

**CONNECTICUT 2008  
REVALUATION ASSESSMENTS**

**SHOULD THEY BE CHALLENGED?**

**Issues for Consideration by  
Commercial Property Owners  
and Their Advisors**

**A teleseminar presented by**

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**Wednesday  
December 10, 2008**

## **I. The Connecticut revaluation process**

- 37 towns
- 5 year statutory schedule
- Assessment notices – based on what for the most part are obsolete data
- Revaluation company/assessor conferences
- Board of Assessment Appeals petition
- Board hearings
- \$500,000 valuation “exemption”
- Notice procedure
- Superior Court appeals: timing

## **II. The 2008 valuation challenge**

- Unprecedented market decline and turmoil
  - The 1989-1992 real estate recession
  - How the current crisis differs
  - Impact on all property types across the broad economy
- Lack of current sales data

- Lack of plentiful recent income/rental data
- Historically low capitalization rates until recently

**III. Selected observations of an appraiser 65 years ago, S. Edwin Kazdin, MAI, (Appendix A)**

- Issues raised by Kazdin for consideration in 2008

**IV. Insights of Connecticut courts as to valuing real estate in difficult and depressed economic times (Appendix B)**

**V. One approach to determining market value on October 1, 2008  
David C. Ling, PhD - 1993 (attached)**

**VI. Contemporary observations by a Connecticut appraiser  
John Galvin, MAI - 2008 (attached)**

## APPENDIX A

“Capitalization Rates Under Present Market Conditions”, S. Edwin Kazdin, MAI,  
*The Appraisal Journal*, October, 1944

- The appraiser is called upon to express an opinion on the value of real estate and reflect his/her forecast of the future *in his/her choice of the capitalization rate.*
- “When we choose a capitalization rate, we are of course concerned with the future trend of dollar values.”
- “We must consider the possibilities for future fluctuations in the business cycle, as we have seen it fluctuate in the past, and the possibility that we may run into a reduction in our present price level.”
- A fellow went to a riding academy to get a horse. When the owner brought out the animal, the future rider said, “You know I have never been out before.” The owner answered, “Neither has the horse; you ought to get along pretty well together.” The same might be said about appraising property in a rapidly declining market without sufficient data to support the conclusion of decline but every certainty that

macroeconomic statistics, and present market behaviors of buyers and sellers, anticipates this decline.

- “The most important approach to valuation of investment properties, from a long term viewpoint, is what the informed and intelligent investor will pay for the net return.”
- “The appraiser is wise to consider all the factors that influence values.”
- “Leverage created by financial warrants, higher prices and theoretically the cash price should be lower.”
- “. . . [t]he problem of taxes is a great influence today and we may safely assume that it will continue to be an influence in the future. It affects the expected returns, especially in the case of the larger, more valuable properties.”
- Classic definition of market value:
  - Willing seller
  - Willing buyer
  - Transfer of real estate for cash or cash equivalents

- Both knowledgeable
- Neither under duress

### **Issues Raised by Kazdin for Consideration in 2008**

- How does the classic definition of market value fit late 2008-2009 market conditions?
- Sales of commercial property have virtually dried up; too many sellers, too few buyers.
- Financing is difficult to obtain – financial distress affecting all property types dramatically and suddenly.
- To what extent were the record low capitalization rates evidenced in the market up until 2008 driven by unrealistically low financing costs and excessive availability of funds?
- Determining proper cap rates today based on marketability studies:
  - Economic growth

- Securities markets
  - Employment
  - Sales
  - Other factors
- 
- Lack of sales; need to rely more on listings and price reductions of individual listings over time.
  - How to calculate time adjustments from last period of active commercial sales volume to address 2008-2009 conditions?
  - Should foreclosure and REO “sales” be included? If not, why not?
  - If a profit cannot be made on a building project, it is not feasible and substantial economic obsolescence may be found to exist.
  - If, upon completion, a property is worth less than what it would cost to create, economic obsolescence can be measured.

- Is cost approach a more viable approach now?
- Is discounted cash flow a viable approach now? Are properties selling on projections or on actual cash flows?
  - How to calculate cash/cash returns without reliable mortgage markets?
  - Straight cap
  - Band of investment
  - How to discern/reflect market participants' views?
  - Face rents are dropping and vacancy rates are rising – how to reflect?
  - How to forecast expenses?
  - Existing tenants are renegotiating rents
  - Use of tax factor in direct capitalization viable in light of general municipal distress?
  - Rent concessions, free rent and TI allowances – how to reflect in income approach?



## APPENDIX B

### Discussions of and about Determining Market Value by the Connecticut Courts

- “Ordinarily market value means a price fixed by sales in the way of ordinary business, and is established when other property of the same kind has been bought and sold in so many instances that a value may be reasonably inferred. The term contains the conception of a market, or conditions, in which there may be found a willing seller and a willing and able purchaser. The phrase connotes selling and buying without constraint or compulsion.” *Schlaet v Town of Westport Board of Relief*, 1 Conn. Supp. 112, 115 (1935).
- “But it does not follow that when the tax assessors can not ascertain the market value of certain property, they can not determine the valuation of that property for legal taxation. . . . [t]he law never requires the impossible. Hence, if the rule indicated can not be followed, other means must and may be found by which the assessors could perform the duty the law has put upon them.” (Goes on to discuss favorably replacement and reproduction cost methodologies). *Schlaet v .Town of Westport Board of Relief*, 1 Conn. Supp. 112, 115 (1935).

- “Owners could not sell (apartment houses) at any price and they were forced to operate at a devastating loss. Vacancies were the rule and not the exception. They were forced to drastically reduce rental prices, and if they secured tenants, more often than not they couldn’t collect the rent. Few owners were able to avoid foreclosure.” *Lomas & Nettleton Co, Trustee v. City of New Haven*, 4 Conn. Supp. 69 (1936).
- “The fair and actual value, the sound value, of these properties is not to be found either at depression’s bottom or prosperity’s top. Both are to be considered. We have now reached an intermediate state. Quite obviously we have turned a much talked about corner and are on our way up and out. General improvement in business is reflected in greatly improved conditions for apartment house owners.” *Lomas & Nettleton Co., Trustee v. City of New Haven*, 4 Conn. Supp. 69 (1936).
- “Value is a matter of opinion. It is based in part upon exact mathematical and scientific considerations, but that it finally becomes merely an expression of opinion is shown by the startlingly opposite conclusions reached by the experts. They use the same basic figures as for income, but different

material as to what income ought to be, now and in reasonably better times . . . “Any agreement by way of the capitalization method is wrecked by divergent views as to percentage of profit.” *Lomas & Nettleton Co., Trustee v. City of New Haven*, 4 Conn. Supp. 69, 71 (1936).

- The condition or conditions of which it does not appear that (the expert witness) took into account relate to improving (cf. declining) economic conditions. Prospective improvements and earnings, as well as present and past earnings are an important element of consideration . . . Improving economic conditions as related to real estate in general, and particular in Shelton, reasonably should add (an additional amount) to the value fixed by (the expert). *First National Bank and Trust Company of Bridgeport, Trustee v. City of Shelton*, 4 Conn. Supp. 318, 320 (1936).
- Among the issues on which the court should rely in determining value is its “own general knowledge”. *Lomas & Nettleton Co. v. City of Waterbury*, 122 Conn. 228, 233 (1936).

- All evidence (of value) should be considered. *Thaw v. Town of Fairfield*, 132 Conn. 173 (1945).
- The process of estimating value is, at best, one of approximation and judgment. *Burritt Mutual Savings Bank of New Britain v. City of New Britain*, 146 Conn. 669 (1959).
- When there are no sales and thus evidence of market value in a “strict sense” is not available, it is proper to use other evidence. *Bridgeport Gas Company v. Town of Stratford*, 153 Conn. 333 (1966).
- A court is under a “legal compulsion to consider everything that might legitimately affect value.” *Uniroyal, Inc. v. Middlebury Board of Tax Review*, 174 Conn. 380 (1978).
- More than one single theory or methodology of assessment is acceptable. *Sun Valley Camping Cooperative, Inc. v. Town of Stafford*, 94 Conn. App. 696 (2006).
- “An extremely narrow highest and best use conclusion might result in a very small or even nonexistent market, thereby eliminating the availability of market sales analysis

as a useful valuation tool.” *Sun Valley Camping Cooperative, Inc. v. Town of Stafford*, 94 Conn. App. 696 (2006).

Hartford/1.1/EBP/339457v1

# The Valuation of Income Property in Overbuilt Markets

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Commercial real estate markets were substantially overbuilt during the last half of the 1980s. In overbuilt markets, income property appraisers should use valuation techniques that are consistent both across properties and with basic microeconomic theory. The anticipated effects of current and projected local market conditions on market rents and values can be incorporated into market value estimates by using the rent adjustment valuation model presented here. Current supply and demand conditions and the expected rate of growth in the local economy as well as how quickly investors think the excess supply of space will be absorbed are among the factors that can be explicitly incorporated through the rent adjustment valuation model.

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**M**any commercial real estate markets have been distressed by the construction explosion that occurred during the last half of the 1980s.<sup>1</sup> Nationally, real office market rents have declined 45% since 1982 and office vacancy rates have stood at unprecedented levels.<sup>2</sup> While more difficult to document, shopping center and hotel markets have displayed similar signs of distress.<sup>3</sup> Moreover, some analysts predict that the effects of this dramatic overbuilding will take as long as 10 years to be absorbed.<sup>4</sup> Income property appraisers in these overbuilt markets need to sys-

tematically employ valuation techniques that are consistent both across properties and with basic microeconomic theory.

Rental rates in overbuilt markets are below the levels required to stimulate new construction. Because rents cannot immediately rise to required levels, many existing properties are selling at discounts to reproduction costs. The magnitude of the discount depends on how slowly investors think rent will rise to required or equilibrium levels. The longer the expected adjustment period, the greater the discount from reproduction

1. Hendershott and Kane report that 300 billion real dollars (1991) were invested in commercial real estate during the 1970s. In the 1980s, this investment increased 57% to 470 billion real dollars. Patric H. Hendershott and Edward J. Kane, "Causes and Consequences of the 1980s Commercial Construction Boom," *Journal of Applied Corporate Finance* (May 1992): 61.

2. See David Shulman and Therese B. Byrne, "The U.S. Office Market: Hitting Bottom with a Thud," *United States Real Estate Research* (Salomon Brothers, June 13, 1991).

3. See David Shulman, "Shopping Centers: The Next Office Market?" *United States Real Estate Research* (Salomon Brothers, September 24, 1990).

4. Shulman and Byrne, 1.

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costs. Appraisers' expectations of future cash flows should therefore vary with both the expected growth rate of the local market and the extent of the initial disequilibrium. In this article, the effects of current and projected local market conditions on market rents and values are discussed and a variant of the standard discounted cash flow (DCF) valuation model—the rent adjustment valuation model—is developed that allows (forces) appraisers to explicitly incorporate these anticipated effects into their market value estimates.

### **VALUATION AND THE IMPORTANCE OF LOCAL MARKET CONDITIONS**

It is important to distinguish between the "space" market and the "asset" market when analyzing local markets for income-producing real estate. Equilibrium in the former is determined by the interaction between tenant demand for, and the available supply of, leasable space. The supply of rental space is relatively unresponsive to changes in rental prices (i.e., inelastic) in the short run. Thus, competitively determined rental rates in the space market are primarily determined by the current level of effective tenant demand. A primary determinant of the pace of future construction is the relationship between current rental rates in the local market and "required" (or equilibrium) rental rates. The required level of effective rental income in the first year of operations is that which equates the net present value of the income property investment to zero for typical investors, employing a typical set of assumptions about future rental rates, operating expenses, and resale values. This required first-year effective gross rent per dollar of investment serves as a hurdle rate for prospective developers and investors in income-producing property. If current supply and demand conditions in the market are such that properties generally earn rents greater than the required minimum

rent, investors will add new construction to the existing stock in an attempt to capture these "excess" rents.

Put another way, prices or values in the asset market are multiples of the rental rates competitively determined in the space market. If current rents exceed required minimum rents, market values will exceed construction costs (that includes the price of land and a "fair" developer profit) and developers will have an incentive to add to the existing stock. Ultimately, the expansion of supply causes real rents to decrease to the required or equilibrium level.<sup>5</sup> Thus, although inelastic in the short run, the supply of space is fairly elastic (i.e., price responsive) over longer time periods. Short-run equilibrium in the asset market requires only that the market clear; that is, that willing property sellers find willing buyers. Long-run equilibrium in the asset market, however, requires that market-clearing asset prices equal construction costs.

If current rental rates are below the required minimum, as is the case in an overbuilt market, construction will be cut back until market rents rise to the required level. Only then will developers be able to recover construction costs from the sale of new properties and thereby earn a rate of return comparable to what can be earned on alternative investments of similar risk. It should be noted that if the supply of space in a local market could be instantaneously adjusted to the current level of tenant demand (i.e., if even the short-run supply of space were highly elastic), current rental rates in a competitive market would always equal minimum required rents and properties would not sell at a discount to construction costs. The supply of space and therefore current rental rates, however, cannot adjust immediately to changing market conditions. Thus, a combination of reduced construction along with normal growth in demand for space and steady obsolescence of the existing stock are required before higher real rents can be generated

5. Discounted cash flow analyses contain estimates of future "nominal" cash flows. Even if basic demand and supply relationships in the local space market are not expected to change (i.e., the asset market has obtained long-run equilibrium), nominal cash flows may be expected to change over time simply as a result of general inflation in the economy. A decrease in "real," or inflation-adjusted, rental income occurs when increases in nominal rents do not keep pace with general inflation. Real increases occur only when percentage changes in rental income exceed the general inflation rate.

for income-producing properties in over-built markets.'

### A TYPICAL APPLICATION OF DCF ANALYSIS TO MARKET VALUATION

Until quite recently, professional appraisers of income-producing property have primarily employed simple income capitalization to estimate market value. With this approach, estimated first-year (or stabilized) net operating income (*NOI*) of the subject property is converted into an estimate of market value by dividing *NOI* by the appropriate capitalization rate. The appropriate cap rate in this exercise is typically "abstracted" from the market by calculating first-year *NOI* as a percent of selling price from recent transactions of properties thought to be comparable with the subject. The application of simple income capitalization does not require explicit estimates of cash flow streams beyond the first year. Implicit estimates of future cash flows, however, are reflected in the cap rates abstracted from the market in the comparable sales analysis.

This can be seen by noting that transaction prices in a competitive market reflect the investment valuations of willing buyers and sellers, which in turn reflect assumptions about future cash flows. More optimistic assessments of future cash flows in a local market increase the prices investors are willing to pay per dollar of current rental income. This increase in sale price multiples decreases cap rates and thereby increases the estimated value of the subject property. Thus, the use of simple income capitalization with cap rates abstracted from the market does not relieve an appraiser of the difficult task of

projecting future market conditions and cash flows.

A multiperiod DCF approach to market valuation measures and values cash flows to the equity investor over time after all operating and sale expenses have been paid. Unlike simple income capitalization, DCF techniques require an appraiser to make explicit future cash flow projections. The cash inflows and outflows associated with the acquisition of an existing income property can be represented by the following expression:

$$V_0 = \sum_{t=1}^N \frac{R_0(1 + ar)^t + B}{(1 + y)^t} - OE \quad (1)$$

$V_0$  is the estimated market value of the subject property. Effective gross rents,  $R_0$ , are expected to grow at the average annual nominal rate  $ar$  where  $ar$  is usually thought of as the expected rate of general inflation in the economy adjusted downward for economic depreciation.  $B$  is a rental adjustment factor intended to capture the effects of over- or under-building on future rent increases.  $OE$  represents first-year operating expenses (primarily maintenance and property tax expenditures) that are assumed to increase at the annual rate of  $r$ . The final term in equation 1 represents the present value of the cash flow from the sale of the property at the end of the projected  $N$ -year holding period, at which time proportional selling costs equal to  $B$  will be incurred.

The mean or expected value of all future cash flows is converted to present (i.e., market) value by discounting at  $y$ , the appropriate yield.'

It is important to emphasize that a multiperiod DCF approach to income

6. During the second half of the 1980s, resources were poured into unproductive real estate that could have been invested productively in other assets. Giliberto estimates that nearly 1 billion square feet of excess commercial space was constructed in the last half of the 1980s at a direct cost of \$48 billion. (S. Michael Giliberto, "Commercial Flows and Construction: A Note," mimeo, Salomon Brothers, 1992). A measure of the total economic cost of misallocated resources is the current value of past and future reduced cash flows caused by the overbuilding. Hendershott and Kane estimate this economic cost to be \$120 billion to \$140 billion (Hendershott and Kane, 1988).

7. Mortgage debt inflows and outflows are not typically included in the projected cash flows. Rather, all before-debt (and before-tax) payments are discounted by the required yield rate. Debt flows include the net loan proceeds disbursed by the lender at closing, periodic interest and principal payments, and the loan balance remaining at the time of the sale. If an appraiser is valuing the property subject to the existing debt financing, the debt flows should be explicitly incorporated into the analysis. See the American Inst. of Real Estate Appraisers, *The Appraisal of Real Estate*, 9th ed. (Chicago: American Inst. of Real Estate Appraisers, 1987), 541-548. It should be noted that if the debt flows are incorporated into the DCF valuation model, projected after-debt cash flows to the equity investor should be discounted by the investor's before-debt return on both debt and equity. For an expanded discussion of discount rates in multiperiod DCF models, see David C. Ling, "Implementing Discounted Cash Flow Valuation Models: What is the Correct Discount Rate?" *The Appraisal Journal*, (April 1992): 267-274.



property valuation is an application of "mean/variance" analysis, a standard approach to incorporating risk into the valuation of many financial assets. Mean/variance analysis portrays investors as weighing the advantages of expected benefits from alternative courses of action against the disadvantages of the particular risks that apply. More specifically, mean/variance analysis explicitly recognizes that the expected variability as well as the expected amount of future cash flows are fundamental to the determination of market values in a competitive market. Other things being equal, mean/variance investors are assumed to prefer assets with higher mean returns (given comparable levels of risk) and to avoid assets whose cash flows and returns are expected to be more volatile than assets with the same expected return.

This risk/return tradeoff in the context of DCF analysis requires that an appraiser's best guess of future cash flows be plugged into the numerator of the DCF valuation equation. If an appraiser is relatively uncertain about these point estimates of expected future cash flows, perhaps because the subject property is located in an overbuilt market that is difficult to analyze, the appraiser should penalize the subject by discounting the point estimates with a higher yield rate than that which would be applied to a similar but less risky property. In short, an internally consistent application of DCF analysis requires that adjustments for properties perceived to be relatively risky be made in the discount rate rather than by incorporating overly conservative or "worst-case" cash flow forecasts.

It is important to note that risk is defined as the range of potential variation between actual future cash flows and the projected mean cash flows used in calculating value. Thus, income properties located in overbuilt markets are not necessarily riskier investments just because current values are below construction costs; that is, risk does not depend on the current level of rents or values. Rather,

risk is a function of the degree of certainty market participants place on their estimates of future cash flows.

In many applications of the multiperiod valuation model, the rental adjustment factor in equation 1, 8, is set equal to zero. That is, effective gross rental income is expected to grow at the rate of expected general inflation minus the effects of economic deterioration or aging. It should be emphasized that this pattern of projected rental income invokes the rather strong assumption that the real estate market of interest has obtained long-run equilibrium. In other words, market values are assumed to equal construction costs and current and expected rents are forecasted to be just sufficient to provide investors with a competitive (i.e., risk-adjusted) rate of return.

In short, applying standard assumptions of rental income growth to overbuilt markets ignores the increases in the level of real rents that will occur as the excess supply of space is worked off. In fact, because many overbuilt markets are also currently perceived as relatively risky, numerous appraisers (and their clients) seem reluctant to incorporate anything but flat projections of nominal future rental income. Such an approach does not necessarily understate the current value of an existing property if an appraiser is simultaneously using a discount rate that is too low. In effect, an appraiser may derive a reasonable estimate of market value for a property in an overbuilt market by adjusting for the relative riskiness of the cash flows in the numerator, rather than in the denominator, of the DCF equation. In addition to being inconsistent with basic principles of microeconomics, however, using projections of rental income that are less than the expected (or mean) levels does a disservice to a client because it masks the true determinants of market value. Overly pessimistic rent projections (which decrease values) are offset by overly optimistic risk assessment (which decreases required yields and increases values).<sup>8</sup>

*The use of simple income capitalization with cap rates abstracted from the market does not relieve an appraiser of the difficult task of projecting future market conditions and cash flows.*

8. Using pessimistic rent forecasts and discount rates that understate the expected variation of the subject's future cash flows is a confusing half-step toward the use of "certainty equivalent" valuation. In a certainty equivalent valuation model, expected (or risky) cash flows in the numerator are replaced by the amount that the investor would accept with certainty in lieu of the risky cash flows. These certainty equivalents are then discounted at the risk-free rate of interest. See chapter 19 in Gaylon Greer and Michael Farrell, *Investment Analysis for Real Estate Decisions* (Longman Publishing, 1988).

### An example property

To facilitate discussion of these concepts, consider the following simple numerical example, which is summarized in Table 1. The subject property is a newly constructed office building with 55,500 leasable square feet. Based on current supply-and-demand conditions, effective gross income (*EGI*) for the next year is projected to be \$1,000,000, or \$18 per square foot. The rate of general inflation (minus economic depreciation) is expected to be 4% per year over the projected 10-year holding period ( $ir = 0.04$ ). Operating expenses will consume 15% of first-year *in-*

come and thereafter grow at an annual rate of 5% ( $a_0 = 0.05$ ). The market value of the property at the end of any year is set equal to *NOI* in the subsequent year capitalized at 9%. Selling expenses are assumed to be 4% ( $B = 0.04$ ). The projected stream of *NOI*, including the selling price net of expenses, is converted into an estimate of current market value using a (constant) 12% discount rate ( $y = 0.12$ ).<sup>9</sup>

The cost of constructing or reproducing the subject property, including land and developer profit, is estimated at \$11,721,700. If an appraiser assumes that the current year *EGI* of \$1,000,000 will increase at the rate of general inflation, or 4% per year, the estimated value of the subject property is \$9,768,085, or \$1,953,615 below reproduction costs (see the first panel in Table 2 for cash flow details). Clearly, this office market has not obtained long-run equilibrium. The market-clearing rental rate of \$18 per square foot in the space market produces value estimates that are substantially below construction costs when rental income is projected to grow at the rate of general inflation.

Using the assumptions in Table 1, an appraiser can calculate that first-year *EGI* of \$1,200,000 or \$21.6 per square foot is required to equate market value with reproduction costs of \$11,721,700 when rental income is projected to grow at the rate of general inflation (see the second panel in Table 2 for cash flow details). Thus, current rents in this overbuilt market are 20% below (i.e., \$18 versus \$21.6) required, or long-run equilibrium, rental rates.

The loss in rental income caused by the excess supply of office space is depicted graphically in Figure 1 under the assumption that the current excess supply (or disequilibrium) persists over the expected 10-year holding period. As noted previously, first-year *EGI* of \$1,200,000 is required to restore long-run equilibrium in the asset market. The slope of the line defined by points (*RR*, *A*) reflects nominal income growth of 4% per year. If current rental income (*CR*) of \$1,000,000 is

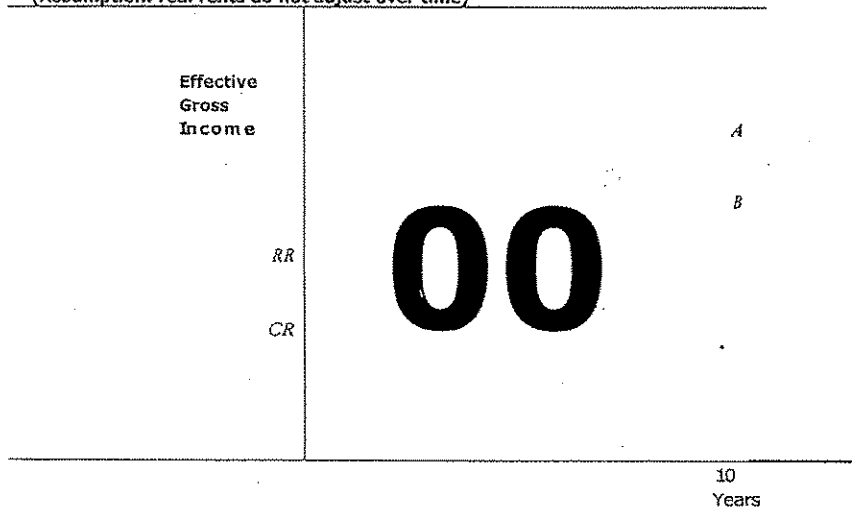
TABLE 1 Discounted Cash Flow (DCF) Summary

Example Property Assumptions:	
\$1,000,000	Current effective gross income ( <i>EGI</i> )
\$11,721,702	Construction costs including a fair profit for developer
20%	Difference between required (equilibrium) rents and current <i>EGI</i>
4%	Expected general inflation rate (net of economic depreciation ( $\pi_{tj}$ ))
15%	Operating expenses as a percent of <i>EGI</i> in first year
5%	Expected growth rate in operating expenses beyond first year ( $ar_d$ )
9%	Terminal capitalization rate
4%	Selling expenses ( <i>B</i> )
12%	Required yield on all equity acquisitions ( $y$ )
10%	Expected holding period in years ( <i>N</i> )
Indicated Market Value Under Four Alternative Scenarios:	
\$9,768,085	Assuming current rental income increases at the rate of general inflation
\$11,721,702	Assuming current year <i>EGI</i> of \$1,200,000 and subsequent increases at rate of general inflation
\$11,195,958	Assuming current rental income grows at the rate of general inflation for 6 years then "spikes" 20% in year 7
\$11,524,940	Assuming rental income grows at rate of general inflation plus 3.09% per year over the 7-year recovery period

9. The cash flow model represented by equation 1 and the numerical example is quite simplistic. For example, it is more difficult to project average rental rate increases for properties encumbered by long-term leases. Also, operating expenses actually contain both fixed and variable components and therefore may be expected not to increase at a fixed rate over time, especially if real adjustments in rental income are projected. The proposed rental adjustment valuation model that is developed in this article can be used to value more complex cash flow streams. The purpose of this article, however, is to present the basic method and underlying economics of the proposed model.



**FIGURE 1 Loss in Income from Excess Supply of Space**  
 (Assumption: real rents do not adjust over time)



Shaded area represents the amount of lost rental income from below-equilibrium rents over expected 10-year holding period

*RR* = Current effective gross income required for capitalized value of cash flows to equal construction costs (equal to \$1,200,000 for example property)

*CR* = Actual first-year effective gross income (equal to \$1,000,000 for example property)

also expected to increase at 4% per year, then the amount of lost income from the excess supply is represented by the shaded area (*RR*, *A*, *B*, *CR*), which has a present value of \$1,953,615.<sup>10</sup>

#### THE RENT ADJUSTMENT VALUATION MODEL

Is it reasonable for an appraiser to assume that increases in effective rental income will merely keep pace with inflation in this overbuilt market? The answer is clearly no. Because current rents are below minimum required rents, builders will sharply reduce if not eliminate the amount of new product that they bring to the market. The combination of reduced new construction along with normal growth in the demand for space and steady obsolescence of the existing stock will reduce, over time, the excess supply of space. As

supply falls relative to demand, higher effective rents will be generated for the existing stock. Market participants understand that this process will continue until effective rents "catch up" with required rents, because only then will developers have an incentive to bring new product to the market. Higher effective rents can be generated by higher contract (or stated) rents or by reduced vacancies. In overbuilt markets it is unlikely that higher contract rents will be observed until vacancies fall to normal levels.

How quickly will effective gross rents rise from current to required levels? The rise in real rents will occur at the most rapid rate in fast-growing markets with higher absorption rates, and the smaller the difference between current market and required rents the sooner the asset market will obtain long-run equilibrium. Markets with slower economic growth may

10. It should be noted that *CR* reflects the effects of competition for tenants at the individual property level. Property owners set rents in such a way as to maximize net income of vacancies and expenses. Thus, the marginal property owner has considered the effects of decreasing rents to increase occupancy and has concluded that a lower rental rate will decrease net income. The level of effective gross rents that maximizes net rental income depends on the perceived price elasticity of demand for space.

not allow any significant increases in real rents for a number of years, even if there is a near cessation of new construction.

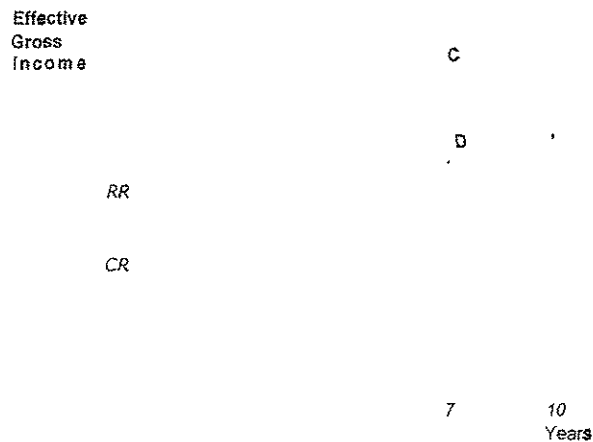
Because effective rents will not rise instantaneously to required levels, existing properties in overbuilt markets will sell at a discount to reproduction costs. The magnitude of the discount will depend on how slowly investors think rents will rise to equilibrium levels. The longer the expected adjustment period, the greater the present value of expected below-equilibrium rents, and the greater the discount from reproduction costs. Investor expectations should vary with both the expected growth rate of the area and the extent of the initial disequilibrium." Even in slow-growing overbuilt markets, however, market participants expect that real increases in effective rental income will eventually occur. That is, they expect that  $\delta$ , in equation 1 will become positive in some future year.

How should an appraiser incorporate

future increases in real rental income into his or her cash flow forecast? First, an assumption must be made about the length of the recovery time period. Second, the pattern of real effective rent increases over the expected recovery period must be forecasted. In terms of equation 1, an appraiser must specify  $\delta$ , for each year of the expected recovery period.

One possibility is to assume that real rents do not adjust until the end of the forecasted recovery period at which time they "spike" to their required level. The pattern of expected rental income generated by this assumption is depicted in Figure 2, and assumes that the excess supply of space will persist for seven years. Current market value estimates with this assumption will exceed those from the "no-recovery" scenario because the amount of projected lost income from below-equilibrium rents is less (compare the shaded areas in Figures 1 and 2). In terms of the example property,  $\delta$ , is set to zero

FIGURE 2 Loss in Income from Excess Supply of Space  
(Assumption: real rents "spike" to required level in year 7)



Shaded area represents the amount of lost rental income from below-equilibrium rents over expected 10-year holding period

$RR$  = Current effective gross income required for capitalized value of cash flows to equal construction costs (equal to \$1,200,000 for example property)

$CR$  = Actual first-year effective gross income (equal to \$1,000,000 for example property)

11. A useful analogy can be drawn from the pricing of discount bonds. Bonds sell at a discount when they are earning a below-market coupon (i.e., rent). The more the coupon is below market and the longer the bonds are expected to earn the below-market coupon (i.e., the longer the bond's maturity), the lower is the market value of the bond relative to par or book value.

*While it is difficult to project the number of years that a local market will require to recover, such projections cannot be avoided and should be clearly visible in an appraisal report.*

fort = 1 - 6 and set to 0.20 for t = 7. The assumed spike in effective rental income in year 7 (from point D to point C) increases the estimate of current market value from \$9,768,085 to \$11,195,958. Thus, the discount from reproduction costs is reduced from \$1,953,615 to \$525,715 relative to the no-recovery assumption (see panel 3 in Table 2 for cash flow details).

Is it reasonable to assume that no adjustment in real effective rents will occur until the end of the projected recovery period? Reduced new construction along with growth in the demand for space and steady obsolescence of the existing stock will reduce the excess supply of space over time. As the supply of space falls relative to demand, higher effective rents for the existing stock will gradually be generated by higher contract rents or decreased vacancies (barring, of course, any unforeseen "shocks" to future supply and demand).

A more plausible pattern of rental income over the recovery period is depicted

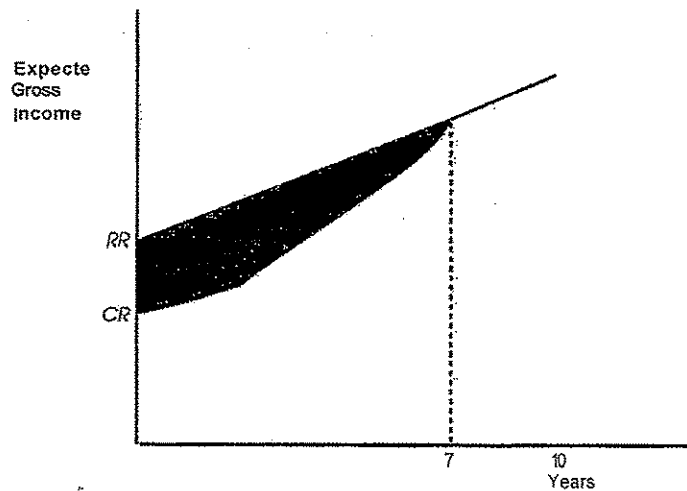
in Figure 3. This pattern of real rent increases can be incorporated into a valuation model (spreadsheet or otherwise) by adding two required inputs to the standard DCF model. First, define *d* as the total percentage difference between current market rents (*CR*) and long-run equilibrium rents (*RR*). Second, define *y* as the number of years over which the total required adjustment in rents is expected to occur. The annual rent adjustment parameter in year *t* is equal to

$$t \frac{(1 + d)^{(1/y)^t} - 1}{y} \quad \text{if } t > y. \quad (2)$$

For the example property, *d* = 0.20 and *y* = 7. Thus,  $\delta_t = 0.03085$  for all *t* ≤ 7. Note that  $1.03085^6 = 1.20$ . One is subtracted from *y* in the calculation of  $\delta$ , because it is assumed that rents are fixed in year 1. Thus, for rents to fully recover by the end of year 7, the 20% required increase is actually spread over 6 years.<sup>12</sup>

A gradual increase in real rents over the assumed recovery period increases the

**FIGURE 3** Loss in Income from Excess Supply of Space  
(Assumption: real rents adjust gradually over 7 years)



Shaded area represents the amount of lost rental income from below-equilibrium rents over expected 10-year holding period

*RR* = Current effective gross income required for capitalized value of cash flows to equal construction costs (equal to \$1,200,000 for example property)

*CR* = Actual first-year effective gross income (equal to \$1,000,000 for example property)

12. Other adjustments to rental income, such as step functions, could be used if an appraiser thought them to be more appropriate for a subject property.

estimate of market value relative to the rent spike assumption because the amount of below-equilibrium rent over the assumed holding period is reduced (compare the shaded areas in Figures 2 and 3). The estimated market value of the example property increases to \$11,524,940, a discount of \$196,760 (or 2%) from reproduction costs.

It should be noted that this \$11,524,940 estimate of value is \$1,757,855 greater than the estimate obtained when it is assumed that real rents do not recover from the current overbuilding. Assume, for the moment, that 12% is the appropriate risk-adjusted discount rate and that \$11,524,940 is the correct estimate of market value because it incorporates a gradual increase in real rents over time. One could arrive at the same value estimate assuming no increase in real rents (scenario 1) if cash flows are discounted at a rate of 9.47% instead of 12%. My contention is that appraisers in overbuilt markets may be backing into reasonable value estimates in this fashion: overly conservative rent projections are offset by the use of discount rates that understate the perceived riskiness of the projected cash flows.

An important advantage of the rental adjustment valuation model is that changes in effective rental income over time attributable to the current excess supply of space can be separated from income increases as a result of other causes such as general inflation. The rental adjustment valuation model requires just two additional variable inputs: 1) the percentage difference between current market and required effective gross income; and 2) the number of years required to absorb the excess space. While it is difficult to project the number of years that a local market will require to recover, such projections cannot be avoided and should be clearly visible in an appraisal report. The sensitivity of market value estimates to different recovery period assumptions can be quickly determined. For example, the appraiser of the example property could

show the client that a 4-year recovery period assumption would produce (from equation 1) a  $\beta$  of 0.0627 (for all  $t < 4$ ) and a value estimate of \$11,746,420, versus \$11,524,940 with a 7-year recovery. A more pessimistic recovery period assumption of 10 years would produce a  $\beta$  of 0.0205 (for all  $t < 10$ ) and a value estimate of \$11,333,585.

## CONCLUSION

Nationally, commercial real estate markets were substantially overbuilt during the last half of the 1980s. This excess supply of real estate, especially office space, still exists in many markets with the recent economic recession undoubtedly contributing to the persistence of the real estate downturn. Evidence of the excess supply can be found in downtown commercial vacancy rates that exceed 15% in most major markets (rates in non-central business districts are higher) and transaction prices below what it would cost to reproduce the properties new.

Projecting the future pattern of rental income for properties in overbuilt markets is a difficult task that appraisers cannot avoid. Cash flow projections should depend on how quickly investors think the excess supply of space will be absorbed. The estimated recovery period should in turn depend on current supply and demand conditions and on the expected rate of economic growth in the local economy. This article discusses the effects of current and projected local market conditions on market rents and values and develops a variant of the standard DCF model—the rent adjustment valuation model—that allows appraisers to explicitly incorporate these anticipated effects into their market value estimates. Any uncertainties concerning the (point) estimates of cash flows in overbuilt markets should be reflected in higher discount (yield) rates rather than by incorporating overly pessimistic cash flow forecasts.

13. Addition of the rental adjustment variables to a standard DCF spreadsheet requires the following modifications. First, add input "cells" for  $d$  (the total percentage difference between current and required rents) and  $y$  (recovery period in years). Second, calculate  $S_t$  for each year of the assumed holding period using the input values for  $d$  and  $y$ . If your cash flow forecasts for each year are developed in columns (as in Table 2), then a row of corresponding  $S_t$ s must be calculated for each year. The row of  $S_t$ s are calculated with "@IF" statements: If year is  $s > y$  (which can be determined by the column number of the spreadsheet cell), then  $S_t$  is calculated per the first line in equation 2. If year is  $\leq y$ , then  $S_t$  is set equal to zero. Finally, for each year, add  $S_t$  to rental income increases caused by such factors as general inflation.

# Where are you on the central Conn. comm'l. RE roller coaster?

By John Galvin

A recent survey of real estate professionals, along with buyers, sellers and investors active in the central Connecticut commercial real estate market, revealed that there is some disagreement over where the market is going in terms of commercial real estate values. With all of the external adverse information pouring in on the national and global economies, there appears to be some misconceptions as to how these uncontrollable factors are and/or will impact local commercial real estate values. The net effect is a bit like being on a roller coaster.

Value is perception, and real estate appraisers estimate market value as of a point in time. Estimating current market value in a market where the supply and demand curves are constantly shifting, the point of equilibrium poses a number of challenges. However, when perception of economic uncertainty increases to the point that participants do not want to act (i.e. buy or sell), appraising requires a lot more effort than just reviewing sales. It requires a more detailed review of the motivations of the few players still making investments, more analysis of investor's expectations and opportunity costs, more time to locate a sufficient amount of comparable data, more focus on listings and pending sales, and being more conscientious to the impact of available credit in the market.

Brokers are reporting that deals are taking more effort to close. Demand for owner occupied property is still evident in central Connecticut; however the supply of available property is still low, giving buyers fewer options compared to the past few years. Vacancy rates are not significantly changing in the industrial, office or apartment market, but the retail market is beginning to see the impact from store closings and consolidating retailers. Though there has been little sales activity that reflects a downward trend in value, what sales have closed were either negotiated in the first part of 2008 or are showing the flattening value trend witnessed in most commercial real estate market segments in central Connecticut over the past 18 to 24 months.

So what has changed? There has been a real paucity of commercial land sales. In addition, a good portion of speculative development has stalled and listing prices of available land are showing signs of a decline. In theory, the contributory value of

surplus or excess land affiliated with a commercial property is now worth less than when development trends are strong. Since improved investment property consists of land plus building value, the perception is that overall property values are declining. However, unless sellers are willing to lower their asking prices, and buyers cease to expect future declines and get off the sidelines, there will be little activity to determine supportable price levels.

Lenders are aware of these trends and have tightened their credit terms. Most surveyed have decreased their loan-to-value ratios. A commercial real estate investment that would have received an 80% loan-to-value ratio last year may now only receive a 65% or 70% loan. An investor who has \$20,000 may have been able to purchase a \$100,000 property last year - borrowing 80%, but now, with only 65% of the price available in the form of a loan, has to secure either another investment partner to acquire the same \$100,000 property or find an alternative investment for less.

Lenders are also increasing their Debt Service Coverage requirements. Ratios that were in the range of 1.10x to 1.20x are now 1.25x to 1.35x or more. This change correlates with the reduction in loan-to-value ratios and places more emphasis on existing cash flows as opposed to speculation that cash flow/net incomes will increase in the near future due to increases in rents or reductions in operating costs. In addition, "recourse", or the requirement of a guaranty as a third source of repayment is a requirement that is back in the market (cash flow of the property being the first source - collateral the second and a guarantee the borrower will use other assets to pay the loan if necessary being the third). Though these are sound lending principals, the perception is that it will further reduce the pool of buyers. However, if sellers are reluctant to sell, keeping a low inventory of property available for sale, these credit contractions may have little impact on pricing.

One of the bigger changes is the perception of a value shift caused by an increase in spreads now being charged by lenders. Lenders are increasing their spreads (the amount added to their cost of funds) from 1.25% - 1.50% to 2.25% - 2.75%. These rates are no longer being tied to the fluctuating Libor index rate, Treasuries, or other indexes, but to the Federal Home Loan Bank of

Boston (FHLBB) rate or their Classic Credit rate of the similar term. For most loans, this is the 5-year rate. The move to the FHLBB rate is why commercial mortgage rates are not going lower though the cost of the lender's funds is declining. For example, the FHLBB 5 year rate has declined over 1.0% in the past month, down to 4.18% as of the date of this writing. Adding 2.25% to 2.75% to this reflects an overall mortgage rate that is still below 7%. Regardless, the perception is that because spreads are increasing, overall capitalization rates have to increase. This perception is not always true.

An overall capitalization rate is a weighted average of the cost of funds to an investor for a specific commercial real estate investment. It is a rate used to capitalize net income into a value sum. In theory, if all else remains the same, increasing the spread charged by banks and lowering the percentage of the investment funds that can be leveraged by financing should increase the overall rate. The second part of the weighted average formula is the rate of return required by investors - investor's expectations. Since more of the investor's funds are being consumed by the increased credit terms, and because of national and global economic conditions, in theory investors should be expecting a higher return. But if there is very little inventory of available property on the market (low supply), even though the increased credit terms may reduce the pool of buyers, there is no guarantee the market will allow investors to increase their expected return.

With Wall Street having its up and downs, and the commercial real estate market in other geographic areas of the country experiencing dramatic value swings caused by residential foreclosures and the decline in consumer spending, the opportunity cost of investing elsewhere in the county may mitigate the risk of investing in the central Connecticut commercial market to the point that overall rates may not change as much as many expect, particularly with the low inventory of improved commercial property available for sale - meaning, at this point in time, the perceived value trend that is anticipated to impact commercial markets in central Connecticut may be short lived.

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N.E.R.J. 11/21-27/08