A collection of objects is arranged on a light-colored surface. On the left, there is a chessboard with several pieces. Next to it are two medals: one with a red ribbon and a white star, and another with a blue ribbon and a white star. A silver compass is visible at the bottom left. A pair of gold-rimmed glasses and a thin metal rod with a red handle are also present.

Valuation of mineral deposits in financial and accounting regulations

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Agenda

1. Preface
2. Basics of Mineral Deposits' Value Concept
3. Valuation of Mineral Deposits in Financial Statements
4. Valuation Standards and Codes
5. Conclusions



(1) Genesis of a Need for Valuation of Mineral Deposits

- ◆ Early civilizations built on the seven metals of antiquity (in order of discovery): gold (6000 BC), copper (4200 BC), silver (4000 BC), lead (3500 BC), tin (1750 BC), iron (1500 BC), and mercury (750 BC).
- ◆ A so called “Golden Age of resource-based development” occurred between 1870 and 1914 – resources made 14 % of global trade at the edge of WW I.
- ◆ A typical automobile of today may contain up to 39 different nonfuel minerals in various components.

Minerals has always been so valuable that their deposits have called for being valued.



(1) Development of Mineral Resources Valuation

- ◆ Quite a few mining countries have developed financial markets mature enough to create a need for large number of valuations.
- ◆ Accounting bodies only recently have undertaken serious efforts to encompass mineral deposits valuation in their standards.
- ◆ Also a few mining countries have advanced studies on national accounts.

Valuation of mineral deposits has relatively lately come into focus of influential institutions and circles.

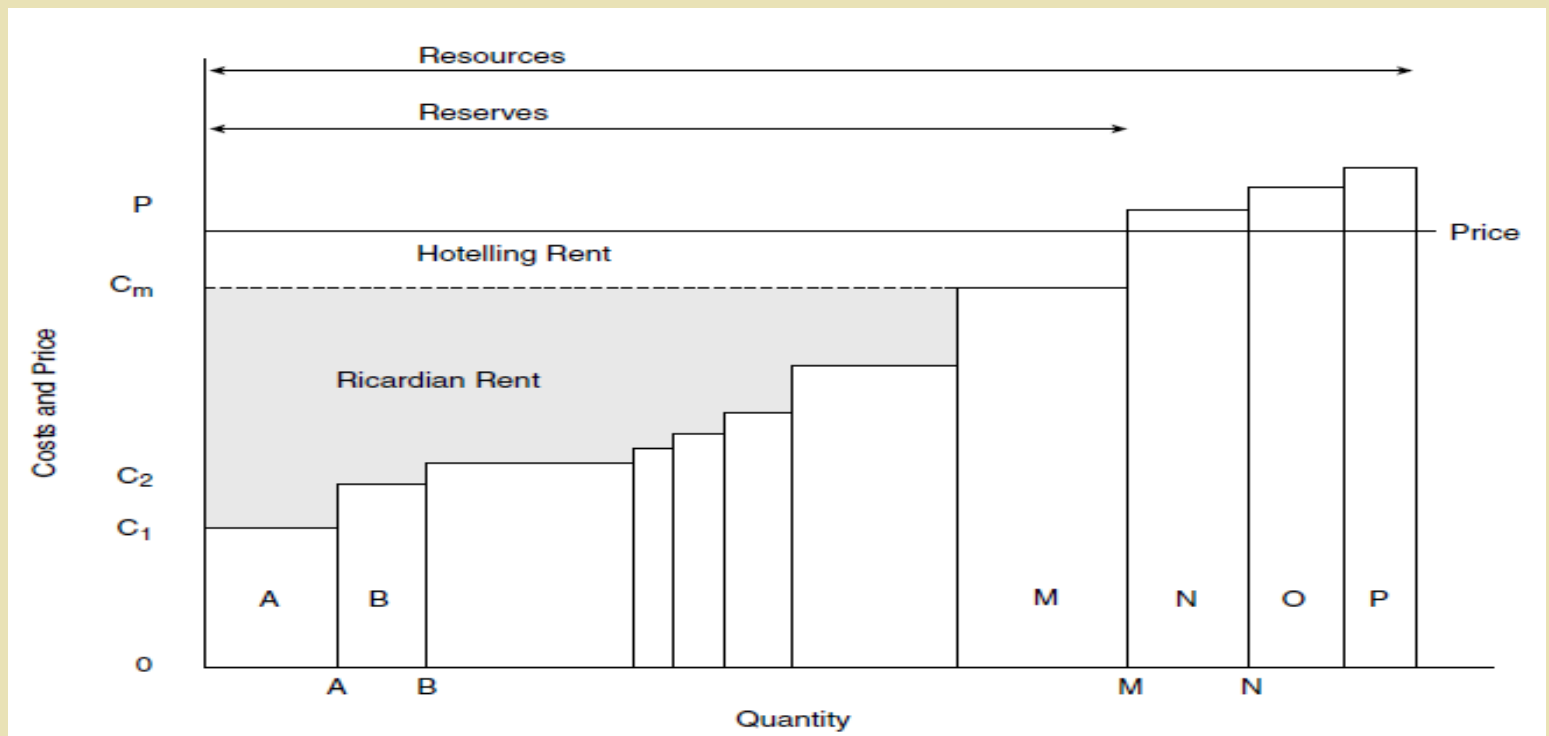


(1) Addressees of Mineral Deposits Valuation

- ◆ Businesses & owners.
- ◆ Banks & other financial institutions.
- ◆ Governments.

Various applications of valuation have underlined complexity of approaches and methods.

(2) Mineral resources as assets



Nordhaus William D. and Kokkelenberg Edward C. editors: *Nature's Numbers: (...)*, Figure 3-2, p. 64

A rent constitutes remuneration for a mineral assets' owner for pure ownership and therefore it forms a basis of their value.



(2) Key approaches to valuation of mineral assets

- ◆ Three widely recognized principles of value measurement:
 - Anticipation of value.
 - Substitution of value.
 - Contribution to value.

&

- ◆ Three approaches to evaluation of mineral assets:
 - Sales comparison.
 - Income based.
 - Cost based.

Principles of value measurement serve as a theoretical fundamentals for approaches to valuation of mineral assets.



(3) Areas related to valuation of mineral assets in financial regulations

- ◆ Regulations of oil & gas assets come first and are more sophisticated than those related to other minerals.
- ◆ IFRS Regulations cover only selected areas and include:
 - IFRS 6: *Exploration for and Evaluation of Mineral Resources*,
 - IFRIC 1: *Changes in Existing Decommissioning, Restoration and Similar Liabilities*,
 - IFRIC 5: *Rights to Interests arising from Decommissioning, Restoration and Environmental Rehabilitation Funds*,
 - IFRIC 20: *Stripping Costs in the Production Phase of a Surface Mine*.

Financial accounting lacks a complex regulation for recognising value of mineral assets in financial statements.

(3) Evolution of approaches applied by leading mining companies

Accounting treatment of exploration and evaluation expenditure in 2012, 2006 and 2003

Year	2012	2006	2003
Expenses as incurred	8	10	7
Expensed as incurred until the ore body is deemed commercially recoverable, at which time all subsequent costs are deferred		27	25
General exploration costs are expensed as incurred and exploration costs on specific projects are deferred	12	0	2
Capitalize until a reasonable assessment can be made of the existence of reserves		5	4
Capitalized		0	1
Police not disclosed	0	2	11
Total	20	44	50

Regulated by IFRS 6


Mining companies increasingly follow IFRS regulations in areas covered by them.



(3) Challenges related to valuation of mineral assets in financial regulations

- ◆ Only two fundamental valuation approaches are allowed by financial accounting: (1) historical cost model and (2) revaluation model.
- ◆ Cost approach can render meaningful results only in case assets under valuation have been a subject of a market based transaction and only as long as key factor conditioning value rendered have prevailed.
- ◆ Revaluation model requires reference to so called active market which is characterized by three following features:
 - ◆ items traded on the market are homogeneous,
 - ◆ willing buyers and sellers can normally be found any time,
 - ◆ prices are available to the public.

Globalisation of mining activities will eventually lead to convergence of all important rules regarding mineral assets valuation but this is set to be a lengthy process.



(4) Nascence of Valuation Standards and Codes

- ◆ **Australian VALMIN Code (1995).** Developed by a joint committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists (AIG) and Mineral Industry Consultants Association Inc. (MICA - now the Consultants Society of The AusIMM), in consultation with the Australian Securities and Investment Commission, the Australian Stock Exchange Limited, the Minerals Council of Australia, the Petroleum Exploration Society of Australia, the Securities Association of Australia and representatives from the Australian finance sector.
- ◆ **Canadian CIMVal (2003).** Developed by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), Toronto Stock Exchange and the Ontario Securities Commission.

Only a few countries have managed so far to develop valuation standards for mineral deposits.


(4) Approaches & methods recognised in valuation codes

Hierarchy of mineral assets valuation methods according to POLVAL

Approach	Method	Mineral Assets Type I	Mineral Assets Type II			Mineral Assets Type III	Mineral Assets Type IV	Mineral Assets Type V
			II A	temporally closed				
				II B	II C			
Income	Discounted Cash Flow (DCF)	N	N	A* (N)	N	A* (N)	A* (N)	N
	ROV	C	C	C* (A)	A	C* (A)	C* (A)	N
Market	Comparable Transactions	A	B	B	B	C	C	B
Cost	1) Appraised Value 2) Multiple of Exploration Expenditure	B	A	N	C	N	N	B
A	The most recommended by Code, widely used							
B	Recommended by Code, relatively widely used							
C	Accepted by Code, relatively narrowly used for specific case, not widely understood							
N	Rejected by Code							

Abbreviations: DCF – Discounted Cash Flow Method, ROV – Real Options Valuation. II A – Mineral Assets in primary exploration phase, II B – Mineral Assets with high probability of being put into operations in a near future, II C – Mineral Assets with low probability of being put into operations in a near future, * In cases applying DCF method turns results below zero ROV become the Most Recommended one.

Although the Codes recommend use of all three universally recognised approaches they indicate some methods developed distinctively for valuation of mineral assets.



(4) Future of valuation standards & codes in the area of mineral deposits

- ◆ The International Valuation Standards Council (IVSC) published in 2005 the Guidance Note 14 named “Valuation of Properties in the Extractive Industries” but withdrew it in February 2010 in order to undertake a comprehensive review of valuation in the sector was started, resulting with a Discussion Paper published in July 2012. The comment period closed on 20 October 2012 followed by an analysis based on which a decision regarding the next steps in this project is expected.
- ◆ There are still very few national codes and none of them has gained a global recognition.
- ◆ Oil & Gas follow it’s own way.

The development of valuation will be driven by financial markets regulations and governments.



(5) Conclusions

- ◆ **Valuation of mineral assets has become a complex and sophisticated part of various sciences** including mining, geology and finance but also touching economics and environmental sciences.
- ◆ **Numerous applications of mineral assets appraisal have led to development of string of methods** universally classified into three groups based on approaches underlying them.
- ◆ Leading roles are played by **accounting regulators and valuers** since these two groups most frequently meet all challenges in this regard.

The last word falls to evaluators and, of course to owners and prospective buyers who have to consider themselves all important circumstances before submitting recommendation or taking decision.



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