

## AN IMPROVED MEASURE OF LARGE CAP IMPLIED VOLATILITY

The Nations® Large Cap VolDex® Implied Volatility Index (VOLI®) is an improved measure of large cap equity index implied volatility. VOLI measures implied volatility the way practitioners do, by focusing on at-the-money options. This methodology allows practitioners to fully understand the state of the options market by isolating regions of volatility skew.

## MORE LOGICAL CONSTRUCTION

VOLI is comprised of the first in-the-money and first out-of-the-money call and put options for the four weekly expirations bracketing the moment precisely 30 days in the future. These 16 option components are interpolated to generate a mathematically robust, closed-form measure of at-the-money, precisely 30 days to expiration, implied volatility.

## A MORE ACCURATE INDEX

VOLI results in a more accurate measure of implied volatility.

ATM SPX Option <sup>1</sup> Implied Volatility (in percent) <sup>2</sup> :	7.33
Nations VolDex Index <sup>2</sup> :	7.59 (3.55% error)
CBOE VIX <sup>2</sup> :	11.04 (50.61% error)

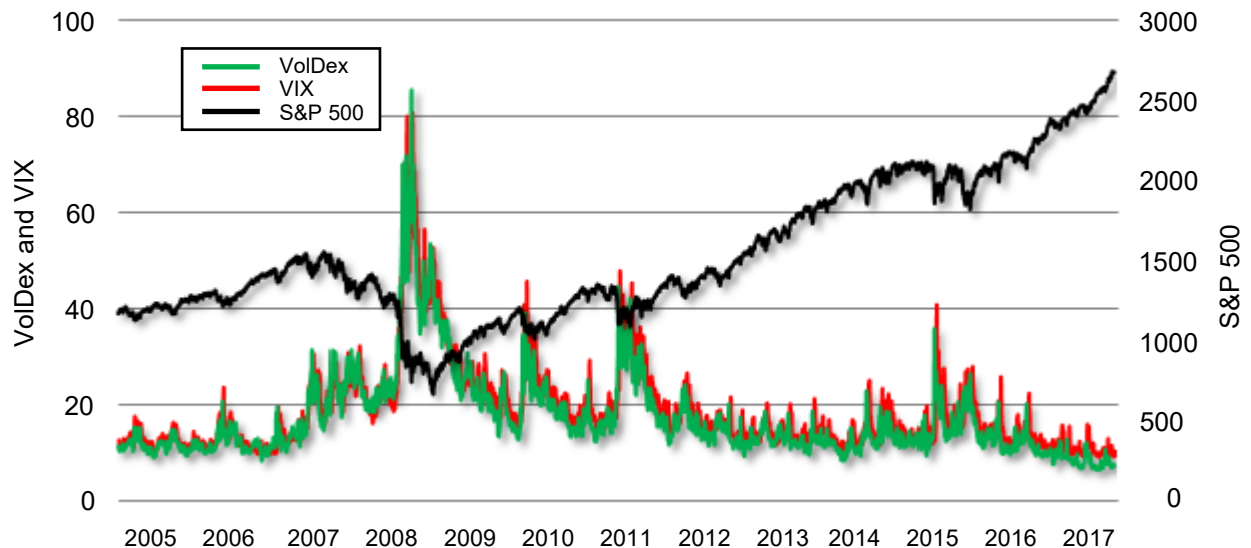
## Nations® VOLI®

The Nations Large Cap VolDex Index (VOLI®) is a measure of expectations for market volatility over the next 30 calendar days as expressed by options on SPY, the most liquid options in the world. Since at-the-money options provide the clearest indication of market expectations, VolDex uses these options exclusively and VolDex is calculated directly using a closed-form solution. Nations Large Cap VolDex is calculated and disseminated constantly during the trading day and is available from most data providers.

Ticker Symbol:

# VOLI

## HISTORICAL COMPARATIVE RESULTS



## UNDERSTAND WHAT VOLATILITY IS TELLING YOU

VOLI uses 16 at-the-money options, the most important options for market participants. Other measures of implied volatility, notably VIX<sup>®</sup>, incorporate a large and variable number of options, many of which rarely trade, which reduces the value of the resulting measure and generates misleading statistical noise created by phenomena like the distance between strike prices, number of strike prices listed, and option skew.

If a measure of volatility uses all the options listed in an expiration, it is impossible to know what is driving index changes. Is the measure moving because of at-the-money options? Is it because of deep out-of-the-money puts? Is it because of calls? While it is impossible to know, each of these scenarios result in a very different outlook for investors.

## VOLI USES THE MOST LIQUID OPTIONS IN THE WORLD

The underlying security for VOLI is SPY, the S&P 500 exchange traded fund. SPY options are the most liquid S&P 500 product in the world and trade on more than a dozen different exchanges. Multiple trading venues means SPY options have bid/ask spreads which are often 80 percent narrower, in implied volatility terms, than the publically disseminated bid/ask spread for SPX options which trade on a single exchange and which make up the VIX. The result is that VOLI provides a clearer measure of expectations for future volatility.

## THE NATIONS SUITE OF VOLATILITY INDEXES

NationsShares isolates the impact of skew and makes it knowable through its suite of volatility indexes. TailDex<sup>®</sup> (ticker TDEX) measures the cost of deep out-of-the-money SPY puts while SkewDex<sup>®</sup> (ticker SDEX) defines the amount of put skew in the SPY option market.

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VolDex<sup>®</sup>, VOLI<sup>®</sup>, SkewDex<sup>®</sup>, TailDex<sup>®</sup>, SDEX<sup>®</sup>, TDEX<sup>®</sup>, and Better Ideas, Better Indexes<sup>®</sup> are registered trademarks of NationsShares. VIX<sup>®</sup> is a registered trademark of CBOE.

## VOLI Construction

The Nations Large Cap VolDex Index (VOLI<sup>®</sup>) measures the implied volatility of a hypothetical precisely at-the-money SPY (SPDR S&P 500 ETF) option with precisely 30 days to expiration.

VOLI identifies the four weekly SPY option expirations bracketing 30 days from the current minute then incorporates the first call and put option above and below the forward price in each of those expirations. Those 16 at-the-money options are then interpolated into a single mathematically robust, closed-form measure of implied volatility.

Every option practitioner focuses their analysis on at-the-money volatility to understand the dynamics of any option market. VOLI provides the information they need.

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## Nations VolDex Index Daily Results<sup>2</sup>

Average Close:	17.34
Median Close:	14.40
High Close: (November 20, 2008)	85.64
Low Close: (October 5, 2017)	6.56
Correlation to S&P	-73.15%
Correlation to VIX:	95.83%
STD of Daily Change:	7.55%
Beta (vs. VIX)	0.977
R-Squared (vs. VIX)	91.83%

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<sup>1</sup> January 26, 2018 2675 call  
<sup>2</sup> As of 12/29/2017