



Valuation Viewpoint

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VALUING MINERAL INTERESTS

A COMPARISON OF THE RELIEF FROM ROYALTY METHOD AND THE DISCOUNTED CASH FLOW METHOD

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In the valuation of a mineral interest, it is crucial to identify and distinguish real estate value from business value. The income approach provides the most effective means of accomplishing this goal. Historically, federal courts and government institutions have shown a preference for the comparable sales method when valuing real estate with mineral interests (petroleum, coal, gravel, limestone, precious metals, etc.). However, due to the difficulty of finding timely, truly comparable property transactions when valuing mineral interests, we find the income approach to be the strongest indicator of value. Specifically, any property with mineral interests has highly unique and singular characteristics that include size of the property, quantity of mineral reserves, costs of extraction relative to the geology of the site, quality

of the reserves, and a myriad of other factors. The lack of market sales that are comparable for all of these characteristics is problematic. In the absence of appropriate comparables, significant adjustments would need to be made to the selected comparables relative to the subject property. Using a discounted cash flow method (DCF), it is possible to value the subject property based on the specifically identified income that the property is capable of producing over its useful economic life. Correctly applied, the income approach is the strongest and most reliable method for appraising mineral properties.

Two primary methods may be utilized when conducting an income approach to value real estate with mineral reserves: the royalty stream method and the discounted cash flow method. This article consid-

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MARKET TRENDS AND INDICATORS

Office Buildings	↓	2%
Retail Centers	↓	5%
Industrial Buildings	→	0%
Apartments	↑	5%
New Housing Starts	↓	18%
Productivity	↑	2.8%
Composite PE	↑	31.2
US Unemployment	→	9.7%
Consumer Confidence Index	→	52.9

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MARKET TRENDS AND INDICATORS

ECONOMIC INDICATOR

	2005	2006	2007	2008	2009	1Q 2010
New Housing Starts—Yearly Totals	357,400	279,500	211,700	137,700	97,600	19,900

P/E RATIOS IN SELECT INDUSTRIES

Reporting categories changed in spring of 2006. Data for the current categories is presented for the Years: 2006, 2007, 2008, 2009, 1Q 2010, and 2Q 2010.

INDUSTRY (YEAR END)	2006	2007	2008	2009	1Q 2010	2Q 2010
Basic Materials	13.7	14.1	15.2	21.6	32.1	37.7
Conglomerates	20.1	18.4	15.8	10.7	12.8	17.2
Consumer Goods	25.8	24.4	16.3	15.9	32.7	24.6
Financials	14.3	13.7	11.7	9.6	13.7	34.0
Healthcare	38.8	40.0	26.0	57.7	34.0	24.9
Industrial Goods	25.1	19.5	19.5	20.3	31.9	19.1
Services	25.6	28.7	24.2	20.1	26.9	26.8
Technology	26.3	38.4	23.8	16.4	95.6	19.6
Utilities	24.0	20.0	15.3	12.0	51.1	21.9
Composite	24.4	24.0	18.7	20.5	36.8	31.2

ECONOMIC INDICATORS

INDICATOR (5 YR. AVG.)	2000	2005	2006	2007	2008	2009	CURRENT
Inflation	3.4%	3.4%	3.2%	2.9%	3.8%	-3.0%	1.4%
Productivity	2.9%	1.8%	1.5%	1.6%	2.8%	5.1%	2.8%
GDP	3.9%	3.1%	2.7%	2.1%	.4%	-2.4%	3.4%
Consumer Confidence	128.6	107.2	105.6	87.9	56.6	52.9	52.9

UNEMPLOYMENT

	1990	1995	2000	2005	2006	2007	2008	2009	MAY 2010
US	5.4%	5.6%	4.0%	5.3%	4.7%	4.6%	5.0%	7.7%	9.7%
Northeast	5.0%	6.0%	4.0%	4.9%	4.7%	4.4%	4.7%	7.8%	8.9%
Midwest	5.7%	4.5%	3.5%	5.7%	5.15	5.0%	5.3%	9.1%	9.7%
South	5.4%	5.4%	4.0%	5.2%	4.6%	4.3%	4.6%	8.4%	9.4%
West	5.1%	6.6%	4.6%	5.5%	4.8%	4.5%	5.2%	9.5%	10.9%
Minnesota	4.6%	3.6%	2.9%	4.5%	4.2%	4.5%	4.8%	7.2%	7.0%

RATES OF RETURN AND RISK HIERARCHY

INVESTMENT	CURRENT	INVESTMENT	CURRENT
30 Year Treasury	4.57%	S & P Equity (Ibbotson)	11.2%
Aaa Bond	4.82%	Equipment Finance Rates	12%
Bbb Bond	6.25%	Speculative Real Estate	14–18%
Commercial Mortgage	7.5%	NYSE/OTC Equity (Ibbotson)	15.2%
Institutional Real Estate	7.75–9.0%	Land Development	20–30%
Non-Institutional Real Estate	10.5–12.5%	NYSE Smallest Cap. Equity (Ibbotson)	23%

Sources: National Real Estate Index (2010), Appraisal Institute; F.W. Dodge Division, Business Week, Value Line, U.S. Chamber of Commerce, Standard & Poors, Investment Dealers Digest, U.S. Government Census, Yahoo Finance, Bureau of Labor Statistics.

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ers coal as the mineral reserve on the subject property. Details of the specific geological plan for the subject site are considered when applying these two methods within the income approach. Each method relies on estimates of the mineral reserves located on the property, the quality of those reserves, the timing of extraction, and the estimates of market pricing and resulting gross revenues over the extraction period.

Royalty Stream Method

In the royalty stream method, a present value of the income stream is estimated based on market comparable royalty rates for mined coal reserves over the extraction period. Royalty payments are usage-based payments made by one party (the lessee) to another (the lessor) for use of an asset in order to execute the right to extract mineral reserves. Royalties are typically paid as a percentage of gross sales and alternatively paid as a percentage of net profits or, in some instances, a fixed price per unit sold. A royalty is the right to collect a stream of future royalty payments based on usage and the royalty stream method present values the royalty revenues to provide an estimate of value.

With regard to mineral royalties, the owner of the coal reserve may license the extraction rights to a party in exchange for a percentage of gross revenues payment on the coal as it is extracted. Where a government entity is the owner of the resource, the terms of the license and the royalty rate are typically legislated or regulated. For example, in the western United States, coal rights on government land holdings are owned by the government and royalties are set at a minimum 12.5% for surface mines and 8% for underground mines (per the 1976 Federal Coal Leasing Amendments Act). Because of the extensive ownership of coal rights by the federal government (equal to approximately 35% of all recoverable reserves of minerals in the U.S.), this regulated rate, established 34 years ago, creates an overwhelming

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influence on the markets. The government has similar royalty stream regulated rates for precious metals, such as copper and gold, on federal land. Most western state governments retain similar regulatory level royalty rates. Regulatory-derived royalty rates have the effect of distorting markets by setting a level of royalties on such a vast portion of mineral reserves that they influence privately negotiated royalties. For this reason alone, there is concern as to how appropriate the royalty stream method is for valuing any property with mineral rights.

Another factor that may diminish the effectiveness of the royalty stream method relates to the same difficulties experienced by the comparable sales method: the difficulty of identifying timely and similar properties subject to royalty licensing. As an example, royalty mineral leases for coal in the United States tend to be located in the

western states where most of the coal is low-grade steam coal. It is of far lower grade than that found in the eastern United States. Consider coal mined in the western U.S. Powder River Basin, the world's most productive mining area. The Powder River Basin mineral reserves are almost entirely owned by the federal government. Commodity prices posted in December 2009 were approximately \$8.00 per ton (EIA Spot price December 2009). In comparison, the estimated December 2009 price of metallurgical coal in the eastern U.S. was \$165 per ton. This would result in significantly greater profit margins realized on revenues for operators in the eastern United States. The royalty leasing fees for Powder River Basin coal are set by the Government at 12.5% of gross revenues per regulated rates. Thus, it would not be appropriate to extrapolate western coal royalty rate data to that of eastern U.S. metallurgical coal.

Discounted Cash Flow Method

The discounted cash flow method relies on the same time value of money concept as the royalty stream



method and both methods utilize a present value of future cash streams. However, the DCF method, as applied to mineral reserves, deducts all costs associated with mineral

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In the royalty stream method, a present value of the income stream is estimated based on market comparable royalty rates for mined coal reserves over the extraction period.

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reserve extraction, developer/management fees associated with any business operation, and provides for contingencies and returns of and on equipment. The resulting earnings derived from the real estate mineral reserves are, therefore, specific to the site being valued. Thus, if done correctly, the DCF method provides a very reliable indication of value. The inability to sufficiently identify comparable sales or leases, as well as the uncertainty of collecting all of the relevant data or all payments associated with the transactions/royalty agreements, renders this method the strongest available.

In the context of estimating fair market value for real estate with mineral reserves using the DCF method, an appraiser may also need to distinguish between the values of the real estate (for example, in a situation where the tax benefits of a conservation easement may be taken) and the value of the business that is conducted on the property. It is critical to identify and delineate the appropriate cash flows in any appraisal assignment so that they match the component of the property being valued. In effect, the DCF method has the versatility to measure the real estate and business values separately, as well as to combine them into an enterprise value.

The distinctions between real estate and business are more readily identifiable in typical real estate appraisals; it is more difficult with respect to the valuation of real estate with mineral interests where depletion of the property (mineral rights) is the busi-

ness activity. The key to proper application of the DCF method is to make certain that the resulting earnings to be capitalized are being correctly considered and appropriately allocated whether for the real estate, the business, or the enterprise. First and foremost, the DCF method requires development of a reasonable geological mining plan with capital and operating cost estimates, assessment of markets and prices for the mineral reserve, and a projection of cash flows that has correctly identified and allocated the costs of operation, normal business profits, and cost contingencies associated with operations.

Comparison of the Royalty Stream and the DCF Methods when Valuing Real Estate with Mineral Reserves

The most significant weakness in the royalty stream method is that the present value of an income stream derived from royalties would reflect only a lessor interest in the mineral right and, therefore, fails to take into account all of the value that a fee simple owner enjoys. This is because *fee simple* ownership of a mineral interest carries a greater bundle of rights than that of a lessor interest, as it would include both lessor AND leasehold ownership rights. Thus, the royalty stream method captures fewer sticks within the bundle of ownership, whereas much greater rights are accorded to a fee simple interest.

This consideration is also true of any product subject to royalty such as patents, copyrights, or trademarks; though we are focusing our attention on royalties for mineral

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Regulatory-derived royalty rates have the effect of distorting markets by setting a level of royalties on such a vast portion of mineral reserves that they influence privately negotiated royalties.

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rights. The royalty stream method can estimate only the value associated with a *lessor's* ownership interest.

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It is critical to identify and delineate the appropriate cash flows in any appraisal assignment so that they match the component of the property being valued.”

In contrast, the DCF method can capture all of the rights associated with the fee simple interest in a site that specifically considers that location's mine plan. This is an important distinction. In a significant case that discusses this matter, *Whitney Benefits and Peter Kiewitt Sons' v. The United States*, 1989, Dr. John Weir (an expert in mine engineering, planning and valuation) testified that “the royalty stream valuation method is really a subset of DCF analysis... The most

important difference between the two is that the royalty stream method does not take into consideration the value of [the] leasehold.” In this landmark case, the Court rejected the royalty stream method to value mineral rights for this reason.

The difference between the value of the fee simple interest and the lessor's ownership interest may create a leasehold interest for the lessee. It is specifically the inability to fully match market royalty rates from comparable data relative to the specific conditions of the subject site, and the inability to capture all value of a fee simple interest in the royalty stream method that puts value of the mineral rights with the lessee. There can be a variety of causes. Perhaps it is due to distortions on the regulatory setting of rates by the federal government which, in many instances, may include built-in subsidies to lessees that encourage mineral exploration of a particular mineral in a particular area. It may also be the result of an inability to identify all ‘deferred’ or ‘bonus payments’ made in association with the terms of a royalty agreement because, in some instances, these additional payments go unreported. Weaknesses like these in the royalty

stream method have led the federal courts, in numerous instances, to reject the royalty stream method in favor of the discounted cash flow method.

Simply stated, the royalty stream method fails to capture the value of all of the rights of fee simple ownership in real estate that is successfully captured in a correctly conducted discounted cash flow valuation. It does not take into account the benefits from determining a specific mine plan for the subject site or where the mineral reserves will be processed and sold. It does not capture the economic benefits that may accrue in excess of royalty payments derived from market ‘comparable’ data to a fee simple owner, or properly consider the quality of mineral reserves at a particular location, nor does it capture unique characteristics of the mine site that result in lower costs or better access to markets. It is still a useful method of support to a cash flow method. However, the DCF method enables the appraiser to measure all issues that must be considered in any valuation assignment so that value is not overlooked.

Fee simple ownership of a mineral interest is more valuable than a lessor interest only, which does not consider the real estate value that may accrue to the lessee as a leasehold interest. Fee simple ownership carries with it the power and incentive to develop the owner's unique plan to mine and derive maximum value from the property. The DCF method, as outlined here, captures all of the fee simple rights retained by the owner of the subject property to an extent that the royalty stream method cannot. Indeed, we view the royalty stream method as a subset of the DCF method, a view that is supported in the federal courts. **W**

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The DCF method can capture all of the rights associated with the fee simple interest in a site that specifically considers that location's mine plan.”



MARKET TRANSACTION: BUSINESS VALUATION

PLATO Learning, Inc.
10801 Nesbitt Avenue South
Bloomington, Minnesota 55437

PLATO Learning, Inc., located in Bloomington, Minnesota, provides software for kindergarten through adult education. In 1963, Control Data partnered with the University of Illinois to develop PLATO, a computer-based instructional system. Over the next 45 years, the business grew into a separate publicly held company and became a leading provider of electronic education technology for K-adult learners in curriculum areas ranging from reading and math to life and job skills. PLATO Learning was a publicly traded corporation (Nasdaq: TUTOR) until it was acquired by a private equity firm on May 25, 2010.

Despite the recent economic downturn, demand for education tools remains relatively strong and PLATO's revenues decreased only slightly. The subject company was unprofitable in 2008, caused in part by a goodwill impairment expense of \$71.8M; however, it experienced increased profitability from 2009 through the trailing twelve months ending January 31, 2010.

On March 26, 2010 PLATO entered into a definitive acquisition agreement with a subsidiary of Thoma Bravo, LLC. Thoma Bravo is a private equity investment firm focusing on established businesses in the software and service sectors. The transaction price was \$5.60 per share, or approximately \$143M. This represented a premium of approximately 30% over the most recent 30 trading days' closing average (as of March 25, 2010) or a 34% premium over the 90 most recent trading days' closing average. Thoma Bravo is a synergistic buyer, which may be reflected in the significant premium. Thoma Bravo plans to increase profitability by taking advantage of synergies between PLATO and other complimentary companies in its investment portfolio. The acquisition was delayed due to a shareholder lawsuit stating PLATO's proxy statement was misleading. The Delaware Court of Chancery determined that a shareholder vote

regarding the merger would be permitted as soon as PLATO disclosed the following information:

- i the discounted cash flow analysis using the weighted average cost of capital calculated by Craig-Hallum Capital Group, LLC;
- ii the free cash flow projections management provided to Craig-Hallum;
- iii a description of discussions between PLATO management and Thoma Bravo representatives regarding potential future employment compensation and equity participation.

PLATO disclosed the required information and the shareholders voted to continue the merger, which was completed on May 25, 2010 at the transaction price of \$5.60 per share, or approximately \$143M. This transaction demonstrates that private equity is still available for synergistic investments and quality companies with potential for increased profitability. [vii](#)

FIGURE 2: SALE INFORMATION

(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)

Transaction Sale Price	\$143 Million		
Sale Price Per Share	\$5.60		
P/R & P/E Multiples			
(based on TTM 1-31-2010 financials)			
Total Revenue	\$64,733	Price/Revenue =	2.2
EBIT	\$1,955	Price/EBIT =	73.1
EBITDA	\$14,658	Price/EBITDA =	9.8
Net Income	\$1,700	Price/Net Income =	84.1

FIGURE 1: SUMMARIZED FINANCIAL DATA

(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)

FYE		Oct-31-2007	Oct-31-2008	Oct-31-2009	TTM 1-31-2010*
Income Statement	Total Revenue	\$69,632	\$68,401	\$65,183	\$64,733
	Cost of Revenues	(\$37,519)	(\$41,468)	(\$27,866)	(\$27,595)
	Operating Expenses	(\$47,540)	(\$122,221)	(\$36,236)	(\$35,183)
	Interest/Tax/Other	\$551	\$3,391	(\$124)	(\$255)
	Net Income	(\$14,876)	(\$91,897)	\$957	\$1,700
Per Share	Income (Loss) Per Share	(\$.63)	(\$3.85)	\$0.04	\$0.07
	Stock Price Per Share	\$4.34	\$1.72	\$4.42	\$4.12
Balance Sheet	Total Assets**	\$162,780	\$68,967	\$73,452	\$68,160
	Total Liabilities	\$62,045	\$58,911	\$61,030	\$54,908
	Total Equity	\$100,735	\$10,056	\$12,422	\$13,252

Notes
 *TTM 1-31-2010 is the trailing twelve months ending 1-31-2010
 **2007 assets included \$71.8M of goodwill written off in 2008



MARKET TRANSACTION: REAL ESTATE



Property:	427–429 Blake Road, Hopkins
Buyer:	Minnehaha Creek Watershed District
Seller:	Nemar Properties LLC
Source:	Buyer and seller
Sale Date:	April 6, 2010 (closing set for August 15, 2010)
Sale Price:	\$1,365,000
Unit Price:	\$56,875 (per dwelling unit)
Gross Building Area:	22,368 square feet
Zoning:	R-4, Medium High Density Multiple Family
Topography and Soil:	Level/good
Visibility and Access:	Good, located along Blake Road
Age:	1964
Land Size:	47,300 square feet
Remarks:	The property is a 24-unit apartment complex consisting of 6 one-bedroom units and 18 two-bedroom units in two identical buildings. The Watershed District is purchasing the property for possible expansion of the creek and a Hopkins city park. The purchase price was negotiated based on an existing offer the seller (Nemar Properties) had from a third party. The significance of this sale is that it highlights the decline in value for the apartment market over the last several years. Nemar Properties purchased this complex in December 2005 for \$1,650,000. The current price of \$1,365,000 represents a 17.3% decline from 2005. Part of the decline in value is due to the reduction in rents for apartment units across the market. At this property, a two-bedroom unit rented for \$800–\$820 per month two to three years ago. Today, these same units have an asking rent of \$705 per month.



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- Lease and rental analyses
- Lost profit analyses
- Marriage dissolution
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- Multi-family residential properties
- Municipal redevelopment studies
- Potential sales and purchases
- Railroad right-of-ways
- Special assessment appeals
- Special purpose real estate
- Tax abatement proceedings
- Tax increment financing
- Utility and communication easements

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