Valuations in the Extractive Industries
DISCUSSION PAPER
Responses by Lawrence Devon Smith

Comments on this Discussion Paper are invited before 20 October 2012. All replies may be put on public record unless confidentiality is requested by the respondent. Comments may be sent as email attachments to:
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1 PROJECT SCOPE

Question 1.1:
Should IVSC produce combined standards and guidance for Extractive Industries or produce separate pronouncements for mining and for oil and gas? If you believe the latter please indicate the reasons why you consider separate guidance is appropriate.

Oil & gas is quite a different industry from mining. The technical, mechanical, and economic drivers are not the same. Very little of mining involves fluid dynamics. Oil companies that got into mining in the 1980s quickly discovered, to they detriment, that the two industries are dramatically different.

Question 1.2
a) Should the project focus just on the valuation of reserves and resources or should it extend to other assets employed in the industry and to entire businesses in the sector? Please provide reasons for your answer.

The question is not clear. Its wording suggests that it was composed by someone who does not understand the mining industry nor its vocabulary. The estimation of a reserve takes into account all of the attendant physical, cost, commercial, legal, environmental, and social aspects of a project.

b) How often do you assess or use (if it is readily ascertainable) the value of an extractive business as a starting point for the valuation of reserves and resources?

The question is not clear. Its wording suggests that it was composed by someone who does not understand the mining industry nor its vocabulary. However, if I understand the question, the answer is seldom if ever. A business enterprise might contribute its WACC to the discount rate determination.

Question 1.3:
Do you agree with the Board’s preliminary view as to the type of pronouncements that IVSC should be making in relation to valuations in the Extractive Industries? If not please explain what alternative or additional material you believe would be useful.

No comment. The question assumes an extremely detailed understanding of the ins and outs of these various groups.
2 GN 14
Question 2:

a) Are you familiar with the former GN14?
   No

b) Is GN 14 used in the valuations that you provide or receive?
   Not to my knowledge.

c) What elements of GN 14 do you find useful in either reporting or interpreting valuations?
   NA

3 Reserves and Resources
Question 3

a) Which classification code or codes are most commonly used in your industry / sector?
   CIM (Canada) & JORC (Australia)

b) Which code do you normally use or rely on?
   CIM definitions (Canada)

c) Are you aware of differences across your / industry sector on the classification codes used? If so please indicate whether these differences cause problems in undertaking or understanding valuations.
   Yes. The US SEC definitions are antiquated and cause a great deal of nuisance for companies listed both in the US and other (more up-to-date) countries.

4 Valuation Methods – General
Question 4:

a) Please identify the valuation methods that you most commonly use or encounter for valuing:
   • Producing reserves
   • Reserves undergoing development
   • Reserves or resources subject to exploration
     The question is poorly worded, suggesting that it was composed by someone who does not understand the mining industry nor its vocabulary.
     • producing reserves - Income Approach, DCF method
     • reserves undergoing development - the DCF method of the Income Approach (see CIMVAL)
     • reserves subject to exploration - be aware that "reserves" require at least a preliminary feasibility study (PFS) which would necessarily mean the DCF method of the Income Approach (see CIMVAL)
     • resources subject to exploration - this is a little vague but could be a method in the Market or Income Approaches (PEA) (see CIMVAL).

b) If you are a valuation provider, please indicate why you prefer these methods. If you are a valuation user, please indicate if you are confident in the result obtained by these methods.

5 Valuation Methods - Market Approach
Question 5:
a) If you have experience of using the market approach to value assets, please indicate the sectors and asset types where this is used.
   Exploration properties. Analyst reports on listed companies using market ratios.
b) Please identify the three most important factors for which you frequently need to adjust price data when applying this approach.
   Important adjustments: date for metal price and costs, infrastructure, local and global market.

6 Valuation Methods - Discounted Cash Flow

Question 6.1:
a) Production forecast – do you use internal production forecasts developed by the entity's own geological and engineering specialists, external forecasts, or a combination of both?
   Q6.1a: both
b) Do you adjust the production forecasts for risk by reserve category?
   Q6.1b: typically not. Include 2P reserves
c) Do you make an explicit cash flow forecast through the term of expected production, even though it might be a very long period of time, or do you use a “remainder period” for long lived reserves? If you use a remainder period, typically over what period is your explicit forecast?
   Q6.1c: full cash flow. Almost never use remainder method except to value post-operation perpetual monitoring costs.
d) Do you use an internal management estimate for future pricing, eg the NYMEX, investment bank analysts’ estimates, industry sources, or a combination thereof to estimate future prices? If using the NYMEX strip pricing, what are the typical assumptions you make for prices beyond the NYMEX strip (e.g., flat, inflationary growth, etc.) Do you consider the impact of any hedging of future prices that might be in place in estimating the future revenue stream?
   Q6.1d: Combination. Hedging, seldom if ever - it is a financing technique and financing is typically excluded. NYMEX almost never enters into the discussion.
e) Do you apply differentials to the future price estimates? If so, what is your source for estimated differentials?
   Q6.1e: not clear what is being asked.
f) Do you reflect currency exchange risks to future income and operating cost projections in the cash flow or in the discount rate?
   Q6.1f: FX is addressed in the cash flow. (How would one adjust for it in the discount rate?)
g) Do you include corporate overheads when estimating the value of mining, oil and gas reserves, or just the selling, general and administrative costs associated with operating and producing the reserves?
   Q6.1g: corporate overheads are typically excluded.
h) How often do you use the DCF method to value probable or possible reserves?
   Q6.1h: DCF for probable reserves, always. There is no such thing as "possible reserves" under the major international codes.

Question 6.2:
a) What methods do you use or are familiar with for determining the discount rate used for valuations of reserves and resources?
   Q6.2a: start with corporate WACC (real) and adjust for stage of development, technical risk, country risk, other.
b) Do you separately consider and evaluate market (systemic) risk and asset specific risk?
Q6.2b: both systematic and specific are assessed
c) Please indicate the factors that you normally consider and reflect in the discount rate and any source you use to determine the appropriate rate adjustment.
Q6.2c: see Q6.2a
d) Do you use multiple discount rates to reflect the changing risk profile as an extractive process moves through its life cycle?
Q6.2d: a single risk adjusted discount rate is applied in all years and all components. If one didn’t what would the NPV and IRR mean?

7 Valuation Methods - Cost Approach
Question 7:
a) Please indicate what methods you use or are familiar with that fall under the Cost Approach and that are used in valuing assets in the Extractive Industries.
   The CIMVAL Cost Approach methods I have used or am familiar with is the Appraised Value method.
   I don’t see professional practitioners using Cost Multiple of Exploration Expenditure method.
   The Geoscience Factor method may have some application in rank but not valuing.
b) If you use or are familiar with the Cost Approach, please indicate in your experience how the cost of an equivalent asset is determined.
   The question is poorly worded suggesting that it was composed by someone who does not understand the Cost Approach method, which does not necessarily require the determination of the costs of an equivalent asset.
c) If you use or are familiar with the Cost Approach, please indicate the three most common adjustments that are made in your experience to reflect physical, functional or economic obsolescence, and what metrics are used to determine these adjustments.
   Commentary:
   Section 7.2 appears to imply that the methodology IVSC favours is some sort of depreciation method:
   Common difficulties in applying a Cost Approach include identifying the cost of an equivalent asset and establishing the appropriate depreciation allowances to reflect physical, functional or economic obsolescence. The Board is interested in learning what assets are commonly valued using the Cost Approach in the Extractive Industries and the inputs used to determine replacement cost and appropriate depreciation adjustments.
   In my opinion depreciation adjustments are not an appropriate component in the process of assessing a value for an exploration property.

There are several ways to look at the Cost Approach that IVSC might understand in their terms:
   • Intellectual property: The value of exploration is not in the money one spends but in the information and understanding that one obtains. Is there a depreciation rate for intellectual property? How does IVSC typically put a value on intellectual property?
   • Appraiser Method: One cannot force the approach of a real estate appraisal onto the valuation of every asset. Nevertheless, one could make the representation to an appraiser-centric body that the Cost Method is simply an industry-specific application of the appraiser method. Take a hectare of land anywhere, remote from other developments and extensive infrastructure (that is, not a city lot or a farm field). Let’s
say it has a notional value of $1. The appraiser will ask if it has any characteristics that distinguish it from any other hectare. Yes, it does. It has valuable characteristic – it has geological features that are known to have value in the region. It has upgrades - $X million in exploration work and information and reports. It is in a good neighbourhood – the property next door has a “hot” deposit on it. Does it have infrastructure – it has a winter road and is x km from a railway line. One would keep going using the appraisal technique. It would begin to look like the cost method with Fair market Value factors added.

- Replacement Method: Consider what it would cost to replace the $X million in exploration investments? It would cost the original amounts, corrected to today’s costs. But you might not repeat some of the less promising exploration because it did not add proportional value so you would scale it down, as we do in the cost method. The scaled, factored, and summed total would be the value. This is essentially how the cost method is applied currently by practitioners.

My point is that the Cost Method, as the mining industry currently practices it, is actually an industry-specific technique that incorporates features of Replacement Cost methodology, Appraisal methodology, and Intellectual Property assessment. Because the information, knowledge, and physical material in the ground do not depreciate the application of depreciation is not appropriate. It may have a place in valuing real estate, industrial buildings, and equipment, but not in valuing physical mineral deposits.

8 Treatment of Contributing or Complementary Assets

Question 8:
8abcdef - These questions relate largely to accounting issues that are not generally relevant to the mineral industry or are not in keeping with mineral industry practice. I suggest a face to face meeting in Toronto with an assembled group of industry practitioners.

a) How should the unit of valuation (unit of account) be determined in the valuation of extractive activities?
   See above

b) How is double counting of the contribution of different assets avoided?
   See above

c) How should economic obsolescence or impairment, if present, be allocated proportionally to all contributory assets of the mineral asset?
   See above

d) What methods do you use or are familiar with to attribute value to specific contributory assets?
   See above

e) Are entity specific inputs appropriate when valuing contributory assets in extractive activities?
   What checks can be made on the reasonableness of entity specific inputs?
   See above

f) Should components of goodwill other than value of assembled workforce be recognised?
   See above

9 Asset retirement obligations

Question 9:
a) How do you estimate the cost of future reinstatement or environmental protection obligations?  
Closure costs at Barrick are extremely detailed and are estimated by discipline experts using specialized programs. The forecasts can cover periods that exceed 100 years.

b) Do you discount the future cost of reinstatement obligations using a risk free rate or another rate? If another rate please identify and provide rationale for this approach.
ARO costs are included in the cash flow and are discounted at the same discount rate as the entire cash flow. Frequently the ARO costs are included in the cash flow as sinking fund contributions. For these calculations the investing interest rate can be set lower than the discount rate to create a larger contribution amounts.

10 Reliance on specialists
Question 10:
a) If you provide valuations of mineral assets, what investigations do you undertake to established the reasonableness or otherwise of estimates of the extent of reserves or resources provided by geologists?
Detailed PEA, PFS and FS, Qualified Person reviews and reports such as NI 43-101 compliant reports.

b) If you provide valuations of mineral assets, are you routinely provided with estimates from engineers of the cost and feasibility of extraction? What enquiries do you make to satisfy yourself as to the reasonableness of these estimates?
Details from engineers, consultants and experts. Benchmarking, experience, due diligence, interviews, QP reviews, pressure tests.

c) If you are a recipient or other user of valuations of assets in the Extractive Industries, are you satisfied that the valuations properly reflect any uncertainties in the current estimates of either the extent of the reserves or the costs of recovery? What information would you expect to see in a valuation report that would improve your understanding of the sensitivity of the reported value to uncertainties in the identified reserve or the costs of recovery?
It is always the role of the valuator to determine the level of confidence and uncertainty of any data they receive. This would not be limited to just reserves and the cost of recovery.
I would typically want to see sensitivity analyses, risk assessments, and probability distributions.

11 Intangibles and Goodwill
Question 11
These questions indicate an accounting perspective on the part of IVSC. In my experience, mineral property valuations tend to be more on a cash basis.

a) Please identify any intangible assets that are normally separately identified and valued;
   i. In transactions between entities in the Extractive Industries and
   ii. When accounting for the acquisition of a business in the Extractive Industries.
      Hot markets, proximity to other prospects, management, etc.

b) In your experience what, if any, value is attributed to components of goodwill, eg an assembled skilled workforce, in corporate transactions in the Extractive Industries.
Please briefly indicate any valuation techniques used to establish the value of goodwill in such circumstances.
"Goodwill" in the accounting sense is a non-cash item and a sunk cost so it is excluded in DCF methodologies. However, CSR and environmentally related goodwill can be a positive or negative impact on a value.

c) When considering the valuation of previously uneconomic reserves that can now be recovered using advanced technology, eg shale gas, deep water drilling, do you attribute an element of the overall value to the intellectual property involved? If so please explain briefly the method used to estimate this.

This varies with the circumstances. However, typically in the mineral industry, technology impacts are expressed in dollar terms in the form of usage royalties.

12 Government regulation

Question 12

a) Please provide any examples of which you are aware of significant differences between the value of otherwise similar resources arising solely from different Governmental policies.

Tax legislation and rates, environmental regulations and permitting time, nationalization issues, general uncertainty.

b) Please indicate how “country risk” factors are reflected in the way in which you price or value extractive assets.

Country risk is generally addresses in the risk adjusted discount rate (RADR) or costs estimates or allowances resulting from a risk assessment.

Overall Comments

The world’s highest concentration of international mineral valuation expertise is located in Toronto.

I urge IVSC to consider a meeting and/or workshop in Toronto to discuss these issues in a public forum.

I would be happy to assist in organizing such a meeting.

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