



# YORKVILLE VARIABLE DISTRIBUTION MLP UNIVERSE INDEX

A Complete Study of Fundamentals, Returns, Risk, and Correlations

Analysis & Intellectual Property by:



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## ABSTRACT

While minimum quarterly distribution and variable quarterly distribution MLPs have similarities, Variable Distribution MLPs have significant structural differences to traditional MLPs. Our goal in creating the Yorkville Variable Distribution MLP Universe Index as an accessible and transparent benchmark is to educate investors on the newly popular structure and to provide them with the tools needed to better understand this MLP structure. As with all of Yorkville's other MLP Universe Indexes, we employed our inclusive methodology, meaning the index is:

- Inclusive - covers 100% of variable distribution MLPs;
- Objective - completely transparent and passive;
- Accurate - best way to track performance and fundamentals;
- Evolving - grows with each new variable distribution IPO.

In this paper, we analyze the variable distribution MLP structure since its inception in 1994, providing an in-depth look at returns, risks, distributions, yields, and correlations.

## EXECUTIVE SUMMARY

The key findings of Yorkville's study of variable quarterly distribution (VQD) MLPs are outlined below:

- The primary difference in the variable distribution MLP structure from ordinary MLPs is the absence of a Minimum Quarterly Distribution (MQD).
- In the last 3 years, there has been rapid growth of variable rate MLPs from 2 to 9 companies. They currently represent 4.3% or \$18B of total MLP market cap.
- Two industries, refining (45%) and fertilizer (38%), account for 83% of the total market capitalization of VQD MLPs.
- Variable MLPs offer higher current yields (14%) than MLPs overall (6%)
- Quarterly distributions for variable rate paying MLPs have been significantly more volatile than the MLP Universe.
- Variable MLPs have been up in 9 of the past 10 years in terms of total return and only had one down year ('08).
- Variable distribution MLPs have consistently outperformed the broader equity markets and MLPs in general, beating MLPs in 8 of the last 10 years and the S&P 500 in 9 of 10. Interestingly, their drawdown was also less than both in 2008.
- Returns have been more volatile for variable distribution MLPs. Standard deviation has roughly been 2 times that of both the MLP asset class and S&P.
- Correlations have been low to other MLPs, equities, commodities and fixed income.

## OVERVIEW

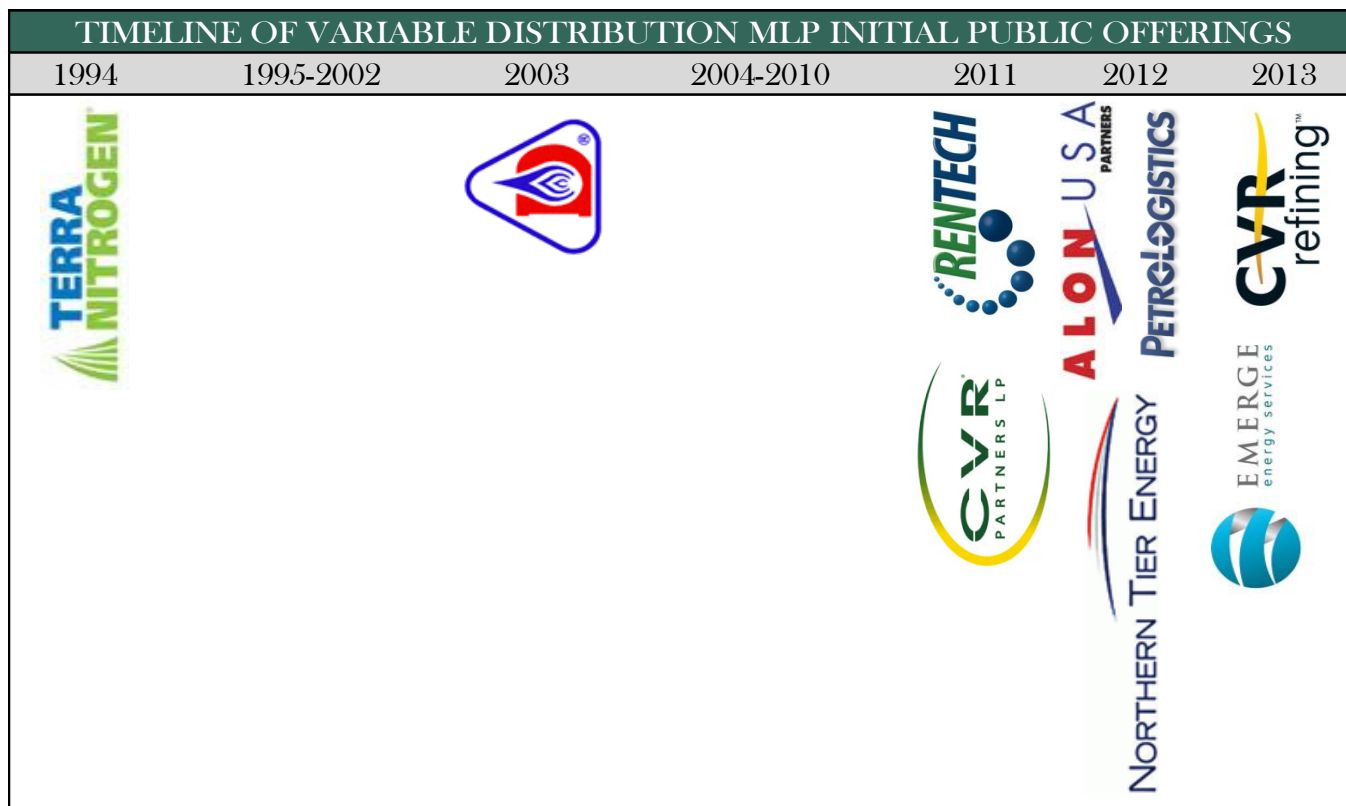
## STRUCTURE

The primary difference between the variable distribution MLP structure and the traditional MLP is the absence of an internally mandated minimum quarterly distribution (MQD). Therefore, instead of generally maintaining or increasing distributions, variable MLPs will pay out distributions each quarter that *vary* with quarterly cash flows of the business. Moreover, the MLPs which have elected for the variable structures generally have single or few assets and often unhedged exposure to commodity prices. These factors have led to substantial volatility in distributions from quarter to quarter. Otherwise, variable rate paying MLPs are no different from traditional pipeline operators which structure themselves as master limited partnerships, meaning they serve as pass-through entities in which unitholders (the equivalent of shareholders in common stock) receive K-1s annually. They are publicly traded equities which trade on a primary exchange, such as the NYSE or NASDAQ, and are operating companies that own U.S. energy assets. The major similarities and differences between the two structures are summarized in the table below:

MAJOR SIMILARITIES AND DIFFERENCES BETWEEN MLP STRUCTURES		
	TRADITIONAL MLPs	VARIABLE MLPs
Definition	Minimum Quarterly Distribution (MQD)	Variable Quarterly Distribution (VQD)
<b>ASSETS</b>		
Large, Single Asset	Uncommon	Common
<b>DISTRIBUTIONS</b>		
Distribution Stability	Yes	No
Minimum Quarterly Distribution	Yes	No
Coverage Ratio	>1.0x	1.0x
<b>COMMODITY EXPOSURE</b>		
Exposure to Commodity Prices	Mitigated	Expected
<b>GENERAL PARTNERS</b>		
General Partner Interest	2.00%	0%
Incentive Distribution Rights (IDRs)	Yes	None
<b>TAX STATUS</b>		
Investor Tax Filing	K-1	K-1
Pass Through Tax Treatment	Yes	Yes

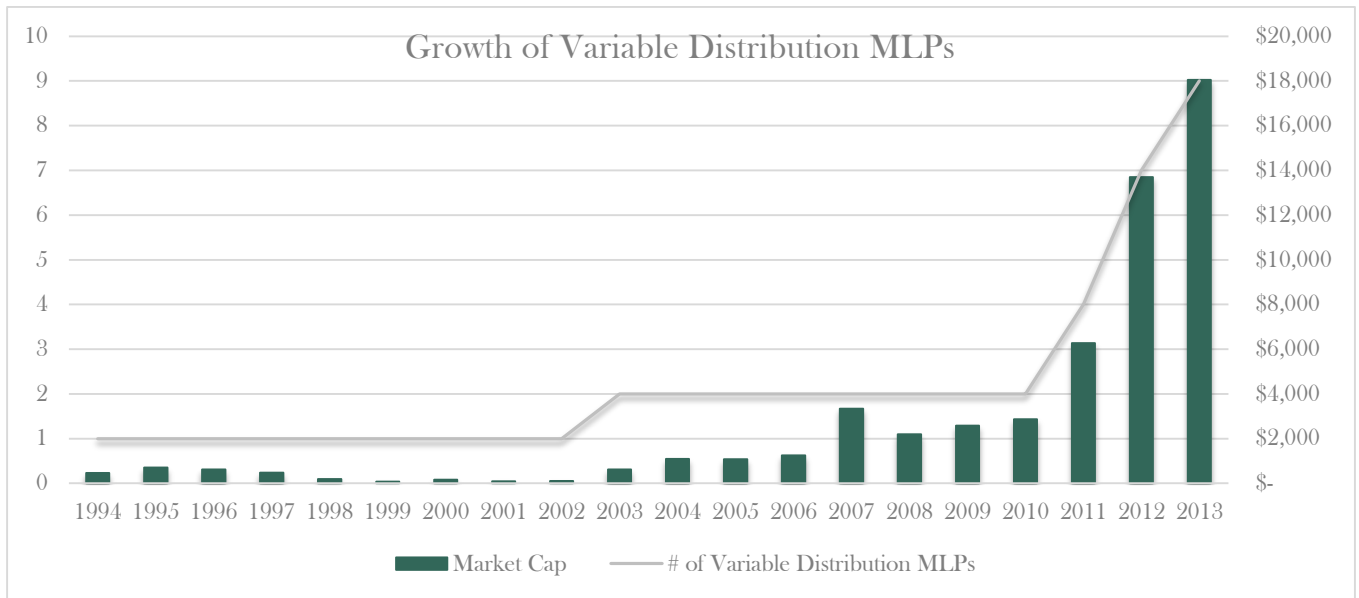
## GROWTH OF STRUCTURE

The variable distribution MLP model was first adopted by Terra Nitrogen LP (TNH), a nitrogen fertilizer partnership which went public in 1994. It remained the only MLP with a variable structure until 2003, when Dorchester Minerals (DMLP) began trading. The following six years from 2004-2010, no new variable MLPs were introduced. Beginning in 2011, however, the structure appeared once again with two new MLPs coming public: CVR Partners (UAN) and Rentech Nitrogen (RNF). Over the past two years, the structure has expanded rapidly with five new partnerships coming public with variable distributions.



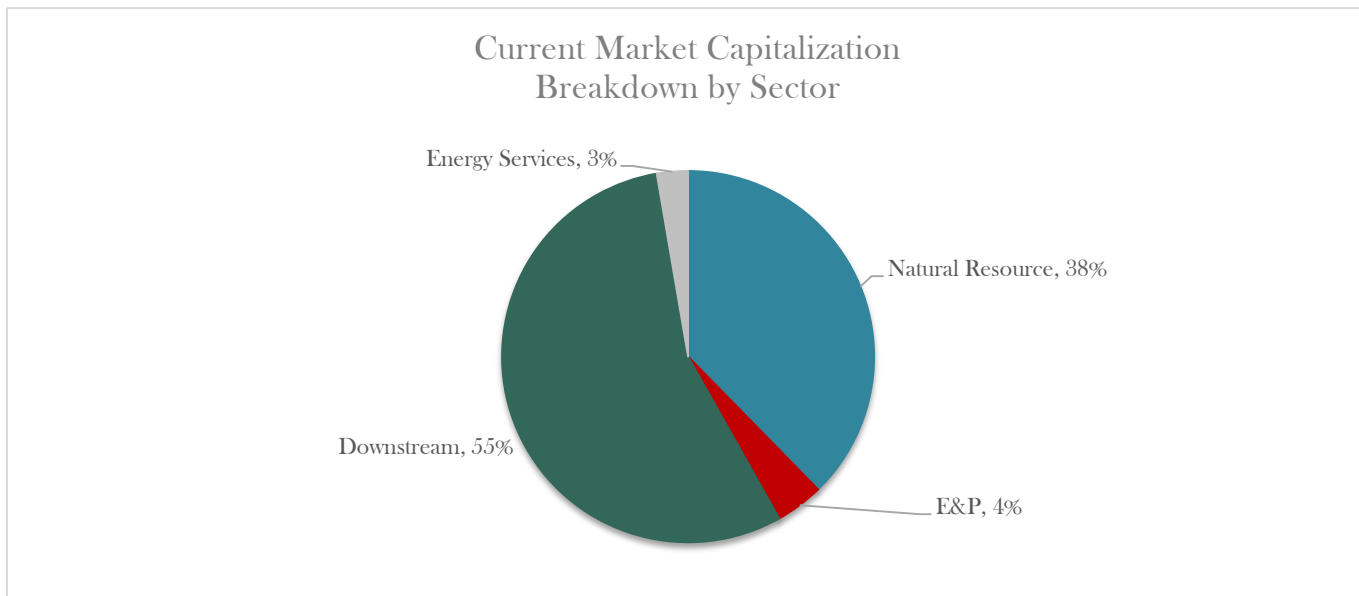
As the chart below illustrates, the expansion of the past few years has increased the number of variable MLPs to 9, with a combined total market capitalization of roughly \$18 billion. As of June 30<sup>th</sup>, variable distribution MLPs represented 4.3% of MLPs by market cap and 9% (9 of 100) by number. From 2010-2013 the number of names in the sector has increased from 2 to 9 while the market capitalization has grown at an annualized rate of approximately 110% from \$6.3 billion to \$18.1 billion. This growth has outpaced that of the MLP universe, which grew at a 33% CAGR over the same 2.5-year span.

With 7 variable IPOs in the last three calendar years (2 in 2011, 3 in 2012, 2 in 2013), variable MLPs have become increasingly common, representing 21% of all IPOs over that timeframe. Currently, there are 100 public MLPs - 9 of the 100 (9%) are variable. We expect the variable trend to continue its growth trajectory as energy companies with less predictable cash flows opt for the pass-through structure that MLPs offer. Opposed to paying up for hedges or carrying above average coverage in order to maintain an MQD, these companies may look to opt for the variable structure as a way to capture the uptick in valuations over C-corps. Going forward, we expect additional variable MLPs to come to market across various sectors including refining, chemicals, oilfield services, and potentially renewables if the MLP Parity Act were to pass.

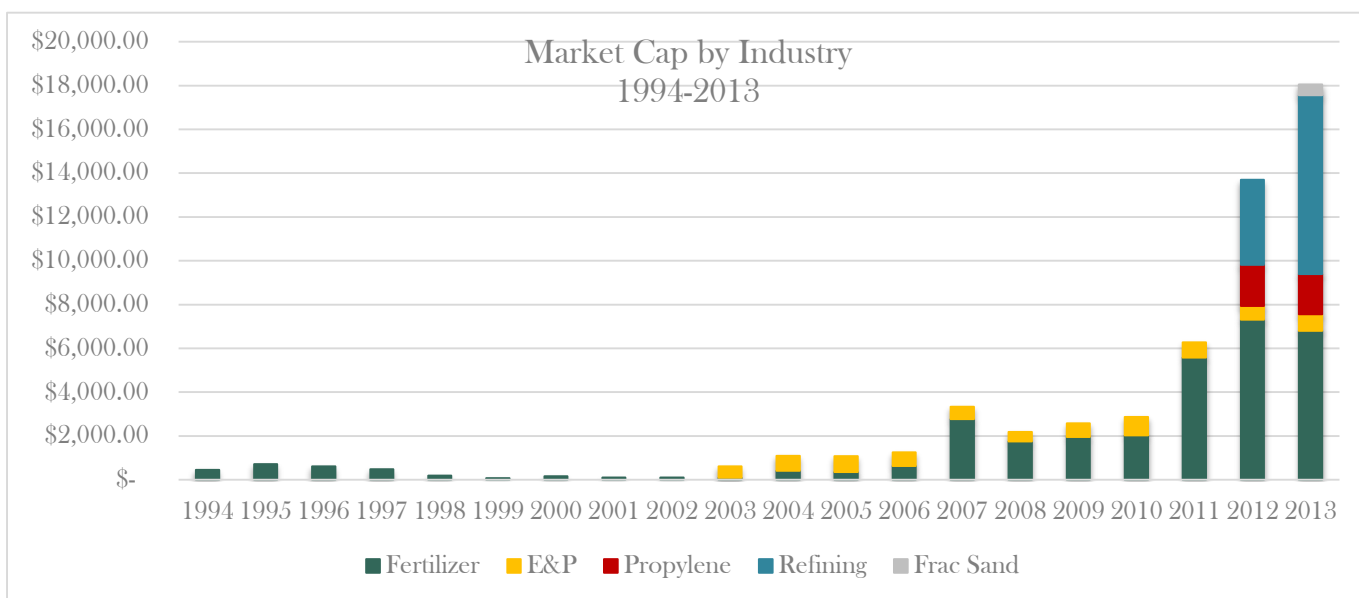


## SECTOR BREAKDOWN

Currently, the variable MLP space consists of companies in four MLP sectors: Energy Services, Exploration & Production, Natural Resources, and Downstream. The largest two sectors by far, are Downstream and Natural Resources, representing a combined 93% of market cap. On a percentage basis, the market capitalization breakdown of the sector representation is shown in the following pie chart:



Of the 9 variable distribution MLPs, the following industries are represented: fertilizer production, refining, exploration and production, propane dehydration, and frac sand production. These businesses differ significantly from the traditional midstream operators structured as MLPs and under our classifications, all nine of them fall under the Yorkville Commodity MLP Universe Index. As the chart below illustrates, it is only since 2011 that the variable structure has evolved to include sectors outside of Natural Resources (fertilizer) and E&P.





Despite coming on late, Refinery MLPs have come to represent approximately \$8.2B, or 45% of the variable MLP Universe. They are followed by fertilizer MLPs at \$6.8B (38%), with the remaining three sectors encompassing the last \$3.1 billion, equal to 17% of the total market cap.

On a company level, the breakdown shows that two companies, CVR Refining (CVRR) at \$4.5B and Terra Nitrogen (TNH) at \$4.0B account for nearly half of the overall market cap (approximately 47%). As more IPOs come to market, the expectation is that the concentration of the sector in a few names will dissipate.

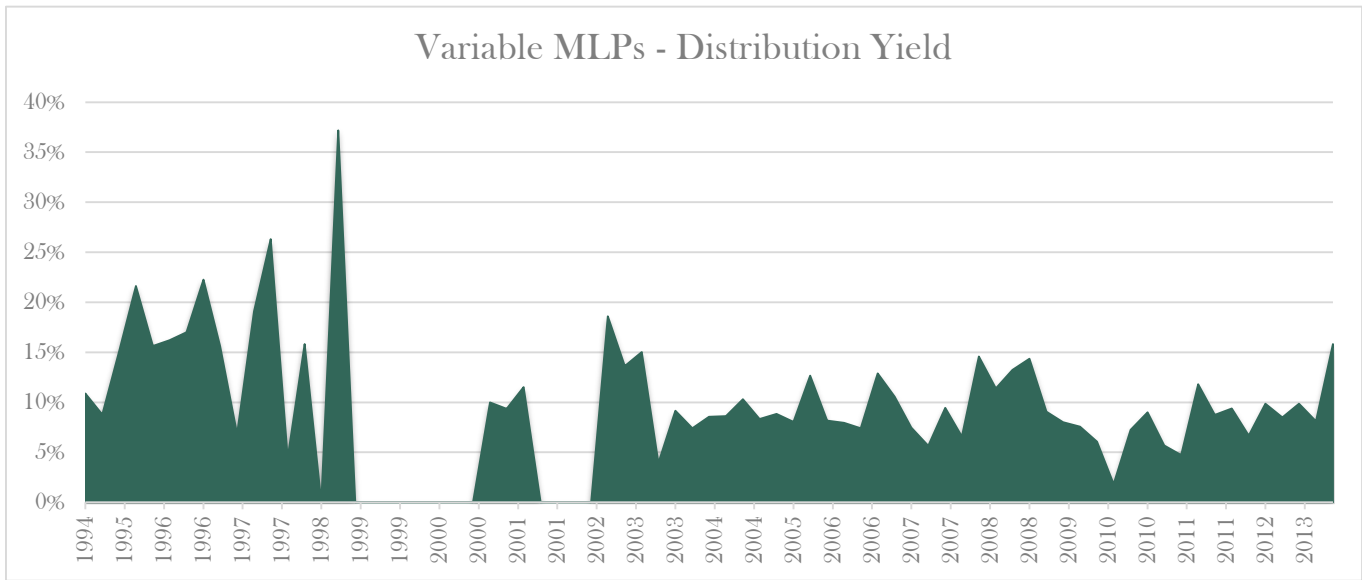
VARIABLE QUARTERLY DISTRIBUTION (VQD) MLPs - FUNDAMENTALS							
COMPANY	TICKER	YIELD		MKT CAP	SECTOR	INDUSTRY	IPO
Terra Nitrogen Co LP	TNH	8.7%	\$	3,999	Natural Resources	Fertilizer	1994
Dorchester Minerals LP	DMLP	7.3%	\$	751	E&P	E&P	2003
CVR Partners LP	UAN	10.7%	\$	1,661	Natural Resources	Fertilizer	2011
Rentech Nitrogen Partners LP	RNF	6.8%	\$	1,143	Natural Resources	Fertilizer	2011
PetroLogistics LP	PDH	20.2%	\$	1,842	Downstream	Propylene	2012
Northern Tier Energy LP	NTI	20.5%	\$	2,209	Downstream	Refining	2012
Alon USA Partners LP	ALDW	24.9%	\$	1,488	Downstream	Refining	2012
CVR Refining LP	CVRR	21.0%	\$	4,473	Downstream	Refining	2013
Emerge Energy Services LP	EMES	13.4%	\$	486	Energy Services	Frac Sand	2013
<b>TOTAL/AVERAGE</b>		<b>14.8%</b>	<b>\$</b>	<b>18,051</b>			

In several cases, the underlying businesses of these companies are focused around a single or few assets which generate cash flow. A few examples include: Petrologistics (PDH), which owns a single propane dehydration facility in the Houston Ship Channel, Rentech Nitrogen (RNF) with two fertilizer production facilities, one in Illinois and one in Texas, and Alon USA Partners (ALDW) which operates a single refinery in Big Spring, Texas.

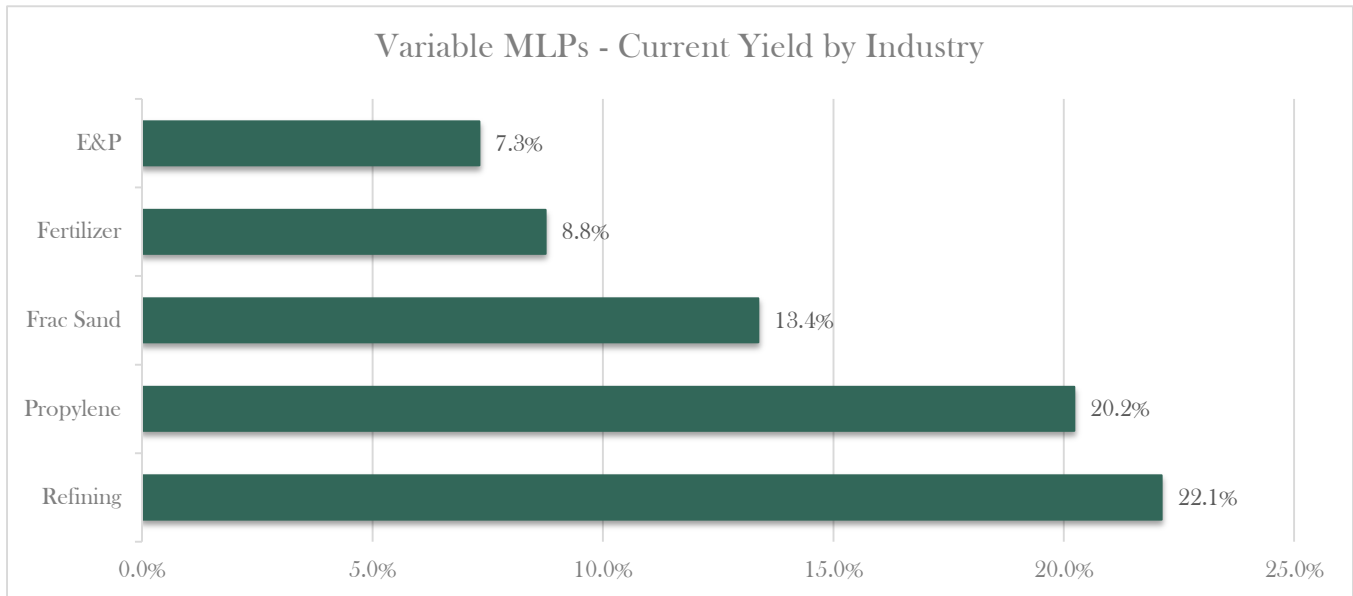
# FUNDAMENTALS

## YIELDS

Due to the structural variability in their distributions, variable rate payers have consistently priced at a higher yield than traditional MLPs. Historically, variable MLPs have averaged a 9.3% yield (skewed downward by distribution cuts to zero), while MLPs overall have averaged around 7 ½ percent. Traditional midstream MLPs currently yield in the 5-7% range, while the average variable distribution MLP boasts a yield of approximately 14%, including recent IPO yields based on guidance, refer to the graph below.

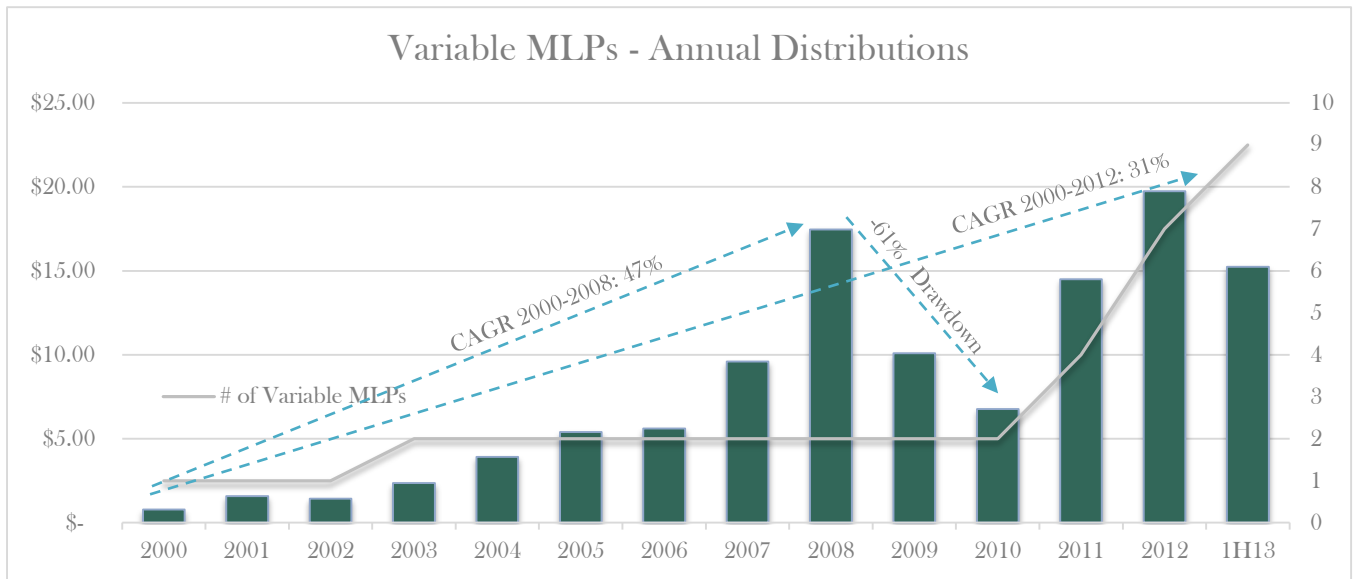


Recently, the variable distribution MLP subset has seen an increase in yields (and spread to MLPs). This pop in yield is a direct result of refinery MLPs coming to market with yields upwards of 20%. On an industry level, refineries tend to yield the most (in the 20% range), while E&P and fertilizer variable MLPs currently yield the least, 7-9%.

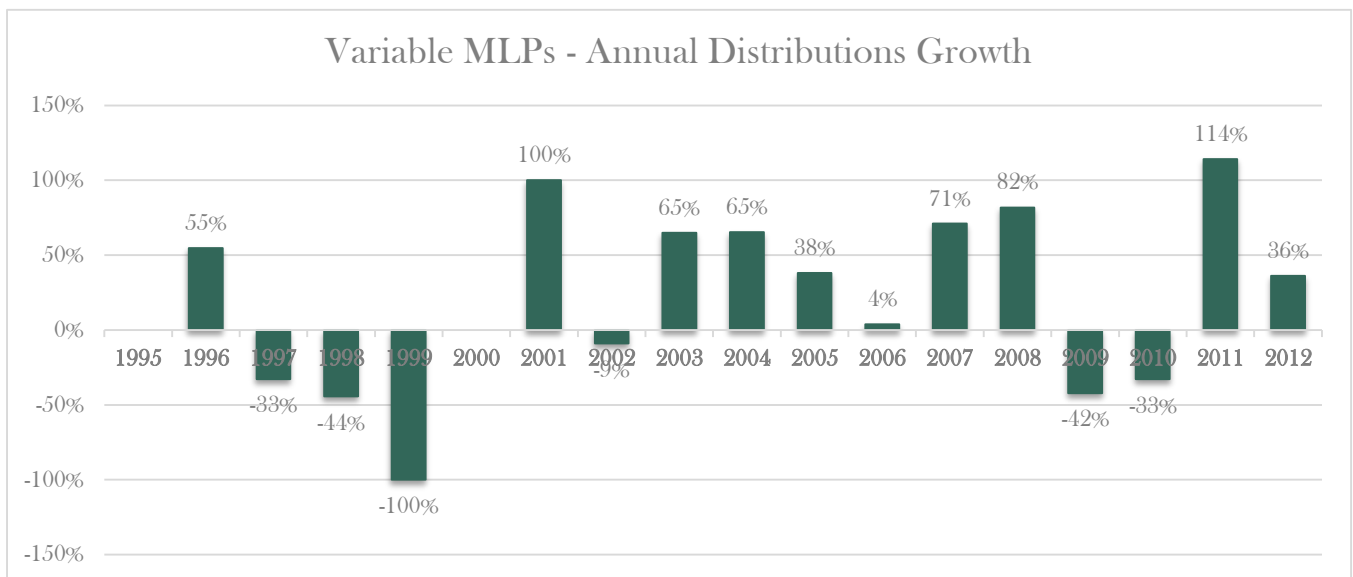


## DISTRIBUTIONS

As the structure's name would suggest, the distributions of variable-rate MLPs have been historically hard to predict. Whereas traditional MLPs rarely decrease distributions, variable distributions are increasing and decreasing each quarter based on cash flow volatility from their underlying businesses.



While MLPs overall suffered a slight decrease in distributions in 2009, 76% of MLPs managed to not cut distributions once during the financial crisis. The result was only a slight decline in index level distributions of -2.4% for the MLP Universe. The following year, in 2010, distributions reached a high watermark and have continued to make new highs each year since. Meanwhile, variable distribution MLPs saw two consecutive years (2009-2010) of distribution declines, falling by nearly -61%. Despite regaining in 2011, it was only in 2012 that distribution levels surpassed the previous highs made in 2008. Thus far in 2013, variable distributions look to make another new high, as refinery MLPs have boosted payouts for the index.

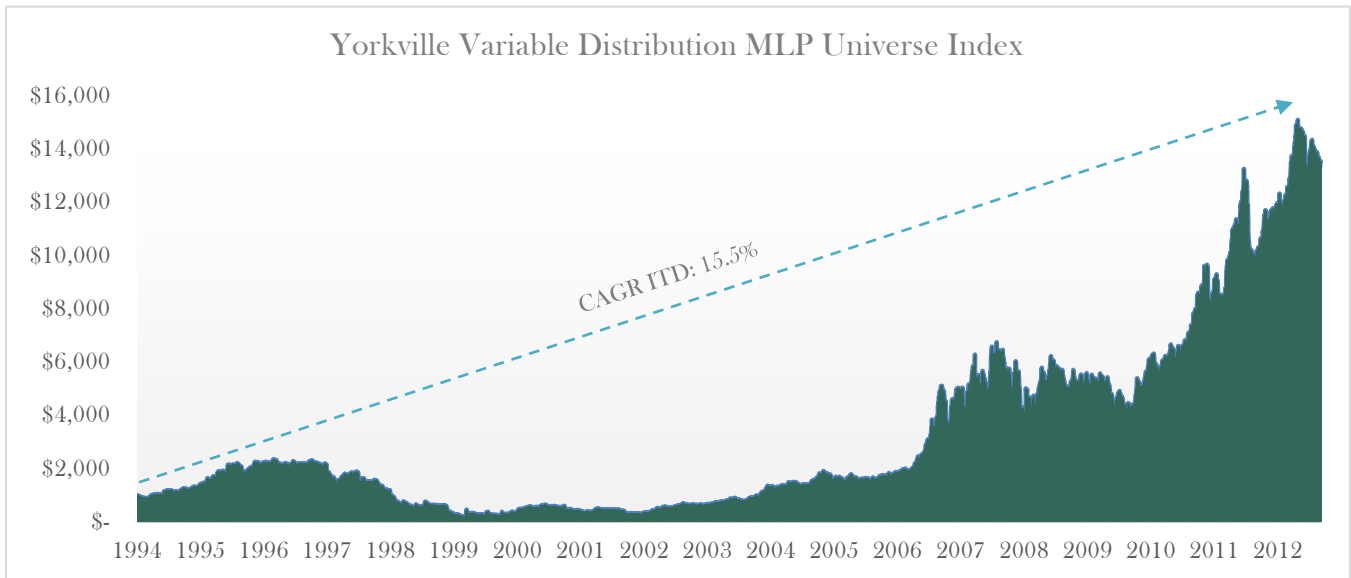


# ABSOLUTE PERFORMANCE

## CUMULATIVE PERFORMANCE

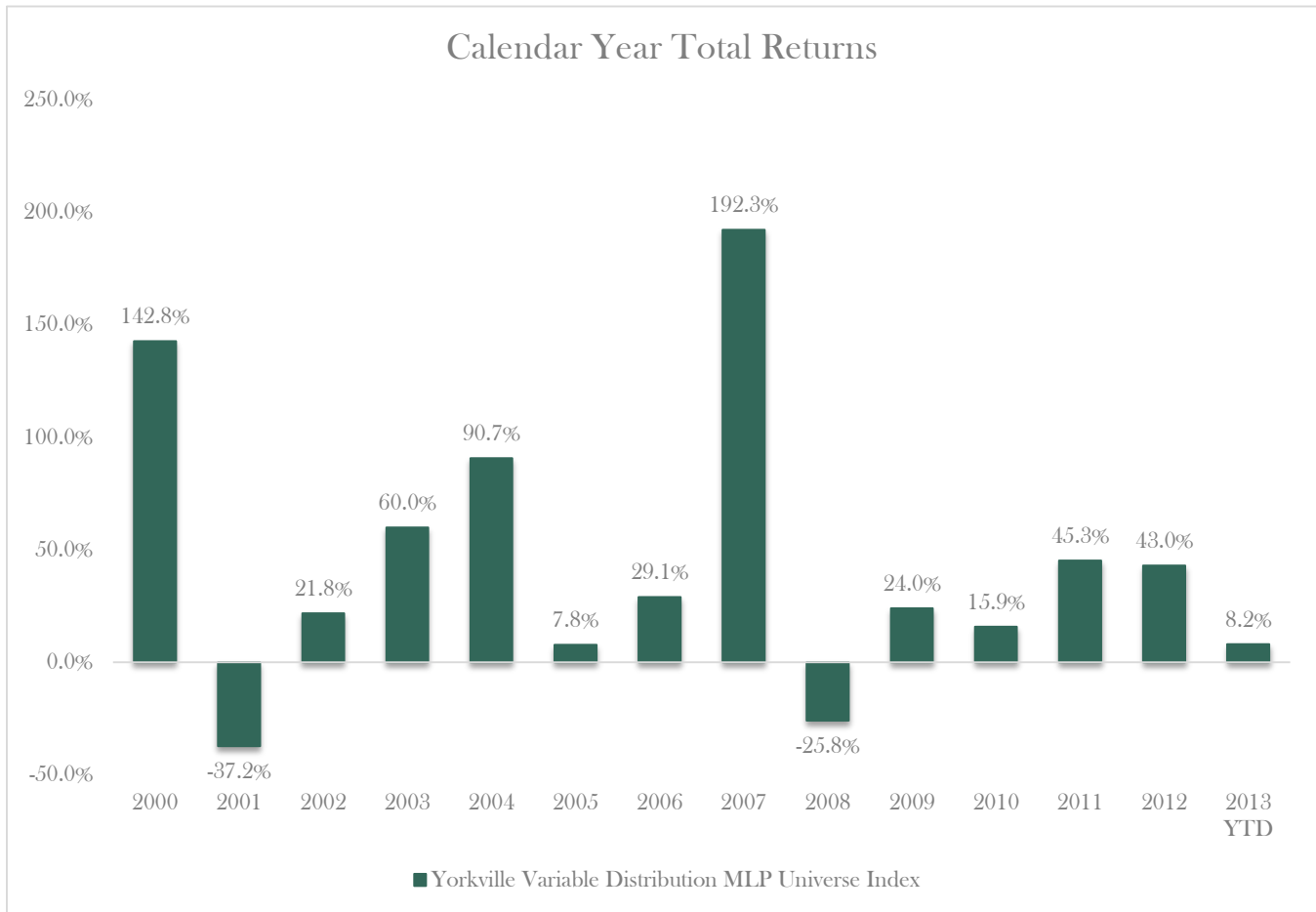
*Note: Much of the structure's history consists of a 1-2 member index, far too small to be statistically significant.*

One thousand dollars invested in the Yorkville Variable Distribution MLP Universe Index at its onset, beginning with a 100% allocation to TNH in 1994, would have grown to \$14,794 including reinvestment of distributions as of June 30, 2013. This represents a CAGR of 15.5% or a cumulative return of 1256%.



## ANNUAL PERFORMANCE

Looking at their performance on a year-by-year basis, variable MLPs were able to produce positive total returns in 12 of the past 14 years. In their two best years, 2000 and 2007, they posted returns of over 100%. In the two years variable distribution MLPs were down, 2001 and 2008, they lost -37.2% and -25.8%, respectively. Looking at the past 3 years, variable MLPs have been able to produce returns of 45%, 43% and 8% YTD consecutively. VQD MLPs have consistently produced positive returns.



## ROLLING PERFORMANCE

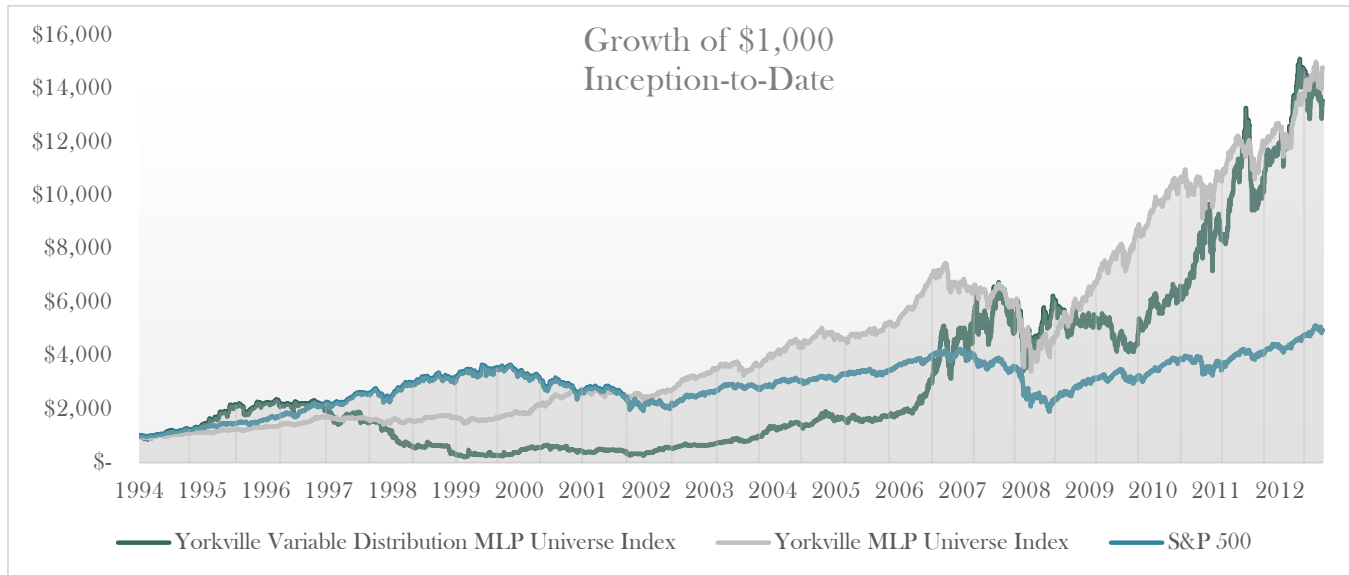
Variable distribution MLPs have consistently produced outsized returns over multiple time periods. On a 3-year basis, annualized return was +48.1%. For the past 10 years, the compounded annual growth rate was an incredible +35.6%. And since inception, variable MLPs have returned +14.9% annualized. Based on the ITD numbers, an investment in variable rate MLPs historically would have doubled approximately every 5 years.

Rolling Performance - Total Returns						
	1 Year	3 Year	5 Year	7 Year	10 Year	ITD
Variable MLPs	35.4%	48.1%	17.9%	35.6%	35.6%	14.9%

## RELATIVE PERFORMANCE

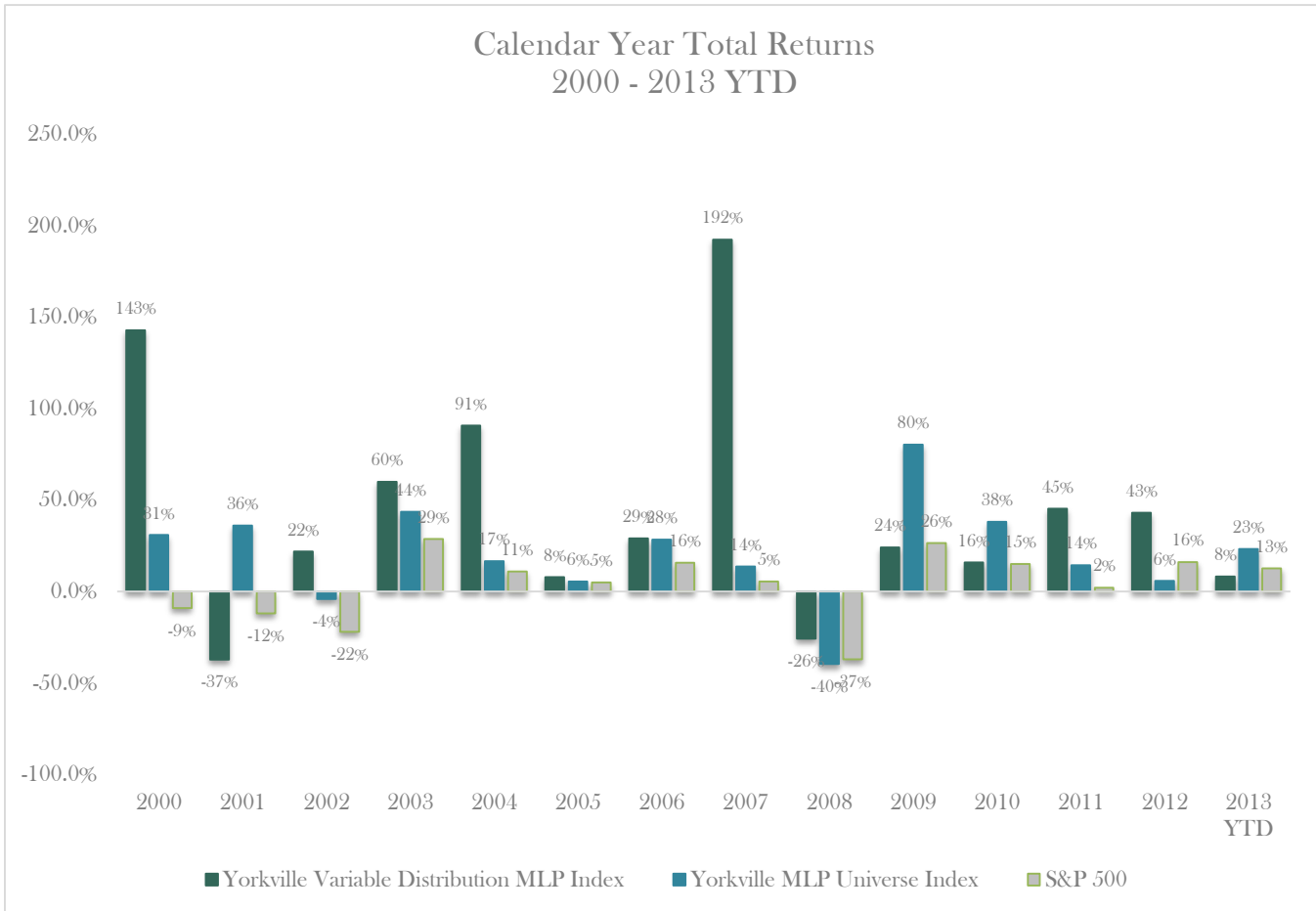
### CUMULATIVE RELATIVE RETURNS

Variable distribution MLPs produced cumulative returns of +1256% since inception versus +395% for the S&P 500. This means that \$1000 invested in the variable MLP subset would be worth 2.7 times that of the same investment in the S&P 500. The overall MLP asset class returned +1379% over the same timeframe, slightly higher than variable MLPs. On an annualized basis, these returns are equal to a gain of +14.9% for variable distribution MLPs, +8.9% for the S&P 500, and 15.4% for the MLP asset class. Despite higher distribution variability, variable-rate MLPs have delivered performance in-line with the broader MLP Universe since their inception in 1994.



## ANNUAL RELATIVE PERFORMANCE

When looking at variable MLPs in the context of the broader MLP space and broader equity markets, they have consistently been the top performers over the past 14 years. Variable MLPs have beaten the S&P 500 in 11 of the last 14 years, and bettered MLPs in 10 years over the same timeframe. Interestingly, during the financial crisis in 2008, variable-rate MLPs (-26%) declined less than the MLP Universe (-40%) and the S&P 500 (-37%). During the tech bubble bursting from 2000-2002, variable distribution MLPs suffered only one down year, versus all 3 down years for the S&P 500 and zero down years for MLPs. Variable distribution MLPs have regularly delivered superior performance over MLPs and equities in both up and down markets. This outperformance in up and down markets is surprising given VQD's greater distribution volatility.



The big year for variable MLPs was 2007, in which they produced a return of 192%, driven by a share price increase of +339% for TNH. Ultimately, gains that year were derived from fundamentals - variable distributions increased from \$2.60 for 2006 to \$6.47 for 2007.



## ROLLING RELATIVE PERFORMANCE

As the chart below illustrates, variable MLPs have consistently and significantly outperformed both common stocks and MLPs over rolling timeframes of 1, 3, 7 and 10 years. Focusing on the annualized performance on a 3-year basis, variable MLPs were up +48% annualized, more than double that of the MLP universe and approximately 4 times that of the S&P 500. Since inception, variable MLPs have only slightly underperformed the broader MLP benchmark (50 basis points of return per year), while handily beating out the S&P 500 (6% alpha per annum).

Rolling Performance - Total Returns						
	1 Year	3 Year	5 Year	7 Year	10 Year	ITD
Variable MLPs	35.4%	48.1%	17.9%	35.6%	35.6%	14.9%
MLPs	29.7%	22.4%	18.9%	17.0%	16.7%	15.4%
S&P 500	16.9%	12.8%	5.2%	5.1%	7.9%	8.9%

## RISK CHARACTERISTICS

From 2000-2013 YTD, variable MLPs have exhibited more risk than MLPs as a whole, with a monthly standard deviation (36%) more than twice that of the MLP universe (16.3%). Maximum drawdown also came in slightly higher for variable payers, with a decline of -51.0% versus -50.9% for the S&P 500 and -44.9% for MLPs. Unlike MLPs and the S&P 500, this drawdown did not occur during the financial crisis - variable distribution MLPs suffered there largest decline from March 2001-September 2002 as one company, Terra Nitrogen. Since 2000, the risk adjusted measure of Sharpe ratio had variable MLPs come in on top with a mark of 0.87. This was modestly better than the MLP space as a whole (0.83) and significantly above the S&P 500 (-0.07) - once again a result of strong performance compensating for an elevated risk profile. It is clear that variable distribution MLPs have a considerably higher risk profile when compared to MLPs or the S&P 500 as increased price volatility coincides with higher distribution volatility.

Risk Characteristics 2000 - 2013 YTD			
	Standard Deviation	Sharpe Ratio	Max Drawdown
Variable MLPs	36.0%	0.87	-51.0%
MLPs	16.3%	0.83	-44.9%
S&P 500	15.8%	-0.07	-50.9%

## CORRELATIONS

Since 2000, variable MLPs have maintained nearly negligible correlations with all other asset classes including other MLPs, equities, commodities and fixed income securities. As shown in the table below, correlations to every alternative asset class were below 0.40 and even negative to the US 10-Year treasury. The correlation of variable distribution MLPs to the MLP asset class in general was only 0.37 and high yield corporate bonds were vaguely correlated at 0.21, despite being the second most closely correlated. Correlation to oil and natural gas was below 0.10 each, implying the energy markets had little to no impact on performance. Low correlations to various asset classes and to MLPs indicate that variable distribution MLPs offer diversification benefits within an MLP-focused investment strategy or allocation, as well as a diversified portfolio.

Variable Distribution MLP Correlations 2000 - 2013 YTD	
MLPs	0.37
S&P 500	0.16
WTI Crude Oil	0.10
Henry Hub Natural Gas	0.06
ML US 10-YR Benchmark	(0.07)
High Yield	0.21
US 10-YR Yield	0.07

Interestingly, correlations for the variable MLPs to their respective fundamental business drivers were very low as well. The fertilizer names had low correlations to spot urea prices and the refineries had muted correlations to crack spreads.

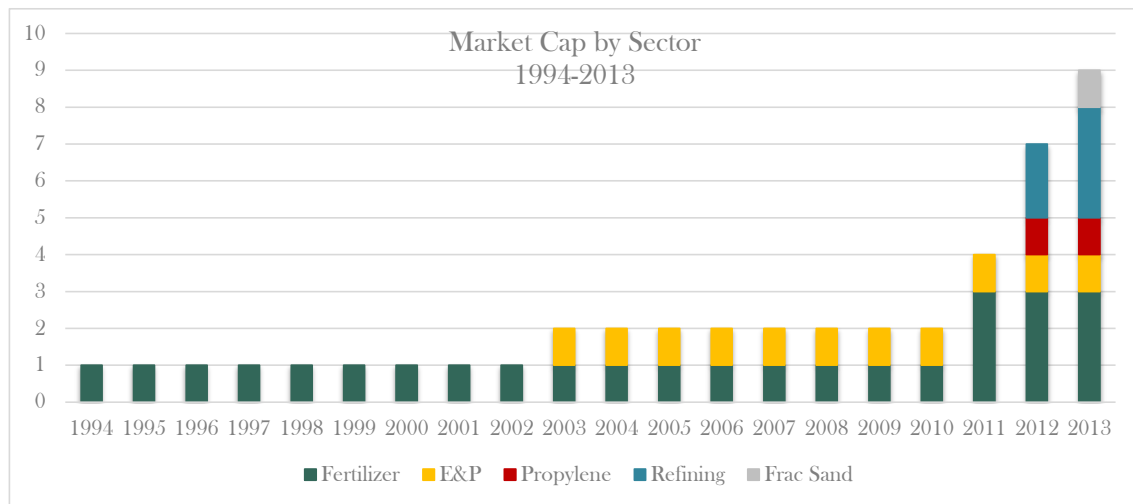
## CONCLUSION

1. Ultimately, the uptick in yield of 800 basis points to 14% from 6% for traditional MLPs fairly prices in the expected increase in risk. Variable distribution MLPs have historically exhibited significantly more volatility, both in underlying fundamentals (distributions) and unit price than other MLPs.
2. Despite their limited history, variable distribution MLPs have delivered consistently strong performance over multiple periods. They have significantly outperformed MLPs in 10 and equities in 11 of the past 14 years, respectively. Moreover, they declined less in 2008 than both the MLP Universe and the S&P 500.
3. Variable distribution MLPs have exhibited greater volatility and risk than other MLPs and the S&P 500. Since 2000, monthly standard deviation for VQD MLPs was roughly double that of the MLP Universe.
4. Not only do variable MLPs have low correlations to equities, commodities and fixed income, they have low correlations to *other MLPs*. Therefore, they can serve to further diversify one's MLP allocation.

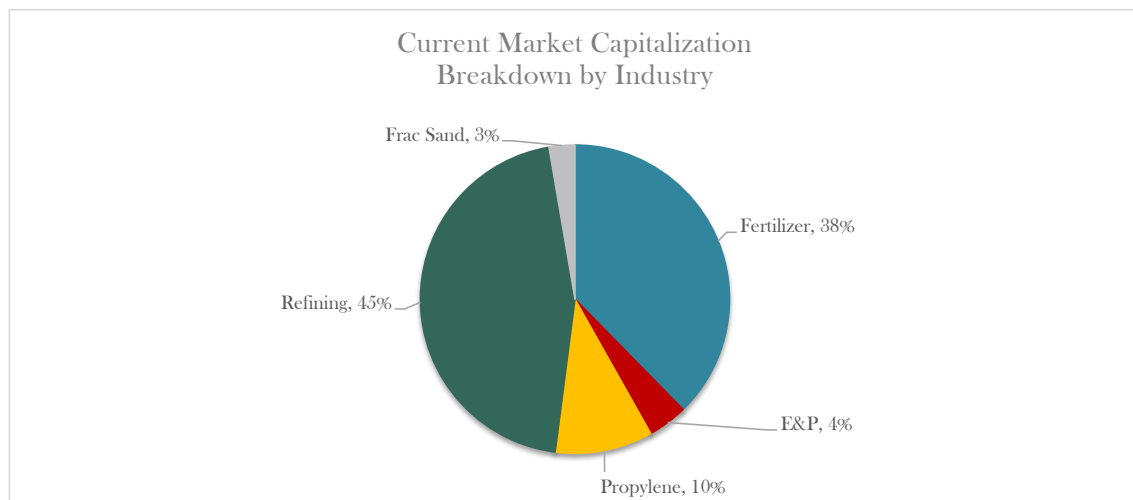
Yorkville believes that there are and will continue to be opportunities in the space, but it is critical to understand that these are not buy-and-hold investments. They are susceptible to extreme swings in distributable cash flows due to single asset risk, lack of hedging programs and seasonality. With the appropriate entry point, they can serve to provide alpha as tactical trade as they are likely to be mispriced – both a result of a lack of analyst coverage as well as a lack of understanding regarding the companies' businesses. Before investing, it is important to note the risks associated with structure – even before looking into a specific companies assets. The Yorkville Variable Distribution MLP Index is the tool with which to better understand structure, and to make appropriate investment decisions.

## APPENDIX I

### A. HISTORICAL MARKET CAPITALIZATION BREAKDOWN BY SECTOR

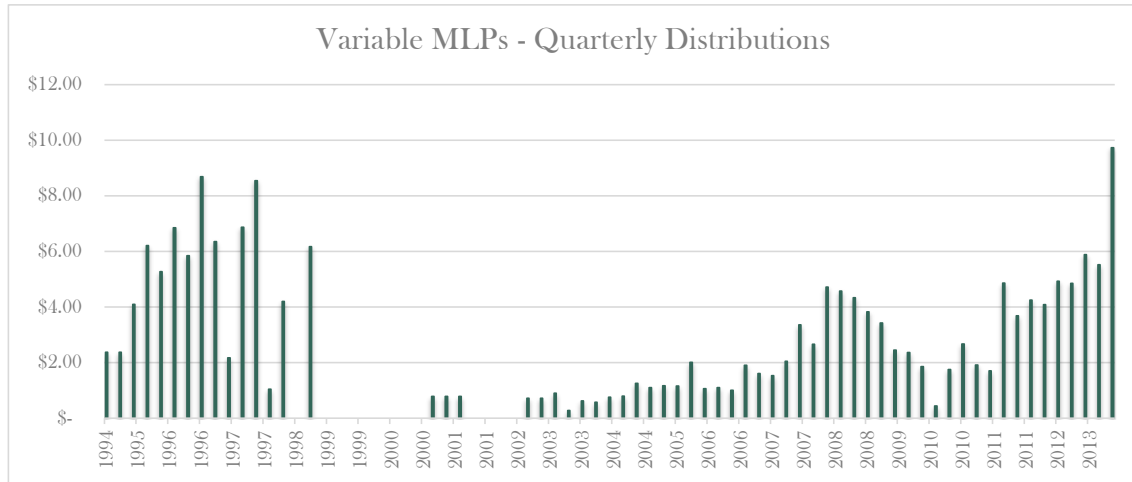


### B. CURRENT MARKET CAPITALIZATION BREAKDOWN BY INDUSTRY

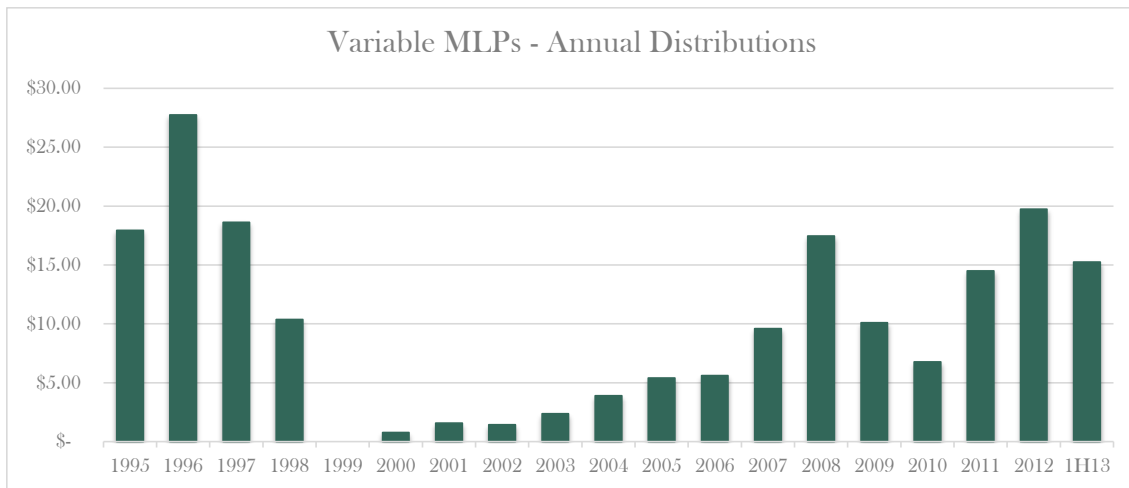


## APPENDIX II

## A. HISTORICAL DISTRIBUTIONS - QUARTERLY SINCE INCEPTION



## B. HISTORICAL DISTRIBUTIONS - ANNUALLY SINCE INCEPTION



## C. HISTORICAL DISTRIBUTION GROWTH - ANNUALLY SINCE INCEPTION



## APPENDIX III

### A. RISK CHARACTERISTICS

Risk Characteristics Inception-to-Date			
	Standard Deviation	Sharpe Ratio	Max Drawdown
Variable MLPs	37.0%	0.43	-89.9%
MLPs	15.6%	0.69	-44.9%
S&P 500	15.5%	0.32	-50.9%

Risk Characteristics 2011 - 2013 YTD			
	Standard Deviation	Sharpe Ratio	Max Drawdown
Variable MLPs	27.4%	1.16	-23.5%
MLPs	14.5%	0.84	-10.3%
S&P 500	12.8%	0.65	-16.3%

## APPENDIX IV

### A. CORRELATIONS SINCE INCEPTION

Variable Distribution MLP Correlations Inception-to-Date	
MLPs	0.38
S&P 500	0.10
WTI Crude Oil	0.10
Henry Hub Natural Gas	0.06
ML US 10-YR Benchmark	(0.05)
High Yield	0.21
US 10-YR Yield	0.04