



Canterbury Consulting

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Quarterly Asset Class Report

Real Assets

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December 31, 2018

Canterbury Consulting recommends and communicates asset-class strategy with the objective of constructing a diversified portfolio of real asset strategies designed to (in aggregate):

- (i) Preserve purchasing power
- (ii) Generate uncorrelated returns to other asset classes
- (iii) Provide high risk-adjusted returns within the constraints of (i) and (ii)

Role	Asset Categories	Risks
Growth	Public and Private Equity	Market Decline
Capital Preservation	Fixed Income, Hedge Funds	Rising Interest Rates, Highly Correlated Markets
Inflation Protection	Real Assets: Real Estate, Commodities	Deflation

- Real assets are appropriate for investors with long time horizons (10+ years) and inflation linked liabilities
- Canterbury’s real asset portfolios are expected to deliver net of fees returns in excess of the diversified benchmark over full market cycles. The benchmark is equally weighted to TIPS, commodities, and commodity stocks:
 - 33% Barclays U.S. TIPS 1-5 Yr/ 33% Bloomberg Commodity / 17% S&P North American Natural Resources / 17% Alerian MLP

Asset Class Indicators

Real Assets

CPI (YoY)



ISM Non-Manufacturing Survey Prices



Forward 5-Year Breakeven Inflation



U.S. Employee Hourly Wage (YoY)



Velocity of M2



Bloomberg Commodity Index (YoY)



Capacity Utilization



Case-Shiller Home Price (YoY)



ISM Manufacturing PMI



Baltic Dry Index (YoY)

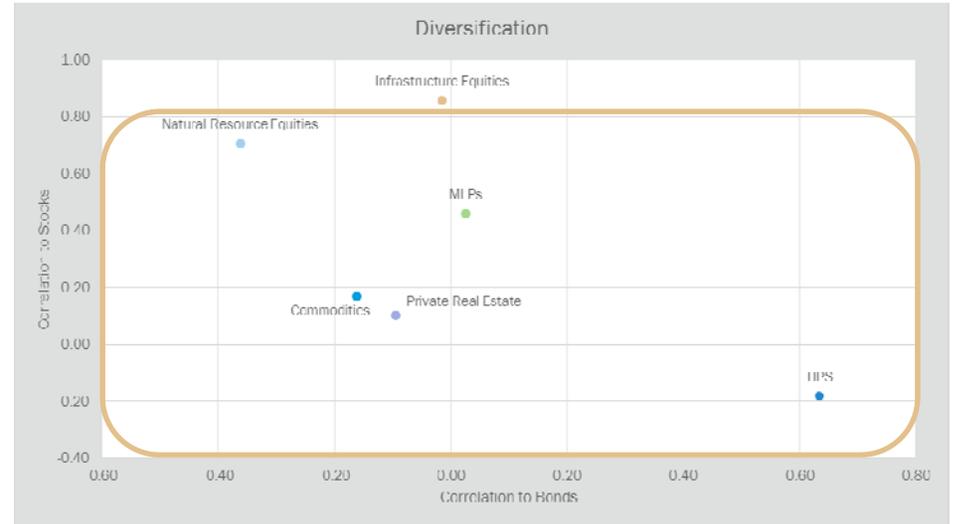
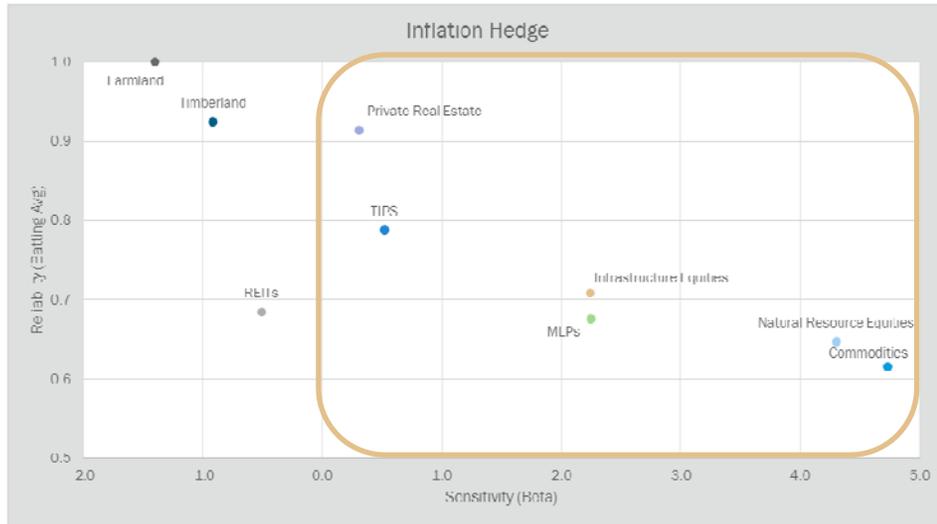


Current

+ 1 Standard Deviation From the Mean

10-Year High and Low

- Canterbury monitors several inflation and real asset indicators to help detect imbalances that are expected to cause price pressures
- All asset class indicators are higher over a one year period. As such, inflationary pressures may be on the horizon
- Energy as a whole sold off in the fourth quarter as oil production from the U.S. shale basins increased significantly. Furthermore, trade uncertainty from the U.S. and China intensified, which resulted in lower prices for industrial metals



Farmland, Timberland, and REITs are screened from inclusion in Real Asset portfolios because they don't exhibit a sensitivity to inflation of greater than zero

Infrastructure Equities are screened from Real Asset portfolios because they have a correlation of greater than 0.8 to equities

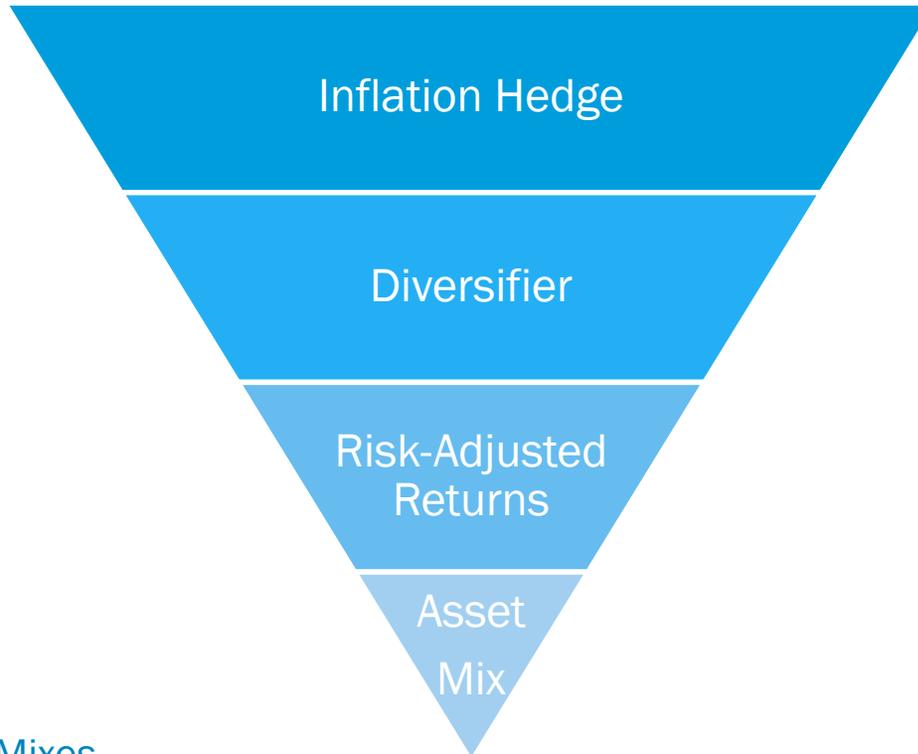


Risk-adjusted returns of the remaining asset classes are used to help optimize Real Asset portfolios

1) Based on 10-yr rolling data since inception 2) Takes average from 10-yr rolling data: REITs (1972), Commodities (1991), NR Equities (1996), MLPs (1996), Infra. Equities (2002), Private RE (1978), Farmland (1992), Timber (1987), & TIPS (1997) 3) as of 6/30/2018

Portfolio Process & Construction

Screening Process



Asset Mixes

Mixes	Sensitivity	Reliability	Correlation to Stocks	Correlation to Bonds	Sharpe Ratio
Liquid Direct	2.85	0.69	0.19	0.10	0.07
Dynamic Multi-Asset*	1.88	0.75	0.46	0.00	0.36
Diversified Direct	2.21	0.74	0.17	0.05	0.23
Morningstar U.S. Real Asset Index	0.77	0.77	0.65	0.04	0.39
CPI	1.00	1.00	-0.11	-0.28	NA

* Principal DRA Strategy Mix
Based on historical data from 3/1/1997 to 6/31/2018
Sharpe ratios are 10 year trailing returns

Real Assets

- Canterbury utilizes a screening process to narrow down the asset classes for inclusion in real asset portfolios based on pre-specified roles:

Inflation Hedge:

High Reliability (>50%) and Sensitivity (>0) to Inflation

Diversifier:

Low Correlation (<0.8) to Stocks and Bonds

Risk-Adjusted Returns:

Sharpe Ratio is considered when optimizing the allocations to remaining asset classes

- These roles are used to help build portfolios of real assets that exhibit a high degree of sensitivity (>1) and reliability (>60%) to inflation, low correlation to stocks & bonds (<0.6), and generate competitive risk-adjusted returns (>0.5)

Recommended Mixes & Allocations

Current Recommendations

Liquid Direct	Managers	Exposures
Commodities	50.0%	33.0%
TIPS		33.0%
MLPs	25.0%	17.0%
Natural Resource Equities	25.0%	17.0%
Portfolio Ranges	5-10%	

Diversified Direct*	Managers	Exposures
Commodities	33.0%	25.0%
TIPS		25.0%
MLPs	17.0%	12.5%
Natural Resource Equities	17.0%	12.5%
Private Real Estate*	33.0%	25.0%
Portfolio Ranges	5-15%	

Multi-Asset	Managers	Exposures
Dynamic Multi-Asset Mix	100.0%	100.0%
Portfolio Ranges	5-10%	

*Private Real Asset allocations will vary by client appetite and output from private capital pacing models

Real Assets

- Utilizing the framework laid out in this document, we can develop a diversified mix of exposures to the real asset universe
- Investors with smaller real asset portfolios, or those who are unable or unwilling to take on illiquidity, can still gain diversified access to real assets by investing in a dynamic multi-asset manager mix
- A portfolio's allocation to real assets will fall within a range and be determined by expectations for inflation and underlying assets