

Valuing mining assets for dispute resolution



About this issue

This issue has been authored by Paul Cliff, from Intangible Business. Over the past twenty years, Paul has valued numerous companies and assets in the mining and oil & gas industries globally. Paul has held senior positions in equity and commodities research at a number of global investment banks and now specialises in dispute resolution projects.

This article highlights a number of key issues in the valuation of producing, or near-producing mining assets within the context of dispute resolution.

Intangible Business has produced over 100 expert reports for assistance in dispute resolution projects across a variety of industries, with oral testimony including under cross-examination on many occasions.

1. Selecting an appropriate valuation method

A discounted cash flow (DCF) is often the primary method for valuing producing, or near-producing, mining assets. This is because the DCF approach takes into account important differences in mining assets such as mine life, production growth and risk profile.

DCFs need to be understood by various audiences throughout the dispute resolution process, most importantly the arbitrators or judges involved. While a degree of complexity may sometimes be unavoidable, the ability to explain and present a DCF valuation in simple terms is important. We have observed that very complicated models are often unnecessary and are prone to more errors than simpler ones.

Although the DCF approach is often applied to value mining assets, a valuation in which a number of different methods converge on a similar result is likely to be more convincing than a valuation that relies on a DCF alone.

Market-based approaches derived from comparable listed companies and/or recent transactions may also be useful. Multiples of earnings and cash flow are commonly used to value mining assets. Multiples based on revenues and reserve/resource estimates are sometimes useful. However, they generally contain less information on the ability of the asset to generate value for its shareholders.



2. Commodity price assumptions

A valuation expert should keep within his or her area of expertise when determining the key assumptions underpinning a DCF valuation. For example, an expert in valuing copper mining companies may not necessarily be an expert in forecasting copper prices. DCF valuations for mining assets may assume a particular set of commodity price forecasts from a single expert or the consensus opinion from a number of experts.

Forward curves are generally not suitable as a substitute for commodity price forecasts. This is because the forward price curve is a measure of market prices at the date of the curve for a series of future obligation dates.

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3. Modelling mine life

While the inclusion of terminal values is common practice for DCF valuations across many industries, mines are finite assets and terminal values are generally not appropriate. A mine's life is usually determined by the size of its reserve and the rate at which that reserve is mined out.

However, in specific circumstances, it may be appropriate to assume a mine life beyond that implied by a mine's reserve estimate. For example, if gold is present in narrow, underground veins then a reserve may be replenished as a vein is being mined out. In other cases, a reserve estimate may not exist at all and must be estimated using information based on resources and other important factors.

In other cases, a management team may decide to leave a deposit open to further exploration rather than incur the upfront costs of an unnecessarily large drilling programme. Finally, reserve estimates are also dependent on the long-term commodity price assumptions used to assess economic viability. For example, in an environment of falling gold prices it is usual to see gold producers reduce their reserve estimates as the long-term prices used to evaluate them are also reduced.



4. Dealing with cyclicality

Commodity prices are cyclical and commodity producer cash flows are typically more volatile than the market average. This volatility may also be exacerbated by high operating and/or financial leverage. For example, when commodity prices fell sharply in the global financial crisis from 2008, even the largest and most diversified mining companies such as Rio Tinto and Xstrata launched rights issues to recapitalise their balance sheets and meet debt repayments more easily.

In addition to commodity prices, operating costs and capital expenditure for commodity producers are also cyclical. This is because producers often decide to increase production and approve new projects as commodity prices rise. In turn, this exerts upward pressure on short-term labour costs and consumables such as explosives and spare parts for machinery. Changes in foreign exchange rates often exacerbate the cyclicality of costs for producers.



The cyclicality of cash flows may have a significant impact on the DCF valuation of a commodity producer. For example, a new mine that commences production in a period of high prices is likely to have a higher DCF valuation than an equivalent mine that begins production in a period of low prices. The greater the volatility of cash flows through the cycle, the greater this difference in value is likely to be.

While it is important to understand the impact of cyclicality on the value of mining assets, forecasting cycles very far into the future is often not a worthwhile exercise. A practical alternative is often to forecast normalised or mid-cycle cash flows and returns beyond a certain reasonable timeframe.

5. Interdependence of assumptions

Many of the key assumptions underpinning a DCF valuation for mining assets are frequently interdependent. Therefore, it may be more appropriate to consider them as a coherent set of assumptions rather than in isolation.

For example, economies with large natural resources industries (e.g. Australia) often observe a positive correlation between commodity prices and the strength of their domestic currency versus the US\$. Equally, discount rates are sometimes calculated with an assumption that risk-free rates return to historic averages. However, such an assumption may be more appropriate to a stronger global economy in which commodity prices might reasonably be expected to rise.

6. Discount rates

The calculation of an appropriate discount rate is often a contentious component of a DCF valuation. Valuation experts should be careful not to double-count risks through the discount rate *and* by adjusting forecast cash flows.

The discount rate should reflect risks to the accuracy of assumptions around operating costs and capital expenditures. For example, the cash flow forecasts for a project using the assumptions in a prefeasibility study will likely be more risky than a similar producing asset with several years of operating data.

The discount rate should also reflect country risk. This risk includes economic, financial, legal and political risks including corruption and expropriation. It should reflect the country risk in which the cash flow is generated as opposed to the country in which a

company may be headquartered or listed.

While this may sound obvious, history suggests that the risks associated with commodity producers located in developing nations, but whose stock is listed in a developed market, are often underestimated.

7. Collaborating with other experts

It is common for a number of different experts to be involved in dispute resolution projects in the natural resources sector. For example, the valuation of a coal mine may require experts in geology, engineering, coal price forecasting and valuation.

Experts need to be able to work together effectively to produce a coherent and robust valuation. It is helpful if the project has a project manager who is experienced in working with and managing these experts, otherwise the cost of instructing multiple experts can quickly escalate.

8. Recognise alternative assumptions

Experts should always be prepared to recognise reasonable alternative assumptions in their DCF valuation. It may be useful to include a sensitivity analysis to show a range of valuations using alternative assumptions on commodity prices and/or discount rates for example.

A refusal to accommodate alternative reasonable assumptions will likely be detrimental. We have seen a valuation expert who simply refused to acknowledge the existence of any reasonable alternative assumptions to the ones which underpinned his valuation for a platinum asset. This gave the impression that the expert was lacking in objectivity and so damaged his credibility.

Dispute resolution services offered by Intangible Business:

Accounting, marketing, investment banking, research, commercial skills, knowledge and experience.

Analysis of the following

- Business value
- Intangible asset and intellectual property value
- Share value
- Historic and forecast profits
- Related revenues and costs

The overall capability provided for dispute resolutions include:

- Liability and quantum
- International arbitration / court proceedings / settlement negotiations / expert determinations
- Expert for one or more parties
- Single joint expert

Specific areas of advice given in contentious projects include:

- Contractual disputes
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- Licence / franchise disputes
- Shareholder / stakeholder disputes
- Unfair prejudice / derivative actions
- IP infringement
- Other disputes

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