

Selection of Capitalization Rates in Today's Market

by L. W. Ellwood, MAI*

**(EDITOR'S NOTE: The following manuscript was sent to The Appraisal Journal by Anthony Reynolds, MAI, and identified as a September, 1957, presentation by the late L. W. ("Pete") Ellwood, MAI, in which "for the first time in public" he demonstrated the method he developed.*

We of the Editorial Board believe that this is a historic document that will be of interest to all who have followed the development of Pete's concepts and enjoyed the fruits of his genius. Now—20 years later—the concepts are widely accepted and appreciated throughout the appraisal profession. The Appraisal Journal is proud to recognize and publish this "Vintage Ellwood.")

The word "depreciation" and the expression "remaining useful life" are bits of appraisal terminology concerning which I would say "good riddance" if they were handed back to the bookkeepers.

Sure, I know there are times when values depreciate. But they do not travel a one-way street. Sometimes they go up, and, of course, we all know the real estate market does not move in a straight line, either up or down, over great periods of time. Therefore, it is apparent that straight line depreciation as we so frequently see it used in the capitalization approach is incompatible with market behavior.

MORE FACTS/LESS THEORY

I believe intelligence is the ability to learn from experience. I believe it requires intelligence gained from experience to make competent appraisals of real property. On the other hand, I think it is downright unethical for an appraiser to claim experience as the basis for his judgment when his work plainly shows his judgment is based on cockeyed presumptions. He could not document by experience if he had a hundred years of it. I believe there would be much less divergence among appraisers if they were required to employ more fact and less theory.

Here are some questions I like to ask the proponents of straight line depreciation:

- 1) How many buildings do you know whose market values have declined 2-1/2% each year for 40 years?
- 2) Do you honestly believe that the market value of each investment property you appraise is at its peak at the moment of appraisal and that it will decline steadily from then to the end of its useful life?
- 3) How many buyers do you know who would buy investment property if they thought its value could go no way but down from the moment of purchase to any time in the future when they might wish to sell it?
- 4) The straight line depreciation premise makes no allowance for changes in land value. How many parcels of land do you know whose market value has remained constant for 40 or 50 years?
- 5) Even if you had occult power to predict exactly the number of years of useful life in a well-located, modern building, do you believe that it would be a reliable yardstick by which you could now measure its market value as of any given future date?

I suppose you are wondering what all this has to do with the selection of capitalization rates in today's market.

Well, here it is. The most ardent supporters of the straight line concept claim it as a method of recapturing capital invested in land improvements that will eventually wear out. And, of course, we all know that capital must be recovered before there can be any profit or net income from it. But, if it is "capital recovery," why call it "depreciation?" And, what about the future market value of the property? It is obvious that the arithmetic of the process is wrong unless, by rare coincidence, market value declines in exact parallel with the provision for capital recovery.

I can see no point in an appraiser exercising meticulous care and excellent judgment in estimating potential income if he is going to "louse up" the arithmetic by which he processes it to value.

Capital recovery and depreciation are different things that occur independently of each other. In addition to provision for recovery, another factor must be included to allow for future reversionary value of the property under appraisal. If that were done, our only objection to the straight line process would be that it would be obsolete in the light of present day methods of recovering purchase capital.

TRUE VALUE OF INCOME PROPERTY

I think all of you will agree that the true value of every income property arises from just two benefits of ownership: 1) the income produced during the term of ownership, and 2) the proceeds of sale at the end of the term of ownership. And, because these are the benefits buyers have in mind when they decide how much they will pay, they are the potentials we must capitalize to value.

As for capital recovery and the element of time, let us consider the

composition of the modern real estate market in combination with the definition of market value.

The real estate market is no longer a cash and carry market. It is an installment market. Purchase capital is composed of down-payment or equity money and debenture money secured by one or more mortgages. The debenture capital is recovered by a series of periodic installments according to the provisions of a mortgage contract. This is a long-term contract stipulating both the rate of interest and the term of recovery. No appraisal judgment or conjecture is involved in selecting either the rate or provision for recovery so far as this component of purchase capital is concerned. They are matters of fact fixed by contract.

In the vast majority of cases, the equity component of purchase capital is recovered through resale of the property. The mortgage installments are paid out of income. And here is why it is important to take modern, level-payment mortgage plans into account in selecting capitalization rates in today's market. *Every dollar of mortgage amortization that is not offset by a dollar of decline in the market value becomes a dollar of profit to the equity investor — the buyer of the property.*

Take, for example, a case where a purchase price of \$100,000 is composed of \$40,000 equity and \$60,000 mortgage. Let us presume the mortgage is reduced \$30,000 by periodic installments during the term of ownership, whereas market value of the property has declined from \$100,000 to \$85,000. The market value of the property has "depreciated" 15%, but the market value of the buyer's equity has "appreciated" 37-1/2% from \$40,000 to \$55,000. This 37-1/2% appreciation is capital gain. The advantage in capital gain tax as against income tax makes the prospect of capital gain more significant than income in many transactions in today's market.

All accepted definitions of market value presume just one market transaction between one seller and one buyer, "both well-informed, neither acting under compulsion, etc." Therefore, instead of covering total useful life, the time element in an appraisal for market value should be based on experience as to how frequently properties change hands in the market. In other words, the benefits of ownership we must capitalize are those that would accrue to one typical buyer during one normal term of ownership.

Whether or not you have studied transfer statistics, you probably are aware of the fact that it is quite rare for a typical investment property to remain in one ownership over its total useful life. Most of them change hands several times in the course of a half century. Statistics concerning common types of income properties indicate an average turnover rate of about once in eight years.

Obviously, it is easier for an appraiser to exercise sound judgment, based on experience, in a comparatively short-term projection of rents, expenses, and market conditions than it is to try to forecast these things far

into the nebulous future of total useful life. In the absence of blue-chip leases at fair rents for longer than 10-year terms, I favor a projection limit of 10 years in most cases. In some instances, I don't like to stick my neck out for more than 5 years.

CHOOSING THE CORRECT CAPITALIZATION RATE

Just one more point before we go into the matter of selecting the capitalization rate in today's market. Let us understand that the correct capitalization rate is not just the yield that will attract capital for purchase of the property under appraisal. Instead, it is a factor that, when used as a divisor against a carefully prepared estimate of average annual income for a selected period of time, will produce fair market value. It is a composite figure that must reflect attractive yields for various types of money comprising the normal purchase capital structure. Also, it must provide for capital recovery in accordance with current practice and it must allow for capital gain or loss due to changes in market conditions.

We can summarize the factors involved as follows:

- 1) Available ratio of mortgage money to fair market value.
- 2) Interest rate that will attract mortgage money at time of appraisal.
- 3) Maximum full mortgage amortization term available at time of appraisal.
- 4) Income projection term in years.
- 5) Prospective yield that will attract equity money.
- 6) Allowances for changes in market conditions during the projection period.

The first three of these factors are reasonably factual. The maximum ratio of mortgage money to fair market value is fixed by statute with regard to institutional lenders who supply the vast majority of debenture money to the real estate market. For reasons with which you probably are familiar, it is usually advisable to use the legal limit for this factor. Going interest rates and available amortization terms are market data concerning which the professional appraiser should be informed at all times.

The last three items above are judgment factors. We have already discussed the projection term. I like to combine the selection of the prospective equity yields with a plausible range of future market conditions rather than pin myself down to any specific amount of depreciation or appreciation. In other words, if I can show that my capitalization rate provides for a wide but rational spread in future market values and, at the same time, produces good to excellent equity yields within that spread, I feel the resulting value represents a price that would attract a well-informed buyer.

There are several methods of selecting rates for testing on this basis. As a matter of fact, you can pick them out of the air. The technique is in testing for attractive results against our experience in market behavior.

The approach I prefer is one I call the buyer's approach, for want of a better description. In dealing with experienced investment property

buyers, it is my observation that they often base their decisions on the prospect of a nice fat yield with no allowance for future change in the market. If the market goes down, they realize the nice fat yield. If it goes up, they enjoy a super-fat yield.

Now, for the first time in public, I shall try to demonstrate a method of doing all this. It is very simple. It has the advantage of mathematical accuracy and it is geared to modern methods of financing market transactions.

The specimen selected for demonstration is a typical 28-family apartment house. Good location. Good layout. Average net annual income is estimated at \$24,360 after allowance for vacancies and a 10-year budget of expenses including all repairs and replacements needed to keep the property in excellent condition.

Mortgage money is available up to 66-2/3% of fair market value at 5-1/2% interest with full amortization by level monthly payments over a 20-year term. A prospective equity yield of 12% is selected under the presumption of a steady market for testing against other market conditions.

All we have to do to get the correct capitalization rate for testing is to subtract 66-2/3% of the mortgage coefficient from 12%, as follows:*

Equity yield 12%	.12000
Less mortgage coefficient .0583 × .66-2/3	<u>.03886+</u>
Trial capitalization rate	.08114
Round to .0812 or 8.12%	

Now, to get a spread, let us see how much market value must decline in 10 years to reduce the equity yield to 6% and how much it must increase to raise the equity yield to 15%:

Equity yield 6%	.06000
Less mortgage coefficient .0052 × .66-2/3	<u>.00347</u>
Capitalization rate without market change	.05653

By subtracting this rate from our trial rate we get a figure that can be used as a numerator in calculating the decline that must occur in 10 years to reduce equity yield to 6%:

Capitalization rate above	.05653
Less trial rate	<u>.08120</u>
Difference	-.02467

If we divide this difference by the depreciation/appreciation factor in the right-hand column of Table C, to wit:

$$\frac{-.02467}{.0759} = - .325 \text{ or } 32\text{-}1/2\% \text{ Decline}$$

*See L. W. Ellwood, MAI, *Ellwood Tables for Real Estate Appraising and Financing, Part II - Tables* (3rd ed., Chicago: American Institute of Real Estate Appraisers, 1972), "Table C," page 187, for factors used in all computations.

We find that total value of the property (land and building) must depreciate 32-1/2% in 10 years to reduce the equity yield from 12% to 6%.

Now let us see how much increase in value must occur to raise the equity yield to 15%:

Equity yield 15%	.1500
Less mortgage coefficient $.0855 \times .66-2/3$.0570
Capitalization rate with no change	<u>.0930</u>
Less trial rate	.0812
Difference	<u>.0118</u>

If we divide this difference by the depreciation/appreciation factor in the right-hand column of Table C:

$$\frac{.0118}{.0493} = .239+ \quad \text{Say, 24\%}$$

We find that the equity yield would be 15% if value increased 24% in 10 years. We have seen much greater increases than that over the past 10 years.

So, with a spread of 32-1/2% depreciation to 24% appreciation, our 8.12% capitalization rate indicates equity yields from 6% to 15%. Market value of good property might decline as much as 32-1/2% or more in 10 years as a result of depressed business conditions, but this type of depreciation is only temporary. We know from experience that good properties recover from such declines. Thus, it seems logical to anticipate that the equity yield will fall somewhere within the upper part of the range from 6% to 15%. Let us therefore accept 8.12% as the capitalization rate in this case and proceed with the valuation:

$$\text{Value} = \$24,360 / .0812 = \$300,000$$

Presumed distribution of purchase capital and income:

	<u>Purchase Capital</u>		<u>Income</u>
Mortgage money	\$200,000	Annual payments	\$16,512
Equity money	100,000	Average equity dividend	7,848
	<u>\$300,000</u>		<u>\$24,360</u>

10-year capital recovery included in capitalization rate:

Original mortgage	\$200,000
Less mort. bal. $\$200,000 \times .633664$	<u>126,733</u>
Capital recovery	\$ 73,267

Any amount by which 10-year depreciation is less than \$73,267 will be capital gain to the equity. And depreciation must exceed \$73,267 (about 24-1/2% against total land and building) before there can be any decline in the value of the equity.