The Valuation of Mineral Properties in Arbitration Disputes

Introduction

Mining projects are complex undertakings; often unfolding over many years and requiring hundreds of millions or billions of dollars of investment in exploration activities, mining equipment and infrastructure before any commercially salable product is even produced. Once in production, mines have finite lives that can run for anywhere from under 10 to over 50 years. Given the long time lines, large amounts of up-front investment required, the recent volatility in commodity prices, and social and political issues such as resource nationalism and environmentalism, it is not surprising that mining disputes have been so prevalent in international arbitration cases in recent years.

Often, in mining arbitration cases, the economic value of the mine is a key issue in the dispute. This is especially true in cases where governments have cancelled mining concessions or are perceived to have expropriated a mining asset. This article will focus on the principal issues that a valuator or damages expert in a mining dispute should consider in the course of their analysis.

Valuation Date

As in any valuation exercise, the valuation date is the practical starting point of the valuator's analysis since value is 'time specific'. That is, value is a function of the facts known and expectations held at a given point in time. However, the appropriate valuation date in a given case is also a legal issue and thus the valuator will consult with their client's legal counsel to determine the proper valuation date(s) for their damages analysis.

Value Definition

The next step that is also common to any valuation analysis is to determine the appropriate value definition. 'Fair market value' is the standard value definition that is typically applied in arbitration cases but this depends on the case and thus it should also be discussed between the valuator and their client's counsel. The definition of fair market value is: *'The price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.'*

Valuation Approach

Having established the valuation date and definition of value, the next step for the valuator is to assess the stage of development the mineral property had attained as at the valuation date. This is important because in mining cases, the stage of development determines the valuation approaches that are appropriate.

Mining projects follow a predictable development path from the initial identification of potential targets, to exploration, to deposit evaluation through geological and metallurgical work, to mine planning, to mine construction, to production and, finally, to the decommissioning and remediation phase at the end of the mine's life. Mineral properties can thus be categorized into four main types: exploration properties, mineral resource properties, development properties, and production

properties. The valuator would review technical reports prepared on the project around the valuation date for details as to its stage of development at that time. In Canada for example, public companies must have a National Instrument 43-101 compliant technical report in order to disclose information to the market with respect to the reserves and resources of its mining projects.

In determining the appropriate valuation approach(es) to use, the valuator should be familiar with internationally recognized valuation standards for mineral properties such as the Standards and Guidelines for Valuation of Mineral Properties produced by the Special Committee of the Canadian Institute of Mining, Metallurgy and Petroleum on Valuation of Mineral Properties ("**CIMVAL**"), the South African Mineral Assets Valuation Working Group ("**SAMVAL**") and the Australian Institute of Mining and Metallurgy (**"AusIMM**").

The three main valuation approaches under a going concern approach are:

(i) **Income-based Approaches**: In valuation theory, discretionary after-tax cash flow is of primary importance. The discounted cash flow or DCF methodology, where the present value of expected future cash flows from the mine are determined, is the most common income-based approach;

(ii) **Market-based Approaches**: Value relationships are inferred from publically available information pertaining to transactions and trading prices involving mines that are deemed to be sufficiently comparable to the subject mine; and,

(iii) **Cost-based Approaches**: Value is determined based on the principle that a notional purchaser would not spend more on an asset than it would cost them to construct the asset themselves.

The CIMVAL Guidelines set out the valuation approaches that are generally considered appropriate to apply to each type of Mineral Property as follows:

Figure 1 – CIMVAL Valuation Approach Guidelines by Stage of Development[1]

Valuation Approach	Exploration Properties	Mineral Resource Properties	Development Properties	Production Properties
Income	No	In some cases	Yes	Yes
Market	Yes	Yes	Yes	Yes
Cost	Yes	In some cases	No	No

Income Approach

For projects that are sufficiently advanced to use an income approach, the discounted cash flow or DCF methodology is the most widely used and understood. Arbitration case law indicates that arbitral panels are reluctant to award damages based on forecasted profits for businesses (in non-extractive industries) that do not have a proven track record of profitability. However, mining cases are somewhat different from businesses in non-extractive industries as once the resource is established to a sufficient level of certainty from a technical perspective (generally at the Measured & Indicated level or above)[2], and economic viability is demonstrated in a feasibility study, the processes to extract the ore and produce the end product are well known and the costs can be estimated with a reasonable degree of precision. The revenues can also be forecasted with a reasonable degree of certainty using available commodity price forecasts or futures curves. Perhaps most importantly, 100% of the end product can be sold in US dollars on global commodity markets.

Typically a valuator would work closely with a team of technical experts in geology, metallurgy, and mine engineering to prepare a financial model for the life of the project. The valuator must ensure that all the technical and financial parameters are reasonable and well documented and should perform a detailed sensitivity analysis to clearly demonstrate the impacts of changes to the main parameters on the value conclusion. Once comfortable that the financial model accurately reflects the after tax cash flows that the project will generate to its owners over the life of the mine, the valuator will derive and apply a risk adjusted discount rate to convert the future after tax cash flows into a present value at the valuation date.

The derivation of an appropriate discount rate is often an area of contention between opposing experts as it involves many components, most of which require professional judgment relating to the nature and quantum of the risks applicable to the forecasted cash flows. Many arbitration cases involve mines in developing countries and accordingly 'country risk' is an important consideration. Country risk is the component of the discount rate that reflects additional political risk, local infrastructure risk, in-country labour force risk, local economy risk, foreign exchange risk, etc. as compared to a mine located in a developed country like Canada or the United States.

[1] CIMVAL standards, page 22.

[2] Mineral resources are classified by the degree of certainty. From highest to lowest level of certainty the classifications are: Proven, Probable (which together are known as 'Reserves'), Measured, Indicated and Inferred. All of the classes (including Proven and Probable Reserves) are referred to as 'Resources'.

Whether a valuator includes or excludes expropriation risk in the analysis is a legal issue that revolves around the perceived fairness of a government essentially paying less in compensation for an expropriated asset as a result of their own actions in the period leading up to the expropriation date which may have resulted in an increase in the risk surrounding that particular asset (or all investments in that country).

Market Approach

Under the market approach the valuator will often have to conduct a significant amount of research to obtain and thoroughly understand all the relevant market-based benchmarks of value for a given project. Typical sources of market based benchmarks of value include:

i) Prior transactions involving ownership interests in the project that are proximate to the valuation date;
ii) The trading price of the owner's share on public stock exchanges in the period immediately prior to the valuation date;
iii) Public or private offerings of the shares of the corporate entity with an ownership interest in the project that are proximate to the valuation date;
iv) Metrics from transactions involving other suitably comparable mining projects (in terms of type, grade and size of mineralization, geographical location, etc.);
v) Metrics from the publically traded prices of comparable companies with similar mining assets; and,
vi) Value opinions/analyses in financial analyst reports covering the company or sector around the valuation date.

The valuator must ensure that the market based information deals specifically with the asset in question, is not too far removed in terms of time, that shares are traded with sufficient volume and regularity to be considered reliable as a measure of fair market value, etc. Adjustments may be made to make a given benchmark of value more applicable, however the more adjustments that are required, and the more elaborate each adjustment is, the less helpful the resulting value metric will be.

Although all mining projects will have unique characteristics, value data from reasonably similar mines can be used to determine a reasonable range of fair market value or to assess the reasonability of value conclusions reached through the income approach or other methods.

Cost Approach

Although costs are not necessarily reflective of prospective value, a valuator may present the costs incurred by a claimant to advance the development of a mineral property as a measure of the damages incurred. Depending on the circumstances of the case, this may be thought of as a 'floor' to the claimant's damages as it would not include any amount for the expected return on this investment and is generally more applicable to projects at the earlier end of the development process. The valuator may also consider to what extent indirect costs incurred in addition to direct exploration expenditures were required to advance the project to its current stage. Arguably all of the reasonable direct and indirect costs that were incurred by a company with just one project were necessary to advance the project and

they would be undercompensated by an award that is restricted just to on site exploration and development costs.

Conclusion

In conclusion, the valuation of a mineral project or asset in the context of arbitration is a complex undertaking that requires knowledge of the overall mining process, a deep understanding of the mining property involved from both a technical and financial standpoint, knowledge of internationally recognized mining valuation standards and guidelines, experience with standard valuation concepts and approaches, and familiarity with the arbitration process and arbitral awards involving damages.

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