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PART TWO: **PORTFOLIO MANAGEMENT** HOW EXPOSURE TO REAL ESTATE MAY ENHANCE RETURNS.

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Over the years we have had countless conversations with investors regarding their exposure to public real estate, primarily if, and how much to allocate. The purpose of this whitepaper is to frame the question within the rigor of the Markowitz Mean Variance Efficiency Frontier, the basis for Modern Portfolio Theory ("MPT"), for which Harry Markowitz was awarded the Nobel Prize in 1990. Derived from nearly 40 years of historical performance, our findings show that adding publicly-traded real estate to a stock and bond portfolio has historically improved a portfolio's risk/return profile versus one comprised solely of stocks and bonds.

The addition of publicly-traded real estate to a stock and bond portfolio may potentially add return without increasing risk within certain boundaries should current market conditions continue. Looking forward, we believe the basic fundamental drivers and characteristics of REITs, stocks and bonds should continue to remain the same for the next three years, and is why in our opinion, a long-term allocation to publicly-traded real estate is a prudent decision when constructing a portfolio.

Inflation Adjusted Returns

Most investors tend to think about returns as nominal as opposed to real (i.e., adjusted for inflation). Inflation is strongly correlated to the nominal level of return (i.e., nominal returns are higher when inflation is higher), so subtracting inflation from the nominal return in each period yields the real return. The focus of this paper is on real returns.

REITs¹ (represented by the FTSE NAREIT Equity Total Return Index) have outperformed stocks (represented by the S&P 500 Total Return Index) and bonds (represented by the Barclays US Aggregate Bond Index) for nearly the last 40 years, on both a nominal and real return basis [Figure 1]. REITs have also outperformed many other major asset classes over various time periods. In fact, despite short-term fluctuations, REITs have historically dominated other major asset class returns over the long term [Figure 2]. Figure 2 also includes performance data on single family homes, since there is often misconception that one's primary residence provides ample real estate exposure. Publicly-traded REITs and single-family homes are very different assets with very different return profiles. Historically, REITs have greatly outperformed the gain in the median sales price of existing singlefamily homes.

FIGURE 1.

HISTORICAL ASSET CLASS PERFORMANCE | January 1976 – December 2014

	Performance (Nominal)			Performance (Real)			
	REITs	Stocks	Bonds	Inflation	REITs	Stocks	Bonds
Annualized Return	14.01%	11.62%	7.86%	3.87%	10.06%	7.62%	3.91%
Annualized Standard Deviation	17.58%	16.53%	6.87%	2.78%	17.50%	16.83%	7.43%

Past performance is not indicative of future results. There is no guarantee that any investment will achieve its objectives, generate profits or avoid losses. Returns are represented by benchmark indices for general market comparisons and are not meant to represent any particular investment.

Date range based on common period of data availability. An investor cannot invest directly in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented. Indices: REITS: FTSE NAREIT Equity Total Return Index; Stocks: S&P 500 Total Return Index; Bonds: Barclays US Aggregate Bond Index; Inflation: Consumer Price Index. Source: AACA, based on data from Bloomberg, PerTrac based on data from S&P, US Bureau of Labor Statistics.

Standard deviation is a statistical measure of how consistent returns are over time; a lower standard deviation indicates historically less volatility. Standard deviation shown in this analysis based on annual returns. Nominal refers to returns not adjusted for inflation. Real refers to returns adjusted for inflation.

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¹ A REIT (real estate investment trust) is a type of real estate company that mainly owns and operates income-producing real estate; some engage in financing real estate. Most REITs trade on major exchanges.

Of course, there is a correlation between risk and return. REITs are subject to market, sector, interest rate, and concentration risks. Stocks are subject to market risk or loss due to company or industry news and general economic decline. Small-cap stocks are subject to greater volatility than larger, more established companies. Bonds are subject to credit risk, interest rate risk, and risk of default. Gold is subject to market risk and may fall out of favor. International securities may be more risky than domestic securities due to currency fluctuations, adverse economic, social, and political factors, as well as different legal and accounting standards. These risks are magnified in emerging markets. The value of homes, oil, and the cost of inflation are subject to market risks, geopolitical risks, and general economic conditions.

FIGURE 2.











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Risk-Adjusted Returns

One of the hallmarks of MPT is to view returns with an eye towards minimizing risk, as measured by standard deviation of returns. Since the 1970s, REITs provided nominal and real returns well in excess of both stocks and bonds, with only marginally higher volatility than stocks and higher volatility than bonds.

The most frequently used measure of risk-adjusted returns is the Sharpe ratio, which measures excess

return earned over a "risk-free rate" (represented by the real return of 10-year U.S. Treasuries) per unit of risk, as measured by the standard deviation of annual returns. The Sharpe ratio for REITs at 0.42 has been superior to both stocks and bonds at 0.29 and 0.15, respectively [Figure 3].

FIGURE 3.

HISTORICAL RISK/REAL RETURN TRADEOFF | January 1976 – December 2014

	Annualized Real Return	Risk-Free Rate (Real)	Annualized Standard Deviation	Sharpe Ratio
REITs	10.06%	2.79%	17.50%	0.42
Stocks	7.62%		16.83%	0.29
Bonds	3.91%		7.43%	0.15



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Standard deviation is a statistical measure of how consistent returns are over time; a lower standard deviation indicates historically less volatility. Standard deviation shown in this analysis is based on annual returns. Sharpe ratio is used to measure how much profit an investor received per unit of risk. The higher the ratio, the better its risk-adjusted performance. A ratio greater than or equal to one indicates that the return is greater than or proportional to the risk the investor incurred to earn the return. Sharpe Ratio = (Net return – Risk free rate of return)/Standard Deviation of the Return.

Constructing an "Optimal Portfolio"

Knowing the risk and return profiles, the question becomes, how can an investor construct an "optimal portfolio" using stocks, bonds and REITs? Of course, "optimal" varies for every investor based on individual risk tolerance and return expectations, among other factors. Sophisticated investors (e.g., pension funds and insurance companies) assess the risk/return tradeoff regularly and typically adjust their exposure quarterly or annually in an attempt to maintain their version of "optimal". We believe individual investors should follow a similar practice in rebalancing their portfolios.

In simple terms, one can construct a portfolio that is believed to be "optimal" using historical returns, standard deviations and correlations as drivers of expected returns. There are two simple ways to think about this process:

 One could ask the question, "How much risk (defined as standard deviation of returns) can I stand?", in the sense of how much one would expect returns to deviate from an expected rate of return. This approach is typically employed by investors with a shorter investment time horizon. Once a level of standard deviation is established, one can calculate the amount of return for the chosen level of risk. This could result in an efficient portfolio in that **no additional return can be acquired for the given level of risk**.

2. The other method is to determine a desired expected return, "What is the minimum level of expected return I can accept over my time horizon?" This approach is typically employed by pension funds and life insurance companies with long-dated liabilities. Once a level of expected return is established, one can calculate the amount of standard deviation from the chosen level of return. This also could result in an efficient portfolio in that **no additional risk can be diversified away for the given level of return**.

Asset allocation plans, can of course, move around with asset class valuations, but it is important to note that market timing should not drive allocation decision making. While MPT does rely on historical returns, this method of optimization is, from our vantage point, a far preferable method than going with one's instinct or relying on market timing methodology. Investors should have a long-term plan that incorporates their degree of risk and needed return for their specific time horizons.

Past performance is not indicative of future results. There is no guarantee that any investment will achieve its objectives, generate profits or avoid losses.

Allocation to REITs: Impact on a Stock and Bond Portfolio

Assets with a correlation² of less than 1.00 have a diversifying effect when combined into a portfolio. Figure 4 shows the historical real return and standard deviation characteristics of various combinations of a two asset (i.e., stocks and bonds) portfolio. The 0.26 correlation between stocks and bonds provided a diversifying effect on a combined portfolio, resulting in greater returns per level of risk.

FIGURE 4.

When we run the three asset classes (i.e., stocks, bonds and REITs) through a portfolio optimization remember this is a sliding scale tradeoff between risk and return, and the combination of historical real returns, standard deviation and correlation all impact the results. REITs outperformed the real returns of stocks by 2.44% per year [Figure 3]. This extra



EFFICIENT FRONTIER: STOCK AND BOND PORTFOLIO | January 1976 – December 2014

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Standard deviation is a statistical measure of how consistent returns are over time; a lower standard deviation indicates historically less volatility. Standard deviation shown in this analysis is based on annual returns

² Correlation is a statistical measure of how two securities move in relation to each other. Correlation referenced in this paper is based on annual returns from January 1976 through December 2014.

return was accompanied by only 0.67% additional volatility per year over the entire period measured. Correlation between REITs and stocks was 0.47. Bonds produced much lower returns than REITs and stocks, but with only a fraction of their volatility. Still, bonds experienced much less return per unit of risk, as evidenced by the Sharpe ratio (shown in Figure 3). Correlation between REITs and bonds was 0.18. It is these characteristics of REITs and bonds that likely factor into their portfolio weightings, while stocks play a lesser role. Figure 5 shows the efficient frontier of this three asset portfolio of REITs, stocks and bonds. This three asset portfolio produced a higher return with less risk than a stock and bond portfolio in other words a more efficient portfolio and better risk-adjusted results.

Figure 6 provides a graphical representation of the portfolio weightings corresponding to the REITs,

stocks and bonds efficient frontier, and also shows the portfolio optimizer results for various portfolio weightings (risk increases from top to bottom). The standard deviation column of the table defines how much the portfolio return can deviate from expectation (which is the blended historical returns of the asset classes). Based on these asset classes, an investor seeking to minimize risk would be 100% bonds and an investor seeking to maximize returns would be 100% REITs. This is a function of the fact that REITs outperformed both bonds and stocks, while bonds had the lowest standard deviation of the three assets. In practice, one achieves none of the diversification effects from owning a single asset class with this approach. So, if an investor, for example, can withstand no more than 10% risk (as measured by standard deviation), the portfolio optimizer suggests allocations of 44% bonds, 42% REITs and 13% stocks.

FIGURE 5.

EFFICIENT FRONTIER: STOCK, BOND AND REITS PORTFOLIO | January 1976 – December 2014



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FIGURE 6.



PORTFOLIO ALLOCATIONS AND HISTORICAL PERFORMANCE | January 1976 – December 2014

	Annualized Standard	Portfolio Allocation			
Annualized Real Return	Deviation	REITs	Stocks	Bonds	
3.91%	7.43%	0.0%	0.0%	100.0%	
4.00%	7.38%	1.2%	0.6%	98.2%	
5.00%	7.40%	14.3%	5.7%	79.9%	
6.00%	8.40%	28.2%	9.6%	62.2%	
7.00%	10.08%	42.2%	13.4%	44.4%	
8.00%	12.16%	56.1%	17.3%	26.6%	
9.00%	14.46%	70.0%	21.2%	8.9%	
10.00%	17.26%	97.4%	2.6%	0.0%	
10.06%	17.50%	100.0%	0.0%	0.0%	

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Conclusion: Practicality of Model Usage

The portfolio optimization model recommends a fairly sizable allocation to REITs across a variety of risk and return profiles, yet some may wonder, would adding REITs to a "traditional" portfolio have a similar impact? As shown in Figure 7, adding REITs to a traditional 60% stock and 40% bond portfolio would have historically increased returns for a given level of risk. A "traditional" portfolio had a 6.49% annualized return and 11.25% annualized standard deviation, the latter of which will serve as our constant for assessing portfolio with REITs. Adding

a 30% REITs allocation to the traditional 60/40 mix resulted in annualized returns increasing to 7.81% — an increase of 1.32% per year without increasing volatility. Thus, adding a 30% allocation to REITs has historically produced a greater risk-adjusted return versus a traditional 60%/40% stock and bond portfolio. Of course, it is important to note that every asset class is subject to various risks that affect their performance in different market cycles. As such, the use of different benchmarks and time periods may produce materially different results.

FIGURE 7.

EFFICIENT FRONTIER: TRADITIONAL PORTFOLIO WITH REITS | January 1976 – December 2014



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Put into more practical terms, consider a 40-year-old investor with a \$100,000 portfolio, who contributes \$5,000 annually and plans to retire at age 65. A traditional stock/bond portfolio with a 30% allocation to REITs, using historical performance, would have returned \$236,080 more over 38 years than a traditional 60% stock / 40% bond portfolio [Figure 8]. This is a compelling argument for financial advisors and investors alike regarding the diversification benefits and the historically improved risk/return profile publicly-traded real estate and REITs can offer. We believe if you are a financial advisor, you should consider incorporating publicly-traded real estate securities into your clients' portfolios if suited to their objectives, time horizon and risk tolerance. If you are an investor, you should consult with your financial advisor about the suitability of adding publicly-traded real estate to your portfolio.

FIGURE 8.

IMPACT OF ADDING REITS TO A TRADITIONAL STOCK AND BOND PORTFOLIO

	Beginning Value	Annual Contribution	Historical Annualized Real Return	Historical Standard Deviation	Ending Value
Traditional Portfolio 60% Stocks 40% Bonds	\$100,000	\$5,000	6.49%	11.25%	\$775,216
Traditional Portfolio + REITs 42% Stocks 28% Bonds 30% REITs	\$100,000	\$5,000	7.81%	11.33%	\$1,011,296
Difference in Ending Value: Traditional Portfolio + REITs versus Traditional Portfolio (\$)					
Difference in Ending Value: Traditional Portfolio + REITs versus Traditional Portfolio (%)					

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Historical performance information derived from the time period January 1976 through December 2014. Date range based on common period of data availability. An investor cannot invest directly in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented. Indices: REITs: FTSE NAREIT Equity Total Return Index; Stocks: S&P 500 Total Return Index; Bonds: Barclays US Aggregate Bond Index. Source: AACA, based on data from Bloomberg, PerTrac based on data from S&P.

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INDEX DEFINITIONS, DESCRIPTIONS AND RISKS

An investor cannot invest directly in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

Barclays US Aggregate Bond Index. The Barclays US Aggregate Bond Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the US investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis. These specific indices include the Government/Credit Index, Government Index, Treasury Index, Agency Index, and Credit Index.

Key Risks: interest rate risk—bond prices will decline if rates rise; credit risk—bond issuer may not pay; income risk—income may decline

FTSE NAREIT Equity Total Return Index. The FTSE NAREIT Equity Total Return Index includes firms that invest primarily in the equity of properties.

Key Risks: stock market risk—stock prices may decline; industry risk—adverse real estate may cause declines; interest rate risk—prices may decline if rates rise

Inflation. The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

Key Risks: inflation risk – purchasing power decreases with a rise in inflation

MSCI EAFE Index. The MSCI EAFE Index is a capitalization-weighted index widely accepted as a benchmark of non-US stocks compiled by Morgan Stanley. It represents an aggregate of 21 individual country indices that collectively represent many of the major markets of the world.

Key Risks: stock market risk – stock prices may decline; country/regional risk – world events may adversely affect values; currency risk – unfavorable exchange rates may occur

S&P 500 Total Return (TR) Index. The S&P 500 Total Return Index is the total return version of S&P 500 index. The S&P 500 index is unmanaged and is generally representative of certain portions of the US equity markets. For the S&P 500 Total Return Index, dividends are reinvested on a daily basis and the base date for the index is January 4, 1988. All regular cash dividends are assumed reinvested in the S&P 500 index on the ex-date. Special cash dividends trigger a price adjustment in the price return index.

Key Risks: stock market risk—stock prices may decline; country / regional risk—world events may adversely affect values



RISKS AND IMPORTANT CONSIDERATIONS

It is important to note that all investments are subject to risks that affect their performance in different market cycles. Equity securities are subject to the risk of decline due to adverse company or industry news or general economic decline. Bonds are subject to risk of default, credit risk, and interest rate risk; when interest rates rise, bond prices fall. REITs are affected by the market conditions in the real estate sector, changes in property value, and interest rate risk.

Alternative investments involve a high degree of risk and can be illiquid due to restrictions on transfer and lack of a secondary trading market. They can be highly leveraged, speculative and volatile, and investor could lose all or a substantial amount of an investment. Alternative investments may lack transparency as to share price, valuation and portfolio holdings, and are subject to substantial charges for management and advisory fees. Complex tax structures often result in delayed tax reporting. Alternative investment managers typically exercise broad investment discretion and may apply similar strategies across multiple investment vehicles, resulting in less diversification. Trading may occur outside the United States which may pose greater risks than trading on US exchanges in US markets.

Past results are not indicative of future results. Mutual funds involve risk including possible loss of principal. An investment in an alternatives strategy mutual fund should only be made after careful study of the prospectus, including the description of the objectives, principal risks, charges, and expenses of the fund.

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