

# Asset Allocation 2016

Public Equities

October 15, 2015

# Summary of Asset Class Valuation Models

	U.S. Large Cap	U.S. Small Cap	Developed International	Emerging Markets	Interest Rate	Credit
9/30/2015	-1.62	-1.05	-1.19	-0.48	0.81	-0.17
9/30/2014	-0.65	-0.66	-0.84	0.68	0.36	-0.41
YoY Change	-0.97	-0.39	-0.35	-1.16	0.45	0.24

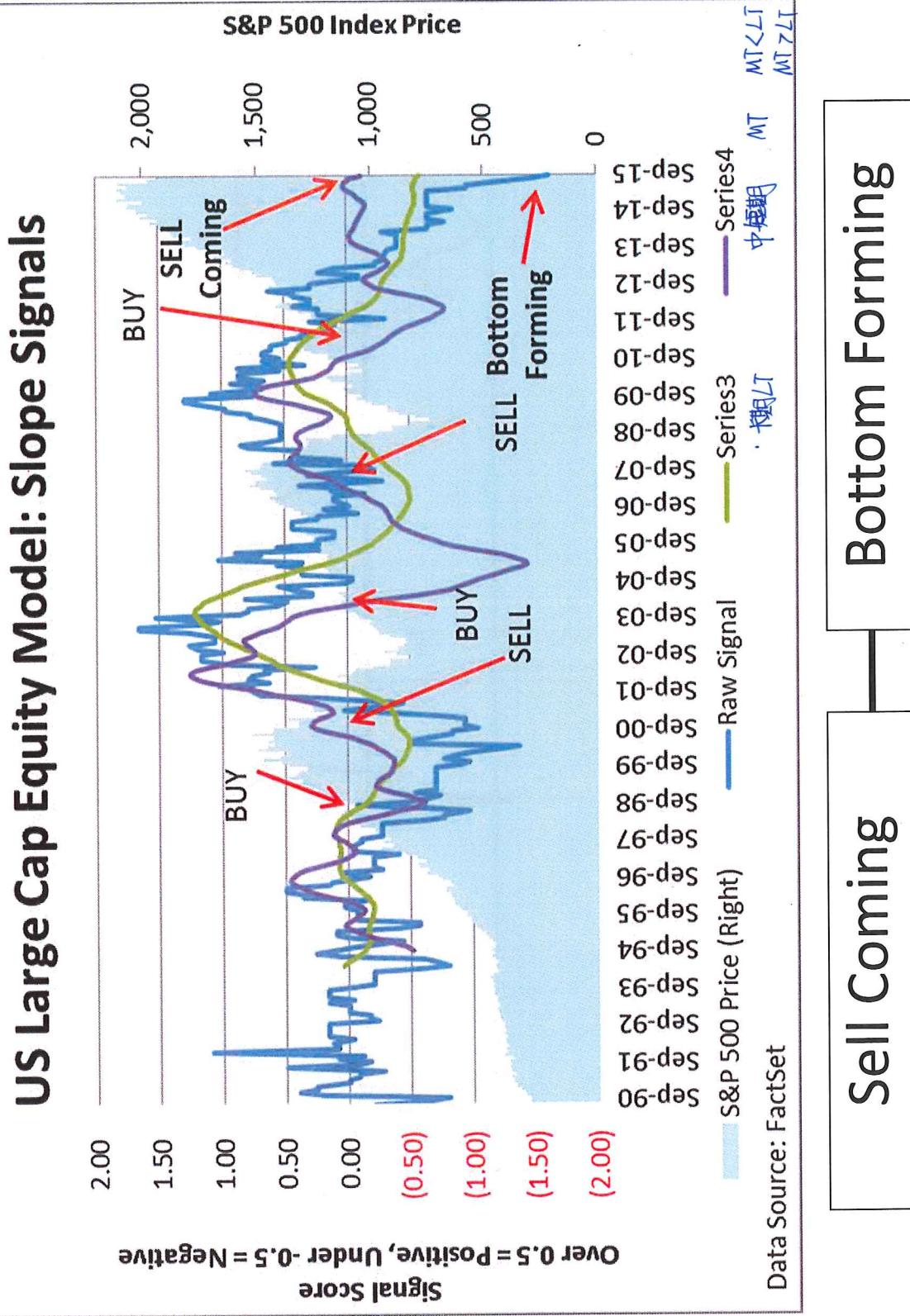
## Key Points

- Liquidity model shows modest positive slope, but no signs of stress.
- Feel positive about EAFE due to CB easing, but model is negative, so we're taking both into account.
- Less excited about US LC, but valuations look less expensive, so hold the course.
- When we get a sell signal (<sup>huge</sup>likely to happen in 2016), we recommend reducing equities across the board (int'l less). We would assess relative valuations at that time to determine how to allocate capital.
- Rates: Rates have consistently been below market expectations. Short end rates continue to rise, but less than implied by market. Long rates likely to be contained absent inflation.
- Credit: Spreads have room to retrace to mid-cycle highs of fall 2011.

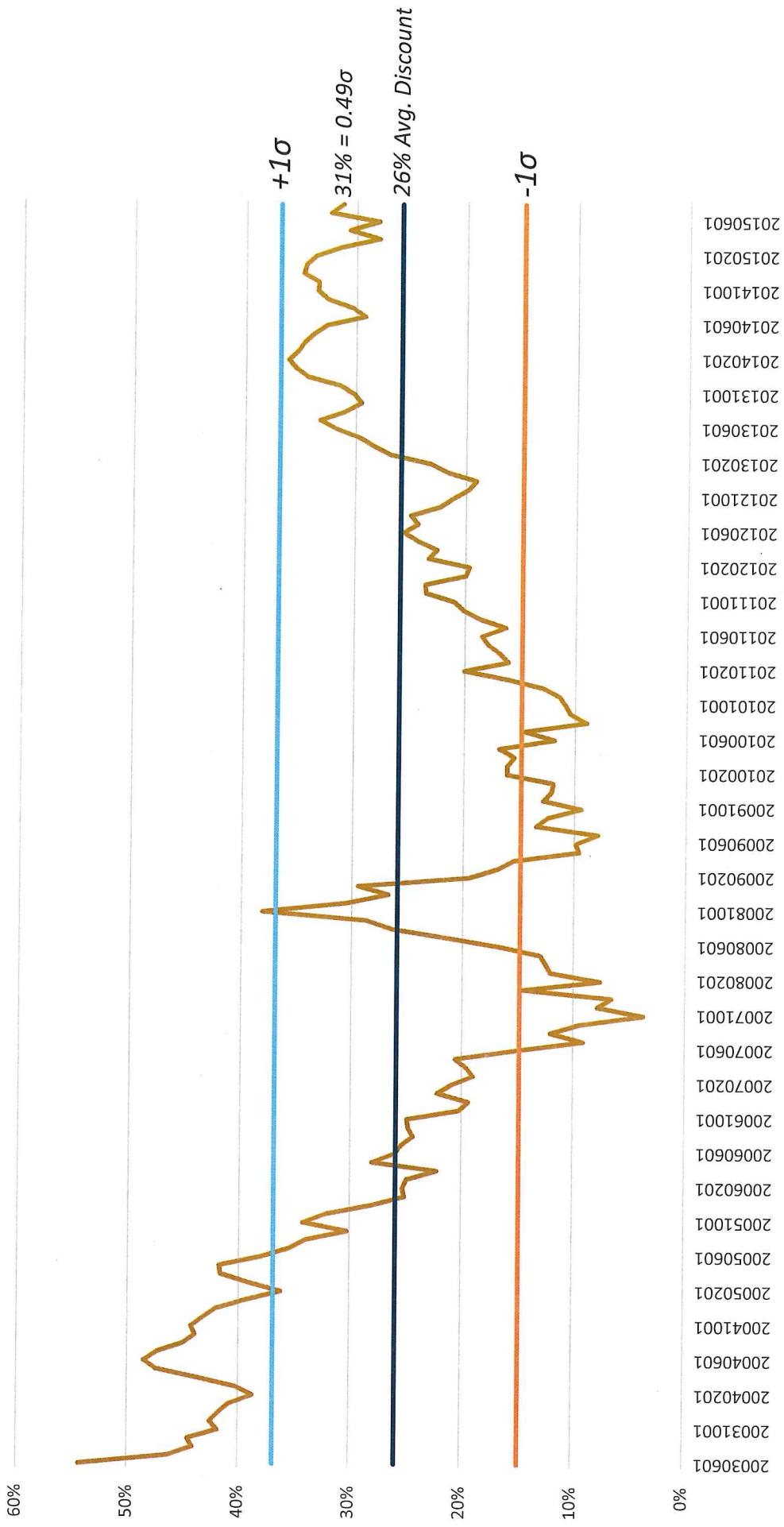
## Views

- Expect above-average 5-7 year returns: Developed Non-US Equities and Interest Rates.
- Expect average 5-7 year returns: TIPS, ILBs, Barclays Agg, Bank Loans, US Large Cap, US Small Cap, EME
- Expect below-average 5-7 year returns: High Yield, EMD \$, EMD Local

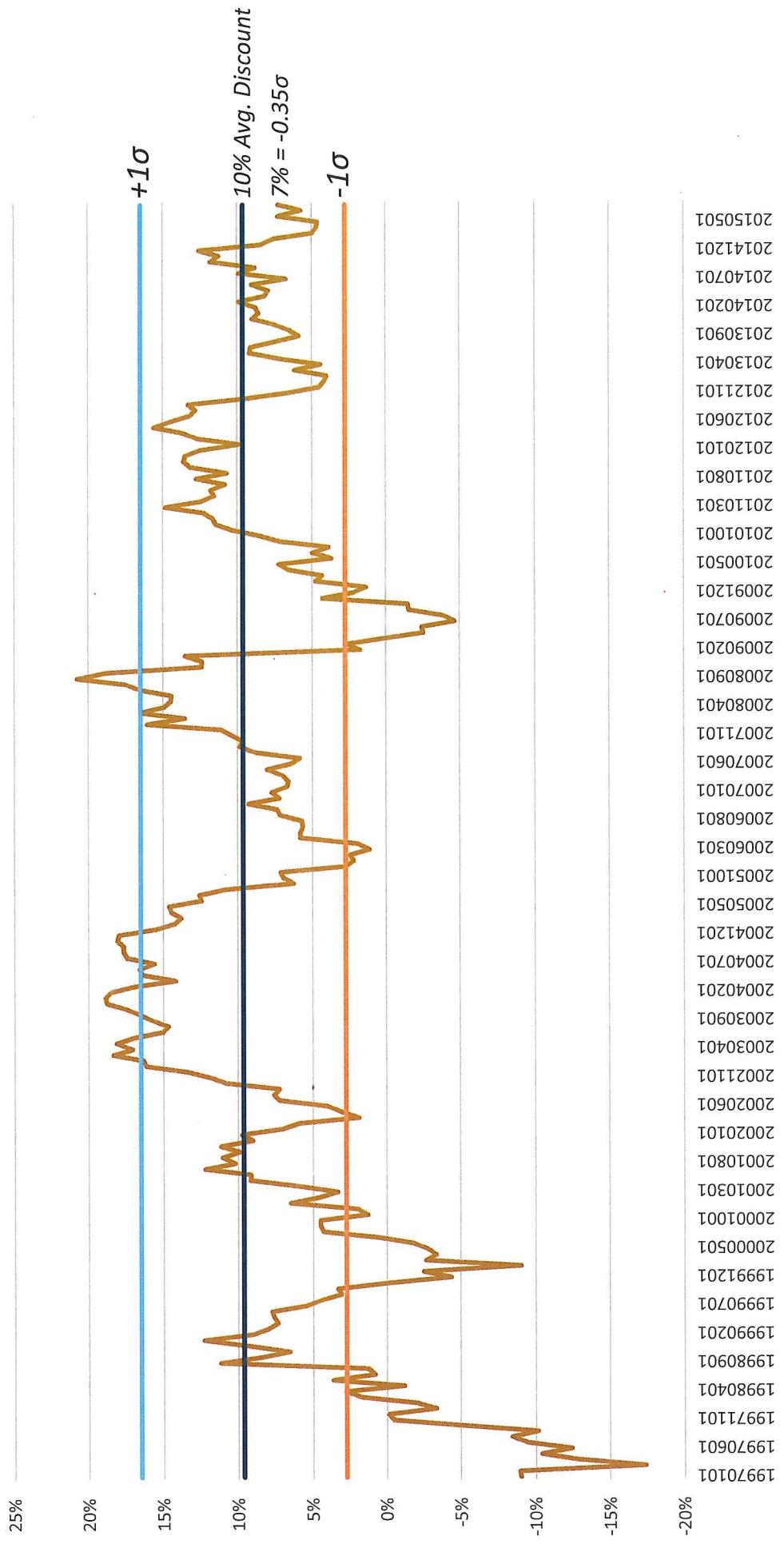
# U.S. Large Cap Equity Model



# MSCI EME Discount to S&P 500

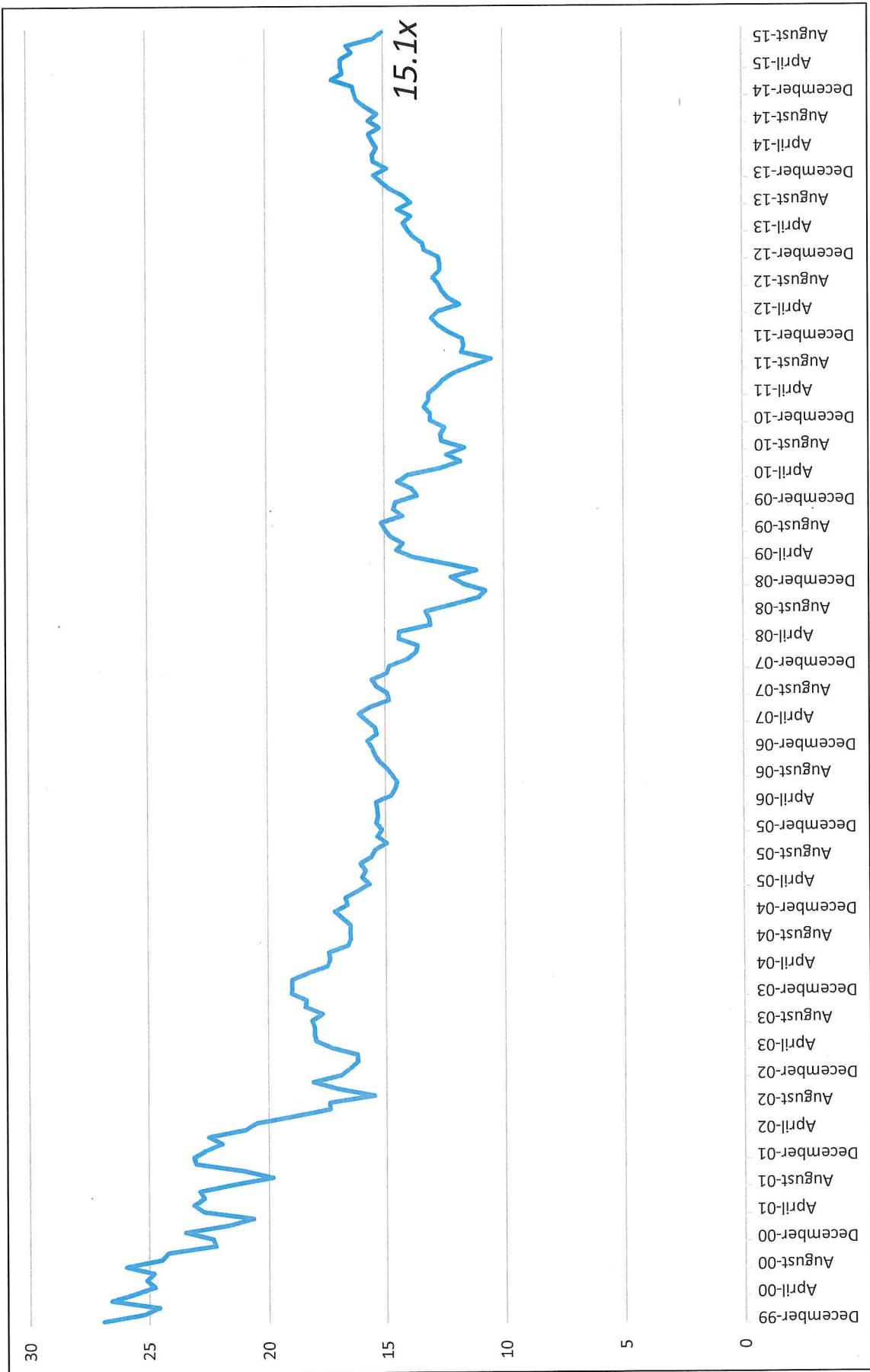


# MSCI EAFE Discount to S&P 500

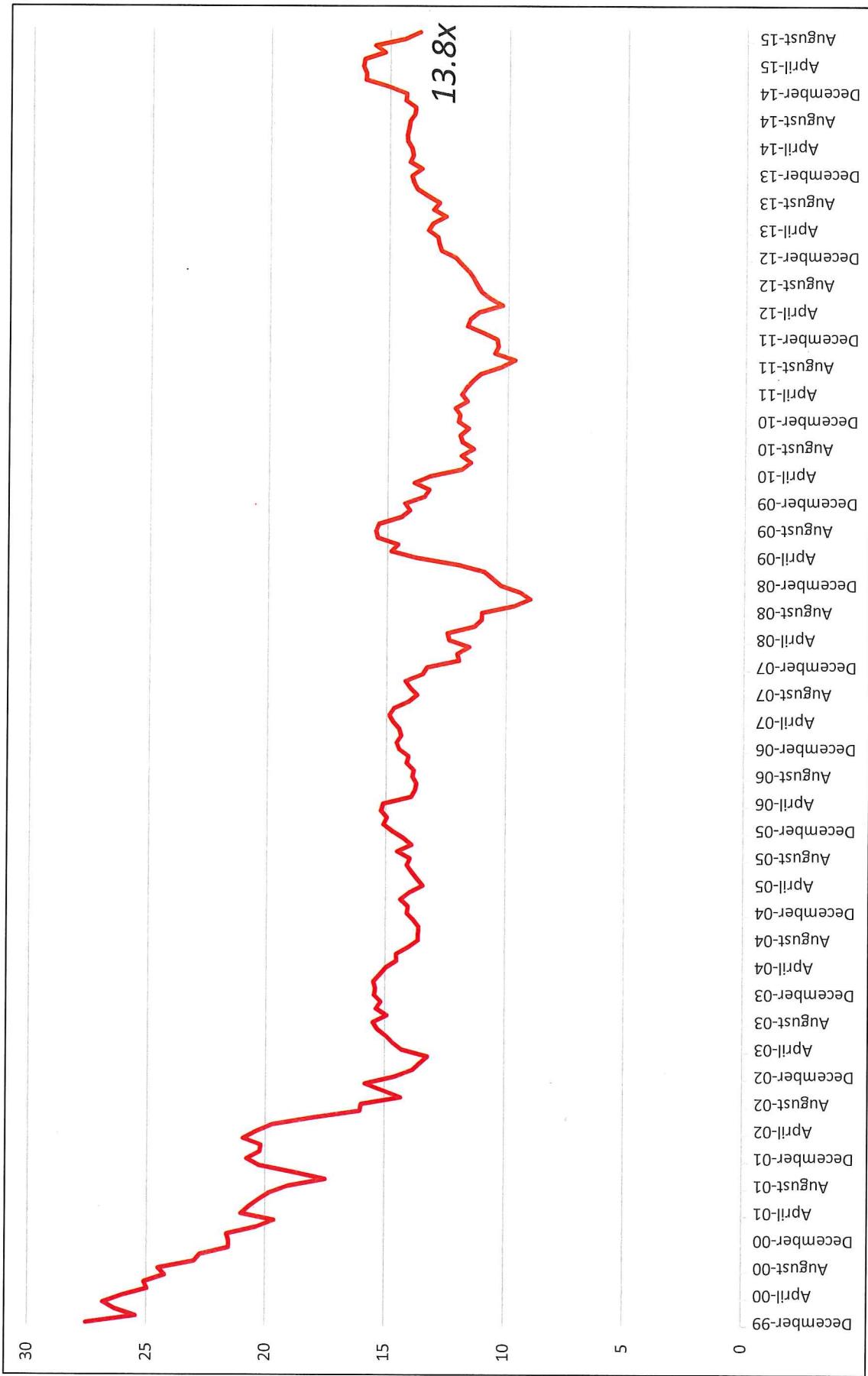


# Appendix

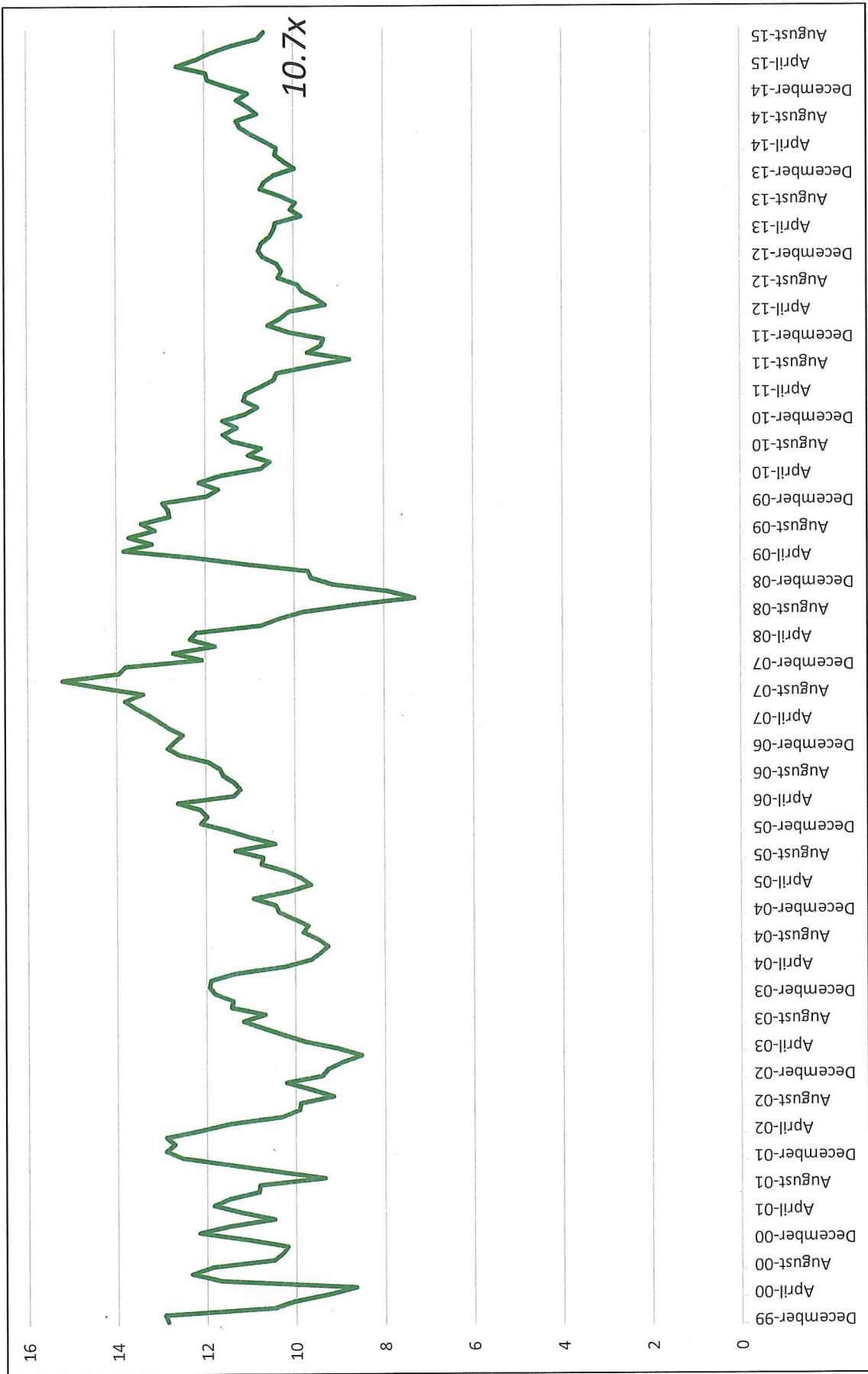
# S&P 500 Forward P/E



# MSCI World Ex-US Forward P/E

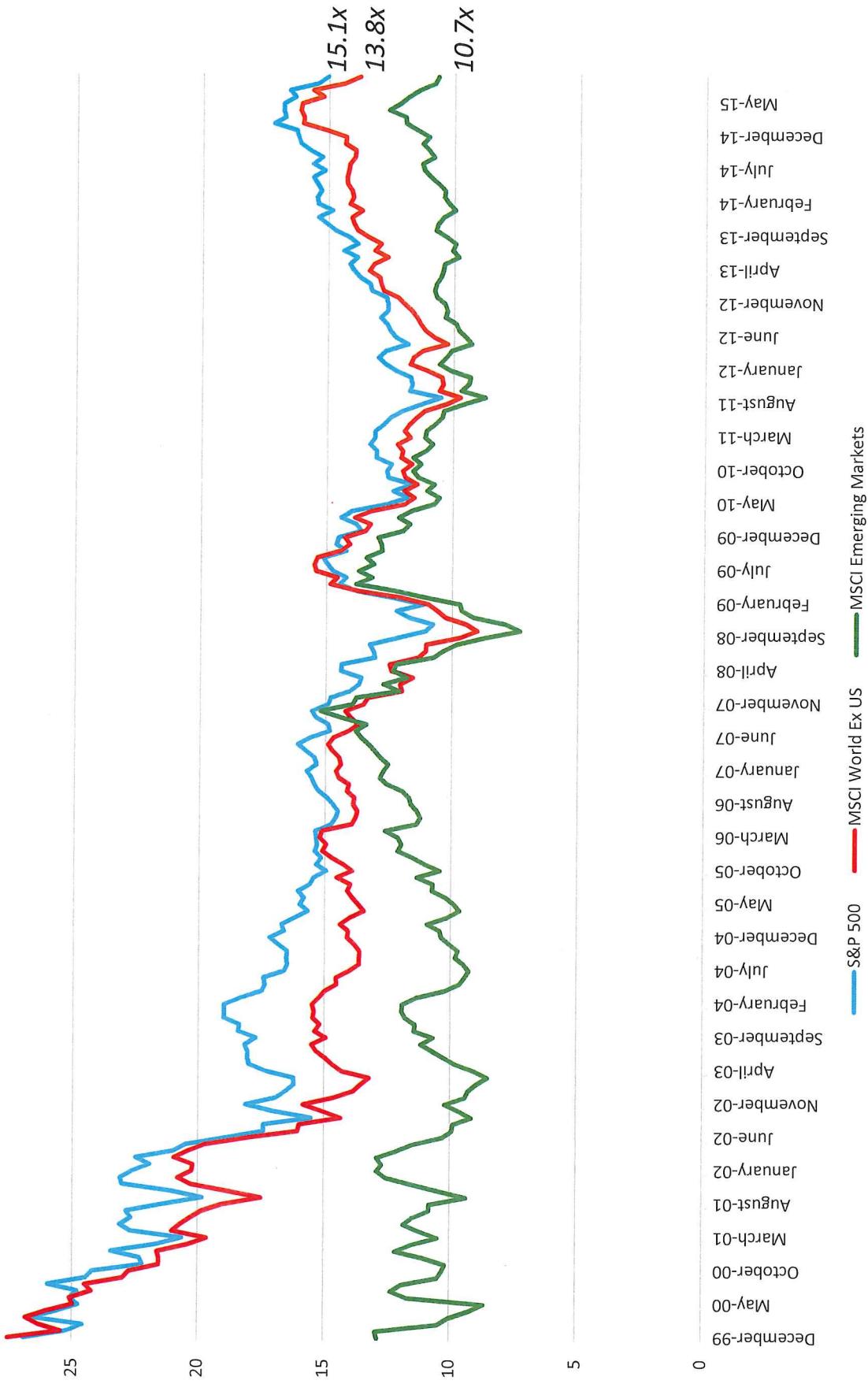


# MSCI Emerging Markets Forward P/E

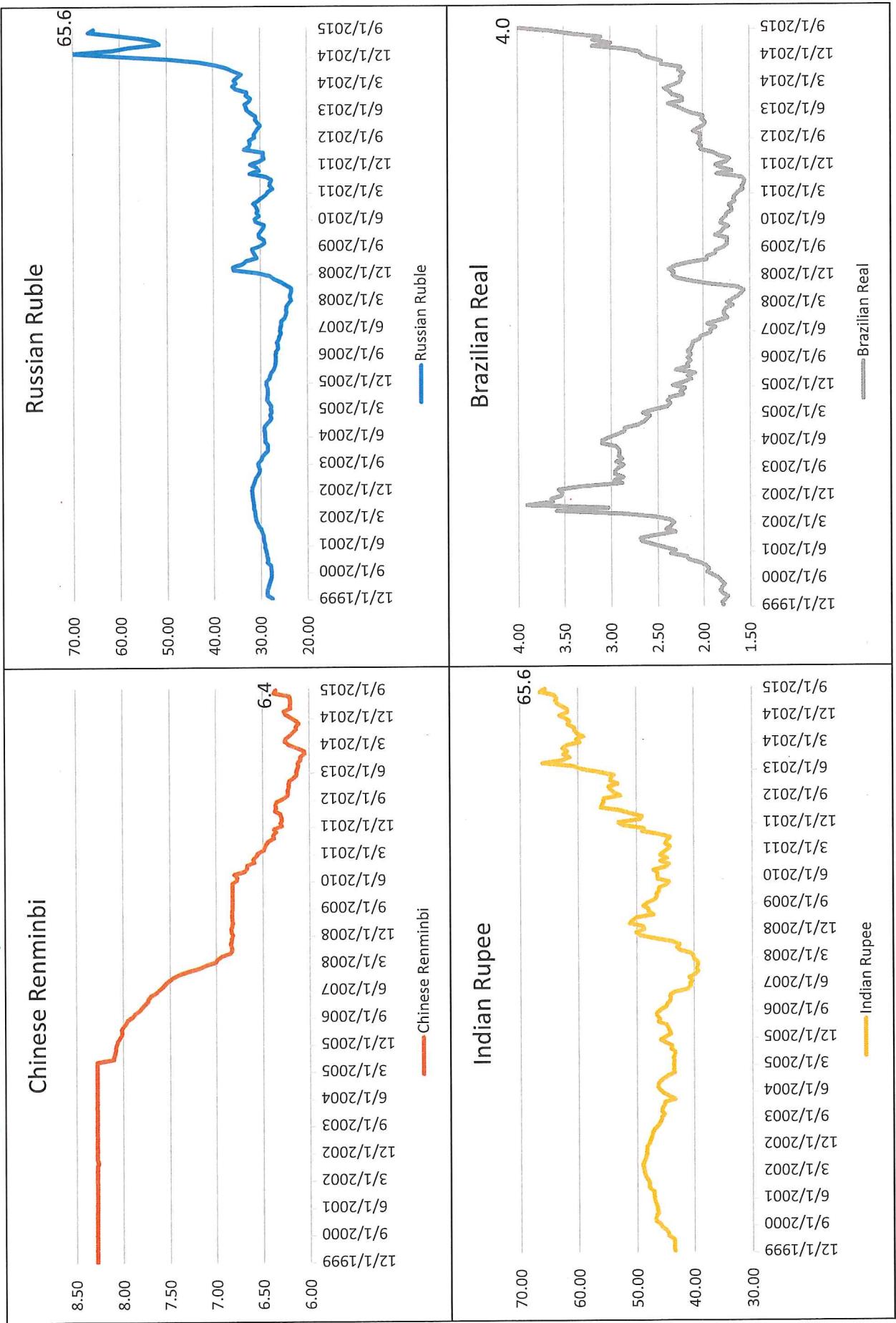


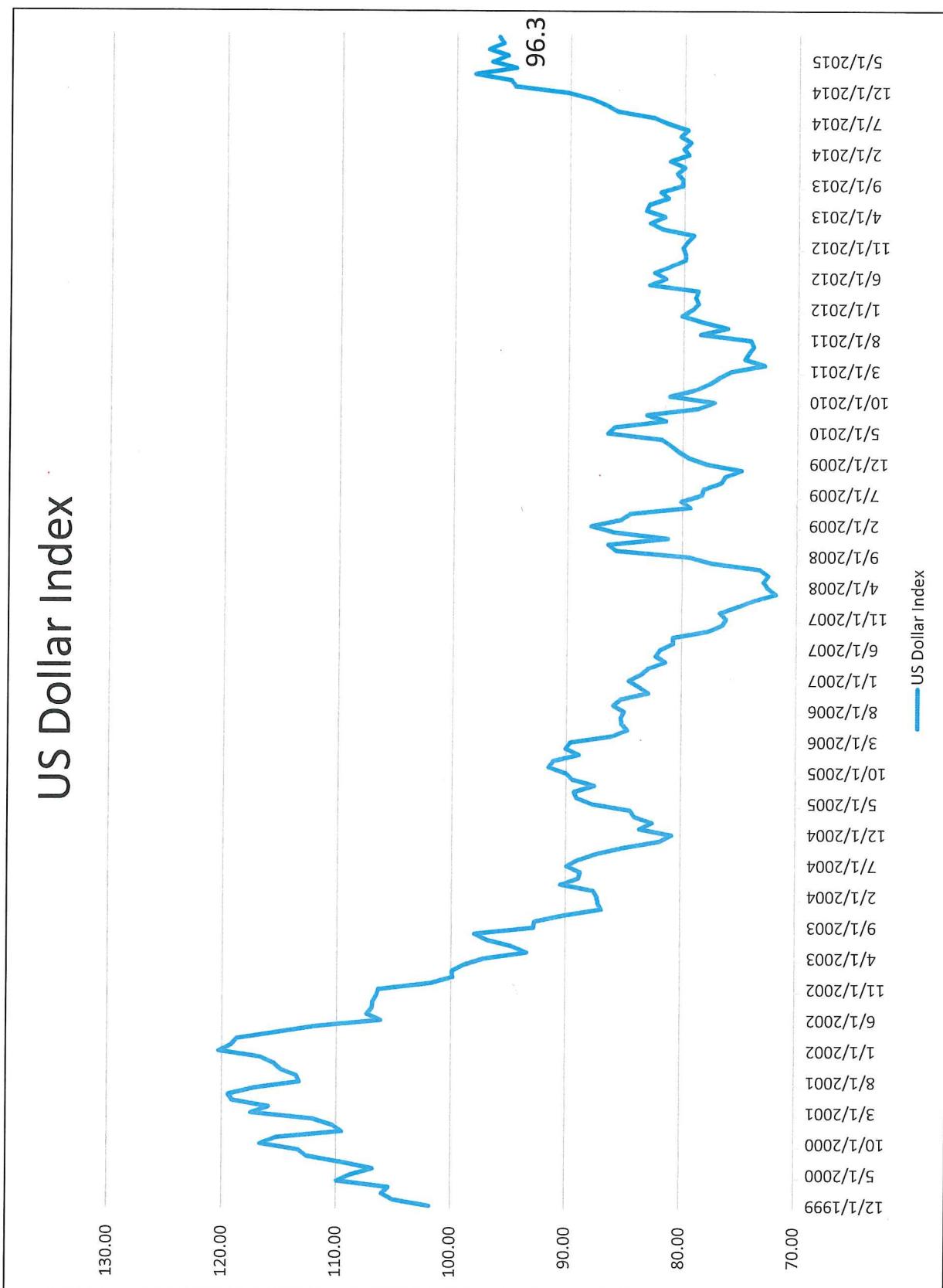
## S&P 500 vs. MSCI World Ex-US vs. MSCI EM P/E (NTM)

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PRIM Asset Class Valuation Model		As of 9/30/2015		9/30/2015	
Legend		Signs			
Negative		Neutral		Positive	
<b>Large Cap US Equities</b>					
Large Cap US Equities		Signal		-1.62	
<b>OVERALL LARGE CAP US EQUITY SIGNAL</b>		<b>-1.62</b>			
Weight		Z-Score <sup>1</sup>			
25% Macro Signal		Current Value <sup>2</sup>	10-yr average value	5-Yr average value	
Leading Economic Index (12-mo % Change)	-0.1	123.7	111.0	111.4	0.0
2s/10's spread (level, 12-mo avg)	-1.3	1.4%	1.6%	1.9%	-2.0
Corporate profitability, S&P 500 Index Net Margin (12-mo Change)	-1.4	10.6%	9.6%	10.1%	-2.0
GDP Growth (12-mo Change)	-0.3	3.9%	1.5%	2.1%	0.0
50% Valuation Signal		Current Value <sup>2</sup>	10-yr average value	5-Yr average value	
12m forward P/E, S&P 500 Index (level, 12-mo avg)	1.9	15.1	14.1	14.1	-2.0
12m forward P/B, S&P 500 Index (level, 12-mo avg)	1.8	2.4	2.3	2.2	-2.0
12m forward Earnings Growth, S&P 500 Index (level, 12-mo avg)	-1.2	7.2%	11.6%	10.3%	-2.0
Earnings yield S&P 500 Index - US 10-year Yield (level, 12-mo avg)	-1.1	4.6%	4.0%	4.8%	-2.0
10% Sentiment Signal		Current Value <sup>2</sup>	10-yr average value	5-Yr average value	
VIX (level, 12-mo avg)	-0.3	24.5	20.5	17.9	-0.7
Consumer Confidence Index (level, 12-mo avg)	2.0	103.0	75.0	74.7	0.0
AAll Bull-Bear Spread (level, 12-mo avg)	0.7	-6.3	3.7	8.2	-2.0
Momentum Signal		Current Value <sup>2</sup>	10-yr average value	5-Yr average value	
200 DMA, S&P 500 Index (Change from Prior Month: rising = positive, falling = negative)	-0.3	12.01	-12.01	-12.01	-2.0
50 DMA: S&P 500 Index (Change from Prior Month: rising = positive, falling = negative)	2.0	-65.76	-65.76	-65.76	-2.0
50 DMA - 200 DMA (if 50 DMA>200 DMA, positive)	0.7	-58.95	-58.95	-58.95	-2.0

Data released immediate following month-end, with the exception of LEI (19th), GDP Growth (2 months after quarter), Consumer Confidence Index (24th), AAll Bull-Bear Spread (24th). In data series with a lag, the model looks to the latest available data.

1. Z-scores based on 5-year historical average. Z-score = measure of standard deviations from mean ( $(Value\ today - mean) / \sigma$ ). 2/3 of time, z-score will be between +/-1.
2. Current value reflects actual data point as of the most recent period, which may differ from the data calculation used for the z-score. For example, the current 2s/10's spread may differ from the 12 month average.



PRIM Asset Class Valuation Model		As of 9/30/2015		9/30/2015	
Legend					
	SIGNS	More than 1 $\sigma$ Above Average	Between -1 $\sigma$ and +1 $\sigma$ From Average	Less than -1 $\sigma$ Below Average	
Developed International Equities					
Overall Developed International Equity Signal	Signal	(-2, 1)	(-1, 0)	(0, 1)	-1.19
Weight:	Z-Score <sup>1</sup>				
25% Macro Signal	5-Yr average value	Current Value <sup>2</sup>	5-Yr average value	Current Value <sup>2</sup>	-0.06
Leading Economic Index Eurozone (12-mo % Change)	0.0	102.6	101.3	102.6	Positive
Leading Economic Index Japan (12-mo % Change)	0.5	123.7	111.6	0.0	Positive
2's 10's spread German Bonds (level, 12-mo avg)	-2.4	0.8%	1.3%	-2.0	Positive
2's 10's spread Japanese Gov't Bonds (level, 12-mo avg)	-1.7	0.4%	0.7%	-2.0	Positive
Corporate profitability, MSCI EAFE Index, Net Margin (12-mo Change)	0.1	7.5%	7.1%	0.0	Positive
GDP Growth Eurozone (12-mo Change)	0.4	1.7%	0.7%	0.0	Positive
GDP Growth Japan (12-mo Change)	0.9	1.6%	1.1%	0.0	Positive
50% Valuation Signal	5-Yr average value	Current Value <sup>2</sup>	5-Yr average value	Current Value <sup>2</sup>	-1.5
P/E 12m forward, MSCI EAFE Index (level, 12-mo avg)	1.8	13.7	12.8	-2.0	Negative
P/B 12m forward, MSCI EAFE Index (level, 12-mo avg)	1.5	1.4	1.4	-2.0	Positive
Earnings Growth 12m forward, MSCI EAFE Index (level, 12-mo avg)	-1.3	7.7%	12.0%	-2.0	Positive
Earnings yield MSCI EAFE Index - 10-year Bunds & GIBs (level, 12-mo avg)	-0.5	6.8%	6.6%	0.0	Positive
10% Sentiment Signal	5-Yr average value	Current Value <sup>2</sup>	5-Yr average value	Current Value <sup>2</sup>	0.0
Euro VIX (level, 12-mo avg)	0.3	33.7	23.3	0.0	Positive
Nikkei Volatility (level, 12-mo avg)	0.0	32.2	23.5	0.0	Neutral
Euro Confidence (level, 12-mo avg)	0.9	105.6	98.5	0.0	Negative
Japan Confidence (level, 12-mo avg)	0.6	40.5	38.7	0.0	Positive
15% Momentum Signal	5-Yr average value	Current Value <sup>2</sup>	5-Yr average value	Current Value <sup>2</sup>	-2.0
200 DMA: MSCI EAFE Index (Change from Prior Month: rising = positive, falling = negative)	-13.04	-13.04	-2.0	-2.0	
50 DMA: MSCI EAFE Index (Change from Prior Month: rising = positive, falling = negative)	-79.65	-79.65	-2.0	-2.0	
50 DMA - 200 DMA (If 50 DMA>200 DMA, positive)	-71.99	-71.99	-2.0	-2.0	

Data released immediate following month-end, with the exception of LEI (12th), GDP Growth (2 months after quarter), Consumer Confidence Index (24th). All Bull-Bear spread (24th). In data series with a lag, the model looks to the latest available data.

1. Z-scores based on 5-year historical average. Z-score = measure of standard deviations from mean ( $(Value\ today - mean)/\sigma$ ).

2. Current value reflects actual data point as of the most recent period, which may differ from the data calculation used for the z-score.

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PRIM Asset Class Valuation Model		As of 9/30/2015	9/30/2015
Emerging Markets Equity			
Legend			
 Negative  Neutral  Positive			
<b>Emerging Markets Equity</b>		Signal  -0.48	Signs  -0.48
<b>OVERALL EMERGING MARKETS EQUITY SIGNAL</b>			
			
Weight	Macro Signal	Z-Score <sup>1</sup>	5-Yr Raw Score (-2 => -1 = negative, -1 => 1 = neutral, 1 => 2 = positive)
		1.00	-0.48
25%	Corporate profitability, MSCI EM Index Net Margin ( <sup>MoMo Difference</sup> 	Current Value <sup>2</sup>	5-yr average value
	Brent Crude Oil (%YoY)	0.6	1.0
50%	Valuation Signal	Current Value <sup>2</sup>	5-yr average value
	P/E 12m forward, MSCI EM Index (level), 12-mo avg	-0.67	-0.7
10%	P/B 12m forward, MSCI EM Index (level), 12-mo avg	1.7	10.6
	P/E Last Twelve Months	-0.8	-2.0
15%	Sentiment Signal	Current Value <sup>2</sup>	5-yr average value
	EM Consumer Confidence Composite Index (Z-Score)	-1.00	-1.0
	MSCI EM Quarterly Volatility (% daily)	-1.49	-2.0
	3 Month Returns: MSCI EM Index	0.00	0.0
	Momentum Signal	Current Value <sup>2</sup>	5-yr average value
	50 DMA: MSCI EM Index (Change from Prior Month: rising = positive, falling = negative)	-2.00	-2.0
			
			
<sup>1.</sup> Z-scores based on 5-year historical average. Z-score = measure of standard deviations from mean ((Value today - mean)/σ). 2/3 of time, current value reflects actual data point as of the most recent period, which may differ from the data calculation used for the z-score. For example, the current 21s 10's spread may differ from the 12 month average.			

Spread (24th). In data series with a lag, the model looks to the latest available data.

1. Z-scores based on 5-year historical average. Z-score = measure of standard deviations from mean ((Value today - mean)/σ).
2. Current value reflects actual data point as of the most recent period, which may differ from the data calculation used for the z-score. For example, the current 21s 10's spread may differ from the 12 month average.