

Liquidity reimagined



TODAY'S CREDIT MARKETS OFFER CHEAPER, MORE LIQUID
ACCESS TO THOSE WHO KNOW WHERE TO LOOK

**Mellon
Capital**



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David began his investment career at Mellon Capital in 1990. Among other notable contributions to the firm's growth through the years, he worked with clients to codevelop and launch a series of fixed income and currency ETFs; led the development and implementation efforts of domestic and global beta and smart beta bond strategies; and led the creation of the proprietary credit model and term-premium model. Prior to his current role, he managed the fixed income portfolio management and trading teams.

David is a member of the Senior Management Group and the Fiduciary Committee. He earned an MBA and a BS from the University of California at Berkeley and an MS in system science from the University of California at Los Angeles.



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Ché has been in the investment industry since 1999. Prior to joining Mellon Capital in 2006, he was a portfolio manager and trader at Marin Capital Partners, a convertible bond arbitrage hedge fund. Previously, he worked as an assistant market maker at the Pacific Coast Options Exchange.

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It is no secret that the hunt for yield over the past decade or so has driven many investors into higher-risk areas of the credit market, such as high yield and emerging market debt. One of the perceived hazards of such assets is limited liquidity.

In the less liquid areas of the market, the impact of trading costs represents a significant hurdle for fixed income investment managers to overcome in order to outperform their benchmarks. When trading corporate or credit-sensitive bonds, the relative illiquidity of these instruments leads to higher transaction costs, which can have a corrosive impact on performance.

However, recent changes in the bond market and the fixed income exchange traded funds (ETF) market have created an opportunity to improve liquidity and reduce transaction costs, with the ultimate goal of maximizing returns earned. Here, we explore how market dynamics have evolved and ways investors can seize these opportunities to access liquidity, even in a segment of the market where they'd least expect to find it.

EVOLVING BOND MARKET LIQUIDITY POST-GFC

Since the Great Financial Crisis (GFC) of 2008, changes in the regulatory landscape have had a significant impact on the liquidity of bonds. The combination of Dodd-Frank and Basel banking regulations has made dealers less willing to commit risk capital to trading, leading to a reduction in risk warehousing by dealers and higher volatility of bid/ask spreads during periods of market stress. In the short term, we do not foresee any major regulatory changes, which means that dealers will likely not be increasing their risk capital commitments.

On the positive side, other recent and ongoing developments have improved bond market liquidity conditions. The most significant changes come from two areas: electronic trading and the fixed income ETF market. The development and evolution of electronic platforms, such as MarketAxess and Bloomberg, have widened the breadth of trading counterparties and

increased market transparency. The growth in the amount of data, including indication of interest information, has enabled these platforms and others to develop so-called "liquidity intelligence analytics" to help identify pockets of liquidity in the bond market. Our trading desk is seeing the benefit of this in the narrowing of average execution spreads.

Meanwhile, the growth in the ETF market has been a real game changer in terms of its impact on liquidity, adding another layer of liquidity that is unfamiliar to many fixed income investors. This additional layer emanates from ETF shares trading in the secondary market (i.e., shares traded on the stock exchanges) and has greatly reduced the cost of trading diversified bond baskets that are similar in nature to ETF portfolios. The link between the bond ETF market and the over the counter (OTC) market remains unclear to many investors, and even those who clearly understand it may not fully appreciate its transformative impact on reducing trading costs.

EXPONENTIAL GROWTH OF BOND ETF MARKETS

Bond ETFs have grown both in number and in size in just the last few years (Figures 1 and 2). In the U.S., bond ETF inflows have exceeded \$230 billion over the past three years (47% growth rate), while inflows over the past year were over \$100 billion (22%), far exceeding the growth rate for equity ETFs. The bulk of the flows have gone to a handful of ETFs, with just 10 funds garnering around 50%. The upside of this development is deeper liquidity of the largest funds, which some observers have described as "oceanic," particularly that of the top corporate bond ETFs (for both investment grade and high yield).

To get a sense of the depth, Figure 3 shows the growth in secondary market trading volume for the top bond ETFs. Over the past three months alone, the average weekly value traded (turnover) of HYG¹ (ticker symbol for iShares High Yield ETF) was \$4.6 billion, while that of LQD¹ (iShares Investment Grade Corporate ETF) was nearly \$2.3 billion. In addition, these two ETFs have an average bid/ask spread of around 1 basis point, compared with around 45 basis points for a liquid high yield bond basket and around 40 basis points for an investment grade bond basket. This last point highlights trading cost differences between the bond OTC market and the more transparent, efficient equity exchange market.

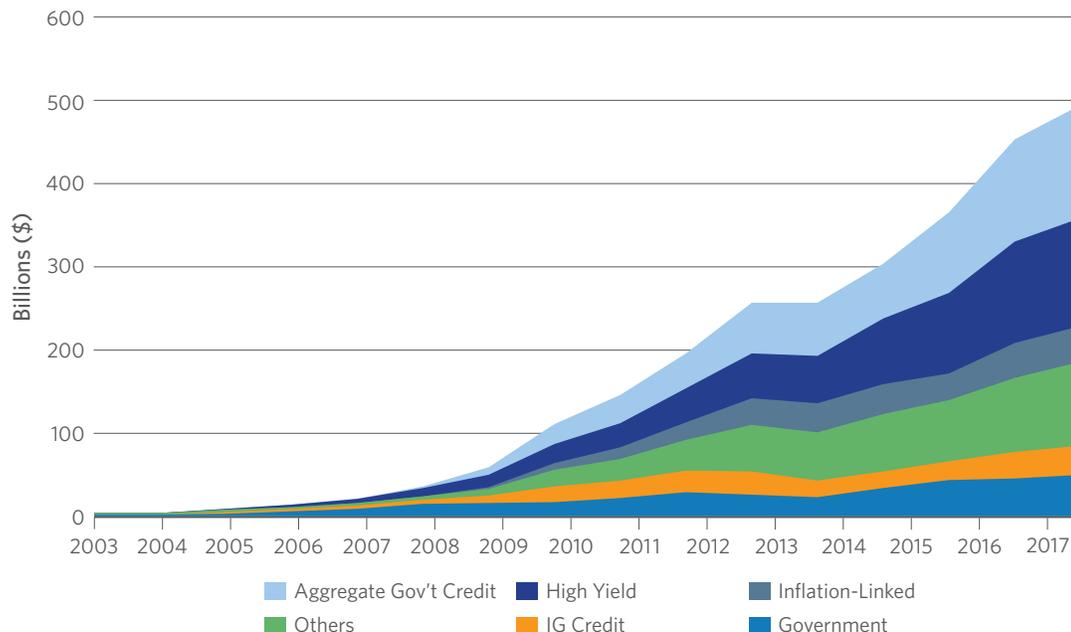
1. HYG = iShares iBoxx \$ High Yield Corporate Bond ETF. HYG is shown as it contains the highest AUM as of 6/15/2017. LQD = iShares Investment Grade Corporate Bond ETF. LQD is shown as it is the largest investment grade corporate bond ETF by assets as of 6/15/17. Both are shown for illustrative purposes and should not be considered a recommendation to buy or sell any particular security.

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Figure 1: U.S. bond ETF market growth

(January 2003 to March 2017)



Source: Bloomberg, as of March 31, 2017.

Figure 2: Aggregate flows into bond ETFs

(as of 6/15/2017)

	YTD	1Y	3Y
Flow (\$billion)	66.68	116.39	247.78
Flow/Assets (%)	12.6	22.0	46.9
Flow to Top 10 Funds (% of total flow)	51.3	50.1	51.2

Source: Bloomberg.

UNDERSTANDING ETF MARKET LIQUIDITY

The depth of the ETF market actually extends beyond what is indicated by the secondary market, in part because the availability of ETF shares can easily adjust through the share creation/redemption process. Through this mechanism, the liquidity of the ETF is not only dependent on secondary market trading activity, but also on the underlying liquidity of the OTC bond market.

BUSTING BOND ETF MYTHS

A little-known fact about bond ETFs is that they generally trade at a premium to the net asset value (NAV). Many investors have mistakenly interpreted this price premium as a mispricing of the ETF itself because equity ETFs normally do not trade at a premium. The reason for this difference is that most bond ETFs are valued using bid-side prices, whereas equity ETFs are valued using mid prices. The natural equilibrium range where ETF prices trade is inside the average bid-ask spread of the securities held in the ETF. When an ETF price moves outside this range, arbitrage forces at work in the marketplace bring the ETF price back into equilibrium. Over the last few years, the number of arbitrageurs has become quite efficient in keeping ETF prices in line.

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When ETF shares are in demand, prices will generally trade at a higher premium. At a high enough premium, arbitrageurs and authorized participants (APs) will enter the market to increase the supply of ETF shares by buying bonds in the OTC market to exchange for ETF shares (through the creation process). A similar process takes place when there is an excess supply of shares. The supply adjusts lower as arbitrageurs enter to buy up shares and exchange them for bonds, which are then sold in the OTC market. In both of these situations, the share adjustment process will tap into the liquidity of the OTC market, allowing ETF market liquidity to also be enhanced by OTC market liquidity. (See “The ETF Arbitrage Mechanism” on page 9.)

Another reason for the depth in liquidity of certain ETFs stems from the diversity of participants active in the market. ETFs are generally known as a retail product, and if this were the only type of investor in the market, liquidity would tend to be low. However, when other types of investors enter the market as well, liquidity can become quite deep. For ETFs with significant liquidity, not only are retail investors active in the market, but also institutional investors, hedgers, options traders, broker-dealers and arbitrageurs.

The additional liquidity from the OTC bond market and from the diversity of participants enables institutional investors to trade larger size positions through the ETF market. Today, it is

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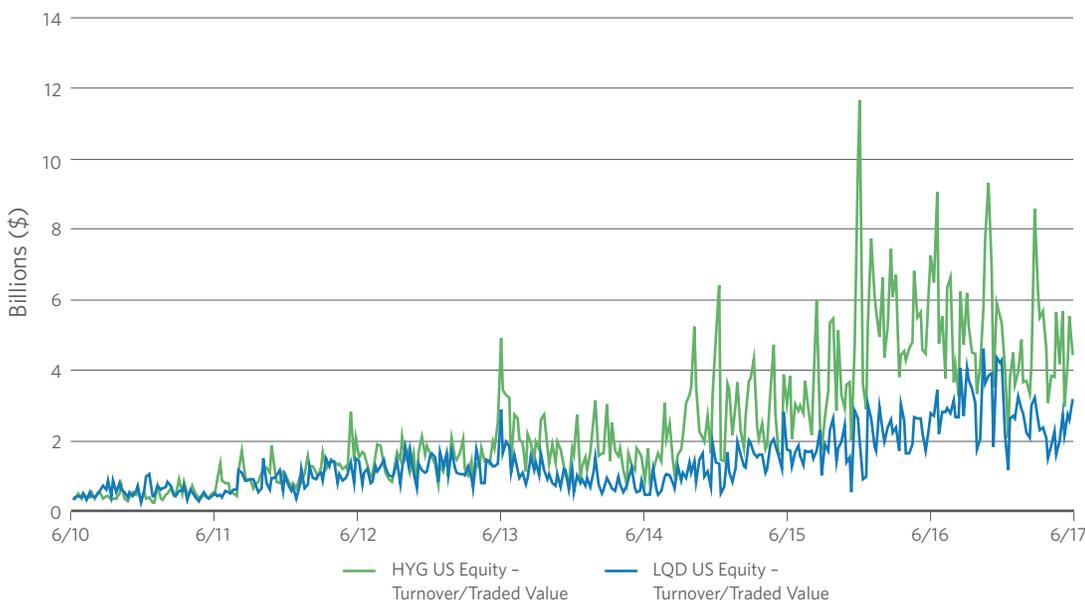
fairly easy to obtain block quotes for ETF shares. For investment grade and high yield credit, block quotes for amounts up to \$300 million are, in our experience, commonly within the bid/ask spread of where the bonds usually trade (Figure 4).

TAPPING INTO ETF MARKET LIQUIDITY

The best way to tap ETF market liquidity is through the create/redeem process. This mechanism allows one to exchange a set of bonds for shares, or vice versa. The basket of bonds that is submitted/received should have a similar risk profile as the ETF portfolio, and since most liquid ETFs are broadly diversified funds, the basket of bonds will be of the same nature. Bond baskets that are not closely aligned with the characteristics of the ETF will not directly benefit. In situations where the basket is less diversified or incomplete, the intermediary will have to

Figure 3: Weekly traded value statistics of HYG and LQD

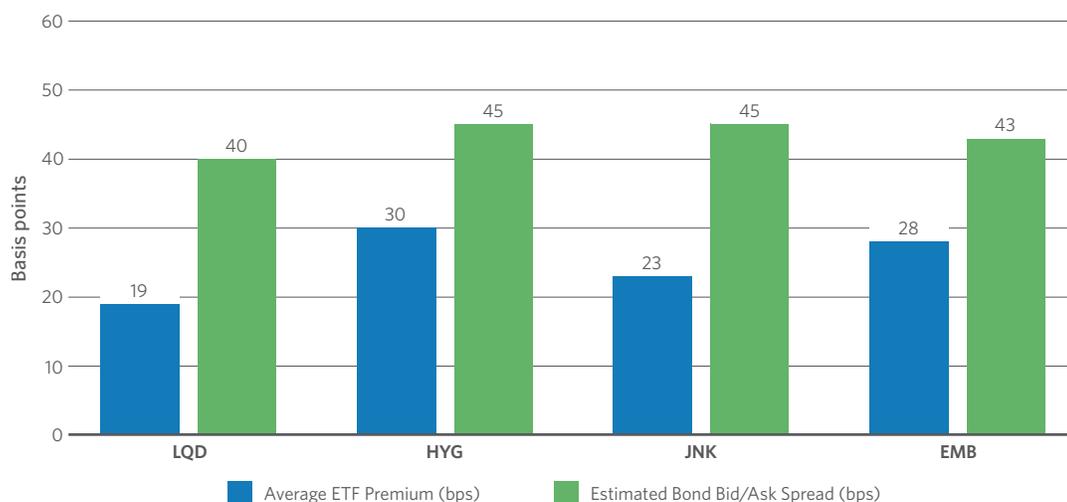
(June 2010 to June 2017)



Source: Bloomberg.

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Figure 4: ETF premium vs. bond basket bid/ask spread

Source: Bloomberg.

“complete” the basket on behalf of the investor in order to make this process work. The use of the intermediary will entail a cost, meaning the savings will be less than for trading a complete basket. This implies that broad index or index-like beta strategies will benefit the most from ETF market liquidity.

To clarify the process, consider the following example. If selling a basket of bonds, the workflow entails an exchange of bonds for ETF shares via a “create.” The shares may then be sold in the ETF market where liquidity is greatest. Conversely, if buying a basket of bonds, one would buy the ETF shares in the open market and simply redeem the shares for a basket of bonds. At the heart of this process is the understanding that it is cheaper to trade the ETF than to trade the underlying bonds, and that the create/redeem mechanism allows one to transform a less liquid asset into a more liquid one.

THE BOTTOM LINE: REDUCED TRADING COSTS

Based on our experience trading corporate bonds, both high yield and investment grade, the all-in execution costs using the ETF route have been less than the OTC market trading costs. A reliable estimate of trading a bond basket through the ETF market can be obtained by looking at the ETF’s premium. Remember, premiums are calculated relative to the bid-side mark (see “Busting Bond ETF Myths” on page 5). To trade an investment grade bond basket similar in risk to LQD, the premium level of LQD provides a good idea of where the basket

TRADING INSIDE THE BID-ASK SPREAD: WHAT WE CAN LEARN FROM ETF PREMIUM/DISCOUNT ANALYSIS

Looking at the historical levels of ETF premium/discounts, the average closing premium level for HYG over the past year is about 30 basis points. Currently, high yield bonds in the HYG basket have an average bid-ask spread of about 45 basis points, so the 30 basis points premium where the ETF has been trading is right around the middle of the spread. As another example, LQD has an average 1-year premium of 19 basis points. Currently, investment grade corporate bonds in the basket have an average bid-ask spread of about 40 basis points, so again, the premium where the ETF trades is right in the middle of the spread. The main takeaway is that one can generally trade bond ETFs inside the bid-ask spread of the bonds.

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Figure 5: LQD - Five quotes for trading \$100 million (0.13% premium)
(June 16, 2017)

	Bid (bps)	Ask (bps)	Spread (bps)
Dealer 1	11.0	20.0	9.0
Dealer 2	5.0	25.0	20.0
Dealer 3	8.0	17.5	9.5
Dealer 4	9.0	18.0	9.0
Dealer 5	8.0	18.0	10.0
Average	8.2	19.7	11.5
Best	11.0	17.5	6.5

Source: Mellon Capital.

would trade. If, on the day of the trade, the level were 13 basis points (as it was on June 16, 2017), then one can expect the basket of bonds to trade around this level, plus (when buying) or minus (when selling) 5 to 10 basis points for size.

As an example, our trading desk obtained quotes for trading a \$100 million block of LQD shares from five dealers (Figure 5). In this case, a trader can effectively buy bonds, on average, at 19.7

UNDERSTANDING THE CREATION/ REDEMPTION PROCESS

ETF shares can only be created or redeemed through an authorized participant (AP). ETF sponsors establish contractual relationships with a number of counterparties who have exclusive rights to increase/decrease the number of shares outstanding. The creation/redemption process could be in the form of cash for shares or securities for shares, with the latter commonly known as the “in-kind” process. Although cash for shares is technically possible, ETF sponsors have preferred to use the in-kind method for share activities. The creation/redemption basket is set by the ETF manager and is usually a sampled group of bonds that reflects the holdings of the ETF portfolio. When investors want to create shares, they deliver the specified basket of bonds to the ETF via an AP in exchange for the shares. Similarly, when investors want to redeem shares, they deliver the shares to the ETF in exchange for the basket of bonds.

“Given that the most liquid ETFs are ones that track the broad market, cost savings are also greatest for more broadly diversified baskets.”

basis points over the bonds’ bid-side mark, considerably cheaper than directly trading in the OTC market. Alternatively, a trader can effectively sell bonds at 8.2 basis points over bid-side mark. This bid/ask spread compression is substantial. Generally, when trading these bonds in the open OTC market, a trader would encounter a roughly 40 basis point bid/ask spread. Instead, a trader can hypothetically “roundtrip” the same basket at 11.5 basis points, on average, using the ETF. Even with small, additional explicit costs for AP facilitation, the overall cost reduction is significant.

However, the cost savings vary across market segments. If an ETF has a high level of liquidity, then the savings may be significant. Conversely, for a very illiquid ETF, the savings may be negligible. Given that the most liquid ETFs are ones that track the broad market, cost savings are also greatest for more broadly diversified baskets. Thus, managers who run more concentrated portfolios will likely have to bear higher transaction costs.

Beyond corporate bonds, there are other market segments where savings can be found. For example, we have explored and identified potential trading cost reductions in hard currency emerging market debt and convertible bonds as well, although the depth of these markets is not as great as the mega-liquid corporate ETFs.

ARE CURRENT BOND MARKET TRENDS HERE TO STAY?

Looking ahead, business models of broker-dealers have evolved since the GFC. Regulatory changes have altered the landscape, and the previous model of committing high amounts of risk capital and holding inventory is long gone. Today, capital is very much a precious commodity, and brokers who are

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THE ETF ARBITRAGE MECHANISM

ETFs will trade mostly within the range of prices between the average bid-ask prices of the bonds in the creation/redemption baskets. When ETF prices veer from this range, arbitrage forces will start to move the ETF price back into line. The ETF arbitrage mechanism works much like other arbitrage trades: buy the cheaper asset and sell the richer one. In the case of an ETF, when the price falls below the bid-side level, arbitrageurs will enter the market to buy shares of the ETF (cheap), immediately redeeming shares for the basket of bonds and then selling the bonds (rich). Conversely, when prices move above the offer side of the market, arbitrageurs will buy bonds (cheap), immediately exchanging the basket for ETF shares (creation) and then selling those shares (rich).

on the cutting edge of trading do not need to hold as much inventory, since they can now readily tap into bonds held in ETFs. Essentially, these dealers are continuously managing their trading books by employing the same trading techniques discussed here to source or off-load bonds. To facilitate this process, dealers are extending connectivity not only to electronic trading platforms, but also to major ETF sponsors. This connectivity helps them assess inventory (held inside ETFs) and to negotiate baskets, allowing them to be more effective in making markets. As dealers get more competitive and efficient in using these trading techniques, we believe it can only lead to greater liquidity and lower trading costs for bonds.

We expect the bond ETF market will continue to grow. Certain ETF sponsors are not only intent on gathering assets, but also on growing the ecosystem to enhance the liquidity of their ETFs. The benefit to the sponsors that are successful in this regard would be retaining a fee premium in the rapidly commoditizing ETF marketplace. The byproduct of more liquidity in bond ETFs is the spillover effect of lower transaction costs in trading bonds, particularly diversified baskets of bonds. As the link between the OTC bond market and the ETF market strengthens, we expect even more downward pressure on trading costs—much to the benefit of bond market participants.

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