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Wilshire Consulting

Employees' Retirement Fund of the City of Dallas
Asset Allocation Modeling Update

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INPUT

Capital Market Assumptions (as of December 31, 2017)

Asset Class	10-Year Expected Compound Return	10-Year Expected Risk	Cash Yield
Equity/Growth Assets			
Domestic Equity	6.25%	17.00%	2.00%
International Equity	6.45%	18.75%	2.75%
Global Equity	6.45%	17.15%	2.35%
Global Low Volatility Equity	6.45%	13.50%	2.36%
Private Equity	8.75%	28.00%	0.00%
Fixed Income - Risk Reduction and Mitigation			
Core Fixed Income	3.55%	5.15%	3.55%
High Yield Fixed Income	4.95%	10.00%	8.15%
Credit Opportunities	5.75%	10.33%	4.05%
Inflation Hedging Assets			
REITs	5.40%	17.00%	3.95%
Private Real Estate	5.65%	12.00%	3.40%
MLPs	9.60%	17.00%	7.65%

- Wilshire's asset class return, risk and correlation assumptions are developed on 10-year forward looking expected rates of return and historical risk and correlation, adjusted to incorporate recent trends
- Return expectations represent a passive investment in the asset class (beta). They do not reflect value added from active management (alpha).

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OPTIMIZATION

PORTFOLIO MODELING

			MLP ALLOCATION - 5% Reduction		MLP ALLOCATION - 2.5% Reduction	
Asset Class	Current Policy	Actual Weight ex Cash	Add 5% to Global Equity	Add 5% to Core Fixed	Add 2.5% to Global Equity	Add 2.5% to Core Fixed
Domestic Equity	15.00%	15.43%	15.00%	15.00%	15.00%	15.00%
International Equity	15.00%	16.42%	15.00%	15.00%	15.00%	15.00%
Global Equity	5.00%	5.22%	10.00%	5.00%	7.50%	5.00%
Global Low Volatility Equity	10.00%	10.65%	10.00%	10.00%	10.00%	10.00%
Private Equity	5.00%	5.95%	5.00%	5.00%	5.00%	5.00%
Total Growth Assets	***50.00%***	***53.66%***	***55.00%***	***50.00%***	***52.50%***	***50.00%***
Core Fixed Income	15.00%	13.09%	15.00%	20.00%	15.00%	17.50%
High Yield Fixed Income	12.50%	12.28%	10.00%	10.00%	10.00%	10.00%
Credit Opportunities	2.50%	2.52%	5.00%	5.00%	5.00%	5.00%
Total Fixed Income	***30.00%***	***27.89%***	***30.00%***	***35.00%***	***30.00%***	***32.50%***
REITs	5.00%	4.45%	5.00%	5.00%	5.00%	5.00%
Private Real Estate	5.00%	6.23%	5.00%	5.00%	5.00%	5.00%
MLPs	10.00%	7.77%	5.00%	5.00%	7.50%	7.50%
Total Inflation Hedging Assets	***20.00%***	***18.45%***	***15.00%***	***15.00%***	***17.50%***	***17.50%***
Total Assets	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***
Expected (Median) Return (%)	**6.59**	**6.59**	**6.42**	**6.29**	**6.52**	**6.45**
Standard Deviation of Return (%)	**11.35**	**11.76**	**11.70**	**10.96**	**11.53**	**11.16**
Cash Yield (%)	**3.85**	**3.68**	**3.48**	**3.54**	**3.62**	**3.65**
+/(-) in Expected Return (bps)			**(17)**	**(30)**	**(7)**	**(14)**
+/(-) in Standard Deviation of Return (bps)			**35**	**(39)**	**18**	**(19)**
+/(-) in Cash Yield (bps)			**(37)**	**(31)**	**(23)**	**(20)**
Sharpe Ratio	**0.43**	**0.41**	**0.40**	**0.41**	**0.41**	**0.42**

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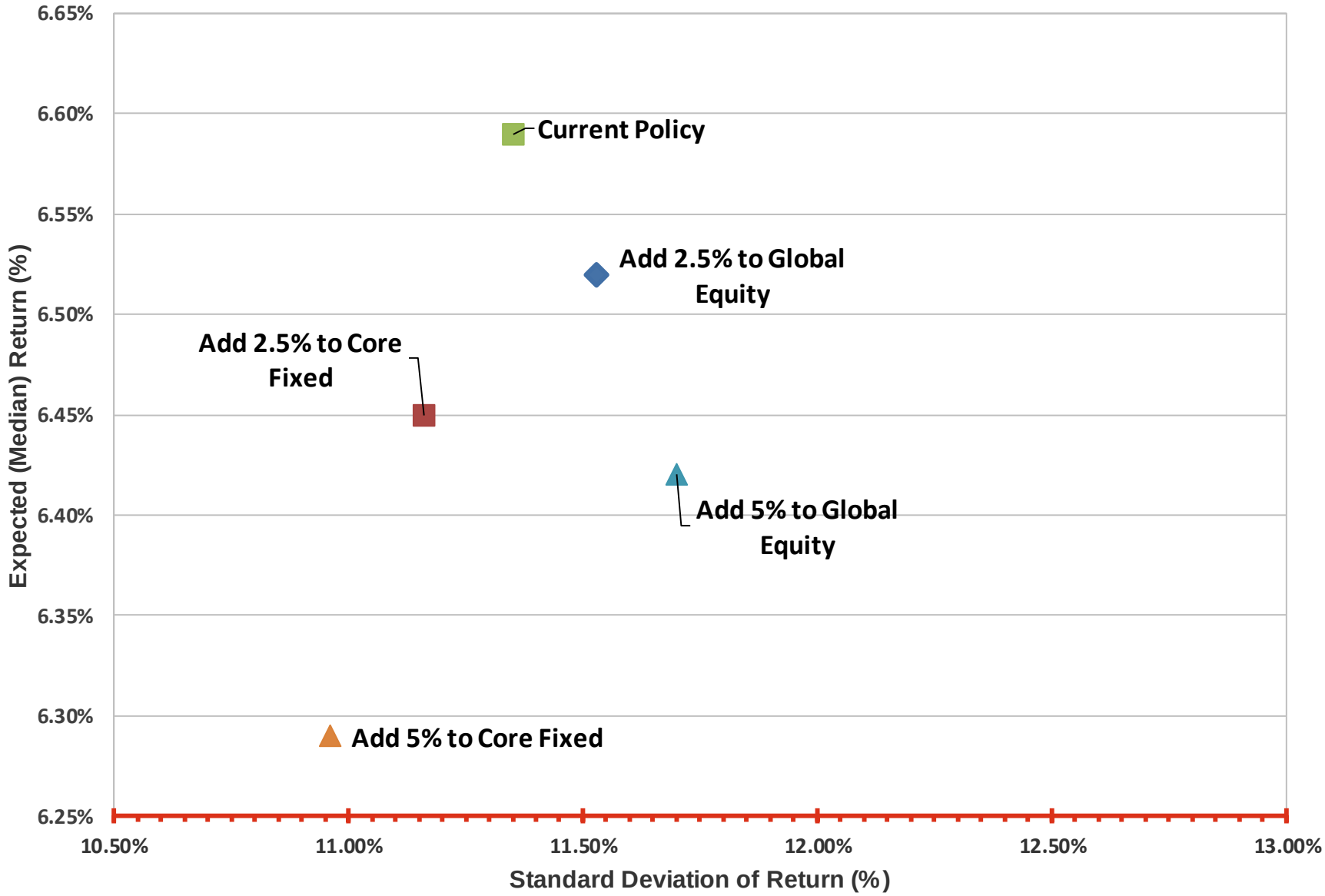
OPTIMIZATION

Risk-Return Trade-Off



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MLP EVENTS

- Master Limited Partnerships
  - Predominately a yield-returning asset class
  - Utilize both the current yield and potential for yield increases in the future to formulate a return assumption
    - » MLP Index yield of 7.64%
    - » Current inflation of 1.95%
    - » = MLP Expected Return of 9.6%

- MLPs have seen a protracted downturn in performance relative to other asset classes.
- The underperformance was exacerbated by a March 15, 2018 announcement by the Federal Energy Regulatory Commission saying that certain MLPs will no longer be able to take advantage of certain tax provisions.
- In a letter to clients on March 22, 2018, Wilshire Consulting expressed our belief that the market reaction to the announcement was overblown, and we reaffirm our belief in MLPs as a viable asset class for institutional investors in a diversified real assets and growth oriented portfolio.
- Wilshire does not anticipate an immediate revision to our MLP forecasting process, however . . .
  - Examining several platform-wide enhancements to our asset class modeling process during 2018 which that would impose a conservative check on the premium associated with MLP's relative to public equity.
  - Considering a modest increase in our risk assumption given the elevated level of uncertainty and nuances unique to the asset class.

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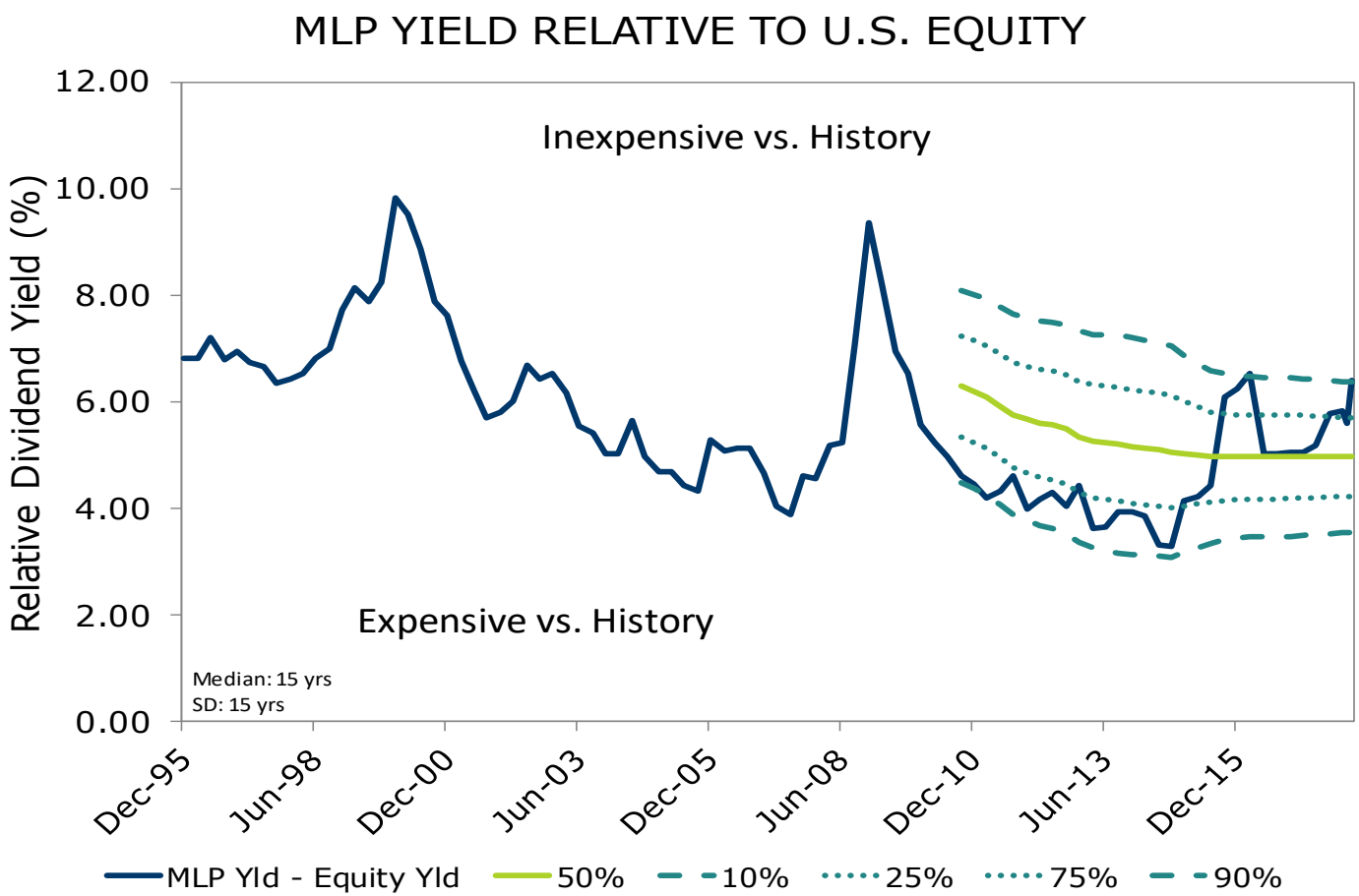
MLP YIELDS RELATIVE TO US EQUITY

- MLP Yield have been rising since September 2014
- Yields relative to U.S. Equity are currently near the 90th percentile of the trailing 15 year history



As of 2/28/2018
Source: Wilshire Compass, Wilshire Atlas, Alerian

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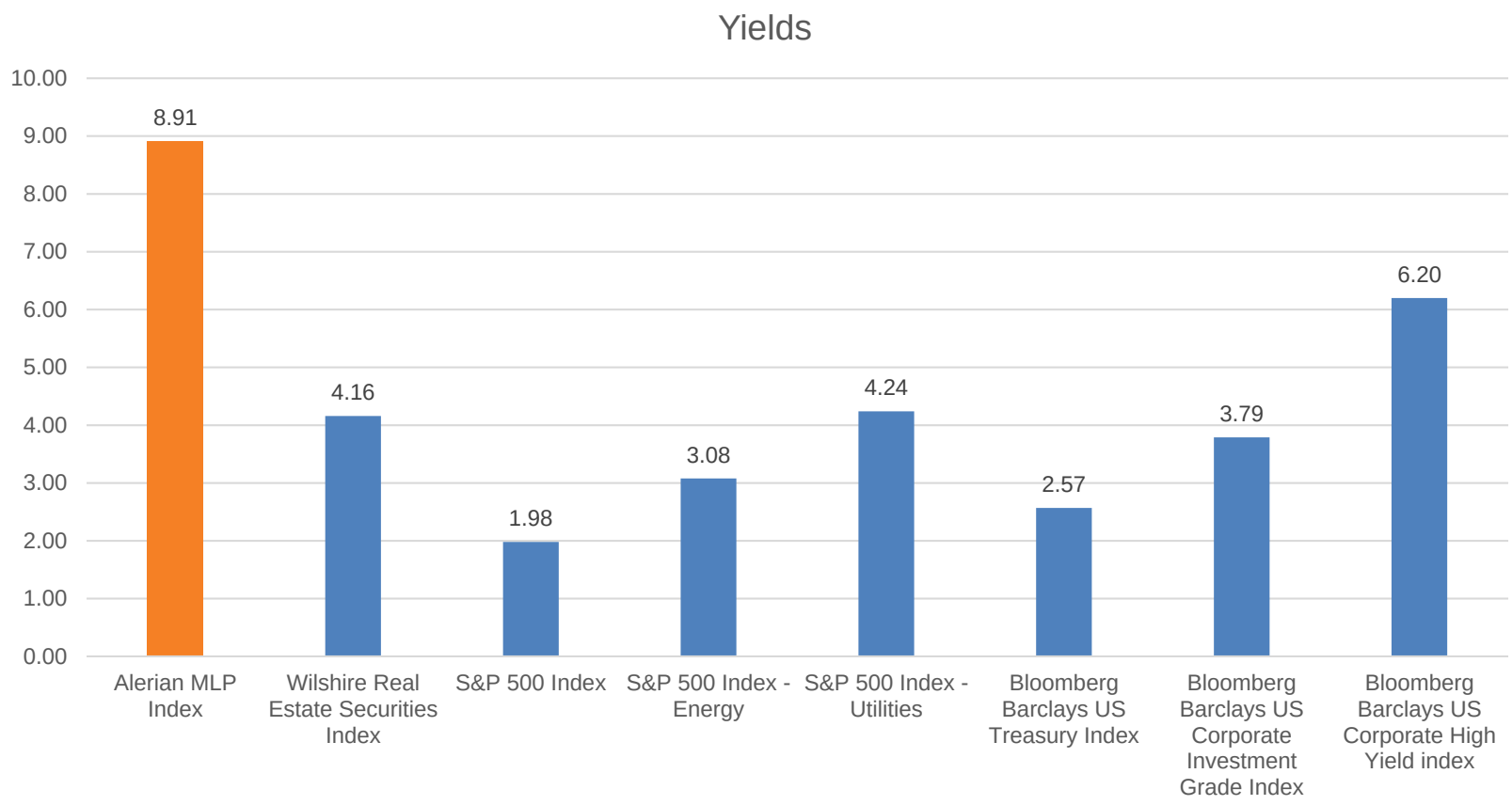
YIELD COMPARISON

- The current yield of the Alerian MLP Index is 8.91%
- MLP yields offer a premium relative to other yield oriented asset classes



As of 3/28/2018
Source: Wilshire Atlas, Barclays Live

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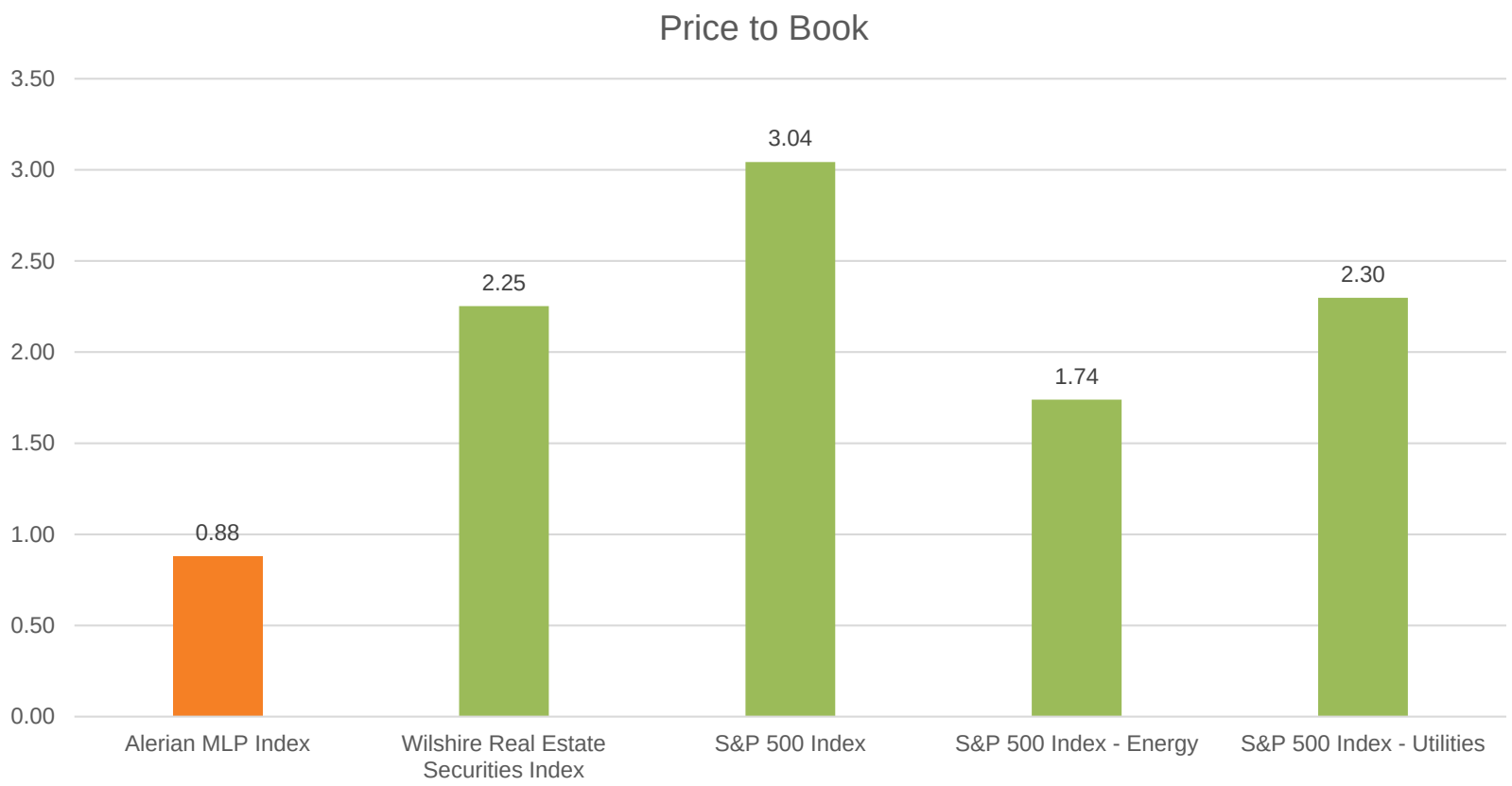
VALUATION COMPARISON: P/B RATIO

- The Price to Book Ratio of the Alerian MLP Index is currently 0.88, indicating that market values of MLPs are trading lower than their balance sheet asset values (the ratio is less than 1)
- MLPs are trading at a significant P/B discount relative to other assets



As of 3/28/2018
Source: Wilshire Atlas

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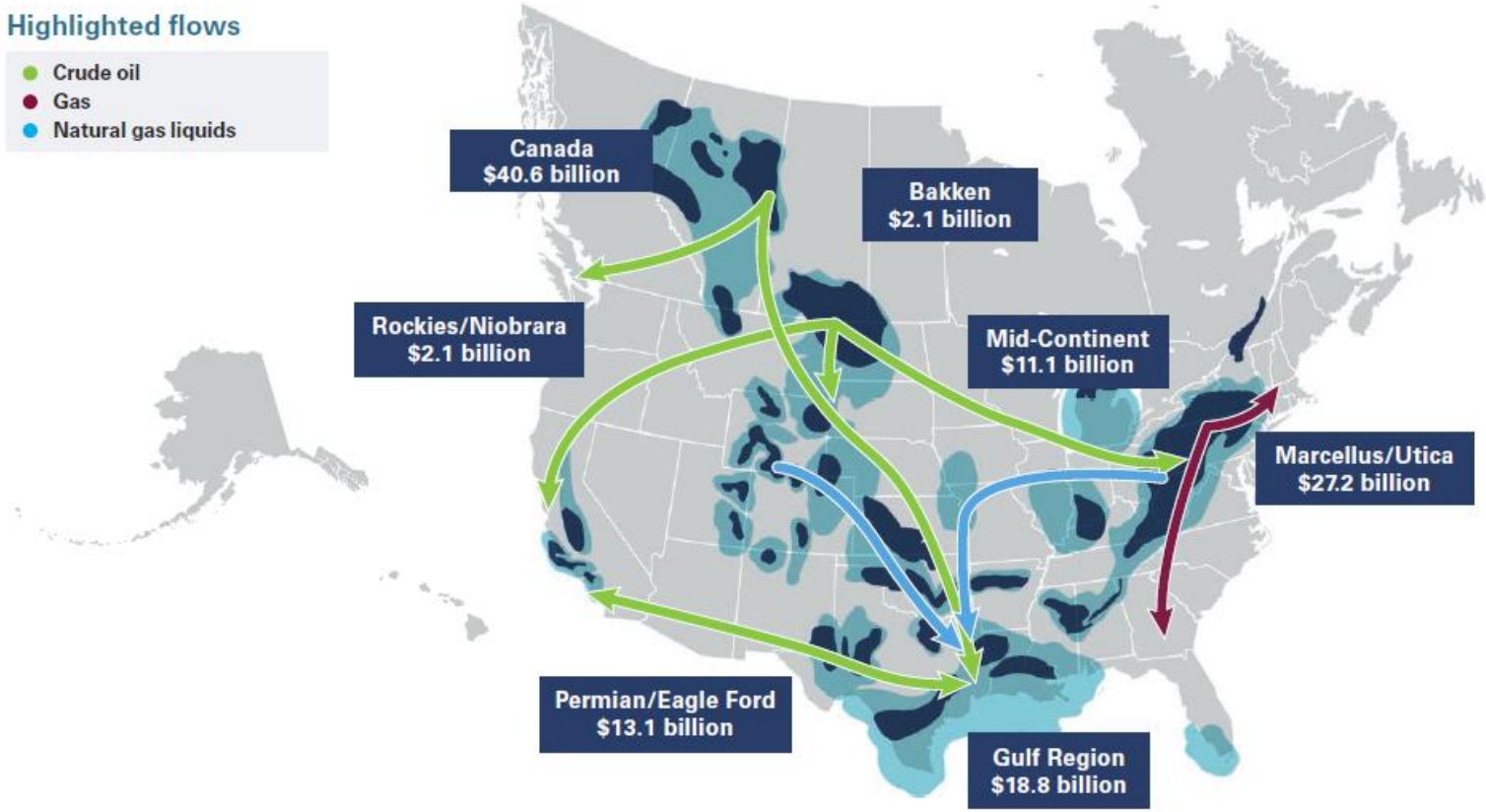
MLP GROWTH OPPORTUNITIES



Source: Tortoise Advisors

- Approximately $145 billion of pipeline and energy infrastructure projects represent material growth opportunities for MLP's in the U.S.

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