

WHO WE ARE

Astoria is an investment management firm that specializes in the construction, management and model delivery of tactically constructed, cross asset ETF managed portfolios. Our research driven portfolios are stress tested through various quantitative risk models in order to best understand our portfolio risks and to help determine when risk budgets should be expanded or contracted.

Astoria Portfolio Advisors LLC. ("Astoria") designs Multi-Asset ETF Model Portfolios.

We utilize a **disciplined, cross-asset quantitative investment process** to participate in **upside exposure** while hedging **downside risks** during stressed markets.

Our investment management process is a **constant feedback loop** between **research, portfolio construction, and risk management.**

Investment decisions are made using **strong economic and quantitative rationale** backed by **data.**

"When you get too far off course, your internal compass tells you something is wrong, and you need to reorient yourself. It requires courage and resolve to resist the constant pressure and expectations confronting you and to take corrective action when necessary" – Bill George, Discover your True North, 2015, John Wiley & Sons.

Astoria employs **ongoing research assessment** of these models to **manage** to determine when risk budgets should be **expanded** or **minimized.**

Game Theory is an important and, we believe, a distinguishing factor into our investment process.

When selecting ETFs for our portfolios, we leverage our **ETF selection model** which is based on **rigorous testing and research.**

Contact Us

99 Wall Street, Suite 1885
New York, NY 10005
Work: 212-381-6185
Email: jdavi@astoriaadvisors.com
Twitter: [@AstoriaAdvisors](https://twitter.com/AstoriaAdvisors)
LinkedIn: <https://www.linkedin.com/in/john-davi-93414510/>
Website: www.astoriaadvisors.com

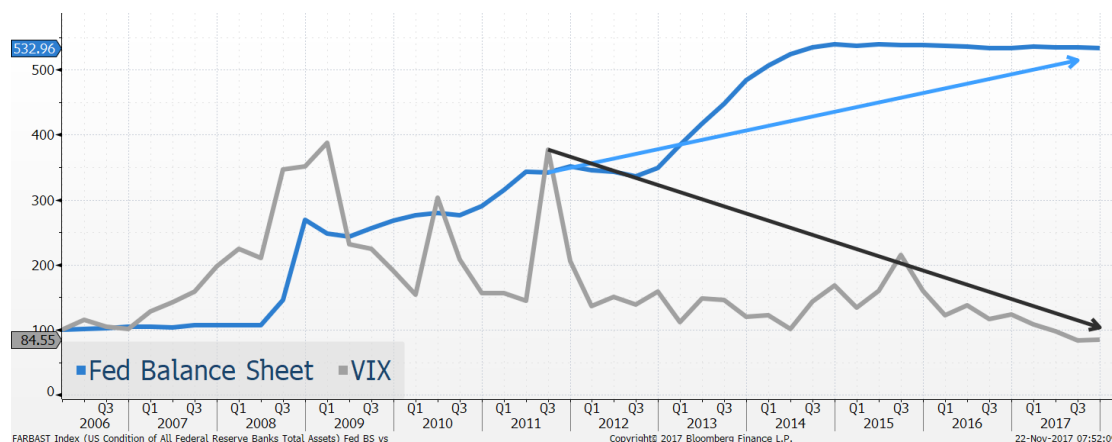
First, a word of thanks.

Astoria Portfolio Advisors has a lot to be **thankful** for on this **Thanksgiving**. Our early success has given us the confidence and assurance that our model is on the right track. We are most **thankful** to those investors and advisors who have trusted us with their assets. It is both an **honor** and a **privilege** and a responsibility we take **very seriously**. To our partners in the ETF issuer community and our software and data vendors – we thank you for supporting us at such a critical juncture.

Happy Thanksgiving to you and your families!

Liquidity and Volatility – a direct linkage.

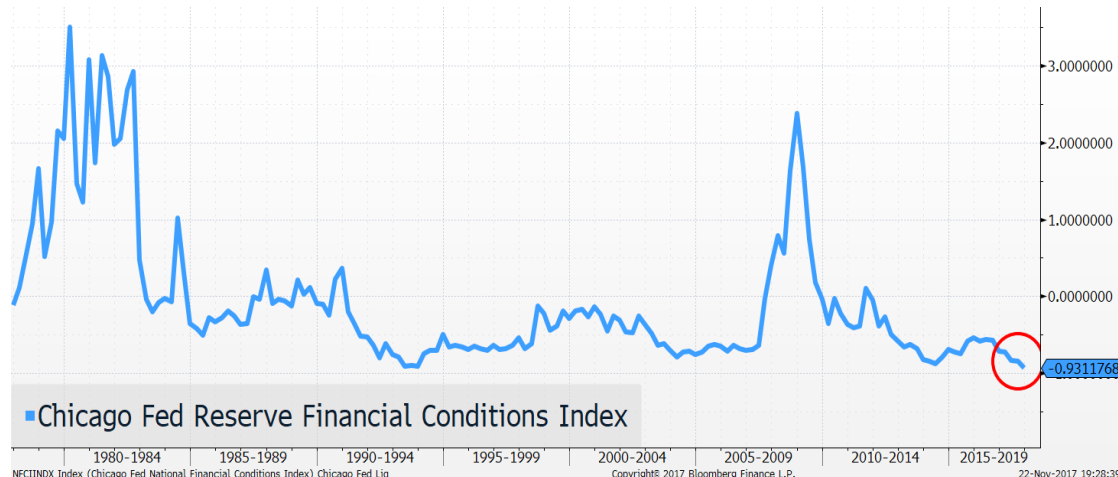
- **Are you surprised by VIX sub 10?** You shouldn't be. There is a direct linkage between liquidity and volatility as shown in the chart below.



Source: Bloomberg, Astoria Portfolio Advisors LLC.

- This year, we have seen **\$2.2 trillion USD** in central bank balance sheet expansion globally (approx. 15% of the aggregate balance sheet across the ECB, BOJ, and Fed). Right now, capital markets are swimming in an ocean of liquidity thanks to central banks flooding the system.
- With low levels of economic uncertainty, low levels of earnings dispersion, and ample liquidity, it shouldn't surprise investors that VIX is "low". Moreover, there is a direct linkage between implied and realized volatility which reinforces another reflexive concept.
- Several worlds are colliding. Earnings are improving, significant amounts of assets are moving into passive and systematic strategies (both of which deemphasize the capital markets aspect that active managers historically implemented), and dispersion is rising. This combination is resulting in lower levels of realized volatility.
Reflexivity has been extreme.

- **The markets, however, trade on the margin** and 2018 will begin to see liquidity decline in the US. The Fed has started to raise rates, wants to hike more, and quantitative tightening will further reduce liquidity. The repercussions are **quite significant** – especially **on the margin**.
- **It is not surprising that liquidity sensitive asset classes** such as US high yield credit, US Small Caps, and Japan corrected in October/November. Historically, liquidity in capital markets starts to decline in Q4 as banks begin to wind down their balance sheet ahead of year end. Plus, we have the potential for another Fed rate hike in December. The “liquidity based correction” was likely in anticipation of both events.
- At Astoria, we are **watching financial conditions intensively** – specifically the rate of change. We prefer watching financial conditions instead of the VIX because it incorporates financial stress in equities, bonds, money markets along with cost of credit. We don’t doubt that VIX will react quickly should financial conditions deteriorate.
- As you can see from the chart below, the Federal Reserve Bank of Chicago’s National Financial Conditions index is **near half a century low!** If, on the margin, liquidity begins to decline in 2018 resulting from QT, fed rate hikes, and other central banks ending their QE programs, there is a reasonably high probability that risk assets will suffer. **We doubt this “liquidity risk” is either consensus or built into the price.**



Source: Federal Reserve Bank of Chicago, Bloomberg, Astoria Portfolio Advisors LLC.

- **What are the investment implications if, on the margin, liquidity deteriorates?** While we have been vocal about our constructive outlook and our Multi Asset Risk Strategy ETF model portfolio has benefited accordingly (Sharpe Ratio over 3 this year), we are **managing our risk** appropriately by incorporating asset classes such as gold, liquid alternatives, and long dated treasuries. We have found these to be good portfolio diversifiers and **carry well** within a ETF portfolio construct.

Best, John Davi,
Founder & CIO of Astoria

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