

# Corporate Bond ETFs

## Performing Under Pressure



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### Executive Summary

Investors are increasingly turning to corporate bond ETFs (exchange-traded funds) to gain exposure to credit markets, creating a phenomenon where fixed income price discovery is occurring within an equity market structure. While some warn that such trading in bond ETFs could compound problems in a genuine liquidity crisis, the findings of this paper suggest that corporate bond ETFs have performed similarly to ETFs in other asset classes. This is demonstrated by bid-ask spreads, trading volume, and quoted size during some periods of significant stress in the credit markets in recent years.

# \$73 billion

Investors have poured over \$73 billion into global fixed income ETFs as of July 15, 2016

# \$7 billion

About \$7 billion in fixed income ETFs changed hands each day in July 2016

### Background

Liquidity in the corporate bond market has been a hot topic for investors, asset managers, dealers, and regulators alike. Corporate bonds held in inventory by major dealers since the 2008 financial crisis have declined while bond issuance has continued to rise. Net dealer holdings actually turned negative for the first time ever, according to Federal Reserve data from October 2015<sup>1</sup> while the size of the corporate bond market as measured by issuance has swelled by about \$4 trillion since 2009<sup>2</sup>. Some observers believe this downturn in dealer inventory could lead to a full-blown liquidity crisis in the event of an upturn in interest rates or other event in the credit markets.

Some market participants are reporting difficulty in executing corporate bond trades with traditional primary dealers stepping back from their existing role of using their own balance sheets to facilitate client trades. Others downplay the potential for market turmoil, with a report from the Federal Reserve of New York<sup>3</sup> showing current bid-ask spreads lower than they were in the pre-crisis years of 2004-2006.

Corporate bond ETFs are an increasingly popular way for investors to get exposure to fixed income, offering access to baskets of corporate bonds that trade on equity platforms like any other stock or ETF. Through mid-July of this year, investors poured over \$73 billion into global fixed income ETFs<sup>4</sup>, already approaching the record 2015 haul of \$93.5 billion. And about \$7 billion in fixed income ETFs changed hands each day in July 2016, up from a little over \$3 billion at the end of 2010, according to Bloomberg.

<sup>1</sup> "A New Mystery Bedevils Fed Data," Wall Street Journal, Nov. 10, 2015, [Article at wsj.com](#)

<sup>2</sup> "The \$3 Trillion Bond Trade Citigroup Says Investors Should Fear," Bloomberg, Jun. 9, 2015, [Article at bloomberg.com](#)

<sup>3</sup> "Has Liquidity Risk in the Corporate Bond Market Increased?," Liberty Street Economics, Oct. 6, 2015, [Article at libertystreeteconomics.newyorkfed.org](#)

<sup>4</sup> "Bond ETF funds attract \$73bn this year," Financial Times, Jul. 18, 2016, [Article at ft.com](#)

As with equity-based funds, bond ETFs use a create/redeem process: market makers called “authorized participants” are granted the ability to exchange shares of the fund for a representative basket of the underlying securities, or vice versa. This system, which is unique to ETFs, allows market participants to gain access to more liquidity than is shown in the ETF quote by sourcing directly from the underlying market. Arbitrage between the ETF shares and the underlying securities throughout the day generally keeps the prices of both in lock-step with each other.

The same difficulty in trading individual cash bonds that asset managers face spills over to liquidity providers in corporate bond ETFs. In order to create ETF shares, the authorized participants must go into the market to source the underlying bonds to deliver. If these bonds are difficult to obtain, in theory this should affect the liquidity of the ETF—widening spreads due to the risk of trading the bonds. Yet a number of corporate bond ETFs maintain very tight and liquid markets even without significant enhancements in the underlying liquidity. Why?

## Fixed Income Price Discovery in Equity Markets

Part of the answer is the incremental liquidity and price discovery that corporate bond ETFs provide to the market away from the underlying bonds themselves. According to analysis conducted by BlackRock, for every \$8 of fixed income ETFs that trade, only \$1 in underlying bonds is traded<sup>5</sup>. This supplemental liquidity serves as a release valve in the market for investors to express a view on fixed income directly through the ETF, instead of the relative illiquidity of the cash bonds.

Some argue this ETF-to-ETF trading without any activity in the underlying is problematic. They view these transactions as “synthetic” and not indicative of “real” price discovery, since so few of the actual

bonds exchange hands. However, real dollars from a diverse group of investors, including market makers, institutional investors, and retail, drive the formation of price in these ETFs. If that’s not price discovery, then what is?

Others concede these products are generally liquid with tight bid-ask spreads but are vulnerable to future shocks in a less benign rate environment. Investors are the beneficiaries of several years of quantitative easing on top three decades of downward movement in interest rates. What happens to bond liquidity when rates start moving the other way or credit conditions significantly deteriorate? Could the supplemental liquidity embedded in fixed income ETFs make a potential crisis much worse?

## A Useful Laboratory

One way to understand how bond ETFs may perform in a crisis is to analyze these products during some of the numerous market dislocations experienced in the credit markets in past years. While none may be categorized as a lasting and widespread market calamity, there have been some very sharp episodes of market volatility caused by macro events, speculation on central bank shifts, and other structural weaknesses that have led to stress in the financial markets.

To understand the cross-market dynamics, it follows that we must measure the effects of external shocks across multiple assets. With ETFs available across the spectrum of investable assets, they provide the ideal vehicle to conduct some natural experiments within an identical market structure. To conduct the analysis, we used a representative sample of ETFs across several equity and fixed income categories. Each was selected as a leading fund in assets under management and/or traded volume in each of these categories.

<sup>5</sup> “Tucker On Why Institutions Like Bond ETFs,”  
ETF.com, May 18, 2015,  
[Article at etf.com](#)

Fund Name	Asset Class	Symbol
iShares iBoxx Investment Grade Corporate Bond ETF	Corporate Bonds	LQD
SPDR Barclays High Yield Bond ETF	High Yield Bonds	JNK
iShares iBoxx High Yield Corporate Bond ETF	High Yield Bonds	HYG
iShares 20+ Year Treasury Bond ETF	Treasury Bonds	TLT
SDPR S&P 500 ETF	Large Cap Equities	SPY
Powershares QQQ ETF	Large Cap Equities	QQQ
iShares Russell 2000 ETF	Small Cap Equities	IWM

Then we screened for periods in which credit markets were stressed from Q1 2013 through Q1 2016. These were determined by looking at abnormal daily percentage price changes or ranges - declines in excess of 1% in one day - in any one of the corporate bond ETFs (LQD, HYG, JNK) listed above and then cross-checking against the relevant news stories to identify a theme generally attributed to the decline.

Event	Date	Impact on Markets
The "Taper Tantrum"	June 19 - 24, 2013	Federal Reserve Chair Bernanke indicates the beginning of the end for quantitative easing.
Treasury "Flash Crash"	October 15, 2014	US Treasuries experience a brief short term plunge with the 10-year note yield falling 34 basis points in a matter of minutes before recovering on little apparent news.
August 24th China Sells Off	August 24, 2015	The DJIA falls over 1000 points on the open, triggering many halts and disrupting trading in many ETFs before recovering later in the day.
High Yield Bond Turmoil	December 7-11, 2015	Liquidation of credit mutual fund Third Avenue leads to sharp drop in high yield bonds, culminating in a 2% decline in HYG on Friday, December 11th.
Relief Rally	March 1, 2016	The S&P 500 surges 2.4% on strong economic data and a rebound in oil, and fueling expectations the Fed has enough confidence to keep raising rates. Treasuries sell-off sharply, pulling down the bond market despite improvements in credit spreads.

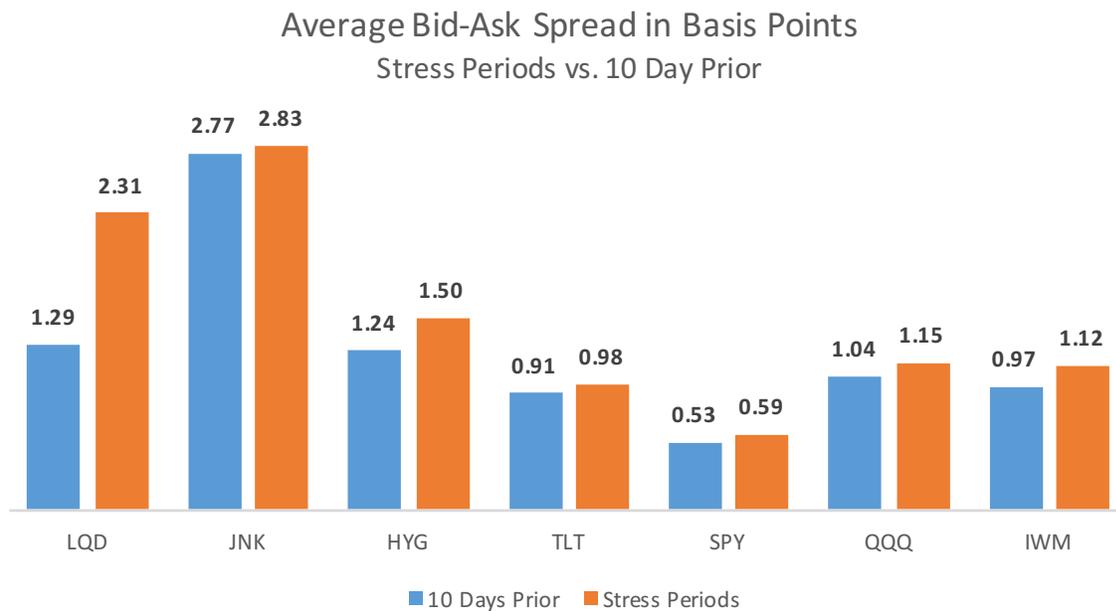
The average bid-ask spread in basis points and average notional value on the quote on the bid and offer side were calculated during each period of market stress and compared to the average of the 10 trading days prior to the event. Using a 10-day average tends to provide a better baseline to compare changes across differing levels of general market volatility and investor tolerance for risk, rather than using longer term averages with less context.

## The Results

During times of stress, it is generally expected that bid-ask spreads widen, volume increases, and quoted depth declines. The data from these ETFs show that while average spreads (weighted by trading value) increased 16% during these selected events compared to the same measure during the 10 days prior (0.80 bps compared to 0.69 bps), value traded increased by 94% (\$10.4B ADTV compared to \$5.3B), and quoted size on the bid and ask declined by nearly 50%. But is this indicative of a disorderly market or simply the normal economic impact of uncertainty on asset prices and trading?

## Spreads

The graph below shows the average bid-ask spreads across each ETF during the stress periods compared to the 10-day average control period.

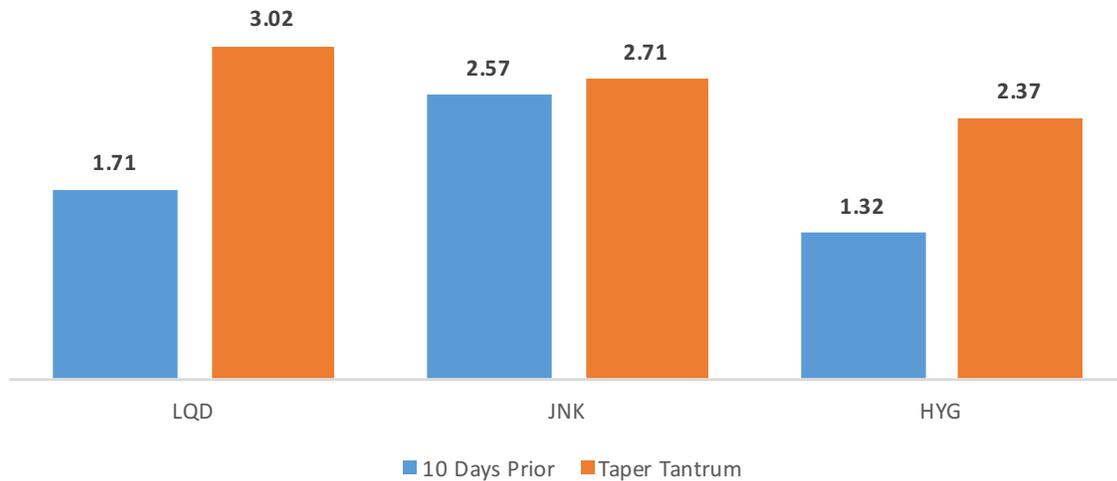


While spreads increased as expected in all asset classes, there are some trends and outliers to highlight. For one, the minimum tick size of \$0.01 in equity markets creates some distortions related to the nominal price of the ETF. For example, the spread in JNK only increased by a fraction of a basis point from 2.77 to 2.83 (2.1%). But the spread in HYG - a comparable ETF that trades about twice the dollar volume - widened by about 20%. However, the nominal price of HYG (about \$85) is over two times the nominal price of JNK (about \$36). Since the tightest ETF can trade is a spread of one penny, it could be argued that JNK trades at an artificially wide spread during normal times due to its lower nominal price. The relatively small change in average spread during the stress period could just reflect a more natural spread driven by market conditions. It is likely that JNK would trade with a tighter spread in normal conditions if either the tick size constraint were relaxed or the nominal price was higher.

A similar dynamic likely exists with LQD, which trades at a high nominal price of \$125. LQD is a portfolio of investment grade bonds optimized for liquidity and normally trades with a spread of about one basis point, which equates to a bid/offer spread of \$0.01 per share. A move to a spread of \$0.02 is a small change in spread but a large percentage increase. In addition, with a declining ETF price during these stress periods, the spread in notional terms will always increase slightly even if the spread in cents per share stays constant - the denominator shrinks while the numerator is the same.

Looking closer at the performance of the three corporate bond ETFs during the five days of selling following Fed Chairman Bernanke's signaling of the end of QE (the "Taper Tantrum") in June of 2013, spreads widened 75% from the 10-day control period in the higher priced LQD and HYG but only edged up 6% in the low-priced JNK.

Average Bid-Ask Spread in Basis Points  
Taper Tantrum vs. 10 Day Prior



In summary, differences in the nominal price of an ETF can lead to some distortions in relative spreads when measured in dollar terms. However, the data clearly shows that while spreads widen from normal levels during times of stress, trading in these corporate bond ETFs remains orderly. This is most evident in the Taper Tantrum - a sustained week of selling on fears of a sharp reversal in interest rate policy for the first time since the financial crisis. Prices adjusted for the new information but investors were able to transact with only modest increases in absolute spread (about 1 basis point) using corporate bond ETFs with the market under high levels of stress.

## Volume

In addition to spreads widening, markets under stress are usually accompanied by much higher volumes. The table below shows the change in daily notional volume traded for all of the ETFs used in the spread analysis above in addition to underlying cash bond volume (investment grade and high yield) reported to FINRA's TRACE over the same periods.

Symbol/ Instrument	10 Days Prior ADTV	Stress Period ADTV	% Change
LQD	349.3	582.9	66.9%
JNK	357.8	769.0	114.9%
HYG	780.6	1,498.5	92.0%
TLT	1,042.9	2,409.9	131.1%
SPY	26,797.0	52,961.8	97.6%
QQQ	3,732.6	7,363.7	97.3%
IWM	4,370.8	7,126.7	63.1%
Investment Grade (TRACE)	14,198.7	13,555.4	-4.5%
High Yield (TRACE)	7,898.2	8,352.5	5.8%

For the ETFs across asset classes, volume increased by an average 95% - a doubling during the stress periods. But for corporate bonds reported to TRACE in both investment grade and high yield, the effect was much more muted and in fact declined for investment grade bonds. Why?

For one, the cash bond market is still a very manual process with most volume still conducted over the phone. While dozens of platforms have recently launched<sup>6</sup> to help provide more electronic means of accessing the market, the majority of corporate bond trades are still executed manually. The largest and most established electronic bond platform - MarketAxess - executes about 15% of TRACE volume on a given day, but others have struggled to gain traction. In comparison, the equity markets are highly electronic and offer platforms from three major exchange groups and a host of alternative trading systems to efficiently execute ETFs.

The equity market structure that hosts ETFs is also directly available to anyone with a brokerage account, providing wider distribution and easier market access. During times of stress and increased demand for liquidity, investors of all sizes can easily access readily executable prices in the equity market, leading to a surge in volume that cannot be matched by slower, less efficient corporate bond markets with more narrow distribution to primarily larger institutional investors.

Given the efficiency and broader access of the equity markets, it is no surprise that significantly more relative volume flows to the corporate bond ETF market when investor demand for liquidity is at its highest. During all the periods of stress analyzed, the two high yield ETFs (HYG and JNK) traded an average of \$2.3B per day, or 27%, of the entire high-yield volume reported to TRACE, up from only 14% of total volume in the 10 days prior period. In the middle of December 2015, high-yield credit fund

Third Avenue came under pressure as redemption requests mounted following poor performance, leading to turmoil in the underlying markets for the bonds. During this high-stress period, the average daily volume for HYG and JNK skyrocketed over 150% from its 10-day average, compared to only a 19% increase in the high-yield bond volume reported to TRACE.

### Quoted Size

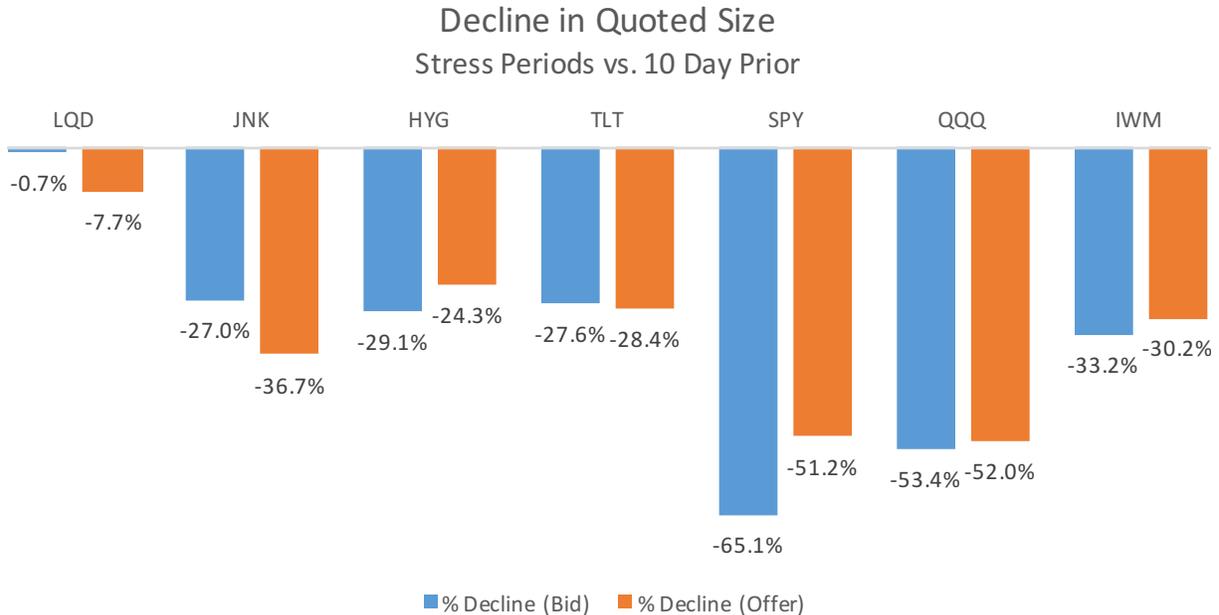
Another measure of liquidity is the amount of size quoted on the bid and ask. Again, the same construct was used, measuring quoted size for the same group of ETFs during these stress periods versus the average in the 10 days prior. On average across asset classes, quoted size declined by close to half during the stress periods (48.6% on the bid and 44.5% on the offer). This is expected as market participants respond to volatility by widening spreads and shrinking size to manage their risk.

The chart on the next page shows the average decline in quoted size for each ETF.

Interestingly, the equity ETFs experienced the larger decline in quoted size, dropping 45-50% compared to the 20-25% for the fixed income ETFs (the corporate bond funds plus the long-term Treasury fund TLT). This was consistent across the periods, as primarily credit or rate-driven events will tend to spill over to equity valuations.

However, quote sizes for the equity ETFs are generally 3-4 times larger than the fixed income ETFs in both normal and stressed periods, providing a much higher starting point to decline from as market participants reduce their risk levels during times of market uncertainty. While quoted size does decline as expected, there is no evidence to suggest that liquidity dries up in corporate bond ETFs when times get tough. In fact, the declines in displayed size are markedly lower in comparison to the top equity ETFs.

<sup>6</sup> "Fixed-Income Investors Have 99 Ways to Trade and One Big Problem," Bloomberg, Apr. 14, 2016, [Article at etf.com](#)



## Conclusion

Looking at this limited sample of credit or rate-driven market dislocations offers a glimpse into how corporate bond ETFs respond under pressure. In a crisis, prices decline sharply and drag down the value of investor portfolios. While not a positive result for long investors, there is a difference between a market selloff and a true liquidity crisis. Corporate bond ETFs should not be expected to ease the decline in the underlying market in the event rates climb or credit deteriorates. But they can help provide a “release valve” for the market to find price by using investment grade and high yield bond ETFs as substitutes and complements to trading the underlying bonds.

The data from these ETF proxies across asset classes show markets reacting to stress in predictable ways, with spreads widening, volume increasing, and quoted size decreasing. But there is no evidence that corporate bond ETFs responded dramatically differently from the other ETFs with far more liquid underlying components.

Large cap equities, small cap equities, and Treasuries have very liquid and highly electronic markets supporting SPY, QQQ, IWM, and TLT. Accordingly, these products normally trade with a tighter spread than the corporate bond ETFs (LQD, HYG,

JNK). But even in very credit-focused events such as the meltdown of high-yield fund Third Avenue in December 2015, markets in high-yield ETFs functioned very well. While culminating in a 2% decline in HYG on Friday December 2011 (an extreme move for a bond market), high-yield ETFs and the underlying market were under pressure for days. Volume surged but the market remained orderly, with spreads increasing and size decreasing modestly. In an event so squarely targeting the riskier high-yield market, HYG and JNK were vigorously tested as vehicles to provide liquidity to investors in a period of high demand.

Many of the most popular ETFs offer ample liquidity as well as low fees, a combination offering the best of both worlds for both long- and short-term investors. Given the benefits of real-time price discovery and fast execution, corporate bond ETFs are proving themselves to be very efficient tools to gain exposure to and manage risk in the bond market, especially during times of market uncertainty. The analysis of these recent events may not be a perfect test of how they may perform in a full blown crisis, but the evidence suggests these vehicles can be part of the solution rather than contributing to the problem of illiquidity in corporate bonds.



### About the Author

Tony Barchetto is Executive Vice President, Head of Corporate Development, at Bats Global Markets, the #1 U.S. stock market for exchange-traded fund (ETF) trading and continuous equities trading. He is also a member of the firm's Executive Team, reporting directly to the CEO.

During his time with the company, he has played a major role in numerous significant transactions and accomplishments, including the company's 2016 initial public offering and the 2015 acquisition of the Hotspot foreign exchange business. Previously, as Head of Corporate Strategy at Direct Edge, Mr. Barchetto played an integral part in facilitating that company's acquisition by Bats in 2014, creating one of the world's largest stock market operators.

He previously held significant roles at Liquidnet and Citigroup and is a CFA charter holder with a BS from Georgetown University's School of Foreign Service.

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