

Global Mining Finance Guide 2014


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A large, semi-transparent globe is centered in the background. Inside the globe, a detailed cityscape is visible, featuring various skyscrapers and urban buildings. The globe is set against a light blue sky background.

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Published and distributed by:
Aspermont Media, 4th Floor, 120 Old Broad Street
London, EC2N 1AR, United Kingdom
Tel: +44 (0)20 7216 6060 • Fax: + 44 (0)20 7216 6050

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ISBN: 978-0-9546893-9-1

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Printed and bound by: Stephens & George, Merthyr Tydfil, UK



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Survival of the fittest

An introduction by Sam Jordan Jones

Stanley Bing, a renowned American-business columnist and humorist once wrote: "Business people are like sharks, not just because we're grey and slightly oily...but because we must move forward or die."

This phrase, while far from flattering for the managing directors and chief executives of the world, could not resonate more deeply than with those heading the countless exploration and mining companies around the globe.

While the mining industry probably has its fair share of grey, or perhaps at times 'hi-vis fluorescent', and slightly oily executives, what is more relevant is Bing's reference to, 'move forward or die'.

Whether a start-up business looking to list; a hapless explorer completing its final drill programme; a company that has been fortunate enough to strike it lucky and turning towards development; or a producer with a depleting ore body, it is critical for a company to move forward or face certain extinction.

To do so, a company needs to be adequately financed, particularly in an industry as capital-intensive as mining – few people would argue otherwise.

However, the various funding options available and their complex nature can become perplexing; particularly for the executives or management teams that may be experiencing the process for the first time.

The *Global Mining Finance Guide* has brought together several of the mining industry's leading professionals – from some of the most respected companies to service the sector – to share their unique insights and explain the intricacies behind mining finance.

Throughout the publication, the contributors, with a mix of legal, financial, engineering and geological backgrounds, will outline the various funding options available to companies, from explorers to producers, and explain the technical requirements associated with these financings.

The contributors include:

- BMO Capital Markets' managing director and head of investment and corporate banking for Europe and London, Jeffrey Couch;



Sam Jordan Jones

"The various funding options available and their complex nature can become perplexing; particularly for the executives or management teams that may be experiencing the process for the first time"

We dig deeper

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*Global Finance, 2010-2013

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- EY's lead partner for global mining and metals and transaction advisory services, Lee Downham;
- Mayer Brown partner Ian Coles; and
- SRK Consulting's practice leader and corporate consultant, Neal Rigby.

To identify the funding options pertinent to each individual business, the *Global Mining Finance Guide* has been split into four chapters – exploration, development, construction and production – reflecting the varying capacities of a minerals company.

In these chapters, the contributors will outline the traditional debt and equity financing options available, from public listings to commercial loans, as well as discuss emerging and alternative funding routes; and use their industry expertise to explain the benefits and pitfalls of these and provide recent examples where applicable.

A fifth chapter – technical – will also address the requirements and considerations of a company looking to secure finance.

From the varying mineral resource and ore reserve reporting standards to technical study standards; it will also outline asset valuation procedures, the criteria applied by lenders when considering funding applications and the environmental and social management requirements.

Following on from the Risk and Insurance Guide, the *Global Mining Finance Guide* is the second offering in the Leaders series – a course of thought leadership publications to be developed in conjunction with *Mining Journal*.

As part of the *Global Mining Finance Guide*, I also chaired a round table, attended and panelled by the contributors, at *Mining Journal's* London office.

The 90-minute session was a rare chance to bring together these four mining industry professionals to discuss the current financing issues for companies operating within the sector.

A transcript from the round table has been included in the pages of the *Global Mining Finance Guide* and provides some rare perspective on the state of the mining industry.

One of the most notable themes to come out of the round table was that, while capital has become scarcer for explorers, developers and small producers, finance is still available for the right projects.

The panellists reiterated that the top priority for lenders,

“The 90-minute round table session was a rare chance to bring together these four mining industry professionals to discuss the current financing issues for companies operating within the sector”

when considering whether to fund a company, was the necessity for a management team with a proven track record of developing mines and delivering on their promises. This was aside from looking for a good-quality project – which should go without saying.

The varying roles of commercial banks, multilateral lenders, strategic partners, sovereign wealth funds and governments were also examined with an emphasis on how these institutions are changing in the current financial environment and what minerals companies can do to improve relations with these entities.

From explorers to producers, the *Global Mining Finance Guide* is a valuable resource to help companies better understand, identify and obtain appropriate financing and the associated technical requirements of these funding options.

The publication will prove to be a useful tool for a company to move forward and to avoid the alternative – as noted in Bing's reference to the shark. Because nobody wants to go backwards.

Sam Jordan Jones
November 2013

“The top priority for lenders, when considering whether to fund a company, was the necessity for a management team with a proven track record of developing mines and delivering on their promises”

The searchers

EY

Introduction

As a growing number of the great mineral basins are developed, exploration activities are increasingly driven to frontier and remote geographies, which typically result in more expensive exploration programmes.

With the prospect of cash flows being a long way off, exploration companies are entirely reliant on raising adequate finance to complete activities to discovery. And in the current environment, where investors are concerned about the level of new supply coming to market and have a smaller appetite for risk, there is less capital available to finance such programmes.

Geological expertise is key and those with a successful track record will find it easier to gain investor confidence. However, even those promising to repeat past performance and offer the highest returns are struggling to raise capital and consequently, we have witnessed a contraction of early stage investors.

8

Current market

Historically, exploration activities have been financed by the public equity markets. However, over the past 18 months, capital in its traditional form has all but dried up.

Only 17 initial public offerings (IPOs) occurred in the sector globally during the nine months to September 30, 2013, raising just US\$626 million. Over the same period, equity proceeds raised from follow-on equity issues by juniors have nearly halved year on year, to just US\$4 billion¹.

Issuance of equity is becoming increasingly more challenging and often dilutive

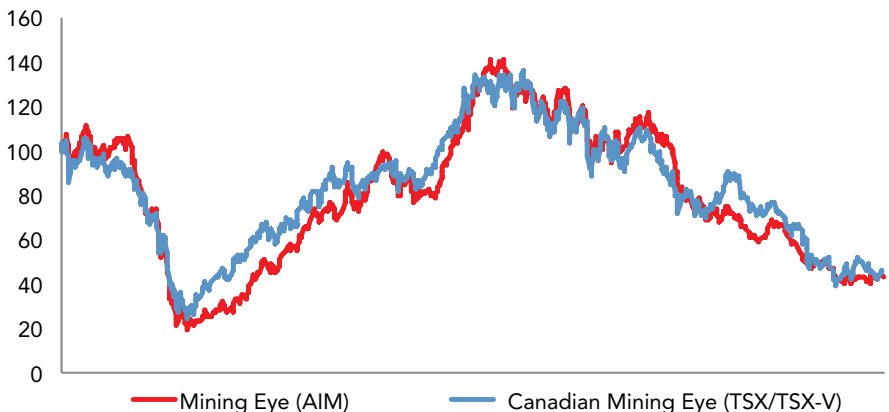


Chart shows performance of stocks in EY's Mining Eye and Canadian Mining Eye (rebased) since 2008 Source: EY, Thomson Datastream

to existing shareholders not prepared to follow pre-emptive rights. The pull back from providers of risk capital has created a capital wilderness for this group of companies.

The selloff over the past two years has been severe as shown by EY's Mining Eye and Canadian Mining Eye indices, which track the performance of junior mining stocks on London's secondary stock exchange, AIM and Canada's Toronto Stock Exchange (TSX) and TSX Venture Exchange (TSX-V), respectively. With share prices depressed, and investors looking to protect investment positions, it is little surprise that new equity is not being attracted into the sector.

While the current capital raising environment is challenging for those at the exploration stage of the mining life cycle, there are signs of hope. Clearly, given the absence of cash flow and without a securable asset, the most appropriate method of funding pure exploration activity continues to be through equity. Historically, this equity has been raised through public markets, but for reasons described above, exploration companies are increasingly broadening their search and seeking alternative equity sources. As many of these sources can be onerous, management need to be comfortable with the terms but also realistic. Securing small scale financing and building out is often the best option at this stage; effective legal, technical and financial due diligence is key.

Standby equity distribution agreements

Standby equity distribution agreements (SEDAs), also known as equity line and equity-linked agreements², are facilities which provide minerals companies with an option to issue shares to a provider over a certain time period. This gives companies assurance of a future buyer of shares and the flexibility to choose the timing of the issuance. Such facilities have gained some prominence as a source of finance given the challenging equity markets, although they are still relatively uncommon. This may be because, despite being a potential lifeline, such equity can be dilutive to existing shareholders particularly where a stock has limited liquidity.

Private capital providers

There are an increasingly large pool of family offices, private equity providers and venture capitalists, which are often led by individuals with a background in the exploration sector. These equity providers typically provide early-stage seed money often linked to certain conditions and achievement of project milestones.

This group of investors is diverse and given the private nature of their investments, access to them can be difficult. Gaining access through brokers, merger and acquisition (M&A) advisers and professional services firms is often the best way of tapping into these types of investors.

Recommendations

SEDAs have been heavily criticised in the past for having an adverse impact on a company's liquidity and share price. Companies can, in part, address this by

insisting that there are sufficient covenants written into the facility, which prevent short selling among other things. Seeking legal advice is key.

At current market prices, equity investment can be dilutive. However, it does enable companies to advance exploration programmes in stages, reducing risk and improving valuation metrics as the discovery prospects improve. This not only opens a wider pool of investors but enables those investing earlier to see capital appreciation and increases the chance of follow-on investment.

Mayer Brown

Introduction

The raising of finance at the exploration stage of a mining project will invariably involve equity. Debt financing will usually not be available until such time as a project has been proved to be bankable. This will require extensive drilling and other exploration activity, which is traditionally an equity risk. We consider below some of the alternative global platforms for the raising of equity in the public markets.

Equity

Mining companies have numerous equity platforms available to choose from such as the London Stock Exchange (LSE), Toronto Stock Exchange (TSX) or Australian Securities Exchange (ASX). Mining companies situated in developing countries will often list in a country other than the host country because (i) there is likely to be wider access to investors, and (ii) there may not be a viable stock market in their host country.

• Canada:

The Canadian TSX and TSX Venture Exchange (TSX-V) have a reputation as the leading global mining exchanges. The TSX-V is suitable for early-stage mining companies which are looking to raise smaller amounts of capital to finance ongoing exploration. Certain disclosure is required, including audited financial statements and some (minimum) exploration work must have been undertaken. The TSX-V enables multiple financing rounds and provides a logical progression to a TSX listing. TSX is the main market for senior equities and is better suited to producing mining companies wishing to raise greater capital (see production chapter).

• Australia:

Listed mining companies make up about one-third of all ASX-listed companies. The Joint Ore Reserves Committee (JORC) code, also known as the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, is a code of practice that sets minimum standards for public reporting of minerals exploration results, resources and ore reserves, which is recognised internationally and has become a blueprint for similar initiatives worldwide. JORC and the Canadian

equivalent, NI 43-101, use the same resource and reserve categories (proven, probable, measured, indicated and inferred) and are in most cases interchangeable. Equity can be raised via an initial public offering (IPO) (and subsequent offerings) on the ASX. Raising capital (and trading) on the ASX is governed by the ASX listing rules. In the case of mining exploration and mining extraction companies, ASX listing rules require quarterly reports on various production, development and exploration activities in compliance with the JORC code.

• **United Kingdom:**

The LSE is home to some of the world's largest mining companies. There were 37 mining companies admitted to trading on the LSE's Main Market as at August 31, 2013, with a combined market capitalisation of more than £206 billion. AIM, the LSE's growth market (for smaller and growing companies), had a further 141 mining companies admitted to trading as at August 31, 2013, with a combined market capitalisation of approximately £4.9 billion³.

Under the United Kingdom (UK) listing regime, depending on whether a company is seeking to have its shares admitted to a regulated market governed by the EU Prospectus Directive, such as the Main Market, or to AIM, which has a more flexible regulatory structure, different admission criteria and listing rules will apply. We will discuss each of these in turn, though the below is not intended to be a definitive overview of the requirements for listing on these markets.

Main Market

Initially, a company must apply to the UK Listing Authority (UKLA), a division of the UK's Financial Conduct Authority, to join the Official List. For the purposes of the Listing Rules, a mineral company is a company with 'material mineral projects'.

• **Standard and premium listings**

A company must satisfy the admission requirements, which are divided into standard and premium listings.

A standard listing is one that satisfies the minimum requirements set out by the EU Prospectus Directive. These include that the company is duly incorporated, and that securities are free from transfer restrictions. The expected market capitalisation of the securities must be at least £700,000 in the case of shares and £200,000 in the case of debt securities⁴.

Premium listings must meet more stringent criteria, which provide additional protection for investors. In addition to the requirements for a standard listing, a company seeking a premium listing will need to confirm that it has sufficient working capital available to meet the requirements of the business for the next 12 months. Among other criteria, at least 25% of the class of the company's

"There were 37 mining companies admitted to trading on the LSE's Main Market as at August 31"

shares to be listed must be in the hands of the public in one or more countries within the European Economic Area (EEA) at the time of admission. Mineral companies are exempt from the premium-listing requirement to have at least 75% of the business supported by a historic revenue earning record.

- *Specific eligibility requirements for mineral companies*

If a mineral company seeking admission to the Official List does not hold a controlling interest in a majority by value of the assets in which it has invested, the company must be able to demonstrate to the UKLA that it has a reasonable spread of direct interests in mineral resources and has rights to participate actively in their extraction, whether by voting or through other rights that give it influence in decisions over the timing and method of extraction of those resources.

- *Prospectus*

A company seeking admission to the Official List or making a public offer of securities in the UK must, in addition to complying with the above admission requirements, publish a prospectus setting out sufficient information to enable investors to make an informed assessment of the assets and liabilities, financial position, profits and losses and prospects of the company. A prospectus must not be published until it has been approved by the UKLA.

- *Specific content prospectus requirements for mineral companies*

Requirements include (but are not limited to) the provision of:

- > details of mineral resources and, where applicable, reserves and exploration results and prospects;
- > anticipated mine life and exploration potential or similar duration of commercial activity in extracting reserves;
- > an indication of the duration and main terms of any licences or concessions, and legal, economic and environmental conditions for exploring and developing those licences or concessions;
- > indications of the current and anticipated progress of mineral exploration or extraction, or both, and processing, including a discussion of the accessibility of the deposit; and
- > an explanation of exceptional factors that have influenced the foregoing items.

AIM

Due to its status as an 'exchange regulated market' for the purposes of the EU Prospectus Directive, AIM is governed by a more flexible regulatory regime than the Main Market.

- *Appointment of nominated advisor (Nomad)*

A company seeking admission to AIM must appoint a corporate finance adviser approved by the LSE to act as a Nomad.

- **Admission requirements**

Unlike the Official List, there are generally no minimum market capitalisation requirements for a company seeking admission to AIM. However, investment companies must raise a minimum of £3 million in cash through an equity fundraising to be eligible for admission. There are also no minimum requirements as to the applicant company's trading history or the number of shares in public hands, however the shares must be freely transferable and eligible for electronic settlement.

"Companies already listed on certain overseas exchanges may qualify for AIM's fast-track admission process"

- **Fast-track admission to AIM**

Companies that are already listed on certain overseas exchanges may qualify for AIM's fast-track admission process, in which case the company will not be required to produce an admission document.

- **Admission document**

There is a general requirement to disclose any information that the company reasonably considers necessary to enable investors to form a full understanding of the assets and liabilities, financial position, profits and losses, prospects of the applicant and its securities for which admission is being sought (amongst other things). Due to the less onerous disclosure requirements, and as the admission document is reviewed and approved by the company's Nomad rather than the UKLA, the process and timetable for admission to AIM can often be shorter and more flexible than the process for admission to the Official List.

- **Prospectus**

The admission document may need to be approved as a prospectus where a company seeking admission to AIM is also making an offer of its securities to the public in the UK (unless the company can avail itself of an exemption).

- **Specific content requirements for mineral companies**

In addition to the general requirements set out in the AIM Rules, a mining company must also comply with the AIM Guidance Note for Mining, Oil and Gas Companies (Guidance Note). The Guidance Note states that Nomads are expected to conduct full due diligence on mining companies seeking admission to AIM, including carrying out site visits and personal inspections of the physical assets where practical. A formal legal opinion from an appropriate legal adviser is also required on the incorporation status of the company and any relevant subsidiaries, as well as the company's title to its assets and the validity of any licences.

There are various other requirements to be complied with as well as tax considerations to be borne in mind, but we will not go into further detail on these here.

BMO Capital Markets

Introduction

It has been a difficult year for miners. Metals prices are down significantly, equity values remain under pressure and shareholders have grown increasingly vocal in their demands for fiscal restraint.

At the same time, the ability to raise funding through traditional means has diminished considerably amid subdued investor sentiment and views that funda-

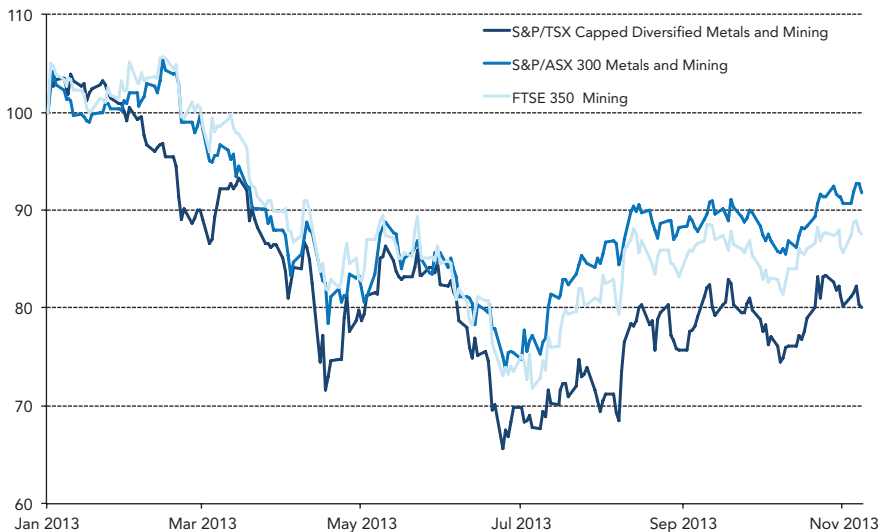
mental changes are required in order to bring industry returns to acceptable levels. These are issues that impact miners of all sizes, including senior producers and the global diversified companies.

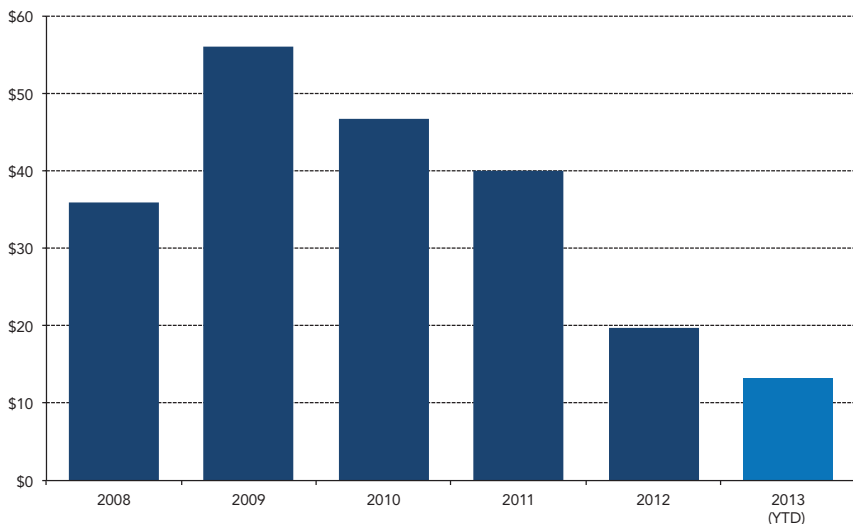
Even owners of the most promising assets are being forced to source funds more creatively. Alternatives like royalty deals, offtake agreements, strategic partnerships and earn-ins that were less popular during the boom-times are becoming increasingly important for miners of all stages.

"Growth at the expense of shareholder returns has led to lower investor confidence and a reduced appetite for mining equities," BMO Capital Markets' Co-Head of Mining Research, Tony Robson, said.

"With access to debt limited in many cases due

"Even owners of the most promising assets are being forced to source funds more creatively... Alternatives like royalty deals, offtake agreements, strategic partnerships and earn-ins"





Global mining equity issuance (US\$ billion) Source: Dealogic

to stretched balance sheets, increasingly, companies appear to be looking towards alternative forms of financing, which is likely to continue until confidence is regained.”

Difficult equity markets are having an impact on exploration companies that traditionally rely on small public offerings and private placements to fund drilling programmes. Currently, institutional investors are less willing to invest in early-stage explorers, which are themselves hesitant to issue new shares at present valuation levels. This has severely impacted the cash positions of most juniors and caused many to slow or cancel their exploration programmes.

On the other hand, falling metals prices and rising costs have impacted the exploration budgets of most producers. In order to rein in spending, many have decided to limit drilling to brownfield deposits or the ground near existing infrastructure. Spending on greenfield exploration, especially in non-core jurisdictions, has been cut back significantly.

“Difficult equity markets are having an impact on exploration companies that traditionally rely on small public offerings and private placements to fund drilling programmes”

Earn-in agreements

The combination of juniors experiencing funding shortages and the reluctance of producers to invest in early-stage exploration has increased the opportunity for

Earn-in agreement example



*Trenching in
Menghi
Prospect,
West Ethiopia
Photo: Aurigin
Resources*

Aurigin Resources' earn-in agreement with Gold Fields Ltd in January 2013 is another prime example of the financing challenges exploration companies face today. Aurigin, a private junior focused on gold exploration in Ethiopia and Tanzania, agreed to allow Gold Fields to earn 70-75% interests in two of its projects in Ethiopia by incurring a total of US\$21.2 million over several stages. In addition, Gold Fields agreed to participate in any future public offering involving Aurigin and received the right to maintain its ownership interest in subsequent financings. Since the agreement was announced, Aurigin has made several attempts to go public but today still remains private. Due to ongoing support from Gold Fields, Aurigin has been able to advance its planned exploration programme even in an environment where access to public markets is limited.

collaboration. Exploration firms are now frequently turning to larger peers for funding alternatives through strategic alliances. A common funding option is an earn-in agreement, whereby the new partner commits to incur a minimum fixed expenditure over an agreed time period – often with the right to spend further at its own election or the obligation to incur further outlay if certain targets are achieved – in order to earn a pre-determined share of ownership.

Earn-in agreements which feature staged entry allow the partner to reduce the upfront commitment to entirely green-field prospects while retaining the option to secure control if initial exploration proves successful. It also allows the partner to outsource early-stage exploration activities to another party that not only holds prospective ground, but may also have the requisite local expertise to advance the project more effectively thereby extending its exploration reach. These structures also allow

juniors to gain funding, which they could otherwise not access, and can reduce the potential ownership dilution if the earn-in price of further commitments is adjusted at each stage. However, one of the potential pitfalls is that at such an early stage the objectives and criteria to proceed may differ considerably between a junior explorer and a partner that is often a larger, established producer.

Consequently, extreme care must be taken in negotiating such agreements to have the adequate procedures to prevent deadlock.

Such earn-in agreements are commonplace. For example, in 2012, AIM-listed Kibo Mining plc formed an exploration joint venture with the mining division of Brazilian industrial conglomerate Votorantim Group at Kibo's Haneti properties in Tanzania, where exploration is focused on identifying nickel and platinum group

element (PGE) mineralisation. Under the agreement, Votorantim agreed to provide a maximum of £2.7 million that would be used to fund a three-year work programme. Upon completion, Votorantim will earn a 50% interest in Haneti.

Antofagasta plc, the London-listed copper major focused almost exclusively on Chile, has long used partnerships in order to execute its international exploration strategy. Antofagasta currently has agreements with 17 parties in countries such as Australia, Brazil, Canada, Finland, Namibia, Portugal, Sweden, Turkey, US and Zambia. The company believes there are distinct benefits in leveraging local knowledge and plans to expand its portfolio of agreements with grassroots explorers.

Private placements

Other exploration companies raise financing through strategic private placements with their larger peers instead of forming partnerships at the asset level. These placements allow juniors to retain full ownership of their projects and can also provide an endorsement of the asset's quality.

Strategic private placement example

Gold miner Agnico Eagle Mines Ltd is an example of a mid-tier producer that recently made several equity investments in promising exploration and development companies. For instance, in March 2013, the company invested C\$13 million to acquire up to 12% of ATAC Resources Ltd.

In April 2013, Agnico completed a C\$24 million placement for up to 16% of Sulliden Gold Corporation Ltd, as well as a C\$4.8 million placement for up to 14% of Kootenay Silver Inc. Then in May 2013, it invested C\$11.3 million to acquire up to 16% of Probe Mines Ltd – an explorer focused on the highly prospective Borden gold project (shown) in Canada. All of these investments were completed on a private placement basis and consisted of common shares and warrants. Agnico also retains the right to maintain its ownership interest under certain conditions.



Photo: Probe Mines Ltd

Exploration references

1. *Mergers, acquisitions and capital raising in mining and metals Q3/9M 2013 factsheet.*
2. Refer to appendix for further details and recent examples.
3. Source for Main Market and AIM statistics: www.londonstockexchange.com.
4. However, the UKLA has discretion to admit a company with a lower market capitalisation if it is satisfied there will be an adequate market.

The developers

EY

Introduction

While a company may have successfully navigated a detailed drilling programme and completed a preliminary economic assessment (PEA), the journey is far from over. For those that have been fortunate enough to get this far, the next stage is to finance feasibility studies and get the project's economic viability proven.

"Because of the inherent risks involved with completing the various feasibility studies and the potentially long period to cash flows, equity remains the preferred source of financing"

Increasingly complex permitting requirements, licence negotiations and fiscal and regulatory uncertainty need to be navigated and this can delay projects, escalate costs and potentially threaten ownership making for an uncertain investment environment.

Current market

While access to capital is healthier at this stage of the project lifecycle compared with the exploration stage, it is still an incredibly challenging process. Demand outstrips supply and the cost of capital is significantly higher than many projects are able to bear.

Because of the inherent risks involved with completing the various feasibility studies and the potentially long period to cash flows, equity remains the preferred source of financing. But public equity markets are very challenging at present and show no sign of immediate improvement. Some companies have sought second-

ary listings to improve liquidity and prospects for future issues, but increasingly these are being cancelled due to poor trading volumes and high regulatory costs.

With equity so difficult to attract, those in development stage are considering debt and have had some success in pursuing non-syndicated alternative debt options discussed in the alternative sources of finance section below.

Alternative sources of finance

In addition to the alternative sources of equity available to explorers, the options available at the development stage also include the following:

Development finance institutions and multilateral development banks ¹

Development finance institutions (DFIs) provide credit in the form of loans, equity stakes and risk guarantee instruments to companies investing in developing countries.

Developing countries typically present higher project and country risks that commercial banks may be unable to bear, and as such, DFIs will require strict

compliance with social and environmental standards. The diligence involved, as a result, can be significant and may also put additional cost burden on the project going forward in order to meet those high standards. But, in turn, this can reduce the cost of future capital and the process to attain it, as investors are likely to have greater confidence in the project in the knowledge that it has already been subject to such scrutiny.

Convertible loans

These can provide an attractive source of capital in periods of volatility, providing downside protection but also the potential for participation in future upside.

However, from a company's perspective, the dilution impact of convertibles is merely delayed (assuming the bond converts), albeit to a point of time where valuations are more easily determined.

Financing of this nature can be costly, with average coupons on unrated convertible loans at 9% in the 9 months to September 30, 2013, and some paying in excess of 20%. These instruments bring a risk of default should the company not be in a position to meet the principal repayments on maturity if market conditions deteriorate.

Often we see companies returning to the market at this point to mitigate this.

"Financing of this nature can be costly, with average coupons on unrated convertible loans at 9% in the 9 months to September 30, 2013, and some paying in excess of 20%"

Issuer	Coupon (%)	Years to maturity	Proceeds (US\$m)
Molycorp Inc	5.5	5.08	173
China Daye Non-Ferrous Metals	0.5	3.04	134
Honbridge Holdings Ltd	Zero	5.07	95
Noble Mineral Resources Ltd	8.0	3.04	90
Atlantic Ltd	22.5	1.58	51
San Gold Corp	8.0	5.14	50
Guildford Coal Ltd	12.0	1.43	42
Duluth Metals Ltd	7.5	5.07	30
Firestone Energy Ltd	8.0	4.06	28
YTC Resources Ltd	4.0	4.67	21

Top 10 convertible bond issues (by proceeds) by explorers, developers or smaller producers in the 9 months to September 30, 2013

Source: EY, ThomsonONE

Royalty agreements

These typically take the form of upfront finance in return for future payment typically based on either a percentage of the value of the product produced or the profits or revenues generated from the mine. These can be an attractive source of finance, offering a non-dilutive and non-controlling source of capital and a deferred repayment date only when the project yields revenue. For management, determining the true cost of capital, i.e. the future loss of cash flow, together with the impact on the overall risk of the project can be difficult.

Recommendations

Clearly in the current environment, all capital options should be considered and management are often forced to pursue sources of capital that are more expensive than would ideally be the case. Perhaps more than ever, it is critical for management to fully evaluate the flexibility and cost of the capital being raised.

For example, while a royalty agreement provides significant flexibility and can unlock a 'step-up' in a project's valuation, the associated loss of a proportion of future cash flows needs to be considered in the context of the overall risk profile of the project. This can often have implications for future financing as well as overall operational and financial risk.

Regardless of the source of capital, the nature of finance raised may limit the follow-on options available and consequently the interoperability of different sources of capital should not be ignored.

Mayer Brown

Introduction

Once exploration has indicated the presence of an ore body, which has the potential to be developed into an economically viable mine, a number of alternative financing sources will present themselves.

Development finance institutions

Development finance institutions (DFIs) provide a variety of credit instruments including senior and subordinated debt, equity stakes and risk guarantee instruments. The shareholders of DFIs are typically governments (though occasionally other financial institutions or organisations do hold shares). In principle, DFIs will accept higher project and country risk than commercial banks, provided that the borrower demonstrates commitment to benefiting the host nation and complies with stringent environmental and social standards (i.e. labour, social security and protection of indigenous peoples).

DFIs will therefore be particularly concerned with the representations, covenants and warranties in relation to performance and labour standards, environmental laws and practices, anti-corruption, social law and exclusion of activities against public



morals (e.g. child labour). They may require periodic monitoring reports covering such topics to be completed by the borrower. During the due diligence phase, DFIs will be particularly concerned with the history of the project, the shareholders and how they obtained their shareholdings, the mining licence(s) (including how these were obtained), as well as reputational and anti-bribery matters. DFIs may also act as management consultants and technical advisers for the project.

Project finance

The Equator Principles

Many banks and financial institutions (78 so far) in 35 countries have adopted what are known as the Equator Principles (EPs), a risk management framework that allows those financial institutions (EPFIs) to determine, assess and manage environmental and social risk in projects.

This covers over 70% of international project finance debt in emerging markets. Not only must prospective borrowers make a business case to lenders regarding financing a project, these days they will likely also need to demonstrate compliance with the EPs.

“In principle, DFIs will accept higher project and country risk than commercial banks, provided that the borrower demonstrates commitment to benefiting the host nation and complies with stringent environmental and social standards”

The 10 Equator Principles

- | |
|--|
| 1. Review and categorisation |
| 2. Environmental and social assessment |
| 3. Applicable environmental and social standards |
| 4. Environmental & social management system and equator principles action plan |
| 5. Stakeholder engagement |
| 6. Grievance mechanism |
| 7. Independent review |
| 8. Covenants |
| 9. Independent monitoring and reporting |
| 10. Reporting and transparency |

Projects to be funded by an EPFI must be characterised as category A, B or C projects (see box below) based on the degree of risk which the project presents to the environment and society. A project’s categorisation dictates the requirements to be imposed by the EPFIs.

EPFI characterisation**Category A:**

Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented

Category B:

Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures

Category C:

Projects with minimal or no adverse environmental and social risks and/or impacts

Projects in category C do not have to comply with any requirements. Those in categories A or B may be required to comply with provisions such as developing (or maintaining) an environmental and social management system and consulting with 'affected communities' in a 'structured and culturally appropriate manner'. They will also have to comply with specific loan covenants including to:

- materially comply with its environmental and social management plan and equator principles action plan (both of which must be developed if not already in place) during the construction and operation of the project;
- provide periodic reports documenting compliance with the above; and
- prepare (and in the event that a project is decommissioned, comply with) an appropriate decommissioning plan.

The latest version of the EPs, EP3, sets out many new requirements for lenders and borrowers. For example, where a project emits over 100,000 tonnes of carbon dioxide annually, there is a requirement to evaluate less greenhouse gas intensive alternatives.

There is also an increased emphasis on human rights, with EP3 acknowledging the UN's 'Protect, Respect and Remedy' framework for business and human rights and Guiding Principles on Business and Human Rights.

Environmental liability and lenders

Environmental concerns will be relevant not only to DFIs but to other lenders also.

Environmental liabilities of a borrower can affect lenders by:

- (i) reducing the borrower's ability to repay its loan (i.e. the creditworthiness of the borrower);
- (ii) reducing the value of security; and
- (iii) raising potential direct liability for a lender (in the event it has pursued enforcement action and, for example, become a mortgagee in possession of the land [or equivalent principle]).

Depending on the jurisdiction in which the borrower is incorporated, the level of environmental laws and liability of a borrower (and potentially a lender) will vary. Penalties could include fines and/or imprisonment, damages, cost of clean-up works, business disruption and closure of the site.

A lender's reputation could also be damaged as a result of association with a borrower who has caused environmental damage. Even if there are few or light environmental laws in place at the time of entering into the facility, lenders will need to bear in mind the impact any future changes to legislation could have on the borrower's operations during the term of the facility (and this might affect their requirements under the facility).

By way of example, in Liberia, pursuant to the year 2000 Act Adopting a New Minerals and Mining Law mining right holders must take any and all measures to mitigate or eliminate the risk of danger to the community and mine workers that may be caused by the mine. Accidents must be reported periodically and serious accidents must be reported as soon as possible. The mining right holder must draw up work place safety regulations, which must be approved by the Minister of Lands, Mines and Energy.

Lenders will try to protect themselves by:

- (i) carrying out thorough due diligence prior to entering into a loan agreement;
- (ii) including suitable protections (representations, warranties, covenants, indemnities) in the facility and security documentation; and
- (iii) undertaking a risk assessment before exercising any form of control over a borrower's operations or enforcing the security.

Due diligence may include an assessment covering, for example, whether land is contaminated, whether hazardous materials are stored on site, waste disposal at the site, whether necessary environmental permits are in place and whether any legal proceedings have been made or are pending.

Royalty agreements

Royalty financing is often used by mining companies when indicated reserves are in place and bridge financing is needed to complete further exploration and development work and to produce a bankable feasibility study (BFS). Royalty financing may also be used once a mine is in production as a means of raising further capital. It is only suited to projects which will produce a steady and sustained level of production.

A royalty company or financial institution will provide the borrower with capital

"Depending on the jurisdiction in which the borrower is incorporated, the level of environmental laws and liability of a borrower (and potentially a lender) will vary"

in exchange for a share in the project's future revenue. Typically there is no obligation to repay the capital and the capital does not bear interest (in contrast to a corporate loan). The investor achieves returns through fixed royalty payments – these are fixed costs which must be met regardless of actual profitability of the

“Offtake agreements are payment agreements for a determined volume or percentage of production over a set timespan. They provide a guaranteed source of demand for the project, which can help to secure other sources of finance”

borrower or the management's view as to whether such distributions would be appropriate given the performance of the company and its capital needs (as opposed to share dividends). Royalty financing will therefore reduce cash available to the company, which could otherwise be used to invest in the business or to return to shareholders as dividends.

Royalty financing does not dilute ownership in the property or interest in the company and there is no impact on the management of the operation of the project. The advantages over bank loans include: generally, no penalties for construction delays; fewer financial, legal and information covenants and undertakings; and fewer events of default.

Investors will carry out significant technical due diligence as well as diligence regarding the jurisdictional risks associated with the country in which the project is situated. The borrower will need to have commissioned technical and feasibility studies appropriate to such investors. Royalty finance arrangements are usually documented by way of a royalty agreement, with the focus for negotiation being on the royalty percentage to be paid, duration

of the royalty repayment, amount of upfront payment and how the payment obligation will be secured.

Offtake agreements

Offtake agreements are key for bulk commodities such as coal, iron ore and limestone.

Offtake agreements are payment agreements for a determined volume or percentage of production over a set timespan. They provide a guaranteed source of demand for the project, which can help to secure other sources of finance.

Lenders financing a project will generally want the project to be underpinned by long-term sale contracts so as to ensure the debt can be adequately serviced. If there are multiple offtakers this will spread credit risk (and improve bankability of the project). The end-buyer of the relevant commodity may itself be willing to offer a loan to finance the project or a pre-payment for delivery of the commodities produced (in the latter example the loan and interest would be repaid by delivering the goods).

BMO Capital Markets

Introduction

After defining a resource of critical mass, an exploration company begins the work of completing a scoping study, also known as a preliminary economic assessment (PEA), which represents the first of a series of studies a developer generally undertakes to assess the financial viability of a project. PEAs are conceptual studies that examine the potential economics of a mining project by estimating various production and cost parameters including the potentially mineable ore inventory, upfront capital expenditures and future operating costs. Even though PEAs are conducted to a lower standard than future pre-feasibility studies (PFS) and feasibility studies (FS), the release of a positive scoping study represents a considerable milestone for many developers.

Farm-in agreements

At this stage, developers attract increased attention from producers, who spend considerable time evaluating projects that could supplement their future growth. Many juniors make the decision to sell their companies at this point, passing the responsibility for raising funds for continued development work to the asset's new owner. For those that don't sell the company outright, a common form of alternative financing is an asset-level farm-in agreement with a strategic partner.

Although a PEA can be a significant milestone for a project developer, considerable time and effort is still required to advance an asset to the point of a production decision. Further economic assessments, including a PFS and FS, must be completed in order to improve the accuracy margin of cost estimates and refine the mine plan. Additionally, the critical step of permitting must be completed. For these reasons, many acquirers prefer to make staged investments as opposed to an outright acquisition.

As with similar transactions at the grassroots exploration stage, the acquirer makes an obligation to spend a predetermined amount over a specific time period in order to advance the project to an agreed stage, and thereby earns a defined ownership interest in the project. Funding commitments for these earn-ins are generally larger than in deals involving exploration assets, due to the partial de-risking that has occurred to date, but the basic structure remains. Therefore, the buy-in partner retains the ability to withdraw from a project once it no longer fits with the company's strategy. For example, in 2007, Anglo American plc committed to spend up to US\$1.4 billion to earn an eventual 50% stake in North-

“Although a PEA can be a significant milestone for a project developer, considerable time and effort is still required to advance an asset to the point of a production decision”

ern Dynasty Minerals Ltd's Pebble copper-gold project in Alaska. However, after funding over US\$500 million in expenditures, Anglo withdrew from the venture in 2013 in an effort to reduce its exposure to large capital projects.

Another example is Antofagasta plc's 2010 agreement with Duluth Metals Ltd, whereby Antofagasta could earn an initial 40% interest in the Nokomis copper-nickel-platinum group metal (PGM) project by spending US\$130 million over a 3-year period, funding the project through feasibility. More recently in September 2013, Australia's IMX Resources Ltd entered into a similar arrangement with China's MMG Ltd, where MMG could earn up to a 60% interest in the Nachingwea nickel project in Tanzania by funding expenditures of US\$60 million over 5 years.

"In a typical royalty transaction, the project owner receives an upfront cash payment in return for issuing a royalty that is valid for the asset's life-of-mine to the funding party"

For the seller, the agreements can provide the funding required to advance projects to a production decision. Although the party's ownership interest is reduced, the buyer's endorsement can help to validate the quality of the project.

Also, such deals often occur at valuations that imply a premium to the company's current assessed market value. For the buyer, staged investments provide a lower-risk means to gain significant ownership in a project where many variables are yet to be refined. However, due to these benefits, the cost is likely to be comparatively higher for the buyer than if the entire stake was acquired upfront. Note that once again, care must be taken when drafting

such agreements, due to the differing investment criteria and risk tolerance of early-stage developers and their senior partners.

Various earn-in agreements

Parties		Project		
Developer	Partner	Name	Location	Main commodity
IMX Resources	MMG Limited	Nachingwea	Tanzania	Nickel-copper
Duluth Metals	Antofagasta	Nokomis	USA	Copper-nickel-PGM
Harmony Gold	Newcrest Mining	Hidden Valley, Wafi-Golpu	Papua New Guinea	Gold-silver-copper
Northern Dynasty	Anglo American	Pebble	USA	Copper-gold
Novagold	Teck Cominco	Galore Creek	Canada	Copper-gold



Royalty and streaming deals

Rather than diluting their direct stake in a project through a farm-in agreement, or their shareholders' interest in the company itself by raising equity, some developers turn to the royalty and streaming instruments to raise funding to advance their projects – these methods of financing have become increasingly common in recent years.

Top royalty investment companies include Franco-Nevada Corp, Royal Gold Inc and Anglo Pacific Group plc, which have market capitalisations of approximately US\$6.5 billion, US\$3.1 billion and US\$400 million respectively. The best known streamers are Silver Wheaton Corp and Sandstorm Gold Ltd, which are worth approximately US\$7.7 billion and US\$500 million, respectively.

In a typical royalty transaction, the project owner receives an upfront cash payment in return for issuing a royalty that is valid for the asset's life-of-mine to the funding party. A common form is the net smelter return (NSR) royalty, which provides the holder with a fixed proportion of gross revenue, less a pro-rata share of certain transportation and realisation costs.

In a standard streaming transaction, the streamer makes an upfront cash payment to the project developer in return for the right to purchase a fixed proportion of the asset's by-product gold or silver production at a set price when the metal is delivered.

Many streaming deals are structured so that the contracted commodity represents only a small proportion of the asset's total revenue in order to keep incentives aligned between the operator and the streamer and not influence the mine

Royalty example

In May 2013, Midas Gold Corp received a US\$15 million payment from Franco-Nevada in return for a 1.7% NSR royalty on any future gold production from Golden Meadows, Midas' PEA-stage project located in Idaho. Midas planned to use the proceeds for resource evaluation, metallurgical studies, engineering and other work related to its ongoing pre-feasibility study.

Earn-in Agreement

Announcement date	Spending commitment (US\$m)	Interest	Time period (years)	Stages
20-Sep-13	\$60	60%	5	3
14-Jan-10	\$130	40%	3	1
22-Apr-08	\$525	50%	-	2
31-Jul-07	\$1,425	50%	4	3
23-May-07	\$478	50%	-	1

Streaming example

In 2011, Chieftain Metals Inc entered into a streaming transaction with Royal Gold, whereby Royal agreed to pay Chieftain a total of US\$60 million cash, which would be used to advance its PEA-stage Tulsequah Chief project in Canada. In return, Royal Gold received the right to purchase 12.5% of payable gold for US\$450 per ounce (decreasing to 7.5% for US\$500 per ounce after 48,000 ounces are delivered) and 22.5% of payable silver for US\$5 per ounce (decreasing to 9.75% for US\$7.50 per ounce after approximately 2.8 million ounces are delivered) for the asset's life-of-mine.

planning to bias certain parts of the orebody.

For a developer, there are many benefits of raising funds through the sale of a royalty or stream. As well as being non-dilutive, the contracts are not traditional debt instruments, which is particularly important to developers that have no cash flow from which to pay interest. These deals can also act as an endorsement to projects and their management teams.

Streamers and royalty companies generally benefit

from efficient tax structures, low costs of capital and high trading multiples, which allow them to create value for both their own shareholders as well as those of the project developer. Often, they are willing to pay for exploration upside as well.

Traditionally, streaming has been promoted to the market as a distinct financing alternative to equity or debt. For instance, streaming contracts do not provide ownership in the mining operations and the upfront payments do not bear interest. Also, most contracts do not specify minimum metal deliveries, nor do they provide compensation if operations are suspended or closed.

Traditionally,
streaming has
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to the market as a
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equity or debt

However, ratings agency Standard & Poor's recently announced its plans to classify streams as debt going forward, which could make them less appealing to miners with existing leverage. Other ratings agencies disagree with this assessment including Moody's and DBRS, so the debate will likely continue for some time.

"Franco-Nevada is well-positioned to pursue additional royalty or streaming deals with over US\$1.3 billion in capital available for acquisitions as at September 2013. The recent S&P classification of streaming deals as debt is not expected to create any major impediments to their business opportunities," BMO Capital Markets' Co-Head of Mining Research, David Haughton, said.

Development references

1. Refer to appendix for further details and recent examples.



*L-R: Lee Downham,
Neal Rigby, Sam
Jordan Jones, Jeffrey
Couch and Ian Coles*

What are the biggest obstacles to companies trying to secure finance in the current environment?

JC: The biggest obstacle is regaining the trust of institutional investors. Companies need to assure institutions that capital will be allocated to maximise returns, not simply to grow production at any cost. And if there are no good options, they want to see higher dividends.

NR: Although it's not new, one of the biggest obstacles is the credibility of the management team – collateral through people. Lenders and investors want to know the management team has a proven record of getting projects up and running and delivering on its promises.

What trends are emerging as companies attempt to obtain finance in the current environment? Are there specific or alternative funding routes?

IC: Two years ago companies would have found it harder to secure debt finance because there was an absence of

“Lenders and investors want to know the management team has a proven record of getting projects up and running and delivering on its promises”

Key to participants

- Jeffrey Couch – BMO Capital Markets: **JC**
- Ian Coles – Mayer Brown: **IC**
- Neal Rigby – SRK Consulting: **NR**
- Lee Downham – EY: **LD**

Round Table

“Overall, companies are becoming more innovative in the ways they secure financing”

commercial bank liquidity. Since then a lot of groups including multilateral lenders, other development financial institutions and official lenders have plugged the gap.

In addition, alternative sources of financing to traditional bank debt including metal streaming and other offtake financing, as well as royalty financing, have become available and popular. Alternative sources of equity finance, particularly for the exploration end of the spectrum, have continued to be a challenge.

JC: Overall, companies are becoming more innovative in the ways they secure financing. Royalty and streaming deals are increasingly popular because companies like Franco-Nevada and Silver Wheaton have strong balance sheets and are willing to provide big payments upfront. Traders and specialty funds are also being more creative in the ways they offer debt in order to secure offtake.

NR: We are certainly seeing much more creativity in structuring deals – structuring access to capital. Traditional project finance and equity are being supplemented with, for example, long-term offtake and trade finance, metal streaming deals, export credit agency (ECA) loans and build own tariff (BOT) deals for off-mine infrastructure facilities such as railways, concentrate slurry pipelines and ports.



Are there any pitfalls to these new forms of financing?

LD: These new forms of financing can be very grey – what is debt, what is equity, what is in between?

A lot of these deals you look at and you think, “Is that a streaming deal? Is that a royalty?” and you’re not quite sure.

You’re finding providers of finance being much more flexible in the way in which they invest because they need to make it work in a way that gets them into the deal; but also gets management comfortable and allows for future finance as the development progresses.

Whilst lenders are being a lot more flexible, it can also make financing options more opaque.

It’s harder for companies to find finance because they don’t necessarily know what they are looking for or who is providing it.

NR: I’m a little bit concerned about seeing long-term offtake deals with metals traders because they are not necessarily going to give particularly attractive terms.

It will become more of a fight – a fight for metals, a fight for commodities and a fight for ownership of those commodities.

The Chinese take the view that the only way to guarantee offtake is to own the minerals which is precisely what they have done and continue to do.

What is driving these new forms of financing?

LD: There is a common thread to all of this and that is investor confidence.

Equity markets aren’t providing capital and existing shareholders are putting pressure on companies to reduce capital expenditure. As a result, we are seeing a rise in streaming funds, strategic partners and other different forms of finance coming into the sector.

So it is the retraction, the risk-averse nature of your traditional investor that’s driving a new wave of investor profile across the sector.

I’m not sure if these alternative sources of finance have plugged the funding gap, but they have helped.



“I’m a little bit concerned about seeing long-term offtake deals with metals traders because they are not necessarily going to give particularly attractive terms”



What sort of financing options are the majors considering?

IC: The majors have access to large corporate banking facilities which are premised on mature projects and secure cash flows – as opposed to smaller companies attempting to develop projects which have to rely on more complex and expensive project financing.

JC: Streaming and royalties are being used by companies big and small. Vale recently did a large deal. But the main theme among the majors is finding a balance when deploying excess capital – do you return some of it to shareholders or do you put it back into the business? That's the debate most chief executives are having now with their shareholder base.

LD: You're also seeing divestments among the majors to free up capital to invest elsewhere, although the urgency in which this is being done has reduced significantly from where we saw it towards the end of 2012 and early 2013. With metals prices stabilising and a recovery of iron-ore prices, some of the pressure has come off the execution of these divestments.

A lot of the streaming deals of the majors are actually just to free up capital to invest elsewhere. It's essentially capital recycling. However the rate at which this capital raising option continues to be pursued by the majors may be impacted by S&P's recent announcement to treat these agreements as debt (going forward) where the top priority of the majors right now is preserving credit ratings to demonstrate capital discipline.

What impact are the restricted capital markets having on the sector and spending?

NR: Companies need to focus on incremental expansions – that has got to be the way to go. Start relatively modest so that you know you can finance it, prove you can build and operate it, engineer-out the risk and then incrementally expand, thereby reducing initial capital.

Companies are slowing projects down to conserve cash.

However, when companies start to do that, they can come under government pressure to develop and could face losing projects altogether.

LD: Capital expenditure blowouts in recent years have been a function of perhaps too quick of a price recovery post the global financial crisis. Companies had a big focus on tier one investment, large capital projects, which inevitably put too much strain on the services sector. This led to a significant amount of capital expenditure inflation.

We're seeing companies look to develop projects differently now, with a focus on slower investment, limiting the profile of the initial capital spend and replaced with subsequent incremental build-outs.

Are commercial banks still lending?

JC: We haven't seen anything change dramatically from our perspective – the commercial banks are still lending to the high-quality names. Companies such as Glencore, Vale and Randgold recently secured new credit facilities.

Are multilateral lenders filling the funding gaps left by traditional sources of financing?

IC: They are filling the gaps, but to some extent they are taking on the characteristics of commercial banks in their demands for specific terms and conditions.

"We're seeing companies look to develop projects differently now, with a focus on slower investment, limiting the profile of the initial capital spend"



Multilateral and similar official/government-backed lenders were designed as alternative sources of financing to traditional commercial lenders – sometimes to encourage trade with the sponsor country. Terms and conditions applicable to such financings have generally been very competitive – principally due to the access to relatively cheap funds. We’ve noticed something of a trend though over the past year or so towards the tightening of documentation terms and conditions of availability.

“We’ve noticed something of a trend though over the past year or so towards the tightening of documentation terms and conditions of availability”

As well as providing finance, what role are strategic partners looking to play operationally or otherwise?

NR: Strategic partners provide a great opportunity to explorers and developers.

Is the partner an offtaker, is it an operator, is it a financier, or a combination of these? The participation of strategic partners on equitable terms can bring many benefits to a mining project including access to capital, operational and technical support, political support and guaranteed offtake.

A strategic partner can also give a company more leverage with governments, especially if the partner can help the company access export credit agencies.

What part are sovereign wealth funds playing in the mining investment space?

IC: We see a lot of activity with government-sponsored/-owned financial institutions backing commodity projects, which are strategically important to the needs of



the country in question. So, for example, we've seen Korean development financial institutions or export credit agencies backing metal projects with Korean offtakers.

In addition, the large Japanese trading houses seem to be active in the sector again and increasing investment in significant metal/mining projects.

LD: It has shifted from where we saw sovereign wealth funds three or four years ago. There is more caution from these funds now. There is concern that it's not a one-way bet doing resource deals from a strategic perspective and you can get them wrong from the perspective of achieving an appropriate return on capital.

So there is a lot more accountability now. If these funds do get it wrong, even if they have secured supply, they've still done a bad deal financially, which is raising eyebrows and can have recourse.

JC: We are seeing continued interest in the mining space from sovereign wealth funds. They will remain cautious, especially when they move into direct investments in mines, but they've invested considerably to build out their capabilities in recent years. The tight markets could provide them with more opportunities.



"If you're a major, you could argue that financing is done now on much better terms"

Is financing currently being secured on more onerous terms?

LD: There is a two-tier environment. If you're a major, you could argue that financing is done now on much better terms. These companies have been able to issue paper on a fixed rate basis, with a 20-year maturity for as little as 4% or 5% over Libor (London Interbank Offered Rate) – that's not actually such a bad place to be.

But if you're a junior looking at a convertible, high-yield issue or royalty for example, and it's the first time you've done it, you would look back a few years from now and think, "it was a tough time to get finance".

So there is this two-tier system right now – 10% of borrowers accounted for 60% of loan proceeds in the first nine months of 2013 where as many mining juniors are fighting for survival.

NR: For those who have never done it before, the first experience of financing a mining project is about as onerous as it can get. In a stressed global financial environment, access to capital and the terms of such access are inevitably going to be tough as people become more risk-averse and the risk/reward relationship is altered. Much depends on the standing of the borrower and, of course, the attributes of the project.

IC: It depends on the type of financing.

Bank liquidity is easing somewhat so the pressure from that direction in connection with pricing etc is not what it was. Corporate facilities for blue-chip producers are therefore not necessarily subject to anything more onerous than would have been the case in the past.

Project financing, almost by definition, has always been complex and imposed significant restrictions on the sponsor/developer in question, particularly prior to project completion.

Interest margins may have changed but we haven't seen significantly more onerous terms and conditions in relation to the financing generally. As others have observed, the availability of finance has varied according to the quality of the project and management in the context of the prospect for commodity prices. If the stars align on each of those issues then financing continues to be available on something close to the terms which have been standard in the market for some time.

"Bank liquidity is easing somewhat so the pressure from that direction in connection with pricing etc is not what it was"



What role are governments playing in the current markets and how can companies work with governments?

JC: Companies need to be transparent with governments regarding their true profitability. The move to all-in cost reporting will help a little. But overall, more work must be done in order to promote understanding between governments, companies and shareholders.

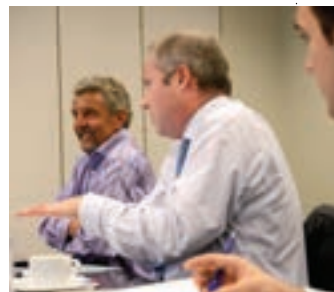
LD: I've heard a number of my clients talk about moving more towards an oil and gas model of development, which involves more partners, potentially more government carry and more farm-in type of arrangements – I think all of those options are being looked at.

IC: Governments appear in the sector in a number of different guises. In the most basic model they receive income from mining projects through taxes and royalties. While many governments have sought to take advantage of the commodity supercycle by increasing the level of those taxes and royalties, by and large this has not been where the greatest difficulties have occurred. Instead, difficulties have occurred in the emerging markets where several governments have attempted to increase the level of their free-carried interest – frequently to levels which damage the prospect of inbound investment by serious players and which encourage damaging short-term speculation.

One problem here is that governments frequently get less than optimal advice as to international norms and what model of partnership will ensure the most efficient development of a mining industry in order to enhance the level of revenue produced.

NR: A state-owned entity as a joint-venture partner, with or without a free carry, can be particularly beneficial since, in theory, respective interests should be reasonably aligned. The counter to this is demands for increasing government takeover and above joint-venture participation.

There is still a big perception gap in government. In many of these developing countries, the level of understanding of the mining business and, more importantly, the economics, risks and financing of mining projects is just not there, which



"More work must be done in order to promote understanding between governments, companies and shareholders"



leads governments to make unrealistic demands.

There have to be ways in which the message can be put across better because the State is an important stakeholder, whichever way you look at it. Such stakeholders need to understand the upside and downside to a project and what governments need to do to foster development.

While minerals stay in the ground they have zero value to the State. Value has to be earned from development.

With some of the recent controversial ongoing with certain London-listed companies, has London's reputation as a capital-raising jurisdiction been tarnished?

"While minerals stay in the ground they have zero value to the State. Value has to be earned from development"

IC: The London exchange has not been the only bourse with difficulties. The Hong Kong exchange was supposed to be the great new place to raise capital and that's had tremendous difficulty.

You can say it was made too easy for certain companies to list in London and you can say with a 15% free float for some of these companies that that creates issues in itself, but I don't think it will diminish London's role as a place where people raise capital in any respect.

It is important not to lose sight of the fact that mining companies do business in difficult jurisdictions where possibly transparency is not what it might be in other countries.

That inevitably produces compliance and similar challenges on a regular basis. Of course these challenges have to be dealt with in a manner which complies with the requirements of investors and regulators; but it is important to recall that this is not a challenge which is unique to companies listed in London.

LD: I think it's denting confidence for sure. While we are in this very low-risk environment then you can see why it would be more of an issue than if we start to see commodity prices rising again and equity markets becoming a little less risk-averse.

JC: The one thing that we are seeing which we are very pleased with is that all the stock exchanges around the world

are quite co-ordinated on listing requirements. The London Stock Exchange has a rigorous process, the Toronto Stock Exchange has a rigorous process and so does Australia.

We put success down to strong boards and governance. We encourage companies and chief executives to bring on qualified, independent non-executive board members.

The London market is alive and well for good stories and for good projects. It's a market with a significant depth of capital. BMO has continued to invest in its London franchise because we are confident in this market and that mining companies will continue to call London home.

What type of companies are best positioned to secure financing at present, whether it's the commodity or location?

JC: We look at management teams and their track records. Those that have a history of making money for their shareholders will find it easier to raise funding. The need for quality assets goes without saying. Right now that means projects with modest capital expenditure and low execution risk.

Those companies with high-quality boards, with executives who have built projects before, and those with strong relationships with local governments are the companies that will have success raising money.

"All the stock exchanges around the world are quite co-ordinated on listing requirements. The London Stock Exchange has a rigorous process"



Are there any regions or countries in particular where we are seeing mining activity picking up?

LD: There are a lot more eyes towards South America in our experience.

That's partly because there are some good success stories out there and partly because while Africa is still very interesting, a lot of what was interesting in Africa involved big infrastructure.

Those projects have become harder to develop as capital dries up because you are not just investing in a mine, you're investing in hundreds of miles of railway, you're investing in a new port, building captive power etc.

NR: I still think Brazil is up there particularly in iron ore and we are seeing more development of gold projects in Columbia. I see great potential for iron-oxide copper-gold (IOCG) projects in Chile and, notwithstanding the many environmental and social issues, Peru continues to be highly prospective for mining development.

What needs to happen to trigger investment in the industry again?

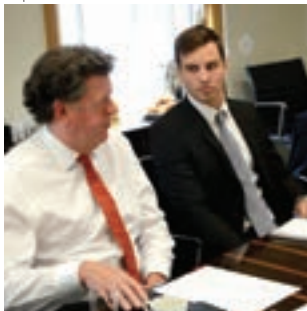
JC: We don't believe that investment has stopped. I think it's just a harsher environment – a more rigorous environment. The best projects will still get built. And the top mining entrepreneurs are still exploring and developing assets because they will continue to attract capital.

Do we see any upside to the current financial conditions?

LD: The obvious upside is you're taking a lot of supply out of the market and eventually that will skew the balance to demand.

It's also encouraging companies to look at margins. In this financial environment, companies have to really focus on optimisation of capital and build in more efficiency. Ultimately this will help to move companies into a much stronger position.

“In this financial environment, companies have to really focus on optimisation of capital and build in more efficiency. Ultimately this will help to move companies into a much stronger position”



NR: When things are booming the old dogs – the old projects – come back onto the table, those that have been killed several times previously but now they're just about looking slightly better than marginal.

As a result of the current downturn there has been a culling, for want of a better term. A culling of people and projects, which isn't a bad thing because there is a tendency to become too lax when the sector is booming. This is evidenced by soaring cash costs at gold mines which mimicked the gold price.

And these things happen cyclically. The sector is slimming down, it is leaner and more aware in terms of what a company needs to do and how it needs to keep stakeholders and shareholders informed – the implicit 'licence to operate'. So there is an upside here – we've had a clear out, but there is no doubt in my mind that the world's voracious appetite for minerals will continue, which, in due course, will inevitably test the supply/demand balance for many minerals with impacts on prices.

What can explorers and developers do to increase their chances of securing finance?

LD: The key is to look across multiple sources of finance and to limit funding to smaller pools of finance as much as possible. This obviously takes up more management time and is an exhausting process, but it does de-risk allowing the project to reach the next stage of development, in turn making the next stage possible on better terms.



“As a result of the current downturn there has been a culling, for want of a better term. A culling of people and projects, which isn't a bad thing”



The constructors

EY

Introduction

Perhaps the most critical financing stage of any project is the construction phase. Feasibility studies are complete, along with the various other commercial, environment and infrastructure studies. Government negotiations are complete, within reason, and license terms negotiated.

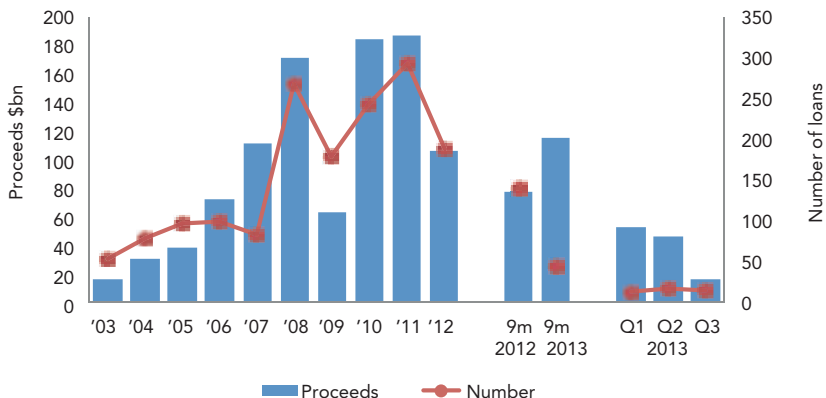
Funding for the project may still be some way off; however, a delay in securing the finance can become very expensive if the underlying principles on which the project is based begin to shift.

Here we look at a single asset project, where the funding goes hand-in-hand with the asset and no other cash flows from the company can be taken into account by lenders.

Current market

There are clearly significant differences in the size, complexity and nature of mining projects. The capital involved in a small gold development in a country which is part of the Organisation for Economic Co-operation and Development (OECD) with existing infrastructure will be very different to that of an iron-ore development in an emerging country such as Guinea, for example, where much of the capital will be to build significant infrastructure capacity.

But, in general, financing has been tough recently due to soft equity markets and retrenchment of the major banks from project finance into the sector. Even follow-on rights issues with existing shareholders have been difficult to execute as share prices have dropped so low that the issues often become dilutive. As a result only the most attractive developments are securing project finance on near favourable terms.



Syndicated loan volume and proceeds from 2003 to September 30, 2013

Source: EY, ThomsonONE



Over the 9 months to September 30, 2013, mining has taken only a 0.9% share of global pure project financing across sectors. But despite the gloom, there have been some positives. We have seen the breadth of finance providers increase and the form of lending into the sector evolve to accommodate the challenging capital raising environment. Indeed, the distinction between the different financing sources has become far less granular, with many offtake agreements resembling streams and equity investments exhibiting more debt-like characteristics than previously seen.

Streaming, offtake and royalties have all become increasingly prevalent as companies look to reduce the level of equity required for projects. The terms and nature of these agreements vary greatly, and the number of providers of such capital has also broadened.

Debt placement has also moved away from mainstream lenders, with high-yield bonds and US private placement, for example, gaining a greater share of capital raised for new developments. Both sources of capital have proved particularly difficult to secure as markets are incredibly fickle, driven by macro-economic confidence, which has been highly volatile for large periods since the global financial crisis. However, when the window for such lending is open, this type of capital can be a very attractive source of finance for assets in the construction phase of development.

Spreading the risk of a project by bringing in other parties has also been an increasing trend. Developing with joint-venture partners, such as a Japanese trading house or Chinese state-owned entity, is a well-trodden path but one that has obvious merits at a time when traditional forms of capital are scarce. Structuring this investment by way of a farm-in agreement is likely to increase over the next few years in our view. Another form of finance, typically coupled with debt and equity, where the project is de-risked by another party's involvement is engineering, procurement and construction management (EPCM) or contractor financing.

Alternative sources of finance

Streaming¹

Streaming is an increasingly popular source of finance for companies near production wishing to unlock capital to part fund construction while also monetising a typically undervalued by-product. This provides greater flexibility in respect of the servicing of such finance that is better aligned with the underlying mine economics. Of course, on the flip side, the use of streaming often results in lower margins for the asset once in production, often accounting for the loss of by-product credit, so this needs to be factored into the overall finance evaluation.

Offtake agreements and pre-export financing¹

These can take the form of debt or equity and offer upfront capital in return of securing future or current production volumes often at a discounted market price.

The investor can often provide marketing services to the mining company and in the case of a loan expects to be repaid from the proceeds of exports of the product. While a favourable option, typically these contracts include take or pay arrangements and are consequently typically secured when an asset is near to, or in, production. As this form of finance evolves in the current market, we are seeing increasing complexity in its deployment. Given the sophistication of those typically acting as counterpart, it is vital to run a formal process, ensuring competitive tension between counterparties and appropriate legal and commercial terms are negotiated.

US private placement market¹

This bond market is available to both US and non-US issuers, and acts as an attractive source of finance to unrated issuers as there is no need for formal credit rating or public-market reporting requirements. Often a “hold” premium is demanded to compensate investors for a longer hold period. However, despite this, pricing has proven to be competitive, in particular compared with bank debt.

Equipment/EPCM finance

Equipment suppliers or EPCM contactors can provide finance directly or via export credit agencies. This method enables companies to fund organic growth without significant capital outlays. This can often be an inexpensive form of finance but does bring with it reduced flexibility with supplier base. Where you will be contracting with one supplier who in turn will subcontract with others, your supplier default risk is centred with one party, therefore there is greater need to conduct up front financial and legal due diligence in order to mitigate this risk.

Recommendations

Perhaps the biggest issue when raising finance at this stage of a project’s life-cycle is deciding how much capital to raise. This may sound obvious, but in the current climate, under-budgeting can be disastrous if a further round of finance is required late in the development of a project. Similarly, overestimating the capital requirement can be very costly given the difficulty in raising and cost of capital right now. Management therefore need to give careful consideration to the following:

- How robust is the budget, and to what extent are contingencies required?
- How should the project be developed; to full nameplate capacity from day one, or developed in stages to minimise initial capital outlay and maintain future optionality?
- To what extent can infrastructure requirements be financed separately or owned outside of the project itself in order to reduce the capital outlay?

Budgeting accuracy is therefore clearly key, so increased rigour and discipline over capital project planning and execution is critical. In a difficult financing environment, it is important to pursue multiple forms of finance. A process covering



multiple finance options provides a plan B and plan C in the event the primary option falls away, and also keeps competitive tension in the process to minimise the leverage providers of finance have in the process. This is critical to increase the chances of a successful fundraise, and to keep the overall cost of borrowing to a minimum. This will of course require a significant level of resource committed to the fundraising process, and therefore a large proportion of management focus.

Increasingly, we are seeing the construction phase of projects analyse the different build-out options available. This is in order to determine the various net present values (NPV) of a full build-out versus a staged build-out and variants between. It may be the case that a greater NPV can be achieved through a reduced initial construction phase with optionality over further capacity increases. There are many factors to consider, not least host government relations, but clearly the option to get the project cash-positive with minimal initial capital outlay is an attractive proposition.

“The option to get the project cash-positive with minimal initial capital outlay is an attractive proposition”

Mayer Brown

Introduction

The construction phase presents one of the greatest risks in the development of a mining project. While in order to have reached this stage the sponsor and finance providers will have determined that the mine is viable, ensuring that construction costs are held to a fixed level with limited scope for overruns requires a significant amount of attention and structuring.

Financial and commercial risks inherent in construction

Construction contracts are critical to the development of the mine and must be carefully negotiated, particularly those provisions covering delays, events of default, termination rights, force majeure etc. The mining company must also ensure that it has adequate protection in the construction contracts to minimise the impact of cost overruns. Not only is it important for the mining company itself but investors will have these considerations in mind when deciding whether to invest in a project.

The risk of overrunning construction costs has taken centre stage in the mining sector of late. An important risk mitigant in considering (and planning against) escalating cost overruns is selecting the right procurement and execution strategy for the project. There are two options:

- a single engineering, procurement and construction (EPC) contract, also known as a ‘turnkey’ contract, with all risks allocated to a single contracting entity responsible for design (engineering), construction and procurement for the project (and which is responsible for all work performed by its sub-contractors and vendors); or

- an engineering, procurement and construction management contract (EPCM) with an engineering consultancy which is responsible for the outcome of the project in terms of all deliverables and should ensure the project is executed with due skill and care. The EPCM contractor itself does not undertake any building or construction; it will develop the design and manage the construction process on the owner's behalf. The individual contracts are entered into between the mining company and the third-party entities.

How financial and commercial risks are addressed by lenders in finance documentation

Because of the importance of EPC and EPCM contracts, lenders will want to review (or have their lawyers review) these documents carefully and have the opportunity to comment on and influence these before they are entered into. Examples of clauses the lenders will be interested in are:

- standard of care obligation;
- delay, damages and milestones (including amounts, when these will be payable etc.);
- key personnel;
- form of dispute resolution, including alignment with other contracts and direct agreements;
- force majeure events;
- lenders' rights e.g. cooperation with lenders' engineer;
- indemnities; and
- lists of trade contracts and purchase orders which will need to be placed.

Equipment financing

At the construction stage there may be assets in the project, which can be used to raise finance, such as excavation equipment. The company might be able to raise financing to be secured by existing equipment. It may also be able to enter into buy-back arrangements with the supplier, pursuant to which the supplier agrees to repurchase equipment at the end of the project. Alternatively the supplier may enter into a lease-buy arrangement with the mining company, where the supplier leases the equipment to the project (taking security over the equipment) and the project eventually buys the equipment at a discounted price. The borrower will be required to sign up to maintenance, repair and insurance covenants. A mining company should bear in mind that it may be able to exclude certain assets from security given to lenders under any project or other bank financing in order to raise additional financing secured on the equipment in future.

Project finance – lender considerations

In this section, we have highlighted certain requirements, concerns and considerations of lenders in respect of project financings, which demonstrate the legal (and commercial) implications for the borrower of securing project financing.

Debt to equity

Lenders will require a certain level of equity to be injected into the project before lending.

Country

A lender's willingness to provide financing will depend on the jurisdiction in which the project is incorporated. For example, some emerging jurisdictions have abounding resources which remain largely untapped due, in particular, to a lack of infrastructure and challenging business environment (having said this, many are trying to amend legislation to encourage foreign investment). Methods of ameliorating difficulties presented by legal systemic risk are by:

- (i) retaining sponsor support after completion for perceived risks; and
- (ii) taking the benefit of political risk insurance (see below).

"A lender's willingness to provide financing will depend on the jurisdiction in which the project is incorporated"

Insurance

Lenders will require comprehensive insurance for any project, for example third-party liability, construction risk and delay in start-up. In some jurisdictions insurance must be taken out with local insurance providers. Often lenders (or the borrower itself) will not be comfortable to rely only on such insurance if the local insurer is not well established and creditworthy and may therefore require reinsurance. In some cases the insurer may itself feel it needs to reinsure the loss. In such instance a lender (or agent on behalf of lenders) would want to be named as a loss payee on the reinsurance policy or to take an assignment of the reinsurance. The reinsurer will often refuse to add the lender or agent as a loss payee. In some jurisdictions, such as Kenya, an assignment of reinsurance is not lawful as the law does not allow the local insurance company to give security over its rights.

PRI insurance

In certain less politically-stable jurisdictions lenders perceive that they face greater risks of currency inconvertibility, expropriation of assets (for example, the nationalisation of the oil and gold industries in Venezuela through the expropriation of properties such as Exxon Mobil) and political violence such as war or other actions of revolutionaries (e.g. recent rebel activities in the mineral rich Kivu region of the DRC).

For such reasons lenders may require the borrower to pay for them to have the benefit of political risk insurance (PRI). PRI can be obtained from private sources such as Lloyds of London as well as from public or governmental sources such as the Overseas Private Investment Corporation. The lawyers' job will be to negotiate and settle the definitions of e.g. 'war', 'embargo' and 'currency inconvertibility' as well as to ensure that the policy is tailored to the specific loan agreement and the 'pay out' events are co-terminus with the events of default under the loan agreement. Policy issuers sometimes wish to become involved in the negotiation of loan

documentation – this can become a particular issue where certain banks elect to take PRI and others do not.

Title risk

The nature of the right of the mining company to develop the deposit forming the basis of the project will be at the forefront of lenders' due diligence. Frequently, ownership is vested in central government and the mining company will only be able to obtain a licence to mine the minerals in question. Lenders will perform due diligence to ensure that such licence was validly and effectively granted and in what circumstances it can be revoked. In many countries the central government will retain a free-carried interest in the project or require royalty payments.

Conditions precedent

Conditions precedent to drawdown in a project financing loan agreement would include such matters as satisfactory provision of feasibility studies, environmental assessments, valid mining licence, obtaining any necessary government consents, project contracts and tri-partite/direct agreements with the counterparties to material project documents enabling the lenders to 'step-in' in place of the borrower following an event of default. Satisfaction of conditions precedent can be extremely time-consuming for the company. We have seen a recent example in East Africa where obtaining government consent to security over a mining lease has taken several months.

Taking security

Lenders will want to take security over various project assets. Security documentation is almost always governed by the laws of the jurisdiction where the relevant asset is located. Taking security can be more complicated in certain jurisdictions than in, for example, England and Wales. In some jurisdictions it will not be possible to take security over future assets, or to take a floating charge. This will be a concern for the lender and may require the borrower to offer up alternative solutions.

Enforcement

Enforcement of security proves more difficult in some jurisdictions than others, and this will be a factor for lenders when deciding whether to lend in such jurisdictions and in structuring ways around this. The traditional common law analysis assumes that a secured party will have a 'self help' remedy enabling it to sell the secured asset of its own volition without the need to involve a third party. In many emerging markets however this is not possible. For example, in certain African jurisdictions litigation can prove slow and expensive. In African countries that have signed the Organisation for the Harmonisation of Business Law in Africa framework (OHADA), investors will have more comfort and certainty over the remedies available.



BMO Capital Markets

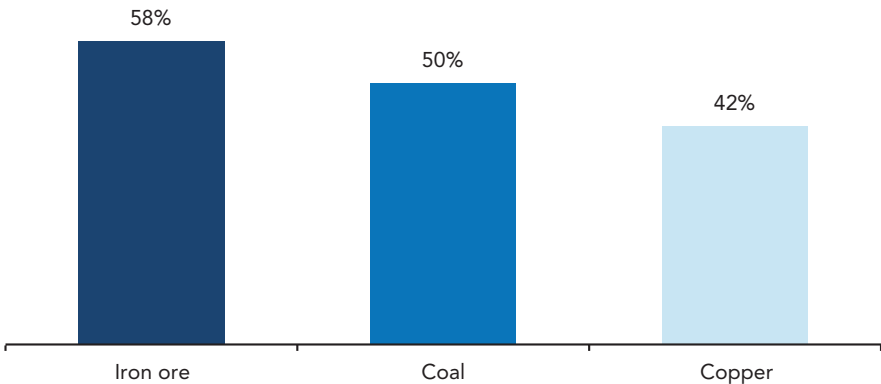
Introduction

The completion of a preliminary economic assessment (PEA) provides a developer with a high-level indication of whether their project could be economically viable. These studies also identify opportunities where the development plans could be enhanced and detail potential risks that should be investigated further as part of the pre-feasibility (PFS) and feasibility studies (FS).

Opportunities include further exploration work with the goal of expanding the ultimate reserve base, along with optimising the mine plan, processing methods, overall scale and mine life. Key areas to de-risk include the resource model, metallurgy and infrastructure requirements including power, water and logistics. Finally, companies must begin the process of engaging local communities and conducting environmental studies as part of the permitting process, something that can be extremely sensitive in many countries and jurisdictions.

Once the permitting process is in motion and pre-feasibility and feasibility studies have been completed, most companies either sell themselves outright or instead begin the process of raising financing for project construction and startup. For the companies interested in advancing their projects further, several alternative financing options are available, which can be utilised in various combinations. Developers of bulks and base metals projects tend to have the most difficult tasks ahead, due to the capital intensive nature of these assets and their associated infrastructure requirements. Thankfully, these commodities, including iron ore, coal and copper, are also considered to be among the most desirable due to China's dominant share of global consumption of these key inputs to industrial activity.

“Once the permitting process is in motion, most companies sell themselves outright or begin the process of raising financing”



Strategic partners

For these reasons, strategic entities such as traders, mining-focused financial investors and metal processors, such as smelters and steel producers, have been particularly active in forming partnerships with developers in order to gain access to the supply and financial exposure of these select commodities. Although some strategic partners have entered projects at the resource or scoping stages, the majority of the material investments occur after a company has taken the decision to build.

“Strategic shareholders can help facilitate the securing of project debt that would be otherwise unavailable to a junior”

For a strategic partner to make a significant financial contribution, projects must generally be well-advanced and de-risked in critical areas.

Strategic investments are also viewed as major endorsements of a project developer, allowing the company to raise further funds by traditional means. For example, since 2010 African Minerals (see box) has successfully raised US\$418 million through a secured loan facility, US\$350 million via convertible bonds and more than US\$400 million from public shareholders through common equity offerings.

Strategic shareholders can also help facilitate the securing of project debt that would be otherwise unavailable to a junior. For example, in 2009, Mitsubishi Materials formed a joint venture with Copper Mountain Mining Corp, whereby

Strategic partner example

AIM-listed iron-ore miner African Minerals Ltd has had remarkable success in raising capital from strategic investors. In 2010, African Minerals reached an investment agreement with China Railway Materials Commercial Corporation (CRM), a major service provider in the Chinese railway industry and a top steel trader in China.

CRM agreed to provide £168 million to African Minerals in return for a 12.5% equity interest in the company as well as a long-term offtake agreement. In 2011, African Minerals agreed to sell Chinese steel producer Shandong Iron & Steel Group (SISG) a 25% interest in its Tonkolili mine in Sierra Leone and associated infrastructure for US\$1.5 billion. SISG also acquired an iron-ore offtake agreement whereby sales would occur at a discount to benchmark prices. In September 2013, African Minerals reached yet another agreement with a Chinese strategic investor. Tianjin Materials and Equipment Group Corp (Tewoo), a large import-export firm and iron-ore trader, entered into a binding Memorandum of Understanding to invest a total of US\$990 million in African Minerals and Tonkolili. The investment will consist of US\$390 million for a 10% interest in African Minerals, US\$600 million for a 10% stake in Tonkolili and its infrastructure and an offtake agreement.



Mitsubishi acquired a 25% interest in the Copper Mountain project and agreed to assist in arranging a project loan. In 2010, Copper Mountain and Mitsubishi obtained a total of US\$322 million in project finance with two Japanese commercial banks and Japan Bank for International Cooperation (JBIC). Arguably, without a Japanese partner, Copper Mountain would have been unable to obtain such a facility.



African Minerals' Tonkolili mine and port infrastructure

Source: African Minerals

Royalty and streaming deals

When early-stage developers enter into streaming and royalty transactions, the proceeds are generally used to complete scoping and feasibility studies.

However, in recent years, inflationary pressures in the mining sector have made the fixed cost structure of streaming companies increasingly attractive to investors, allowing these alternative financiers to raise large sums of capital through

traditional means. This has allowed streamers to provide developers of advanced-stage, multi-billion dollar projects with material funding on non-dilutive terms.

These upfront cash payments often represent a large proportion of a project's total capital expenditures and are provided in exchange for a much smaller portion of future revenues, thereby enhancing the seller's financial returns.

In 2012, Franco-Nevada agreed to provide US\$1 billion in financing to Inmet Mining Corp's Cobre Panama copper project in Panama. In exchange, Franco-Nevada received a life-of-mine precious metals stream that will deliver it approximately 70,000 ounces of gold equivalent production annually.

At the time, capital expenditures for the project were expected to total US\$6.2 billion, therefore the stream alone will provide approximately 16% of Cobre Panama's upfront capital requirements.

Silver Wheaton Corp and Royal Gold Inc also made significant funding contributions to major copper projects in 2012. Silver Wheaton agreed to provide HudBay Minerals Inc a total of \$750 million in cash, which the mid-tier copper miner planned to use to help fund its US\$1.5 billion Constancia project in Peru.

Various large streaming deals

Parties		Project			
Developer	Streamer	Name	Location	Primary commodity	Initial capex (US\$m)
Inmet Mining	Franco-Nevada	Cobre Panama	Panama	Copper	\$6,181
Thompson Creek	Royal Gold	Mt. Milligan	Canada	Copper-gold	\$1,450
HudBay Minerals	Silver Wheaton	Constancia	Peru	Copper	\$1,546

Inmet was acquired by First Quantum in 2013; stream proportion refers to Franco-Nevada's share of Inmet's 80% interest in the project

Thompson Creek transaction completed in several stages; capex assumes C\$ / US\$ parity

HudBay transaction also included a gold-silver stream from Hudbay's 777 mine



The stream represented approximately 50% of the asset’s initial capital expenditure. Similarly, Royal Gold Inc reached several agreements to provide a total of US\$780 million to Thompson Creek Metals Company Inc’s Mt Milligan copper-gold project in Canada, an amount that also represented over 50% of the project’s estimated upfront capital expenditure.

The main downside to streaming deals is their impact on an operation’s cash costs. Most streaming transactions involve the sale of by-product precious metals production from base metal mines.

Therefore, a streaming arrangement involving the sale of a portion of a copper mine’s gold production will reduce the operation’s gold by-product credits. As these credits are deducted from operating expenses when reporting a mine’s cash costs, the mine’s cost structure will appear higher going forward. Streaming deals also limit the project owner’s exposure to the streamed metal and transfer a portion of the exploration upside to the streamer. Also, streamers generally don’t contribute additional capital to future mine expansions, even though life-of-mine contracts allow streamers to share in the benefit.

“Streaming deals also limit the project owner’s exposure to the streamed metal and transfer a portion of the exploration upside to the streamer”

Offtake agreements

Loans linked to offtake agreements are another form of non-dilutive financing available to project developers. In these transactions, traders such as Glencore Xstrata plc, Trafigura Beheer BV and Noble Group Ltd, along with other specialist commodities players, extend secured loans and prepayment facilities to the miner

Streaming Agreement						
Announce- ment date	Streamed Metal	Proportion of Mine Total	Contract Term	Upfront Payment (US\$m)	Upfront as % of Initial Capex	Production Payment (US\$ per oz)
20-Aug-12	Gold, silver	86%	Life of mine	\$1,000	16%	\$400 (gold), \$6 (silver)
09-Aug-12	Gold	52.25%	Life of mine	\$782	54%	\$435
08-Aug-12	Silver	100%	Life of mine	\$750	49%	\$5.90

in return for the right to purchase a fixed portion of production over a set period of time. Future payments are then based on either spot-metals prices upon delivery or on a predetermined discount to spot. In addition to providing a source

“As metals prices have fallen and traditional financing has become more difficult to arrange, developers have increasingly been ‘right-sizing’ their projects to better suit the current environment”

of funds, the agreements minimise risk and help outsource marketing activities to a credible counterparty.

In early 2013, Nevada Copper Corp announced the completion of a US\$200 million senior secured loan facility and copper offtake agreement with RK Mine Finance, a metal merchant that specialises in financing pre-production as well as producing operations. The company is developing the Pumpkin Hollow copper project located in Nevada, US.

Originally, Nevada Copper had planned to develop the project as a combined large-scale underground and open-pit operation, where initial capital expenditures were expected to total more than US\$1 billion.

Subsequently, the company re-examined its plans and decided to develop the project in stages.

The initial phase would consist of a smaller-scale underground operation, with estimated capital expenditures of US\$300 million, which would later be followed by a larger open pit development. Using this strategy, the company was confident that it could largely finance the project in a non-dilutive manner by securing a strategic partner.

The RK Mine Finance concentrate offtake agreement covers life-of-mine production from Pumpkin Hollow’s underground phase and its key terms include benchmark-referenced treatment and refining charges and standard payment factors for metals production.

Conclusion

As metals prices have fallen and traditional financing has become more difficult to arrange, developers have increasingly been ‘right-sizing’ their projects to better suit the current environment. This trend is likely to continue as companies sharpen their focus on returns and efficient use of capital over production growth.

Other companies that are implementing similar strategies include Ivanhoe Mines Ltd with its Kamoa copper project in the Democratic Republic of the Congo; Glencore Xstrata plc with its Zanaga iron-ore project in the Republic of Congo; and African Minerals Ltd as it studies further phases of growth at its Tonkolili iron-ore mine in Sierra Leone.

Construction references

1. Refer to appendix for further details and recent examples.



The producers

EY

Introduction

The big advantage that a company in production has is access to cash flows, which is of massive importance when it comes to raising finance. Cash generating operations provide greater comfort to lenders, demonstrate a track record and provide security; but most importantly for management, provide access to a greater pool of financing options. And in the current market, it is this pool that is proving the deepest.

A company already in production may require further financing to expand or upgrade operations, to restructure its balance sheet, or to diversify its portfolio of assets. Such a company may have a single producing asset or may be truly diversified in nature. The key characteristic is that it has access to production and, crucially, to cash flow.

More recently, capital allocation has dominated the thoughts of management across the large diversified producers. With capital constrained, returns increasingly more volatile and a history of missed budgets, choosing the right large-scale project to invest in is critical to success. And this discipline is a key determinant of how investors will judge management over the next cycle.

When deciding how to deploy capital, management also need to consider a broader set of uses in today's market. Building new capacity isn't necessarily the 'go-to' strategy that it once was. With concerns over slowing Chinese demand, greater price volatility and a backdrop of cost inflation, management are increasingly reigning in capital investment and looking to redeploy cash to existing operations, reduce debt levels and return cash to shareholders through higher dividends and share buyback programmes.

Against this backdrop, it is quite a challenge to determine the right level of gearing and the maturity thereon, as well as the appropriate financing structure of individual projects.

Current market

For producing companies, the capital raising environment has been far more forgiving in recent years compared with exploration companies and those bringing a new project into production. Arguably, for those with an investment grade credit rating, the availability of low cost, long maturity debt has never been better.

2013 is heading for the first annual decline in bond proceeds, following the record breaking US\$89 billion raised during 2012. Market volatility, particularly in

“Capital allocation has dominated the thoughts of management across the large diversified producers”

the US, has partly contributed to the year on year fall of 23% to US\$68 billion in the 9 months to September 30, 2013. Nevertheless, the investment-grade majors have continued to place bond issues at competitive rates.

Top five bond issues (by proceeds) for 9 months to September 30, 2013

Source: EY, ThomsonONE

Issuer	Investment quality	Coupon range	Maturity range	Total proceeds \$m
BHP Billiton Ltd	Investment grade	2.1% to 5.0%, Floats	3y to 30y	6,708
Freeport-McMoRan Copper & Gold	Investment grade	2.4% to 5.5%	5y to 30y	6,500
Glencore Xstrata Plc	Investment grade	1.7% to 4.1%, Floats	3y to 10y	6,010
Rio Tinto Plc	Investment grade	1.4% to 2.3%, Floats	2y to 5y	3,000
Barrick Gold Corp	Investment grade	2.5% to 5.8%	5y to 30y	3,000

As can be seen above, companies such as BHP Billiton have secured long-dated corporate bonds at very attractive rates, especially when taking into account the maturities of 10 and 20 years and longer, and the fixed rate nature of many of the issues.

This has enabled debt maturities to be pushed out and moved more in line with the life of mine to which they relate, and for balance sheets to be restructured to provide greater financing strength and a lower cost of capital.

Even for those without a credit rating, the high-yield market has been relatively attractive. Average spreads on high-yield bonds with maturities of 5-10 years have fallen in 2013, and while the issuance windows are highly volatile, the high-yield market has still provided a good source of finance for the sector.

Similarly, while project loan finance has been largely sidelined, loans in the broader sense have not been completely inaccessible. Certainly banks have taken a tougher stance on the sector, lowering risk thresholds on the back of Basel III - a voluntary regulatory standard on bank capital adequacy, stress testing and market liquidity risk. But we have seen a significant amount of refinancing by those with robust balance sheets.

Equity, on the other hand has been accessed far less frequently by the producers. This is, one suspects, primarily as a result of depressed share prices, but also as a result of concerns voiced by many investors in the sector that capital has been poorly managed in recent years, forcing down returns and pushing pay-back periods out to unacceptable levels. The age of 'build large and build now' appears to be over.



Alternative sources of finance

Clearly the public-bond markets will continue to play an important role in financing large-scale projects, particularly for those with investment-grade credit rating. Producers are also able to access a wider pool of debt, including commercial loans where access to cash flows brings the ability to service such debt. But there are other sources of finance to consider alongside this and traditional project finance and equity.

Vale illustrated that streaming can be an attractive source of finance for the mining majors also, with its US\$1.9 billion deal with Silver Wheaton, in return for an amount of gold equal to 25% of the life of mine gold production from its Salobo mine, as well as 70% of the gold production, for a 20-year term, from its Sudbury mines located in Canada.

Joint-venture (JV) partners are likely to be considered on a more regular basis for large projects with significant capital outlays. While the overall valuation dynamics need to be carefully thought through, the involvement of another partner can help de-risk a project and provide greater flexibility if initial capital outlay is reduced.

Farm-ins are an extension of the above. Introducing JV partners through convertible or farm-in structures can be an attractive way of reducing capital outlay and bringing expertise into a project that does not exist in-house.

Development banks can bring many benefits beyond pure financing; not least a greater alignment of political and social interests.

Recommendations

Valuation principles are key to any financing decision, regardless of stage of development. But for a producer, where capital for a new project is often secured against the underlying cash flows of an existing asset, it is critical. Not only does the decision over the new financing need to be considered, so does the portfolio effect – i.e. the net value across the entire portfolio of assets from a capital decision and its associated finance. Such considerations need to be made not only at the outset but also on a regular basis thereafter.

The ideal level of gearing is clearly driven by a number of factors, such as cost of capital and the production profile of key projects. But increasingly we are seeing a trade-off between balance-sheet strength and volatility. Essentially, how strong does the balance sheet need to be to cope with the levels of volatility predicted over the period of capital investment? Over the course of the last two years, we have seen dramatic movements in commodity prices, particularly iron ore, platinum and most recently gold. Surviving the shocks of such volatility is a challenge; maintaining capital investment through such shocks is another. The trade-off between robust balance sheets and investment has never been in greater focus.

Optionality in construction is more important than ever – building to full capacity on day one is not necessarily the best way forward. This requires the adoption of valuation and risk analytical techniques that make full use of market,

project and corporate information – not just limited to production parameters and costs but also consideration of metal price behavior, ability to respond to changes in the project environment, and corporate ability to tolerate adverse business conditions. This can be achieved through the development of dynamic valuation techniques. Such techniques are not about calculating a higher net present value (NPV), but about helping to better understand and explain key project and market factors not visible with standard analysis that influence project value and risk. Consequently, this offers management a better understanding of the risk management benefits of incremental project development, which cannot be demonstrated with a static cash flow model alone.

Going it alone is not always the right answer. Considering the benefits that a JV partner may bring is increasingly relevant as projects become more intricate and financing more volatile.

Mayer Brown

Introduction

During the production phase the need for financing will be diminished. The project will be operating and producing cash, some of which will be required to repay any debt finance raised in connection with the development of the project but hopefully sufficient will remain in order to start to provide a return on equity to the sponsor and other investors. However, further finance may be required to fund mine expansions or other capital expenditure. In addition, some financing techniques at this level of mining development may be appropriate to optimise cash flow.

Streaming

Streaming is the provision of an upfront payment (or a series of payments based on development milestones) to a mining company in return for the right to purchase a percentage of production, for example gold, for a certain (long-term) period at a pre-agreed, discounted price (a 'metal stream'). Metal streams often run for many years, or even the life of the mine. The amount by which such upfront payment is less than the market value of metal delivered will be credited against the upfront payment. Investors commonly negotiate a provision whereby any portion of the upfront payment that has not been reduced to zero via such crediting prior to termination of the streaming agreement is repaid to the investor as a means of protecting the investor from underperformance of the mine.

Streaming is a popular form of financing for mines producing precious metals, typically by-products such as silver produced from a gold mine and, for such projects in particular, are a valuable means of extra income, allowing the company to recognise value for its non-core products. Streaming arrangements enable a relatively efficient way of securing funding and involves no shareholder dilution.

The principle points of negotiation of a metal streaming agreement will be the amount of the upfront payment and fixed purchase price, the term, the percent-

age of total production and the method of delivery. The mining company may negotiate an option to buy back a portion of the stream and may want other protections in the event of interruption of production. There may or may not be security provided to the investor (whereas a bank or financial institution providing financing will always want security).

Metal streaming agreements are typically covenant-light compared to debt financing. Since there will be no negative pledge, the mining company retains the option of securing additional funding from other sources, such as commercial loans from banks and other financial institutions if required. The arrangement must be structured carefully in order to avoid adverse tax and accounting treatment. Additionally, any creditor preference provided to the streaming company must be carefully thought through so as not to impact on the mining company's ability to raise finance going forward if needed.

The investor is dependent on production. Since it is not a shareholder, and therefore has little control over management of the mining company, it will place significant focus on technical due diligence of the project, plus jurisdictional risks of the host country, such as political instability, when deciding whether to enter into a streaming arrangement. The investor will be looking for steady, stable production (over a long period of time).

"The investor is dependent on production. Since it is not a shareholder, it will place significant focus on technical due diligence of the project"

Commercial loans

A mining company may require working capital to solve cash-flow problems or for a specific acquisition (such as the purchase of equipment) and may seek a loan from its commercial bank. The conditions precedent for such a loan and the security required by the lender will depend on the amount required and the purpose of the loan. There may be significantly less covenants, representations and conditions required than with project financing. However, if the majority of the loan is in fact related to a single project (i.e. it is a 'project-related corporate loan'), then the Equator Principles (EPs) may apply. The EPs have been discussed in more detail in the 'development' chapter.

The EPs apply to project-related corporate loans that meet the following criteria:

- the majority of the loan is related to a single project over which the client has effective operational control (either direct or indirect);
- the total aggregate loan amount is at least US\$100 million;
- the EPFI's individual initial commitment is at least US\$50 million; and
- the loan tenor is at least two years.

A project-related corporate loan is defined as a loan made to business entities (private, public or state-owned/controlled) related to a single project (either a new

development or expansion) where either:

- (i) the lender looks primarily to the revenues generated by the project as the source of repayment (as with project finance) and where security exists in the form of a corporate or parent company guarantee; or
- (ii) the loan documents (including the term sheet) indicate that the majority of the loan proceeds are directed to the project.

Pre-export finance

Pre-export finance is essentially secured lending to a producer of goods. Funds may be advanced by an institution such as an export-import bank or a trade development bank against confirmed orders from qualified foreign buyers, which would enable the exporter to make and supply the ordered goods. The exporter will arrange a commitment from the buyer to make a payment directly to the lender, who, upon receipt of payment, deducts the loan amount, interest, charges etc and sends the balance to the exporter.

The loan is secured by, firstly, a security assignment of the relevant delivery contracts between the producer and purchaser (offtaker) and the value of the receivables generated under those delivery contracts following sale of the goods and, secondly, a charge over the collection account into which the proceeds of

sale are paid by the final offtaker, or sometimes the debt service reserve account (in which the borrower must maintain a certain minimum deposit).

Production and delivery risk is fundamental as lenders are lending against the cashflow generated by the relevant trade. Lenders will undertake due diligence, for example history of production, reserves and rate of default on customer contracts. In terms of legal risk, lenders will look to the provisions of the underlying contract.

A lender will need to make sure that it is able to take valid security over the offtake contract. For example, a particular contract may contain an absolute prohibition

on assignment, in which case consent would be needed from the counterparty.

Where a contract permits assignment (or, under English law, is silent as to whether assignment is permissible) lenders will take security by assignment. Notice of the security interest should be given to the offtaker in order to perfect the assignment.

If notice is not given there will only be 'equitable assignment', which means the counterparty to the offtake agreement can continue to validly discharge its debt by making payment to the borrower (rather than the lender).

Furthermore, priority between competing security holders under English law is determined by the order of service of notice of the security on the non-assigning party.

"Production and delivery risk is fundamental as lenders are lending against the cashflow generated by the relevant trade"



Further equity

Companies with a producing mine may wish to raise (further) equity in the market. Many major mining companies choose to make a second listing on the New York Stock Exchange or NASDAQ – New York historically has the most liquid markets and extensive investor bases.

For a major mining company wishing to list on the Canadian exchange, a Toronto Stock Exchange (TSX) listing will be required. Listing criteria are more stringent on the TSX than with the TSX Venture Exchange (TSX-V). A prospectus will need to be prepared in the event of an initial public offering (IPO). The main requirements for prospectus disclosure are outlined in National Instrument 41-101 (General Prospectus Requirements) – it must contain full, true and plain disclosure of all material facts relating to the securities being distributed and must not contain a misrepresentation. It must include, among many other things, a description of the issuer and its business, planned use of proceeds received from the issuance of the securities, financial information and risk factors facing the issuer or relating to the securities being issued.

For offerings by an issuer with a material mineral property, a current technical report prepared in accordance with NI 43-101 (Standards of Disclosure of Mineral Projects) must be filed. The requirements are very prescriptive in terms of the way mineral exploration reporting is presented. The report must be prepared by or under the supervision of one or more qualified persons, in the specified form provided under NI 43-101 and accompanied by a certificate and consent of the qualified person in the prescribed form.

“A prospectus will need to be prepared in the event of an initial public offering (IPO)”

BMO Capital Markets

Introduction

Currently, most large miners are focused on de-leveraging, cutting costs, executing projects on budget and increasing capital returns to shareholders, while coping with commodity prices that are well below levels seen even a year ago.

In response, the majors have shown a willingness to tap alternative sources of financing in order to fund capital requirements. In February 2013, Vale SA announced the sale of gold streams from its Salobo copper mine in Brazil and Sudbury nickel mines in Canada to Silver Wheaton Corp for US\$1.9 billion. In addition to providing funds that could be reallocated to help finance its iron-ore growth projects, the transaction highlighted the value of Vale's by-product gold production, which is often overlooked in a company dominated by its ferrous and base metals businesses. Silver Wheaton was able to fund the acquisition through US\$2.5 billion in new bridge and revolving credit facilities.

“This transaction brought forward a revenue stream of a minor commodity that

Production

arguably was not reflected in Vale's share price. The company's move on its precious metals output may cause its large cap peers to rethink their strategy," BMO Capital Markets' Co-Head of Mining Research, Tony Robson, said.

Divestments

Non-core asset disposals are another common way that producers raise capital to fund key projects and bolster their balance sheets. They tend to dispose of smaller, mature assets that produce commodities in geographies where they lack sufficient scale. In its fiscal 2013, BHP Billiton announced or completed US\$6.5 billion of divestments including the sale of its Pinto Valley copper mine in the US, its diamonds business and its stake in Richards Bay Minerals in South Africa. Rio Tinto has been similarly active having recently announced the sale of smaller-scale assets including the Northparkes copper-gold mine in Australia; the Palabora copper-magnetite mine in South Africa; and the Eagle nickel project in the US. The company has also launched numerous other sales processes.

Recent divestments by large mining companies

Parties		Announce- ment date	Name
Seller	Buyer		
Anglo American	Zamin Ferrous	25-Sep-13	Amapa
Barrick Gold	Gold Fields	22-Aug-13	Yilgarn South
	Various buyers	23-Jul-13	Energy assets
	Institutional investors	26-Apr-13	Highland Gold
BHP Billiton	Capstone Mining	29-Apr-13	Pinto Valley
	PetroChina	12-Dec-12	East / West Browse JVs
	Dominion Diamond	13-Nov-12	EKATI
	Cameco	27-Aug-12	Yeelirrie
	Rio Tinto	01-Feb-12	Richards Bay Minerals
Glencore Xstrata	PanAust	31-Oct-13	Frieda River
Newmont	Waterton Global	17-Sep-13	Midas operations
	Institutional investors	11-Jul-13	Canadian Oil Sands stake
	TMAC Resources	28-Jan-13	Hope Bay
Rio Tinto	Glencore Xstrata / Sumitomo Corp.	25-Oct-13	Clermont
	China Molybdenum	29-Jul-13	Northparkes
	Lundin Mining	12-Jun-13	Eagle
	South African / Chinese consortium	11-Dec-12	Palabora
Vale	Glencore International	12-Jul-12	European manganese ops



Historically, asset disposals by the majors have provided mid-tier miners an opportunity to acquire mature but well-managed operations. These transactions allow mid-tiers to diversify their asset base and potentially eliminate the discount that can be associated with single-asset companies. Recent acquirers of non-core assets from the majors include Capstone Mining Corp (acquired BHP’s Pinto Valley copper operation in the US), China Molybdenum Company Ltd (acquired Rio’s Northparkes copper-gold mine in Australia) and Lundin Mining Corp (acquired Rio’s Eagle nickel project in the US). However, going forward, there is potential that mid-tier miners will face increased competition for bolt-on opportunities from two relatively new entrants into the sector – private equity and sovereign wealth funds.

Private equity and sovereign wealth funds

Over the past several years, there has been much discussion regarding private equity and sovereign wealth funds emerging as serious participants in the mining sector. However, they have not yet been as active as some analysts have predicted. Most transactions involving private equity firms have been minority investments in juniors, while the sovereign wealth funds have made minority investments

Asset				
	Interest	Location	Primary Commodity	Proceeds (US\$m)
	100%	Brazil	Iron ore	\$264
	100%	Australia	Gold	\$266
	100%	Canada	Oil	\$435
	20.4%	Russia	Gold	\$130
	100%	USA	Copper	\$650
	8.33% / 20%	Australia	LNG	\$1,630
	80%	Canada	Diamonds	\$553
	100%	Australia	Uranium	\$430
	37.8%	South Africa	Titanium	\$1,700
	80%	Papua New Guinea	Copper	\$125
	100%	USA	Gold	n/a
	6.4%	Canada	Oil	\$587
	100%	Canada	Gold	n/a
	50.1%	Australia	Thermal coal	\$1,015
	80%	Australia	Copper	\$820
	100%	USA	Nickel	\$315
	57.7%	South Africa	Copper	\$373
	100%	France, Norway	Manganese	\$160

in the larger miners. Examples of sovereign wealth fund activity includes Singapore's Temasek Holdings Ltd's C\$500 million investment in Inmet Mining Corp (2010) and China Investment Corp's US\$1.5 billion and US\$425 million investments in Teck Resources Ltd (2009) and Polyus Gold International Ltd (2012) respectively.

There has not yet been significant momentum in the mining space as the traditional private equity model has historically focused on other sectors like manufacturing, services and retail. Mining is a highly cyclical business and for

“While sovereign wealth funds benefit from longer investment horizons and abundant, low-cost funding, they tend to prefer investments with low volatility”

much of the last decade, valuations have been at historic highs. Private equity firms also generally exit within 3-5 years, which can be an insufficient time-frame in a business where assets can take a decade to develop, and tend to utilise leverage in order to enhance overall returns, which significantly compounds risk in such a cyclical industry. While sovereign wealth funds benefit from longer investment horizons and abundant, low-cost funding, they tend to prefer investments with low volatility. A final variable is that traditionally, most private equity firms and sovereign wealth funds have lacked the managerial expertise to operate mining investments independently and have had to instead rely on third parties.

But these entities may be evolving, with select private equity firms making up significant ground of late. For example, in September 2013, former Xstrata plc executives Mick Davis and Trevor Reid announced the formation of a private mining vehicle called X2 Resources. The company, which aims to become a mid-tier diversified miner, is backed by US-based private equity group TPG and commodities trader Noble Group, which together contributed US\$1 billion in capital. In 2012, Roger Agnelli,

Various mining companies backed by private equity and sovereign wealth funds

Entity	Key Management
X2 Resources	Mick Davis / Trevor Reid (ex-Xstrata)
QKR Corporation	Lloyd Pengilly / Roger Kennedy (ex-JPMorgan)
B&A Mineração	Roger Agnelli (ex-Vale)
Americas Now	Kaihui Yang
Cupric Canyon	Timothy Snider / Dennis Bartlett (ex-Freeport / Phelps)
Magris Resources	Aaron Regent (ex-Barrick, ex-Falconbridge)

the former chief executive (CEO) of Vale SA, and BTG Pactual, a Brazilian investment bank, formed a similar private venture called B&A Mineração. B&A is focused on iron ore, copper and fertiliser assets located in South America and Africa.

This combination of experienced mining professionals, newly-raised buyout funds dedicated to the sector, depressed market valuations and increased portfolio reviews by the large miners may lead to materially increased private equity involvement in the sector. Over time, it could become more common for mid-tier miners to find themselves facing off against both private equity-backed miners and Asian strategics for operations being auctioned by the majors.

Another trend of note is that producers are using the sales of minority stakes to assist with de-leveraging. In 2013, ArcelorMittal sold a 15% interest in its AMMC iron ore operations in Canada to POSCO and China Steel for US\$1.1 billion.

In order to assist with debt repayment, China's MMG Ltd recently sold a 19.6% stake in its Kinsevere mine in the Democratic Republic of the Congo to GUOXIN International Investment. Even BHP Billiton, the world's largest miner, recently disclosed that it may sell a minority interest in its Jansen potash project in Canada to one or more partners. BHP also recently sold a 15% stake in the Jimblebar iron-ore project to two Japanese traders for US\$1.5 billion.

Offtake agreements

Producers can also raise funding through offtake agreements, much like their development peers. A recent example is Tiger Resources Ltd's copper cathode offtake agreement with trader Gerald Metals, which included a US\$50 million advance payment facility, repayable in 12 equal monthly installments plus interest. Another example is Amara Mining plc's 2012 strategic partnership with Samsung C&T, the construction and trading division of South Korea's Samsung Group. Samsung provided Amara with a US\$20 million loan facility, which is repayable over a 22 month term plus interest, in return for the right to purchase a fixed amount of gold production at a 2.25% discount to spot. All in, Amara estimated a total cost of funds of 10% per annum and Samsung gained access to a reliable supply of

Fund Details		
Sponsor	Assets (US\$m)	Focus
TPG / Noble Group	\$1,000	Aim to create a mid-tier diversified miner
Qatar / Kulczyk / Och-Ziff / BTG Pactual	\$1,000	South America and Africa
BTG Pactual	\$520	Iron ore, fertilizers and copper in South America / Africa
Zijin Mining / Sprott Inc.	\$110	Precious metals with a focus on gold
Barclays Capital	\$100	Primarily copper
n/a	n/a	Mining assets on a global basis

gold bullion, which could be used in various production processes within the conglomerate.

Royalty and streaming deals

Rather than diluting their ownership interest in key assets, other producers have instead turned to royalty and streaming transactions as a means to raise funds for expansion projects.

Such deals also avoid the restrictions associated with debt financing and prevent diluting existing shareholders in a capital raise. Recent examples include Lake Shore Gold Corp's 2012 sale of a 2.25% net smelter return royalty from its Timmins West Complex in Canada to Franco-Nevada Corp for US\$35 million and London Mining plc's sale of a 2% royalty from its Marampa iron-ore mine in Sierra Leone to BlackRock World Mining Trust for US\$110 million. Note that one of the key downsides of such transactions is the immediate impact on the producer's total cash costs, which are presented inclusive of royalties.

Conclusion

The investment community has awoken to the fact that recent periods of relatively high commodity prices have not translated into correspondingly high investment returns, partly due to cost inflation eroding margins and the widely-held objective, until recently, for mining companies to focus on production growth rather than the marginal profitability of additional output. As a result, we are now in a period where the mining industry must demonstrate its new focus on generating returns on investment to the traditional providers of capital, who are likely to remain sceptical for some time.

“Miners will need to consider new options in order to advance projects from development through to production”

Traditional sources of funding are expected to remain tight while institutional shareholders continue to scrutinise how miners allocate capital and until returns reach levels that are comparable to other industries. To fill this funding gap, miners will need to consider new options in order to advance projects from development through to production. Alternative forms of financing

are likely to play an important role in the mining sector for the foreseeable future with increasing levels of innovation and creativity being applied.

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Technical considerations

SRK Consulting

This chapter largely focuses on the acquisition of technical knowledge through the evolutionary development of mineral assets, specifically in the context of what is deemed appropriate for meeting expectations from the mining finance community.

Mineral asset development stages

Mineral assets comprise all property including, but not limited to, real property, intellectual property, mining and exploration tenements held or acquired in connection with the exploration of, the development of and the production from those tenements together with all plant, equipment and infrastructure owned or acquired for the development, extraction and processing of minerals in connection with those tenements.

Mineral asset classification

- **Exploration property:** properties where mineralisation may or may not have been identified, but where a mineral resource has not been identified.
- **Advanced exploration property:** properties where considerable exploration has been undertaken and specific targets have been identified that warrant further detailed evaluation, usually by drill testing, trenching or some other form of detailed geological sampling. A mineral resource estimate may or may not have been made, but sufficient work will have been undertaken on at least one prospect to provide both a good understanding of the type of mineralisation present and encouragement that further work will elevate one or more of the prospects to the resource category.
- **Pre-development property:** properties where mineral resources have been identified and their extent estimated (possibly incompletely) but where a decision to proceed with development has not been made. Properties at the early assessment stage, properties for which a decision has been made not to proceed with development, properties on care and maintenance and properties held on retention titles are included in this category if mineral resources have been identified, even if no further valuation, technical assessment, delineation or advanced exploration is being undertaken.
- **Development property:** properties for which a decision has been made to proceed with construction and/or production, but which are not yet commissioned or are not yet operating at design levels.
- **Operating mines:** mineral properties, particularly mines and processing plants that have been commissioned and are in production.

Mineral resources and ore reserve reporting standards

Introduction

Developing and maintaining international standards for the reporting of mineral reserves, mineral resources and exploration results is important. With an increasingly globalised mining industry, the commodity wealth of countries attracting strong political attention and the impact that minerals have on the financial, accounting and investment communities, the need for common terminology and understanding across country boundaries and language barriers has never been greater.

Reporting standard

The historical evolution of reporting standards over the past 50 years or so, inevitably reflects the varied influence of governmental institutions striving to derive a 'precise' standard and professional institutions seeking to establish a technical basis for comparative assessments.

From the 1990s onwards, the influences of the financial community, specifically regulatory bodies which govern the operation of international stock exchanges, have shaped both reporting standards as well as the requirements for on-going disclosure, capital raising and other related transactions.

The prevalence of reporting standards therefore necessitated a means for establishing direct comparison/translation between one standard and another. Accordingly, the establishment of the Combined Reserves International Reporting Standards Committee (CRIRSCO) in 1994 under the auspices of the Council of Mining and Metallurgical Institutes (CMMI) led to the development of the CRIRSCO International Reporting Template, first published in 2006. This is a document that represents the best of the CRIRSCO-style codes – reporting standards that are recognised and adopted world-wide for market-related reporting and financial investment.

Accordingly any standard as developed by national reporting organisations which has been mapped against the CRIRSCO International Reporting Template may be defined as an Internationally Recognised Reporting Standard (IRRS).

CRIRSCO is also recognised by global organisations such as the International Accounting Standards Board (IASB), the United Nations Economic Commission for Europe (UNECE) and the International Council on Mining and Metals (ICMM) – the latter is the key international organisation representing the mining industry on issues relating to the classification and reporting of mineral assets.

Key concepts

Reporting of mineral resources and ore (mineral) reserves in accordance with the IRRS specifies the mandatory membership of specific professional institutions which institutions must include an enforceable code of ethics within its articles of association.

Accordingly, each IRRS publishes, from time to time, a complete list of professional institutions which membership thereof inter alia is acceptable for support-

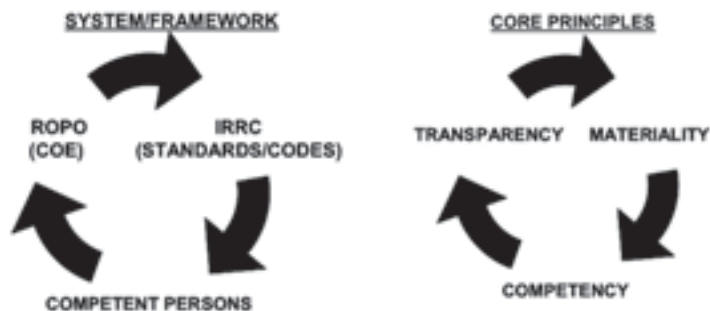
ing the reporting under each IRRS separately. The above also endorses the principle of the Recognised Overseas Professional Organisations (ROPOs) system.

A further consideration, which is unique to the minerals sector and so far to the CRIRSCO family of standards, is that of the Competent Person. All of the western standards are based on principles that are designed to apply across commodities and throughout the development process of a mine from exploration through to production.

To make such a system work requires skilled and experienced people that can apply the mechanical parts of estimation while thinking clearly about the logic and the uncertainties in the process. Competent Persons must have a minimum of 5 years' experience relevant to the style of mineralisation and type of deposit under consideration and be members of professional bodies, with enforceable rules of conduct. With respect to the requirements and responsibilities of the Competent Person the IRRS respectively define the requirements for the core principles including competency, transparency and materiality. In this respect authors are referred to the respective IRRS, specifically with respect to competency requirements.

Accordingly, the key considerations for mapping national reporting standards to the CRIRSCO International Reporting Template are the embodiment of the following key concepts:

- definition of a Competent Person and/or qualified person;
- membership of recognised professional institutions which have an enforceable code of ethics;
- reciprocity, specifically with respect to recognised overseas professional organisations; and
- quality as reflected by the defining core principles of competency, transparency and materiality.



International recognised reporting standards

The following reporting standards have all been mapped to the CRIRSCO International Reporting Template.

- The Australasian Code for Reporting of Exploration Results, Mineral Resources

and Ore Reserves published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia, as amended (JORC Code) 2012 – www.jorc.org.

- The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves published by the South African Mineral Resource Committee under the joint auspices of the Southern African Institute of Mining and Metallurgy and the Geological Society of South Africa, as amended (SAMREC Code) 2007 – www.samcode.za.
- The various standards and guidelines published and maintained by the Canadian Institute of Mining, Metallurgy and Petroleum, as amended (CIM Guidelines) 2010 – www.cim.org.
- A Guide for Reporting Mineral Exploration Information, Mineral Resources and Mineral Reserves prepared by the US Society for Mining, Metallurgy and Exploration, as amended (SME Code) 2007 – www.smenet.org.
- The Pan European Resources Code jointly published by the UK Institute of Materials, Minerals, and Mining, the European Federation of Geologists, the Geological Society, and the Institute of Geologists of Ireland, as amended (PERC Code) 2013.
- Certification Code for Exploration Prospects, Mineral Resources and Ore Reserves as published by the Instituto de Ingenieros de Minas de Chile, as amended (Chile Code) 2004 – www.minmineria.cl.
- Russian Code for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves prepared by the National Association for Subsoil Examination (NAEN) and the Society of Russian Experts on Subsoil Use (OERN) (NAEN Code) 2011.

“There also remain certain standards which are in force, but not mapped to the CRIRSCO template”

- A Code for reporting on Mineral Resources and Ore Reserves, established by the Joint Committee of the Venture Capital Segment of the Lima Stock Exchange, (Peru Code) 2003 – www.bvl.com.pe.

Whilst the IRRS have been largely incorporated within the listing requirements of various international stock exchanges, there also remain certain standards which are in force, but not mapped to the CRIRSCO template. A notable example is the United States

Securities and Exchange Commission (SEC) Industry Guide 7 (IG7) including the terms and definitions as published in IG7 by the SEC in 2001.

Furthermore it should be noted that various initiatives are underway regarding alignment of various national bodies to align other reporting codes with the CRIRSCO International Reporting Template for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves (2006), which specifically include the state approved reporting codes in China; and in addition other initiatives in Indonesia and the Philippines.

Mineral asset valuation standards

Introduction

The development of mineral asset valuation standards, when compared to the IRRS for mineral resources and ore reserves, is relatively recent (2000 onwards). Furthermore these have evolved through the amalgamation of common practices established in the financial sector (auditors and analysts) and technically focused valuation practitioners.

International valuation standards

Three main international valuation standards have been established to date, which are focused on the mining and metals sectors. These are largely reflective of the approach followed by professional institutions in establishing the IRRS and comprise:

- the Code for Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports, prepared by a joint committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and the Mineral Industry Consultants Association, as amended (VALMIN Code) 2005;
- the South African Code for the Reporting of Mineral Asset Valuation, prepared by the South African Mineral Valuation Committee under the joint auspices of the Southern African Institute of Mining and Metallurgy and the Geological Society of South Africa, as amended (SAMVAL Code) 2007; and
- the Standards and Guidelines for Valuation of Mineral Properties endorsed by the Canadian Institute of Mining, Metallurgy and Petroleum, as amended (CIMVAL Code) 2003.

Valuation approach and valuation methods

In general there are three main accepted analytical valuation approaches that are in common use for determining fair market value (defined below) of mineral assets, each of which largely rely on the principle of substitution, using market derived data.

The fair market value is defined in respect of a mineral asset, as the amount of money (or the cash equivalent of some other consideration) determined by a relevant expert for which the mineral asset should change hands on the relevant date in an open and unrestricted market between a willing buyer and a willing seller in an 'arm's length' transaction, with each party acting, knowledgeably, prudently and without compulsion. The fair market value is usually comprised of two components, the underlying technical value (defined below) of the mineral asset, and a premium or discount related to market, strategic or other considerations.

The technical value is defined as, an assessment of a mineral asset's future net economic benefit at the valuation date under a set of assumptions deemed most appropriate by a relevant expert or specialist, excluding any premium or discount

to account for such factors as market or strategic considerations.

Valuation methods are, in general, subsets of valuation approaches and, for example, the income based approach comprises several methods. Furthermore, some methods can be considered to be primary methods for valuation while others are secondary methods or rules of thumb, considered suitable only to benchmark valuations completed using primary methods.

In summary, however, the various recognised valuation methods are designed to provide the most accurate estimate of the mineral asset or property value in each of the various categories of development. In some instances, a particular mineral asset, property or project may comprise assets which logically fall under more than one of the previously discussed development categories (p67).

Application to the valuation of mineral assets

The application of valuation approach and method to mineral assets is largely dependent upon determined development status. Table 1 specifically compares the application of the three valuation approach categories to mineral assets classified as: exploration property; advanced exploration property; development

Table 1: Valuation approach – mineral asset development stage

Valuation approach	Exploration property	Advanced exploration property	Development property	Operating property
Income	No	In some cases	Yes	Yes
Market	Yes	Yes	Yes	Yes
Cost	Yes	In some cases	No	No

Table 2: Valuation approach and valuation method ranking

Approach	Method	Method ranking
Income	Discounted cash flow	Primary
	Monte Carlo analysis	Primary
	Option pricing	Primary
	Probabilistic methods	Secondary
Market	Comparable transactions	Primary
	Option agreement terms	Primary
	Gross "in-situ" metal value	Secondary
	Net metal value or value per unit of metal	Secondary
	Value per unit area	Secondary
	Market capitalisation	Secondary
Cost	Appraised value	Primary
	Multiple of exploration expenditure	Primary
	Geoscience factor	Secondary



property; or operating property. Table 2 provides an assessment of the application of differing valuation methods within each valuation approach as well as their relative ranking.

Exploration property and advanced exploration property

In the case of an exploration property, and to a lesser extent an advanced exploration property, the potential is more speculative and the valuation is dependent to a large extent on the informed, professional opinion of the valuator. Where useful previous and committed future exploration expenditure is known, or can be reasonably estimated, the Multiple of Exploration Expenditure (MEE) method (also known as the Past Expenditure Method) is considered to represent one of the more appropriate valuation techniques.

This method involves assigning a premium or discount to the relevant effective Expenditure Base (EB), represented by past and/or future committed expenditure, through application of a Prospectivity Enhancement Multiplier (PEM). This factor directly relates to the success or failure of exploration completed to date, and to an assessment of the future potential of the asset.

The method is based on the premise that a grass-roots project commences with a nominal value that increases with positive exploration results from increasing exploration expenditure.

Conversely, where exploration results are consistently negative, exploration expenditure will decrease along with the value.

The MEE method relies on the assumption that well directed exploration adds value to a property. This is not always the case and exploration can also downgrade a property. The PEM, which is applied to the effective expenditure therefore commonly ranges from 0.5 to 3.0.

A similar situation may apply where economic viability cannot be readily

Comments	
	Very widely used
	Less widely used
	Not widely used and not widely understood
	Not widely used, not much accepted
	Widely used with variations
	Widely used but option aspect commonly not discounted
	Not acceptable
	Widely used rule of thumb
	Used for large exploration properties
	More applicable to valuation of single property asset junior companies than to properties
	Widely used but not accepted by all regulators
	Similar to the appraised value method but includes a multiplier factor
	Not widely used

demonstrated for a mineral resource assigned to a higher confidence category. In these instances it is frequently appropriate to adopt the in-situ mineral resource (or yardstick) method of valuation for these mineral assets or properties. This technique involves application of a heavily discounted valuation of the total in-situ metal contained within the resource. Historically, this usually equates to a range of 2% to 4.5% of the spot commodity price as at the valuation date, but may vary substantially in response to a range of additional factors including physiography, infrastructure and the proximity of a suitable processing facility.

Pre-development, development and operating property

Mineral assets and/or properties which are classified as either a pre-development, development or operating property are generally accompanied by measured and indicated mineral resources and ore reserves, specifically where technical studies completed to a minimum of pre-feasibility study (PFS) level demonstrate that extraction is both technically feasible and economically viable. In such instances mining and processing assumptions, operating expenditures and capital expenditures are either known or can be reasonably determined. Accordingly valuations can be derived with a reasonable degree of confidence by compiling a discounted cash flow (DCF) and determining the net present value (NPV).

Technical study standards

Introduction

The following section includes a broad summary of the typical types of technical studies completed in respect of mineral assets as they progress through each development stage. Technical information expected in respect of exploration properties is discussed separately and these are generally focused on the development of exploration programmes comprising: activities; schedules; and associated expenditures, which are deemed warranted given the available geological information.

Technical studies

The development of international technical study standards has to some degree lagged the more formal and structured processes established for development of mineral resource and ore reserve reporting standards. Nevertheless, common usage has established common terminology where progression from conceptual/scoping, through PFS to feasibility study (FS) largely parallels the development stage as the extent and influence of site specific information and level of engineering increases. Furthermore, and largely owing to an apparently broad spectrum for feasibility studies and the need for differentiation for project finance considerations, recent developments introduced the concepts of definitive feasibility studies (DFS) and/or bankable feasibility studies (BFS). During the recent commodity price boom further developments included: the direct progression to single option feasibility studies and omitting the PFS stage; or advancing directly



to front end engineering design (FEED) as a precursor/parallel to engineering, procurement and construction management (EPCM).

The principal technical disciplines to be addressed in the development of mineral assets, albeit to appropriate and different levels at each development stage, comprise that noted in Table 3 below.

Table 3: Technical study – key criteria status

• Exploration	• Human resources
• Geology and mineral resources	• Occupational health and safety
• Mining geotechnical	• Environmental and social
• Hydrogeology/hydrology	• Project execution
• Mining engineering	• Operating expenditure
• Mineral/metallurgical processing	• Capital expenditure
• Waste management facilities	• Marketing
• Infrastructure and services (mine-site)	• Legal (ownership, tenure, approvals)
• Infrastructure (transport corridor/port)	• Financial analysis and funding

The range of technical studies can be largely grouped in accordance with the following key criteria:

- classification of Mineral Resources;
- the overall study objectives;
- the availability of, and reliance on, site-specific technical information;
- the degree of engineering completed, measured by reference to percent complete;
- design basis and cost estimation methodology;
- cost estimation accuracy for both capital and operating expenditures; and
- the level of contingency deemed applicable.

Table 4 (p76) presents a detailed summary of the range of technical studies completed and the expected level of detail to support such studies.

Exploration properties

The advancement of exploration properties is largely affected through the development of well-defined exploration programmes comprising scheduled activities, associated expenditures and targeted milestones. The overall process can be readily subdivided into the following three key areas, which, for grassroots exploration, culminate in the delineation of mineral resources.

- **Regional scale area selection** – This is largely focused on geologically prospective areas in a mineral field, geological region or terrain. Specifically this combines ore genesis theories pertaining to known ore type occurrences and geological maps to make predictions and draw parallels between the physical forms of such occurrences and the unknown potential of identifying a ‘lookalike’ area of interest within the area selected. This process may also be supplemented

Item	Scoping/conceptual study	Pre-feasibility study
Classification	Indicated/Inferred	Measured/Indicated
Study objectives	Generate a range of options. Provide information to justify a decision to proceed to a PFS, continue further data collection and assessments, or abandon the project.	Examine options and select the preferred option. Provide information to justify a decision to proceed to a FS, continue with further data collection and assessments, or abandon the project.
Percent engineering complete	2% to 5%	5% to 15%
Quotations/tenders – supporting the estimates	None – Benchmark data from other projects and operations.	Equipment quotes and benchmark material supply and construction rates. Contracts factorised from existing arrangements with preliminary negotiations as to the likely differences.
Cost estimate accuracy	In the order of $\pm 50\%$	In the order of $\pm 30\%$
Contingency	>30%	20% to 25%
Typical time required to submit draft report	3 - 6 months	6 - 12 months
Typical cost to complete report	0.2% of project value	0.5% to 2% of project value

Below: Typical technical study definitions

Operation

A Life-of-mine plan (LoMp), the scope of which is multi-disciplinary in nature, the foundations of which comprise: the annual mineral resource and ore reserve statements; mine to mill to saleable product production schedules; annual operating budgets; activity and element based operating expenditures; detailed on-going and project capital expenditure requirements; an integrated financial model to establish as a minimum post-tax pre-finance schedules. In addition it is expected that the base case encompasses depletion of the ore reserves as well as all necessary considerations for additional infrastructure requirements, inter alia: waste deposition (mine waste and process plant residue); water management (dewatering/water treatment); off-mine infrastructure (transport corridors and port facilities); and mine closure considerations.

EPCM

Commissioning and turnover to operations: Vendor representatives and field engineering personnel take part in the formal completion of the project including proof of operability testing and acceptance by the owner that the project construction and performance is as per the design and that it meets the required plant performance and safety requirements. In parallel, the final operating control programmes are completed, installed, and tested. All final project information including final design packages, as-built drawings, contract packages and contract close-out documents, operations and maintenance manuals for equipment, quality assurance/quality control records, commissioning records etc are assembled and formally turned over to the owner.

Construction

Site construction: During the course of construction, “home office” and field engineering will address construction change and drawing/specification clarification issues which arise during the course of construction, carry out inspections to confirm that construction is as per the design, and confirm adherence to appropriate quality control practices. Site engineers may also be required to confirm appropriate as-built records are kept, assemble records of vendor documents (installation instructions, operating manuals, maintenance manuals), and other construction control activities

Commissioning

Detailed engineering: This stage includes completion of detailed designs based on the project scope and concept designs approved in the FS, and the issuing of “for construction” designs, provision of construction and equipment specifications, scope of work packages for contract documents, definition of and procedures for construction quality control, etc. The purchase of key plant equipment often occurs prior to or in parallel with this stage of design, as vendor drawings for equipment are required in order to complete the detailed engineering designs

Feasibility study

A comprehensive study of a mineral deposit in which all geological, engineering, legal, operating, economic, social, environmental and other relevant factors are considered in sufficient detail so that it could reasonably serve as the basis for a final decision by a financial institution to finance the development of the deposit for mineral production. For the avoidance of doubt, this would commonly ensure that the technical feasibility and economic viability of the mineral deposit has been demonstrated on a multi-disciplinary basis to what is commonly known as “bankable standards”. In a FS the declaration of ore reserves would be expected and



Feasibility study	Project execution
Ore reserves	Ore reserves
Maximise the 'value' of the preferred option. Provide information to justify a decision to proceed to detailed design and construction, continue with further data collection and assessments, or abandon the project.	
25% to 50%	100%
Multiple firm equipment quotes.	Equipment on order, tendered or firm quotes available.
Multiple material supply and construction quote and rates checked. Contracts negotiated to binding heads of agreement or near final agreements specific to the business case.	Tenders for equipment, material, supply and construction costs. Some contracts awarded. Completed and executed mine, rail and port contracts specific to the project.
In the order of $\pm 10\%$ - $\pm 20\%$	In the order of $\pm 10\%$
10% to 15%	5% to 10%
± 18 months	n/a
4% to 8% of project value	n/a

Table 4: Technical study – key criteria status

the economic viability of the mineral deposit could be demonstrated with sole reliance on the depletion of the ore reserves without inclusion of mineral resources. In parallel to the development of the FS it is normally expected that an Environmental and Social Impact Study would have been completed. Typical contingencies included within the capital expenditure estimate range between 10% and 15% and accuracy ranges are typically $\pm 15\%$.

Pre-feasibility study

A comprehensive study of the viability of a mineral project that has advanced to a stage where the mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, has been established and an effective method of mineral processing has been determined, and includes a financial analysis based on reasonable assumptions of technical, engineering, legal, operating, economic, social, and environmental factors and the evaluation of other relevant factors which are sufficient for a qualified person, acting reasonably, to determine if all or part of the Mineral Resource may be classified as an Ore Reserve. For the avoidance of doubt this would commonly ensure that the technical feasibility and economic viability of the mineral project has been demonstrated on a multi-disciplinary basis to PFS levels and accordingly the declaration of Ore Reserves would be expected. SRK notes that such studies are not normally dependent on Inferred Mineral Resources to demonstrate economic viability and generally include appropriate contingencies ($\pm 20\%$ to 25%) with respect to capital expenditures to account for the lower amount of site specific engineering designs completed compared to that normally included in a FS. Furthermore it is also general industry practice to acknowledge that such studies in reflecting a lower degree of accuracy are accompanied by higher accuracy/sensitivity ranges ($\pm 20\%$). Key deliverables of a PFS would include a recommendation of a single and sufficiently positive technical and economic outcome such that advancement to FS level is warranted.

Scoping study

A study that includes an economic analysis of the potential viability of mineral resources taken at an early stage of the project prior to the completion of a PFS. A scoping study may be based on measured, indicated, or inferred mineral resources or a combination of any of these and include disclosure of forecast mine production rates and may contain capital costs to develop and sustain the mining operation, operating costs. For the avoidance of doubt a scoping study would seek to establish the mining method and process route to establish the nature and scale of the mineral project. A scoping study would have limited site specific data in respect of key operating assumptions and would only address certain disciplines on a high level fatal flaw basis. Both the contingency ($>30\%$) and accuracy/sensitivity ($\pm 30\%$) associated with key assumptions are generally higher than that assumed for the PFS. Key deliverables of a scoping study would include the determination of sufficiently positive technical and economic outcomes such that advancement to PFS level is warranted. A scoping study is preliminary in nature, in that it generally includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorised as ore reserves, and there is no certainty that the technical and economic aspects presented will be realised.

Conceptual study

A study that incorporates inherently lower level of accuracy and confidence with respect to technical and economic parameters normally included in a scoping study. A conceptual study may only include inferred mineral resources and/or further assumptions regarding exploration targets. Accordingly site specific data may be limited and reliance on generic assumptions derived from comparable situations is common.

by remote sensing data (aerial photography; satellite imagery) processing and analysis.

- **Target selection (mineral licence scale)** – Following the identification of areas of interest this typically involves geological investigations via site specific intrusive investigations including: geological mapping; large scale geophysics (airborne; satellite imagery) and geochemical investigations and/or intensive geophysical testing of the surface and sub-surface geology. In certain instances, specifically where the surface comprises soil, alluvium and platform cover, exploration drilling may be performed directly as a mechanism for generating targets.
- **Definition drilling** – On identification of specific local scale targets identified within exploration licences, exploration activities extend to trenching and/or drilling to test outcrops and/or structural lineaments. The ultimate aim is to test and hopefully delineate an exploration target (JORC, 2012) with a quantifiable range of tonnage and grade/quality of a mineral occurrence. Typically this is achieved by execution of a detailed drilling programme comprising a designed drilling grid, geological logging, sample collation and laboratory testing supplemented by appropriate quality assurance and quality control.

Typically, exploration programmes are inexorably linked to specific legally binding commitments associated with the award of exploration licences. Furthermore, it is generally accepted that unless results dictate otherwise, some degree of areal relinquishment is expected on an agreed milestone/timeline basis. Accordingly development of a detailed and well-managed exploration programme is key to the management of stakeholder (investor, governmental, community) expectations.

Environmental and social management

Introduction

The modern view of the environmental and social management that should be in place for a mining project during different stages of its life is influenced by national legislation and international standards applied by development financiers as outlined in this section.

Key environmental and social management tools

Both national legislation and international standards generally require that an environmental and social impact assessment (ESIA) is undertaken for a mining project, during the planning of the project. An ESIA report is complemented by an environmental and social management plan (ESMP) or series of ESMPs. ESIA's and ESMPs are often used to set legally binding conditions of environmental approval.

Implementation of ESMPs requires an environmental and social management system (ESMS). Elements of an ESMS include top-level management commitment (reflected in policies); an obligations register (covering relevant legal requirements; conditions of approvals/permits; conditions of loans and other commit-

ments); both financial resources and competent human resources to implement management measures; on-going monitoring and corrective action where necessary; auditing; and management review of the system to ensure continued acceptable performance.

Stakeholder engagement is an integral part of an ESIA process. International standards promote stakeholder engagement beyond the ESIA process, with the aim of establishing constructive and responsive relationships with stakeholders and using stakeholder engagement as a key tool in the management of project impacts and risks.

National legislation applicable to mining projects

Environmental legislation

Most countries in the world have modern environmental legislation that includes an overarching environmental management law and ESIA legislation¹. The ESIA legislation in most countries is very similar but there are big differences between countries in the interpretation, application and enforcement of the legislation.

In most countries, ESIA approval is the primary environmental approval that has to be obtained for a mining project. Secondary approvals include permits for water use, effluent discharges, emissions, waste disposal and use of hazardous substances.

Mining sector legislation

Most countries that are rich in mineral resources have modern mining legislation that provides for the management of the environmental and social impacts of mines. Generally this legislation requires:

- observance of legislation on the environment and land rights and land acquisition;
- ESIA approval in terms of environmental legislation from competent environmental authorities prior to granting of an exploitation/mining licence;
- effort to be made to preferentially employ people from local communities or, at least, citizens of the host country and to procure goods and services from providers within the host country;
- effort to be made to train local people so that they are able to realise the economic opportunities created by the mining development;
- effort to be made to contribute to sustainable economic development in the region of the mining project; and
- mines to be closed in a manner that does not compromise public health and safety and supports biodiversity.

There is a trend for mining legislation to include requirements to submit the following as part of the mining licence application.

- Evidence of ESIA approval and adequate stakeholder engagement in the ESIA process.

- Evidence of surface rights and resettlement action plans (RAPs), or framework RAPs, where people need to be resettled to make way for mining.
- Plans to enhance socio-economic benefits of the development including community development plans and/or agreements.
- Closure plans and evidence of financial provision for rehabilitation and closure of the mine.

International standards applied by development financiers

IFC Performance Standards

The International Finance Corporation (IFC) Performance Standards on Social and Environmental Sustainability (first published in 2006; updated in January 2012) are recognised as the best and most comprehensive standards available to financiers working with the private sector. The eight standards cover these subjects:

- PS 1 – assessment and management of environmental and social risks and impacts;
- PS 2 – labour and working conditions;
- PS 3 – resource efficiency and pollution prevention;
- PS 4 – community health, safety and security;
- PS 5 – land acquisition and involuntary resettlement;
- PS 6 – biodiversity conservation and sustainable management of living natural resources;
- PS 7 – indigenous peoples; and
- PS 8 – cultural heritage.

The IFC Performance Standards are complemented by the World Bank Group Environmental, Health and Safety (EHS) guidelines (April 2007), comprising a series of general EHS guidelines and industry sector EHS guidelines.

Equator Principles

The Equator Principles (EPs) is a risk management framework adopted by financial institutions (see p21). Equator Principle Financial Institutions (EPFIs) will not provide project finance or project-related corporate loans where the project does not comply with the EPs. The EPs require that the mining projects (category A projects) undertake an ESIA, produce an ESIA report, develop an ESMP, establish and maintain an ESMS and undertake effective stakeholder engagement. The ESIA must address compliance with host country legislation and in all countries, other than a few listed on the EP website, the ESIA must also observe the relevant IFC Performance Standards and the World Bank Group EHS guidelines.

Relevant requirements of mineral resource and ore reserve reporting standards

The IRRS require that that mining, metallurgical, economic, marketing, legal, environmental, social and governmental modifying factors are taken into account and are satisfied when converting mineral resources into ore reserves.

The JORC Code (2012) has some additional specifications relevant to environ-

mental and social management, which are listed below.

- For a PFS (section 39): Detailed assessments of environmental and socio-economic impacts and requirements will be well advanced.
- For a FS (section 40): Social, environmental and governmental approvals, permits and agreements will be in place, or will be approaching finalisation within the expected development timeframe.

Reporting should cover:

- the status of studies of potential environmental impacts of the mining and processing operation;
- details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported;
- the status of agreements with key stakeholders and matters leading to the social licence to operate;
- the status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the PFS or FS study. The report should highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.

Reporting requirements defined for certain securities commissions (Canada: NI 43-101 Technical Report) requires that the following subjects relevant to environmental and social management are covered.

- **Item 4: Property description and location – To the extent applicable, describe:**

- (d) the nature and extent of the issuer's title to, or interest in, the property including surface rights, legal access, the obligations that must be met to retain the property, and the expiration date of claims, licences, or other property tenure rights;
- (f) to the extent known, all environmental liabilities to which the property is subject;
- (g) to the extent known, the permits that must be acquired to conduct the work proposed for the property, and if the permits have been obtained; and
- (h) to the extent known, any other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

- **Item 20: Environmental studies, permitting, and social or community impact**

- Discuss reasonably available information on environmental, permitting, and social or community factors related to the project. Consider and, where relevant, include;
- a summary of the results of any environmental studies and a discussion of any known environmental issues that could materially impact the issuer's ability to extract the mineral resources or mineral reserves;

- requirements and plans for waste and tailings disposal, site monitoring, and water management both during operations and post mine closure;
- project permitting requirements, the status of any permit applications, and any known requirements to post performance or reclamation bonds;
- a discussion of any potential social or community related requirements and plans for the project and the status of any negotiations or agreements with local communities; and
- a discussion of mine closure (remediation & reclamation) requirements and costs.

The environmental and social management that should be in place for a mining project during different stages of its life

An overview of the environmental and social management that should be in place during the exploration, construction and operational stages of a project is given in Table 6 (p83). Approvals and permits should be renewed as required. The

“Approvals and permits should be renewed as required”

environmental and management capacity should be sufficient to ensure that all legal requirements, including conditions of approvals and permits, are met. It should also be sufficient to ensure that environmental and social risks are avoided or minimised.

During the scoping stage of planning of a mining project, an environmental and social study should be undertaken to identify approvals required and the key

issues and risks to the project, to input to decisions on project alternatives; and provide recommendations on the way forward with the ESIA.

In the PFS and FS stages, the project owner should have sufficient environmental and social management capacity (human and financial resources) to:

- undertake on-going stakeholder engagement;
- manage impacts of exploration activities and intrusive PFS/FS engineering studies; and
- participate in the environmental approval and ESIA processes.

Appropriately qualified consultants/specialists are usually appointed to undertake the following tasks that need to be completed during PFS and FS.

- The ESIA and the legally required ESIA stakeholder engagement.
- Specialist investigations to define baseline conditions (both wet and dry season conditions) and provide input to the ESIA.
- Compilation of the ESMP, including a closure plan and cost estimate.

A full ESIA process for a new mine development generally takes 18 months to complete and review and approval of the ESIA can be expected to take at least 6 months. In some countries, the ESIA process and subsequent approval process can take 3 to 4 years. For this reason, the ESIA is often on the critical path during the PFS and FS.

Type	Approvals and management tools that should be in place
Approvals/permits	Approved ESIA and ESMP, as required by national legislation
	Exploration licence/Exploitation licence
	Other required permits (such as permits for: clearing of vegetation; water use; discharges; emissions; waste disposal and handling of hazardous substances)
	Other approved plans that could be legally binding such as RAPs and community development plans
	Reporting to regulatory authorities as required by legislation and conditions of approvals
Land access	Surface rights (land ownership or easement rights) in all areas disturbed by activities and development of infrastructure
	A documented process of compensation and/or resettlement of land owners and land users with customary land tenure rights who have been displaced by the project
Stakeholder engagement	Stakeholder identification and analysis
	Stakeholder engagement plan (SEP)
	Ongoing stakeholder engagement to build and maintain constructive relationships
	Grievance mechanism
	Documentation of stakeholder engagement (ideally in an electronic database)
Environmental and social management system	Policies and top-level management commitment
	Obligations register (covering relevant legal requirements; conditions of approvals/permits; conditions of loans and other commitments made by the project proponent)
	ESIA – an effective ESIA that defines baseline conditions and identifies the impacts and risks that need to be managed
	ESMP/s and procedures – these should adequately address the impacts and risks that need to be managed
	Human resources to implement ES management (adequately skilled)
	Financial resources to implement ES management
	Monitoring of implementation of management measures and compliance with obligations
	Monitoring of impacts
	Corrective actions, where required
	Emergency preparedness and response system
	Documentation of all elements of the ESMS, effective communication and reporting
	Regular audits of performance
	Management response to audit findings and commitment to improvement of performance
Community development initiatives	Community development initiatives should be: <ul style="list-style-type: none"> • based on a robust strategy; • aligned with the development priorities of local communities and government; • aligned with relevant company policies (including local hiring and procurement); and • multi-stakeholder driven (involved partnerships with stakeholders and local ownership) and sustainable².
	The return on the community investment to both the company and the community should be measured using appropriate indicators and participatory methods of monitoring and evaluation to build trust and local ownership of outcomes.
Closure plan and cost estimate	A vision for closure (ideally this should extend to leaving a positive legacy post closure, rather than just focus on not leaving a negative legacy at closure)
	The closure plan should be developed (should evolve from a conceptual plan to a detailed plan during the life of the mine)
	Closure cost estimates should increase in accuracy/estimate reliability corresponding with the increased level of detail in closure planning

Table 6: Overview of environmental and social management that should be in place during the exploration, construction and operational stages

Funding options: technical expectations

Introduction

This section reflects on the type of technical information that is expected to be available to support the various forms of funding available to mineral developers from the mining finance community. There is broad acknowledgement that the nature of the technical information available largely follows the development status of the mineral assets, and accordingly is largely independent of the nature of funding/financing options pursued. To this extent, this section largely differentiates on the type of funding sought and how the level of technical information available is incorporated into various key supporting documentation required for the funding process.

Debt financing

Debt financing is largely available to mineral properties, which have attained the most advanced stages of project development; specifically development properties and operating mines, which encompass both greenfield projects and brown-fields expansions. The finance facility provided is typically underpinned by the projected future cashflows supported by a FS and ESIA or detailed life-of-mine plan for a development property or operating mine respectively.

It is also commonplace for development properties that the supporting feasibility studies have attained 'bankable standards' and where appropriate that all ESIA's are also compliant with international standards applied by development financiers.

A further consideration is the typical requirement by the lenders to mandate specific advisors to complete due diligence in support of the funding decision. Typically this requires the developer (also referred to as the 'sponsor') to facilitate the appointment of an Independent Engineer (IE) whose responsibility is to both verify and validate the underlying technical and economic assumptions included in the FS and reflected in a base case sponsor's financial model. This process typically culminates in the authoring of an Independent Engineers' Report (IER) and establishment of a base case lender's financial model following the inclusion of appropriate adjustments and modifications as deemed appropriate.

A further key consideration is the identification of conditions precedent (high risk of occurrence and impact on economic performance) and conditions subsequent (generally required in respect of compliance and reflecting limited economic impact), which may be reflected as technical considerations in the 'term sheet' that forms the basis of any project finance facility provided to the sponsor.

The IER, the lender's base case financial model and inter alia the term sheet is then provided as the basis for submission to the lender's credit committee which adjudicates in respect of the provision of the financing facility. This base case financial model is also tested with respect to key financing criteria including:

- cash-flow available for debt-service (CADS);
- debt service cover ratios (DSCR) – the ratio of cash available for debt servicing to interest, principal and lease payments in any given period;
- loan-life cover ratios (LLCR) – net present value of cash flow available for debt



service (CFADS) which is measured up to the maturity of the debt tranche and provides an estimate of the credit quality of the project from a lender's perspective; and

- reserve life (tail) cover ratios (RTCR) – the ratio of the saleable product and/or commodity reported in the ore reserves remaining to be mined at the scheduled maturity of the facility to the total metal saleable product and/or commodity reported in the ore reserve statement.

Collectively these are also referred to as financial covenants, which are generally integrated into the term sheet and form the basis for which the project may be considered to be in default under specific scenarios.

Following financial completion, processes are established for on-going monitoring whereby the IE is required to monitor (through physical inspection and desk top reviews) the performance of the project through final engineering design, construction, physical completion, start-up and attainment of name-plate capacity. An additional aspect is the requirement for the IE to provide completion certificates at specified milestones – notably mechanical completion certificates, production completion certificates and economic completion certificates. The latter two certificates are typically provided following attainment of continuous operations over a defined period whereby pre-defined targets are met, be this production, metallurgical recoveries, unit cash costs of production etc. The satisfaction of the completion test may trigger a step down in interest rates, release of the project sponsor from its guarantee and other obligations and entitle the borrower to make certain permitted payments.

Equity financing

In order to access the equity capital markets, various international stock exchanges have incorporated within the relevant listing requirements, rules and guidelines pertaining to the publication of technical documentation, termed Competent Persons' Reports. These range from those which are mandatory, prescriptive and compulsory in nature such as the NI 43-101 Technical Report (required by Canadian securities commissions) to general guidelines established by the European Securities and Markets Authority (ESMA) and adopted by all European stock exchanges. Similar general guidelines to that developed by ESMA are also in place for the Johannesburg Stock Exchange, the Hong Kong Stock Exchange and others, notably that recently adopted by the Australian Securities Exchange.

The requirement to produce such a report is generally triggered by a significant event, such as initial public offering, private placement, acquisition, merger or release of significant technical information to the market. Regulatory authorities may also, in certain instances, assess transactions by a materiality test, relating the value of that proposed to market capitalisation or percentage increase in mineral resource and ore reserve declaration. The results of such an assessment, including consideration for the class of investor (qualified buyers or public offering), assist in deciding the required documentation.

A further consideration is the requirement for certain exchanges to insist that the authors of such reports are independent of the issuer, and to this end tests are also normally applied to assess independence. Whilst not always the case independence, has however, become on-market practice with respect to prospectuses and offering circulars.

Certain securities commissions and stock exchanges appoint independent technical readers to assess the quality and compliance of technical documents as part of the regulatory review process. In the case of Canadian securities commissions, the regulator may in certain instances periodically review submissions subsequent to disclosure; however this is generally limited to the release of significant technical information to the market as opposed to transactions requiring shareholder approval.

Guidance regarding the technical content of such reports ranges significantly. It is important to note that whilst the mineral resource and ore reserve reporting standards are embodied within the listing requirements, these standards generally do not make explicit reference to any requirement for detailed reports and therefore, the relevant authorities have sought to define these separately and typically comprise:

- mineral resource and ore reserve statements, reported in accordance with the pre-defined standards;
- detailed descriptions by discipline of the mineral assets comprising technical, economic and legal narrative which support the current development stage of the property;
- mineral asset valuations reported in accordance with the pre-defined standards; and
- for exploration properties, detailed exploration programmes comprising activity and expenditure schedules which render the mineral asset under consideration a 'property of merit'.

For certain stock exchanges, the regulatory authorities specify instances where an independent opinion expressed through a 'fair' and 'reasonable' test is a mandatory requirement – as exemplified by the role of the Independent Expert (authored by licensed financial advisors) and the Specialist Technical Reports (authored by Competent Persons) on the Australian Securities Exchange. The ultimate purpose here is to translate the 'technical value' defined by the Competent Person to a 'market value' determined by a recognised expert and often expressed as a value per share. This is then compared with that proposed by the company which forms the basis of the fair and reasonable opinion.

Technical references

1. Generally the ESIA legislation in most countries uses the term *environmental impact assessment (EIA)*, with the word 'environment' referring to the social, physical and biological surroundings of the project. International standards have added the word 'social' to the term EIA, creating the term *ESIA*, because the social dimension was often neglected by EIA practitioners and regulatory authorities.
2. IFC (2010), *Good Practice Handbook on Strategic Community Investment*.



Alternative sources of finance

EY

Development stage	Exploration	Development	Construction	Mid-tier/major producer
Credit quality	unrated	unrated	unrated / high yield	high yield /investment grade
Investor perspective	Highest risk, zero/negative yield	High risk, uncertain yield	High risk, high yield	Medium risk, high yield lowest risk, low yield
Public equity				
Farm-ins				
Standby equity				
Strategic equity				
Convertible bonds				
US PPM				
Streaming				
Royalties				
Offtake				
Development finance				
Project finance				
Equipment finance				
Pre-export finance				
Fixed income				
Commerical loans				
Refinancing				

Project funding options typically utilised in current environment

Standby equity (exploration/development)

Standby equity (equity line, equity-linked) facilities provide companies with an option to issue shares to a facility provider over a multi-year time period. This gives companies assurance of a future buyer of shares and the flexibility to choose the timing of the issuance. There is no upfront capital injection but there may be an arrangement/security fee.

The equity provider commits to purchase a pre-established dollar amount of a company's shares in a series of drawdowns at the option of the issuer. The purchaser is committed for a fixed period to buy the securities. The issuer has the ability, but not the obligation, to sell the shares. There are normally no penalties for inactivity or termination of the agreement.

There are also standby equity distribution agreements (SEDA) -backed loan facilities whereby the borrowing company has the option to convert outstanding loan amounts into ordinary shares for the SEDA loan provider. Some providers also offer equity-linked promissory notes – short term upfront capital injection (usually 90-180 days), repaid with cash from operations or funds drawn from the associated equity agreement.

Appendix

Benefits for the company

- In control of the timing – funding can be drawn when needed.
- Provides level of comfort over availability of near-term funding.
- Eliminates the need for roadshows to bankers and investors.
- Companies can sometimes set a price floor to each tranche, drawdown can negatively impact share price – dilution of existing shareholdings, usually includes a purchaser discount.

Key providers to the mining industry

- YA Global (Yorkville Advisors).
- Darwin Strategic (Henderson Global Investors).
- Dutchess Opportunity Cayman Fund (Dutchess Capital Management).

Provider	Company	Value	Type
Dutchess	Baobab Resources	£17m	Equity line facility
	Sunkar Resources	£10m	Equity line facility
YA Global	Red Rock Resources		Financing package
	ECR Minerals		Financing package
	Kibo Mining	£3m	Stock purchase agreement
	Conroy Gold	£2.75m	SEDA
Darwin	Strategic Minerals	£3m + \$1.5m	SEDA + loan
	Shanta Gold	\$5m	SEDA-backed loan
	Horizonte Minerals	£8m	Equity finance facility
	Altona Energy	£2m	Equity finance facility
	Noventa	£5m	Equity finance facility
	Orogen Gold	£5m	Equity finance facility
	Sunrise Resources	£3m	Equity finance facility
	DiamondCorp	£10m	Equity finance facility
	Ortac Resources	£20m	Equity finance facility

*Recent
standby
equity deals
(announced
or com-
pleted)*

Development finance (development/construction/production)

Development finance institutions (DFIs) (or multilateral development banks) provide credit in the form of higher risk loans, equity stakes and risk guarantee instruments to companies investing in developing countries. This type of finance requires significant diligence on the part of the lender, and as such is often seen as a vote of confidence in the project for future lenders, making subsequent capital raising easier.

Typical funding structures

- DFIs provide a variety of investment instruments – e.g. senior debt, subordinated debt, equity and convertibles.
- Usually invest at bankable feasibility study (BFS) and post definitive feasibility study (DFS) stage.
- Usually invest in base, precious or industrial minerals, but recent investments also seen in diamonds.
- Stringent environmental and social standards – and under public scrutiny over their mining investments.

DFI	Company	Project	Value	Type
IFC	Oyu Tolgoi	Copper, Mongolia	\$400m	Loan
	Unigold	Gold, Dominican Republic	\$12m	Equity
	Finsch Diamond Mine	Diamonds, South Africa	\$25m	Loan
	Hummingbird Resources	Gold, Liberia	\$9m	Equity
	Sama Resources	Nickel-copper, Cote d'Ivoire	\$1.3m	Equity
	Guyana Goldfields	Gold, Guyana	\$5.5m \$165m"	Equity Debt facility
China Dev't Bank	MMG/China Minmetals	Silver/lead/zinc, Australia	<\$1b	Loan
	Kindalbie Metals	Iron ore, Australia	\$250m	Loan
	General Moly	Molybdenum, US	\$665m	Loan
	Zijin Mining	Investm't/acq'n	\$4.9b	Loan
EBRD	Dundee Precious Metals	Gold, Bulgaria	\$45m	Revolving credit
	Coal Energy	Coal, Ukraine	\$70m	Loan
	Oyu Tolgoi	Copper, Mongolia	\$400m	Loan
	Lydian International	Gold, Armenia	\$45m	Equity
	Hambledon Mining	Gold, Kazakhstan	\$21m	Loan + equity
IDCSA	Scaw Metals	Metals, South Africa	\$340m	Equity
	Sedibelo Platinum	PGMs, South Africa	\$328m	Equity
	DiamondCorp	Diamonds, South Africa	\$28m	Loan
	Village Main Reef	PGMs, South Africa	\$15m	Loan

Above: key recent investments by DFIs in the mining sector

Streaming agreements (construction/production)

The provision of an upfront payment to a mining company in return for the right to a percentage of production (usually for life-of-mine) from an underlying asset (typically precious metals as a by-product). Streams usually (but may not) carry ongoing payments due on receipt of physical metal. Each deal is different, but typical features include:

- upfront, one-off cash payment;
- ongoing per ounce payments under pre-determined price scenarios;
- not typically tied to the property title, so stream holders stand with other creditors in cases of financial distress;
- can include contract terms designed to mitigate risk for the stream provider e.g. construction and/or production guarantees, price floors and minimum thresholds; and
- can include buy-back options for mining companies.

Key providers

- Silver Wheaton Corp (TSX) – number 1 by market value; primarily focused on silver but expanding into gold. 100% of revenues are from precious metals streams.
- Franco-Nevada Corp (TSX) – number 2 by market value; streams accounted for 44% of 2012 revenues, primarily focused on gold in North America.
- Royal Gold Inc (Nasdaq/TSX) – royalties and streams. See Royalties.
- Sandstorm Gold Ltd (TSX) – one of the fastest growing through its exploitation of niche market providing smaller streams. 93% of 2013-2015 revenues from streams; 93% of revenues from gold, 7% from platinum group metals (PGMs) and silver.
- Sandstorm Metals & Energy Ltd (TSX-V) – non-precious metals streams including copper, palladium and natural gas.

Appendix

Asset	Stream provider	Upfront payment	Product
Salabo & Sudbury (Vale)	Silver Wheaton	\$1.9b + warrants	Gold (25% and 70%)
Cobre Panama (Inmet Mining)	Franco-Nevada	\$1b + warrants	Gold + silver (86%)
Mt Milligan (Thomson Creek)	Royal Gold	\$782m	Gold (52.25%)
777 and Constancia	ECR Minerals		Financing package
(Hudbay Minerals)	Silver Wheaton	\$750m + \$135m	Gold (100%) + Silver (100%) from 777
Silver (100%) + Gold (50%) from Constancia ^a	Conroy Gold	£2.75m	SEDA
Prosperity (Taseko Mines)	Franco-Nevada	\$350m + warrants	Gold (22%)

*Recent large streaming deals***Royalty agreements (exploration/development)**

The provision of an upfront payment to the mining company in return for future payment, typically based on either; a) a percentage of the value of the product produced; or b) the profits or revenues generated from the mine. Royalties are most frequently granted over precious metals, but there are no limitations. They can change hands and are registered against the underlying property giving priority over other creditors.

Royalties typically range from 2% to 5% of one of the following:

- gross revenue – right to a fixed percentage of gross revenue on metals sales;
- net smelter return – right to a fixed percentage of net revenues (gross revenues less treatment, refining and freight charges – i.e. cash flow that is free from any operating and capital costs or environmental liabilities); and
- net profit interest – right to a fixed percentage of the profits from an underlying asset. Terms vary but royalties are commonly payable after the recovery of certain pre-production costs and typically deduct minesite operating and administrative costs plus tax.

Key providers

- Royal Gold (Nasdaq/TSX) – one of the oldest royalty companies, also becoming active in streams. 36 producing and 21 development stage assets.
- Franco-Nevada (TSX) – 2012 revenues: royalties – revenue-based 42%, profit-based 10%; 44% streams. 75% gold, 14% PGMs, 1% base.
- Premier Royalty Inc – newest royalty company to emerge, 60%-owned by Sandstorm Gold.
- Anglo Pacific Group Ltd (LSE) – established royalty provider with 21-strong portfolio of producing, development and early-stage royalties. Diversified exposure to coal (64%), iron ore (24%), gold (5%), chromite (5%), uranium, copper, nickel, PGMs and other.
- Callinan Royalties Corp (TSX-V) – one producing, two development, 14 exploration assets.
- Americas Bullion Royalty Corp (TSX) – precious metal royalties and streams; 32 agreements; able to receive payments-in-kind (bullion instead of cash).
- Royalco Resources Ltd (ASX) – nine royalties in Australia and New Zealand (petroleum, silver and gold); and royalties on exploration projects in Philippines (gold/copper) and Uganda (gold).

Offtake agreements/pre-export finance (development/construction/production)

Offtake agreements typically comprise payment for a determined volume or percentage of production over a determined timespan, often with exclusivity attached. Typically provided by customers, traders and specialist finance providers.

Terms vary significantly from deal to deal. Some offtake agreements are required components of funding facilities (debt or equity), securing advance payments or used toward repayment or arrangement of the financing. Offtake-linked loans typically require some form of security over the assets or company.

Pre-export financing is secured against determined production volumes, though extra security may be required to account for production/supply risks. Offtake prices are usually market-linked, and sometimes discounted. Offtakes provide a guaranteed source of revenue for the project, which can help to secure other sources of finance.

Typical qualities of offtake agreements and pre-export finance

- Pre-production advances in return for future offtake in form of:
 - > equity stakes;
 - > loans (interest- and non-interest-bearing); and
 - > convertible bonds.
- The exclusive right to purchase production at a determined price (which is usually index/market linked).
- Built-in options to extend – based on mutual consent.
- Take or pay agreements (purchase product or pay a penalty).
- Additional marketing/distribution terms.
- Some minimum stipulations are common including:
 - > minimum volume of offtake over agreed period of time;
 - > minimum price in volume-based offtake contracts; and
 - > hedging to protect against volatility.

Project finance (construction/production)

The financing of projects on a non- or limited-recourse basis, where the loan is secured by the project. In the event of default, the lender can seize the collateral (project) only, but has no recourse to the balance sheet of the shareholders (other assets of the company). However, in mining, lenders may seek additional recourse to the shareholders via form of guarantee or security agreement during the construction and commissioning phase, to reflect the increased risks associated with mine development, particularly in frontier regions. Once completion tests are concluded, loans become fully non-recourse to the sponsors and shareholders.

The debt is repaid with cashflow generated from the project. Project finance is suited to long-term loan periods, high capital expenditure and uncertain revenue streams.

Typical features of project finance

- Can be high risk, expensive and difficult to arrange due to extensive documentation requirements.

- Extensive technical, financial and environmental due diligence required on project risks.
- Favoured by advanced juniors/developers with significant infrastructure requirements (non-dilutive).

Additional recourse may involve any of the following in the form of equity subscriptions, loans or payments:

- payment toward cost overruns;
- payment of debt service; and
- obligation to step in as borrower in the event of the project failing to achieve completion within the loan terms.

Additional funding options

US private placement market (US PPM)

- US private bond market available to both US and non-US issuers.
- Attractive to junior/mid-tiers as no need for formal credit rating or public-market reporting requirements.
- Small but growing market, surpassing US\$50 billion in 2012 (all sectors), with issues sized anywhere between US\$100 million and US\$1 billion.
- Investors (mainly pension funds and insurance companies) are typically buy-and-hold, seeking long-term investments to match long-term liabilities. They do thorough due diligence and as such the PPM is less risk-influenced than public debt markets.

Export credit agencies (ECAs)

- ECAs exist to promote the export of national goods and services through the provision of trade finance, guarantees, or insurances.
- Social and environmental standards are becoming increasingly important.
- Recent mining example: Canada's ECA in Chile - C\$65m loan to Chile's Minera Los Pelambres to promote the purchase of Canadian goods and services – e.g. equipment, technology and services; and to help more Canadian companies develop or expand business in the Chilean mining sector.

Equipment finance and engineering, procurement, and construction management (EPCM)

- Equipment suppliers or EPCM contractors e.g. GE Capital, Caterpillar Financial Services, Macquarie, Standard Bank.
- Finance provided directly or via ECAs.
- Enables companies to fund organic growth without significant capital outlays.
- Typical structures include: finance and operating leases; sale and lease-back; hire purchase; secured term loans; guarantees and letters of credit; and asset-based inventory financing.

BMO Capital Markets

BMO Capital Markets is a full-service financial institution with more than 2,200 employees in 29 offices worldwide. The Global Metals & Mining group offers merger and acquisition (M&A) advisory, corporate broking, capital raising, lending and risk management capabilities. In addition, the Metals & Mining Research team covers more than 140 companies and is supported by sales and trading professionals across North America and Europe. In total, BMO has more than 100 professionals on five continents focused on metals and mining companies and investors. BMO Capital Markets was the number 1 metals and mining M&A advisor from 2010 to 2012* and was bookrunner for more than C\$12 billion in metals and mining equity issuances since 2003, ranking number 1 in North America.** In addition, *Global Finance* has named BMO Capital Markets the World's Best Metals & Mining Investment Bank four years running.

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Jeffrey Couch joined BMO Capital Markets' London office in 2011 to focus on the metals and mining sector in mergers and acquisitions (M&A), strategic advisory and equity and debt financing. Before joining BMO, Jeff was head of Business Development at Eurasian Natural Resources Corporation plc (ENRC) and has 15 years of investment banking and capital markets experience with Credit Suisse, Citigroup (Salomon Brothers/Schroder Salomon Smith Barney) and Kleinwort Benson. Jeff was called to the Ontario Bar after having graduated from Osgoode Hall Law School and holds a Bachelor of Business Administration from the University of Western Ontario.



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Lead Partner

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Lee Downham is the global lead partner in EY's mining transaction advisory services practice. Lee has advised on a number of main-board London listings in the mining sector in recent years and continues to advise companies looking to raise capital in London and elsewhere. He has led EY teams in providing support on numerous acquisitions in the sector, leading a broad range of financial, commercial and tax diligence assignments as well as managing divestment programmes, synergy reviews and bid-defence strategies.



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Ian Coles

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Ian Coles serves on Mayer Brown's Partnership Board and is head of the firm's finance practice in Europe. He concentrates his practice on all aspects of bank and debt finance, ranging from projects and other structured finance to commodities financing and restructuring. He represents banks and other financial institutions, sponsors, and other participants in finance transactions throughout the world. He has particular experience in the mining finance sector.



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Lara Pearce is an Associate in the finance practice of the London office. She has experience in a broad range of domestic, European and international finance transactions, with a particular focus on project financings in the mining finance sector and cross-border securitisations.



SRK Consulting

SRK Consulting was formed in Johannesburg, South Africa, in 1974 as Steffen Robertson and Kirsten. Today, SRK provides focused advice and solutions for clients requiring specialised services, mainly in the fields of mining, surface and underground geotechnics, water, waste materials, process engineering, the environment and mineral economics. The group employs more than 1,600 professionals internationally and has more than 50 permanently staffed offices in 23 countries on six continents. SRK's staff in North America includes more than 200 engineers, geologists, scientists and support staff. A broad range of internationally recognised associate consultants complement this workforce. SRK is a focused mining consulting group with approximately 90% of the company's businesses sourced from the international mining sector. SRK has completed projects globally for a variety of clients including mining companies, financial institutions, securities commissions, private industry, government departments, utilities corporations and attorneys.

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Neal Rigby

Practice Leader/Corporate Consultant (mining engineer)

Dr Neal Rigby has 39 years of experience in the international mining industry. He was SRK Consulting's Global Group Chairman for 15 years (1995 to 2010) and is a corporate mining consultant and principal mining engineer. He also serves on the boards of several SRK group companies. Neal has performed mining engineering, project management and management consulting for a range of metalliferous, coal, diamond and industrial mineral projects. The major focus of his consulting work for the past 20 years has been as the senior participant in major due diligence audits, competent person's reports and other reports supporting the rationalisation, merger, disposal and acquisition activities of international mining companies and mining finance institutions. Most recently, Neal's consulting work has been directed at the restructuring and sale of mining assets and the scoping and implementation of business improvement strategies.



A large open-pit mine with a worker in the foreground. The worker is wearing a white hard hat, a red high-visibility vest, and dark trousers. They are standing on a pile of reddish-brown rocks, looking towards a large body of green water in the center of the mine. The mine walls are steep and show signs of excavation. The sky is blue with some white clouds.

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