

What is TYVIX?

TYVIX® tracks fluctuations in the near-term uncertainty around US Dollar interest rates by measuring the market's expectation of how volatile 10-year Treasury futures ("TY") will be over the next 30 days. It is part of the VIX® family of forward-looking option-implied volatility indexes.

How is TYVIX calculated?

TYVIX calculations are based on an adaptation of the VIX methodology to options on government bond futures. The formula aggregates prices of near- and next-term at-the-money ("ATM") and out-of-the-money ("OTM") call and put options on TY listed at the Chicago Board of Trade ("CBOT"), and produces a unique implied volatility number.

Calculation details can be found in the [TYVIX Methodology White Paper](#).

What is the significance of the TYVIX methodology?

Exchange-traded Treasury futures and options constitute an important market for investors and traders to hedge interest rate exposures and express views on monetary policy and other macroeconomic risk factors. Options with varying strikes convey different information about the future of US interest rates, and the TYVIX methodology extracts information from all available strikes and distills it down to one number that represents the consensus view on near-term Treasury volatility.

How is TYVIX different from ATM implied volatility?

The TYVIX methodology produces a unique implied volatility number that does not depend on any particular options pricing model or strike. TYVIX levels can be interpreted as the fair market price of volatility in the sense that it is the square root of the strike of a variance swap. ATM implied volatility, on the other hand, is a strike-dependent parameter tied to a specific model with no such intuitive interpretation. While the two often track each other closely, insightful deviations result when OTM options convey important incremental information not contained in ATM options.

How does TYVIX differ from VIX?

VIX and TYVIX are conceptually analogous indexes that reflect the level of uncertainty in US equity and Treasury markets, respectively. Volatility in the two markets are driven by both common and distinct risk factors, and therefore the two indexes have historically experienced periods of co-movement as well as significant divergence. Monitoring both indexes affords investors a broad view of perceived uncertainty in the two most important traditional asset classes.

What are the potential drivers of TYVIX?

Generally speaking, volatility spikes coincide with the arrival of information that has yet to be priced into the market. For the case of US Treasuries, such news may include unexpected changes in monetary policy (e.g. QE), surprises in macroeconomic numbers (e.g. non-farm payroll), technical supply/demand shocks (e.g. large foreign buying or selling), adverse risk events (e.g. Lehman bankruptcy), or some confluence of behavioral forces that suddenly trigger a jump in investor risk aversion. For a more detailed discussion, please visit [TYVIX101.com](#).

How should one interpret the levels of TYVIX?

Unlike traditional assets like stocks and bonds, which have a natural upward drift as coupons and dividends are paid and the economy grows, the time series of volatility has a normal state of being low with pronounced spikes interrupting periods of calm. Consistent with this characterization, TYVIX has a median value of 5.94% in a range of 3.62% to 14.72% between Jan 2003 - Oct 2017. The index moves actively with an annualized volatility of 72%, which bodes well for the index's usefulness as an indicator or a trading instrument.

For a more detailed empirical profile of TYVIX, please visit the product page on [Cboe's website](#).

Why is it useful to monitor TYVIX?

TYVIX provides an easy way for market participants who are not knee-deep in interest rate derivatives trading to track the level of uncertainty in US interest rates, which has wide-reaching impact for many investors. The conceptual uniformity within the VIX family also allows investors to make apples-to-apples comparisons between TYVIX, VIX, and other indexes in the VIX family to monitor trends in relative levels of uncertainty between bonds, equities, and other asset classes.

How can I trade TYVIX?

While the TYVIX index itself cannot be traded, TYVIX futures offer a direct way to gain exposure to forward implied interest rate volatility. TYVIX futures were launched in November of 2014 and contract specifications can be found [here](#).

How can I access data for TYVIX?

Real-time and historical index data on TYVIX can be accessed via various data vendors. Also, historical data on TYVIX futures is available on the CFE website. Please visit the [product site](#) for more information.

How often is TYVIX updated?

TYVIX is updated regularly every 15 seconds between 7:00am and 3:15pm Central time.

How much history is available for TYVIX?

Daily historical values for TYVIX go back until January of 2003 and are available for download from the [product site](#).

Where can I learn more about TYVIX?

Go to the FI VIX [product page](#) for:

- Methodology white paper
- Historical data
- TYVIX101 primer
- Applied research papers
- TYVIX futures fair value calculations

Where can I learn more about the VIX index family?

Details all of the indexes that make up the VIX family can be found at [Cboe.com/Products/VIX-Index-Volatility](#).

Fixed Income VIX Family

- Cboe/CBOT 10-year U.S. Treasury Note Volatility IndexSM
- Cboe Interest Rate Swap Volatility Index (USD)
- Cboe/IHS Markit CDX North American Investment Grade Volatility Index
- Cboe/IHS Markit CDX North American High Yield Volatility Index
- Cboe/IHS Markit iTraxx Europe Main Volatility Index
- Cboe/IHS Markit iTraxx Europe Crossover Volatility Index
- S&P/JPX Japanese Government Bond Volatility Index®