



# **Montana Department of Revenue**

## Capitalization Rate Overview Centrally Assessed Properties

### 2011-2012 Revenue and Transportation Interim Committee

# Income Approach to Value

- The Dictionary of Real Estate Appraisal defines value as the present worth of the **future financial benefits** that accrue to property ownership.
- **Future financial benefits** are converted to a present worth (value) by either discounting or capitalizing an income stream by a rate or multiplier.
- The classic income approach formula takes on the model structure:
  - $\text{Income} \div \text{Rate} = \text{Value}$  - *Commonly known as IRV*

# Capitalization *Rate*

- There are two fundamentally different methods of income capitalization:

## *Direct Capitalization and Yield Capitalization*

- *Direct Capitalization* is the conversion of a single year's income expectancy into property value by means of a capitalization rate or income multiplier.
- *Yield Capitalization* is the process of using the discounting procedure to convert future income flows to present value.
- Capitalization rates consist of an equity component and a debt component.
- The data sources used include: Value Line Investment Survey, Yahoo Finance and Standard & Poor's.

# Direct Capitalization

- Direct capitalization rates are derived from direct market observations.
- The *equity* component of the direct capitalization rate is derived from an analysis of earnings-price-ratios (E/P) of selected guideline companies.
  - Earnings are earnings per share of corporate stock.
  - Price is the market price per share of corporate stock.
- The *debt* component is the current yield on corporate bonds. The current yield is the annual interest expense on long term debt divided by the current market value of the debt.
- The data required to calculate the equity and debt components are readily available and the calculations themselves are very straightforward.

# Yield Capitalization

- Yield capitalization rate measures the risk associated with the receipt of future income.
- The *equity* component can be determined using a number of different models. Some of the models used include: the Discounted Cash Flow model (DCF), Equity Risk Premium model (ERP), Dividend Growth model (DGM), and the Capital Asset Pricing Model (CAPM).
- Each model uses different data sources therefore a combination of the models are typically used to arrive at an overall equity rate.
- The *debt* component used is the yield to maturity on corporate debt. Yield to maturity is the average rate of return on outstanding debt issues.
- The data required to calculate the equity and debt components are readily available and the basic calculations are straightforward. The difficulty with calculating an income approach using yield capitalization is that it relies on taxpayer specific information which some taxpayers are unwilling to provide.

# Direct Capitalization Rate Example

- Western Pipeline Example
- Detailed Capitalization Rate Study can be found on the department's website at:

*[http://revenue.mt.gov/publications/business\\_income\\_tax\\_reports/default.mcp#capitalization\\_rate\\_studies](http://revenue.mt.gov/publications/business_income_tax_reports/default.mcp#capitalization_rate_studies)*

**MONTANA DEPARTMENT OF REVENUE**

**Support for Industry Capital Structure**

**Industry: Liquid Pipelines**

**2010 Assessment Year**

A	B	C	D	E	F	G	H	I	J	K	L		
		(VL)	(VL)	(YAHOO)	(VL)		(VL)	(VL)	(VL)				
Company	Ticker	Financial	Shares	Avg. Price	Book Value	Mkt. Value	Book Value	Book Value	Book Value	Mkt/Book	Mkt. Value		
	Symbol	Strength		Common	Per Share	Common	Common	Preferred	Debt	Debt Ratio	Pref. & Debt		
						ExD							
Exxon Mobil	XOM	A++	4,976,000	72.11	22.70	358,794,480	112,965,000	0	7,025,000	1.00	7,025,000		
ConocoPhillips Inc	COP	A++	1,480,200	50.76	37.27	75,134,952	55,165,000	0	27,085,000	1.00	27,085,000		
Enbridge Energy Partners LP	EEP	B++	114,500	48.55	32.55	5,559,357	3,726,900	0	3,353,400	1.00	3,353,400		
Nustar Energy LP	NS	B++	54,500	53.60	40.50	2,920,928	2,207,000	0	1,872,000	1.00	1,872,000		
Buckeye	BPL	B+	48,400	51.89	24.29	2,511,234	1,175,500	0	1,445,700	1.00	1,445,700		
Magellan Midstream Partners LP	MMP	B+	66,700	39.93	14.32	2,663,331	955,400	0	1,083,500	1.00	1,083,500		
Plains All American PL LP	PAA	B+	122,900	49.72	28.90	6,110,998	3,552,000	0	3,259,000	1.00	3,259,000		
SUMS & AVGS - ALL COMPANIES						453,695,279	179,746,800	0	45,123,600		45,123,600		
SUMS & AVGS - A COMPANIES						433,929,432	168,130,000	0	34,110,000		34,110,000		
SUMS & AVGS - B COMPANIES						19,765,847	11,616,800	0	11,013,600		11,013,600		
MEDIAN - ALL COMPANIES													
									<b>INDUSTRY MARKET STRUCTURE</b>				
									<b>ALL COMPANIES</b>		<b>B COMPANIES</b>		
									<b>EQUITY</b>	91.00%	453,695,279	64.00%	19,765,847
									<b>DEBT</b>	9.00%	45,123,600	36.00%	11,013,600
									<b>TOTAL</b>		498,818,879		30,779,447

## MONTANA DEPARTMENT OF REVENUE

### Direct Capitalization Rate Summary

Industry: Liquid Pipelines

2010 Assessment Year

**Equity Measures Calculated:**

**Debt Measure Calculated, Current Yield:**

**E/P estimates:**

	All	B+ to B++	Median	
	5.76%	5.81%	6.05%	Yahoo
	6.02%	5.93%	6.27%	Value Line
	5.89%	5.87%	6.16%	Average of E/Ps

**Annual      4th Qtr**

	7.30%	6.77%	ALL
	6.81%	6.42%	BBB- & Above
	6.96%	6.56%	BB & Above
Mean =	7.02%	6.58%	
Median =	6.96%	6.56%	

**Inverse of P/E Ratios:**

	5.56%	5.57%	5.95%	Yahoo
	6.78%	5.43%	6.12%	Value Line
	6.17%	5.50%	6.03%	Average of Inverse of the P/E
	7.95%	5.65%	7.14%	Inverse of median P/E, Value Line
	6.03%	5.68%	6.10%	Average of all above except median P/E
Mean =	6.41%	5.68%	6.31%	
Median =	6.02%	5.65%	6.12%	

**Debt Measure = 6.50%**

**Equity Measure NUOI = 6.50%**

Industry Market Capital Structure Net Utility Operating Income (NUOI) Rate						
Equity	64.00%	x		6.50%	=	4.16%
Debt	36.00%	x		6.50%	=	2.34%
	100.00%					6.50%
<b>Direct Cap Rate NUOI =</b>						<b>6.50%</b>



# Western Pipeline Company

## Direct Capitalization Income Approach

### Direct Capitalization of Income:

#### Net operating income:

Year-end 2010 \$ 57,000,000

Year-end 2009 \$ 60,000,000

– Average net operating income \$ 58,500,000

Capitalization rate 6.5%

Income indicator before intangible personal property \$900,000,000

Less intangible personal property (5% reduction) \$(45,000,000)

Income indicator after intangible personal property \$855,000,000