S&P Dow Jones Indices

A Division of S&P Global

INDEX INVESTMENT STRATEGY

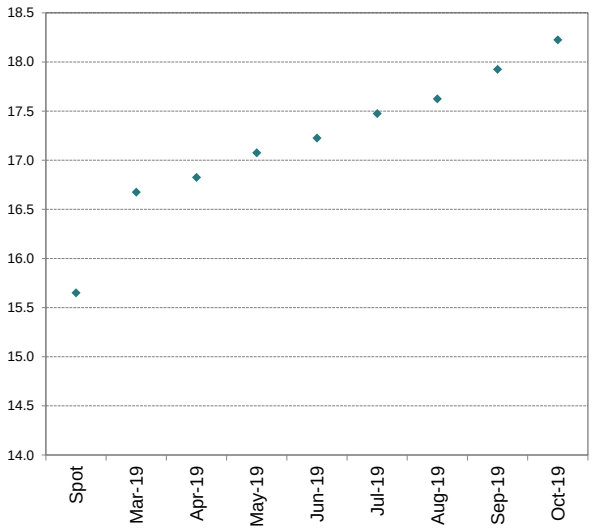
Index Dashboard: Risk & Volatility Febuary 13, 2018

VOLATILITY MEASURES

U.S. Equity		1m ±	200D Ave	RLZ 1Yr
Cboe Volatility Index® (VIX®)	**15.65**	-3.39	16.52	17.84
Cboe Short-Term Volatility (VXST)	**13.49**	-3.24	16.32	17.84
Cboe 3-month Volatility (VXV)	**16.96**	-2.57	17.61	17.84
Cboe 1-Year Volatility (VIX1Y)	**18.28**	-1.75	18.91	17.84
Cboe DJIA Volatility (VXD)	**15.56**	-3.38	17.01	18.66
Global Equity				
VSTOXX® (V2X)	**13.97**	-1.75	16.24	12.81
S&P/ASX 200 VIX (A-VIX)	**13.14**	-0.29	13.87	11.71
S&P/TSX 60 VIX (VIXC)	**15.71**	-1.68	15.49	11.32
HSI Volatility (VHSI)	**17.10**	-2.10	20.57	20.18
Currency				
Cboe/CME Yen Volatility (JYVIX)	**6.89**	-1.26	7.64	5.94
Cboe/CME GBP Volatility (BPVIX)	**11.18**	-1.37	9.96	8.01
Cboe/CME Euro Volatility (EUVIX)	**6.83**	-0.20	7.49	6.64
Interest Rate				
Cboe/CBOT 10Yr Tsy (TYVIX)	**3.60**	-0.32	3.94	3.73
Cboe IR Swap Volatility (SRVIX)	**66.12**	-3.65	71.14	46.47
S&P/JPX JGB VIX® (SPJGB)	**1.43**	-0.16	1.46	1.22
Commodity				
Cboe Gold ETF Volatility (GVZ)	**9.55**	-1.53	11.49	9.75
Cboe Oil ETF Volatility (OVX)	**32.26**	-6.51	32.79	31.28
Volatility of VIX				
Cboe VIX of VIX (VVIX)	**80.27**	-3.07	96.38	159.68

TERM STRUCTURE & SKEW

VIX Futures Term Structure



VIX Futures Indices Roll Costs (Monthly)			
Short-term futures	0.90%		
Mid-term futures	1.32%		
Skew	**Level**	**1M**	**12m ±**
Cboe Skew Index (SKEW)	**127.12**	-3.45%	-11.15%

INVESTABLE VOLATILITY INDICES

Index	1m ±	YTD	12m ±
S&P Daily Inverse Short-Term VIX	14.00%	42.57%	0.22%
S&P 500 VEQTOR Switch Index	4.12%	3.67%	-6.00%
Cboe S&P 500 Put-write Index	2.13%	4.91%	2.63%
Cboe S&P 500 Buy-write Index	1.59%	4.22%	0.71%
S&P 500 Dynamic VEQTOR Index	1.56%	-0.80%	-4.59%
S&P Dynamic VIX Index	-5.03%	-14.05%	-14.74%
S&P VIX Mid-Term Futures Index	-9.06%	-17.06%	-11.60%
S&P VIX Short-Term Futures Index	-13.74%	-31.89%	-29.06%
S&P 500	5.39%	11.02%	5.45%

REALIZED MEASURES

S&P 500 Correlations (Month-end)	1 Year	3 Year	10 Year
S&P Europe 350	0.75	0.67	0.84
S&P Emerging BMI	0.69	0.62	0.75
S&P 500 Bond	0.40	0.25	0.22
S&P GSCI Commodity	0.54	0.41	0.52
U.S. Dollar Index	-0.05	-0.22	-0.49
S&P 500 Single Stocks	**21-Day**	**12M Ave**	**3Y Ave**
Dispersion (annualized)	**20.71%**	20.78%	19.53%
Volatility (annualized)	**24.99%**	27.74%	22.09%
Correlation (pairwise)	**0.22**	0.30	0.22

COMMENTARY

- On the second trading session in February, VIX returned below 16 for the first time since mid-October. It has remained around there since, closing between 15 and 16 in seven of the last eight sessions and finishing yesterday at 15.60.
- The trend for rising asset prices and declines in volatility has continued; every implied volatility measure in our report is showing a decline over the last four weeks. The largest absolute decline was found in the Cboe Oil ETF Volatility Index, which closed yesterday at three-month low of 32.26.
- Our implied volatility measures for the pound sterling and Canadian equities are the only ones in our dashboard to remain above their 200-day trailing average this month; the Cboe/CME GBP Volatility Index may rise further as its one-month forward horizon extends in the next few weeks to encompass the March 29th deadline for a “Brexit” deal to be in place between the United Kingdom and European Union.
- Given the mid-teens VIX level, the VIX futures curve is slightly flatter than might be expected (a longer-dated futures price above 19 is more historically typical for a VIX between 15 and 16). This could mean that market participants anticipate further declines in volatility, or otherwise a lack of demand for hedging. In either case, the roll costs for short- and mid-term VIX futures indices are lower than usual.

Sources: S&P Dow Jones Indices LLC and/or its affiliates, Cboe, U.S. Federal Reserve (Dollar index and 10Yr Swap Rate), VIX Network members, Bloomberg LLC all as of February 13, 2019. **Volatility measures:** respective VIX and changes in those levels to January 16, 2019 to February 13, 2019. 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 January 2019. **Stock Correlations, Dispersion and Volatility** based on index-weighted averages as of February 13, 2019. 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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Charts and graphs are provided for illustrative purposes. Past performance is not an indication or guarantee of future results. The charts and graphs may reflect hypothetical historical performance. All information presented prior to the launch date is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index(es) was officially launched. However, it should be noted that the historic calculations of an Economic Index may change from month to month based on revisions to the underlying economic data used in the calculation of the index. Complete index methodology details are available at www.spdji.com. It is not possible to invest directly in any index.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency on their products. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which a given index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of a given index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via S&P Dow Jones Indices's public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the index's public release date.

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.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested data and/or information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

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