

## **NEVADA DEPARTMENT OF TAXATION**

### **Capitalization Rate Study per Nevada State Administrative Code Methodology**

**Calendar Year 2012**

**For the 2014-2015 Secured &  
2013-2014 Unsecured Tax Year**

#### ***Introduction***

NRS 361.320 (4) requires the Nevada tax commission to adopt formulas providing the method or methods pursued in fixing and establishing the taxable value of all property assessed by it. NAC 361.425 describes the formulas adopted by the Commission for the development of the income indicator of value.

The income indicator of value is based on the theory that value is equal to the present worth of anticipated future net benefits. From an investment standpoint, the critical element affecting value is the earning power of the asset. The income approach is used to estimate market value because it converts the right to receive future earnings and benefits into an estimate of present value. "Present value is the sum that a prudent purchaser-investor would pay for the right to receive the forecast net income stream over the specified period." W. Kinnard, Jr., *Income Property Valuation* (1971), p. 62, quoted in *Folsum v. County of Spokane*, 725 P.2d 987 (Wash.1986), p. 990. Because the income stream produced by the property is an indication of earning power, reliable measurement of the income stream becomes crucial.

The rates used to convert income are based on the costs of the major sources of capital. The overall cost of capital is estimated by using band-of-investment methodology, as required under Commission rules at NAC 361.425 (1). The band-of-investment method derives the "weighted average cost" of three components of capital: debt, preferred equity, and common equity. "Weighted average cost" is derived by multiplying the average capital structure components (common equity, preferred equity, and debt) of the "typical" company by the cost of capital for each category.

The "capital structure" is derived by developing a representative, or "typical company", within the industry group. The typical company's capital structure is the median average of a selected sample of companies. Selection of companies for the sample is based on comparability of revenues, bond ratings, nature of operations and regulatory environment. (See, NAC 361.425 (3-4)).

Pursuant to NAC 361.425, the Department has developed a capitalization rate based on the discounted cash-flow method model. The cash flows (adjusted net operating income) from existing assets are assumed to continue in perpetuity. Under Nevada Statute the filing date is March 31 for calendar year operations. The secure assessment billing or lien date is made eighteen months later on July 1. Unsecured lien date is July 1 of the current year and is billed in November. Further, NRS 361.320 (1) requires the Commission to value any "property of an inter-state or inter-county nature.

The discounted cash flow (DCF) model measures the rate of return requirements of industrial stock (equity) as demonstrated by investors in the market. The basic theory of DCF is that the price paid for a share of stock reflects the investors' discounted present value of expected future returns from holding a stock (dividends and price appreciation).

The basic DCF formula is:

$$K_e = D_1/P_0 + G$$

Where:

$K_e$  = Cost of Capital

$D_1$  = Projected Dividend

$P_0$  = Current Stock Price

$G$  = Growth

The division of the  $D_1$  variable by the  $P_0$  variable results in an estimate of dividend yield. Dividend yield is obtained from the Value Line projected dividend yield for the 2011 year. The growth factor in the model was derived by subtracting the published dividend yield from the Value Line projected annual total return for the same period. The Value Line projected annual total return includes both the dividend yield and the overall price appreciation, if any. Overall price appreciation is assumed to represent investor expectations regarding earnings per share and book value per share growth.

The calculation is made for each of the companies contained in the sample. In most cases, the Department selected the median dividend yield plus the median growth rate to determine the overall common equity rate in order to minimize any skewing of the data which might occur with the presence of any non-typical company statistics.

### ***Income Stream***

The Department estimates the income stream for yield capitalization by deducting allowable expenses from operating revenues. The result is adjusted to reflect normalized and annualized revenues and expenses, and to reflect disallowed rental expenses, allowed federal income tax and book depreciation if necessary. See NAC 361.423 & NAC 361.454. The operating income to be capitalized into taxable value will be normalized and annualized based on the most recent year's adjusted net operating income. When the most recent year's net operating income is typically not a reasonable representation of the net operating income of the industry under review, such as where the net operating income of the industry tends to be cyclical, a 3 or 5-year average of adjusted net operating incomes will be normalized and annualized and may be used.

### ***Market Capital Structure***

#### **Electrics, Gas Pipelines, Telecommunications**

Pursuant to NAC 361.425 (4) and (5), the Department has derived the capital structure of the typical company from the use of market information for the selected sample of firms. The capital structure is developed using information from Value Line for each firm. The median structure is then calculated and applied to each component cost of capital to determine the weighted-average cost of capital.

The sample of firms was selected on the basis of comparability of Value Line Ratings, S&P Ratings, Moody's/Mergent Ratings, size of capitalization, debt rate, and NAISC code number. In the case of electric companies, western regional companies were selected over central or eastern regional companies. In addition, most nuclear-powered generation companies were rejected from the sample, with the exception of Southern California Edison, a Nevada taxpayer. The pipeline company sample includes a wide range of types, from coal-slurry to natural gas. The telecommunications

sample includes inter-exchange and local exchange service as many firms now provide both types of service.

### **Railroads**

The sample of firms selected for inclusion in the study was comprised of Class I carriers controlled by selected major railroad holding companies. Criteria for selection included a debt rating of at least BBB- (Standard and Poor's) and Baa (Moody's); a listing on a major stock exchange; and listed by Value Line.

### **Airlines**

The sample of firms for each airline sub-group was determined on a wide range of comparability factors that included elements for financial, operating and physical characteristics. The major segmentation of the industry was based on payload, distinguishing pure freight carriers from mixed passenger-freight carriers.

## ***Components of the Cost of Capital***

### ***Debt Capital:***

#### **Electrics, Gas Pipelines, Telecommunications**

The 2012 cost of debt was developed using information from Moody's/Mergent Financial Information Services: Bond Records. At Corporate Bond Yield Averages Record, January, 2013, the 2012 yields for Baa utility bonds ranged from 4.51% to 5.23%. The average of this range is 4.94%. Only long-term debt obligations are included since only long-term liabilities are included in a capital structure. Baa utility bonds are considered to be medium grade obligations, neither high quality nor highly speculative. Baa bonds are typically representative of many utilities, and the resulting cost of debt is conservative.

#### **Railroads**

The 2012 cost of debt was developed using information from Moody's Financial Information Services: Bond Records. At Corporate Bond Yield Averages, January, 2013, the 2012 yields for Baa utility bonds ranged from 4.51% to 5.23%. The average of this range is 4.94%.

#### **Airlines**

The 2012 cost of debt was developed using information from company annual reports, current Value Line Investment Survey, Standard & Poor's Bond Guide and the Mergent Bond Record for U.S. Corporate Bonds, for January 2012 through December 2012. All the airline bonds were selected and listed with reported issue rate and current yield rate. Mean and median calculations were developed for these rates. Examples of the selected debt rates are as follows: 1) Group All Passenger Companies weighted by issue yield rate was 9.7288% and 2) the weighted by issue yield rate for Group All Freight Carriers was 2.9926%.

#### **Flotation Costs of Debt**

The Department adjusts the cost of debt as necessary to reflect additional bond issue costs, called flotation costs. Flotation costs include underwriter's fees and legal expenses and are estimated to be approximately 0.5% of the debt issue. The formula used by the Department is: (Cost of debt) \*  $(1/(1-.005))$ . The multiplier for debt is obtained by dividing 1 by 1 minus the flotation cost. The multiplier is then applied to the cost of debt to obtain the adjusted cost of debt. (See, Parcell, The

Cost of Capital – A Practitioners Guide (1997), p. 11-2). In addition this formulation was used by the California State Board of Equalization and the Southwest Gas Corporation.

There are several ways in which flotation costs can be recognized with regards to assessed valuations/appraisals. The first method, and the way previously recognized by the Department, has been to adjust upward the return on equity to reflect the flotation costs incurred to issue the securities. Although this is the current method the Department is reviewing and investigating other options for recognizing current legitimate flotation cost. The second method, and one being considered for future proceedings, is the cost of service or operating expense approach. This method treats flotation costs like most other operating costs and allow for their recovery or in the assessed valuation process allows these expenses as any other legitimate expenses to offset the cash flows under the income approach. **In other words have flotation expenses be accounted for in the income stream.** Expensing issuance costs in the year incurred has the advantage of simplicity. The alternative recovery can be accomplished via straight line amortization over a short period of time

### ***Preferred Equity Capital:***

Preferred equity contains characteristics of both debt and equity. Preferred issues are like common stocks in that they have no maturity dates and represent ownership in the company but they are like debt in that they usually have fixed dividend payments similar to interest payments. However, Moody's/Mergent Financial Information Services ceased providing preferred stock yield averages in July 2011. Given the rarity of the use of preferred stock equity by the subject industries and the absence of available market rate information, it is only utilized in the analysis of large electric companies.

### **Large Utility Companies**

Three of the four companies in the sample group of this sector utilize preferred stock. Due to the absence of market information, the rate utilized for analysis is derived from the weighted average Value Line yields for the subject utility companies. A rate of 6.02% is utilized for the cost of preferred equity for this sector.

### **Flotation Costs of Preferred Equity**

The Department adjusts the cost of preferred equity as necessary to reflect additional preferred equity issue costs, called flotation costs. Flotation costs include underwriter's fees and legal expenses and in most cases are estimated to be approximately 3.10% of the preferred equity issue. The formula used by the Department is:  $(\text{Cost of equity}) * (1/(1-.0310))$ . The multiplier for preferred equity is obtained by dividing 1 by 1 minus the flotation cost. The multiplier is then applied to the cost of preferred equity to obtain the adjusted cost. (See, Parcell, The Cost of Capital – A Practitioners Guide (1997), p. 11-2). **(See Keown, Martin, Petty and Scott, Foundations of Finance(2006), p. 334). See Brigham-Gapenski, Financial Management -Theory and Practice (Seventh Edition), p. 340).**

### ***Common Equity Capital:***

### **Airlines, Electrics, Gas Pipelines, Railroads, Telecommunications**

Pursuant to NAC 361.425, the Department developed a common equity rate based on the discounted cash-flow method model. The calculation is made for each of the companies contained in the sample. In most cases, the Department selected the median dividend yield plus the median growth rate to determine the overall common equity rate in order to minimize any skewing of the data which might occur with the presence of any non-typical company statistics. Refer to the method described fully in the introduction and in the yield capitalization technique described above.

## **Flotation Costs of Equity**

The Department adjusts the cost of common equity as necessary to reflect additional equity issue costs, called flotation costs. Flotation costs include underwriter's fees and legal expenses and in most cases are estimated to be approximately 3.0% of the common equity issue. The Department references current used flotation cost adjustments from the recent "Willamette Management Associates Gross Spread Study" referenced in the Union Pacific Railroad Cost of Capital Study for 2011 Assessment Year. Based on recent industry input and request the Department will no longer tax-effect the flotation costs. The formula used by the Department is:

$$K = \frac{D}{P(1 - f)} + g$$

The multiplier for common equity is obtained by dividing the dividend yield by 1 minus the flotation cost plus the growth rate. The multiplier is then applied to the cost of common equity to obtain the adjusted cost. (See, Parcell, The Cost of Capital – A Practitioners Guide (1997), p. 11-17). (See Copeland-Weston, Managerial Finance (Ninth Edition), p. 616. (See, Brigham-Houston, Fundamentals of Financial Management (2004), p. 368-369). See Brigham-Gapenski, Financial Management – Theory and Practice (Seventh Edition), p. 358-359).

Pursuant to NAC 361.425 (8C), the Department may, with Director approval, utilize Direct Cap Rates. The cost of equity is earnings divided by price from Value Line and Standard and Poor's Stock Guide. The cost of debt is long-term interest divided by market value long-term debt, also from Value Line. As a check of reasonableness to the Yield Cap Rate method the Department conducted a Direct Cap Rate study. Attached to this narrative are the results of both the Yield Cap Rate and the Direct Cap Rate studies.

July 15, 2013 KM

## **SOURCES OF INFORMATION AND DATA**

*The following sources of information were referenced to develop data for the capitalization rate study:*

Moody's/Mergent Public Utility Stock and Bond Averages

Moody's/Mergent Industrial Stock and Bond Averages

Value Line Investment Survey, various editions

*Other sources referenced for analysis and comparison:*

California State Board of Equalization Capitalization Rate Study

Final Colorado Capitalization Rates for Tax Year 2013  
Colorado State Board

New York University Annual Industry Capitalization Rate Study

Union Pacific Railroad Company's 2013 Assessment Year  
Cost of Capital Study

Keown, Martin, Petty and Scott, Foundations of Finance (2006), p. 334

Brigham-Gapenski, Financial Management-Theory and Practice (Seventh Edition), p. 340, 358-359

Copeland-Weston, Managerial Finance (Ninth Edition), p. 616

Brigham-Gapenski, Fundamentals of Financial Management (2004), p. 368-369

Parcell, The Cost of Capital – A Practitioners Guide (1997), p. 11-17