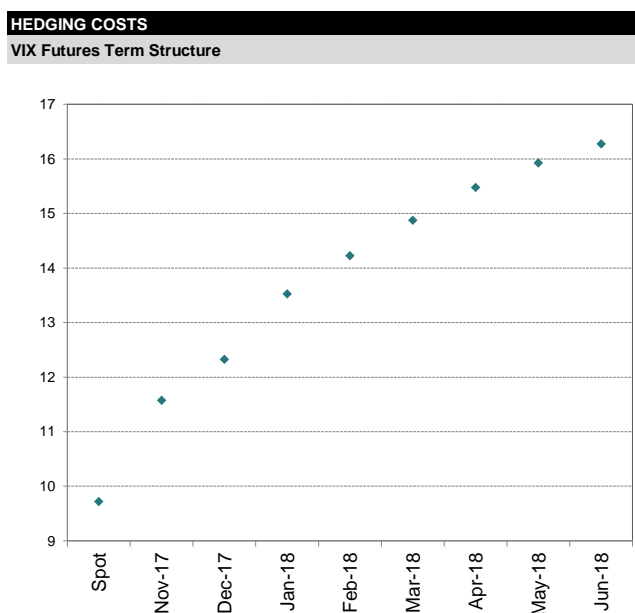


S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: Risk & Volatility December 20, 2017

VOLATILITY MEASURES				
Implied Volatility Measures	VIX	1m ±	200D Ave	Realized 1Yr
Cboe Volatility Index® (VIX®)	9.72	-3.41	11.01	6.85
Cboe Short-Term Volatility Index (VXST)	8.34	-3.39	9.91	6.85
Cboe 3-month Volatility Index (VXV)	12.37	-2.29	13.21	6.85
Cboe DJIA Volatility Index (VXD)	10.58	-2.95	11.12	6.69
VSTOXX® (V2X)	12.51	-3.07	14.54	8.55
S&P/ASX 200 VIX (A-VIX)	10.63	-2.57	12.29	9.49
S&P/TSX 60 VIX (VIXC)	10.61	-3.10	12.14	7.72
HSI Volatility Index (VHSI)	14.59	-0.63	14.12	11.61
Cboe/CME FX Yen Volatility (JVYIX)	7.06	-1.58	9.17	8.44
Cboe/CME FX GBP Volatility (BPVIX)	6.71	-1.62	8.30	8.27
Cboe/CME FX Euro Volatility (EUVIX)	6.16	-0.65	7.85	6.94
Cboe / CBOT 10Yr US Tsy (TYVIX)	3.52	-0.41	4.31	3.74
Cboe Interest Rate Swap (SRVIX)	65.59	-6.26	76.12	61.67
S&P/JPX JGB VIX® (SPJGB)	1.63	-0.05	1.68	1.22
Cboe Gold ETF Volatility Index (GVZ)	9.79	-1.96	12.03	10.24
Cboe Oil ETF Volatility Index (OVX)	19.46	-10.38	28.83	25.15
Cboe VIX of VIX (VVIX)	92.86	-13.41	90.96	109.48
Investable Volatility	1m ±	YTD	12m ±	
S&P Daily Inverse Short-Term VIX	28.48%	187.96%	172.02%	
S&P 500 VEQTOR Switch Index	4.85%	22.61%	21.07%	
S&P 500 Stock Covered Call Index	3.53%	16.49%	15.38%	
S&P 500 Dynamic VEQTOR Index	1.87%	12.90%	12.15%	
Cboe S&P 500 Buy-write Index	3.91%	16.57%	15.20%	
S&P Dynamic VIX Index	-1.99%	-15.37%	-15.45%	
S&P VIX Mid-Term Futures Index	-13.02%	-47.89%	-46.72%	
S&P VIX Short-Term Futures Index	-22.78%	-72.25%	-70.71%	
S&P 500	4.47%	19.67%	17.99%	



VIX Futures Indices Roll Costs (Monthly)			
Short-term futures		6.48%	
Mid-term futures		3.69%	
REALIZED MEASURES			
S&P 500 Correlations (Month-end)	1 Year	3 Year	10 Year
S&P Europe 350	-0.08	0.77	0.89
S&P 500 Bond	0.11	0.09	0.35
S&P GSCI Commodity	0.54	0.31	0.54
U.S. Dollar Index	0.32	-0.14	-0.51
S&P 500 Single Stocks	21-Day	12M Ave	3Y Ave
Dispersion (annualized)	18.67%	17.74%	18.97%
Volatility (annualized)	19.10%	17.17%	20.84%
Correlation (pairwise)	0.12	0.14	0.25

COMMENTARY

- 'Twas the night before Christmas, when all thro' the house
Not a creature was stirring, not even the Cboe/CME FX GBP Volatility Index*

*But I heard him exclaim, ere he drove out of sight—
Will we see vol next year? I don't know, but we might!*
- 2017 has been quite an extraordinary year for volatility. In the quarter-century from its inception to the end of 2016, VIX had closed below 10 only on nine days, ever. Since our last report, there have been another nine single-digit closes; yesterday's level of 9.59 was the 51st single-digit-close in 2017.
- All of our volatility measures have declined since the last report, many to within a whisker of their all-time lows; nearly all now stand below their 200-day average. Solid prospects for a significant corporate tax cut and the resulting boost to U.S. profits gave a final fillip to the U.S. markets, while a seasonal effect may have also helped dampen volatility expectations elsewhere: there are fewer trading days and (typically) fewer market-moving events over the Christmas and New Year period.
- Given the current level of realized volatility, the VIX is lower than might be expected (and the futures curve shallower) – suggesting that, while an eventual return to higher volatility may be inevitable, it is not anticipated in the near future. Readers interested in the predictive power of comparing VIX levels to their “expected” values may enjoy our new paper on the subject, linked [here](#).

Sources: S&P Dow Jones Indices LLC and/or its affiliates, Cboe, U.S. Federal Reserve (Dollar index and 10Yr Swap Rate), all as of December 20, 2017. **Volatility measures:** respective VIX and changes in those levels 15 November to December 20, 2017. 200D Average is the moving average based on trading days, colour coded by whether current respective VIX is above or below average. 1 year realized volatility calculated according to previous 1 years daily returns, annualised. **Investable Index performance** based on total return. **Index Correlations** of monthly returns between total return indices, in USD to month-end November 2017. **Stock Correlations, Dispersion and Volatility** based on index-weighted averages as of December 20, 2017. VIX futures **monthly roll costs** are expressed as the weighted sum of the percentage difference in price between each future and the future next closer to expiry, expressed as a fraction of that futures price and weighted according to that future's weight in the either the S&P VIX Short-Term Futures Index, or the S&P VIX Mid-Term Futures Index, as appropriate. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. For more information, please visit our website at www.spdji.com

About the VIX® Network

The VIX Network is an association of exchanges and index providers dedicated to establishing standards that help investors understand, measure, and manage volatility. The Network's members have obtained, from Chicago Board Options Exchange ("Cboe") and its partner S&P Dow Jones Indices ("S&P DJI"), the rights to use the methodology of the CBOE Volatility Index ("VIX") to calculate their own volatility indices. In addition to CBOE and S&P DJI, members include: Australian Securities Exchange, CME Group, Deutsche Borse AG, Hang Seng Indexes in Hong Kong, National Stock Exchange of India, LIFFE, Taiwan Futures Exchange, and the TMX Group in Canada.

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Prospective application of the methodology used to construct the index(es) as well as revisions to economic data may not result in performance commensurate with the back-test returns shown. The back-test period does not necessarily correspond to the entire available history of the index(es). Please refer to the index methodology for the particular index in question, available at www.spdji.com, for more details about such index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

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