

AN EVALUATION OF RISK AND RETURN PERFORMANCE MEASURE ALTERNATIVES: EVIDENCE FROM REAL ESTATE MUTUAL FUNDS

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ABSTRACT

This paper examines the appropriate measure of performance for real estate mutual funds. Several popular performance measures including Sharpe, Treynor and Sortino measures are evaluated. The results demonstrate that the Sharpe index outperforms the other two alternatives. In order to consider these various methods as consistent, a certain degree of agreement in rankings between the measurements should exist. The concordance correlation coefficient (CCC) is an index that assesses the strength of agreement between rankings and it has been widely applied in situations in which ranking measurements are made. This research aims to explore the consistency of the risk-adjusted performance between the Sharpe index, the Treynor index, and the Sortino ratio. Mutual funds within the Real Estate sector are analyzed using the CCC to determine if the various rankings of the three different risk/return measurements are significantly different. This analysis is an attempt to determine which measure of risk-adjusted returns may be a better indicator of overall performance based on ex-post data. The data considered extends for a ten-year period from 2007 to 2016 and results suggest that the Sharpe Ratio outperforms the Treynor index and the Sortino ratio in determining the risk-adjusted performance of real estate mutual funds.

JEL: G10, G11, G17

KEYWORDS: Real Estate, Mutual Funds, Morningstar, Risk-Adjusted Return

INTRODUCTION

The Sharpe index, first proposed by William F. Sharpe, calculates the difference between average returns earned by a mutual fund as a percentage, and the risk-free rate. This difference is then divided by the standard deviation of the average returns and indicates the excess returns that are earned per unit of volatility. The Treynor index, on the other hand, calculates the same excess returns is divided by the relevant market risk (β) of the mutual fund in question [see Treynor (1962, 1966) and Korajczyk (1999)]. Hence, the higher the Treynor index, the greater the “excess return” generated by the mutual fund.

In the early 1980s, Dr. Frank Sortino had undertaken research to come up with an improved measure for risk-adjusted returns. The Sortino ratio [see Sortino and van der Meer (1991), Sortino and Price (1994) and Sortino and Forsey (1996)] is a variation of the Sharpe index, in that it uses only the negative portion of the standard deviation as the measure for volatility. By using only the downside volatility, the Sortino ratio argues that the investor should only be concerned with downside “risk” and pay little attention to upside volatility.

Investors who invest in mutual funds today and would like to include the real estate asset may consider real estate mutual funds in their portfolios. Investors today have a plethora of mutual funds to select from. At the end of 2015, there were over 15,000 mutual funds in the United States with combined assets of \$18.1

trillion, according to the Investment Company Institute (ICI), a trade association of U.S. investment companies. In mid-2016, 44.4 percent of US households owned shares of mutual funds or other US-registered investment companies—including exchange-traded funds, closed-end funds, and unit investment trusts—representing an estimated 55.9 million households and 95.8 million investors. The investor who is interested in real estate mutual funds also has a considerable selection with over two thousand reported on the Morningstar© database.

This paper examines the appropriate measure of performance for real estate mutual funds. This study focuses on real estate mutual funds since it has been reported that the unique risk characteristics of real estate funds provide portfolio diversification for adding such assets in a diversified equity portfolio. The analysis covers real estate mutual funds data from the Morningstar© database over the ten-year period from June, 2008 to June, 2017. Three popular performance measures including Sharpe, Treynor and Sortino indexes are evaluated. Previous studies have compared various mutual fund performance measures using empirical techniques such as rank order correlation, mean-variance simulation and differential equation approach.

In any evaluation in which returns are subject to risk adjusted measurements, consistency in ranking between the methods used to obtain these measurements are important. The purpose of this research is to determine whether there are significant statistical differences in ranking methods between the Sharpe index, the Treynor index, and the Sortino ratio. This study contributes to the existing literature by employing a novel empirical technique called the concordance correlation coefficient (CCC) [see Lin (1989)]. The CCC index assesses the strength of agreement between rankings and it has been widely applied in situations in which ranking measurements are made. Using the concordance correlation coefficient (CCC), a determination is made if the three measurement indexes are statistically different from one another in their rankings. Second, given any significant differences in the rankings of the three indexes, the average returns for the top five and top ten mutual funds within each of the risk-adjusted categories are compared to determine if there are significant statistical differences between the various rankings. The results demonstrate that the Sharpe index outperforms the other two alternatives. The findings are consistent with earlier research work that the classic Sharpe ratio is an appropriate performance measure for mutual funds.

The remainder of this paper is organized as follows: The next section provides a review of relevant literature. The paper then describes the data and research design, followed by discussion of the results of the empirical analysis. The final section is the conclusion.

LITERATURE REVIEW

The Sharpe Index [Sharpe (1966, 1994)] has become one of the most widely used methods for calculating risk-adjusted return. The Sharpe Index, however, can be inaccurate when applied to portfolios or assets, including mutual funds that do not have a normal distribution of expected returns. Many assets have a high degree of kurtosis (i.e. fat tails) or negative skewness in a distribution. The Sharp ratio also tends to fail when analyzing portfolios with significant non-linear risks, such as options, warrants, and in some cases mutual funds. Alternative risk-adjusted return methods have emerged over the years, including the Treynor Index [see Treynor (1962, 1965)] and the Sortino Ratio [see Sortino and van der Meer (1991), Sortino and Price (1994) and Sortino and Forsey (1996)] which are used in this study. The Sharpe ratio uses the standard deviation of returns in the denominator as its proxy of total portfolio risk, which assumes that returns are normally distributed. Past studies have documented that returns on financial assets may not be normally distributed and thus, the Sharpe ratio may not be an adequate performance measure.

Like the Sharpe index, the fundamental premise behind the Treynor Index is that investment performance of the portfolio has to be adjusted for risk, in order to convey an accurate picture of overall performance for the individual mutual fund. The index attempts to measure how successful an investment (mutual fund)

is in providing investors return, with consideration for the investment's inherent level of systematic risk only. The Treynor index is dependent upon beta – that is, the sensitivity of the portfolio in relation to movements in the market – to judge risk. The Treynor index is based on the premise that the systematic risk inherent to the entire market (as represented by beta) must be penalized, because diversification cannot remove it. When the value of the Treynor index is high, it is an indication that an investor has generated high returns per unit of the market risks taken.

The Treynor index however does not include any value gained for superior management gains. It is simply a ranking criterion. A list of portfolios ranked based on the Treynor index is useful only when the portfolios are actually sub-portfolios within the context of a larger, fully diversified portfolio. Otherwise, portfolios with varying total risk, but identical systematic risk or beta risk, will be ranked the same.

Another weakness of the Treynor index is its use of ex-post beta data. Investments will inevitably perform differently in the future than they did in the past. For example, a mutual fund carrying a beta of 2 will not likely be twice as volatile as the market forever. By the same token, a portfolio can't be expected to generate 12% returns over the next decade because it generated 12% returns over the last 10 years.

While the Sharpe index considers both upside and downside risks (total return volatility), the Sortino ratio essentially ignores the upside volatility and reflects the negative portion of the total risk. The Sortino ratio is a variation of the Sharpe index, in that it uses only the negative portion of the standard deviation as the measure for volatility. By using only the downside volatility, the Sortino ratio argues that the investor should only be concerned with downside “risk” and pay little attention to upside volatility. It has been claimed that the Sortino ratio may be more robust in performance measure than the Sharpe index since most risk-averse investors are more concerned about downside risk or return volatility in a down market [see Sortino and Van der Meer (1991), Sortino and Price (1994) and Sortino and Forsey (1996)].

While studies such as Stutzer (2000), Farinelli et al. (2008), Zakamouline and Koekebakker (2009) and Pekar, Cickova and Brezina (2016) focus on improving existing performance measures, other work examines which of the existing performance measures are more appropriate in the evaluation of mutual funds. The research work of Meyer and Rasche (1992) illustrates that the Sharpe index is an adequate performance measure given that certain conditions regarding investor risk tolerance and expected rates of return are satisfied. Eling and Schuhmacher (2007), Eling (2008) and Schuhmacher and Eling (2012) apply rank-order correlation technique and other similar empirical approaches to determine the efficacy of various performance measures and contend that the widely known Sharpe index is the appropriate risk-adjusted measure.

This study focuses on determining the most appropriate risk/return measures for real estate mutual funds. It has been reported that the unique risk characteristics of real estate funds provide portfolio diversification for adding such assets in a diversified equity portfolio. Kuhle (1987), Grissom et al. (1987), Georgiev et al. (2003), Chen et al (2005) and Lee (2010) illustrate how real estate investments provide risk reduction in a mix-asset portfolio and/or enhance the completeness of the financial market. Utilizing more dynamic financial econometric techniques, Chaudhry et al. (2010), Fei et al. (2010) and Lee (2014) further support the diversification benefits documented in earlier studies. Moreover, recent studies examine portfolio diversification benefits of real estate investments following the financial crisis of 2008. Lizieri (2013) and Luchtenberg and Seiler (2014) contend that real estate investments provide significant diversification benefits even during substantial market declines in both the stock market and the real estate market.

DATA AND METHODOLOGY

This study considers the risk/return characteristics of real estate mutual funds within the Morningstar[®] Mutual Fund database. The Sharpe ratio, Treynor ratio and Sortino ratio are reported by Morningstar[®] on a

monthly basis (i.e., at the end of the month). The ratios are calculated with 3-year, 5-year, 10-year and 15-year trailing data. A sample of the top forty mutual funds that represented at least ten years of return data were selected for the study. The study is based on the most recent 10 years of data from June 2008 through June 2017. The real estate mutual funds are then ranked according to three different risk/return methods (Sharpe, Treynor, and Sortino indexes). The rankings for the three different risk/return ranking methods appears in Exhibit A of the Appendix.

The research design begins with the set of data that appear in Exhibit A of the Appendix. A total of the top forty mutual funds were identified from a list of 73 from the Morningstar mutual fund data base domestic real estate sector funds. These top forty were selected to provide enough data to ensure a robust statistical analysis. These funds were selected from the top performing five and four-star funds. The Concordance Correlation Coefficient (CCC) can be accurate with as little as 10 observations. A list of forty mutual funds would supply a significant data sample to work with in this analysis.

Next, the Sharpe, Treynor, and Sortino index values were collected for each mutual fund in the data base and the funds were then ranked according to each index. These three tables are presented in the Appendix.

The Sharpe Index

The Sharpe Index is best defined by the following equation (1):

$$S = \left(\frac{R_p - R_f}{\sigma_p} \right) \tag{1}$$

where:

S = the Sharpe Index

R_p = return of the individual mutual fund

R_f = return on the risk-free rate (90-day T-bills)

σ_p = the standard deviation of returns for the individual mutual fund

The Sharpe index (1) can help explain whether a portfolio's excess returns are due to smart investment decisions or a result of too much risk. The Sharpe index can be used to compare the risk-adjusted returns of mutual funds. Since one portfolio or fund can enjoy higher returns than its peers, these returns are only a good investment if they do not come with an excess of additional risk. The greater a portfolio's Sharpe ratio, the better its risk-adjusted performance.

The Treynor Index

The Treynor index is best defined by equation (2):

$$T_A = \frac{R_a - R_f}{\beta_a} \tag{2}$$

where:

T_A = the Treynor Index

R_a = the return on the individual mutual fund

R_f = return on the risk-free rate (90-day T-bills)

β_a = the beta or measure of volatility of the mutual fund in relation to a market index such as the S&P 500

In essence, the Treynor index (2) is a risk-adjusted measurement of a return, based on systematic or beta risk. All mutual funds in this study were ranked using the Treynor index and those rankings appear in Table B of the Appendix.

The Sortino Ratio

The mutual funds in our sample were also ranked according to the Sortino ratio or index. The Sortino ratio is the asset's excess rate of return (i.e., the difference between the asset's return and the risk-free rate), divided by the asset's downside deviation/risk. The Sortino Ratio is defined by equation 3.

$$\text{Sortino Ratio} = \frac{R_p - R_f}{\sigma_{dp}} \quad (3)$$

where:

R_p = the return on the individual mutual fund

R_f = return on the risk-free rate (90 day T-bills)

σ_{dp} = the downside deviation of the mutual fund

The Concordance Correlation Coefficient (CCC)

The concordance correlation coefficient (CCC) presented by Lin (1989), is used for measuring *agreement* between discrete variables X and Y (assuming both approximately normally distributed), and is calculated as follows:

$$CCC = \frac{2S_{XY}}{S_{XX} + S_{YY} + (\bar{X} - \bar{Y})^2} \quad (4)$$

Similar to the Pearson correlation coefficient, the concordance correlation satisfies $-1 \leq CCC \leq +1$. A value of CCC equal to $+1$ corresponds to perfect agreement. A value of $CCC = -1$ corresponds to perfect negative agreement, and a value of $CCC = 0$ corresponds to no agreement. The sample estimate, CCC , is an estimate of the population concordance correlation coefficient:

$$\rho_c = \frac{2\sigma_{XY}}{\sigma_{XX} + \sigma_{YY} + (\mu_X - \mu_Y)^2} \quad (5)$$

This study uses the concordance correlation coefficient (CCC) to assess whether there is significant agreement between the Sharpe Index and the Treynor index, or the Sortino ratio when the measurements are used to rank the risk-adjusted performance of Real Estate Mutual Funds (REMFs).

RESEARCH RESULTS

The concordance correlation coefficient (CCC) was first used to compare the ranking of the three various methods used for risk-adjusted returns. Table 1 presents the various values of the CCC for each of the paired Risk-Return measures. Notice that the highest CCC value is between the Sharpe Index and the Sortino ratio. However, even this calculated value does not represent a very strong relationship between the Sharpe Index rankings and those rankings of the Sortino Ratio. The CCC values for the other two paired measures is relatively insignificant statistically suggesting that there is a different ranking order of the Mutual Fund performance measures. These calculations suggest that the rankings among the three measurements is not highly correlated.

Table 1: Calculated Concordance Correlation Coefficients (CCCs) Among the Three Risk-Return Measures

	Sharpe Index	Treynor Index	Sortino Ratio
Sharpe Index	-	0.0089	0.3457
Treynor Index	-	-	0.0128

This table indicates that the CCC values for the paired ranking methods is low and of little significance statistically. The highest value calculated was 0.3457 between the Sharpe Index and the Sortino Ratio

The performance rankings for the top forty real estate mutual funds are presented in the Appendix as Table A, B, and C. Tables A, B and C show the results of the Sharpe, Treynor and Sortino analysis, respectively. Notice that the rankings do in fact vary depending upon which risk-adjusted technique is used. Notice for example, that the Fidelity Real Estate Income Fund is ranked number one under the Sharpe index method. However, the same fund is ranked number 12 under the Treynor index method and number 12 under the Sortino ratio criteria. There are significant ranking differences among the entire mutual fund data set based on the different index used.

Once the rankings were calculated, and the CCC values reported, the question as to which ranking method would yield the best results among the real estate mutual funds was considered. Based on the rankings of the three methods, a total return was calculated for the top five and then the top ten mutual funds ranked according to each of the indexes. Table 2 presents the performance totals for the top five and ten mutual funds within each of the three indexes reported.

Furthermore, the performance measures and 10-year trailing annualized rate of returns for each of the top forty real estate mutual funds are presented in the Tables in the Appendix. The results suggest that the returns are not driven by outliers. In fact, Sharpe index is the performance measure that systematically identifies the real estate mutual funds with the highest rate of returns across the sample. The findings are supported by the overall total performance analysis presented in Table 2.

Table 2: Overall Total Performance Based on the Top Five and Ten Highest Return Mutual Funds per Ranking Method

	Top 5 Funds Total Return	Top 10 Funds Total Return
Sharpe Index	31.44%	58.32%
Treynor Index	23.69%	44.69%
Sortino Ratio	23.50%	44.69%

This Table indicates that in comparing the total aggregate performance of the top 5 and top 10 mutual funds in the Real Estate category. The data indicates that using the Sharpe Index results in the highest performing mutual funds.

The results of Table 2 would suggest that the Sharpe Index is the best measure to use in ranking the overall performance of the mutual funds listed in this data set. Based on the Sharpe Index, the top five mutual funds had an aggregate return for the last ten years of 31.44%. This is significantly more than the Treynor Index of 23.69% and the Sortino Ratio of 23.50% for the same time period.

The Sharpe Index also was the measure which outperformed the other two when measuring total returns for the top ten mutual funds. The Sharpe Index total return for the top ten ranked funds yielded a total of 58.32%. This value was significantly higher than the Treynor Index and the Sortino Ratio, which had the same mutual funds ranked in the top ten. These two rankings yielded a total return of 44.69% for both. The results indicate the superiority of the Sharpe ratio in determining the top performing real estate mutual funds. The finding are consistent with several prominent studies [see for example Eling (2008) and Schuhmacher and Eling (2012)] that contend the efficacy of the Sharpe index as a mutual fund performance measure.

CONCLUSIONS

This study aims to determine which measure of risk-adjusted returns may be a better indicator of overall investment performance based on ex-post data over a ten-year period from June 2008 to June 2017. The Sharpe, Treynor, and Sortino index values obtained from the Morningstar© Mutual Fund data base are commonly used by investors to assess the risk and return performance of mutual funds. The three index values for forty real estate mutual funds are analyzed and ranked following the concordance correlation coefficient (CCC) approach. The results indicate that the Shape ratio performs better than the Treynor index and Sortino ratio in identifying the top performing real estate mutual funds. The findings are consistent in the sample of the top five as well as the top ten funds. Thus, the finding supports the use of Sharpe Ratio in performance evaluation of real estate mutual funds. Future study should extend the analysis across other mutual fund sub-sectors to see whether it yields similar results. This would shed additional light on the importance of identifying the appropriate risk-return measure for mutual fund investments.

APPENDIX

Table A: Sharpe Index Rankings (June 2008-June 2017)

Fund Name	Return	Sharpe
Fidelity® Real Estate Income	6.46	0.62
REMS Real Estate Value Opportunity Instl	7.17	0.39
Sterling Capital Stratton RI Estt Instl	5.94	0.35
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	6.12	0.34
Principal Real Estate Securities Fund	5.75	0.34
REMS Real Estate Income 50/50 Fund Class Platform Shares	4.30	0.34
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	5.78	0.33
AMG Managers Center Square Real Estate N	5.67	0.33
Nuveen Real Estate Securities I	5.62	0.33
Principal Real Estate Securities R5	5.51	0.33
Phocas Real Estate Fund	5.51	0.32
Principal Real Estate Securities R4	5.38	0.32
Nuveen Real Estate Securities A	5.36	0.32
Principal Real Estate Securities A	5.28	0.32
Principal Real Estate Securities J	5.25	0.32
Cohen & Steers Institutional Realty Shares	5.23	0.31
principal Real Estate Securities R3	5.19	0.31
Cohen & Steers Real Estate Securities Fund, Inc. Class C	5.11	0.31
Nuveen Real Estate Securities R3	5.11	0.31
Cohen & Steers Institutional Realty Shares	5.00	0.30
principal Real Estate Securities R2	4.99	0.30
Vanguard REIT Index I admiral	4.94	0.30
Principal Real Estate Securities Fund R-1 Class	4.86	0.30
Vitrus Duff & Phelps Real Estate Secs I	4.63	0.29
Investco Real Estate R5	4.56	0.29
DFA Real Estate Securities I	4.5	0.28
Principal Real Estate Securities C	4.47	0.28
Columbia Real Estate Equity Z	4.52	0.28
TIAA-CREF Real Estate Sec Instl	4.44	0.28
Ivy Advantus Real Estate Securities I	4.29	0.28
Columbia Real Estate Equity A	4.27	0.28
Investco Real Estate A	4.12	0.27
Investco Real Estate Investor	4.11	0.27
TIAA-CREF Real Estate Sec Retire	4.2	0.27
Ivy Advantus Real Estate Securities Y	4.06	0.27
TIAA-CREF Real Estate Sec Retail	4.17	0.27
Investco Real Estate R	3.86	0.26

A sample of the top forty mutual funds that represented at least ten years of return data were reported here. The real estate mutual funds are then ranked according to the Sharpe risk/return method. All returns are annualized rate of returns.

Table B: Treynor Index Rankings (June 2008-June 2017)

Fund Name	Return	Treynor
REMS Real Estate Value Opportunity Instl	7.17	5.96
Ivy Advantus Real Estate Securities I	4.29	2.62
Investco Real Estate R	3.86	3.24
TIAA-CREF Real Estate Sec Retail	4.17	3.32
TIAA-CREF Real Estate Sec Retire	4.2	3.35
Ivy Advantus Real Estate Securities Y	4.06	3.40
Investco Real Estate Investor	4.11	3.49
Investco Real Estate A	4.12	3.50
TIAA-CREF Real Estate Sec Instl	4.44	3.56
Columbia Real Estate Equity A	4.27	3.61
DFA Real Estate Securities I	4.5	3.63
Fidelity® Real Estate Investment Port	4.66	3.65
Vitrus Duff & Phelps Real Estate Secs I	4.63	3.84
Columbia Real Estate Equity Z	4.52	3.85
Principal Real Estate Securities C	4.47	3.88
Investco Real Estate R5	4.56	3.92
Vanguard REIT Index Iadmiral	4.94	4.04
Vanguard REIT Index Institutional	4.97	4.07
Cohen & Steers Institutional Realty Shares	5.00	4.10
Principal Real Estate Securities Fund R-1 Class	4.86	4.27
Cohen & Steers Institutional Realty Shares	5.23	4.32
Nuveen Real Estate Securities R3	5.11	4.34
principal Real Estate Securities R2	4.99	4.40
Nuveen Real Estate Securities A	5.36	4.59
principal Real Estate Securities R3	5.19	4.59
Principal Real Estate Securities J	5.25	4.65
Principal Real Estate Securities A	5.28	4.67
Phocas Real Estate Fund	5.51	4.74
AMG Managers Center Square Real Estate N	5.67	4.75
Principal Real Estate Securities R4	5.38	4.78
Nuveen Real Estate Securities I	5.62	4.84
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	5.78	4.85
Principal Real Estate Securities R5	5.51	4.90
Principal Real Estate Securities Fund	5.75	5.14
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	6.12	5.16
REMS Real Estate Income 50/50 Fund Class Platform Shares	4.30	5.43
Sterling Capital Stratton R1 Estt Instl	5.94	5.61
Fidelity® Real Estate Income	6.46	13.25

A sample of the top forty mutual funds that represented at least ten years of return data were reported here. The real estate mutual funds are then ranked according to the Treynor risk/return method. All returns are annualized rate of returns.

Table C: Sortino Index Rankings (June 2008-June 2017)

Fund Name	Return	Sortino
REMS Real Estate Value Opportunity Instl	7.17	0.57
Investco Real Estate R	3.86	0.36
Ivy Advantus Real Estate Securities Y	4.06	0.37
Ivy Advantus Real Estate Securities I	4.29	0.38
Investco Real Estate A	4.12	0.38
Investco Real Estate Investor	4.11	0.38
TIAA-CREF Real Estate Sec Retire	4.2	0.38
TIAA-CREF Real Estate Sec Retail	4.17	0.38
TIAA-CREF Real Estate Sec Instl	4.44	0.39
Columbia Real Estate Equity A	4.27	0.39
Investco Real Estate R5	4.56	0.40
DFA Real Estate Securities I	4.5	0.40
Principal Real Estate Securities C	4.47	0.40
Columbia Real Estate Equity Z	4.52	0.40
Fidelity® Real Estate Investment Port	4.66	0.41
Vitrus Duff & Phelps Real Estate Secs I	4.63	0.41
Vanguard REIT Index Institutional	4.97	0.42
Vanguard REIT Index Iadmiral	4.94	0.42
Principal Real Estate Securities Fund R-1 Class	4.86	0.42
Eaton Vance Real Estate I	4.85	.42
Cohen & Steers Real Estate Securities Fund, Inc. Class C	5.11	0.43
Nuveen Real Estate Securities R3	5.11	0.43
Cohen & Steers Institutional Realty Shares	5.00	0.43
principal Real Estate Securities R2	4.99	0.43
Principal Real Estate Securities J	5.25	0.44
Cohen & Steers Institutional Realty Shares	5.23	0.44
principal Real Estate Securities R3	5.19	0.44
Principal Real Estate Securities R4	5.38	0.45
Nuveen Real Estate Securities A	5.36	0.45
Principal Real Estate Securities A	5.28	0.45
AMG Managers CenterSquare Real Estate N	5.67	0.46
Nuveen Real Estate Securities I	5.62	0.46
Principal Real Estate Securities R5	5.51	0.46
Phocas Real Estate Fund	5.51	0.46
REMS Real Estate Income 50/50 Fund Class Platform Shares	4.30	0.46
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	5.78	0.47
Principal Real Estate Securities Fund	5.75	0.47
Cohen & Steers Real Estate Securities Fund, Inc. Class Institutional	6.12	0.49
Sterling Capital Stratton RI Estt Instl	5.94	0.49
Fidelity® Real Estate Income	6.46	0.85

A sample of the top forty mutual funds that represented at least ten years of return data were reported here. The real estate mutual funds are then ranked according to the Sortino risk/return method. All returns are annualized rate of returns.

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