and the associated intercreditor arrangements, should permit any required future financings or hedging with minimal, if any, re-negotiation of the existing financing arrangements.

A recent example is a privately held and unleveraged platinum group metals producer, which is undergoing a comprehensive overhaul of its debt and equity capital structure. The purpose of the overhaul is to facilitate significant upcoming mine expansions, its commercialization of its processing technology over the coming years and to bring more flexibility in case of an economic downturn. The renewed capital structure includes a proposed IPO via a dual listing on the New York and Johannesburg stock exchanges, a multisource financing involving a combination of debt and stream financing, and revised offtake arrangements that underpin the next phase of the company's development, and debt and equity capital raisings.

Getting the "right" M&A deal done

A flexible capital structure has the additional benefit of helping a company that may be looking at strategic opportunities in a possible economic downturn. Although the macroeconomic headwinds faced by the mining & metals industry have brought price volatility, economic uncertainty and cost-cutting to the forefront of miners' attention, the current climate should drive a modest rebound in M&A activity and alternative investments into the sector from the decline in volume and value in 2022 so far

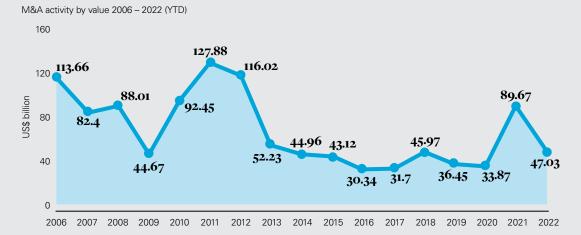
In a higher interest rate environment with higher capital and operating costs, M&A is often preferred to organic growth, as it bypasses several up-front hurdles of in or near-production assets, such as the time required to make a mine operational, delays or overruns. Miners that are cash-deficient or have large upcoming project funding requirements are the obvious targets for potential acquirers, some of which may have been able to obtain significant and cheap funding lines during the recent period of consistently high prices and soaring profitability.

With the ability to acquire being stronger now than in past downturns, given the level of accumulated cash and mix of capital available (for some), there should be increased M&A activity by well-funded, cashed-up players using their deep balance sheet to try and acquire less well-funded miners at depressed valuations.

Indeed, recent research by the Harvard Business Review shows that fortune favors the bold in a downturn, with companies who make significant acquisitions outperforming those that do not, given that a short-term economic downturn is outweighed by long-term value creation during the expansionary phase of the economic cycle. This type of long-term outlook aligns with the well-documented need to produce vast quantities of metals to meet the growing production of EV and other climate change-related objectives.

One recent example of this is

Global mining M&A activity by value



Global mining M&A activity by volume

M&A activity by volume 2006 - 2022 (YTD)



Source: White & Case M&A Explorer, Mergermarket data

BHP's non-binding offer to acquire copper and nickel player OZ Minerals. BHP promised compelling value creation and certainty for OZ Minerals shareholders in the face of a deteriorating external environment and increased operational and growth-related funding challenges for the target company. The bid price was described as "opportunistic" by OZ Minerals and was promptly rejected by its board.

The differentiating factor for M&A success is the ability to overcome deal risks, not the economic climate. Within the mining & metals sector there are two "deal killers" —price, and unknown country risk—but

companies can find ways to overcome these to get the "right" deal through.

Price gap

The way OZ Minerals rejected the BHP bid is also often seen in the private M&A arena, and it shows how parties can have differing ideas on deal price. The bid-ask spread is largely driven by their own assumptions and forecasts.

From the purchaser's perspective, the price paid should appropriately reflect the risk of achieving the production rates or realizing the estimated resources and reserves. This is particularly important when there are significant cost

pressures on the business, or historic underinvestment in capital expenditure. On the other hand, the seller wants the deal price to account for long-term value creation, including growth options on the basis that it can obtain the funding it needs to get to or ramp up production.

In public M&A takeovers, the acquirer is often required to improve consideration up-front. This recently occurred in Rio Tinto's cash bid for Turquoise Hill Resources. Rio Tinto announced the improved US\$3.1 billion proposal a week after a special committee at Turquoise Hill rejected its initial US\$2.7 billion offer, describing it as unfair to its minority shareholders.

Meanwhile Gold Fields improved

its scrip offer to Yamana Gold shareholders by increasing the promised dividend payout and proposing a Toronto Stock Exchange listing to get shareholders to accept the contentious takeover.

In private M&A scenarios, there is likely to be a continuation of the now-established practice for deferred or contingent consideration mechanics, such as earn-outs or royalties and streams, built into a deal's approach to bridge the bid-ask spread. While not new—or specific to the mining & metals sector—deferred consideration is an important tool for dealmakers to bridge valuation gaps and address uncertainty, especially against the backdrop of extreme volatility in commodity prices.

Acquirers are also increasingly employing bespoke deferred or contingent consideration mechanisms being employed, tailored for a range of factors including country risk, commodity price risk, and operating cost and inflationary risk. If structured correctly, these mechanisms can also provide the additional benefit of incentivizing management and ensuring an aligned business transition.

Faced with increasing regulation and social and political risk, mining & metals sector participants increasingly have to factor in country risk when undertaking M&A. The recent nationalization of the lithium industry in Mexico, heightening geopolitical tensions and prominence of the social license to operate, highlights the very real risk that miners face when undertaking deals. These risks can be mitigated by imposing certain deal conditions.

However, there is a tension between seeking protection from these risks while keeping the deal attractive with a shorter time frame and low conditionality.

Miners will favor M&A where they have a current geographical presence and strong relationships with the government and local community. This may afford them a competitive advantage in emerging markets where other companies may shy away from risks they are unfamiliar with, or where miners are in an unfamiliar operating environment.

The Rio Tinto bid for Turquoise Hill has the added benefit for an acquirer with a deep balance sheet of seeing it deploy more capital into a world-class



When pursuing growth, miners should consider alternatives to traditional M&A, including joint ventures, minority investments in other miners, strategic alliances, royalty financing deals and streaming or off-taking agreements

asset that it is already operating and knows well-removing some of the risks often associated with M&A.

Acquirers are also likely to take a proactive approach to M&A structuring to ensure that sustainability and social license concerns are addressed.

Alternatives to M&A

When pursuing growth, miners should consider alternatives to traditional M&A, including joint ventures, minority investments in other miners, strategic alliances, royalty financing deals and streaming or off-taking agreements.

Anglo American's recent deal with Genmin, an Australian Securities Exchange-listed iron ore exploration and development company with assets in central West Africa, is a prime example of an investment involving alternative structures. Anglo American signed a royalty arrangement with Genmin, with exclusive rights to negotiate project funding and offtake agreements. Genmin said that Anglo American was the "ideal potential partner", given its long history in Africa.

Earlier in 2022, BHP invested US\$50 million into the Kabanga Nickel project in Tanzania via a US\$40 million minority equity interest in Kabanga Nickel, as well as US\$10 million in Lifezone Limited, the owner of the hydrometallurgical technology that will be used for the Tanzanian refinery. This deal not only gives BHP access to nickel but also innovative mining services which, if successful, can potentially be employed at scale across its projects

Pursuing alternatives to traditional



BHP's investment nto the Kabanga Nickel project in Tanzania in January 2022

M&A can provide many benefits. These include reduced costs, as miners can pool complementary capabilities such as assets, technology and shared services in a way that mutually achieves inorganic growth without acquiring all of the liabilities attached with traditional M&A.

While traditional M&A takes time to deliver benefits, alliances offer a faster and more responsive way of disrupting the market through new value propositions. They can also offer better diversification, as miners can obtain exposure to an array of growth projects at an agreed cost, especially where emerging technologies or innovation projects are involved. These types of transactions also allow more junior miners to scale up with strategically important partners that would otherwise be too big to acquire.

Aside from entering into new joint ventures, companies may decide to minimize uncertainty by focusing on deals that they know or have experience with by increasing their economic interest or exposure to a known project. There are several notable examples of this, including First Quantum Minerals approving plans for a US\$1.25 billion expansion of the company's Kansanshi copper mine in Zambia and Glencore's acquisition of the remaining two-thirds of the Cerrejón coal mine in Colombia from its equal JV partners, BHP and Anglo American.

The opportunities ahead

Overall, the outlook for the mining industry remains uncertain in the second half of 2022, but opportunities remain to bolster capital structures and to pursue strategic M&A. For mining projects that can demonstrate their continued commitment to ESG, both conventional and a wider pool of capital will remain available, including from alternative finance providers.

For these companies, it will be imperative to carefully design a capital structure with future funding requirements in mind. In addition, in any economic downturn, the prospect of long-term value creation from strategic acquisitions or alternative investments during this period of uncertainty will ultimately lead to greater returns for companies.

Liability management opportunities for mining & metals companies during a downturn

Andrew Weisberg, Jonathan Michels, James Greene, Karen Katri and Abigail Simon explore how mining & metals companies can take advantage of low prices in the leveraged finance markets to manage their liabilities amid the expected recession.

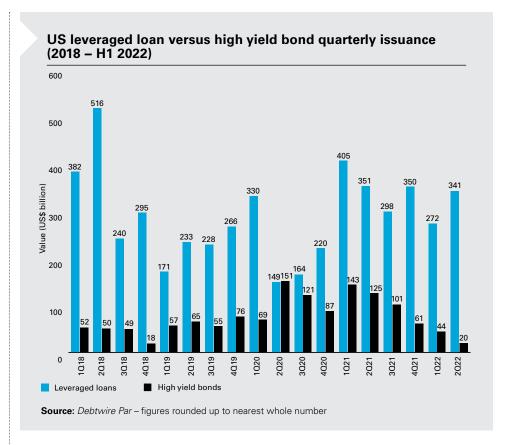
nflation and interest rates are on the up and activity in the leveraged finance markets is down in 2022, causing challenges for investors. At the same time, this economic environment creates opportunities for the mining & metals sector to manage liabilities and refinance debt.

After record levels of activity last year, leveraged finance markets slowed in the first half of 2022 as lenders and borrowers contended with rising interest rates, inflation, and other macro-economic and geopolitical headwinds.

During the first half of 2022, new leveraged loan and institutional loan issuance dropped by one-fifth and two-thirds, respectively, year-on-year. New issuance activity in the high yield bond markets in the first half of 2022 dropped to levels not seen since the start of the Covid-19 pandemic, falling by more than three-quarters year-on-year. During the second half of the year and into 2023, volatility is likely to continue weighing on the market.

In response, cautious investors have pulled back from leveraged loans and high vield bonds in favor of safe haven assets like US Treasuries, which are providing higher yields as interest rates rise. Stubbornly high inflation and rising interest rates contributed to this abundance of caution.

In March 2022, the US Federal Reserve approved its first interest rate increase in more than





The current economic environment creates opportunities for the mining & metals sector to manage liabilities and refinance debt

three years, followed by four more rate hikes over the course of 2022 to date. All told, the Fed has increased its benchmark interest rate by a total of 3.00 percentage points as of September 2022.

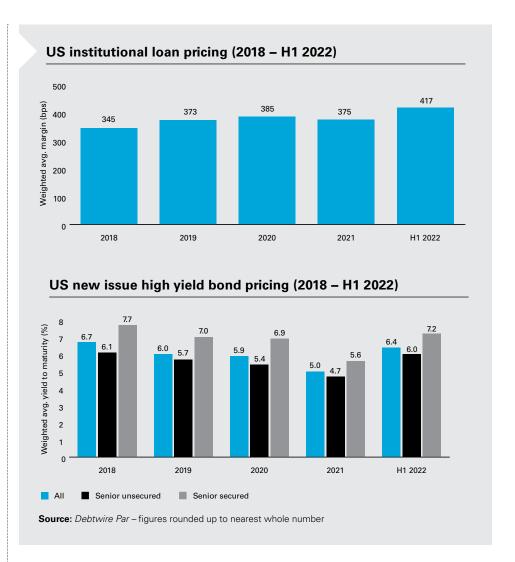
In addition, at the beginning of May, the Fed announced plans to reduce its bond holdings by US\$95 billion a month. More hikes are expected later in 2022 and in 2023, with liquidity also expected to tighten as the Fed reduces its US\$9 trillion balance sheet.

These profound changes in the market have prompted many US borrowers to reassess their capital requirements as well as their financing strategies. In this higher price environment, several borrowers have deferred planned issuances to the second half of 2022 or even 2023. With transaction volumes down, pricing has proven choppy, with little visibility on where the market will settle as prices move from week to week.

Refinancing and repricing activity has also slowed in 2022, which was expected after the high volume of opportunistic activity observed in the first half of 2021. Leveraged loan issuance for refinancings, repricing and amendments is down almost 30 percent year-on-year in 2022. High yield bond issuance for refinancings, meanwhile, dropped by more than 80 percent in the same period. In fact, the second quarter of 2022 was the quietest quarter for high yield bond issuance for these purposes on record, according to data provider Debtwire Par.

In the first half of 2022, investors favored secondary markets, where the drop in prices for existing credits offered attractive valuations, over refinancings. According to Debtwire Par, weighted average bids in the secondary loan market shifted from 97.72 percent of par in January to 91.48 percent of par by the end of June.

Meanwhile, the average prices for US high yield bonds trading in the secondary market have gone from a high of 3 percent above par in January down to 85.58 percent of par in June. This represents the biggest shift in pricing since the most uncertain period of the pandemic in May 2020.



One reason that the secondary high yield bond market is seeing steeper pricing discounts as compared to the secondary loan market is that loans carry floating interest rates. On the other hand, high yield bonds are more directly impacted by interest rate hikes since they are fixed-rate instruments.

For loan and bond issuers, the fallout of lower pricing in secondary markets has meant higher pricing for new primary issuances.

Liability management opportunities

In this challenging landscape, mining & metals companies seeking to relieve the pressure of their debt stack or opportunistically reduce outstanding debt may be able to carry out liability management transactions that take advantage of the depressed trading prices in the secondary bond and loan markets.



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The typical liability management goals include extending maturity runway, modifying covenants, reducing debt service, and capturing trading discounts or equitization. Liability management transactions can range from simple discounted debt repurchases and amendments designed to obtain covenant relief to more complex transactions.

These include "amend-andextend" transactions, which involve the execution of an amendment to extend the maturity of existing debt using a variety of "carrots" and "sticks" to incentivize creditors to participate in the transaction and reduce the risk of holdouts. Carrots can include improved rates, enhanced covenants, debt pay-down at par, and greater collateral coverage; sticks can include exit consents provided by participating creditors to subordinate liens and strip covenants.

It is also possible to carry out "uptiering" exchanges, where existing debt is exchanged into new debt with an improved position in the capital structure, either by granting collateral or improving the participating creditors' position with respect to existing collateral.

"Drop-down" financings or exchanges are another option, where assets can be transferred outside of the group subject to the terms of the existing debt, and then used as negotiating leverage or collateral for a new financing, or as collateral for new debt offered in exchange for existing debt.

It is also possible to carry out "super-priority" exchanges, where existing debt can be exchanged into new debt with an improved position in the capital structure through the subordination of liens securing the existing debt.

Some companies have already taken advantage of the opportunities available in this volatile market, and carried out complex liability management exercises. Every liability management transaction is highly bespoke and the ultimate transaction structure will depend on the company's objectives, its capital structure restrictions under its debt documents, litigation appetite, and its creditor composition, among other factors.

Future opportunities

With volatile pricing and high interest rates set to continue for the foreseeable future, there should be plenty of time for mining & metals companies looking to manage their liabilities to do so.

The fact that organizations in other sectors have successfully carried out complex debt management transactions suggests that the opportunity to do so is very much present right now, but the window may not last forever. If the markets settle down and interest rates stabilize or fall, the chances for such transactions will be lessened.

As the TPC and Incora cases show, carrying out a liability management exercise is not without risks of some investors deciding to challenge the transaction - but the advantages gained from a successful recapitalization could be beneficial for years to come.

INCORA UPTIER EXCHANGE

Wesco Aircraft Holdings Inc., an aircraft parts distributor that does business as Incora, completed a comprehensive recapitalization in March 2022 with the support of a majority of its existing noteholders.

Although definitive documentation for the new debt is not publicly available, the non-pro-rata uptiering exchange reportedly included the issuance of US\$250 million of new 10.5% super senior secured notes due 2026, an exchange of unsecured notes due 2027 for US\$473 million of new secured notes due 2027, and an exchange of US\$450 million of 8.5% secured notes due 2024 for new secured notes due in 2026 and 2027.

According to reports, Incora incentivized a majority of its existing noteholders to provide the new money financing by allowing them to uptier the minority holders in the ranking hierarchy. This was reportedly accomplished by stripping the collateral securing the existing secured notes, and then re-pledging those same assets to secure the new notes.

As a result of this transaction, Incora was able to extend its debt maturity runway, obtain new capital, and significantly reduce its cash interest payments over the next five years because some of the new notes reportedly allow for PIK interest payments.

TPC PRIMING TRANSACTION

TPC Group Inc., a petrochemical company, completed a transaction in February 2021 with the holders of approximately 67 percent of its existing 10.5 % secured notes due 2024. TPC issued US\$153 million of new 10.875% secured notes due 2024 to the supporting holders, and used a portion of the proceeds to prepay in full its US\$70 million term loan due in 2021.

At the same time, TPC also amended its indenture to cause the existing notes to be bound by a new intercreditor agreement, under which the liens securing the existing notes were subordinated to the liens securing the new notes.

As a result of this transaction, TPC was able to address its near-term debt maturity needs and access much-needed incremental additional capital.

It is worth noting that, after TPC filed for chapter 11 protection in June 2022, some holders of the existing notes who did not participate in the 2021 transaction challenged its validity in court. The minority holders claimed that the indenture amendment - and the resulting subordination of the liens securing the existing notes - required the consent of 100 percent of holders.

In July 2022, the Delaware bankruptcy court issued an opinion ruling in favor of TPC. The court found that the amendment provision requiring the consent of each adversely affected holder in order to amend provisions dealing with the application of proceeds of collateral could not be read as an anti-lien subordination clause

The court also ruled that because the indenture required a two-thirds majority vote to release all or substantially all of the liens securing the existing notes, the subordination of these liens - which the court viewed as less drastic - should not require a higher consent threshold in the absence of express language to the contrary.

PETRA DIAMONDS TENDER OFFER

Petra Diamonds, a leading independent diamond mining group and a supplier of gem-quality rough diamonds to the international market and listed on the main market of the London Stock Exchange, completed a comprehensive recapitalization in March 2021 following a transaction with its noteholders, completed via a UK scheme of arrangement, and a refinancing with its lenders. The transaction involved a partial reinstatement of the notes debt and the noteholders holding 91 percent of the enlarged share capital of Petra Diamonds.

Following the transaction, Petra Diamonds traded successfully, with preliminary results announced on September 13, 2022 for the financial year ended June 30, 2022, showing a 44 percent increase in revenue compared to the prior year and a strengthened balance sheet. This helped reduce Petra Diamond's net leverage to 0.15x.

Taking advantage of its strong cash position, in September 2022, Petra Diamonds launched a tender offer via a modified Dutch auction procedure with a cap of US\$150 million and a price range of US\$970 to US\$1,010 per US\$1,000 worth of notes. If completed, the transaction will see Petra saving up to US\$15 million per annum in interest expenses. The tender prices on offer were below the existing call price of the notes.

Alongside this announcement, Petra Diamonds also announced a new dividend policy within the range of 15 percent to 35 percent of adjusted free cash flows after interest and tax, and having adjusted for any windfall earnings. Petra Diamonds also commented that they expected to continue to fund ongoing capital programs from existing and internally generated cash resources.

This tender offer opportunity would allow Petra Diamonds to retire certain debt early (avoiding certain increases via payment-in-kind interest) and to reduce overall interest expenses on its corporate debt structure.



How to navigate the increase in financial crime risks during a downturn

Financial crime flourishes in a downturn, and the mining & metals sector is not immune to it. The sector faces a number of industry-specific risks, and will need to react to the ensuing likely surge in enforcement activity. Partner **Anneka Randhawa** and associates **Lucy Rogers** and **Margot Davies** explore how the sector can navigate these risks.

Inancial crime is an increasing challenge for businesses across all sectors, but with a looming recession, occurrences of corruption, bribery and fraud are likely to rise.

Anticorruption watchdog
Transparency International has
warned "corruption often thrives
in times of crisis, particularly
when institutions and oversight
are weak, and public trust is low."
Meanwhile the UK's National
Crime Agency said in July 2020:
"The business of corruption, it
appears, is recession-proof," adding:
"As the global economy faces
economic strife, further criminal
activity is likely to be seen."

A possible reason for this is because when businesses are dealing with increased financial pressures affecting profit margins and possibly ongoing viability, there are greater incentives—and in some cases active pressure—to engage in misconduct.

There may be increased temptation for individual employees to engage in improper conduct to meet certain targets, falsify reporting or market disclosures, or even exploit government subsidies or grants. Employees may also be more vulnerable to fraudulent schemes themselves

The mining & metals sector is not immune to these risks, and faces a number of risks specific to the industry, should the expected downturn indeed give rise to increased financial crime.

Sector-specific risks

The mining & metals sector is already perceived as high-risk from a bribery and corruption perspective. It operates through highly complex supply chains, involving multiple third parties, across several often high-risk jurisdictions. Indeed, Transparency International's latest Corruption Perceptions Index indicates that many producer countries are perceived to present considerable bribery and corruption risks for investors.

The sector relies heavily on close interactions with government officials, who hold a pivotal role throughout the entire life cycle of projects, and who approve the foreign direct investments that are critical to the industry. Managing these relationships is challenging at the best of times, and a global financial crisis is likely to exacerbate these difficulties.

For example, there could be increased pressure to make facilitation or "grease" payments to officials in certain parts of the world. Government officials may themselves experience increasing financial hardship and could therefore double down on requests for these types of payments which, until now, businesses have been making real progress in stamping out. Governments will likely suffer as a result of the global recession, and corporates may face increasing pressure to take this into account, which could present significant bribery and corruption risks.



"The business of corruption, it appears, is recession-proof... As the global economy faces economic strife, further criminal activity is likely to be seen."

UK's National Crime Agency, July 2020

All these risks are increased by the involvement of third parties in mining & metals projects, including agents and consultants liaising with governments on behalf of companies. The engagement of third parties throughout the entire supply chain exposes businesses to further bribery and corruption risks, for a number of reasons.

Complex supply chains already provide multiple friction points for wrongdoing, and increased competition and pressure to meet commercial objectives may incentivize bad behavior. Third parties may also face financial strain both professionally and personally, potentially making them more inclined to bend the rules in order to meet targets or secure certain contracts. Employees and other third parties will be under greater pressure to perform, which may in turn cause them to take greater risks.

Coal mining at sunrise with wind park in the background,



At the same time, resources may be stretched and compliance functions not given sufficient attention, making it easier for misconduct to occur. As prices increase and costs begin to spiral, further pressure will be placed on profit margins, and compliance teams may suffer cutbacks. Certain key procedures such as due diligence carried out on third parties may therefore be neglected as a result.

Money may become harder to raise, further increasing the pressure already faced by the sector to secure sufficient investment. Mining & metals companies will be focused on securing investment, not just to survive the global recession, but also due to the climate crisis and the industry's pivotal role in the decarbonization of the global economy.

Increased enforcement action

As well as leading to greater levels of financial crime being committed, recessions also tend to reveal ongoing crime that may have remained undetected during periods of growth. Volatile markets, commodity prices crashing, and disputes between parties brought about by financial distress create an environment in which ongoing fraud and other criminal behavior that was able to continue undisrupted during times of economic growth will finally come to light.

Enforcement agencies will also face pressure to be seen to be tackling the rise in financial crime. During periods of economic growth and prosperity prior to a recession, regulatory oversight may be more relaxed, but regulatory complacency allows harmful practices to flourish undetected.

Following the 2008 financial crisis, a swathe of white-collar crime was revealed, including market and benchmark manipulation, fraud and money laundering. There was an increase in prosecutions and calls for tighter regulation.

This wave of enforcement action continued for almost a decade, and companies accused of misconduct during turbulent economic times received greater public and media scrutiny, placing further pressure on enforcement agencies to investigate and prosecute any wrongdoing.



US\$42bn

Respondents to PwC's Global Economic Crime and Fraud Survey 2022 reported global total losses of US\$42 billion, on top of the damage to brand, reputation and market share

Reinforcing compliance frameworks

Amid the increased risk of financial crime and regulatory scrutiny, a downturn can also give businesses an opportunity to re-evaluate their compliance frameworks, and ensure they are fit for the turbulent times ahead. Anticipation and prevention will be key to weathering the storm, and there are a number of ways in which companies can proactively enhance their compliance functions in order to better protect themselves.

Conducting regular risk assessments is a good starting point. They will help identify the risks faced by the business, and how these can be addressed.

The uncertainty of an economic downturn will mean that these risks may be in flux and change



Fraud and other criminal behavior that was able to continue undisrupted during times of economic growth will finally come to light

over time. Any changes to the company's risk profile will need to be regularly communicated to the board, so that the organization's commercial and legal objectives remain aligned. Staying on top of any changes to the organization's risk profile will also mean that policies and procedures can be adapted as necessary, as and when new risks emerge.

Despite potential pressures on legal and compliance teams to cut costs and resources, maintaining a well-staffed compliance function should still be prioritized. Businesses will need to consider how best to allocate resources while ensuring that an adequate framework remains in place to monitor, review and enforce compliance across their entire operation.

Mining & metals sector participants will need to remain vigilant when engaging third parties or procuring services, and follow the necessary policies and internal processes. Some of these may need to be adapted for the economic climate.

For example, adequate due diligence must be carried out before entering into agreements with third parties to ensure that the organization does not increase its exposure to bribery and corruption by working with high-risk or disreputable service providers.

Particular attention will need to be paid to whether prospective third parties may be experiencing, or are likely to experience, financial distress, and whether this might incentivize them to engage in improper conduct in the business's name or in any way that might involve the business.

Contractual protections in agreements with third parties would provide an additional layer of protection. These could include audit rights, signing a certificate of compliance, or a requirement to comply with the organization's policies and procedures.

Once a relationship is established, all invoices and payments will still need to be closely scrutinized, and all interactions with third parties acting on behalf of the organization must be closely monitored.

Where local operations are applying for grants or subsidies, as well as bidding for public contracts, sufficient oversight of any interactions with government officials will be crucial, and compliance

Six steps to building a successful financial crime prevention program

How to deter and defend against financial crime in an economic crisis

Put in place a dedicated and adequately resourced compliance team

Have regular business risk assessments, and adapt your policies and procedures accordingly

Provide relevant training and clearly communicate policies to all employees and third parties

Carry out appropriate due diligence and scrutinize transactions when engaging third parties

Put in place controls for monitoring your interactions with government officials

Foster a strong culture of compliance at all levels of the organization

Source: White & Case

teams must ensure that the proper procedures for entering into these agreements are followed.

It is vital that all rules and internal procedures dealing with interactions and relationships with government bodies are clear and regularly communicated to all employees and any third parties who might act as intermediaries, so that they fully understand who to seek advice from if they come under pressure to engage in any conduct that might create liability for the business.

As well as clearly communicating policies and procedures, the importance of regular, relevant and engaging training for employees and third parties must not be underestimated. In particular, tailored sessions should be provided to those individuals whose roles expose them to greater risks of bribery and corruption, so they are better equipped to deal with risky situations as and when they arise.

Above all, businesses in the sector must take this opportunity to reinforce their compliance culture. The tone from the top must be clear—as well as pushing

for growth, it must unequivocally convey that compliance remains a priority, and that any misconduct cannot be tolerated.

Despite the financial difficulties and hurdles a global downturn presents, the business's duty to act ethically should not be compromised. While mining & metals sector participants focus on reaching their commercial objectives and remaining financially viable, the importance of communicating values and how to conduct business compliantly should not be forgotten.



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