J. Brett Freeze, CFA, founder of Global Technical Analysis. Each month Brett will provide you their valuable S&P 500 Valuation Chart Book. This unique analysis provides an invaluable long term perspective of equity valuations. If you are interested in learning more about their services, please connect with them.

Introduction

We believe that the chief determinant of future total returns is the relative valuation of the index at the time of purchase. We measure•valuation using the Price/Peak Earnings multiple as advocated by Dr. John Hussman. We believe the main benefit of using peak•earnings is the inherent conservatism it affords: not subject to analyst estimates, not subject to the short-term ebbs and flows of•business, and not subject to short-term accounting distortions. Annualized total returns can be calculated over a horizon period for•given scenarios of multiple expansion or contraction. Our

analysis highlights expansion/contraction to the minimum, mean, average, and maximum multiples (our data-set begins in January•1900) . The baseline assumptions for nominal growth and horizon period are 6% and 10 years, respectively. We also provide graphical•analysis of how predicted returns compare to actual returns historically. We provide sensitivity analysis to our baseline assumptions. The first sensitivity table, ceterus paribus, shows how future returns are•impacted by changing the horizon period. The second sensitivity table, ceterus paribus, shows how future returns are impacted by•changing the growth assumption. We also include the following information: duration, over(under)-valuation, inflation adjusted price/10-year real earnings, dividend•yield, option-implied volatility, skew, realized volatility, historical relationships between inflation and p/e multiples, and historical•relationship between p/e multiples and realized returns.

Our analysis is not intended to forecast the short-term direction of the SP500 Index.• The purpose of our analysis is to identify the relative valuation and inherent risk offered by the index currently.

Predicted Returns   *May 31, 2018*
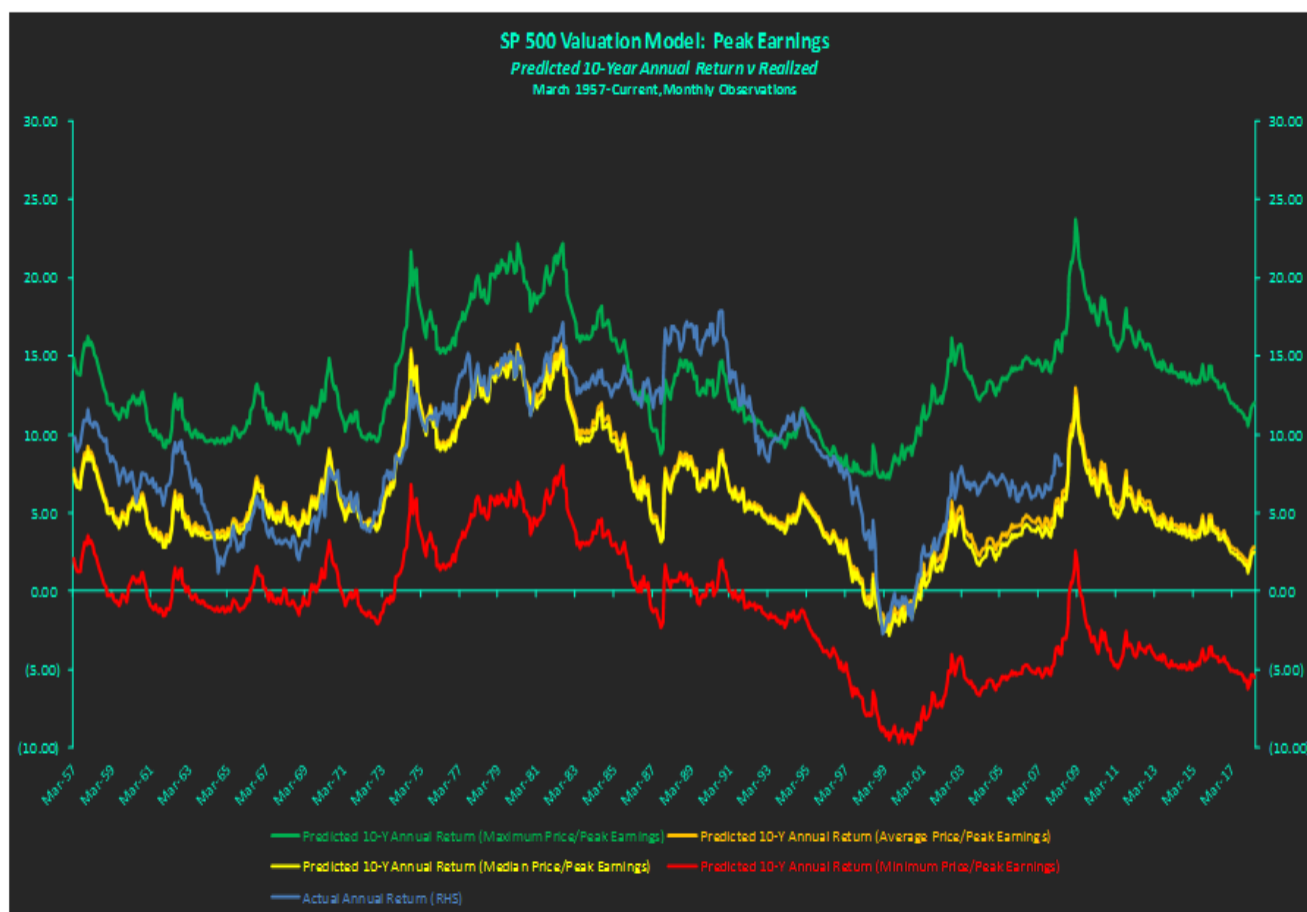
As of 05/31/2018: If current Price/Peak Earnings of 22.2 expands or contracts to:

Maximum Price/Peak Earnings of 33.5, Predicted Return = 11.97%, Capital Gain 10.43%   Dividend 1.54%

Minimum Price/Peak Earnings of 3.0, Predicted Return = -5.49%,   Capital Gain -13.34% Dividend 7.85%

Average Price/Peak Earnings of 12.7 Predicted Return = 2.76%,   Capital Gain 0.22%   Dividend 2.54%

Median Price/Peak Earnings of 12.2, Predicted Return = 2.44%,   Capital Gain -0.17%   Dividend 2.61%

								Price / Peak Earnings								
Time Horizon	**3.0**	7.0	9.0	11.0	12.2	12.7	14.0	16.0	18.0	21.0	23.0	25.0	27.0	29.0	31.0	**33.5**
10	(5.49)	(1.71)	0.05	1.59	2.44	2.76	3.61	4.78	5.86	7.31	8.18	9.00	9.77	10.49	11.18	11.97
9	(7.41)	(2.91)	(0.92)	0.83	1.78	2.14	3.09	4.41	5.61	7.24	8.22	9.14	10.00	10.82	11.58	12.47
8	(9.75)	(4.39)	(2.12)	(0.13)	0.95	1.36	2.44	3.94	5.31	7.16	8.28	9.32	10.30	11.22	12.09	13.10
7	(12.66)	(6.27)	(3.63)	(1.34)	(0.09)	0.38	1.62	3.35	4.92	7.05	8.34	9.55	10.68	11.74	12.75	13.92
6	(16.38)	(8.70)	(5.62)	(2.93)	(1.47)	(0.92)	0.54	2.56	4.41	6.91	8.43	9.85	11.18	12.44	13.64	15.02
5	(21.30)	(12.01)	(8.32)	(5.11)	(3.37)	(2.71)	(0.96)	1.47	3.69	6.71	8.55	10.27	11.90	13.43	14.89	16.58
4	(28.09)	(16.73)	(12.23)	(8.30)	(6.15)	(5.33)	(3.17)	(0.15)	2.63	6.42	8.74	10.92	12.98	14.93	16.79	18.96
3	(37.99)	(24.02)	(18.37)	(13.36)	(10.60)	(9.54)	(6.74)	(2.78)	0.88	5.93	9.04	11.99	14.80	17.47	20.03	23.04
2	(53.44)	(36.65)	(29.33)	(22.63)	(18.85)	(17.39)	(13.47)	(7.84)	(2.53)	4.95	9.66	14.18	18.53	22.73	26.79	31.62
1	(78.01)	(62.75)	(53.86)	(44.73)	(39.19)	(36.98)	(30.82)	(21.46)	(12.07)	2.08	11.54	21.01	30.49	39.98	49.47	61.18

								Price / Peak Earnings								
Growth Rate	**3.0**	7.0	9.0	11.0	12.2	12.7	14.0	16.0	18.0	21.0	23.0	25.0	27.0	29.0	31.0	**33.5**
0.06	(5.49)	(1.71)	0.05	1.59	2.44	2.76	3.61	4.78	5.86	7.31	8.18	9.00	9.77	10.49	11.18	11.97
0.05	(6.31)	(2.60)	(0.87)	0.66	1.50	1.81	2.65	3.82	4.88	6.31	7.18	7.99	8.75	9.47	10.14	10.93
0.04	(7.12)	(3.49)	(1.78)	(0.27)	0.55	0.87	1.70	2.85	3.90	5.32	6.18	6.98	7.73	8.44	9.11	9.88
0.03	(7.94)	(4.38)	(2.69)	(1.20)	(0.39)	(0.08)	0.74	1.88	2.92	4.32	5.17	5.97	6.71	7.41	8.07	8.84
0.02	(8.76)	(5.27)	(3.61)	(2.13)	(1.33)	(1.02)	(0.21)	0.91	1.94	3.33	4.17	4.96	5.69	6.39	7.04	7.80
0.01	(9.58)	(6.16)	(4.52)	(3.07)	(2.27)	(1.97)	(1.17)	(0.06)	0.96	2.33	3.17	3.94	4.67	5.36	6.01	6.76

Valuation Date	5/31/2018
Current Price / Peak Earnings	22.2
Growth Rate	0.06
Time Horizon (Years)	10
Current Dividend Yield	0.0185

Price to Peak Earnings   *May 31, 2018*

SP 500 Valuation Model
Price / Peak Earnings
March 1957-Current, Monthly Observations

SP 500 Valuation Model
Duration In Years (Price / Dividend)
March 1957-Current, Monthly Observations

As of 05/31/2018: Duration 54.1 years
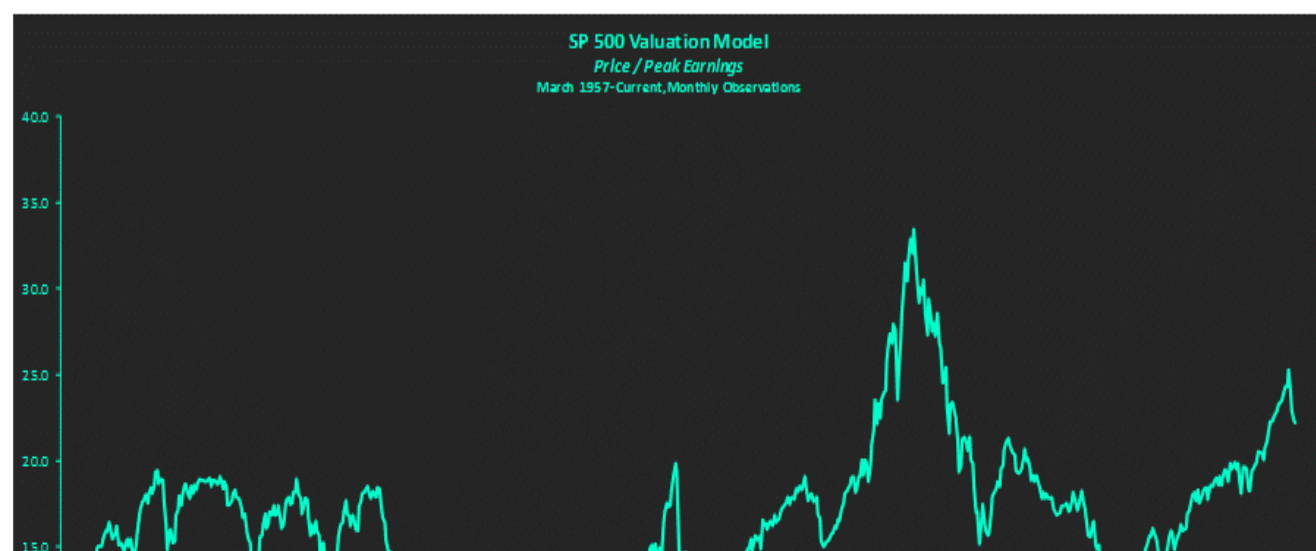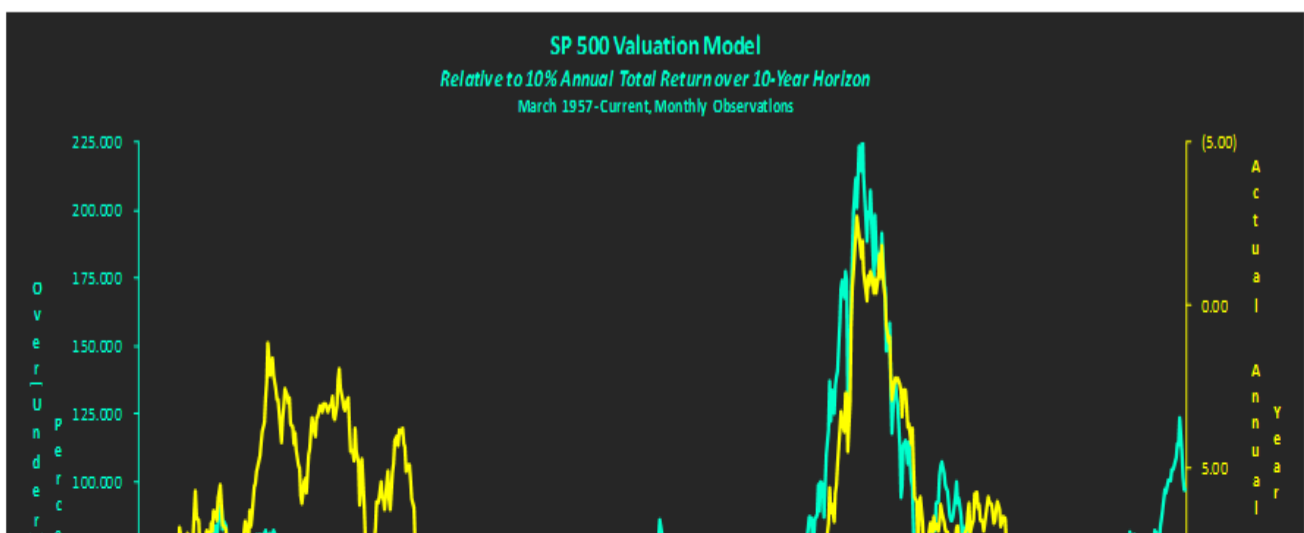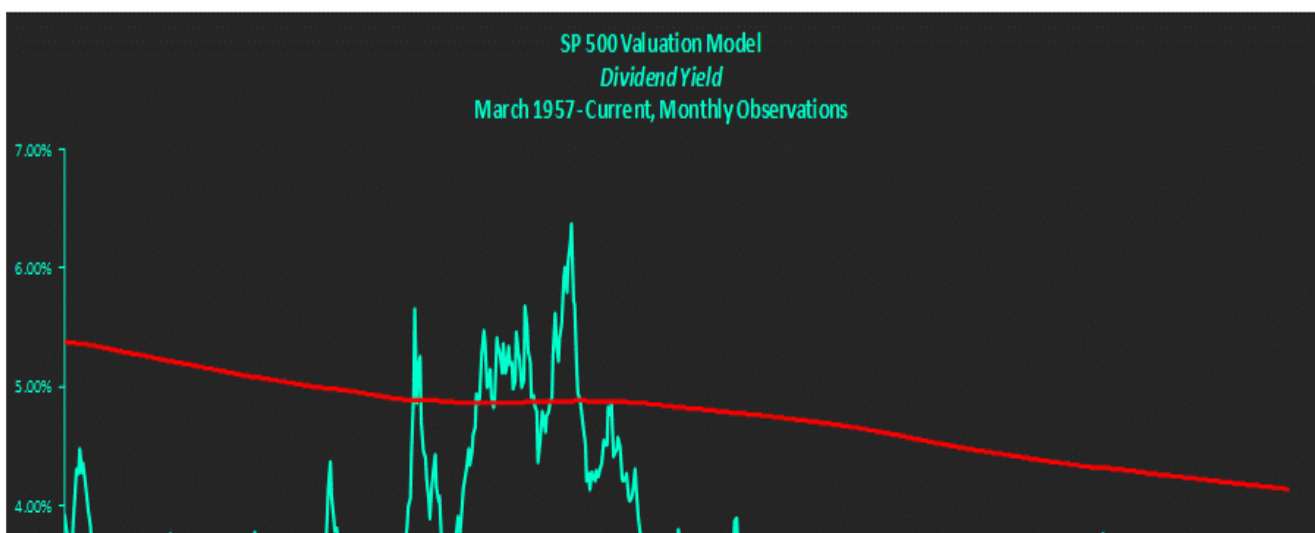
In the case of equities, *duration measures the percentage change in stock prices in response to a 1% change in the long-term return that stocks are priced to deliver.* So we have a basic financial planning concept. If a buy-and-hold investor with no particular view about market conditions or future returns wishes to have a fairly predictable amount of wealth at some future date, that investor should hold a portfolio with a duration that is roughly equal to the investment horizon. *(Excerpted from Dr. John Hussman)*
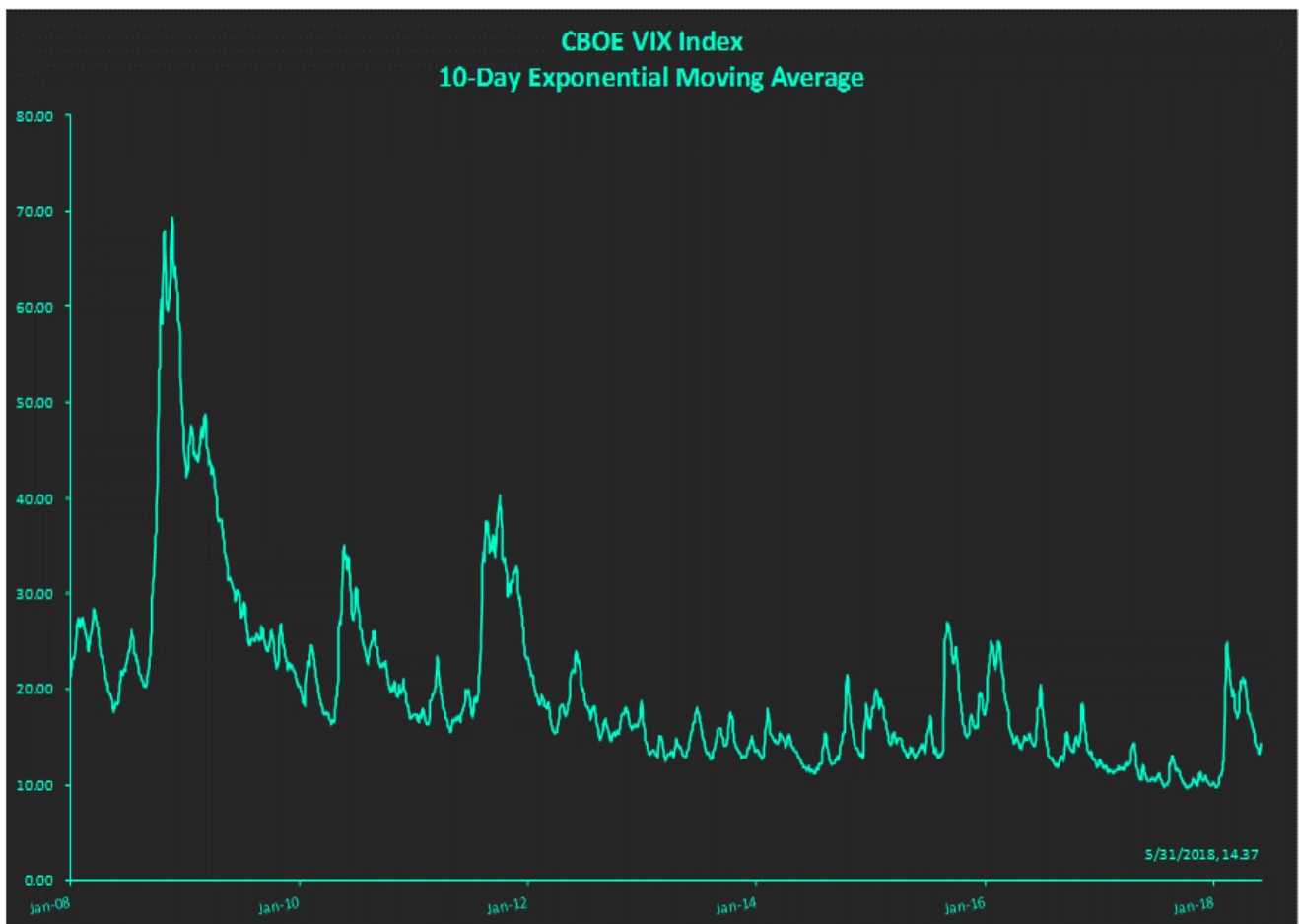
Valuation

May 31, 2018

SP 500 Valuation Model
Relative to 10% Annual Total Return over 10-Year Horizon
March 1957-Current, Monthly Observations

Inflation Adjusted PE

May 31, 2018

SP500 Valuation Model
Real Price to 10-Year Real Earnings
March 1957 - Current, Monthly Observations

As of 05/31/2018:   Real Price to 10-Year Real Earnings 31.3x

Dividend Yield

May 31, 2018

SP 500 Valuation Model
Dividend Yield
March 1957 - Current, Monthly Observations

CBOE VIX Index
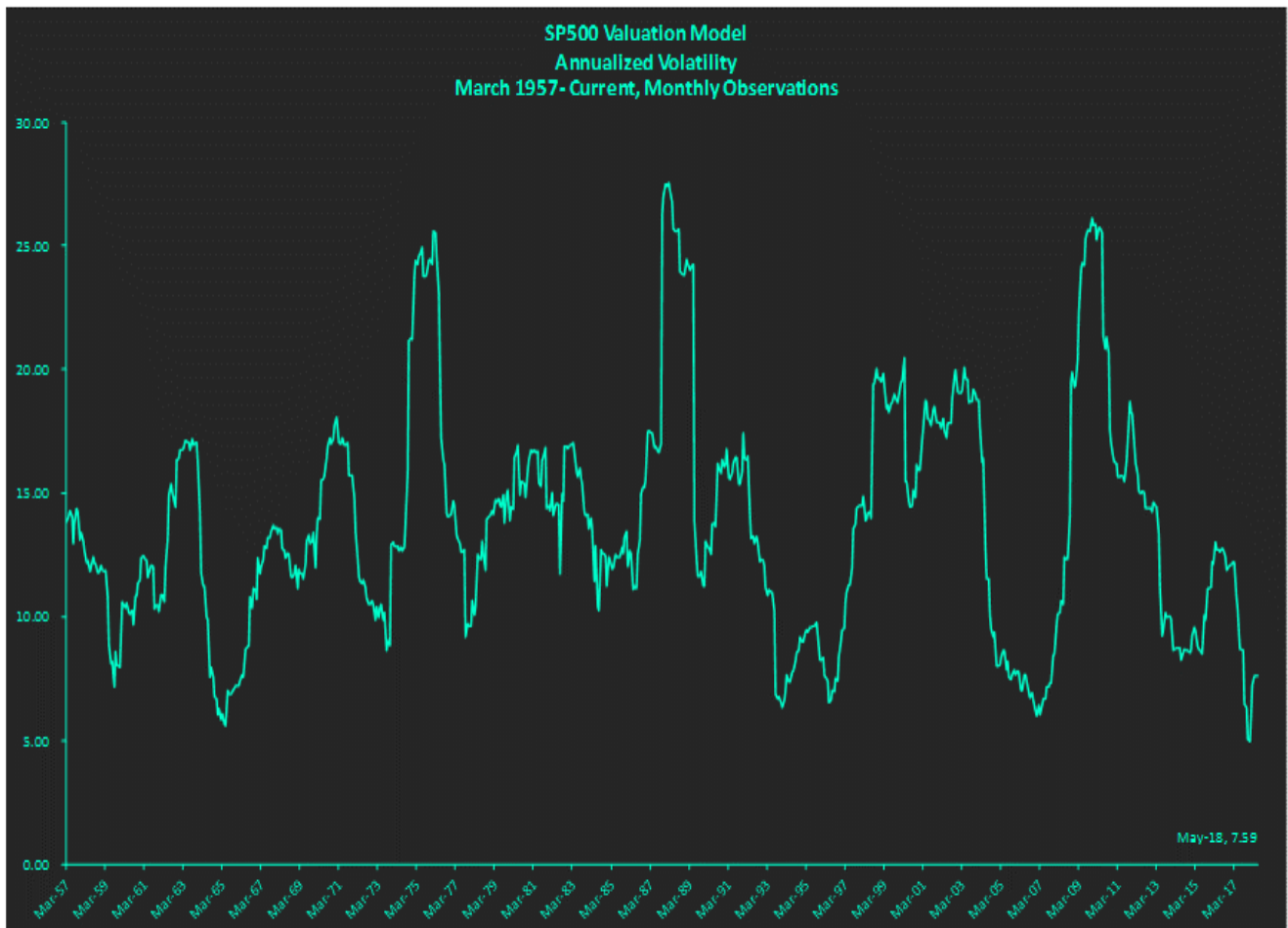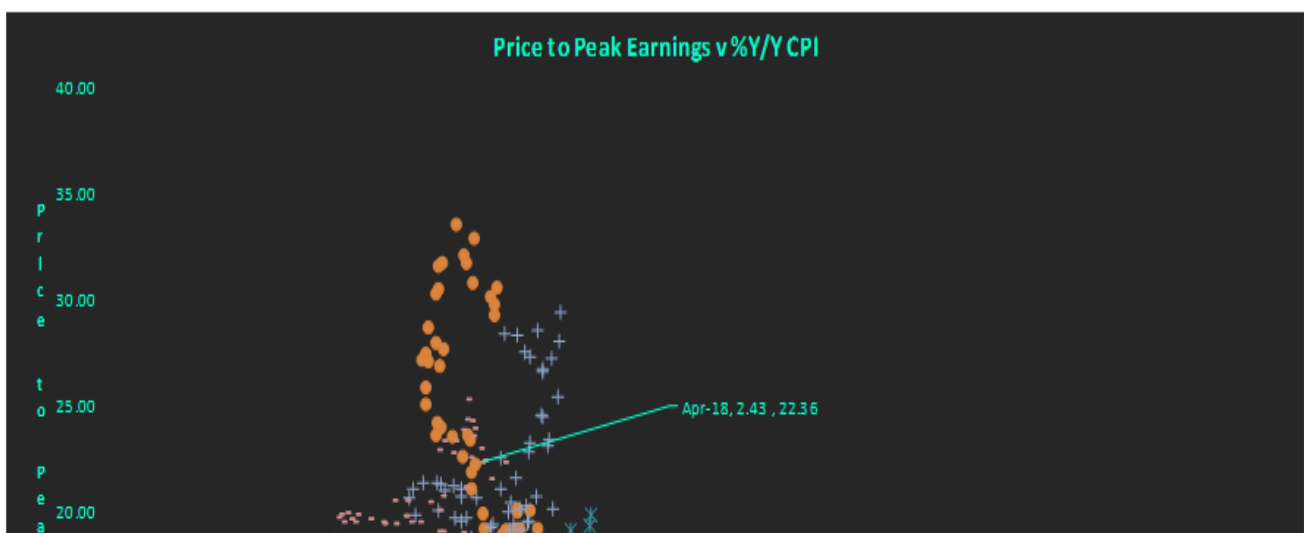## 10-Day Exponential Moving Average

5/31/2018, 14.37

VIX measures 30-day expected volatility of the S&P 500 Index. The components of VIX are near- and next-term put and call options, usually in the first and second SPX contract months. "Near-term" options must have at least one week to expiration; a requirement intended to minimize pricing anomalies that might occur close to expiration.
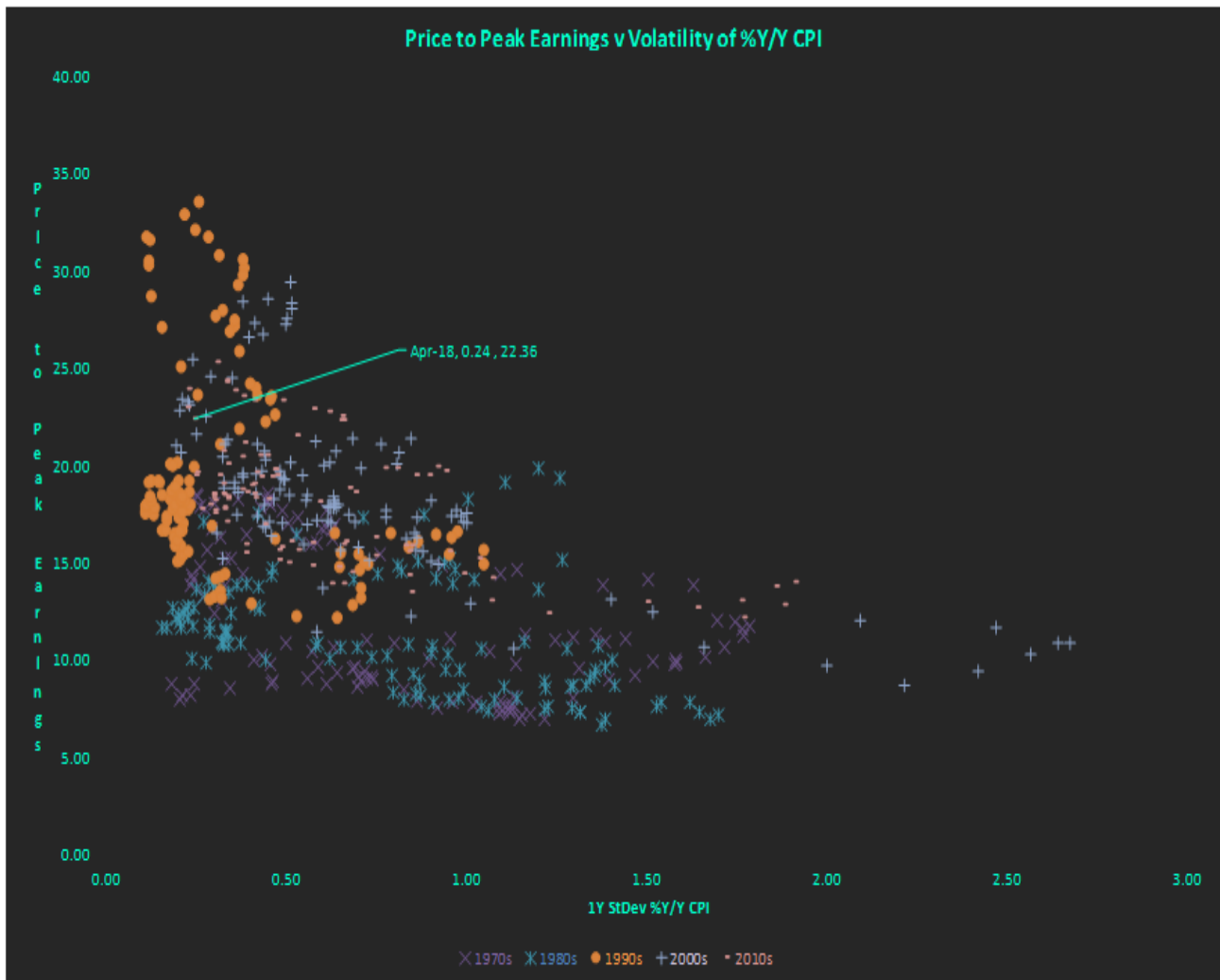
As of 05/31/2018: 10-Day EMA 14.37

Option Skew

May 31, 2018

CBOE Skew Index
10-Day Exponential Moving Average

SP500 Valuation Model
Annualized Volatility
March 1957- Current, Monthly Observations

May-18, 7.59

As of 05/31/2018:   7.59%

Price to Peak Earnings v %Y/Y CPI

Apr-18, 2.43 , 22.36

Inflation and PE Multiples

Price to Peak Earnings v Volatility of %Y/Y CPI

Apr-18, 0.24 , 22.36

1Y StDev %Y/Y CPI

X 1970s X 1980s ● 1990s + 2000s ▪ 2010s

Lower levels of volatility are rewarded with *higher* earnings multiples.
Higher levels of volatility are punished with *lower* earnings multiples.

PE Multiples and Realized Returns

Realized Returns v Valuation

May-08, 16.49 , 8.12