



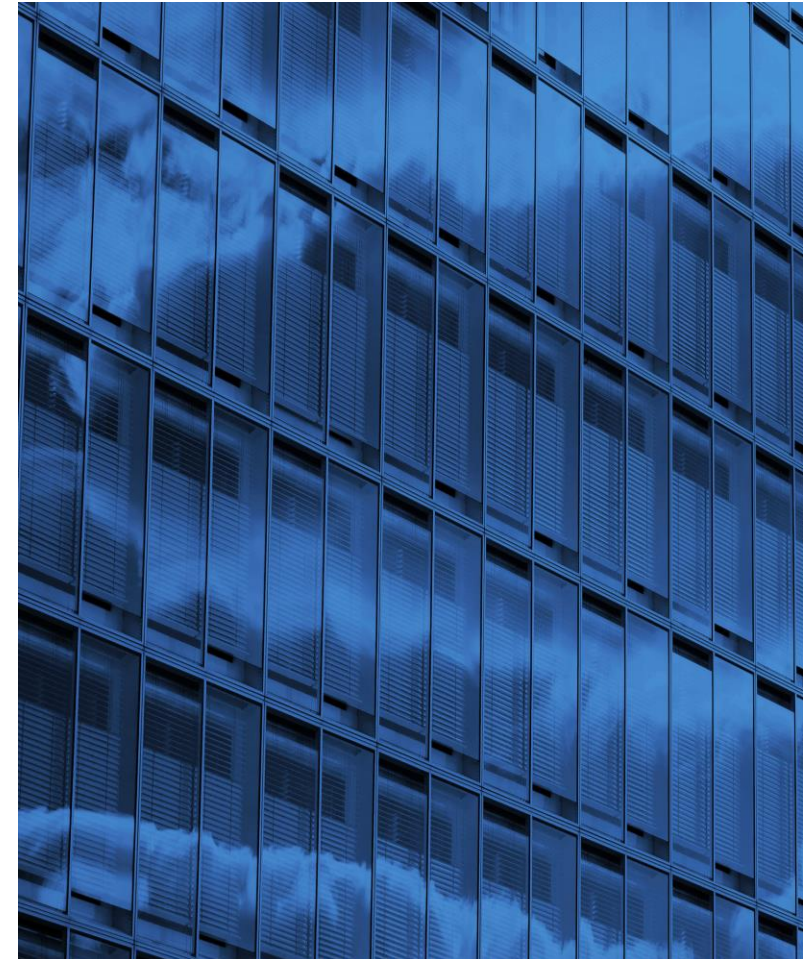
# Monthly Valuation Analysis

OCTOBER 31, 2020



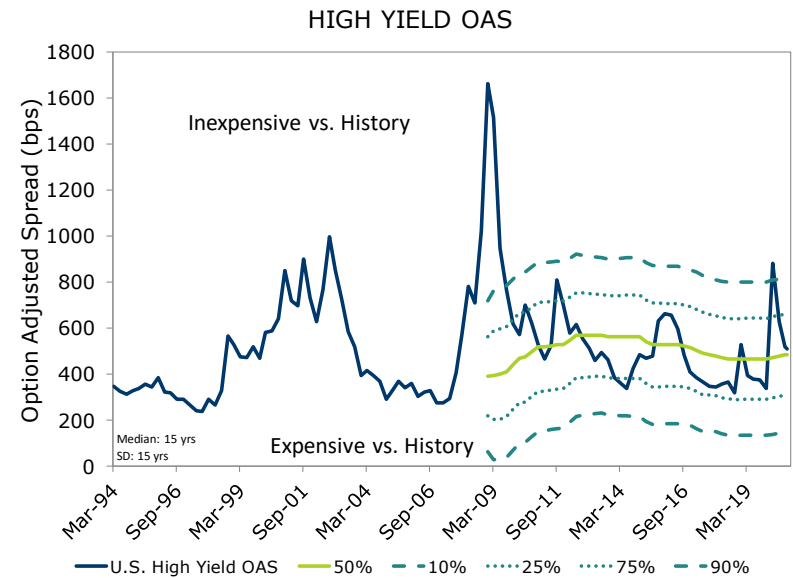
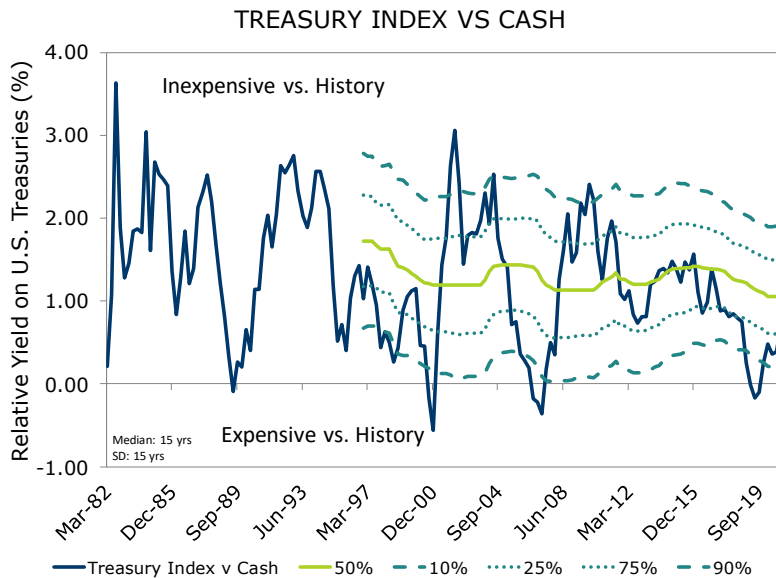
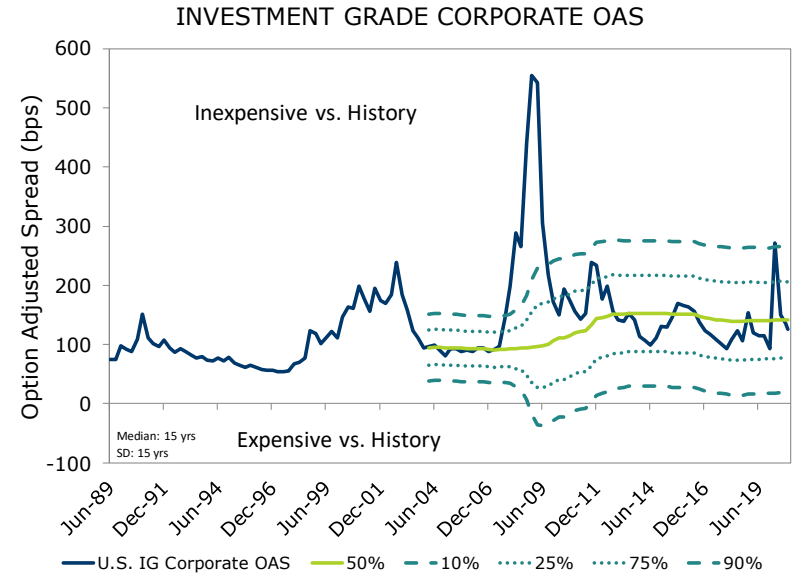
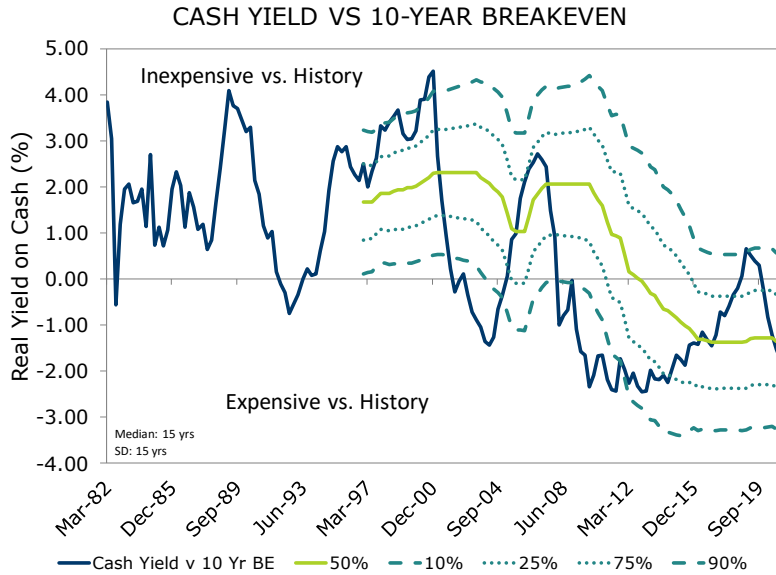
# Introduction

- Analysis includes current valuation levels versus historical norms within and among various asset classes
- Results rely on historical data (i.e. current price levels are compared to historical observations)
- Historical time period used to calculate average observation is the past 15 years ending the most recent quarter-end
- Most exhibits include a ‘median’ line along with breakpoints calculated assuming a normal distribution of outcomes:
  - Conditions are expressed as probabilities with the low end (1%) implying an “expensive” situation and the high end (99%) as “inexpensive” versus history
  - +/- 0.67 standard deviations represents the 75/25% outcomes
  - +/- 1.28 standard deviations represents the 90/10% outcomes
- Yields, including dividend yield for equities, have been used throughout to create a consistent comparison when comparing one asset class to another



# MONTHLY VALUATION ANALYSIS

## Fixed Income Environment

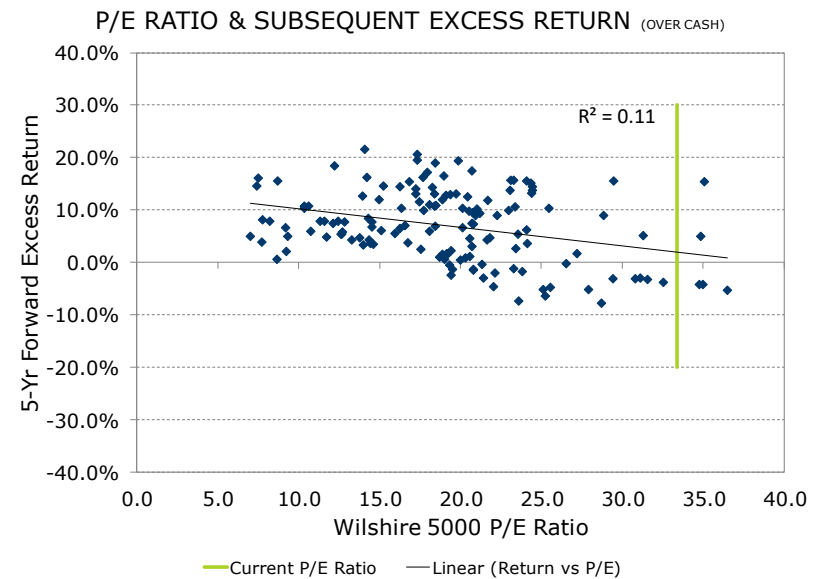
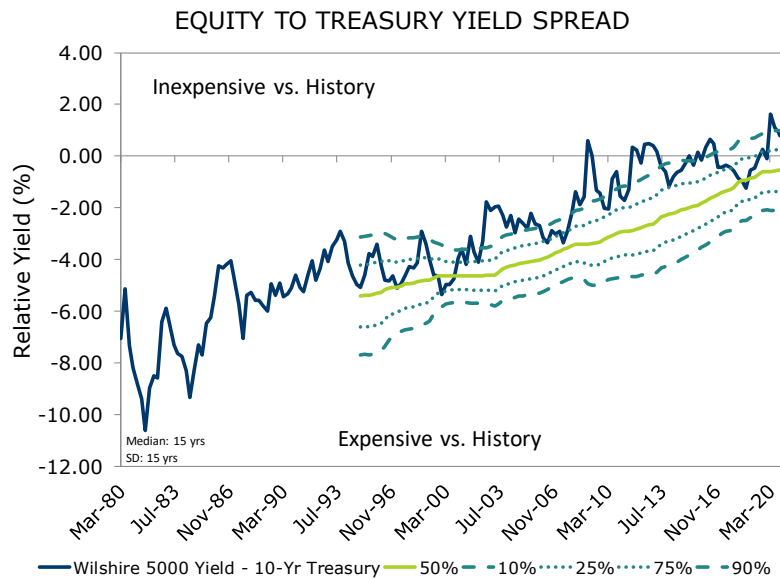
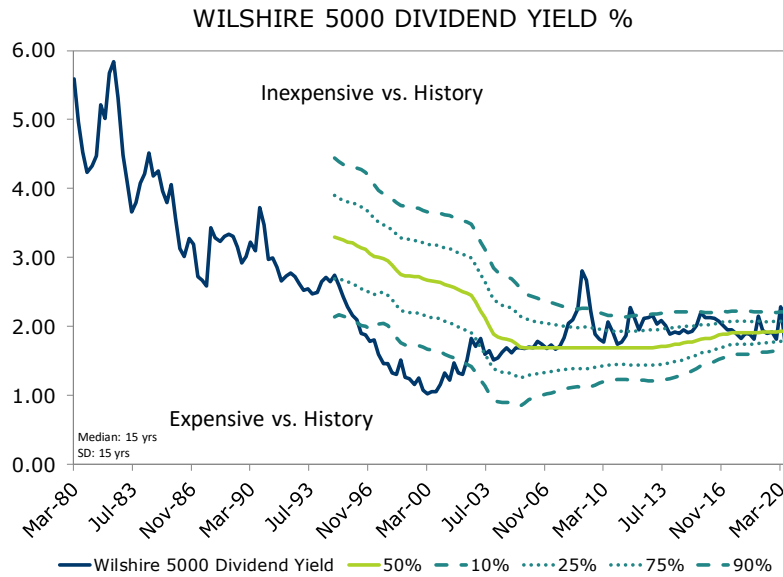


Data Source: Bloomberg

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# MONTHLY VALUATION ANALYSIS

## U.S. Equity Valuations

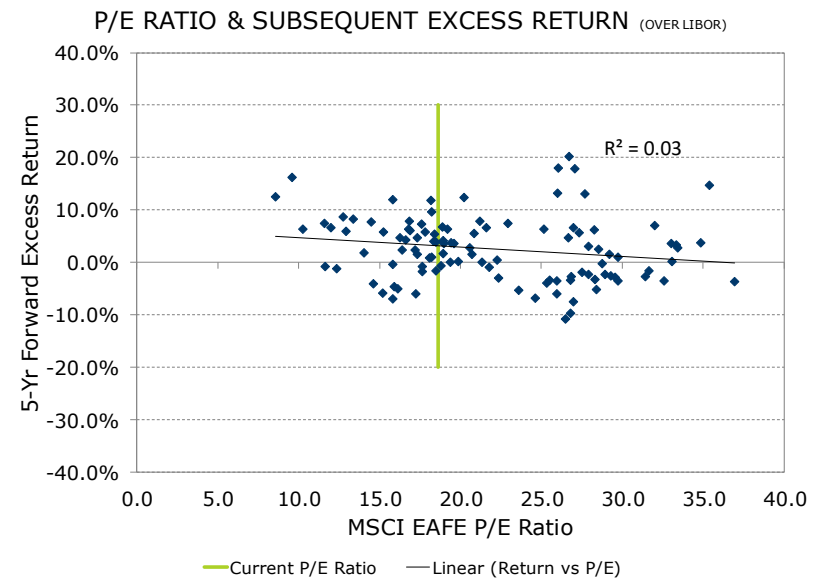
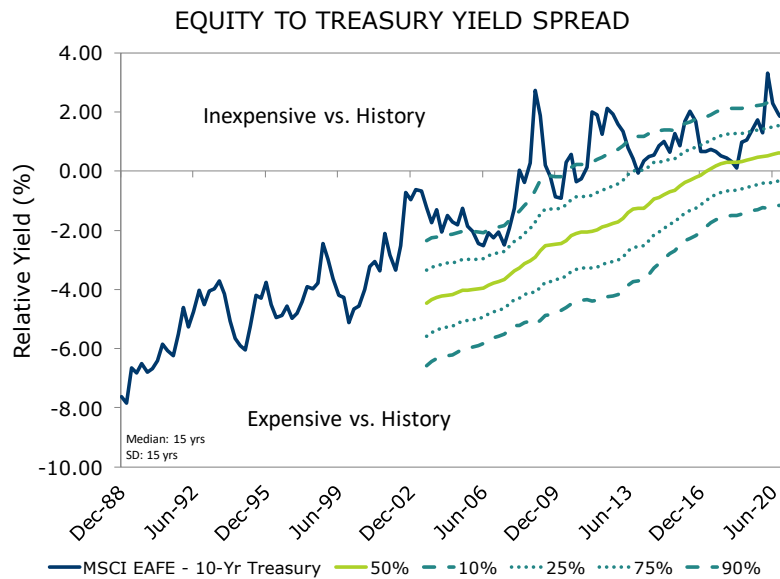
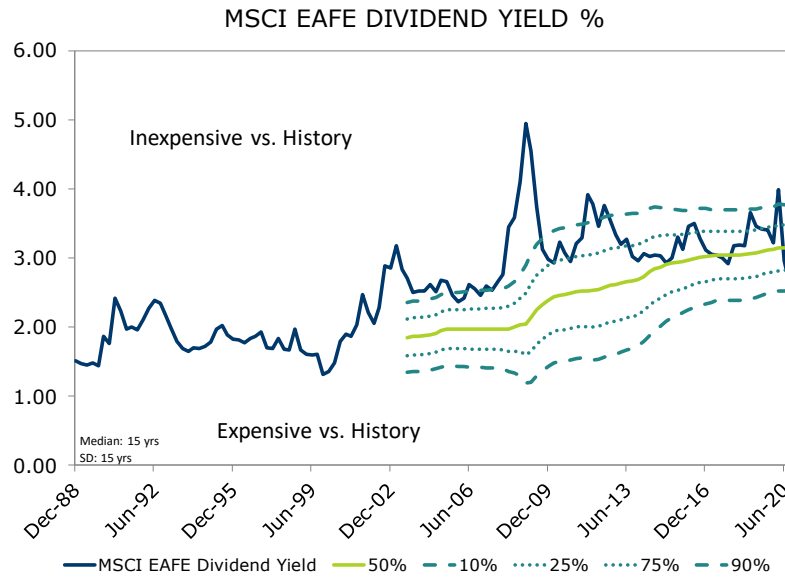


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# MONTHLY VALUATION ANALYSIS

## Developed Market Valuations

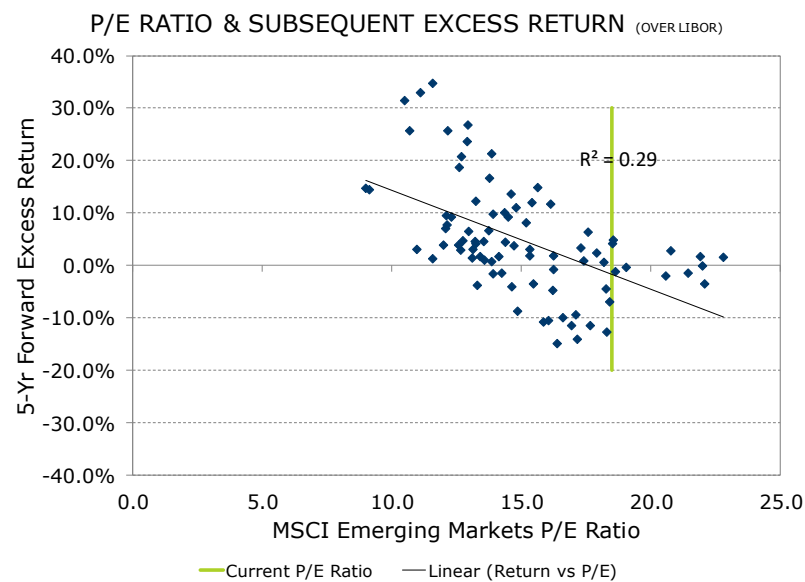
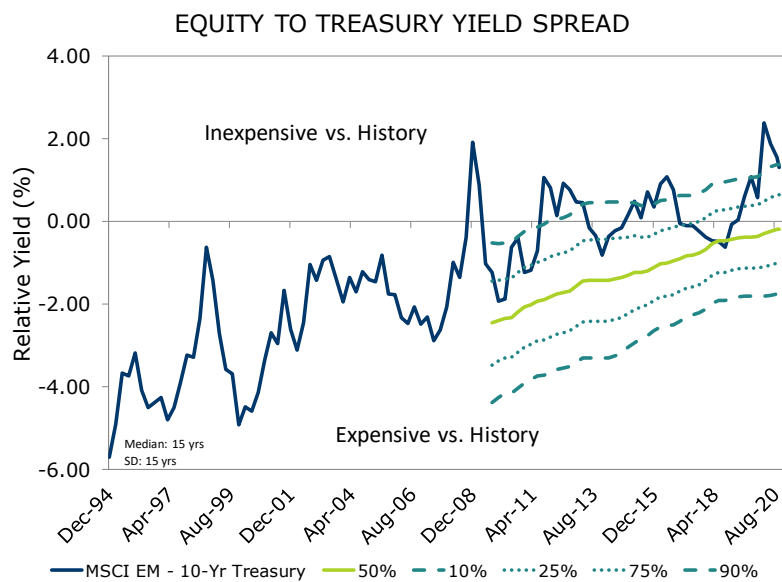
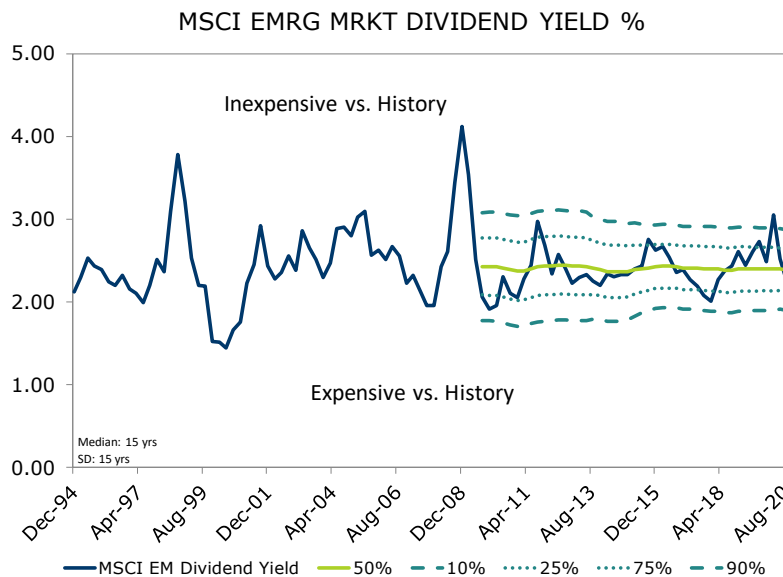


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# MONTHLY VALUATION ANALYSIS

## Emerging Market Valuations

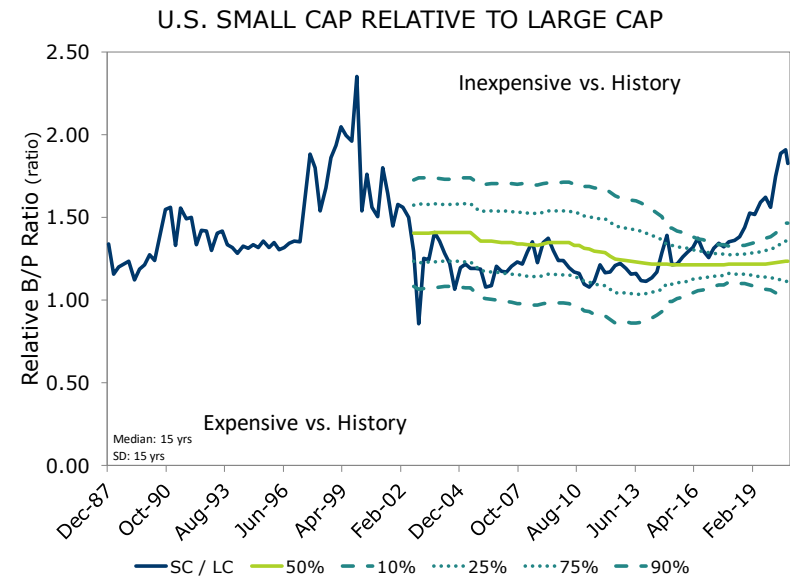
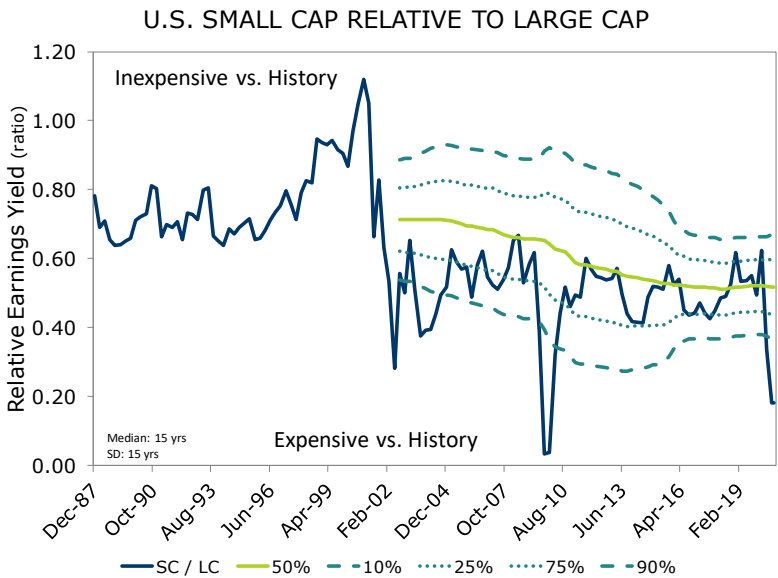
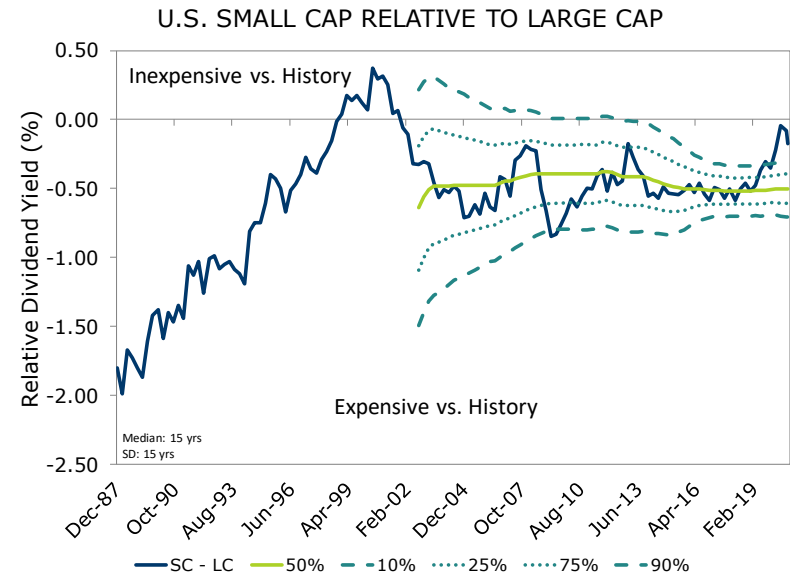
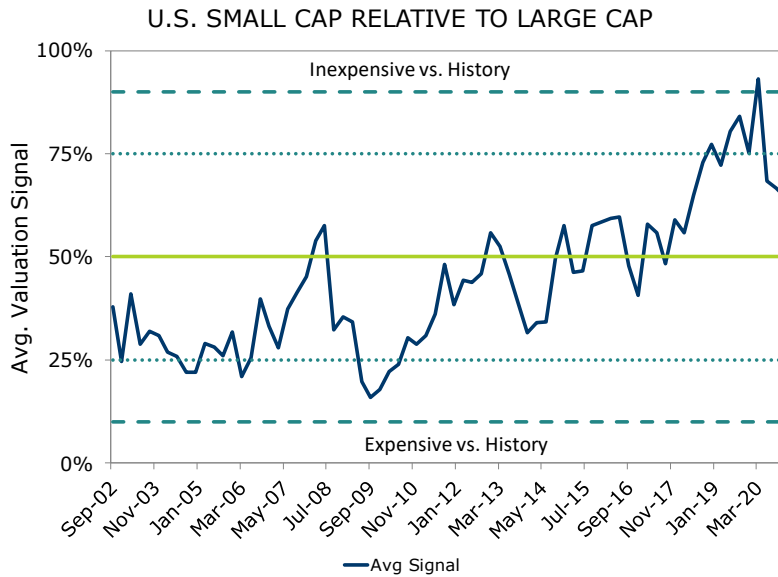


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# MONTHLY VALUATION ANALYSIS

## Relative U.S. Equity: Size

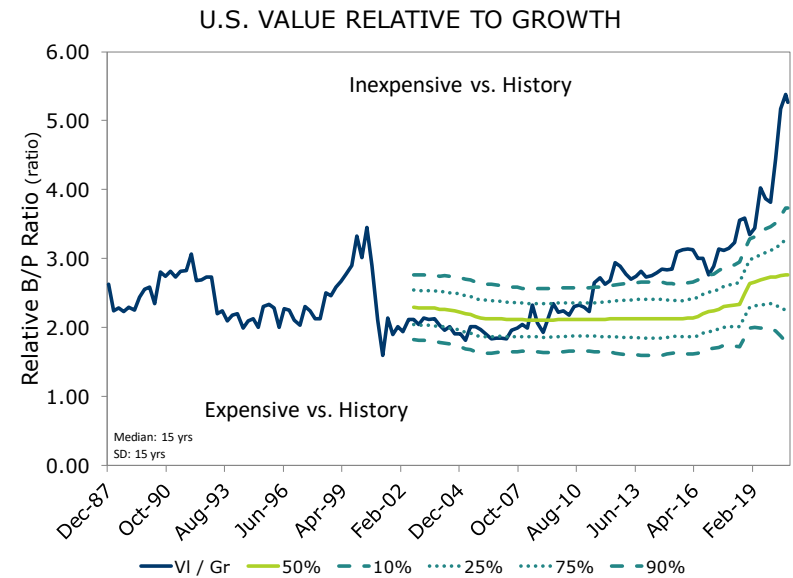
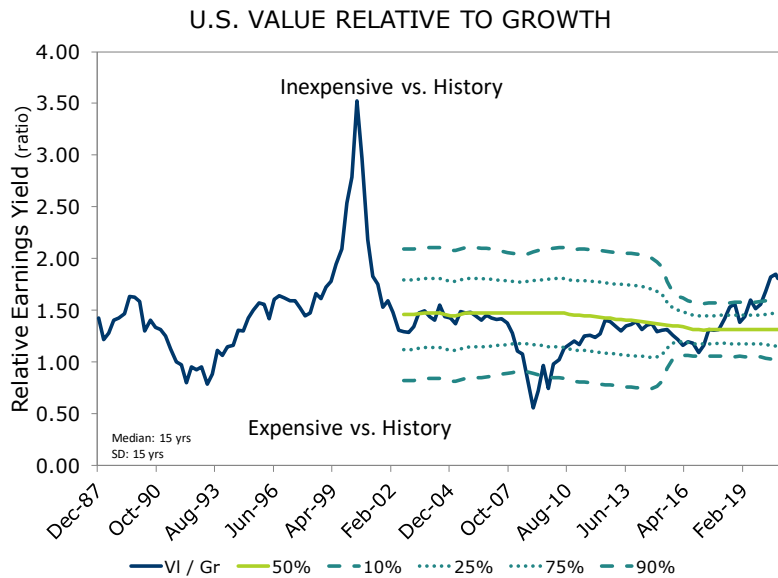
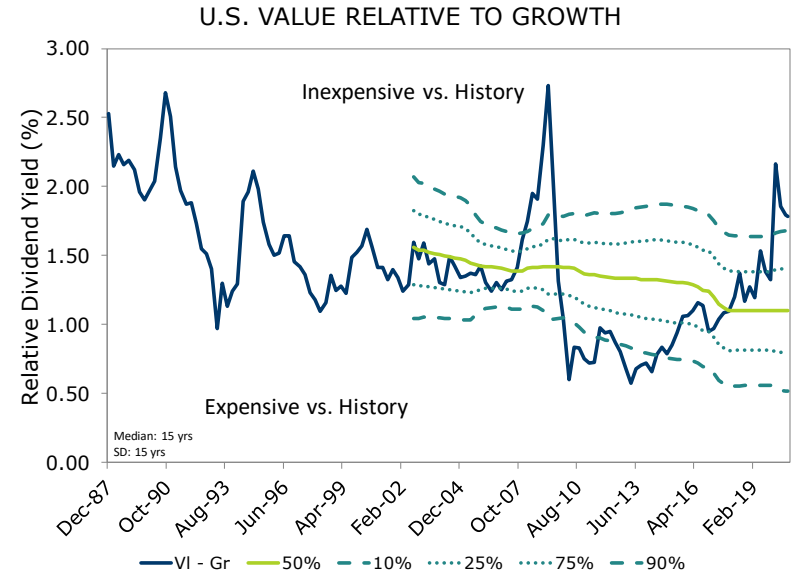
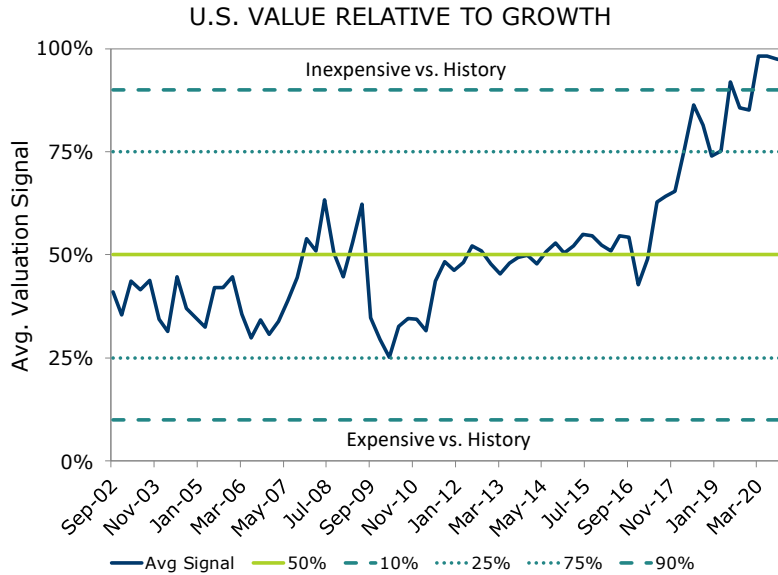


Data Source: Bloomberg, Wilshire Atlas

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# MONTHLY VALUATION ANALYSIS

## Relative U.S. Equity: Style



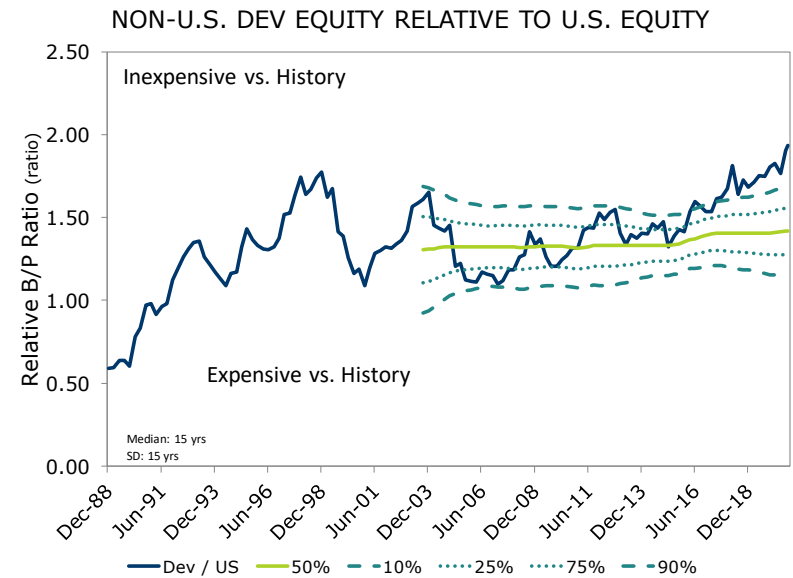
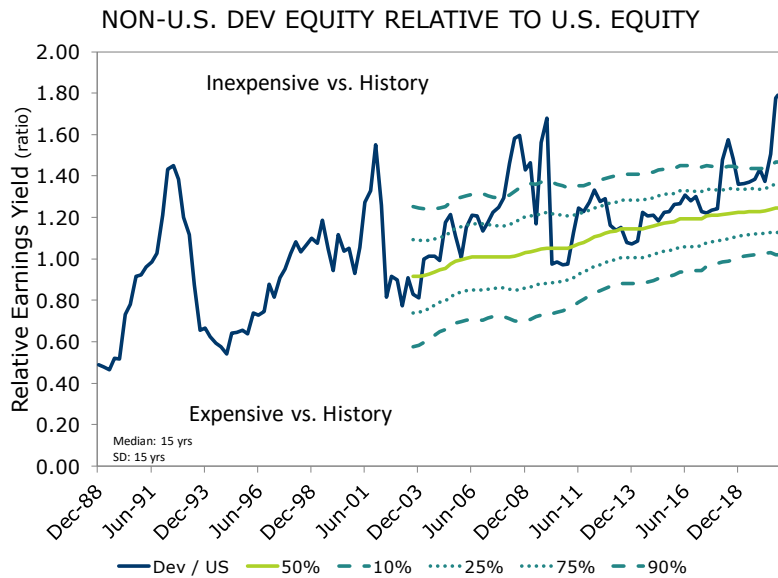
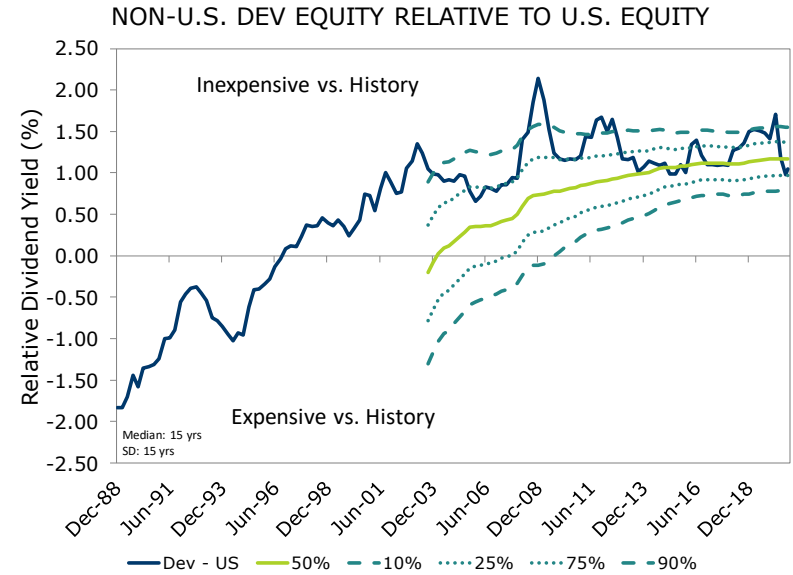
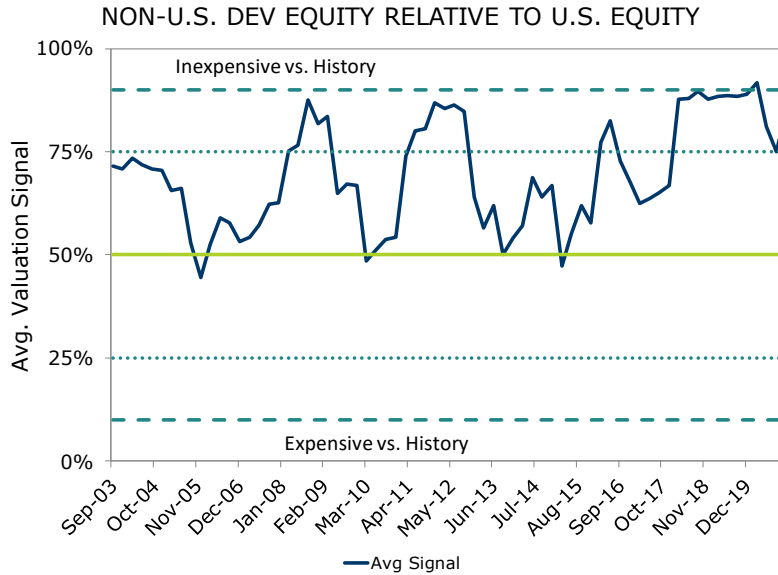
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# MONTHLY VALUATION ANALYSIS

## Global Equity: Developed

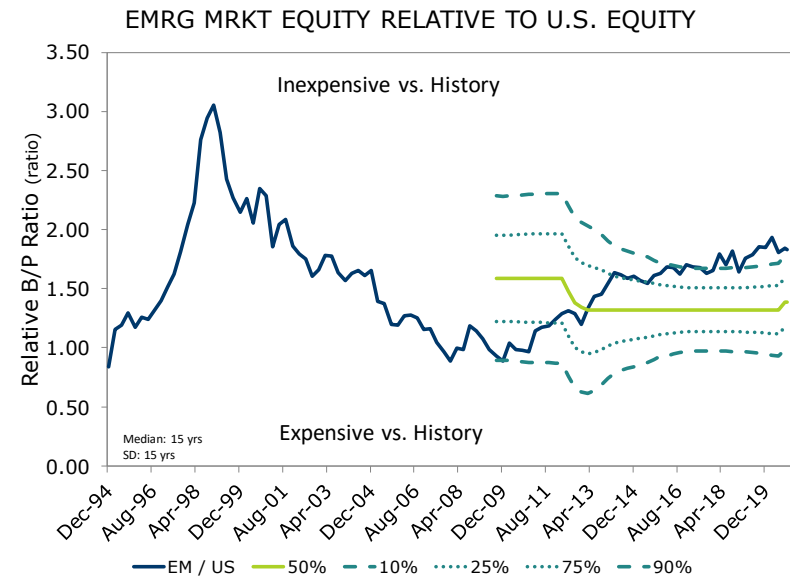
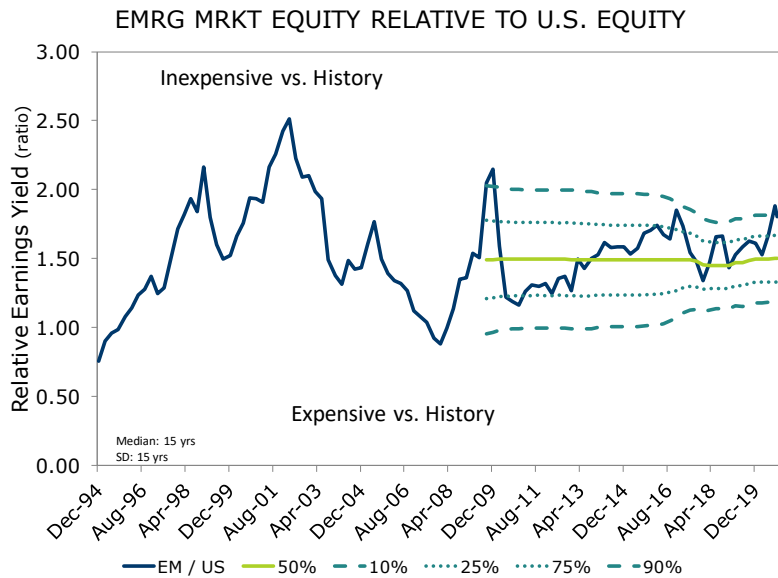
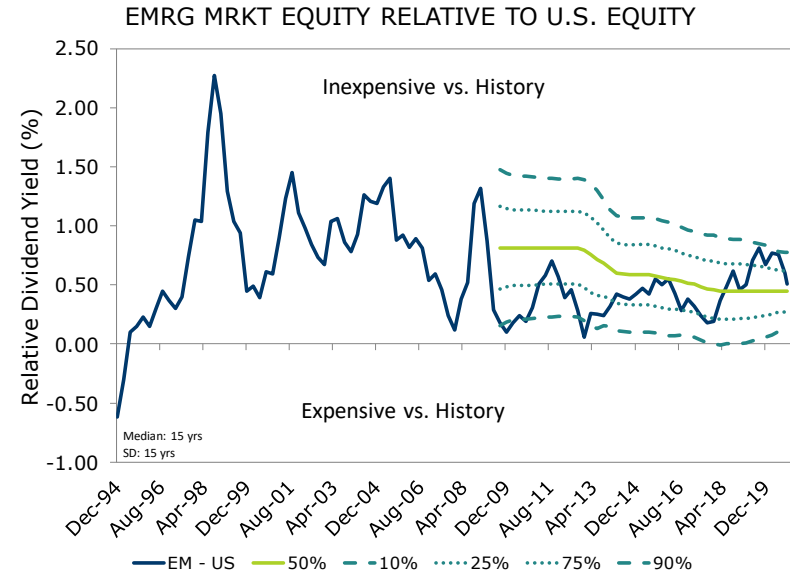
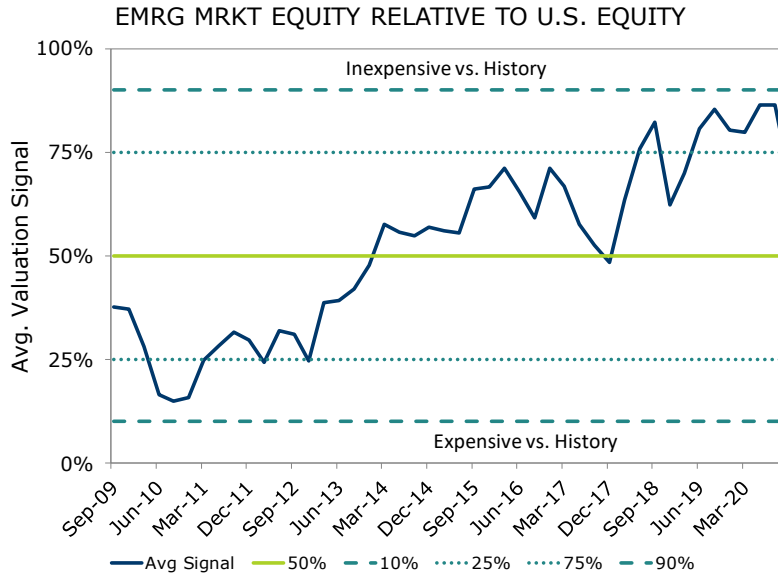


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# MONTHLY VALUATION ANALYSIS

## Global Equity: Emerging

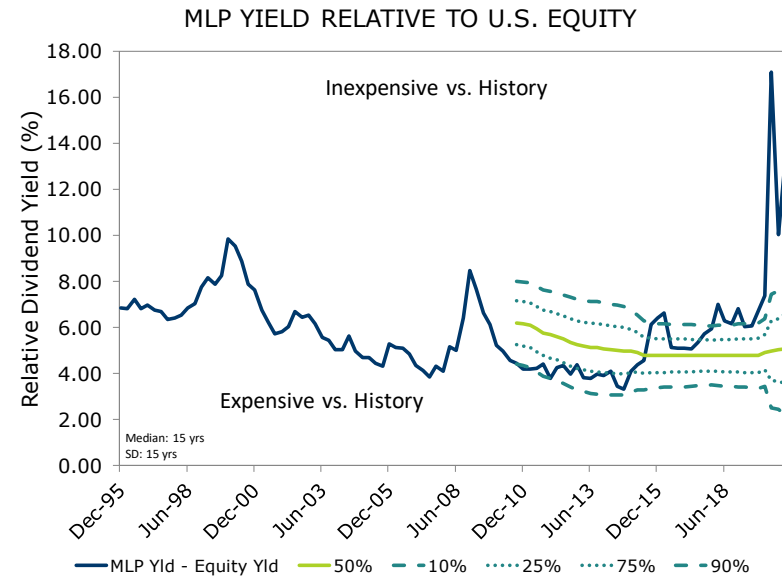
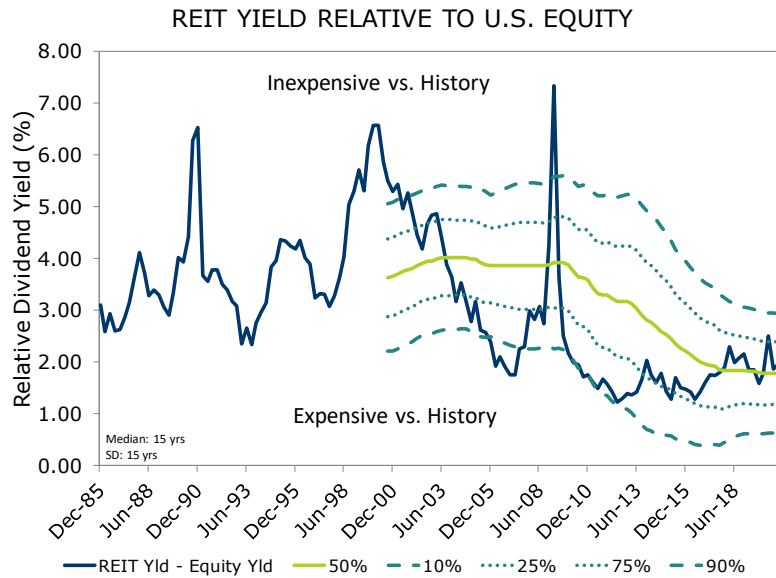


Data Source: Bloomberg

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# MONTHLY VALUATION ANALYSIS

## Real Assets & Summary



ASSET CLASS	FACTOR	CURRENT	HISTORICAL MEDIAN	CURRENT FROM MEDIAN (SD)	CURRENT VALUATION %
CASH	Real Yield	-1.62	-1.36	(0.17)	43%
U.S. TREASURIES	Relative Yield to Cash	0.49	1.05	(0.84)	20%
U.S. IG CORPORATE	Spread to Treasuries	125	142	(0.17)	43%
U.S. HIGH YIELD	Spread to Treasuries	509	482	0.10	54%
U.S. EQUITY	Dividend Yield	1.67	1.93	(1.16)	12%
NON-U.S. DEV EQUITY	Dividend Yield	2.72	3.15	(0.88)	19%
NON-U.S. EMRG MRKT	Dividend Yield	2.18	2.38	(0.52)	30%
U.S. REITS	Relative Yield to Eqty	2.03	1.78	0.28	61%
MLPs	Relative Yield to Eqty	14.38	5.07	4.14	100%
SMALL V LARGE	Relative Yield	-0.18	-0.50	2.01	98%
VALUE V GROWTH	Relative Yield	1.78	1.10	1.51	93%
NON-U.S. DEV V U.S.	Relative Yield	1.05	1.17	(0.40)	34%
EMRG MRKT V U.S.	Relative Yield	0.51	0.45	0.25	60%

Data Source: Bloomberg, Wilshire Atlas

# MONTHLY VALUATION ANALYSIS

## Cross-Asset Class Valuation



- Matrix below summarizes relative relationships among asset classes
- 15 years of yield data is used for each median calculation; 15 years for the standard deviation
- Difference in yield is calculated and the resulting percentile of each outcome is included in the matrix, based on the historical median and standard deviation

AS OF OCTOBER 31, 2020	ASSET CLASS RELATIONSHIP RELATIVE TO EACH OF THE FOLLOWING:									
	INFLATION	CASH	TREASURY	CORE BONDS	HIGH YIELD	REITs	MLPs	U.S. STOCKS	NON-U.S. DEV	EMRG MRKT
CASH	43%		80%	78%	56%	44%	0%	53%	56%	50%
TREASURY	16%	20%		68%	49%	22%	0%	24%	32%	24%
CORE BONDS	15%	22%	32%		45%	16%	0%	21%	25%	16%
HIGH YIELD	35%	44%	51%	55%		17%	0%	33%	37%	31%
REITs	58%	56%	78%	84%	83%		0%	61%	65%	58%
MLPs	100%	100%	100%	100%	100%	100%		100%	100%	100%
U.S. STOCKS	49%	47%	76%	79%	67%	39%	0%		66%	40%
NON-U.S. DEV	45%	44%	68%	75%	63%	35%	0%	34%		19%
EMRG MRKT	60%	50%	76%	84%	69%	42%	0%	60%	81%	

Data Source: Bloomberg, Wilshire Atlas