S&P 500 EOY 2020 Valuation & Analysis Review

Also, read our commentary on ***why low rates don't justify high valuations.***

Macro: S&P 500   December 31, 2020

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 its inherent *conservatism*: 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 4% 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   December 31, 2020

SP 500 Valuation Model: Peak Earnings
Predicted 10-Year Annual Return v Realized
March 1957- Current, Monthly Observations

25.00   25.00

Time Horizon	Price / Peak Earnings															
	3.0	7.0	9.0	11.0	**12.3**	**12.9**	14.0	16.0	18.0	21.0	23.0	25.0	27.0	29.0	31.0	**33.5**
10	(8.69)	(5.31)	(3.67)	(2.21)	(1.34)	(0.97)	(0.30)	0.83	1.85	3.23	4.07	4.86	5.59	6.28	6.94	7.70
9	(10.71)	(6.66)	(4.80)	(3.15)	(2.17)	(1.76)	(1.00)	0.26	1.40	2.95	3.89	4.77	5.59	6.37	7.10	7.95
8	(13.17)	(8.32)	(6.19)	(4.31)	(3.20)	(2.73)	(1.88)	(0.45)	0.85	2.60	3.67	4.66	5.60	6.48	7.31	8.28
7	(16.22)	(10.41)	(7.95)	(5.79)	(4.51)	(3.97)	(2.99)	(1.35)	0.14	2.16	3.38	4.53	5.60	6.62	7.58	8.69
6	(20.11)	(13.12)	(10.24)	(7.72)	(6.23)	(5.60)	(4.45)	(2.54)	(0.80)	1.56	3.00	4.35	5.61	6.80	7.93	9.25
5	(25.21)	(16.77)	(13.34)	(10.35)	(8.59)	(7.83)	(6.46)	(4.18)	(2.10)	0.74	2.47	4.09	5.62	7.06	8.43	10.03
4	(32.20)	(21.94)	(17.80)	(14.16)	(12.00)	(11.08)	(9.40)	(6.59)	(4.01)	(0.48)	1.68	3.71	5.63	7.45	9.19	11.22
3	(42.26)	(29.83)	(24.70)	(20.13)	(17.41)	(16.23)	(14.09)	(10.47)	(7.11)	(2.49)	0.37	3.08	5.65	8.11	10.46	13.22
2	(57.60)	(43.18)	(36.75)	(30.83)	(27.21)	(25.64)	(22.73)	(17.74)	(13.02)	(6.38)	(2.19)	1.83	5.70	9.43	13.04	17.34
1	(80.65)	(69.17)	(62.12)	(54.82)	(50.00)	(47.81)	(43.65)	(36.11)	(28.53)	(17.12)	(9.48)	(1.83)	5.83	13.50	21.18	30.64

Growth Rate	Price / Peak Earnings															
	3.0	7.0	9.0	11.0	**12.3**	**12.9**	14.0	16.0	18.0	21.0	23.0	25.0	27.0	29.0	31.0	**33.5**
0.06	(7.09)	(3.56)	(1.88)	(0.38)	0.51	0.89	1.58	2.72	3.77	5.18	6.04	6.84	7.59	8.30	8.97	9.74
0.05	(7.89)	(4.44)	(2.77)	(1.29)	(0.41)	(0.04)	0.64	1.77	2.81	4.21	5.06	5.85	6.59	7.29	7.95	8.72
0.04	(8.69)	(5.31)	(3.67)	(2.21)	(1.34)	(0.97)	(0.30)	0.83	1.85	3.23	4.07	4.86	5.59	6.28	6.94	7.70
0.03	(9.50)	(6.19)	(4.57)	(3.12)	(2.26)	(1.90)	(1.23)	(0.12)	0.89	2.26	3.09	3.86	4.59	5.28	5.92	6.68
0.02	(10.30)	(7.06)	(5.46)	(4.03)	(3.19)	(2.83)	(2.17)	(1.07)	(0.07)	1.28	2.10	2.87	3.59	4.27	4.91	5.65
0.01	(11.10)	(7.93)	(6.36)	(4.95)	(4.11)	(3.76)	(3.11)	(2.02)	(1.03)	0.31	1.12	1.88	2.59	3.26	3.90	4.63

Valuation Date	12/31/2020
Current Price / Peak Earnings	26.9
Growth Rate	0.04
Time Horizon (Years)	10
Current Dividend Yield	0.0157

Price to Peak Earnings

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

Dec 2020, 63.8

As of 12/31/2020: Duration 63.8 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)*

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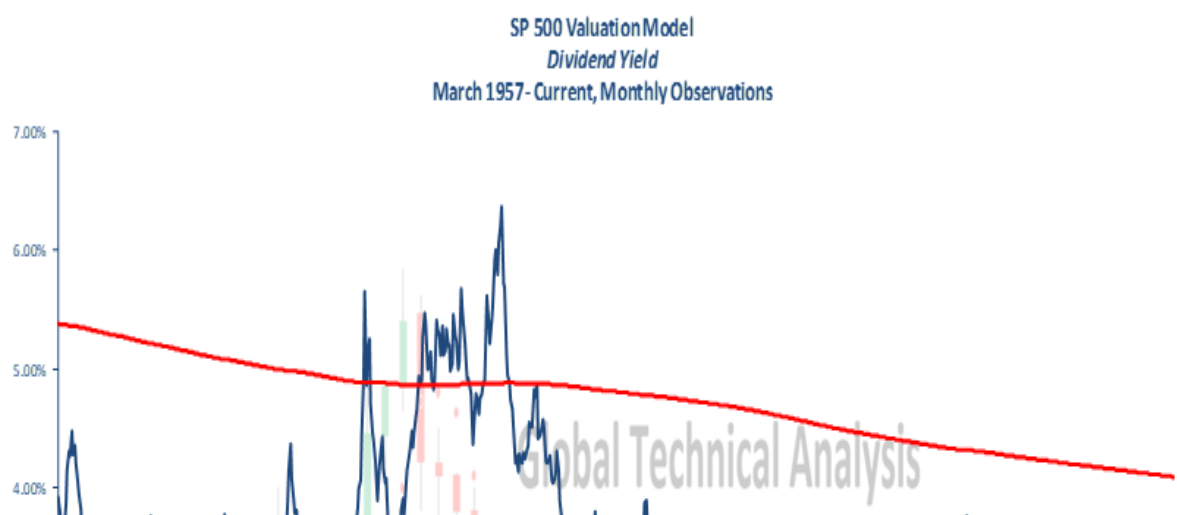*Relative to 10% Annual Total Return over 10-Year Horizon*
March 1957-Current, Monthly Observations

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

As of 12/31/2020:   Real Price to 10-Year Real Earnings 34.3x

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

CBOE VIX Index
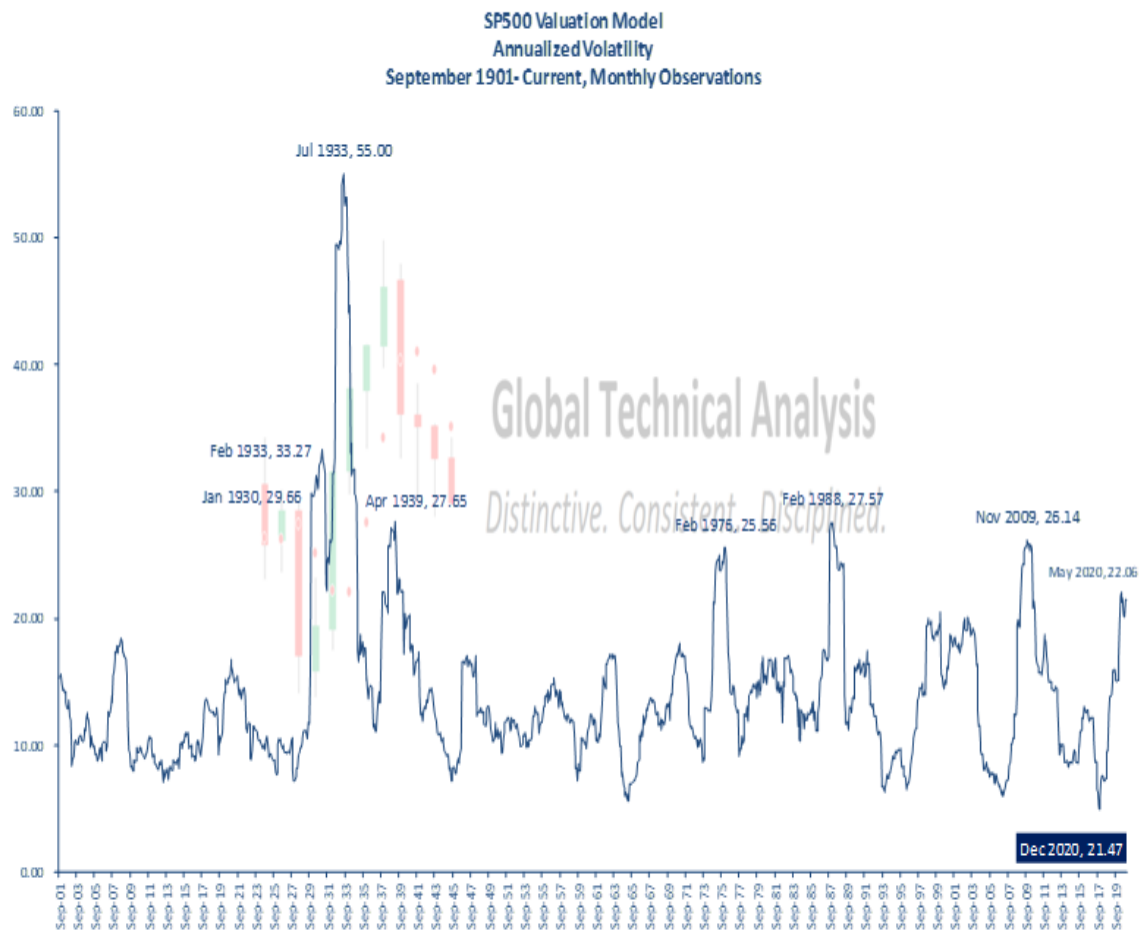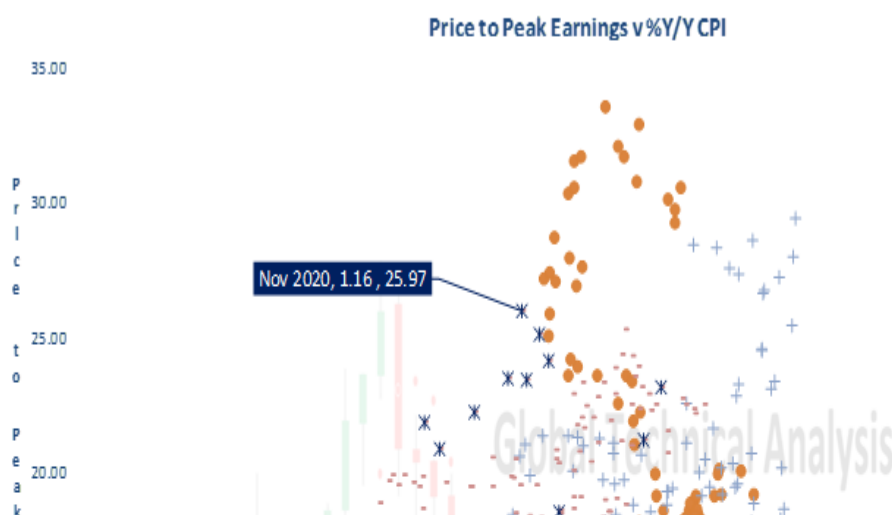**10-Day Exponential Moving Average**

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.
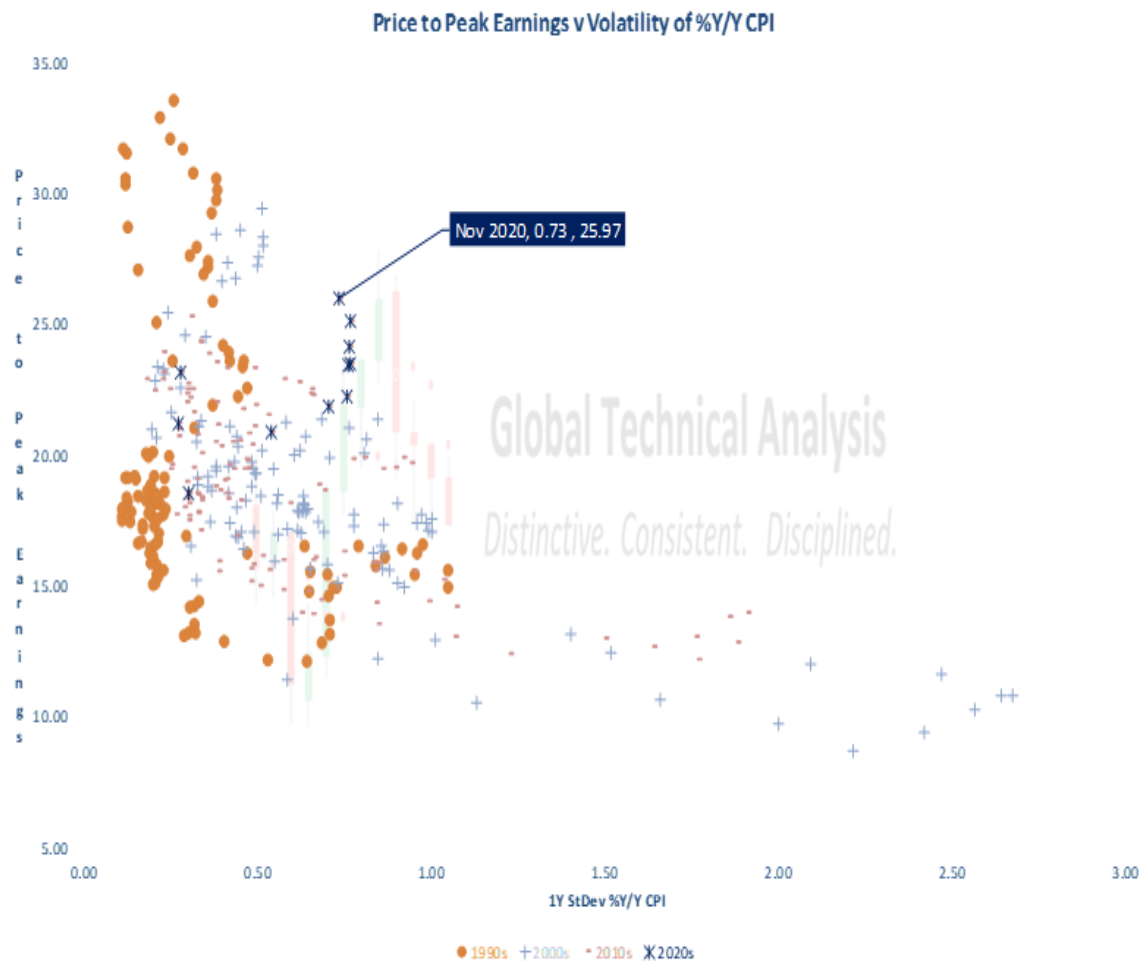
As of 12/31/2020:   10-Day EMA 22.72

CBOE Skew Index
10-Day Exponential Moving Average

SP500 Valuation Model
Annualized Volatility
September 1901 - Current, Monthly Observations

Jul 1933, 55.00

Feb 1933, 33.27

Jan 1930, 29.66

Apr 1939, 27.65

Feb 1976, 25.56

Feb 1988, 27.57

Nov 2009, 26.14

May 2020, 22.06

Dec 2020, 21.47

Global Technical Analysis

Distinctive. Consistent. Disciplined.

As of 12/31/2020:   21.47%

Price to Peak Earnings v %Y/Y CPI

35.00

P
r
i
c
e

30.00

Nov 2020, 1.16 , 25.97

25.00

t
o

P
e
a
k

20.00

Global Technical Analysis

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

Nov 2020, 0.73 , 25.97

Global Technical Analysis

Distinctive. Consistent. Disciplined.

1Y StDev %Y/Y CPI

● 1990s   + 2000s   · 2010s   ✕ 2020s

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

Realized Returns v Valuation

Dec 2010, 14.81 , 12.81

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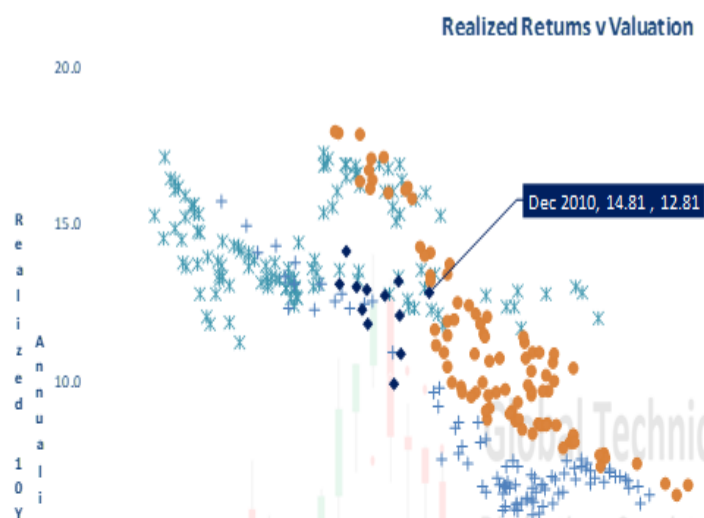
J. Brett Freeze, CFA, founder of Global Technical Analysis. Each month Brett will provide you their valuable S&P 500 Valuation Chart Book. This unique analysis provides an invaluable long term perspective of equity valuations. If you are interested in learning more about their services, please [connect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