Timing the Market:
You Don't Have to be Perfect

BY RANDY I. ANDERSON, PH.D., CRE; AND JOSHUA A. HARRIS, MBA, CAIA

INTRODUCTION

IT IS WIDELY ACCEPTED AND KNOWN that macroeconomic cycle conditions directly affect the returns and cycle conditions of commercial real estate (Pyhrr, Roulac and Born, 1999). As macroeconomic conditions improve or deteriorate, fundamental demand for commercial real estate will react, thus affecting returns, and often, prices. As such, investors should pay attention to the current state and expected states of the economy and underlying real estate markets when acquiring or disposing of real estate assets. Our analyses show that a bottom in real estate prices and returns can occur after the bottom of the macroeconomic cycle occurs;[1] as such, investors can profit by using all available economic and real estate information to make buy and sell decisions. Is there an optimal strategy to time purchases and dispositions based on changes in the real estate or macroeconomic cycle?[2] What is the real impact on returns by being invested during the different macroeconomic or real estate cycles? This article examines these questions by simulating the performance of a real estate investor who invests in the National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index (referred to as the NPI) during various times and holds for various lengths during the past thirty years.[3] We run simulations using both time frames from the macroeconomic cycle and the real estate cycle. We do this for two reasons: one, comparing the results can give investors an honest perspective of how real estate performs during and after recessions, something that may have great value at present times; and two, we want to adequately show the potential benefit of actively timing the real estate market relative to a benchmark that is moving dynamically as well. In our analyses we first show that a simple buy and hold strategy produces an economically significant 8.18 percent annualized total return over the 30-year time span of 1980–2009. Second, we show that

investing after recessions but liquidating at predetermined times (ten, seven and five years) can produce highly volatile[4] returns (as high as 13.38 percent to as low as 1.42 percent in annualized total returns) and thus, no discernable pattern emerges. Since the ability to refinance or sell a property is determined in part by macroeconomic and real estate cycles,[5] we strongly urge investors to cautiously take on leverage that can force exits or demand refinancing at such predetermined intervals; this can

About the Authors

Randy I. Anderson, **Ph.D.**, **CRE**, *is the Howard Phillips Eminent Scholar Chair of Real Estate at the University of Central Florida, Orlando, Florida, where he directs the Dr. P. Phillips School of Real Estate. He has been active in the real estate business since 1991 as a researcher, owner, investor, and strategist. Previously, Anderson served as president of CNL Real Estate Advisors in Orlando where he was responsible for overseeing CNLBank's non-REIT real estate transactions, including research, origination, acquisition, finance and management. He has held chairs at Baruch College and Florida International University, and senior executive positions at Prudential Real Estate Investors and Marcus and Millichap. Anderson holds a doctorate degree in finance from the University of Alabama. He is a Counselor of Real Estate, a Homer Hoyt Institute Fellow and a NAIOP Research Foundation Distinguished Fellow.*

Joshua A. Harris, **MBA**, **CAIA**, *is completing a doctoral program in finance at the University of Central Florida (UCF), Orlando, Florida, and is conducting research in institutional international real estate and market cycles. He also teaches advanced real estate coursework for the Dr. P. Phillips School of Real Estate at UCF. Harris has experience in commercial real estate since 2002 as a real estate broker, acquisitions analyst and investment banker. He is a specialist in analyzing real estate transactions, market analysis, financial modeling, and statistical forecasting. Harris holds a master's degree in business administration and a bachelor's degree in finance from UCF.*

Timing the Market: You Don't Have to be Perfect

destroy returns even if the investment was made at a relatively low price. Finally, we simulate returns of various strategies based on the peaks and troughs of the real estate cycle that occur near the '91 and '01 recessions. Without need of exact timing, investors could have realized returns 200–300 basis points higher on average than with the simple buy and hold strategy. In fact, investors can be off by as much as a year from the bottom and a year from the top during acquisition and disposition. This is critical as actual tops and bottoms are not observed or recognized until long after they have come and gone. In fact, official announcements of macroeconomic peaks and troughs by the National Bureau of Economic Research (NBER) typically lags several quarters; thus, approximate timing is the best anyone can actually use.

In sum, investors should obviously spend a significant portion of their time and resources selecting the right properties in the right markets. However, our results indicate that timing entry and exits based on macroeconomic and real estate cycles can both enhance returns and reduce risk; thus, investors should also expand resources to monitor macroeconomic and real estate cycle metrics.

DATA

The primary source of data used to measure returns on investment commercial real estate was the NPI as published by NCREIF. The NPI is constructed using the results of surveys of NCREIF members on the performance characteristics of their real estate holdings. The NPI is composed of data on office, industrial, retail, multifamily, and hotel properties and is generally considered to gauge the performance of "institutional investment grade" properties; meaning the NPI is generally representative of the holdings of institutional investors who typically purchase properties in large markets and of relatively high quality. The NPI is further broken into price and income return indices as well as the combined total return index; we will utilize the price and total return indices for this study. The dates and lengths of macroeconomic recessions are from the NBER's Web site. The NBER is the official organization charged with the duty of determining and dating peaks and troughs of the macroeconomic cycle in the United States. The time frame for all data and analyses in this article is from the beginning of 1980 to the end of 2009.

Figure 1 shows the NPI price return index values (along with its historical trend line) over time, along with shaded bars indicating recessionary periods. Additionally, we have charted the Consumer Price Index as reported by the U.S. Bureau of Labor Statistics, which is generally regarded as a good measure of inflation.
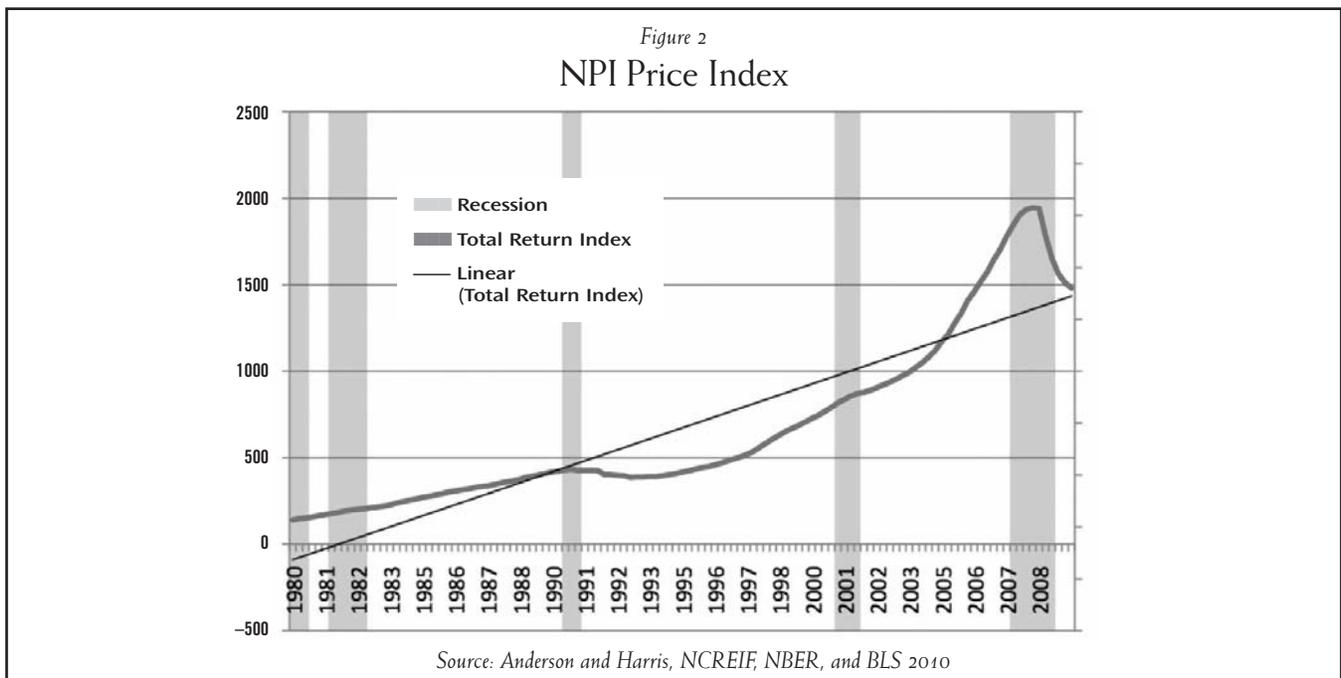

Figure 1
NPI Price Index

Source: Anderson and Harris, NCREIF, NBER, and BLS 2010
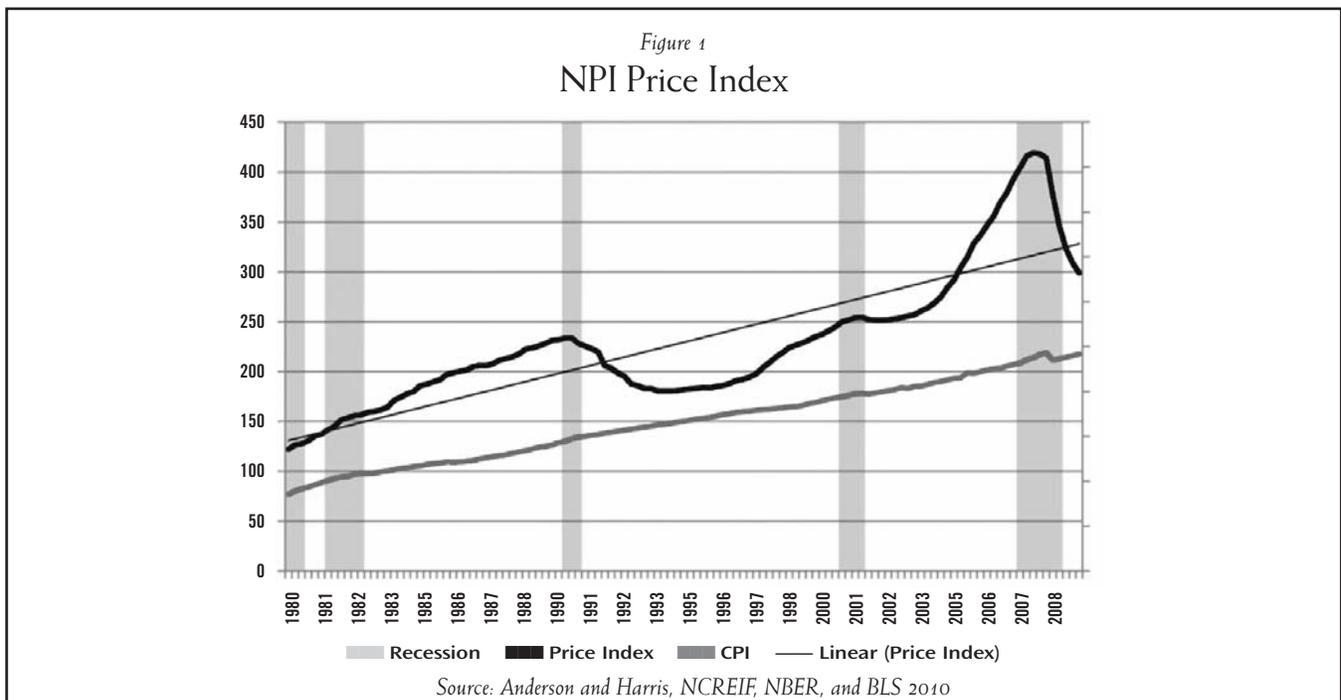
As can be seen from Figure 1, recessions are generally associated with declines, or at least plateaus, in the NPI price index. The recessions of the early '80s are the exception, where real estate prices rose due to catalysts such as high inflation and unique tax rules that favored investment in commercial real estate (many would be repealed by the Tax Reform Act of 1986). What is particularly compelling is that the price index shows mean-reversion in that there is an average long-term growth rate to which prices tend to revert. As a market begins to overheat, prices tend to move above the trend line and when markets decline, the decline is greater than that suggested by the trend. As such, simple guides such as this can be useful for investors in assessing pricing risk.

SIMULATION ANALYSIS

To assess what an investor could have earned over various time periods during the last 30 years, we conduct simulation analyses using the NPI data for price and total returns. The NPI is reported quarterly and represents the unlevered rate of return on the underlying assets of the reporting NCREIF members. Because the NPI is unlevered, all our analyses also will represent unlevered returns. In practice many investors often employ varying degrees of leverage to enhance returns and acquire more real estate. Such actions would magnify, both to the upside and the downside, the returns presented herein. Accordingly, the risk of such investment would also be magnified and thus a levered investor may experience loan default and lose his or her entire investment, whereas an unlevered investor may only experience poor performance.

Figure 2
NPI Price Index

Legend: Recession; Total Return Index; Linear (Total Return Index)

Source: Anderson and Harris, NCREIF, NBER, and BLS 2010

Additionally, when we graph the NPI total return index over time with the recessionary periods shaded (Figure 2), we see that total return (income plus price return) is generally more stable though all cycles than is price return. This is due to the natural characteristics of commercial real estate, including prevalence of long-term leases, often providing stable income even during turbulent economic cycles. Of course, the longer and more severe a recession is (such as the most recent), the stronger the eventual impact on income returns, and ultimately, total returns to be expected.

The following simulations assume that an investor purchases the NPI at the beginning of the quarter and sells at the end of the quarter for the relevant time period. The results are presented in Table I; each panel relates to a specific holding period and/or investment timing strategy. Holding period price return and holding period total return give the return by subtracting the beginning value of the index from the ending value and dividing by the beginning value. In this table we also compute an approximation of annual average price appreciation (Annual Price Change) and we approximate the internal rate of return of the unlevered investor (Annual Total Return) over the relevant time frames under each scenario.

Table I
Simulated Holding Period Return Analysis

Holding Period	Holding Period Price Return	Annual Price Change	Holding Period Total Return	Annual Total Return Total Return	Holding Period (Years)
Panel A					
Total Hold (1980 - 2009)	145.02%	3.03%	958.23%	8.18%	30
10 yr Hold - (1980 - 1989)	89.68%	6.61%	198.28%	11.55%	10
10 yr Hold - (1990 - 1999)	1.67%	0.17%	74.40%	5.72%	10
10 yr Hold - (2000 - 2009)	27.06%	2.42%	103.43%	7.36%	10
Panel B					
Buy After '80	129.05%	2.87%	843.89%	7.98%	29.25
Buy After '82	87.77%	2.36%	602.21%	7.49%	27
Buy After '91	32.43%	1.51%	246.67%	6.86%	18.75
Buy After '01	18.38%	2.13%	68.74%	6.76%	8
Panel C					
10 yr Hold - '80	79.15%	6.00%	176.11%	10.69%	10
10 yr Hold - '82	17.88%	1.66%	82.99%	6.23%	10
10 yr Hold - '91	11.59%	1.10%	95.94%	6.96%	10
Panel D					
7 yr Hold - '80	59.30%	6.88%	119.35%	11.88%	7
7 yr Hold - '82	45.35%	5.49%	97.93%	10.25%	7
7 yr Hold - '91	-7.35%	-1.08%	37.07%	4.61%	7
7 yr Hold - '01	49.26%	5.89%	103.00%	10.64%	7
Panel E					
5 yr Hold - '80	47.04%	8.02%	85.62%	13.17%	5
5 yr Hold - '82	32.82%	5.84%	67.54%	10.87%	5
5 yr Hold - '91	-17.93%	-3.88%	7.29%	1.42%	5
5 yr Hold - '01	46.29%	7.91%	87.37%	13.38%	5
Panel F					
Trough to Peak - '91	40.90%	4.38%	122.77%	10.53%	8
Buy Early - Sell Late - '91	34.35%	3.00%	138.84%	9.10%	10
Buy Late - Sell Early - '91	34.46%	5.06%	90.06%	11.30%	6
Buy Early - Sell Early - '91	30.43%	3.38%	105.00%	9.39%	8
Buy Late - Sell Late - '91	38.50%	4.16%	121.44%	10.45%	8
Panel G					
Trough to Peak - '01	66.68%	8.89%	113.84%	13.50%	6
Buy Early - Sell Late - '01	35.94%	3.91%	92.53%	8.53%	8
Buy Late - Sell Early - '01	48.33%	10.36%	74.69%	14.97%	4
Buy Early - Sell Early - '01	49.23%	6.90%	98.67%	12.12%	6
Buy Late - Sell Late - '01	35.12%	5.14%	69.30%	9.17%	6

Source: Anderson and Harris, NCREIF and NBER

Timing the Market: You Don't Have to be Perfect

We begin the analyses by looking at holding periods simply by decade and the entire 30-year span; this would represent a simple buy and hold strategy void of any timing decisions relative to the macroeconomic or real estate cycles. These results are presented in Table I, Panel A. The results are intuitive in that the average annualized return is slightly more than 8 percent. The decade-specific returns show a low total return of 5.72 percent for the '90s and 11.55 percent for a high during the '80s. The big difference in performance was the two large downturns in both the '90s and '00s. Nonetheless, an unlevered 5.72 percent return holding primarily core assets in core market is not dismal.

Next, we turn to Panel B. Since recessions are often associated with lows in the real estate pricing cycle, we assume an investor may choose to purchase near the trough in each macroeconomic cycle and then hold until the end of our data window, which is year-end 2009. These results are presented in Table I, Panel B. An investor would realize an annualized rate of return as high as 7.98 percent after the '80 recession and as low as 6.76 percent after the '01 recession. This is not markedly different from the 8.18 percent for the entire 30-year window, but occurs with much more stability than during the three-decade subsets.

We then consider an investor who purchases at the bottom of the macroeconomic cycle but liquidates at a predetermined time in the future; specifically ten, seven and five years, for the purpose of our study. These results are presented in Table I, Panels C, D and E respectively. This strategy set gives the most varied results in the entire set of analyses. The ten-year holders get a high of 10.69 percent from the '80 recession, but only 6.23 percent and 6.96 percent from the '82 and '91 recessions respectively (there have not been ten years of data since the '01 recession; thus, this could not be calculated). Seven-year holders get a high of 11.88 percent from '80 and a low 4.61 percent from '91. Five-year holders see the wildest variance from a high of 13.38 percent after the '01 recession and the lowest of any particular strategy of 1.42 percent (negative price return of -3.88 percent) after the '91 recession. It should be obvious that forced exits without regard to market conditions can be very risky; nonetheless many investors utilize financing on terms that require exactly that. Even though a "good" buy may have been achieved, a "poor" exit can eliminate the possibility of meaningful returns. Also, the need to refinance at a set time is equivalently risky if the property is highly leveraged; capital markets tend to tighten and even stop functioning around the same time as drops in real estate prices.

Finally, we consider the case of the most strategic investor, one who not only uses the macroeconomic and real estate cycles to time market entry but also to time market exit. Because the back-to-back recessions of the 1980s did not feature a resulting real estate price crash due to inflation and the now defunct tax advantages of real estate noted above, we exclude these recessions from this portion of the analysis. We believe that without some extenuating circumstances (as there were in the '80s), one can reasonably expect a macroeconomic recession to occur around the time of a similar fall in real estate prices and returns as seen with the '91 and '01 recessions. Since picking and executing deals at the exact top or bottom of the market seems highly impractical or improbable, we consider not only the exact trough-to-peak hold but also buying a full year too soon and selling a year too late (Buy Early – Sell Late), buying a year late and selling a year early (Buy Late – Sell Early), buying a year early and selling a year early (Buy Early – Sell Early), and buying a year late and selling a year late (Buy Late – Sell Late). The trough and peak dates are determined by finding the inflection points in the NPI data where total returns shift from positive to negative percentage change and vice versa. These results are presented in Table I, Panel F for the '91 downturn, and Table I, Panel G for the '01 downturn.

Buying in the trough and selling at the peak gives annualized total returns of 10.53 percent and 13.50 percent for the real estate troughs near '91 and '01 respectively. For the periods near the '91 downturn, we see that buying a year early and selling a year late returned 9.10 percent, only 143 basis points less than the exactly perfect strategy of buying at the trough and selling at the peak. Interestingly, buying a year late and selling a year early produced 11.30 percent annualized returns, which are 73 basis points better than supposed optimal timing. Similar findings exist for the periods around the '01 downturn; buy early and sell late generates 8.53 percent, which is close to the 9.10 percent for the '91 downturn but 497 basis points less than the peak to trough hold of the '01 downturn that generates 13.50 percent annualized returns. However, the buy late and sell early only generates returns 147 basis points better (14.97 percent) than the supposed optimal hold, which is more in line with the same strategy during the '91 downturn. In summation, being a year late or a year early on either side did not matter much; where there was increased variance (as with the '01 time periods) the risk was to the upside, and the worst strategy still beat the long-term buy and hold strategy. We thus conclude that

attempting to time both entry and exit is optimal; but thankfully, one does not need to be perfect to generate better than simple buy and hold strategy returns. What is more critical is exiting before the peak and thus avoiding the fall of prices, which can occur rapidly.

What do all these returns and analyses actually mean? To simplify the analysis and make it more understandable, we present the averages across downturn windows of the various strategies in Table II. Simply holding for 30 years generated an annualized total return of 8.18 percent; the average of each decade was near the same at 8.21 percent; however, this occurred with much greater variance in terms of dispersion of the individual returns presented herein. This high degree of variance comes from the inherent variance of the economy over time. It may appear odd that buying and holding after recessions does worse than the simple buy and hold strategies: 7.27 percent versus 8.18 percent. This can be explained by the fact that the inflation-driven '80s produced solid returns despite macroeconomic turmoil; thus we do not expect this result to hold going forward. Holding for preset time frames (ten, seven and five years) following a recession produced the most varied set of returns. The seven- and five-year sets outperformed the simple buy and hold baseline of 8.18 percent by 116 basis points (9.34 percent) and 153 basis points (9.71 percent) respectively (ten-year is not discussed because of the lacking data point associated with the '01 recession). These results are a bit misleading, as the dispersion of results for these strategies was very high; thus, there really is no discernable pattern. Most important, the averages of the various strategic timing strategies around the '91 and '01 downturns beat the simple buy and hold return of 8.18 percent by 197 basis points (10.15 percent) and 348 basis points (11.66 percent) respectively. This occurred with a relatively low degree of variance; in fact, not a single strategy simulation of this variety fell below the 30-year benchmark of 8.18 percent.

Table II
Holding Period Return Summary

Holding Period	Average Annual Price Change	Average Annual Total Return
Total Time Frame	3.03%	8.18%
Hold For a Decade	3.07%	8.21%
Buy & Hold Post Recession	2.22%	7.27%
10 yr Post Recession[7]	2.92%	7.96%
7 yr Post Recession	4.29%	9.34%
5 yr Post Recession	4.47%	9.71%
'91 Recession Strategies	3.99%	10.15%
'01 Recession Strategies	7.04%	11.66%
All Holding Scenarios	3.88%	9.06%

Source: Anderson and Harris, NCREIF and NBER

What we surmise from these simulations is that exact timing largely does not matter; however, paying attention to the real cycles and acting accordingly near those time points does matter. The best strategies involved attempting to time both entry and exit based on the macroeconomic and real estate cycles; however, being a year late or early on either side of the real estate return peaks and troughs did not make much of a difference. Thus, results indicate that risk can be reduced by timing acquisitions and dispositions with the macroeconomic and real estate cycles.

Since investors are more likely to enter and exit real estate investments throughout the time frames discussed above, we examined the average quarterly returns during each of the timing strategies near the '91 and '01 downturns. The results are presented in Figures 3 and 4 respectively.
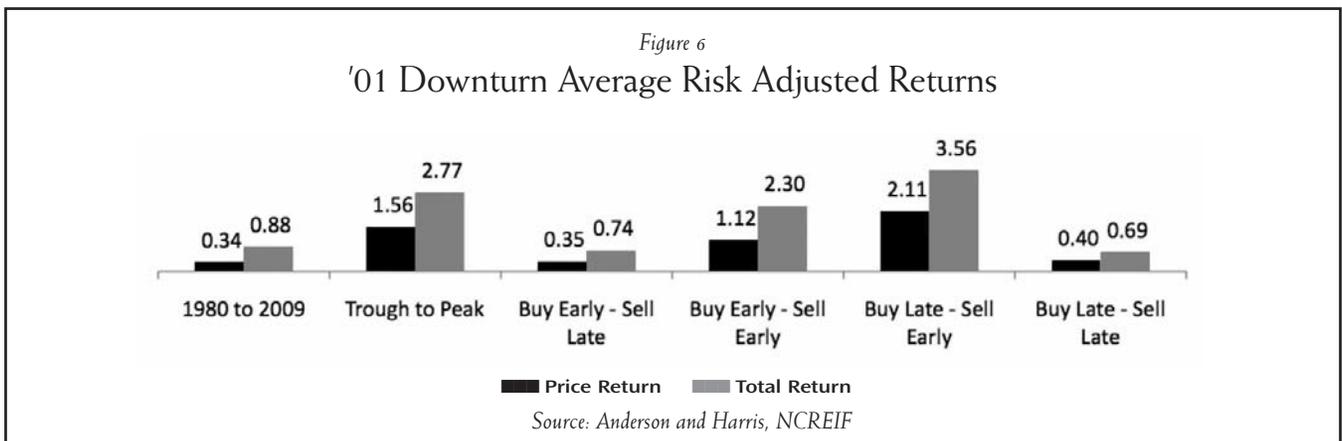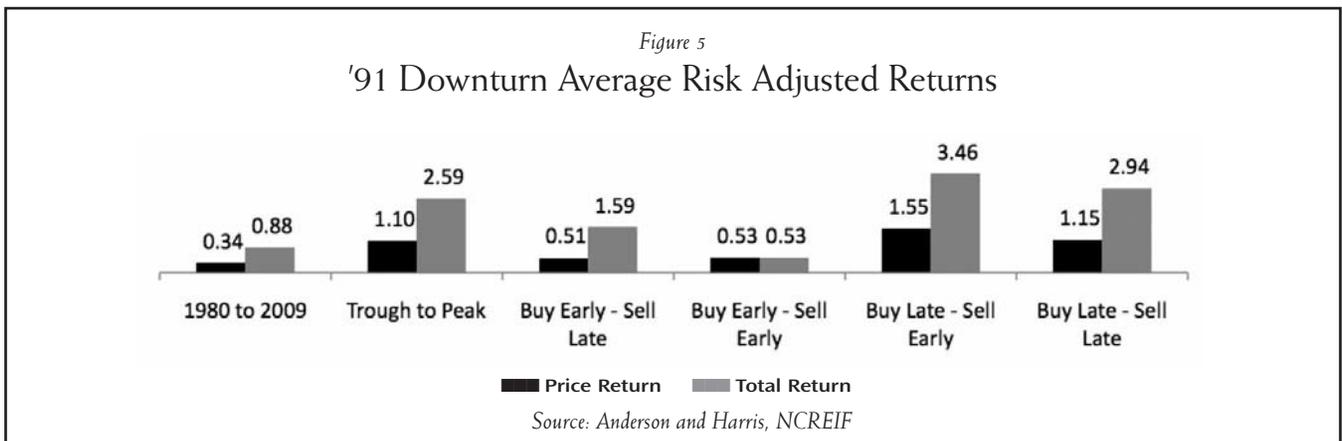
Figure 3
'91 Downturn Average Returns

	1980 to 2009	Trough to Peak	Buy Early - Sell Late	Buy Early - Sell Early	Buy Late - Sell Early	Buy Late - Sell Late
Price Return	0.78%	1.04%	0.65%	0.72%	1.27%	1.05%
CPI	2.01%	2.53%	2.14%	2.19%	2.79%	2.58%

Source: Anderson and Harris, NCREIF

Timing the Market: You Don't Have to be Perfect

Figure 4
'01 Downturn Average Returns

Source: Anderson and Harris, NCREIF
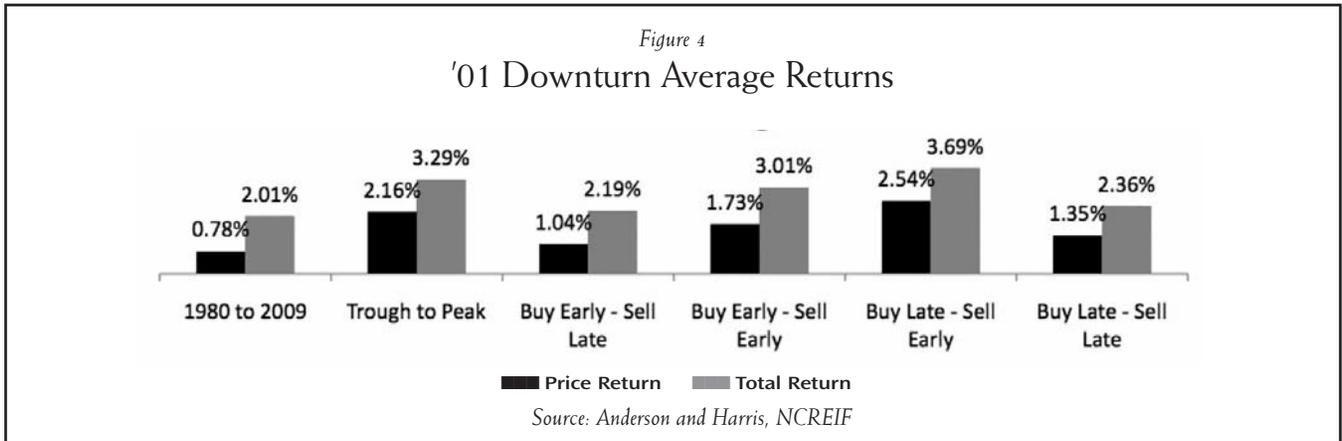
This analysis shows that the strategies are more or less equivalent in price and total return measures with Buy Late – Sell Early being the best (2.79 percent for '91 and 3.69 percent for '01 average quarterly total returns) and Buy Early – Sell Late being worst (2.14 percent for '91 and 2.19 percent for '01), but the difference between the two is relatively small and not likely significant. We further divide the average quarterly returns for each strategy by its holding period standard deviation[6] to derive a measure of average risk-adjusted return for the timing strategies near the '91 and '01 downturns. These results are presented in Figures 5 and 6 respectively.

Figure 5
'91 Downturn Average Risk Adjusted Returns

Source: Anderson and Harris, NCREIF

Figure 6
'01 Downturn Average Risk Adjusted Returns

Source: Anderson and Harris, NCREIF

Timing the Market: You Don't Have to be Perfect

These results show that specific timing strategy may be more impactful, but not by a degree that we would consider highly relevant. Buy Late – Sell Early is still the dominant strategy (3.46 for '91 and 3.56 for '01 in risk adjusted quarterly returns). It is harder to discern any consistently inferior strategy that is stable between both downturn windows; still, even the worst one (Buy Early – Sell Late for '01) produced 0.74 risk-adjusted quarterly total returns versus the 0.88 measure for the simple long-term buy and hold strategy, a difference that is not likely to be significant.

CONCLUSION

Should investors attempt to find troughs in real estate cycles by following macroeconomic trends? Yes, buying near-cycle bottoms produced annualized total returns in the neighborhood of 200–300 basis points higher than did a simple buy and hold strategy. However, is it important to buy only at the exact bottom of the trough? No, it is largely irrelevant, not to mention completely impractical, to exactly time the market. Simple strategies of buying after a recession but liquidating at a predetermined time in the future were shown to be the most risky of those analyzed; these produced good returns in the '00s but dismal returns in the '90s; thus, an investor using this methodology is relying on an element of chance to achieve significant returns. Therefore investors should conservatively utilize leverage when a forced sale or refinance is required at a predetermined date per the contractual terms of the financing, even if they are buying at the bottom of a cycle. Nonetheless, the simple buy and hold strategy produced unlevered annualized total returns of 8.18 percent, which is still highly economically valuable.

One important limit to this analysis is the lack of real estate data (NCREIF began data collection in the late '70s) along with recessions to measure their long-term impact with great precision. Thus, we do not advise anyone to view our results as some form of prediction as to what will occur following any recession including the most recent one that ended June 2009, according to the NBER. This raises another point: the NBER officially called the end of the most recent recession to be June 2009, but made this announcement in September 2010.

Thus, if an investor is looking to the NBER press releases to call tops and bottoms at the moment they occur, they should forever give up this expectation. Still, we believe it is possible for investors to monitor data releases of key macroeconomic variables to gain insight into the future of the economy. Variables worth monitoring include Gross Domestic Product, inflation (the Consumer Price Index is a good proxy), retail sales, personal income, global trade balances, and others that relate to the specific property types and/or geographies of the individual investor. Also, measures of leading indicators, such as those produced by the Conference Board, have value as well.

The magnitude and length of each recession varied a great deal in this study. Nonetheless, there appears to be a benefit to "getting out early" before a downturn hits. To do this in practice, one will have to be willing to forgo lost short-term profits and even endure ridicule by fellow investors and real estate professionals. Why is this? Because one would be selling property as values and returns are still rising. In practice, it is far easier to justify buying at the bottom than selling at the top.

Finally, following the conditions of the broad U.S. economy should not be the only activity of a real estate investor. Instead, we believe an investor should also focus on analyzing local market trends and thoroughly examining the details of specific properties, as this is where excess profits can be generated. Further, the use of leverage should be balanced with the level of risk any particular property presents. Our analysis shows that if investors can hold long enough, they will likely see positive returns, meaning even if they are caught in a severe downturn, they can in fact wait it out if necessary. Investors who will not be able to wait it out are the ones with an over-leveraged property; they may be forced into default in the middle of the downturn. This could take their equity investment to zero and transfer the future benefits from the eventual recovery to a new buyer. Thus, we conclude with a simple thought: do not fear recessions and downturns, but do plan on worst-case scenarios and be prepared. Or more simply, pigs get fat, hogs get slaughtered. This implies buying near the bottom but selling before the market reaches the next top. ∎

REFERENCES

Business Cycle Dating Committee, Information on Recessions and Recoveries, National Bureau of Economic Research Web site, *www.nber.org*, 2010.

Consumer Price Index News Releases, Bureau of Labor Statistics Web site, *www.bls.gov/cpi*, 2010.

Mueller, G. and S. Laposa, "Evaluating Real Estate Markets Using Cycles Analyses," paper presented at the American Real Estate Society Annual Meeting, Santa Barbara, CA, April 15, 1994.

NCREIF Property Value Trends Fourth Quarter 2009, National Council of Real Estate Investment Fiduciaries, 2010.

Pyhrr S., S. Roulac and W. Born, "Real Estate Cycles and Their Implications for Investors and Portfolio Managers in the Global Economy," *Journal of Real Estate Research*, 18: pp. 7–68, 1999.

ENDNOTES

1. We do not attempt to assess the exact lead/lag relationship due to data constraints.

2. The macroeconomic cycle differs from real estate cycles; for a discussion on real estate cycles see Mueller and Laposa, 1994.

3. This index is generally not an "investable" index. However, it is a good proxy for returns on institutional quality core real estate.

4. The term "volatile" here refers to the dispersion of the returns using the stated holding periods for each simulation period and not a standard deviation metric.

5. The recent credit crisis that began in 2008 is a perfect example.

6. Standard deviation of the quarterly returns for each holding period scenario is used for this measure.

7. This is the average of returns from the ten years following the '80, '82 and '91 recessions only; there was insufficient time since the '01 recession to calculate the same.