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Paul R. Hyde, EA, MCBA, BVAL, ASA, MAI

I am often asked, "What is an appropriate cap rate for _____?" (fill in the blank with some type of investment – typically income producing real estate or some type of business). The answer to this question is always a very unsatisfactory, "it depends." Unfortunately, this question is very difficult to answer because the answer really does depend on many factors.

First, it is important to remember what a capitalization rate or "cap rate" really represents. A cap rate represents a combination of the expected future periodic, usually annual, return **ON** investment **PLUS** the future expected return **OF** the investment. The combination of both a return on investment and the return of the investment makes a cap rate difficult to understand. The alternative, which is easier to explain, but more difficult to apply is to calculate the expected annual return on investment each year for the anticipated holding period and then the expected return of the investment when it is anticipated that the investment will be sold or otherwise end, usually called the "reversion".

Second, it is important to note the income stream to which the cap rate is applied in order to estimate the value. When appraising income producing real estate, the income stream typically used is net operating income, a pre-income tax income stream. For business entities, typically an income stream referred to as net cash flow to equity is used. Net cash flow is an after-income tax income stream that is also adjusted for non-cash expenses, changes in working capital, and changes in long-term debt. Net cash flow is generally much smaller than a corresponding net operating income stream would be. Accordingly, cap rates cannot usually be compared from one type of investment to another in order to judge risk and reward potentials.

The following is an example of horse appraisals which shows the return **ON** and return **OF** more clearly than does a typical business or real estate example:

Horse Appraisal Example

A three-year old stallion cutting horse is being offered for sale for \$550,000. It recently placed second in the National Cutting Horse Association Futurity in Dallas-Ft. Worth. His sire has earnings of over \$750,000 and his dam has earnings of \$125,000. He has two full brothers: one has already earned about \$100,000 and the other is about to start competing.

It is believed that the stallion can breed 40 mares a year (plus rebreeds) at an average stud fee of \$2,000 per service for the first three years, and 40 mares a year at an average of \$3,500 per service for the next seven years. A live foal guarantee must be offered -- approximately 20% of the mares will have to be rebred the next year and 5% of the fees

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will have to be reimbursed due to failure to settle the mare. It is also expected that 10% of the available breedings each year will remain unsold.

It is expected that the horse can be sold for \$150,000 at the end of the ten year investment period.

Investment Cost:		\$550,000
Potential Gross Income:		
First Three Years	\$2,000 x 40 x 3 years =	\$480,000
Years Four through Ten	\$3,500 x 40 x 7 years =	<u>2,327,500</u>
Total Potential Gross Income		\$2,807,500
Less: Ten Percent for Unsold Breedings		\$280,750
Less: Five Percent Fees for Reimbursement		<u>\$140,375</u>
Total Expected Lost Revenue		\$421,125
Effective Gross Income		\$2,386,375
Expenses:		
Board (\$550 per month)		\$114,000
Training (\$15,000 per year)		\$150,000
Grooming (\$250 per month)		\$30,000
Show & Travel Expenses (\$25,000 per year)		\$300,000
Farrier Expenses (\$50 every six weeks)		\$4,333
Veterinary Care (\$1,500 per year)		\$180,000
Mortality & Medical Insurance (\$16,000 per year)		\$160,000
Other Miscellaneous Expenses (1% of NOI)		<u>\$23,864</u>
Total Expenses		\$962,197
Net Operating Income		\$1,424,178
Ten Year Capitalization Rate:		
Net Operating Income (10 Years)	<u>\$1,424,178</u>	= 258.9%
Initial Purchase Price	\$550,000	
Annual Capitalization Rate:		
Ten Year Capitalization Rate	<u>2.59</u>	= 25.9%
Investment Period	10	
Reversion (Sale in 10 Years)		\$150,000

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Recapture Rate (Return OF Investment):

$$\frac{\text{Sales Price in 10 Years (Reversion)}}{\text{Original Purchase Price}} = \frac{\$150,000}{\$550,000} = 27.3\%$$

$$\frac{\text{Annual Recapture Rate}}{\text{Investment Period (10 Years)}} = \frac{27.3\%}{10} = 2.7\%$$

Total Overall Capitalization Rate:

Annual Return ON Investment	25.9%
Annual Return OF Investment	2.7%
Combined Return ON and OF Investment	28.6%

As shown in this example, the annual return ON investment is expected to be 25.9% and the annual return OF the initial investment is expected to be 2.7% for a total annual cap rate of 28.6%.

The following is an example showing income producing real estate that starts with a low occupancy rate and moves to full occupancy in year five, the year of the expected sale:

Multi-Year Income Producing Real Estate Example

Building Size (SF)	20,000	Discount Rate	11.0%		
Scheduled Rent/SF/Year	\$10.00	Reversion Cap Rate	9.0%		
Rental Increase/Year	3%				
Year	1	2	3	4	5
Scheduled Gross income	\$200,000	\$206,000	\$212,180	\$218,545	\$225,102
Vacancy & Collection Loss Rate	50%	30%	15%	7%	5%
Vacancy & Collection Loss	\$100,000	\$61,800	\$31,827	\$15,298	\$11,255
Effective Gross Income	\$100,000	\$144,200	\$180,353	\$203,247	\$213,847
Expenses:					
Management (3%)	\$3,000	\$4,326	\$5,411	\$6,097	\$6,415
Reserve for Replacements (2%)	\$2,000	\$2,884	\$3,607	\$4,065	\$4,277
General & Administrative (1%)	\$1,000	\$1,442	\$1,804	\$2,032	\$2,138
Total Expenses	\$6,000	\$8,652	\$10,821	\$12,195	\$12,831
Net Operating Income	\$106,000	\$152,852	\$191,174	\$215,442	\$226,677
Expected Reversion (End of 5th Year)					\$2,518,639
Total Pretax Cash Flow	\$106,000	\$152,852	\$191,174	\$215,442	\$2,745,316
Present Value	\$95,495	\$124,058	\$139,785	\$141,918	\$1,629,211

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Indicated Value **\$2,130,468**

Calculated Capitalization Rate **5.0%**
 (First Year NOI / Indicated Value)

In this example, an annual discount rate of 11% is used for the annual return with a lower discount rate of 9% for the expected reversion. The reversion is calculated using the net operating income in year five divided by the reversion capitalization rate of 9%. Often a lower risk is associated with the sale of the property once it is fully occupied and stable, hence the lower rate for the eventual sale. The calculated capitalization rate based on the initial year's net income and using the indicated value is five percent. The capitalization rate using the first year's net operating income is deceptively low based on the very low first year's net operating income due to the high vacancy in relation to the value based largely on the expected reversion using the stabilized income stream in the fifth year. Determining a capitalization rate for this investment in the first year would be next to impossible as the income is not expected to stabilize until year five.

The last example shows a business investment using net cash flow to equity instead of a pre-income tax income stream as is shown in the other two examples:

Multi-Year Business Income Example

Year	Forecasted Cash Flow		25.0% Present Value Factors		Present Value Future Cash Flow	
1	100,000	x	0.80000	=	80,000	
2	120,000	x	0.64000	=	76,800	
3	125,000	x	0.51200	=	64,000	
4	145,000	x	0.40960	=	59,392	
5	155,000	x	0.32768	=	50,790	
6	175,000	x	0.26214	=	45,875	
7	185,000	x	0.20972	=	38,797	
 Terminal Value	 866,136	 x	 0.20972	 =	 <u>181,642</u>	
 Total Indicated Value					 <u><u>597,297</u></u>	
 Terminal Value: 7	 185,000	 x	 1.03	 =	 <u>190,550</u>	 = 866,136
					 22.0%	
 Total Indicated Value - Rounded					 <u><u>\$600,000</u></u>	
 Calculated Capitalization Rate					 16.7%	

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(First Year Net Cash Flow/ Indicated Value)

In this example, the annual discount rate is 25% with a 22% capitalization rate (discount rate less a long-term sustainable growth rate of 3%) used to estimate the terminal value (expected sales price) at the end of year seven. The calculated capitalization rate of 16.7% would also have been next to impossible to estimate in year one due to the expected changes in future net cash flow. It should be noted that the present value of the reversion is approximately one-third of the total indicated value of the business.

As shown by these examples, it should be clear that it is improper to compare different investments simply by comparing capitalization rates (risk rates) associated with them as they are often calculated very differently, may use different income streams, and the expected timing of the return OF the investment also varies; in fact some investments have no expected return of the investment at the end of the expected holding period.

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