INSTITUTIONAL REAL ESTATE ANALYSIS

by Terry V. Grissom, CRE, and James R. DeLisle

The increase of institutional involvement in commercial real estate has heightened the interest of many Counselors of Real Estate (CRE) and other professional service providers in this segment of the real estate market. The equity interest held by six key institutional types as of mid-1995, is approximately $232 billion, the debt funds are approximately $982 billion. Pension funds are the leading holders of equity real estate, followed by life insurance companies and REITs. On the debt side, the key players are the traditional real estate institutions of commercial banks, life insurance companies and thrifts. Pension funds and REITs are only minor debt holders. Foreign investors and foreign banks also are relatively active in both capital sectors (12.3 and 10.5 percent respectively).

Figures 1 and 2 address the relative positions of equity and debt institutions over time. Changing levels of participation are presented in these dynamic illustrations. In general, the more traditional institutions are declining or stabilizing, while the previously designated alternative capital sources of REITs, foreign investors and pension funds are increasing. The magnitude of the institutional market and the changing structure of participants can impact the decision process and approaches to real estate problem solving which, in turn, affects real estate clients and the professional services they require.

An Institutional Framework

This brief overview of the institutional market reflects the thought process, concerns and perspective of many institutional decision makers. They want to position themselves relative to the capital markets and so frame their analysis on the deductive reasoning and techniques taught and used in finance and economics. Practiced, influenced and educated in these areas, influential institutional managers have extended these tools to real estate. Institutional clients, by the nature of their concerns and responsibilities, must compare their real estate interest to capital markets and investment alternatives. Their overview is from investment alternatives and decision criteria, to appropriate investment markets, to possible property types and then specific properties.[1] However, responsibilities and many concerns require a broader

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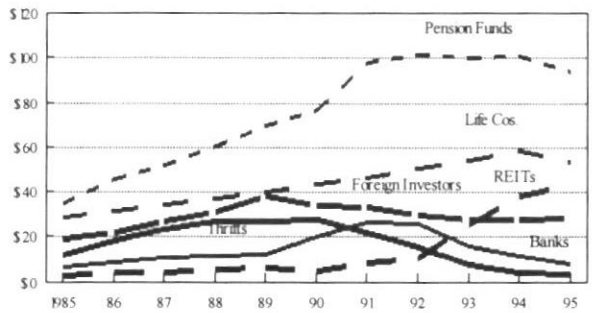
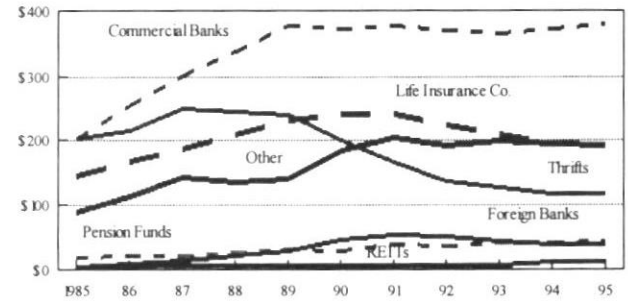
FIGURE 1
Trends in Equity Real Estate Investment Amongst Institutions



Source: GSU & Equitable Investment Research

FIGURE 2
Trends in Mortgage Debt to Real Estate Amongst Institutions



Source: GSU & Equitable Investment Research

perspective than a parcel-by-parcel view of real estate.[2]

Also, because institutional ownership is relatively long-term (liquidity is not a key concern given other investments and ongoing capital sources), trends and cycles are as important as current market performance (the traditional emphasis of real estate analysis). This often requires institutional work to link with prior research or to recognize the changes that have occurred over time.

An institutional group must be concerned with problems that often require an analysis of more than an individual property. The analytical unit may be a portfolio of properties, an urban market or comparative markets, a mixed asset portfolio or real estate related assets which vary in terms of private or public interests and debt or equity markets. The latter unit of mixed public/private, debt/equity real estate related assets, often is referred to as the Four Quadrant Model or Paradigm and further promulgates the deductive approach used or required by institutions. It is a framework of analysis based on a collective asset format which mixes and groups by sources of capital and types of ownership.

Although individual parcel analysis will not become extinct and is necessary to achieve the deductive perspective, it often is used for institutional analysis in the form of secondary real estate databases and indices, rather than real estate's traditional singular transaction orientation. This runs counter to the traditional real estate scenario of inductive logic, beginning with a specific property and its specific market and expanding to more aggregated market and investment concerns. In traditional real estate analysis, information on the real estate is the primary data with the economic, financial and other aggregated data employed from secondary sources. Therefore, the fundamental analysis traditionally employed in real estate consulting differs in how it is emphasized versus a totally different process of treatment when compared to the overall institutional analytic framework.[3]

The following example demonstrates that traditional real estate tools are used to address institutional problems but often with a different twist on the analytical framework.

Reserve Capitalization Rate Study

A reserve capitalization rate study is a study of capitalization rates in times series analysis developed to assist in calculating the reserve requirements of a special account (a portfolio of properties). This study is a follow-up to a prior study. The result is a modification, extension and rejection of a previous study executed for a specific portfolio. Because of the need to link real estate performance to other familiar capital market benchmarks (to assist the client's orientation), prior work investigated the pattern and statistical relationships of cap rates and treasury returns over time. The prior research also dealt with statistical relationships of cap rates and various yield series and identified what is termed a normalized period from 1986-1990. This period is characterized as a term in which real estate cap rates and 10-year Treasuries were highly correlated. In the prior study, the period of uncorrelated rates and interest returns from 1991-1993 is considered atypical. The previous report then used the normalized period as the basis of comparison, assuming a high correlation between treasury yields and cap rates. The treasuries performance was used to establish the appropriate cap rates for the reserves.

Real estate cycle analysis suggests that these two periods were inappropriately designated as normative and atypical and required further investigation. Thus, the study extends the prior investigation and places an emphasis on the relationships in long term patterns rather than a normalized period. Also, additional cap rate indices are included in the analysis to better proxy market activity over time.

Methodology: Replication And Modification

The modeling technique of this and previous studies is regression analysis, the traditional tool of economic time series analysis. The previous study is replicated by investigating the time series structure of the American College of Life Insurance (ACLI) cap rate data and the cap rate series available from Real Estate Research Corporation (RERC).

> The ACLI data is from a quarterly mortgage commitment report representing new mortgage activity. The cap rates in ACLI reports using property data, represent stabilized current income divided by market value (cost/appraisal based). The ACLI data is gathered from corresponding insurance companies and is considered an institutional database series. The ACLI data consist entirely of leveraged properties. (The other indices used in this research reflect equity investments or varying debt combinations of debt and equity financing segments.)
>
> RERC periodically surveys market participants regarding their acquisition pricing parameters for real estate. Since 1992, approximately 30 participants are interviewed each year. The cap rates in this series are for expected or desired ratio/yield relationships.

These two series were analyzed as individual times series variables. They are then analyzed in relation to one another. The average ACLI cap rate is 10.22 percent. The average RERC rate is 7.43 percent. No significant association is identified between the two cap series based on regression and correlation analysis. The correlation between RERC rates and ACLI rates is 27.50 percent, compared to an R2 of 7.56 percent, derived from the regression. Changes in the expected rate of either ACLI or RERC cannot be used to significantly predict rates in the other series. However, a range is set by the calculations of the ACLI and RERC series and their trends. ACLI reflects historic stabilized rates and RERC offers expected cap rates. The range, if not the association of these two series, can assist policy decisions. The low correlation and regression association of the rates over time are rational when the volatility of the variables are compared. Correlation tests the relationship between means and deviation of each rate series, and the ACLI rates have been more volatile than the RERC rates (until the 1990s). This can partially be attributed to amplified volatility of leveraged properties in the ACLI index. It also suggests that actual performance varies to a greater extent than expectations, suggesting real estate is not appropriately measured or priced by investors (valuation error in pricing risk, regardless of equal access to information).

This study further replicated the previous report's relationship of ACLI and RERC rates with 10-year Treasuries. The relationship of the treasury bonds to ACLI cap rates as a time series is still high, with an R2 of 74.58 percent. RERC and the treasuries have a negligible R2 of .06 percent, which is effectively zero. The regression analysis is supported by the correlation coefficients between the interest rate and the ACLI and RERC series. They are low, at −25.01 and −7.75 percent, respectively. These negative correlations illustrate an inverse relationship between cap rates and interest yields which weakens their use as direct indicators for one another. Treasuries have shown a greater volatility over the period from 1980-1994, than the ACLI and RERC rates.This suggests a greater market driven volatility for the bonds, despite the perception of the contractually reduced financial risk which is typical of treasuries. The high coefficients of determination indicate a linear association between the changes in treasuries and ACLI rates. RERC rates show no association with interest rates, although all three series trend in the same general direction. The negative correlation of the treasuries and the ACLI and RERC rates, though consistent with accounting for financial risk in the decision equation, requires further investigation to accept linking the cap rate policy to the treasury rates. Without further detail, such a link may introduce an unnecessary loading of leverage risk in equity deals.

Methodology: Extension

Three other capitalization rate series are considered, given the inconsistency in the previous research based on the findings of trend and correlation analysis. The series are the National Real Estate Index (NREI), the National Council of Real Estate Investment Fiduciaries (NCREIF) and the Korpacz Yield Index Survey (KYI). Because the real estate markets, like the general economy, are in transition, alternative market perspectives are needed. Thus, these rate series, which can be considered market indices, are employed to reflect the more competitive and broadening institutional investment market. As indices, they vary in data source and method of calculation. These differences, allow further insights to cap rate structure and policy.

Data Sources And Analysis

Following is a brief description of each cap rate series used to extend the investigation. These series, like the ACLI and RERC rates, are available to and used by many institutional and general market investors. Although the preferred approach is to back-up the market indices with specific property level cap rates in the different markets, these series offer insight to the overall trends and patterns in capitalization rates and allow for tests of relationships between the cap rate series traditionally used by institutional investors. Also, the institutional

market can be compared to more general market activities as they are represented (in part) by these indices. With an inclusion of local data, these series enable a link of individual property analyses to economic activities in various geographical markets and allow for a tie of that market to general economic activity.

The NREI cap rate series is published by the Liquidity Fund. The reported rates are derived from transactions sent in by correspondents to the index analysts. Though the broad series of data behind the NREI rates is fraught with the potential of inconsistent measures and techniques (i.e., stabilized versus actual or current cap rates), it can be perceived as the broadest market index. This series considers both institutional and non-institutional grade properties.

The NCREIF series is developed from quarterly reports of institutional real estate performance. The composite index is based on the relationship of current leases to appraised values, modified by actual transactions that have occurred during the period.

Although NCREIF has developed leveraged and combined (both leveraged and equity properties) indices, the equity index is used in this report. The KYI or Korpacz Index is based on a survey of mixed respondents that includes institutional investors. The survey is limited to specific major cities and considers mostly institutional grade investments. This survey offers detailed discussion of how specific rates are determined and considered. As a survey, it reflects desired or expected returns, but it can be considered as a level of fundamental analysis.

These series are considered with the same statistical methods as the ACLI and RERC data. Given concern for markets in transition, each series is considered as a separate market index. Distinct patterns can be developed as historic cap rates partially influence future rates (current time periods are not independent of the past, despite the model's assumption). Therefore, allowing some market segmentation, each index is analyzed as a distinct individual time series. The distinct market patterns are then considered in relation to one another.

The average NREI cap rate in the series is 9.03 percent. The average NCREIF rate is 7.59 percent and the average KYI cap rate is 8.40. Despite this tight range, low to moderate associations are identified between KYI, NCREIF and NREI cap rates and ACLI rates based on regression analysis. The regression coefficients are 45.58, 21.76 and 25.52 percent, respectively. The correlation between each of these market indices and ACLI rates are higher at 67.51, 42.84 and 59.55 percent.

The RERC index has a relatively high regressed association with the NREI and KYI series and a very high association with the NCREIF series (68.21, 59.23 and 88.43 percent, respectively). The correlations of the three additional series are 82.5, 76.69 and 94.04 percent.

The significant coefficients of determination and the higher correlations suggest that linear associations between the various cap rates series are strong, which could result in an appropriate model for forecasting rates. The high correlation measure suggests that similar patterns, rate levels and volatility levels are present. This would indicate that an entire real estate cycle be considered for predictive purposes rather than the trend of a normal period. A practical approach is to use the various rate series as a range or flow of ratios depicting a market range, based on different orientations (ex post, ex ante and different methods of measurement).

The latter three rate series are also regressed and correlated with the 10-year Treasuries' returns. The implications are:

The NREI and KYI have relative high R2s of 51.51 percent and 57.88 percent. The association is negative showing that capital market measures relate to cap rates inversely. The NCREIF coefficient relative to treasuries is insignificant at 2.34 percent, suggesting that institutional equity decisions may not be related to traditional debt market activities (at least in a linear relationship).

The correlation measures are −76.08 percent for KYI, −81.57 for NREI and −58.14 for NCREIF. Key is the highly correlated negative relationship between the cap rate series and the treasuries' rates. This has intuitive appeal for the implication is that as interest rates increase, the income to value ratio declines marking a decrease in the emphasis on income and a transfer of return expectations to the capital component. The math of the relationship directs attention to the relationship of ratio rates and yields. The traditional relationship of interest and inflation is another possible factor that may alter the cycle of a series.[4]

The associations and relationships between KYI, NREI and NCREIF cap rates are also considered. They are:

KYI and NREI show a high regression coefficient of determination of 95.20 percent. This

high association is interesting given that NREI is transaction based and KYI is a survey of expected (or desired) cap rates. The two series overlap in time frame, NREI beginning in the fourth quarter of 1985 and KYI beginning in 1988.

KYI and NCREIF have a coefficient of determination measured at 53.05 percent. This is significant because of the different basis of each series (survey versus historic returns based on either appraisals or transactions). The positive relation may result from the implication of expectations in the appraisals used by NCREIF as the foundation of its database.

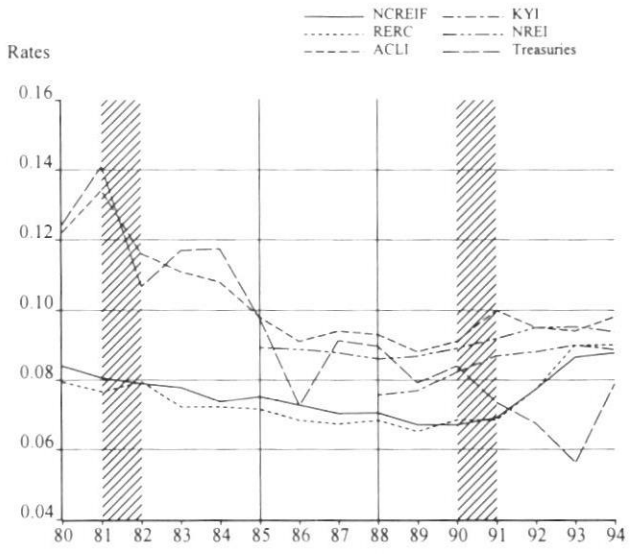
The NREI and NCREIF association reflects an R2 of 59.85. This supports a moderately high linear association between the two indices. This is interesting because NREI has more independent participants involved in the transactions used as its database than it does institutional grade property which populates the NCREIF database. This significant association may be partially attributed to the integration of general market comparables into the appraisals used to establish the NCREIF values, a component of its cap rates calculations.

Implications And Findings

The significance of the relationships between the rate series, as indicated in the analysis of cap rates and the 10-year Treasuries, is that although the bonds have less contractual risk, their returns have a history of greater volatility. This can be linked to the deregulated, market driven interest rate which has been in effect since going off the gold standard in the mid-1970s. Because of their computation, yields or total returns can be expected to fluctuate more than cap rates (income ratios) over time. The nature of the relationship between cap rates and the interest surrogate offered by the treasuries is inverse or negative. Over, the long-run, there is not a consistent and positive relationship as indicated in the normalized period from 1986-1990. The more general situation or norm is that real estate returns are cyclical and rate determinations for policy decisions should reflect this aspect. This cyclical nature is illustrated by the changes in all the rate series since 1990. However, this historic change is greater than the variation between the series as projected into 1996. Although real estate cycles coincide with general economic cycles, they can vary in relations with specific economic measures and indicators. Other than the norm in aggregated institutional analysis, a more direct comparison of debt to debt and equity to equity assets and other more specific investment attributes of distinct asset classes must be identified before a higher degree of inferential analysis can be conducted.

FIGURE 3

Trends in Five Cap Rate Series Relative to Ten Year Treasuries Rates



Source: GSU & Equitable Investment Research
Shaded areas on Figure 3 denote recessions.

Based on these implications resulting from intuitive and empirical analysis, it is concluded that an appropriate indication of current and expected cap rates can be derived from cap rate series and trends along with explanatory consideration given to changes in the economy and the impact of key events. A synthesis of the above analysis is illustrated in Figure 3.

The implications of Figure 3 are:

That the treasuries yields have declined since 1981 with relatively amplified volatility over the period that bottomed out in 1993. Treasuries rates have shown increasing yields for 1993 through 1994. The 1994-1995 changes coincide with the Fed's interest rate policies.

During the initial phase of the period studied, as depicted in Figure 3 (1980-1985 with treasuries bottoming in 1986), the RERC and NCREIF cap rates made a modest decline, reflecting expectations of capital appreciation and lowered emphasis on income. Note NREI data begins in 1985 and is fairly consistent over time. The ACLI data, more closely associated with the interest rates partly because of a leveraged portfolio, shows a steeper decline. The stabilized phase, identified in the 1994 study, extends from 1986-1990 and shows a stable period for cap rates with moderate declines consistent with the 10-year Treasuries rate. However, even during this period of high correlation, the government bonds are still more volatile.

The final phase of the time series, 1990-1994, shows all cap rate series as counter-cyclical to the treasuries' yield.

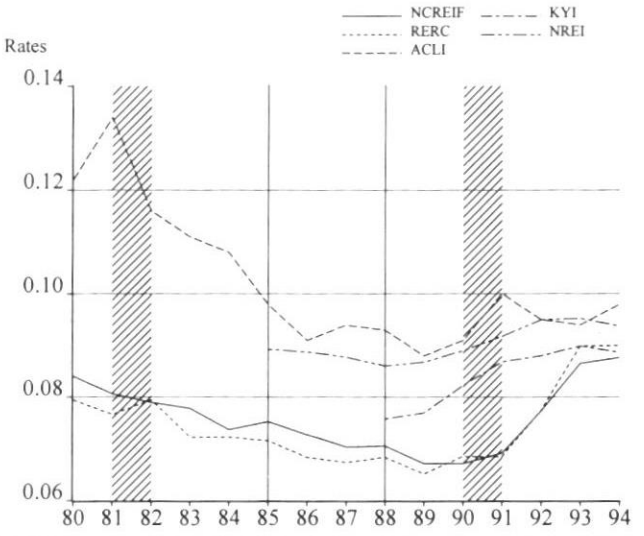
The implications of the trends suggest that a unique or divergent market has evolved beginning in 1990. Investigating the economy of this period (1980-1995), events were sought that would reflect the shifts observed in traditional economic relationships. Two key events appear to be the timing of taxing policy and inflation impacts. The changing tax policy shifted emphasis to value and after-tax benefits for the period 1981-1986.

After the tax law change in 1986, emphasis shifted to the productivity of the investment, specifically the income stream before taxes (and financing). The flip-flop in 1981 and 1986 tax policies changed the thrust of investment standards and the rates used to measure performance. The impact placed an upward pressure on cap rates.

The implications of the impact of the decline in inflation since 1981 are that the interest rate has declined to some degree with the rate of inflation and the development of alternative sources of capital. The need for the alternative sources arose in part from the troubles experienced in the thrift and banking systems. With these forces in effect for capital markets, the oversupply generated in real estate markets with limited but less costly capital uncoupled the real estate market from the traditional capital markets. The emphasis was placed on the economics of real estate, competitive supply and demand. The interaction in the market is directly reflected in absorption rates and income productivity measures. These factors support a rise in cap rates. This is observed in the transition, beginning in 1992, to alternative capital sources with further changes expected in the relationships of capital and real estate markets.

The implication of economic trends, as linked to various rate series, is assisted by observing Figure 3. The implication is that the capital and real estate markets are not consistently associated, but currently are observed as merging. This merging trend depicted by the five rate indices is illustrated in Figure 4. As shown, the top index, the ACLI series, currently is increasing. However, a forecast (conducted as part of this investigation) based on the interest rate indicates the ACLI series will level off through 1996 at about 9.5 percent. The NREI rate is expected to decline to 9 percent, with the KYI, RERC and NCREIF rates merging toward a range of 8.5 to 9.5 percent. The ranges are rounded from their actual forecast. The former rate series is currently declining and the latter two series are increasing.

FIGURE 4
Trends in Five Cap Rate Series



Source: GSU & Equitable Investment Research
Shaded areas on Figure 4 denote recessions.

Conclusions And Suggestions

Real estate is cyclical and as such institutional cap rate policies for reserves and other capital considerations can expect changing economic relationships over time. However, the capital component of the total return, with its high volatility, absorbs the bulk of shifts in the economy. Thus, despite cyclical turns overall, the cap rate tends to hold relatively constant. Consistency exists whether the real estate returns are coupled or uncoupled with financial markets. Therefore, recognizing that the period from 1990-1994 is as typical of real estate market performance as was 1987-1989, and that the markets of the 1970s and 1980s may be unique in the long run, an overall strategy for cap rate policy decisions might suggest operating in a manner that keeps rates constant. Management concerns would then emphasize risk exposure and seek to identify those variables that may cause variance in the ratio of income to value/price. Recognition of these variables may allow hedging options that trade-off inverse relationships between income and value positions.

NOTES

1. Grissom, Terry and Julian Diaz III, *Basic Valuation: Guide to Investment Strategies*, (Wiley: New York, 1991), Chapter 8, pp. 323-338.
2. Graaskamp, James A., *The Appraisal of 25 North Pinckney: A Demonstration Case for Contemporary Appraisal Methods*, (Landmark Research Publishers: Madison, WI, 1977) p. 7.
3. Grissom and Diaz, pp. 336-337.
4. Some economic literature addresses inflation cycles in the context of cycles within cycles.