



*Gina Wylie (Public Utilities)
Lann Waller (Real Property)*

Alabama Department of Revenue
Property Tax Division



What is a Capitalization Rate?

Definition: a composite rate used for converting property income into a property value



How do we determine and apply the appropriate Capitalization Rate in each section of the Property Valuation Process?

1. Public Utilities...



Public Utility Capitalization Rate Development

August 7, 2019



Purpose of developing a Public Utility cap rate

- Cost Approach and Income Approach
- To calculate the anticipated future income streams for the income approach.



Types of Industry

- Electric
- Natural Gas
- Pipeline
- Railroad
- Telephone-land line only
- Water Companies-private companies only

- Airlines & Electric Coops-no cap rate
 - Airlines-mileage & time ratio; ground equipment
 - Coops-income approach only

Capitalization Rates

Sources of Data

- ValueLine
- Risk-Free Rate (Treasury Bond Data)
- S&P Bond data
- Mergent (Moody's) Bond Data
 - Standard & Poor's & Moody's Long Term Bond Yields
- Industry specific data
 - Association of American Railroads
 - National Association of Railroad Property Tax Representatives-range

Alabama Department of Revenue

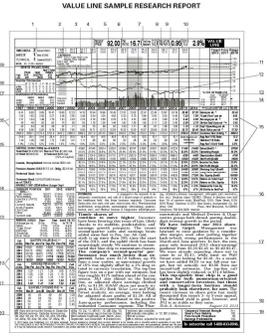
Capitalization Rates

ValueLine

- ValueLine.com
- Search for data by industry type(s)
- Input data into spreadsheet template
 - Stock price, Beta, Capital Structure, Dividend data, EPS Data, Financial Strength Rating, Timeliness Rating, Safety Ranking, S & P Bond Rate, Moody's Bond Rate

Alabama Department of Revenue

Capitalization Rates



The information contained herein is provided without warranties of any kind. The publisher is not responsible for any errors or omissions based on any changes or items missing from any one of the information.

Alabama Department of Revenue

Capitalization Rates

ValueLine

- Provides financial and statistical data of individual companies included in particular industry type
 - Determine which companies will be included in cap rate study
 - Is this a domestic company?
 - Is there debt rating from both S&P and Moody's?
 - Is the primary operations of the company consistent with the industry type?

Alabama Department of Revenue

Capitalization Rates

Risk-Free Rate

- <https://research.stlouisfed.org/fred2/data/DGS30>
 - Consider using 20-year or 30-year bond rate
 - Choose rate as of the last day of the year

Frequency	Daily	DGS30
Observation date		
2018-12-31		3.08
2018-12-28		3.08
2018-12-27		3.08
2018-12-26		3.08
2018-12-21		3.08
2018-12-20		3.08
2018-12-19		3.08
2018-12-18		3.08
2018-12-13		2.97
2018-12-12		2.97
2018-12-11		2.92
2018-12-04		2.88

Alabama Department of Revenue

Capitalization Rates

Mergent Bond Record

Standard & Poor's and Moody's Long Term Bond Yields (%) *

S&P	Avg YTM	Med YTM	Moody's	Avg YTM	Med YTM
AAA	4.04	4.00	Aaa	4.66	4.63
AA+	4.18	4.21	Aa1	4.21	4.23
AA	4.19	4.18	Aa2	4.23	4.21
AA-	4.36	4.29	Aa3	4.25	4.25
A+	4.37	4.30	A1	4.39	4.31
A	4.46	4.41	A2	4.39	4.34
A-	4.74	4.66	A3	4.77	4.70
BBB+	5.15	5.08	Baa1	5.83	4.98
BBB	5.60	5.57	Baa2	5.40	5.38
BBB-	6.53	6.49	Baa3	6.64	5.90
BB+	6.74	6.73	Ba1	6.30	6.31

Source: S&P and Mergent Bond Databases, Jan. 2019.
* At least 20 years to maturity.

- S&P's Long Term Bond Ratings/Yields
- Moody's Long Term Bond Ratings/Yields
- ???Need to calculate the cost of debt

Alabama Department of Revenue

Capitalization Rates



Market Capital Structure

- Determine percentage of debt to equity for the industry
 - Average method**
 - Add actual long term debt amount, **actual preferred stock at market value** and actual common stock at market value per guideline company
 - Divide this amount by the long term debt amount for that company to convert to a percentage for that company
 - Subtract this percentage from 1 to determine the common stock at market value percentage for that company
 - Average actual common stock at market value percentages, **actual preferred stock at market value percentages** and actual common stock at market value percentages

Alabama Department of Revenue

Capitalization Rates



Market Capital Structure

- Weighted Average method**
 - Total long term debt divided by total long term debt, **total preferred stock at market value** and total common stock at market value to equal the long term debt weighted percentage
 - Total common stock divided by total long term debt, **total preferred stock at market value** and total common stock at market value to equal the common stock at market value weighted percentage
 - Find the median for long term debt and for common stock at market value
 - Chose the appropriate percentage of debt and equity. These percentages are usually closely matched. Round to the nearest 10%.

Alabama Department of Revenue

Capitalization Rates



Market Capital Structure

SELECTED GUIDELINE COMPANIES MARKET CAPITAL STRUCTURE				SELECTED GUIDELINE COMPANIES MARKET CAPITAL STRUCTURE			
COMPANY NAME	L.T. DEBT	PREFERRED STOCK	COMMON STOCK @ MKT. VALUE	COMPANY NAME	L.T. DEBT	PREFERRED STOCK	COMMON STOCK @ MKT. VALUE
Company C	13,754.00	0.00	52,420.30	Company C	20.18%	0.00%	79.22%
Company H	2,560.70	0.00	8,271.10	Company H	21.15%	0.00%	78.85%
Company I	15,635.00	0.00	40,303.12	Company I	20.66%	0.00%	79.34%
Company L	20,842.00	0.00	100,873.20	Company L	17.16%	0.00%	82.84%
Company F	2,300.60	0.00	4,376.34	Company F	34.96%	0.00%	65.04%
TOTAL				AVERAGE			
				WEIGHTED AVERAGE			
				MEDIAN			
				PRIOR YEAR ESTIMATED PERCENT EQUITY			
				85.00%			

Page 1

Page 2

Alabama Department of Revenue

Capitalization Rates



Market Capital Structure

MARKET CAPITAL STRUCTURE @ 12/31/2018		
CURRENT YEAR ACTUAL	DEBT	EQUITY
SELECTED GUIDELINE COMPANIES		
AVERAGE	20.12%	79.89%
WEIGHTED AVERAGE	19.10%	80.90%
MEDIAN	20.83%	79.17%
PRIOR YEAR ESTIMATED PERCENT EQUITY		85.00%

Alabama Department of Revenue

Capitalization Rates



Cost of Equity

- Add the Projected Growth in Earnings percentage and the Expected Dividend Yield Percentage for each guideline company to get the Estimated Cost of Equity
- Calculate the Discounted Cash Flow percentage by averaging the Estimated Cost of Equity percentages for all guideline companies
- Calculate the average beta's from ValueLine for all guideline companies
- Calculate the average Safety rating from ValueLine for all guideline companies
- Calculate the average Financial Strength rating from ValueLine for all guideline companies

Alabama Department of Revenue

Capitalization Rates



Cost of Equity

- An Equity rate is calculated from these pieces of information
- This percentage is used to calculate the Weighted Cost of Capital for Common Stock for the cap rate

Alabama Department of Revenue

Capitalization Rates



Overall Capitalization Rate Selection

- Capital Structure percentage times Cost of Debt equals Weighted Cost of Debt
- Capital Structure percentage times Cost of Equity equals Weighted Cost of Equity
- Add Debt Weighted Cost of Debt percentage and Common Weighted Cost of Equity percentage
- Can use this exact percentage or apply appraisers judgement
 - Compare to last year's cap rate
 - Compare to this year's cap rates from other states
 - Compare to other industry developed cap rates where available

Capitalization Rates



OVERALL CAPITALIZATION RATE AS OF JANUARY 1, 2019			
BALANCE SHEET			
	CAPITAL STRUCTURE	COST	WEIGHTED COST
	DEBT	20.00%	5.50%
	COMMON	80.00%	11.00%
	100.00%		12.11%
SHORT-TERM			
	CAPITAL STRUCTURE	COST	WEIGHTED COST
	DEBT	35.00%	6.87%
	COMMON	65.00%	9.31%
	100.00%		12.31%
SELECTED CAPITALIZATION RATE CLASS # 00			12.11%
SELECTED CAPITALIZATION RATE SHORT-TERM			12.31%

Capitalization Rates



Overall Capitalization Rate Selection

And that's all there is to it!

Capitalization Rates



Let's take a 5-minute break



Real Property is next

Capitalization Rates



Real Property Capitalization Rate Development

August 7, 2019

Capitalization Rates



- There are three primary components involved in the capitalization process:
 1. The net operating income, referred to as *income*
 2. The capitalization rate, referred to as *rate*
 3. The value, where the *verified sale price represents value*

Capitalization Rates



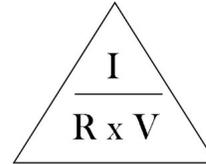
- When a rate is used to convert income from property into the property value, the capitalization process is taking place.
- The relationship between the value of a property and the net operating income is expressed as an overall capitalization rate, or percentage.

Alabama Department of Revenue

Capitalization Rates



The three capitalization formulas can be developed by making three blocks showing letters *I*, *R*, and *V*.



The IRV formula is applied to convert income into value

Alabama Department of Revenue

Capitalization Rates



- **Multiple methods can be used in the cap rate development process based on the availability of information**
 1. **Band of Investment Method**
 2. **Direct Capitalization**

Alabama Department of Revenue

Capitalization Rates



- **Band of Investment Method**
 - This method can be used when market data is limited (no available comparable sales)
 - Application of this method involves construction or calculation of a Discount Rate, Recapture Rate, and Effective Tax Rate
 - The 3 components add up to the Capitalization Rate

Alabama Department of Revenue

Capitalization Rates



- **Direct Capitalization Method**
 - This method involves the use of an Overall Rate calculated from market data using the following formula: **NOI / Sale Price = OAR (Overall Rate)**
 - The Overall Capitalization Rate expresses the direct relationship between NOI and market value of property (represents the percentage that NOI is in relation to total property value)

Alabama Department of Revenue

Capitalization Rates

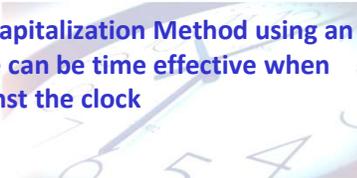


- **Both methods are accepted and frequently used in the Capitalization Process**
- **If the information is available and time is permitted, it is recommended that Appraisers perform both methods in order to develop an accurate Capitalization Rate**

Alabama Department of Revenue

Capitalization Rates

- However, often times information is not available and time is not permitted
- For the purposes of this workshop, I'd like to focus on the Direct Capitalization Method
- The Direct Capitalization Method using an Overall Rate can be time effective when we are against the clock



Alabama Department of Revenue

Capitalization Rates

NOI / Sale Price = OAR (Overall Rate)

NOI (Net Operating Income) can be obtained multiple ways:

1. NOI is commonly available on the sale sheet from multi-listing source (Costar, Navica, etc.)
2. NOI can be calculated using market data (market rent, market vacancy / loss ratio, market expense ratio)

Alabama Department of Revenue

Capitalization Rates

NOI / Sale Price = OAR (Overall Rate)

Sale Price can be obtained multiple ways:

1. Multi-listing Services (Costar, Navica, etc.)
2. Real Estate Professionals (Realtors, Appraisers, Attorneys, etc.)
3. Deeds
4. Sales Validation Forms

Alabama Department of Revenue

Capitalization Rates

Example...

A tax representative representing a real estate investment company in your county has appealed the appraised value of their upper-average price range apartment complex

Alabama Department of Revenue

Capitalization Rates

Example...

During the BOE hearing, it was determined that both sides agreed on an NOI of around \$1,500,000. The dispute was over the capitalization rate used in the income approach to value

The BOE requested that the appraisal office obtain additional data to verify the appropriate capitalization rate

The Appraisal Office was successful in obtaining the following data...

Alabama Department of Revenue

Capitalization Rates

Apartment Sale #1



Financial Data		Analysis	
Source:	Seller	Buyers Und. Ctrt:	Direct Cap
Occupancy at Sale:	90%	Overall Cap. Rate (OAR):	7.22 %
Existing or Proforma Inc:	Existing	Projected ROE:	N/A %
	Total	Eff. Gross Multiplier (EGM):	9.13
Potential Gross Income:	\$2,482,898	Oper. Expense Ratio (OER):	35.90 %
Vacancy and Credit Loss:	N/A	Price Per Square Foot:	\$62.50
Effective Gross Income:	\$2,482,898	Price Per Unit:	\$34,416
Expenses and Reserves:	\$891,687		
Net Operating Income:	\$1,591,212		

Unit Mix			
Unit Type	No.	SF	%
1BR/1BA	17	648	7
1BR/1BA	17	809	7
1BR/1BA	44	967	18
1BR/1BA	10	820	4
2BR/2BA	10	1096	4
2BR/2BA	44	1149	18
2BR/2BA	22	1323	9
2BR/2BA	22	1448	9
2BR/2BA	5	985	2
2BR/2BA	5	1199	2
3BR/2BA	22	1447	9
3BR/2BA	22	1458	9
Totals	240	273,245	100

Alabama Department of Revenue

Capitalization Rates

Apartment Sale #2



General Physical Data (Cont.)

HVAC
 Parking
 Stories
 Utilities with Rent
 Unit Amenities
 Project Amenities
 Year Built
 Condition

Central - Electric
 On-site
 2
 Trash Collection
 Patios/Balconies, Fire places, Washer/Dryer Connections,
 Microwaves, Ref., Dwg., Dwg.
 2 Outdoor Pools, Outdoor Tennis, Clubhouse, Laundry,
 Exercise/Fitness, Garage, Concierge Service, Car Wash
 1998
 Average - Good

Sale Data

Sale Date: September 04, 2007
 Deed Book/Page: 6252/595
 Property Rights: Fee Simple
 Conditions of Sale: Arms Length
 Financing: Cash to Seller
 Verification: Cushman & Wakefield

Sale Price: \$26,800,000
 Cash Equivalent: \$26,800,000
 Adjusted Price: \$26,800,000

Income Analysis

Potential Gross Income: \$3,283,880
 Vacancy: \$87,916
 Effective Gross Income: \$3,195,960
 Expenses: \$1,394,480
 Net Operating Income: \$1,771,480

Indicators

Sale Price/Gross SF: \$76.59 Actual or \$75.59 Adjusted
 Sale Price/Unit: \$63,750 Actual or \$63,750 Adjusted
 Occupancy at Sale: 97%
 PGIM: 8.21
 EGIM: 6.47
 Expenses/SF: \$3.93 Gross
 Expenses/Unit: \$4,358
 Expenses as % of PGI: 42.72%
 Expenses as % of EGI: 44.05%
 Overall or Cap Rate: 6.61%
 NOI/SF: \$5.90 Gross
 NOI/Unit: \$5,536

Unit Type	No. of Units	Size SF	BaseMo.	Mo. Rent/SF
1 Br / 1 Ba	40	861	\$737	\$0.85
2 Br / 1 Ba	36	860	\$767	\$0.89
2 Br / 1 Ba	50	1,020	\$787	\$0.77
2 Br / 1 Ba	36	1,020	\$807	\$0.78
2 Br / 2 Ba	85	1,177	\$809	\$0.77
2 Br / 2 Ba	12	1,187	\$837	\$0.70
3 Br / 2 Ba	35	1,483	\$862	\$0.68
3 Br / 2 Ba	35	1,427	\$877	\$0.68
Total Units	320			

Alabama Department of Revenue

Capitalization Rates

Apartment Sale #3



General Physical Data (Cont.)

Utilities with Rent
 Unit Amenities
 Project Amenities
 Year Built
 Condition

Trash Collection
 Patios/Balconies, Fire places, Vaulted Ceilings, Rng., Ref., Dw.,
 Dwg.
 Outdoor Pool, Outdoor Tennis, Laundry, Exercise/Fitness, Car
 Wash, Covered Parking
 1993
 Average

Sale Data

Sale Date: November 26, 2007
 Deed Book/Page: 6294/490
 Property Rights: Fee Simple
 Conditions of Sale: Arms Length
 Financing: Cash to Seller
 Verification: Cushman & Wakefield

Sale Price: \$20,034,500
 Cash Equivalent: \$20,034,500
 Adjusted Price: \$20,034,500

Income Analysis

Potential Gross Income: \$2,178,120
 Vacancy: \$65,294
 Effective Gross Income: \$2,110,840
 Expenses: \$867,554
 Net Operating Income: \$1,243,280

Indicators

Sale Price/Gross SF: \$81.90 Actual or \$81.90 Adjusted
 Sale Price/Unit: \$87,871 Actual or \$87,871 Adjusted
 Occupancy at Sale: 97%
 PGIM: 9.21
 EGIM: 9.49
 Expenses/SF: \$3.55 Gross
 Expenses/Unit: \$3,805
 Expenses as % of PGI: 39.87%
 Expenses as % of EGI: 41.10%
 Overall or Cap Rate: 6.21%
 NOI/SF: \$5.08 Gross
 NOI/Unit: \$5,453

Unit Type	No. of Units	Size SF	BaseMo.	Mo. Rent/SF
1 Br / 1 Ba	24	873	\$660	\$0.76
1 Br / 1 Ba	24	853	\$680	\$0.81
2 Br / 1 Ba	32	880	\$740	\$0.76
2 Br / 1 Ba	32	1,032	\$770	\$0.75
2 Br / 2 Ba	42	1,134	\$800	\$0.72
2 Br / 2 Ba	42	1,160	\$840	\$0.72
3 Br / 2 Ba	32	1,387	\$900	\$0.70
Total Units	228			

Alabama Department of Revenue

Capitalization Rates

NOI / Sale Price = OAR (Overall Rate)

SALE	NOI (NET OPERATING INCOME)	SALE PRICE	CAP RATE
1	\$1,591,432	\$22,660,000	7%
2	\$1,771,480	\$26,800,000	7%
3	\$1,243,280	\$20,034,500	6%
	MEDIAN:		7%

Alabama Department of Revenue

Capitalization Rates

Conclusion

The Direct Capitalization Method using an Overall Rate can be an efficient, time effective method in order to calculate the appropriate Capitalization Rate during various stages of the Mass Appraisal Process

Alabama Department of Revenue

Capitalization Rates

The End

Alabama Department of Revenue