

REAL ASSETS AND INFLATION HEDGE INVESTING

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Executive Summary

An allocation to Real Assets can play an important role in a long-term investment portfolio. Real Assets encompass an array of investment strategies whose values are sensitive to inflation and include TIPS, commodities, commodities-linked stocks, commodities-oriented hedge funds and hedge funds of funds, and direct investments in real estate, energy, farmland, timber, and infrastructure.

In strategic asset allocation, we recommend that clients balance the risk in their portfolios among equities, fixed income, alternatives (hedge funds and private equity), and Real Assets. An allocation to Real Assets can provide significant diversification due to the relatively low correlation of most Real Assets strategies to traditional economic-growth sensitive assets such as stocks (both U.S. and non-U.S.) and credit-linked securities such as corporate bonds. An allocation to Real Assets can also provide protection for an investment portfolio against high inflation, an extreme economic outcome that can be very damaging to many investment portfolios. Real Assets can benefit from rising input prices and thereby offer purchasing power protection to investors by acting as a hedge against inflation.

In the current environment, fiscal and monetary policy-makers in the U.S. and abroad are pursuing heavily stimulative policies to combat deflation and spur economic growth. Central banks also intend to prevent high inflation. The risk we face is that the Fed and others fail to execute a "soft landing" between these two extreme environments. We believe that high inflation represents a significant risk.

As a result, NEPC recommends that clients allocate between 5% and 15% of their capital to a Real Assets portfolio. Clients with more inflation-sensitive liabilities, such as defined benefit plans with COLAs or endowments seeking to maintain purchasing power of assets, may want to allocate more to Real Assets. Given the current environment, we recommend building a diversified Real Asset program and allocating toward the high end of the strategic range.

Real Assets and Strategic Asset Allocation

Scenario analysis is an integral component of the asset allocation process at NEPC. As part of our ongoing strategic research, we examine market conditions and consider how changes in various critical factors (e.g. interest rates, economic growth, volatility, inflation) contribute to broad investment and economic regimes such as stagflation, expansion, or recession. Properly positioning investment portfolios to weather these various market regimes is an important part of the capital allocation and risk budgeting processes. Understanding how different financial instruments, and client investment portfolios, respond to these various environments guides the framework for our asset allocation recommendations.

From the strategic perspective, rising inflation is one market condition that we recommend many clients consider hedging their portfolios against. We recommend a 5-15% strategic allocation to Real Assets. For those clients facing explicit inflation hedge needs, a higher allocation may be warranted. Real Assets can play an important role in institutional client portfolios by helping to preserve their purchasing power as inflation rises,

providing a “real” or inflation-adjusted return. Heightened attention to meeting liabilities and a rapid expansion in the magnitude and scope of exogenous events—among them rising inflation—highlight the strategic advantages of Real Assets to investment portfolios.

Potential Tactical Opportunity

Whereas the strategic recommendation is to hedge portfolios against the base case of inflation (e.g. 3% long-term average), current market conditions may present an attractive entry point. The current cost of inflation insurance, or investing in Real Assets, relative to the longer term risk of inflation rising is quite compelling. The dislocation in valuation seems large enough to be attractive and actionable. Investment programs face a small but credible chance of high inflation; a “fat tail” against which it may make sense to protect the portfolio.

As global central banks increase money supply to inject liquidity and confidence in their markets, one natural consequence of these monetary policies is the potential devaluation of paper currency relative to real—or inflation-adjusted—assets (i.e. the US dollar will be worth less while commodities will be worth more). Further, with the current lower commodity prices comes a decline in capital spending by commodity producers; global inventories are low, causing recent supply destruction.

Yet longer term demand for commodities is likely to rise. The sequence of recovery in global capital markets may likely be improving credit and liquidity conditions in bond markets, followed by earnings growth and valuation expansion in equities, followed by rising demand for global natural resources—buoyed in part by stimulus packages. Future higher global demand for natural resources would meet with low inventories—potentially leading to higher prices in Real Assets over the long term.

Thus, both dollar inflation and commodity input price inflation could increase over the long term horizon. Higher inflation is among the greatest risks investment portfolios face. Unfortunately, many plans are under-exposed to Real Assets.

Fortunately, insurance against inflation is relatively cheap.

Benefit: Inflation Protection

Many institutions face annual liability requirements and employ liability-sensitive investment strategies to help meet them. One of the biggest threats to meeting a liability can be the loss of purchasing power due to inflation. Endowments and foundations face particular challenges with regards to inflation, as their principal liability — an annual spending target — is very inflation-sensitive. The liabilities of many other institutional clients can also be inflation sensitive, especially if they contain a cost-of-living adjustment (COLA).

There may, however, be circumstances in which certain investment portfolios (e.g. corporate pension plans employing asset-liability matching strategies) actually benefit from rising inflation. The status of the net plan (liabilities less assets) for these portfolios may improve during rising inflation. The decreased liability due to a higher discount rate may outweigh any asset-related declines caused by higher inflation. Further, clients with strategies already emphasizing a rising rate environment may need to size their allocation to inflation hedging assets accordingly, to balance the portfolio’s positioning relative to a variety of potential economic scenarios.

Nevertheless, rising inflation can significantly erode the value of an institution’s financial assets. Gains in inflation can mean losses in a traditional investment portfolio, as they can decrease the value of dollars spent and may require liquidation of assets to continue funding liabilities.

We expect inflation to rise longer term. Unfortunately, many institutional investors have low exposure to the types of assets that can protect their portfolios against inflation.

Benefit: Portfolio Risk Reduction

Real Assets can benefit an investment program by diversifying the portfolio, thanks to the low correlation of Real Assets to most other financial instruments. The counter-cyclical nature of Real Assets can help the overall portfolio achieve better risk-adjusted returns.

Exhibit 1, below, depicts how different asset classes perform in diverse market environments. Real Assets can rise in value when equities and fixed income instruments fall. This is because the underlying return drivers for Real Assets are distinct from the market forces that drive most stock and bond prices. The consequent low correlation to these traditional assets can enhance portfolio diversification and reduce overall risk.

Note the low correlation between Real Assets (e.g. commodities) and traditional markets (stocks & bonds) in Exhibit 2. A strategic allocation to Real Assets can help improve risk-adjusted returns for a variety of long-term investment portfolios. (See Appendix, Exhibit 6, for an example of Real Assets' impact on portfolio risk and return).

The low correlation of returns *among* Real Assets provides an additional diversification benefit. A well-diversified Real Asset program has exposure to a variety of asset classes, taking advantage of this low correlation and mitigating the portfolio risk of any one asset class or market sector experiencing a short-term correction. (See Appendix, Exhibit 5, for Real Asset intra-correlations)

Real Asset Classes

There are several distinct categories of investments considered Real Assets. Each has unique characteristics (e.g. risk/return profile; liquidity) and a different degree of inflation hedge. Real Asset investment categories span many markets and asset classes, including:

- Treasury Inflation Protected Securities (TIPS) and global inflation linked bonds

- Commodities: Energy, Industrial & Precious Metals, Agriculture & Livestock
- Inflation-sensitive equities: Energy; Real Estate; Infrastructure; Metals; Agriculture
- Real Estate
- Direct investments in Energy, Timber, Farmland, and Infrastructure

As global economic dynamics change and markets evolve, "inflation" becomes redefined with new consumers and products emerging. Sectors such as Agribusiness and Climate Change are poised to benefit from global secular trends; growth in these investment themes may outpace inflation. Importantly, investment in these new inflation-hedge sectors may help provide an effective hedge against inflation, as part of a well diversified Real Assets strategy.

Real Asset Investment Strategies

There are many ways for investors to access Real Assets. These range from liquid exposures in Commodities funds and publicly-held oil or mining companies to commodities-focused hedge funds and direct investments in real estate, energy, farmland, timberland, or infrastructure. Exhibit 3 summarizes Real Asset investment strategies.

We recommend pursuing a Real Asset investment program that is well diversified by asset class and along the liquidity spectrum—to maximize the program's risk-return potential through a variety of market environments.

Liquid commingled funds are available that can provide investors either dedicated or broad expo-

Exhibit 1

		Year											
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009 Q1
Performance Ranking	1	Equity 28.6%	Commodity 24.3%	Commodity 31.8%	Real Estate 15.5%	Commodity 25.9%	Real Estate 38.5%	Real Estate 30.4%	Commodity 21.4%	Real Estate 34.4%	Commodity 15.9%	Bond 10.9%	Cash 0.3%
	2	Bond 15.3%	Equity 21.0%	Real Estate 25.9%	Cash 3.7%	Bond 19.5%	Equity 28.7%	Equity 10.9%	Real Estate 8.3%	Equity 15.8%	Bond 11.0%	Cash 2.8%	Bond -5.5%
	3	Cash 5.1%	Cash 6.0%	Cash 6.8%	Bond -1.0%	Real Estate 5.2%	Commodity 24.0%	Bond 10.4%	Equity 4.9%	Bond 6.1%	Equity 5.5%	Commodity -35.7%	Commodity -6.3%
	4	Real Estate -18.8%	Bond -4.3%	Bond 1.6%	Equity -11.9%	Cash 1.8%	Bond 14.9%	Commodity 9.2%	Cash 3.7%	Cash 5.3%	Cash 5.4%	Equity -37.0%	Equity -11.0%
	5	Commodity -27.0%	Real Estate -6.5%	Equity -9.1%	Commodity -19.5%	Equity -22.1%	Cash 1.2%	Cash 1.7%	Bond -6.9%	Commodity 2.1%	Real Estate -17.8%	Real Estate -37.3%	Real Estate -29.8%

Data: Equity - S&P 500, Bond - Citigroup World Government Bond Index, Real Estate - NAREIT All Composite, Commodity - DJ AIG Index, Cash - Three Month Libor
Source: dbPerform



Exhibit 2

Correlation Matrix	Equities Domestic	Equities Intl Developed	Equities Intl Emerging	Govt Bonds	IL Bonds	Corp/Mtg Spread	Commodities	Private Equity	High Yield/Dist Debt	Timber	Real Estate	REITs	Absolute Return
Equities Domestic	1.00												
Equities Intl Developed	0.81	1.00											
Equities Intl Emerging	0.69	0.68	1.00										
Govt Bonds	-0.23	-0.27	-0.36	1.00									
IL Bonds	-0.01	-0.01	-0.07	0.51	1.00								
Corp/Mtg Spread	0.65	0.60	0.62	-0.61	-0.15	1.00							
Commodities	0.14	0.24	0.17	-0.29	0.16	0.31	1.00						
Private Equity	0.74	0.69	0.56	-0.24	0.08	0.57	0.23	1.00					
High Yield/Dist Debt	0.66	0.59	0.69	-0.53	-0.12	0.92	0.29	0.54	1.00				
Timber	0.06	0.08	0.02	0.09	0.15	0.03	-0.10	0.30	0.02	1.00			
Real Estate	0.31	0.38	0.16	-0.20	0.22	0.28	0.34	0.35	0.25	-0.19	1.00		
REITs	0.57	0.50	0.38	-0.05	0.16	0.42	0.30	0.36	0.47	-0.03	0.48	1.00	
Absolute Return	0.83	0.72	0.80	-0.21	0.04	0.61	0.24	0.73	0.67	0.13	0.11	0.46	1.00

The categories above and the historic correlations relate to the proxy assets and their actual quarterly returns generally over the period of 1991 to 2009. The correlations calculations are based on the historical returns. The actual correlations in the future of each of the asset classes may differ substantially from the historic correlations of these assets. The use of historic correlations is to demonstrate the relative market movements of distinct asset classes.

sure to public inflation hedge markets. Meaningful exposure to some Real Assets (e.g. TIPS, Commodities) may also be gained through diversified Global Asset Allocation managers.

For specific, dedicated access to a given asset class (e.g. Energy, Agriculture) investors can hire managers with strategies focused on one investment theme. For more broad Real Asset diversification within one portfolio, there are also managers who invest in several strategies across the Real Asset spectrum. Some managers will even tactically allocate among these sectors, seeking additional opportunities to enhance return and/or mitigate portfolio risk.

Real Asset-related hedge funds, particularly those employing a long/short strategy, may diminish some of the potential inflation benefit associated with Real Asset investing due to their use of shorting. Their potential to generate superior absolute returns within global natural resource investing, and to provide downside protection, however, can make these hedge funds an important component of a well-diversified Real Asset investment strategy.

Direct private investments in less liquid closed-end Energy, Real Estate, Infrastructure, or Timber funds are also available, and can represent a robust component of a long-term Real Asset pro-

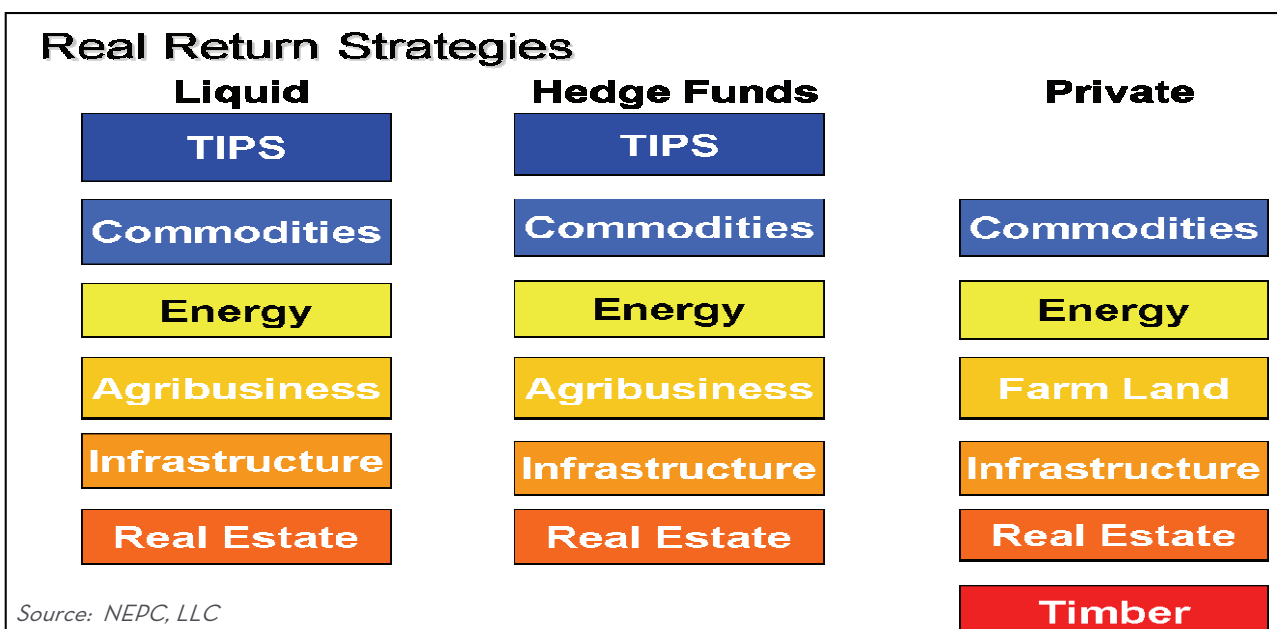
gram for investors willing to make allocations to illiquid vehicles.

Degrees of Inflation Protection

Over the long term, we expect traditional global equities to continue to provide investors a good inflation hedge. Many rising input costs can ultimately be passed along the value chain to maintain company profit margins. Nevertheless, it is during extended periods of rising inflation, especially of the unanticipated variety, that Real Assets offer investors the best inflation hedge and portfolio diversification benefit – just when it's needed most.

Where a company lies along the supply chain in a given industry has direct implications for several important characteristics such as its liquidity, risk, time horizon, and sensitivity to dynamics in the underlying commodities. Importantly, these factors also impact an asset's inflation hedging potential. The closer a company is to the commodity or "upstream" the more likely it is an effective inflation hedge; the closer it is to the consumer or "downstream" the lower its inflation hedge potential. This is especially true for inflation-sensitive equities (e.g. companies in the Energy, Agriculture, and Mining industries).

Where an investment lies along the liquidity spec-



trum in global capital markets can also influence its potential to provide inflation protection and correlation benefits to the portfolio. Publicly-traded companies are more closely linked to stock markets and may not outperform during periods of rising inflation. However, direct inflation-sensitive investment opportunities are less correlated with traditional markets (stocks and bonds) and can be more highly correlated with inflation. A good example of this difference is private Energy investing as opposed to public, downstream Energy equities.

The degree to which Real Asset-related investments have leverage on their balance sheets (a high debt-to-equity ratio) impacts their ability to protect against rising inflation. The inherent interest rate risk associated with higher leverage can diminish the inflation-protection potential.

Within inflation-linked bonds, non-US\$ bonds may offer superior inflation protection than US TIPS alone, as investors seek to protect against a loss of dollar value in their portfolios.

Conditions in Real Asset markets will vary over time; along with these changes comes a fluctuation in each asset class' inflation hedge potential. For example, current conditions in the direct Real Estate markets are not favorable for inflation protection, due in part to declining valuations, high

vacancy rates, and high debt ratios.

Exhibit 4 summarizes the relative attributes of Real Asset investment strategies in greater detail.

Risks of Real Asset Investing

There are important risks to consider with Real Asset investing and each underlying public asset class comes with its own unique risks. A TIPS-specific risk may be the inherent weakness of CPI as a true measure for inflation; for Commodities it could be spot price volatility; for the Energy sector it may be geopolitical tension; for Timber it could be fire; for Agriculture the weather is an important risk to consider.

In addition to these asset-class specific risks, private investments in Real Assets bring other risks to consider. Among these are illiquidity (long lead times are required; lock ups are likely); vintage year risk (market cycle timing); and lack of a transparent pricing mechanism. Nevertheless, all Real Asset investments share some common risks, principally low correlation to paper assets, high sensitivity to macro-economic cycles, and manager selection risk.

While the counter-cyclical nature of Real Asset strategies can provide good portfolio diversification benefits, particularly during times of rising inflation—when stock markets suffer, this low cor-

Real Assets Investing Characteristics

Asset	Sensitivity to Inflation	Liquidity	Ease of Implementation	Degree of Market Efficiency	Return profile	Comments
TIPS	Moderate	High	High	High	Low volatility Modest income Longer duration	<i>Pegged to the CPI – inflation not included in this index will not be reflected in TIPS</i>
Commodities	High	High	High	High	High volatility No income	<i>Most volatile</i>
Real Estate – Public (REITs)	Low	High	High	Moderate/High	Volatile returns; some REITs have high dividends	<i>REITs correlate historically most highly with s/mid cap stocks</i>
Real Estate -- Private	Moderate	Low	Low	Low	Depends on strategy (some with more income, some with more cap. appreciation)	<i>Infl. sensitivity depends on type of real estate (e.g. construction); current environment</i>
Energy – Public	Low to Moderate	High	High	Moderate/High	Volatile returns	<i>Energy stocks are volatile and affected by swings in stock market</i>
Energy – Private	Low to High; see Return Profile	Low	Low	Low	Depends upon commodity hedge and position in "value chain"	<i>Volatility depends on strategy risk and hedge to commodity</i>
Timber/Farmland	High	Very Low	Very Low	Low	Lower volatility; income component	<i>Limited universe of managers.</i>

Source: NEPC, LLC

relation can be a hindrance during periods when stock markets generate high returns. In strong bull equity markets, investments more correlated with rising stock prices would likely perform best.

Real Assets as a group are very sensitive to macroeconomic trends, which can be highly cyclical. The level of global demand for natural resources like copper and zinc, oil and natural gas, corn and wheat, and gold and silver impact commodity prices as well as the values of the related companies and industries a great deal.

Rapid growth in developing market countries, led by the industrialization and urbanization of emerging markets like China and India, has created a surge in demand for energy, metals, and food amid continued supply constraints in global natural resources. The resulting supply/demand imbalance has caused dramatic price volatility in many commodities. An economic slowdown in these emerging markets, particularly China and Brazil, could certainly impact expected returns

among Real Assets.

Changes in the value of the US dollar also have a strong impact on commodities and commodity-related equities, as most global commodities are traded and priced in USD. Manager selection is an important consideration for Real Asset investments. The disparity of manager returns is often wider among alternative asset strategies.

Conclusion

We recommend that clients strongly consider a strategic allocation to Real Assets. The potential portfolio benefits are considerable and the risks are manageable. A 5-15% strategic allocation in an investment portfolio can help maintain purchasing power, preserve asset value, and enhance risk-adjusted returns. The specific combination of Real Assets investment strategies (e.g. asset class allocations and liquidity) should be determined based upon client-specific investment objectives and constraints.

We believe that making a long term commitment to Real Assets is important, as the key benefits are strategic in nature. Further, a long-term horizon helps reduce some concerns about illiquidity, volatility, and vintage year risk. Though near-term conditions may present an attractive entry point, a broader perspective on the strategic benefits of a Real Asset allocation to your investment portfolio for long-term investors is also important. As they build their Real Asset programs, we believe that investors should:

Understand the potential benefits of adding Real Assets to your portfolio. Consider the possible long-term advantages of inflation protection, volatility reduction for the overall portfolio via low correlation, and higher risk-adjusted returns. Ensure that all investment decisions are driven by sound policy rationales: think strategically, and consider acting tactically.

Balance the potential benefits of Real Asset investing with other client-specific requirements. Consider liquidity needs and time horizon, which impact your risk tolerance and asset allocation.

Position your portfolio strategically by diversifying the inflation-hedge approaches you employ. Expand the opportunity set with broad exposure to the many asset categories and take advantage of the low correlations among Real Assets. Leave tactical shifts to proven active managers.

A well-diversified strategy should include expo-

sure to several Real Asset investments (e.g. Commodities, REITs, Agriculture, Energy) as well as exposure to different levels of liquidity, for example from the high liquidity of TIPS to the long time horizon of a direct Energy investment.

Start simple. Begin with the most liquid approaches, later incorporating less liquid investments as part of a longer-term strategy. Begin with core diversified funds and complement these with more direct investments over time, working gradually toward a core-satellite approach. Global Asset Allocation portfolios are one way to gain some Real Asset exposure.

Be aware of the risks associated with Real Asset investments. There are asset class-specific risks, liquidity-related risks, and macroeconomic risks – each with potential consequences.

Manage risk by using an approach that is well-diversified by asset class and liquidity, making a long-term commitment to inflation hedges, and ensuring in-depth manager due diligence.

We look forward to working with clients to help them evaluate and implement, as appropriate, an effective Real Assets program.

I would like to thank Erik Knutzen for his tireless support and guidance, Mark Cintolo for his help with data and charts, and Cheryl Grant for her invaluable editorial insights.

Appendix

Sources for charts and tables throughout the Appendix is NEPC, LLC, unless otherwise indicated.

Exhibit 5

Low Correlation Among Real Asset Sectors

	Standard Deviation	Energy	Industrial Metals	Precious Metals	Agriculture	Livestock
Energy	30.9%	1.00				
Industrial Metals	20.5%	0.19	1.00			
Precious Metals	17.9%	0.21	0.31	1.00		
Agriculture	17.0%	0.21	0.25	0.25	1.00	
Livestock	14.0%	0.09	0.11	0.06	0.11	1.00

1/1/1991 to 3/31/2009; Source: S&P/GSCI; DJ/UBS



Exhibit 6

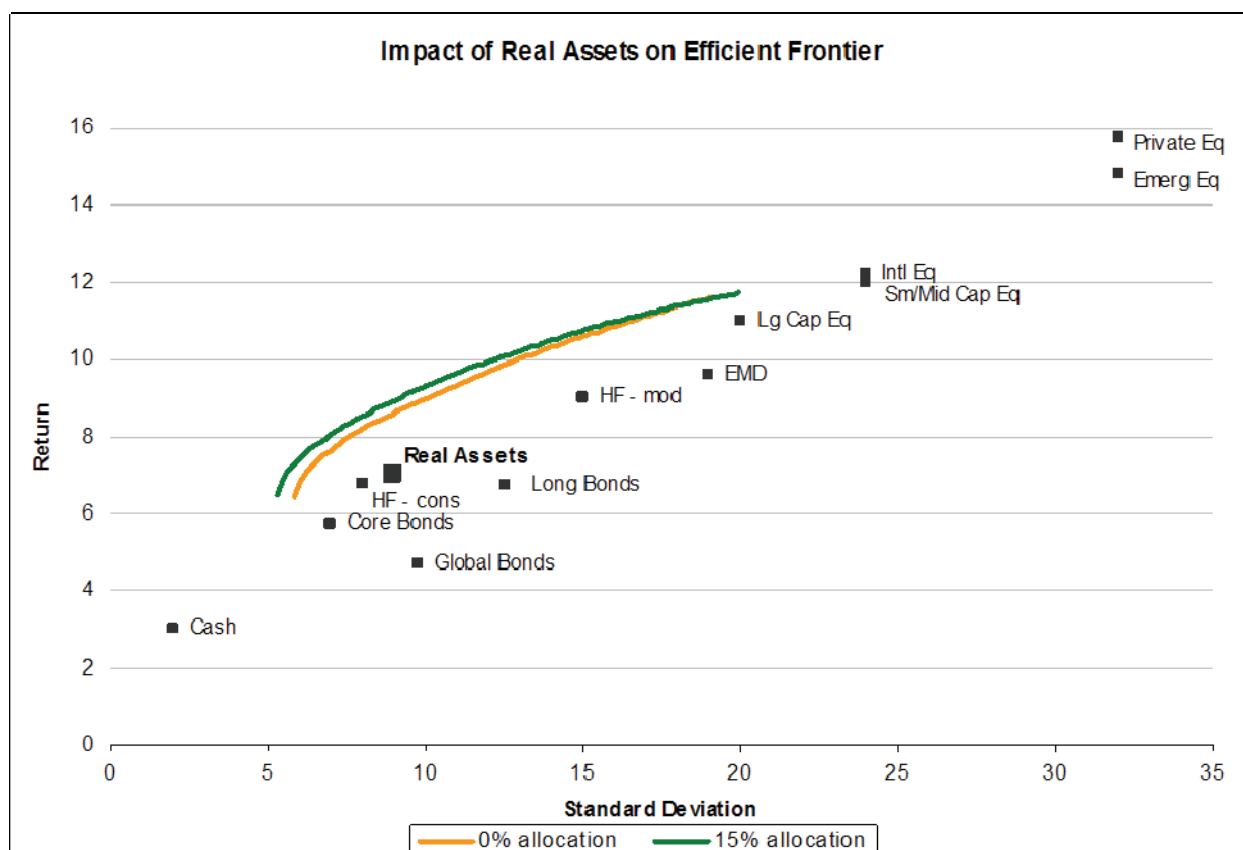


Exhibit 7

Asset Class	Index Used as Proxy	Data Source	Time Period
Equities-Domestic	Combination of Large, Medium, Small	Bloomberg	1/1/1991 - 3/31/2009
Equities-Domestic-Large Cap	S&P 500	Bloomberg	1/1/1991 - 3/31/2009
Equities-Domestic-Mid Cap	S&P 400	Bloomberg	7/1/1991 - 3/31/2009
Equities-Domestic-Small Cap	Russell 2000	Bloomberg	1/1/1991 - 3/31/2009
Equities-Intl-Developed	MSCI EAFE	Bloomberg	1/1/1999 - 3/31/2009
Equities-Intl-Emerging	MSCI Emerging Markets	Bloomberg	1/1/1991 - 3/31/2009
Govt Bonds	Citigroup WGBI	Bloomberg	1/1/1991 - 3/31/2009
IL Bonds	Barclays IL Index	Bloomberg	4/1/1997 - 3/31/2009
Corp/Mtg Spread	Spread btw Citi BIG and Citi US Treasury Indexes	Bloomberg	1/1/1991 - 3/31/2009
Commodities	S&P GSCI Total Return	Bloomberg	1/1/1991 - 3/31/2009
Private Equity	Private Equity and Venture Capital Indexes	Front Point	1/1/1991 - 3/31/2009
High Yield/Distr. Debt	Citi High Yield	Bloomberg	1/1/1991 - 3/31/2009
Timber	NAREIF Timber	NAREIF	1/1/1991 - 3/31/2009
Real Estate	NAREIF Real Estate	NAREIF	1/1/1991 - 3/31/2009
REITs	FTSE NAREIT Index	Bloomberg	1/1/1991 - 3/31/2009
Absolute Return	HFRI Weighted Composite	Bloomberg	1/1/1991 - 3/31/2009

Note: Asset class return streams, as indicated in Exhibit 7, were used for the correlation chart in Exhibit 2 and the efficient frontier chart in Exhibit 6.

