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MIAX Exchange Group

Navigating the Landscape of Options on Volatility Products

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AGENDA

How is a volatility index constructed?

Why care about volatility?

What are the different types of volatility options?



How is a volatility index constructed?

How is a volatility index constructed?

- Volatility indexes are derived from option premiums; they generally provide a volatility gauge on a 30-day timeframe
- They distill into a single number the market's level of uncertainty
- Volatility indexes are generally provided on broad market underlyings like the S&P 500 or the Euro Stoxx 50
- They take option premiums from out-of-the money puts and calls on maturities that straddle the 30-day timeframe and apply weights to strikes according the standard variance swap methodology

Trade Date: November 29, 2021, SPY = 465.00

Expiration: December 17, 2021			Expiration: January 21, 2022		
Call Premium	Strike	Put Premium	Call Premium	Strike	Put Premium
\$46.95	420	\$1.06	\$48.58	420	\$3.63
\$42.25	425	\$1.28	\$41.11	425	\$4.13
\$37.50	430	\$1.51	\$40.00	430	\$4.68
\$32.74	435	\$1.87	\$35.50	435	\$5.35
\$28.14	440	\$2.32	\$31.00	440	\$6.05
\$23.25	445	\$2.82	\$26.56	445	\$6.88
\$19.00	450	\$3.62	\$23.03	450	\$7.90
\$14.90	455	\$4.53	\$18.90	455	\$9.03
\$10.96	460	\$5.70	\$15.31	460	\$10.32
\$7.36	465	\$7.14	\$11.92	465	\$12.03
\$4.31	470	\$9.36	\$8.83	470	\$13.80
\$2.09	475	\$12.17	\$6.17	475	\$16.20
\$0.88	480	\$16.43	\$4.10	480	\$18.95
\$0.34	485	\$21.14	\$2.61	485	\$23.91
\$0.15	490	\$28.29	\$1.63	490	\$27.00
\$0.07	495	\$28.30	\$0.99	495	\$36.60
\$0.04	500	\$35.40	\$0.62	500	\$36.00
\$0.04	505	\$39.80	\$0.39	505	\$37.75
\$0.03	510	\$45.37	\$0.26	510	\$44.41

Source: Bloomberg

The price of each option reflects the market's expectation of future volatility, as statistical measures can be derived from each. A volatility index is a blend of the information provided in each constituent option. Statistical measures from these SPY options produce the **SPIKES Volatility Index**

22.73

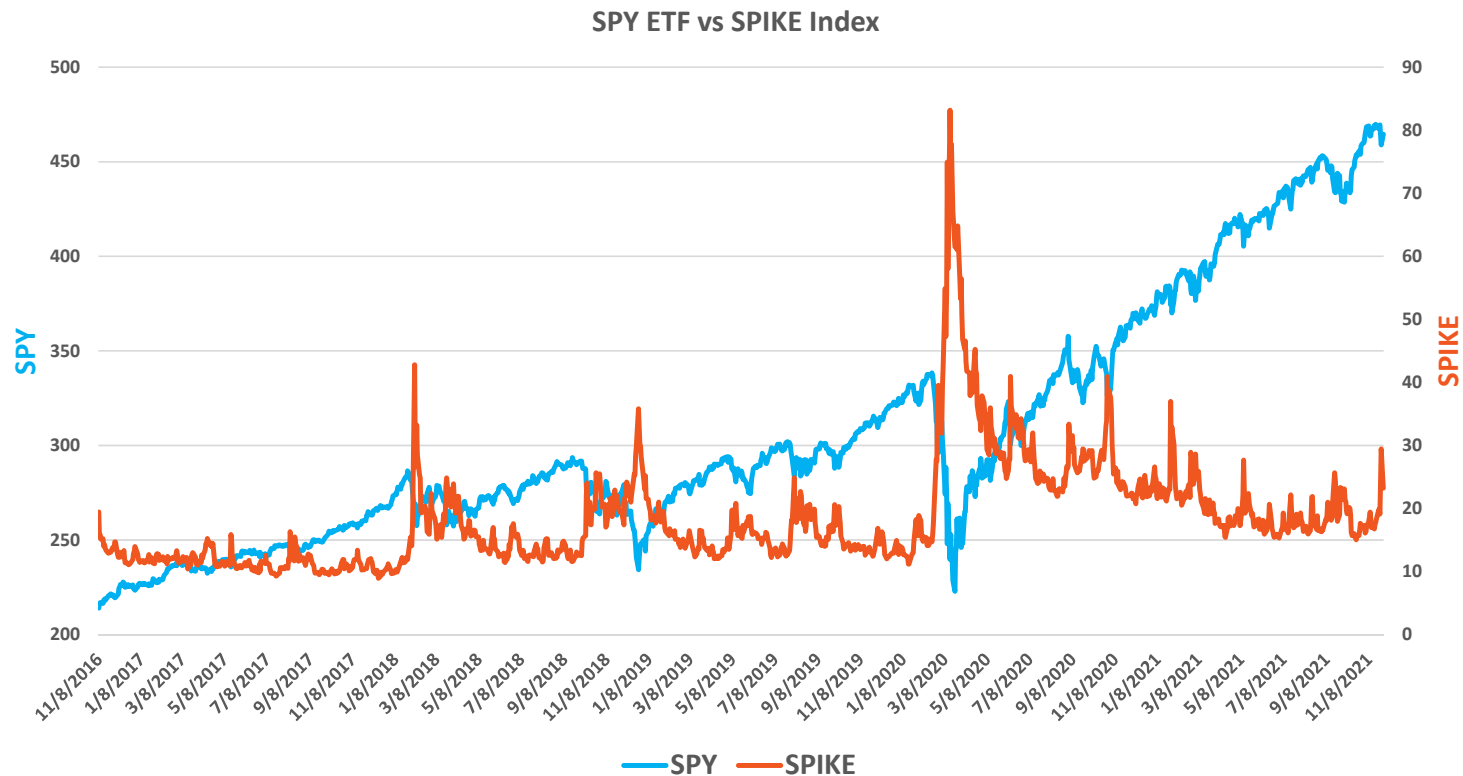
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Why care about volatility?

Why care about volatility?

- Volatility indexes can be considered the market's estimate about the degree of future uncertainty
- Volatility indexes tend to rise sharply when equity indexes fall. Volatility derivatives, like futures and options, therefore provide unique hedging instruments for adverse moves in the broader market



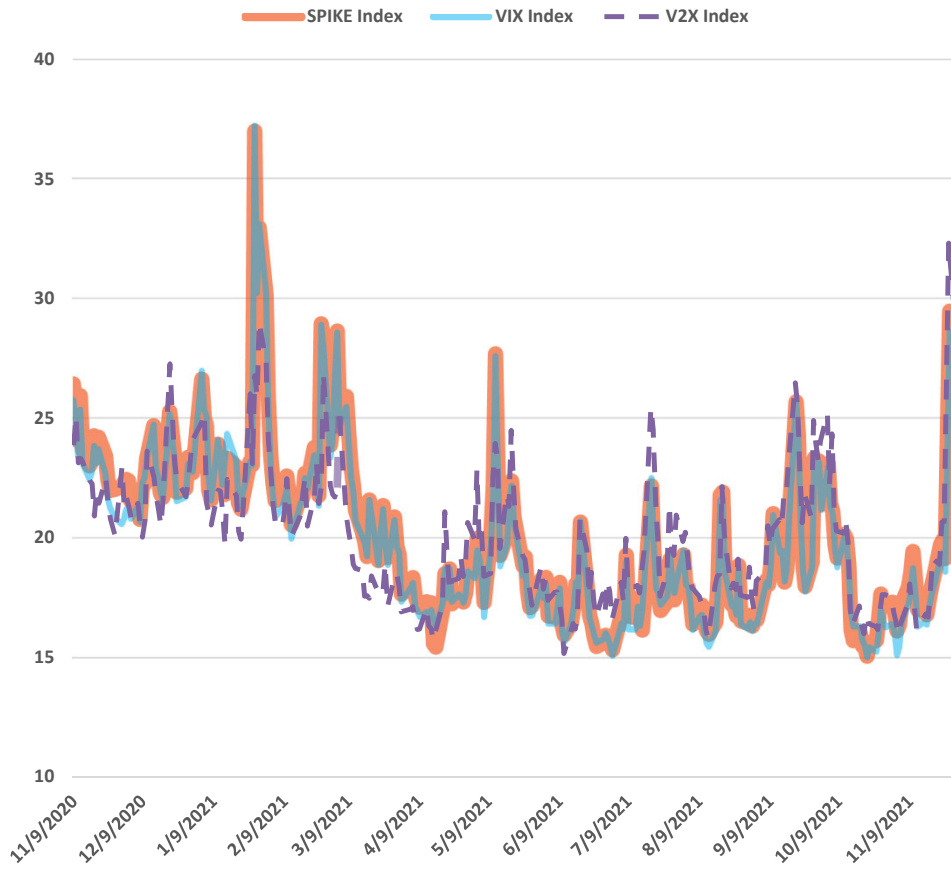
Source: Bloomberg



What are the different types of volatility options?

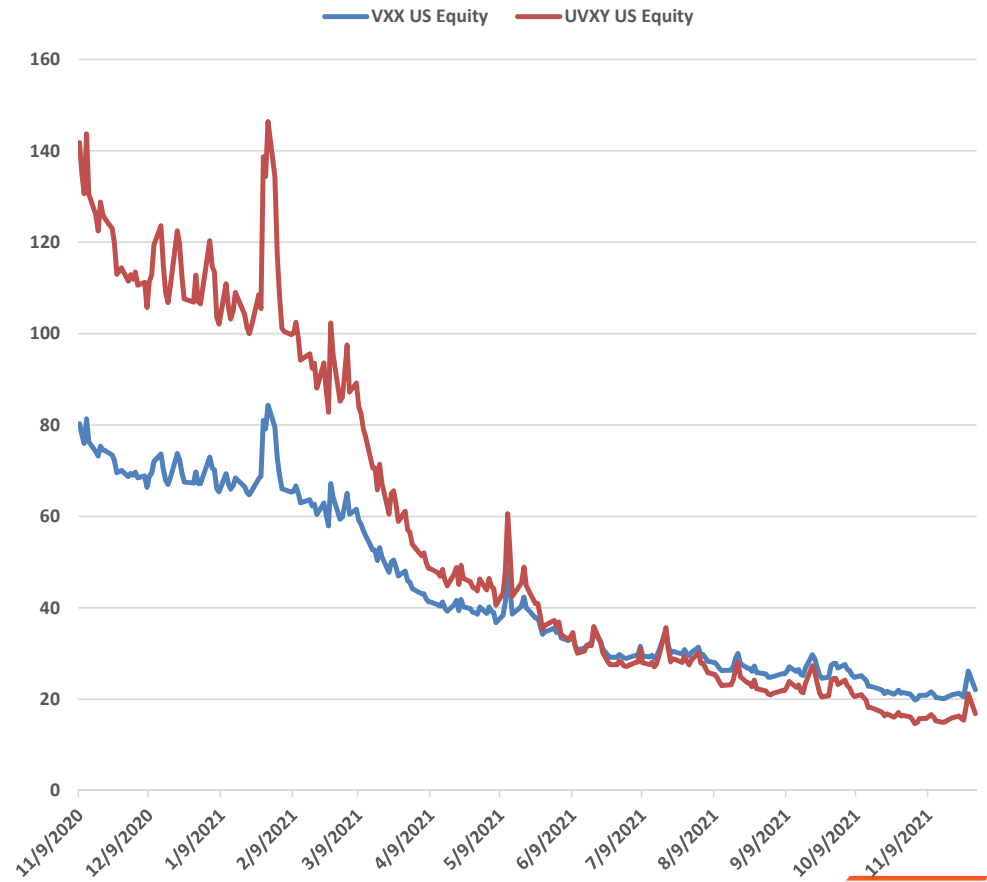
What are the different types of volatility options?

Volatility Indexes



Source: Bloomberg

Volatility ETPs



What are the different types of volatility options?

	INDEX OPTIONS			ETP OPTIONS	
	Spikes Options	VIX Options	Vstoxx Options	VXX Options	UVXY Options
Underlying Symbol	SPIKE	VIX	V2X	VXX	UVXY
Price	22.44	21.89	24.87	22.90	17.28
Inputs	SPY Options (trades & mids)	SPX Options (midpoints)	Euro Stoxx 50 Options	VIX Futures	VIX Futures
Frequency of index dissemination	Every 100 milliseconds	Every 15 seconds	Every 5 seconds	n/a	n/a
Options prices based on?	Spikes futures	VIX futures	Vstoxx futures	VXX shares	UVXY shares
Average Daily Volume	276	521,904	31,285	261,975	229,916
Currency Denomination	\$	\$	€	\$	\$
Fees (Customer)*	\$0	~\$0.35	€ 0.30	\$0	\$0
Bid / Ask Width	\$0.10 - \$0.15	\$0.05 - \$0.10	€0.80 - €1.20	\$0.05 - \$0.10	\$0.10 - \$0.15
Tick Increment	\$0.05	\$0.01 (W); \$0.05 (M)	€ 0.025	\$0.01	\$0.01
Trading Hours	9:30am ET - 3:15pm ET	9:30am ET - 3:15pm ET 8:15pm ET - 9:15am ET	3:15am ET - 11:30am ET	9:30am ET - 3:15pm ET	9:30am ET - 3:15pm ET
Exchange	MIAX	Cboe	Eurex	All 16 U.S. Exchanges	All 16 U.S. Exchanges
Electronic or Open Outcry	Electronic	Hybrid	Electronic	Hybrid	Hybrid
Settlement	Cash	Cash	Physical	Physical	Physical
Settlement Style	Auction	Auction	TWAP	Shares	Shares
Settlement Time	AM	AM	PM	PM	PM
Settlement Day	30 days prior to the expiration day of the underlying options	30 days prior to the expiration day of the underlying options	30 days prior to the expiration day of the underlying options	Friday	Friday
Exercise Style	European	European	American	American	American
Weeklys	No	Yes	No	Yes	Yes
Vol of Vol Index	VSPKE	VVIX	VV2TX	n/a	n/a

*Fees can vary depending on option premiums and exchange pricing model. Fees displayed here are generalizations.

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