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# Real Estate Risk and Return Expectations: Recent Survey Results

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*Abstract.* Investment and portfolio studies generally use ex post risk and return data, although expected risk and return data is what should be used. This is probably due to the dearth of such data or the difficulty and/or cost of obtaining it on a current basis. This study reports the results of a survey of major real estate investors and researchers, i.e., large life insurance companies, real estate advisors, large pension funds and selected academics. The survey examined investment horizon, expectations about inflation, total returns on real estate, distribution between income and appreciation returns, the volatility of real estate returns, and the correlation of real estate returns with stocks returns, bond returns, and inflation. In addition, the study contains results for the above before and after the October 19, 1987 stock market crash.

## Introduction

For investment and portfolio studies, the expected risks, returns, etc., not the historical risks and returns, are the most appropriate data according to financial theory. However, such data is rarely available, due to the difficulty and/or costs to gather it. This is especially true for real estate.

This study is an attempt to partially alleviate this problem. A survey was conducted using major real estate investors and researchers. Included in the survey subjects were large life insurance companies, real estate advisors, large pension funds and academics active in real estate investment research. The survey examined expectations about inflation, total returns from real estate, the volatility of real estate returns and the correlation of real estate returns with stock returns, bond returns and inflation.

Section two contains the methodology and results while section three discusses the conclusions.

## Methodology and Results

The methodology used in this study is a questionnaire. The survey was designed by the Salomon Brothers, Inc. Real Estate Research Group and reviewed by the Institute for Research

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in the Social Sciences at the University of North Carolina at Chapel Hill. Copies of the questionnaire are available from the first author upon request.

Of the 240 surveys sent out, 110 were returned by mid-December, 1987. The first mailing of the survey was made on October 1, 1987 and a follow-up letter was mailed on October 26, 1987. A further follow-up and a new survey was sent to all respondents on November 15, 1987. The results of the responses show interesting differences about expected performance among insurance companies, pension funds, and academics. Interestingly, of the 100 pension funds to whom the survey was sent (largest by asset size), some indicated that either they a) did not respond to surveys, b) did not manage any of the real estate decisions in the portfolio (that is, the actual allocation to the asset class was made by one advisor, and the actual investment was made by another advisor), or c) did not feel that they had enough expertise to respond to the survey. Given the fact that pension funds have begun to play a major role in the real estate markets, these types of responses were quite unexpected.

Of the 110 surveys which were returned, 23 of 45 sent were from insurance companies, 42 of 56 sent were from real estate consultants and advisors, 18 of 35 sent were from academics, and 19 of 100 sent were from pension funds. The remainder of the responses were either from Canadian life insurance companies or from other groups which were not easily classified into the above categories.

An obvious consideration of the survey, given its timing, is the effect that the collapse of the stock market on October 19, 1987 had on the respondents' attitudes toward real estate performance. Since each survey respondent was asked the date on which the survey was completed, an analysis of these changes was performed. While not a matched sample of the same respondents before and after the collapse the differences among before- and after-collapse respondents do supply some useful information. Of the 110 respondents, 51 indicated that the survey was completed prior to October 19, while the remainder (59) responded after the collapse of the stock market.

### Investment Horizon

The first part of the survey asked the time interval that should be used for short–term and long–term strategic decisions in real estate investment. Virtually all of the respondents agreed that about a three–year perspective was correct for analyzing short-term real estate investment performance. Furthermore, all respondents think that about a ten–year horizon is correct for long–term performance evaluation.

### Inflation Expectations

Since inflation has been shown to be important for real estate returns [2], the subjects were asked their three–year and ten–year average annual inflation expectations. Exhibit 1 contains the results for this question by type of respondent and pre- or post-collapse response.

Overall, the respondents generally believe that the average inflation level will increase over the next ten years relative to the next three-year period. For example, of the 100 who answered the inflation questions, the mean response for average annual inflation over the next three years was 4.9%, while the average expectation for inflation over the next ten-year period was 5.5% (see Exhibit 1). Therefore, while inflation is expected to be somewhat moderate, the rate is expected to increase, on average, by .6%. These levels are indicated by pre-collapse and post-collapse respondents.

## Exhibit 1
## Inflation Expectations

|  | All Respondents | Pre-Collapse | Post-Collapse |
|---|---|---|---|
| No. of responses | 100 | 45 | 55 |
| 3–year Horizon | 4.9% | 4.9% | 4.8% |
| 10–year Horizon | 5.5% | 5.5% | 5.4% |
| Life Insurance Cos. |  |  |  |
| N | 23 | 13 | 10 |
| 3–year | 5.1% | 5.1% | 5.0% |
| 10–year | 5.5% | 5.7% | 5.3% |
| Real Estate Advs. |  |  |  |
| N | 41 | 17 | 24 |
| 3–year | 4.7% | 4.9% | 4.5% |
| 10–year | 5.5% | 5.5% | 5.5% |
| Academics |  |  |  |
| N | 18 | 8 | 10 |
| 3–year | 5.1% | 4.9% | 5.3% |
| 10–year | 5.7% | 5.8% | 5.7% |
| Pension Funds |  |  |  |
| N | 18 | 8 | 11 |
| 3-year | 4.9% | 4.8% | 5.0% |
| 10–year | 5.1% | 4.8% | 5.3% |

When the respondents are sorted by their affiliation, the results are quite similar. The average expectation, both pre- and post-collapse for the next three years is close to 5% for respondents from life insurance companies, real estate advisors and consultants, academics, and pension funds. Over the next ten years, the expectations increase along the same lines as indicated above, with all respondents, except for the pension funds, expecting somewhat higher inflation for the longer period. Real estate advisors and consultants responding after October 19 expect average inflation to increase by a full percentage point over the ten-year relative to the three–year horizon. However, the pre-collapse pension fund respondents do not expect inflation to increase as much as the post-collapse respondents and their expectations change little over the two horizons.

Of the 23 life insurance company respondents to the survey, seven, or 30%, expected average inflation to decrease over the ten-year, as opposed to the three-year horizon. Similarly, only seven of forty-one (17%) real estate advisors, four of eighteen (22%) academics, and six of eighteen (33%) pension funds expected average inflation to fall. Taking these responses out of the sample, the average inflation expectation for those expecting inflation to increase, on average, over the two horizons is 4.7% over three years and 5.9% over ten years.

### Total Return Expectations

Next, subjects were asked about their total return expectations (income and appreciation) over a three–year and a ten–year horizon and what factors they thought would affect the returns. A summary of the responses is shown in Exhibit 2 by type of respondent and pre- or post-collapse response.

Although the pre-collapse and post-collapse respondents are different, it is instructive to compare the expectations for total return from the two perspectives. On average, the expectations

## Exhibit 2
## Expectations of Total Return

|                     | All Respondents | Pre-Collapse | Post-Collapse |
|---------------------|-----------------|--------------|---------------|
| No. of responses    | 100             | 45           | 55            |
| 3–year Horizon      | 9.2%            | 9.1%         | 9.2%          |
| 10–year Horizon     | 11.3%           | 11.6%        | 11.0%         |
| Life Insurance Cos. |                 |              |               |
| N                   | 23              | 13           | 10            |
| 3–year              | 9.7%            | 10.2%        | 9.1%          |
| 10–year             | 11.8%           | 12.4%        | 11.1%         |
| Real Estate Advs.   |                 |              |               |
| N                   | 41              | 17           | 24            |
| 3–year              | 8.9%            | 9.0%         | 8.9%          |
| 10–year             | 11.2%           | 11.6%        | 11.0%         |
| Academics           |                 |              |               |
| N                   | 18              | 8            | 10            |
| 3–year              | 9.6%            | 8.6%         | 10.5%         |
| 10–year             | 11.4%           | 11.3%        | 11.4%         |
| Pension Funds       |                 |              |               |
| N                   | 18              | 7            | 11            |
| 3–Year              | 8.6%            | 8.2%         | 8.8%          |
| 10–Year             | 10.5%           | 10.2%        | 10.7%         |

*partially adapted from [3]

differ little. Short–term expectations are for a 9.1% return in both the pre-collapse and post-collapse cases, and the long–term expectations in both cases are similar (11.0% vs 11.6%). While, on average, there is similarity, the responses show some differences by affiliation.

Life insurance company respondents were far more bullish on the prospects for real estate before the collapse, than after the collapse, in the short term. Prior to October 19, representatives from life insurance companies expected average returns over the next three years to be 10.2%, but after October 19 their expectations were for a 9.1% total return. A similar drop in return expectation (130 basis points) exists for the ten-year horizon. On the contrary, academics exhibited a marked increase in expectations after the collapse, as their expected returns increased to 10.5% from 8.6%. However, ten-year expectations are similar at 11.3 and 11.4% respectively. It appears that while there are some differences in opinion over the short term, all respondents expect similar returns over the longer run.

Consultants and academics were most bullish in responses dated prior to October 19, with expected returns increasing by 260 and 270 basis points respectively over the two horizons. However, after the collapse, academics only expected a 90–basis-point increase in total return from three to ten years. Otherwise, after the collapse, the responses generally indicate a 200–basis-point increase in expectations for the three-year relative to the ten-year horizon.

### Distribution between Income and Appreciation Returns

The expectation of the proportion of total return for the next three years which is composed of the appreciation component is, on average, 21%. This, combined with the 9.2% expectation of total return, implies a 1.93% expected appreciation in value. For the ten–year horizon, this proportion is expected to increase to 36% for all respondents, signifying an expectation of

## Exhibit 3
## The Historical Performance of Real Estate and Financial Assets, Annualized Returns, 4Q77-1Q87

|  | Real Estate (FRC Index) | Bonds (Sal. Bros. Bond Index) | Stocks (S&P 500) |
|---|---|---|---|
| Mean Return | 13.3% | 11.9% | 20.2% |
| Volatility | 2.7 | 15.7 | 15.1 |

more rapidly increasing values for real estate. Indeed, given the 11.6% expected return for post-collapse respondents, this implies an expected appreciation rate of over 4% per year, on average.

Among the respondent types, there was very little divergence among expectations regarding the relative income and appreciation components of total return. The only significant exceptions are pre-crash pension fund respondents, who expect only a 10% appreciation component over the next three years, relative to the 21% average reported above.

### Volatility for Real Estate Versus Stocks and Bonds

The results for this part of the study are discussed extensively by Hartzell and Shulman elsewhere [3] and so, for the most part, will not be repeated here. However, Exhibit 3 displays the ex post mean returns and volatility (standard deviation) of commercial real estate (as estimated by the Frank Russell Company Index), bonds (as estimated by the Salomon Brothers Bond Index) and common stocks (as estimated by the S&P 500). Real estate volatility is about one-sixth of that for stocks and bonds. Only 18% of the respondents (18/102) said they believed that the FRC, Frank Russell Company Index approximated the actual volatility of real estate! Respondents generally believed real estate risk to be between 65% of stock risk (pre-collapse) to 54% of stock risk (post-collapse).

### Real Estate Return Correlations

Correlations of returns for various assets classes play a key role in asset allocation decisions. The degree to which movements in asset returns offset each other, along with expectations of returns and volatility, serve as the inputs to techniques which have been developed to determine optimal portfolios. Previous studies have shown that real estate returns, which include appreciation returns measured by appraisals to estimate market values, have experienced high positive correlations with inflation, insignificant correlations with stocks and marginally negative correlations with bonds [2]. These studies have used data that typically included the late 1970s and early 1980s, periods in which real estate markets were generally in supply and demand balance.

Since 1982 however, the nation has experienced an unprecedented construction boom, which has increased national vacancy rates to 16% in downtown areas, and 23% in suburban markets. Given relatively weak market fundamentals, rents and values are not expected to increase as closely with rates of inflation, and therefore future behavior of real estate returns, stock returns, and bond returns is difficult to estimate.

## Exhibit 4
## Average Correlations of Real Estate with Inflation, Stocks, and Bonds

| | | Correlation Coefficients | | |
| | Horizon | Inflation | Stocks | Bonds |
|---|---|---|---|---|
| All Respondents | 3–Years | 0.36 | −0.13 | 0.00 |
| | 10–Years | 0.59 | −0.02 | −0.04 |
| Pre-Collapse | 3–Years | 0.28 | −0.06 | −0.04 |
| | 10–Years | 0.58 | 0.06 | −0.08 |
| Post-Collapse | 3–Years | 0.42 | −0.19 | 0.04 |
| | 10–Years | 0.60 | −0.09 | −0.01 |
| Life Insurance Cos. | | | | |
| All Respondents | 3–Years | 0.39 | −0.16 | 0.01 |
| | 10–Years | 0.60 | 0.02 | 0.05 |
| Pre-Collapse | 3–Years | 0.51 | −0.09 | −0.03 |
| | 10–Years | 0.69 | 0.19 | 0.01 |
| Post-Collapse | 3–Years | 0.22 | −0.26 | 0.07 |
| | 10–Years | 0.48 | −0.21 | 0.11 |
| Consults/Advs. | | | | |
| All Respondents | 3–Years | 0.33 | −0.21 | −0.06 |
| | 10–Years | 0.59 | −0.15 | −0.10 |
| Pre-Collapse | 3–Years | 0.17 | −0.08 | −0.12 |
| | 10–Years | 0.61 | 0.16 | −0.12 |
| Post Collapse | 3–Years | 0.44 | −0.31 | −0.02 |
| | 10–Years | 0.60 | −0.23 | −0.02 |
| Academics | | | | |
| All Respondents | 3–Years | 0.38 | 0.06 | 0.11 |
| | 10–Years | 0.62 | 0.16 | 0.00 |
| Pre-Collapse | 3–Years | 0.32 | 0.07 | −0.03 |
| | 10–Years | 0.61 | 0.16 | −0.12 |
| Post-Collapse | 3–Years | 0.43 | 0.05 | 0.22 |
| | 10–Years | 0.63 | 0.16 | 0.10 |
| Pension Funds | | | | |
| All Respondents | 3–Years | 0.36 | −0.11 | 0.01 |
| | 10–Years | 0.55 | 0.04 | −0.07 |
| Pre-Collapse | 3–Years | 0.13 | −0.13 | 0.10 |
| | 10–Years | 0.39 | 0.00 | 0.09 |
| Post-Collapse | 3–Years | 0.52 | −0.09 | −0.15 |
| | 10–Years | 0.66 | 0.08 | −0.18 |

Since the cross-correlation of real estate with other assets is important for portfolio allocations and diversification benefits [4,5,6], it was allocated a major portion of the survey. Subjects were asked their cross-correlation expectations for real estate in relation to stocks, bonds and inflation for three-year and ten–year horizons. The responses are contained in Exhibit 4 by type of respondent and pre– or post–collapse response.

On average, respondents believe that real estate will not provide the same amount of inflation protection that it has in the past. Overall, respondents estimate real estate and inflation correlations of .36 and .59 for horizons of three and ten years respectively. Thus, in the short term, it appears that weak fundamentals will reduce the ability of the asset class to keep pace with inflation, but over the longer term a reduction in the supply and demand imbalance will allow rents and values to rise with inflation. The results do not differ substantially for before- and after-collapse respondents or by affiliation.

With regard to the correlation with stock returns, real estate returns are expected to exhibit a correlation coefficient of −.13 over the next three years, and −0.2 over the next ten years.

For bonds and real estate, the correlations are roughly zero. As with the inflation correlations, little difference is reported between pre- and post-collapse respondents, or between affiliations.

These findings are consistent with those reported in previous studies. For example, since diversification benefits increase as correlation coefficients get further from one, responses of correlation coefficients that are zero and marginally negative indicate that the addition of real estate to portfolios of stocks and bonds is expected to reduce total portfolio risk.

The sample for this study was not randomly chosen and a good argument could be made that the responses are not totally independent. Some "group think" may be involved. This is a survey of experts selectively chosen. Therefore, any statistical tests of the differences between pre– and post–collapse results would not meet the appropriate conditions. However, all pre– and post–collapse results appear to be very close, except for academics' three–year expectation of total return.

## Conclusions

While very few categorical conclusions are possible from a survey such as this, it allows a glimpse into the expectations of real estate market participants and observers at a specific point in time. However, many findings of other studies or just general attitudes believed to exist have been empirically confirmed. For example, a ten–year investment horizon for long-term real estate investment decisions is the virtual consensus. Also, few people believe the volatility of the FRC (Frank Russell Company) Index as an indication of real estate risk. Furthermore, the cross-correlations of stock returns and bond returns with real estate returns are believed to be significantly different from one and/or not significantly different from zero in most cases. This indicates that real estate is expected to continue to provide diversification benefits for investors.

The advent of the October 19, 1987 stock market collapse further complicates all the results. As the results of the collapse are more fully known, the perceptions of real estate investors will change and the results of this survey will become less representative. Nevertheless, these results are extremely unique in the sense that this survey was ongoing at the time of the stock market collapse. Therefore, due to luck, this survey supplies us with a view of real estate investors' changes in expectations during the early phases of the stock market collapse aftermath.

## References

[1] David D. Hartzell, John S. Hekman and Mike E. Miles. Diversification Categories in Investment Real Estate. *AREUEA Journal* 14 (Summer 1986), 230–54.

[2] _____. Real Estate Returns and Inflation. *AREUEA Journal* 15 (Spring 1987), 617–37.

[3] David J. Hartzell and David G. Shulman. Real Estate Returns and Risks: A Survey. Salomon Brothers, Inc., February 12, 1988 (6 pgs).

[4] David J. Hartzell and James R. Webb. The Allocation of Equity Real Estate Investments in Real Estate Portfolios. Unpublished working paper, 1988 (28 pages).

[5] James R. Webb, Richard J. Curcio and Jack J. Rubens. Diversification Gains from Including Real Estate in Mixed-Asset Portfolios. *Decision Sciences* 19 (Spring 1988), 434–52.

[6] James R. Webb and Jack H. Rubens. Effects of Alternative Return Estimates on Restricted Mixed-Asset Portfolios. *AREUEA Journal* 16 (Summer 1988), 123–37.