

S&P Dow Jones Indices

A Division of **S&P Global**

INDEX INVESTMENT STRATEGY

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Index Dashboard: Risk & Volatility November 18, 2020

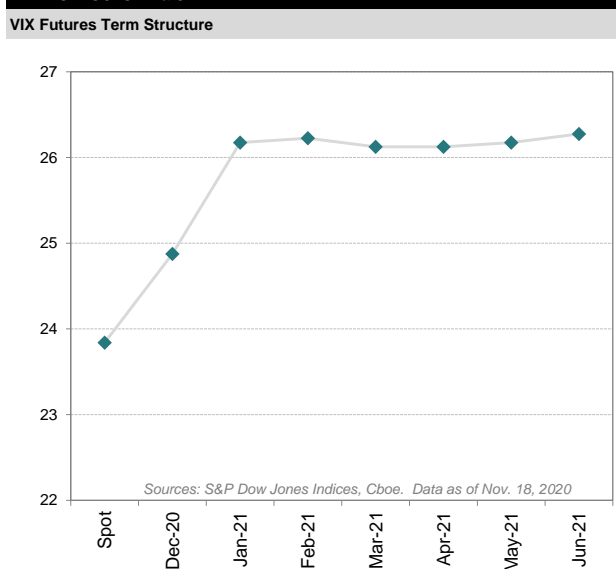
VOLATILITY MEASURES

US Equity	VIX	1m ±	200D Ave	Realized (1Yr)
Cboe Volatility Index® (VIX®)	23.84	-2.20	32.06	34.77
Cboe Short-Term Volatility (VIX9D)	19.59	-4.18	32.31	34.77
Cboe 3-month Volatility (VXV)	26.39	-4.18	33.22	34.77
Cboe 1-Year Volatility (VIX1Y)	28.81	-3.76	30.57	34.77
Cboe DJIA Volatility (VXD)	23.47	0.90	32.41	37.15
Global Equity				
VSTOXX® (V2X)	20.90	-1.09	31.98	32.56
S&P/ASX 200 VIX (A-VIX)	15.10	-3.45	23.30	30.43
S&P/BMV IPC VIX (SPBMVVIX)	17.80	2.78	16.32	24.60
HSI Volatility (VHSI)	19.37	-0.23	26.96	23.87
Cboe EM ETF (VXEEM)	23.12	-0.40	31.71	34.43
Cboe China ETF (VXFXI)	24.89	2.03	30.37	32.03
Interest Rate				
Cboe 20+ Yr US Treasury ETF (VXTLT)	14.27	-1.27	20.06	5.32
Cboe IR Swap Volatility (SRVIX)	61.37	-3.84	67.14	82.50
S&P/JPX JGB VIX® (SPJGB)	1.55	-0.09	2.27	2.44
Currency				
Cboe Euro ETF (EVZ)	6.55	-0.88	8.34	7.33
Commodity				
Cboe Gold ETF Volatility (GVZ)	17.67	-2.41	23.07	19.12
Cboe Oil ETF Volatility (OVX)	46.06	4.93	72.62	73.90
Volatility of VIX				
Cboe VIX of VIX (VVIX)	117.90	14.42	122.31	143.10

INVESTABLE VOLATILITY INDICES

Index	1m ±	YTD	12m ±
S&P Daily Inverse Short-Term VIX	20.51%	-72.5%	-68.9%
Cboe S&P 500 Put-write Index	5.06%	-1.1%	0.3%
Cboe S&P 500 Buy-write Index	4.60%	-5.32%	-4.02%
S&P 500 VEQTOR Switch Index	1.83%	19.62%	24.16%
S&P 500 Dynamic VEQTOR Index	-1.39%	14.2%	18.0%
S&P VIX Mid-Term Futures Index	-6.76%	76.60%	70.86%
S&P Dynamic VIX Index	-8.25%	92.59%	94.11%
S&P VIX Short-Term Futures Index	-23.35%	27.45%	9.91%
S&P 500®	5.67%	12.26%	16.45%

TERM STRUCTURE & SKEW



VIX Futures Indices Roll Costs (Monthly)

Short-term futures	5.23%
Mid-term futures	0.19%
Skew	
Cboe Skew Index (SKEW)	Level: 133.59, 1M: -1.82%, 12M ±: 5.53%

REALIZED MEASURES

S&P 500 Correlations (Month-end)	1 Year	3 Year	10 Year
S&P Europe 350®	0.93	0.88	0.83
S&P Emerging BMI	0.84	0.81	0.75
S&P 500 Bond	0.67	0.47	0.32
S&P GSCI Commodity	0.59	0.60	0.54
U.S. Dollar Index	-0.50	-0.38	-0.37
S&P 500 Single Stocks			
Dispersion (annualized)	21-Day: 29.03%	12M Ave: 24.42%	3Y Ave: 21.70%
Volatility (annualized)	41.57%	38.73%	29.52%
Correlation (pairwise)	0.26	0.35	0.30

COMMENTARY

- As expected, the completion of the U.S. Presidential and Congressional elections triggered a wide range of equity repricing. The announcement of an effective COVID-19 vaccine after a long weekend of vote-counting added fuel to a particularly chaotic day on Monday Nov. 9th, when S&P 500 dispersion soared the highest single-day spread in stock returns since late 2008.
- Just as after the 2016 Presidential election, high dispersion among sectors and factors meant that diversification effects kept overall index volatility relatively compressed. With the central uncertainty over the government of the world's largest economy removed, VIX receded from the high thirties and returned to the low twenties – closing last night at 24.
- Volatility indicators for global equities, commodities, currencies and rates largely followed the VIX down. However, our indicators for Chinese equities and crude oil were among the few notable exceptions to the rule. The Cboe SKEW index, a measure of the perceived likelihood of left-tail events, also declined.
- 2020 has, among its other properties, been a year for unusually-shaped VIX futures curves. The current edition is less bizarre than has been seen recently, but remains somewhat idiosyncratic: steep in the near contracts, more or less flat beyond the January 2021 future. Mid-term futures have been a winning long position this year, with the S&P VIX Mid-Term Futures Index still standing with a 76% total return year-to-date despite VIX's decline from its earlier extremes.

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 Nov. 18, 2020. **Volatility measures:** respective VIX and changes in those levels Oct. 21 to Nov. 18, 2020. 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 Oct. 2020. **Stock Correlations, Dispersion and Volatility** based on index-weighted averages as of Nov. 18, 2020. 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

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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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