Diversification With REITS: A 10 Year Perspective

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The application of Real Estate Investment Trusts (REITs) to stock portfolios as a useful diversification tool has grown in popularity for over two decades. In this study, we examine the risk/return tradeoffs over the 10-year period (2010-2019) under multiple diversification strategies. We compare various portfolios including REITs in combination with International Stocks (IS), Emerging Market Stocks (EMS), Small Cap Stocks (SCS), the S&P500 (S&P), the S&P Growth, the S&P Value, the Russell 3000, the Russell 1000 Growth, and the Russel 1000 Value. The results indicate the S&P Growth and the Russell 1000 Growth combined with REITs suggests the best overall risk reduction inferring correlation is domestic focused. Good results are also found for multi-index blends with the Russell 3000 and the S&P 500.

Keywords: REITs, diversification, growth and value stocks, international diversification, market correlation

INTRODUCTION

Investing in REITs is a mixed bag of tradeoffs. The Typical REIT is a publicly traded company that either finances or owns real estate. Diversification, returns, taxes and inflation are all concerns germane to the investing decision. The REITs representing commercial real estate holdings have some unique treatments that differ from the typical stock holdings.

The small investor is likely to appreciate adding REITS to a corporate stock portfolio if for no other reason than the potential to earn a return on real estate without the very real problems and surprise expenses associated with direct ownership of rental property. There is also the belief that the relatively low correlation of listed REITs with common stock is an important consideration for diversification.

Of additional benefit, REITs typically provide larger dividends than stock and the potential for long-term capital appreciation. However, since REITs pay out up to 90% of taxable income as shareholder dividends, this comes at a cost. The higher-than-normal dividends are not treated as qualified dividends and thus have a higher tax burden as ordinary income. This can discourage accumulation in non-tax-sheltered holdings by high-net-worth investors.

Real Estate is a hard asset and has tended to fare well when prices are rising. As an inflation hedge, REITs are ideally positioned. Many REITs have terms in their commercial holdings that allow for raising rents in tandem with inflation. In hindsight, inflation is relatively tame for the period studied (2010-2019) and does not impact our overall findings.

In the ten years studied, REITs beat the S&P 500 in 6 of 10 years, an impressive accomplishment. According to research by Charles Schwab, REITs have returns about equal to US Large Cap stocks. The Schwab advice goes on to state: "REITs should constitute no more than 5% of your portfolio". It is their belief the small allocation still helps with diversification and growth potential at reduced risk levels. We test their assertion at 5% and 10% levels and to levels as high as 50% (although not reported).

It is the higher volatility of individual REITs compared to large cap stocks that is generally believed limits their usefulness in diversification. Therefore, rather than buying individual REITs, it is recommended that one should own an Exchange Traded Fund (ETF) or Mutual Fund (MF) that tracks a broad-based REIT index.

DATA

For comparison, we test REITS mixed with International (excluding US), Emerging Markets, and Small Caps, The Russell 3000, the S&P 500, two measures of growth; the S&P 500 Growth and the Russell Growth and two measures of Value portfolios; the Russel Value and the S&P Value. The selection of indexes for combination is premised on the following: The S&P 500 represents Large Cap Growth and Income Stocks, the Russell 3000 represents Aggressive Growth, then there are more focused groups based on Growth, Value, Emerging and Developed International Markets, along with Small Caps for a highly aggressive portfolio.

These indexes are combined in various proportions with REITS with REITS starting at 5 % and up to 50%: for the 10 years in the study. The assortment of portfolios sheds some light on the potential change in risk/return tradeoff especially for the underperforming Emerging Market and International indexes.

1) **The REIT Index** used in this study is not limited to the REITS contained in the S&P 500. We chose the FTSE Nareit All Equity REITs Index. It is a free-float adjusted market capitalization-weighted index of US equity REITs. To be included in the index, the entity must have more than 50% of total assets in qualifying real estate assets other than mortgages secured by real property.
2) **International**: The World excluding US - MSCI index captures large and mid-cap stocks totaling 1011 stocks across 22 developed market countries as follows: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the UK.
3) **Small Caps:** The Russel 2000 Index which includes approximately 2000 small cap companies in the US markets. It is a market-value-weighted-index representing stock traded on the NYSE, AMEX and NASDAQ.
4) **Emerging Markets**: The MSCI Index represents large and mid-cap companies in emerging market countries to include: Brazil, Chile, China, Columbia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, South Korea, Taiwan, Thailand and Turkey.
5) **The Russell 3000:** The Index represents a capitalization-weighted stock market index, maintained by FTSE Russell that is a benchmark of the entire U.S stock market. It calculates the performance of the 3,000 largest publicly held companies in America as determined by total market capitalization, and embodies approximately 98% of the American public equity market. It is considered an Aggressive Growth Index.
6) **The Russell Growth Index**: A market capitalization-weighted index based on the Russell 3000 index. The Index includes firms that display signs of above-average growth. The Russell 3000 is used to deliver a measure of the performance of growth stocks in the United States. The index is a subset of the broad Russell 3000 Index, which represents both large-cap and small-cap companies**.**

7) **The Russell Value Index:** A market capitalization-weighted index based on the Russell 3000 index. The Index includes firms that display signs of lower price-to-book ratios and reduced expected growth rates. The index is used to provide a measure of the performance of value stocks in the United States. The index is a subset of the larger Russell 3000 Index, which represents both large-cap and small-cap companies. Value Stocks trade at lower prices relative to fundamentals and tend to pay higher dividends.
8) **The S&P 500:** A market-cap weighted index that represents the average performance of the 500 largest capitalization stocks. It contains 11 sectors and is thought of as a well-diversified portfolio suitable for the average investor. Investing in the S&P 500 is also a passive strategy increasingly favored in moderately conservative low cost retirement plans. The S&P 500 is considered a Growth and Income Index.
9) **The S&P 500 Growth**: A market capitalization-weighted index consisting of stocks within the S&P 500 that exhibit strong Growth characteristics. It is generally considered to be a Large Cap Growth Index based on 5 year averages for higher earnings growth, higher sales growth and greater internal growth.
10) **The S&P 500 Value**: A market capitalization-weighted index consisting of stocks within the S&P 500 that exhibit strong Value characteristics. It is generally considered to be a Large Cap Value Index based on lower Price-to- book, lower price-to-cash flow, lower price-to-sales, and higher dividend yield.

A common strategy for beginning investors is to invest in multiple mutual funds. Conventional wisdom suggests equal weights in a diverse portfolio of 4 different mutual funds. The 4 types selected are Growth, Growth and Income, Aggressive Growth, and International. We formulate various equal weighted combinations that meet these criteria and test the addition of REITs for risk and return changes. Substitutions are made Emerging Markets as a proxy for International and Small Caps as a proxy for Aggressive Growth, resulting in the 4 additional tested portfolios.

METHODOLOGY

The formula for Sample Standard Deviation where

$$x_i \tag{1}$$

is the return for the ith year, and

$$\bar{x} \tag{2}$$

is the simple average and N = 10 to adjust for the degrees of freedom is as follows:

$$s = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N} (x_i - \bar{x})^2} \tag{3}$$

The formula for Coefficient of Variation or risk per unit of geometric mean return is as follows:

$$\text{C.V.} = \text{S} / (\text{G.M.R.}) \tag{4}$$

Returns are calculated as follows. First the investment of $1000 is assumed on January 1, of 2010. Supposing no transaction fees or loads, the funds are held in each asset class for the entire 10 years. No additional funds are added to the accounts. The annual return in dollars is then computed and the ending amount for each year becomes the starting amount for the following year. This procedure creates hypothetical future values referred to as dollar returns, allowing for direct visual comparison between asset classes. Table 2 contains the dollar returns.

The same data is used to calculate geometric mean return. The present value is the original $1000; the future value is the ending value or dollar return after 10 years; no deposits or withdrawals and time is 10 years. The geometric mean return is computed to determine the average rate per period on investments compounded over multiple periods.

Once the yearly returns are known, the sample standard deviation of returns is determined for each of the asset classes over the 10-year period. Standard deviation divided by the geometric mean return produces a coefficient of variation (C.V.). The geometric mean return is preferred over the arithmetic mean as a more accurate representation of the compound returns. Using the computed C.V., we locate the best risk/return tradeoff, or the lowest CV per unit of return (see Table 3).

Following evaluation of the individual asset classes, combinations of asset classes are examined for comparison. We test the standard recommendations of leading financial advisors, namely 60/40 stock/bond portfolios as well as others. Table 1 contains the combinations studied.

TABLE 1
CORRELATION OF INDEXES

	REITs	***S&P 500***	***Russ 3000***	***S&P VAL***	***Russ VAL***	***S&P GRO***	***Russ GRO***	***Emerg Mkt***	***Small Cap***	***Intl.***
REITs	1									
S&P 500	0.441	1								
Russ 3000	0.441	0.997	1							
S&P VAL	0.492	0.970	0.977	1						
Russ VAL	0.473	0.952	0.964	0.991	1					
S&P GRO	0.359	0.966	0.952	0.874	0.848	1				
Russ GRO	0.379	0.963	0.950	0.875	0.836	0.993	1			
Emerging	0.479	0.622	0.630	0.603	0.568	0.597	0.643	1		
Small Cap	0.382	0.887	0.919	0.933	0.947	0.780	0.783	0.593	1	
International	0.333	0.903	0.905	0.851	0.817	0.897	0.921	0.803	0.815	1

LITERATURE REVIEW

It is generally believed that the diversification benefit of REITs has declined since 1992 according to Glascock et.al. (2000). In 2013, Asteriou et.al found the return and volatility of REITs had a positive correlation with the US stock market. They concluded there was no significant diversification benefit to be found. More recently, Yuming (2016) confirmed REITs are still highly correlated with the stock market further suggesting that benefits are lacking. This became a motivation for the current study. Specifically, we test for the presence of diversification benefits with REITs from 2010-2019.

It is somewhat surprising as according to Wang et.al. (1995) REITs have lower turnover and lower representation in Mutual Fund portfolios when compared directly to stocks and bonds. In a 10 years study by Ling and Navajo (2015) passive portfolio REITS outperformed stock benchmarks. Their study included a very volatile period due to the Financial Crisis (2007-2009). We specifically exclude this period to focus on a more stable period.

Some limitations are inevitable. According to Freybote et.al. (2015) the potential mergers that occur during the 10 years of this study may present a significant hurdle. We rely of the index adjustments to correct for mergers. Following the suggestions for Ling et.al. (2014) we avoid the mispricing common to private REITs by using a REIT Index that excludes private firms. One limitation is we did not adjust for is the bond market effect (following a change in interest rates) on investor sentiment. For discussion of the impact, see Das et.al. (2015).

Another limitation is we do not separate REITS to isolate sentiment impacts that differentiates Central Business Districts from Suburban Office Space. See Freybote et.al. (2017). We do avoid calendar anomalies and December dividend payments effect on returns. See Hardin et.al. (2005) and more recently Hui et.al. (2014).

There is some concern of a spillover effect from REITs in other countries, but multiple studies show that REITS are country primarily specific, meaning French REITs have more of an impact on French Stocks than on US Stocks. As concluded in Gibilaro et.al. (2016), there is a home bias for investing in REITS that segregates by county of origin. After the financial crisis (2008-2009) the researchers found 148 REITs in the US had positive returns when compared to the S&P Global REIT Index. For this reason, we use the US only REIT index.

It is worth noting as pointed out in Laopodis (2009) Equity REITs and Mortgage REITs interact very similarly with the stock market. This result changed in a study from 2015 by Bhuyan et.al. Where Equity REITs were found to have stock diversification benefits while Mortgage REITS were lacking.

Of concern are the findings by Clayton et.al. (2001) that REITS are linked to Small Cap stocks. Thus we include in our study small caps to see if diversification is limited during the period studied. In Clayton et.al. (2003), large cap stocks showed significant positive correlations which suggests that diversification benefits should be limited in our findings. To test this earlier finding, we Include S&P stocks as well as the Russel Growth, and Russel Value.

RESULTS

The correlations of REITS with all other variables tested are contained in Table 1. In light of further results to be discussed, it is important to note a few parameters revealed by the correlation table. In order of lowest REIT correlation to the highest we have as stand-alone portfolios, with no REIT content: International, S&P Growth, Russell Growth, Small Cap, S&P500, Russell 3000, Russell Value, Emerging Markets, and S&P Value.

One would assume that the lower the correlation, the greater the diversification benefit. From the results in Table 1, we find in Table 2 the coefficient of variation before adding REITs and after does appear to improve dramatically for the lowest correlation, with some notable exceptions. The REIT-Emerging markets with the second highest correlation, exhibited the greatest reduction from adding REITs in small quantities. On the opposite end, the REIT-S&P 500 reduction did not fare as well as the REIT-Russell Growth and the REIT-S&P Growth.

TABLE 2
RISK PER UNIT OF RETURN FOR 2010-2019

			5 % REIT		**10 % REIT**		**% CV Change**	
	Risk/ Return	**CV**	**Risk/ Return**	**CV**	**Risk/ Return**	**CV**	**0-5 % REIT**	**5-10% REIT**
REITs	12.00/ 12.59	0.95						
Emerging Markets	18.51/ 4.04	4.58	17.88/ 4.52	3.95	17.27/ 5.00	3.45	-13.8	-12.7
International No-U.S.	14.53/ 5.83	2.49	14.01/ 6.22	2.25	13.52/ 6.60	2.05	-9.6	-8.9
Small Caps	16.12/ 11.83	1.36	15.55/ 11.91	1.31	15.01/ 11.99	1.25	-3.7	-4.6*
S&P500 Value	13.72/ 12.16	1.13	11.93/ 12.21	1.09	12.98/ 12.26	1.06	-3.5	-2.8

Russell Value	12.92/ 11.80	1.10	12.57/ 11.87	1.06	12.24/ 11.93	1.03	-3.6	-2.8
Russell 3000	12.75/ 13.42	0.95	12.38/ 13.41	0.92	12.08/ 13.39	0.90	-3.2	-2.2
S&P 500	12.26/ 13.56	0.90	11.93/ 13.54	0.88	11.61/ 13.52	0.86	-2.2	-2.3*
Russell Growth	13.35/ 15.22	0.88	12.92/ 15.12	0.85	12.52/ 15.02	0.83	-3.4	-2.4
S&P500 Growth	11.63/ 14.77	0.79	11.28/ 14.69	0.77	10.96/ 14.61	0.73	-2.5	-2.6*

KEY * = Increase in reduction of risk return as additional % REIT added to portfolio.

In terms of return, REIT-Emerging Markets and REIT-International were not attractive combinations for domestic REITs. While omitted for brevity we found once the % REIT equaled or exceeded 50 % of portfolio value, neither REIT-Emerging Markets nor REIT-International returns achieved a 10 % or greater return, which all other market indicators had in common at lower levels of REIT composition.

The best risk/return tradeoff is the REIT-S&P Growth portfolios, followed by the REIT-Russell Growth combination. Poorly performing combinations for the 10 years studied were led by REIT-Emerging Markets and REIT-International (No-US). Using a 10 percent average return as the minimum acceptable return, all other combinations were acceptable. It is notable, as a 100% holding, REITs exceeded all value indexes, Small Caps as well as Emerging Markets and International (No-US).

The results in Table3 are for the equal combination of 4 types of indexes: Growth, Growth and Income, Aggressive Growth, and International. Substitutions are made Emerging Markets as a proxy for International and Small Caps as a proxy for Aggressive Growth, resulting in the 4 tested portfolios.

Returns for the 4 portfolios are all above a 10 % minimum return as stand-alone and in combination with REITs. There is evidence of benefits from adding REITs to the portfolio but this is overshadowed by the relatively poor risk/reward ratios. Significantly lower risks with higher returns are seen when comparing Table 2 with Table 3. It is notable two of the portfolios have higher returns and lower risk than all value indexes, Small Caps as well as Emerging Markets and International (No-US).

TABLE 3
EQUAL WEIGHTED MUTUAL FUND INDEX COMBINATIONS 2010-2019

Equal Combinations	**No REIT**		**5 % REIT**		**10% REIT**		**% CV Change**	
Composition	**Risk/ Return**	**CV**	**Risk/ Return**	**CV**	**Risk/ Return**	**CV**	**0-5 % REIT**	**5-10 % REIT**
G, G&I, Ag-G, Intl.	12.39/ 12.64	1.02	12.43/ 12.25	0.99	11.89/ 12.47	0.95	-2.9	-4.0*
G, G&I, Ag-G, EM	12.06/ 12.66	1.05	12.12/ 12.32	1.02	12.00/ 12.17	0.99	-2.9	-2.9
G, G&I, SC, Intl.	11.59/ 12.95	1.12	11.67/ 12.55	1.08	12.18/ 11.75	1.04	-3.6	-3.7*
G, G&I, SC, EM	11.26/ 13.00	1.15	11.35/ 12.64	1.11	12.31/ 11.45	1.08	-3.5	-2.7

Key: G = S&P Growth, G&I = S&P 500, Ag-G= Russell Growth, Intl = International-(no US), EM = Emerging markets substitutes for International and SC = Small Cap substitutes for Aggressive Growth.

CONCLUSIONS

With the addition of REITs, diversification benefits are found for all asset classes tested. We conclude diversification benefits are still present even if they have declined according to Asteriou et.al. (2013), and to Yuming (2016). Adding 5% REITs to a portfolio reduced the variance enough to lower risk per unit of return by over 2 %-3.7% in domestic markets to a high of 9.6 to 13.8 % for International and Emerging Markets respectively.

REITS still seem to outperform most asset classes for the period studied. Our findings agree with Ling and Navajo (2015). Only the S&P500 and the two growth indexes bested the risk/returns of REITs. Surprisingly, REITS matched the Russel 3000 and performed significantly better than value portfolios.

According to Wang et.al, (1995) REITS may have a low representation in mutual funds. In our more modern study, we find them useful. As generally recommended, portfolio managers could benefit from inclusion of REITs at the 5 % level.

Our findings indicate REITs are country specific in agreement with Gibilaro et.al, (2016). While beneficial to include with International and Emerging Markets securities, the benefit of U.S. REITS appears very limited to overall risk/return reduction. But the higher returns do not justify steep risk/return tradeoffs.

Small Caps did find some benefit, but it is limited by the still present high volatility and requires almost 50% REITS to subdue the risk. While the 50/50 portfolio is not shown, the calculated CV = 0.90 with a resulting return of 13.0% may offer investors exclusively in small caps reduction in risk.

Overall, we find REITS have solid diversification benefits when combined with the large cap stocks represented by the S&P 500. Furthermore, growth stocks use a 5% REIT load to advantage.

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