NAR Commercial Leading Indicator for Brokerage Activity

Introduction

Where is the commercial real estate market headed? To help answer the question, NAR has developed a Commercial Leading Indicator (CLI) designed to provide early signals of turning points - peaks and troughs - between expansions and slowdowns of commercial real estate activity. The index was developed to assist NAR's 57,000 REALTOR® members specializing in commercial real estate.

It is widely accepted that commercial market activity lags general economic activity. Therefore, one may be inclined to just monitor indicators such as the Conference Board's Leading Economic Indicator to assess future commercial real estate market conditions. However, the relationship between the Leading Economic Indicator and actual economic activity has been inconsistent in recent years. Also, the Leading Economic Indicator does not incorporate specific variables that have more meaningful impacts on the commercial real estate market.

Though a single indicator, such as office job growth, may provide some information on the direction of impending commercial market activity, reliance on a group of variables often provides a better sense of the true direction of market activity. This is because plausible indicators for leading information sometimes move in opposite directions (e.g., sales growth with job cuts) which can then cloud judgments about the future.

Before proceeding, it is worth noting that there are many organizations that provide forecasts of commercial market variables - from vacancy rates and rent growth to net absorption and property prices. The CLI should not be viewed as a competing model. The primary purpose of the CLI is to provide advance information on the likely leasing, sub-leasing, and property management opportunities for people engaged in these activities.

For the CLI, indicator components were selected only if the following criteria were met:

1. They could logically qualify as a leading indicator
2. They had a meaningful statistical impact
3. The data was available in a consistent and timely manner
4. The data are not subject to structural changes (permanent discontinuity) as a result of a policy change. (e.g., airline passenger traffic would be poor data to during the period when airline deregulation was implemented.)

Based on the above criteria, 13 component data series were chosen that were proven historically to be correlated with the commercial real estate market. Each of the indicators was tested for its causality impact (Granger Causality Test). All indicators were found to precede commercial market activity at statistically significant levels by two

or three quarters. In essence, the following 13 variables reflect future commercial real estate market activity. [1]

Indicator Components	Source
Industrial production	Federal Reserve
REIT Price Index	NAREIT
NCREIF Total Return	NCREIF
Personal Income minus Transfer Payments	BEA
Jobs in Financial Activities	BLS
Jobs in Professional Business Service	BLS
Jobs in Temporary Help	BLS
Jobs in Retail Trade	BLS
Jobs in Wholesale Trade	BLS
Initial Claims for Unemployment Insurance	BLS
Manufacturers' Durable Goods Shipment	Census
Wholesale Merchant Sales	Census
Retail Sales and Food Service	Census

The above indicators were combined to form a single composite leading indicator. The methodology follows the same process used in the computation of the Conference Board's Leading Economic Indicator. In summary, the index is created by computing percent changes of individual indicators, weighting them appropriately and them summing to create an index. The composite indicator is then de-trending so that changes in magnitudes of the composite indicator matches the changes in magnitude of commercial activity.[2]

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[1] Some of the 13 variables were combined to form one concise variable in the computation process. For example, retail sales and wholesale sales were combined into one.
[2] Please refer to the Conference Board's web page for calculating composite indices.

Having described the leading indicator components, which commercial real estate market variable does the index lead? That is, what is meant by commercial real estate activity? Two commercial variables were selected to measure the activity of the commercial real estate market: (1) net absorption and (2) the value of new construction put in place for private commercial buildings[3]. Historically, the net-absorption and value of new construction put-in-place variables have been the most cyclical and rapidly changing. The two variables also come from two different sources (one private and one government), thereby, not placing sole reliance on a single data source.

First, net absorption captures the pace of commercial market activity in terms of demand for commercial space (both leased and owner occupied space). It is also the key driver of other widely watched commercial market variables. Rising absorption typically implies a falling vacancy rate. Rising absorption also usually implies improvements in rent conditions and, hence, operating income for commercial property owners.   The net absorption data are only for the office and industrial sectors. The data do not include the retail sector due to unavailability of the data on a quarterly interval. Multi-family data are not included because the dynamics of this sector depends on mortgage rates and homeownership, which generally do not impact other commercial sectors. The data is from Torto-Wheaton Research.

The second commercial activity variable is the value of construction put-in-place, which is recorded only upon completion of a new commercial building. This data includes retail, office buildings, lodging units and warehouses. The nominal figures are deflated with a composite construction cost weighted index published by the Census Bureau to give us real inflation-adjusted values. Although a large portion of newly constructed buildings have already been pre-leased (since most commercial construction now a days is not speculative), a new supply of buildings provide business opportunities for leasing/subleasing and property managers. The data is from the U.S. Department of Commerce.[4]

To form the composite Commercial Activity Index (CAI) variable, net-absorption and construction-put-in-place variables are combined. As before, we apply the Conference Board's methodology for computing composite indexes.

CLI and CAI Relationship

Having described the creation of the CLI and the CAI, how do the two variables relate. Does CLI lead the CAI?

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[3] The Census Bureau refers to it officially as the Value of Construction Put-in-Place for private non-residential investment.
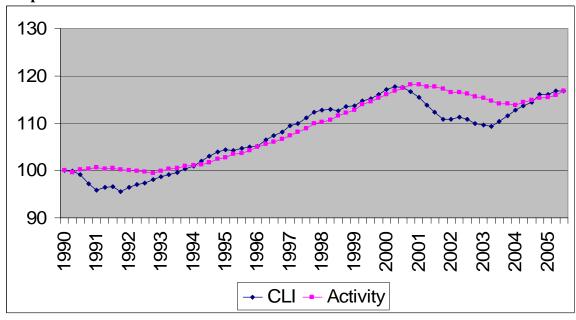
[4] Note that this data only partly captures new retail completions that are coming to the market. Multi-family construction was purposely excluded so as to not muddy non-residential commercial real estate with residential commercial real estate.

The next two graphs shows the relationship between the CLI and the CAI. The first graph shows the index value measures. The second graph shows the relationship in terms of percentage changes. The actual values are listed fully in the Appendix.
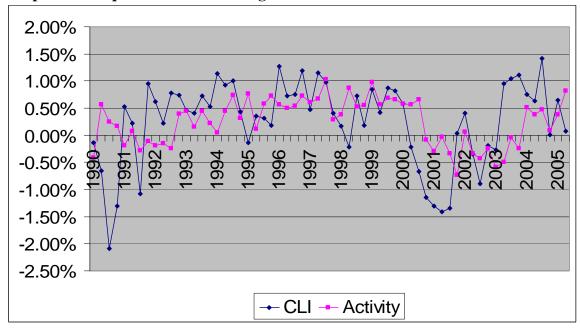
Visually, one can surmise that the CLI (blue or dark line) leads the CAI (purple or lighter line). That is, the turning points in the CLI occur before the turning points in the CAI. Also, in terms of percent changes, the CLI appears to lead the CAI.   Additional charts with two-quarter and three-quarter moving averages that smooth out the single period volatility are provided. As shown, multi-period averages provide smoother graphs and still maintain the relationship between the CLI and CAI.

Several charts on the relationship between the CLI and the CAI are provided below.
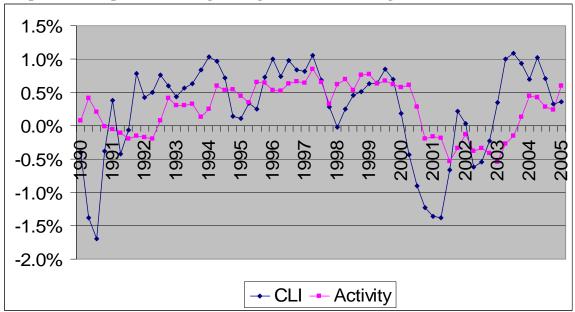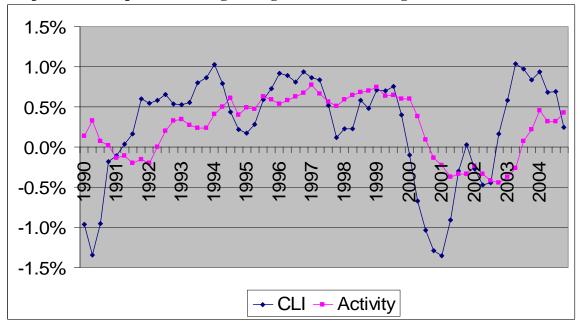
Graph 1: Index Levels

Graph 2: One quarter Percent Change

Graph 3: Two-quarter moving average of Percent Changes

Graph 4: Three-quarter moving average of Percent Changes

In terms of statistical relationships, Granger causality tests confirm that the CLI leads CAI and not vice versa. A regression analysis on the relationship between the CLI and CAI had the best fit with a three quarter lag:

Log(CAI) = 1.004 * Log (CLI (3 quarter lag))

Because of the logarithmic estimation, the coefficients can be interpreted as elasticities. That is, a one percent change in the CLI is correlated with a one percent change in the CAI three quarters from now.[5] A one percent change in the CAI has been associated in recent history (1990 to 2005) with an increase in net absorption rising of 189 million square feet in the office and industrial sectors combined and with a $5.7 billion increase in all newly completed commercial buildings.

As with all leading indicators, a single period decline in the leading index may not portend an imminent slowdown in activity. But a decline over several consecutive quarters would certainly signal shifting activity ahead. Not all leading indices behave as intended and sometimes produce false signals. Nonetheless, the CLI as designed follows the logical plausibility of one variable leading the other, and hence, at a minimum the CLI is expected to provide a reliable predictor of turning points of future commercial activity.

Further Development

Revisions in the methodology, as with many leading indicators, will need to be made over time. Availability of new relevant data series, elimination of old component data series, or changes in reporting frequency may necessitate a change in the methodology. Furthermore, changes in the statistical relationship between the variables may necessitate changes in the methodology. The components of the index as well as the weights placed on them will undoubtedly change in the future. But the intended purpose and the use of the leading indicator - as a predictor of future commercial market activity - will remain intact.

One important variable, not yet incorporated into the CLI, will be the results of NAR's commercial practitioner survey. NAR will be tracking key commercial real estate market information directly by surveying commercial REALTOR® members. The survey questions ask about existing market conditions and practitioners' assessment of foot traffic, confidence, and future outlook.

It is hoped that the CLI can help real estate practitioners anticipate changes in business conditions. The CLI can also provide information when used in conjunction with other variables to better forecast other standard commercial market variables such as vacancy rates and rent growth.

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[5] ARIMA error terms were used in the estimation to assure no autocorrelation of the error term. Durbin-Watson statistics was 2.02. Also, because of the inclusion of the ARIMA error terms, the R-square was quite high at 99.4 percent.