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ETF

# ETF Arbitrage May Be Driving Market Volatility

By Caitlyn Grudzinski 08/02/12 - 10:47 AM EDT

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NEW YORK (TheStreet) -- Since their creation in 1993, ETFs have opened up a new channel of arbitrage for market participants and now account for 25-35 percent of daily trading volume.[1]



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ETFs allow investors to track indices or baskets of assets, allowing for more diversification and access to illiquid assets. Engaging in arbitrage, investors can profit from price deviations between the ETF and the Net Asset Value (NAV) of its underlying assets. While giving investors a low-cost investment tool, researchers argue whether ETFs may have brought some adverse effects to the market from arbitrage.

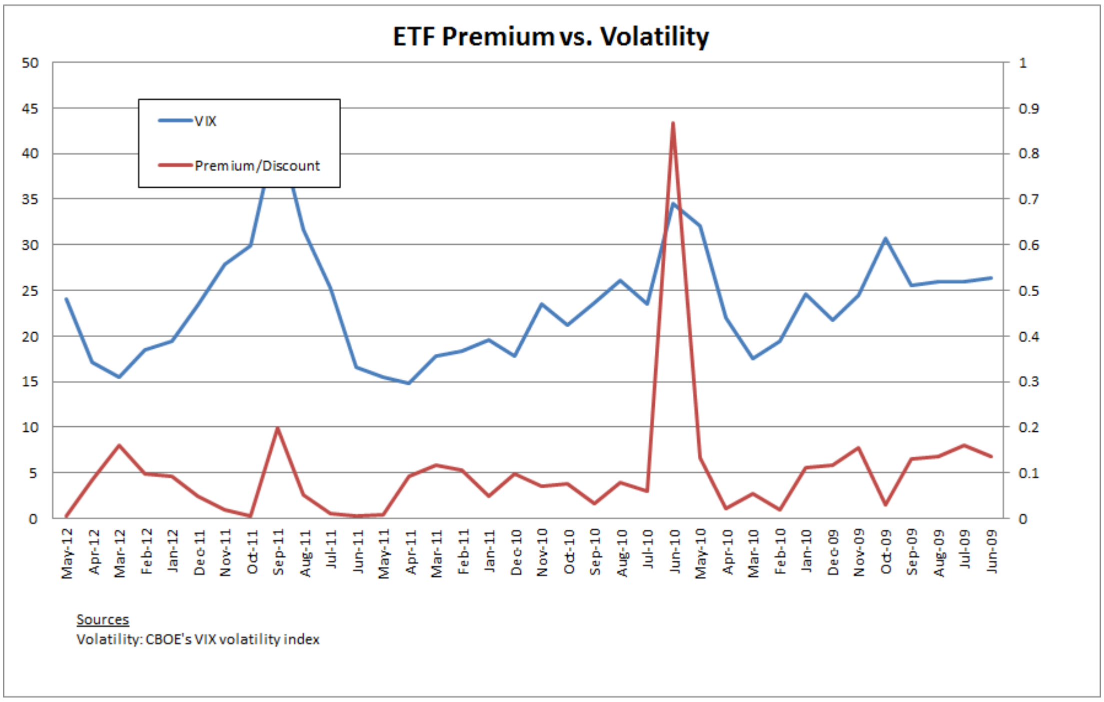
## ETF Arbitrage

ETF arbitrage occurs when the ETF is selling at a premium or discount to its NAV. In the case of a premium (discount), the authorized participant (AP) of the ETF fund will create (redeem) ETF shares. The AP can create shares by buying a basket of assets, usually 50,000 shares or more, and exchanging them for ETF shares. The redemption process is the reverse, where an AP trades ETF shares for the basket of assets.

Because of the magnitude of the basket of assets, normal retail investors usually cannot participate in the creation/redemption process. With an ETF premium, market participants can instead buy the underlying securities and short the ETF. However, this arbitrage can be limited depending on the liquidity of those assets.

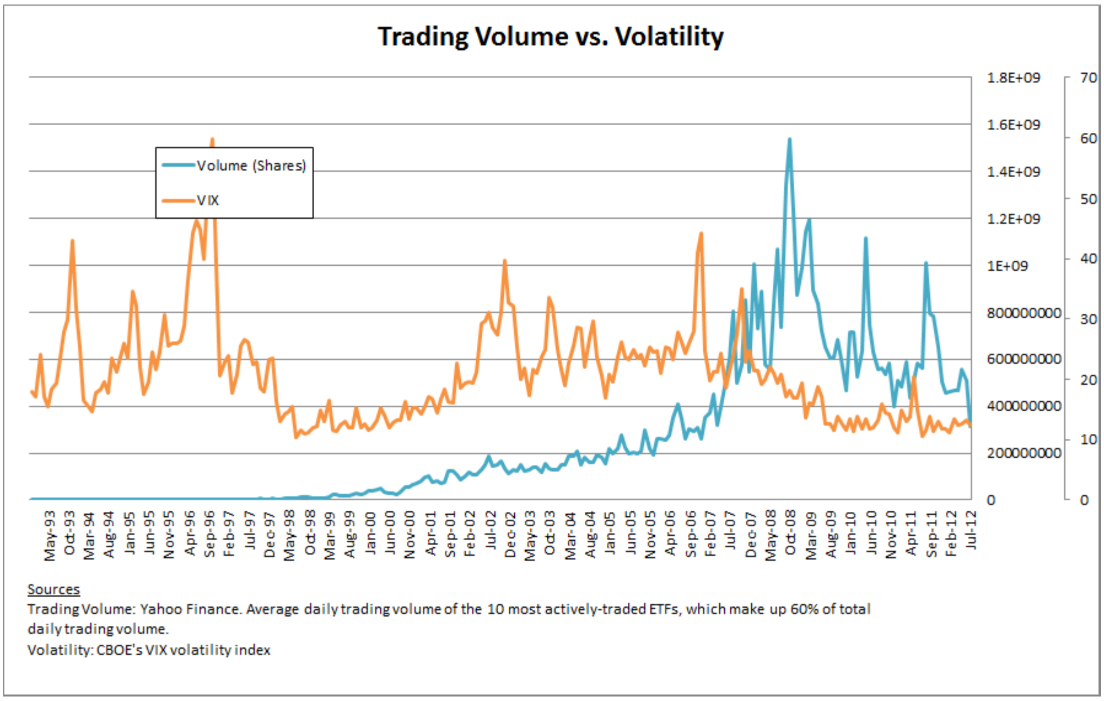
## ETF Premiums/Discounts

For the most part, ETF premiums/discounts have moved with the VIX since 2009. Only in the last few months has there been a change in how premiums/discounts and the VIX move together. These premiums/discounts represent arbitrage opportunities for investors, and their correlation with the VIX may suggest some relationship between ETF arbitrage and volatility. However, this relationship could simply be due to macro events that affect the whole market.




## Volatility and ETFs

In 2007, market volatility began increasing and experiencing serious spikes, shown by movements in the VIX. Also in 2007, the market saw large jumps in ETF issuance and trading volume. ETF net issuance in 2007 was $151 billion, versus $74 billion in 2006, [according to the Investment Company Institute](). Since 2007, movements in the VIX have been strongly correlated with changes in ETF trading volume. Also, the huge spike in volatility in 2008 was preceded by significant increases in ETF volume.




## In Defense of ETF Arbitrage

Jim Rowley, Head of Vanguard ETF Data and Analytics, says volatility has always been in the market and is mainly a function of macroeconomic factors, not ETF trading. "ETFs are merely a reflection of investors looking at volatility in the market," he says. Instead of introducing more market risk, Rowley believes ETFs have been beneficial to market participants because "despite all the market turmoil, ETFs still offer broad diversification at low costs."

"wildly fluctuating volatility is a structural problem," and increasing ETF volume has not necessarily led to increased market volatility. ETF trading has added volume to the market, but that does not mean volatility. Simon says that high frequency trading, such as with ETFs, should actually work to reduce volatility as trading occurs between the theoretical value and the market price of a security.

### The Case Against ETF Arbitrage

However, Zahi Ben-David, a professor at the Fisher College of Business at Ohio State University, says "adding a new security to the market is a good thing, giving more options for investors, but it can also lead to unintended consequences." Ben-David, along with Francesco Franzoni and Rabih Moussawi, wrote "ETFs, Arbitrage, and Contagion", a research paper showing how ETF arbitrage can increase volatility and cause contagion in the market.

In the paper, Ben-David, Franzoni, and Rabih show how ETF arbitrage helps transfer liquidity or price shocks from the ETF to its underlying assets, even when the shock does not represent a change in fundamental value. These price shocks to the ETF cause more volatility in the underlying securities, as arbitrageurs cause the NAV to move "significantly in the same direction as the mispricing".

Using Vector-Auto-Regression Analysis, they found that the NAV would quickly adjust to a price shock from the ETF, but would return to its original value after a week. These price shocks cause the NAV to deviate from its true value in a way that might not have occurred without ETFs, Because of these shocks and subsequent NAV movements, they estimated that ETFs cause daily volatility of the underlying stock to increase by 3.4%.

### More Research Is Needed

These adverse effects from ETF trading could get worse if ETF and high frequency trading continues to grow. However, Ben-David admits that it is extremely difficult to disentangle the effects of these price shocks in relation to NAV and stock volatility. To fully understand how ETFs may affect the market, he says the effects of ETF arbitrage must be explored further, especially with more complex products involving leverage.

The Financial Stability Board (FSB) has also expressed concerns about these shocks to ETF prices and their consequences on market stability. The FSB wrote "ETFs may nevertheless experience liquidity disruptions" in their 2011 report "Potential financial stability issues arising from recent trends in Exchange-Traded Funds (ETFs)."

The FSB also said how more research needed to be done to determine "the potential impact of heavy ETF trading on the liquidity and the price dynamics of the referenced securities." Liquidity problems could cause investors to demand heavy redemptions or the creation of additional ETF shares, leading to major mispricing and price fluctuations in the ETF and its underlying assets.

As ETFs continue to take over a larger share of the market, it will become increasingly important to explore how volatility and ETF arbitrage relate to each other, or how both are affected by macroeconomic factors.

-- *Written by Caitlyn Grudzinski*

**ETFs Investigated**: Introduction | Correlation | The Future



1. Morgan Stanley Smith Barney, "ETF Quarterly", May 31, 2012

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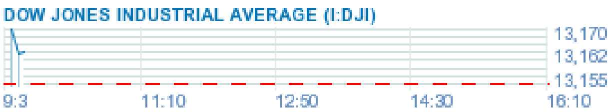


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