

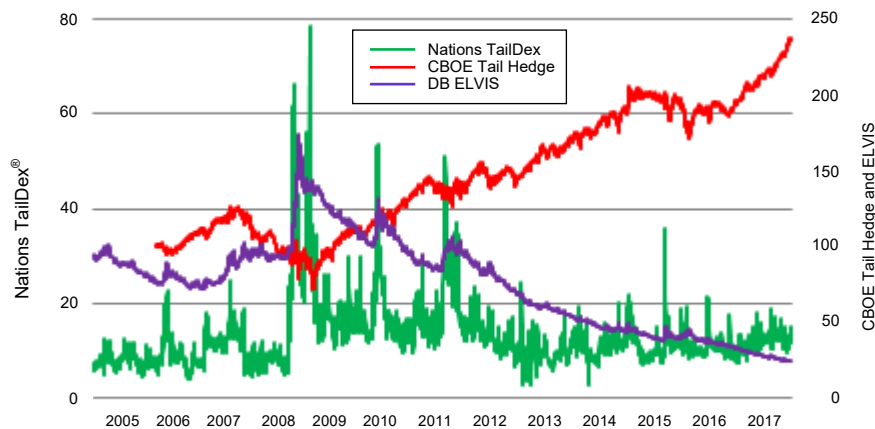
## A ROBUST, MODEL-FREE AND INVESTABLE MEASURE OF TAIL RISK

The Nations® TailDex® Index measures the market's estimate of the likelihood of an extreme drop. By creating a synthetic put option which is three standard deviations out-of-the-money and normalizing that option price, the Nations Large Cap TailDex Index provides a clear measure of expectations for an extreme move in the S&P 500® index which can be compared across time, market regimes and to other indexes. TailDex Indexes are model-free and robust from a theoretical point of view.

### Nations TailDex Index

The Nations TailDex Index calculates and standardizes the cost of options that hedge against a three standard deviation drop in price. Since the TailDex Index measures the cost of hedging tail risk and standardizes the threshold of a such tail event, a threshold shared by the academic and investment communities, the TailDex Index is superior to other measures of tail risk and can be compared to Nations TailDex Indexes on other equity indexes and asset classes. Existing measures of tail risk exhibit significant flaws as most focus on the reaction of option implied volatility to an extreme event rather than the market risk of the event. The calculation of the tail event threshold for Nations TailDex is logically based on the current volatility environment rather than stale historical data that may not be relevant to the existing volatility regime.

### Historical Comparative Results



### Index Description

The Nations family of TailDex Indexes provide an improved measure of the market's perception of tail risk. Nations indexes define a "tail" event the way academics and practitioners define it, as a price drop of three standard deviations. Since TailDex Indexes are constructed without using an option pricing model or volatility derivatives, they can be compared across equity indexes and asset classes.

### Nations Large Cap

TailDex Ticker Symbol:

# TDEX

### What Is Tail Risk?

Tail risk is the likelihood of an extreme downward move in an asset's price, a move of at least three standard deviations. The likelihood of such an event is more probable than anticipated by a normal distribution of returns.

If investment returns exhibited a normal distribution the likelihood of such an event would be 0.135% but investment returns are clearly not normally distributed; extreme events occur more frequently than expected. This phenomenon has significant negative implications for investors and asset managers.

## The Nations Large Cap TailDex Index

The Nations Large Cap TailDex Index (ticker TDEX<sup>®</sup>) calculates the cost of a SPDR<sup>®</sup> S&P 500 (SPY) put option that is precisely three standard deviations out-the-money with precisely 30 days to expiration. As such, TailDex informs investors of the market's estimation of the likelihood of a three standard deviation drop in the SPDR S&P 500 (SPY) over the next 30 days and the cost of insuring against such a drop. The Nations TailDex is a superior, investable measure of tail risk because TailDex measures tail risk as academics and market participants define it. The Nations TailDex Indexes are protected by patents pending.

## Nations TailDex Index Values Are More Meaningful

TailDex Index values represent the cost of purchasing a precisely 30-day put option with a strike price precisely three standard deviations out-of-the-money. The Nations TailDex Index was recently at 14.852 indicating that a 30-day put option struck three standard deviations out-of-the-money would cost 0.14852% of the underlying, in this case the SPDR S&P 500 (SPY) ETF.

## Historical Values

	Nations TailDex Index	CBOE Tail Hedge Index	Deutsche Bank Elvis Index
Recent Closing Value (12/29/2017)	14.852	235.95	24.19
Average Daily Closing Value	13.033	148.177	75.061
Median Daily Closing Value	11.505	143.885	78.745
Annualized Standard Deviation of Daily Change	278.01%	17.04%	18.95%
Correlation to S&P 500	-21.598%	87.695%	-75.363%
Closing High	66.45 (October 23, 2008)	237.26 (December 18, 2017)	173.77 (November 20, 2008)
Closing Low	4.97 (January 4, 2006)	71.64 (March 9, 2009)	24.10 (December 20, 2017)
Initiation	1/31/2005	3/20/2006	3/16/1990

Performance of an index is not illustrative of any particular investment or vehicle. Index results quoted represent past performance, which is no guarantee of future results.

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## A Superior Measure

TailDex is a vastly superior measure of the perception of tail risk:

- TailDex measures tail risk as investors and asset managers define it, as a downward move of three standard deviations.
- The TailDex measure is meaningful. It is the cost of a precisely 30-day put option expressed in basis points of the underlying.
- Since time to expiration and relative moneyness are standardized, Nations TailDex Indexes can be compared to those of other equity assets (unlike the CBOE Tail Risk Hedge Index or Deutsche Bank's ELVIS Index).

## Other Tail Risk Indexes

The CBOE Tail Risk Hedge Index (VXTH) replicates the S&P and then allocates a portion of the portfolio to buying VIX call options. The amount of the allocation depends on the level of VIX so VXTH will allocate none of the portfolio to VIX call purchases if the VIX is low, just the time one would want to buy volatility. VXTH doesn't protect against a tail event, it seeks to profit from an increase in implied volatility.

Deutsche Bank's ELVIS (Equity Long Volatility Investment Strategy) Index tracks the performance of a long position in variance swaps on the S&P 500. As such it doesn't address tail risk but rather compares implied volatility to realized volatility.