

Structural change in bond markets – the role of ETFs

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Introduction

Bond market structure has evolved rapidly in recent years as regulatory change, concern about bank capital adequacy, and the Global Financial Crisis (GFC) combined to move bond markets towards exchanges and electronic venues. ETFs facilitated these developments, helped underlying liquidity, and allowed investors to express market views in tactical and strategic asset allocation. Feedback loops between ETFs and index benchmarks broadened asset allocation choices as plain and smart beta products developed. Success in withstanding the COVID shock enhanced the status of ETFs in credit markets, which was confirmed by the Fed's decision to include bond ETFs in its QE program. A return to market structure built around individual securities, and fragmented cash markets, is unlikely.

Bond markets historically were conducted OTC, reflecting asset class diversity

Fixed income markets changed little in structure from the 1980s to the early-2000s. The market was built around primary dealers and market-makers in government bonds, and brokers, who distributed bonds to end-investors, and sometimes matched orders in the over-the-counter (OTC) market. Bond markets were fragmented and traded OTC with variable price transparency and liquidity in some sectors, notably corporate bonds (in contrast to equities, which have historically traded on exchanges). Bond markets also lagged equities in the use of electronic trading, which began on the Nasdaq exchange in 1971 but did not begin in government bonds until 1999. However, bank balance sheets were substantial, with "light touch" regulation allowing sizeable balance sheet gearing and banks to make markets in a wide range of credit issues and government bonds.

Regulatory change, concern about bank capital adequacy and the GFC...

Although it is tempting to attribute recent changes in the structure of the bond market to the GFC alone, that would be an oversimplification. Several factors combined to force change. Concern among regulators about the lack of transparency and liquidity in OTC trading, particularly in derivatives goes back to the 1990s¹. The collapse of Lehman Brothers and the GFC reminded bond investors and regulators of the counterparty risk in a bank market-maker driven model, and trading OTC. Bank warehousing of risk for derivative and asset-backed structures, like CLOs and CDOs, also proved extremely hazardous, as underlying asset values fell sharply², when cross correlation of mortgage-backed assets proved much higher than predicted.

But changes to bank capital requirements and liquidity coverage were already being assessed long before the GFC, including the Basel Accords 1 & 2³ in 1992 and 2004, which became progressively more stringent to deal with bank capital market risks and capital adequacy. So, regulatory change—and the need for more transparency—and bank capital adequacy were already posing a threat to bond trading built on substantial bank inventory before the GFC even if the financial crisis reinforced the pressure for reform. For some years before the GFC, publicly traded bond volumes stagnated, or fell back in investment grade as Chart 1 shows. More bank regulation post GFC also meant the cost of capital rose steeply, so bank balance sheets had little space for bond inventory⁴.

Chart 1: Corporate bond daily average trading volumes in IG and HY



Source: SIFMA, February 2021.

¹ "Why derivatives rattle the regulators", Kevin Muehring, Saul Hansell, Institutional Investor, September 1992.

² "Hedges in the warehouse: the banks get trimmed", Brian Gordon, Adrian d' Silva, Chicago Fed Letter, April 2008, No. 249.

³ A set of banking supervision regulations set by the Basel Committee on Banking Supervision, which were followed by Basel 3 in 2010, after the GFC.

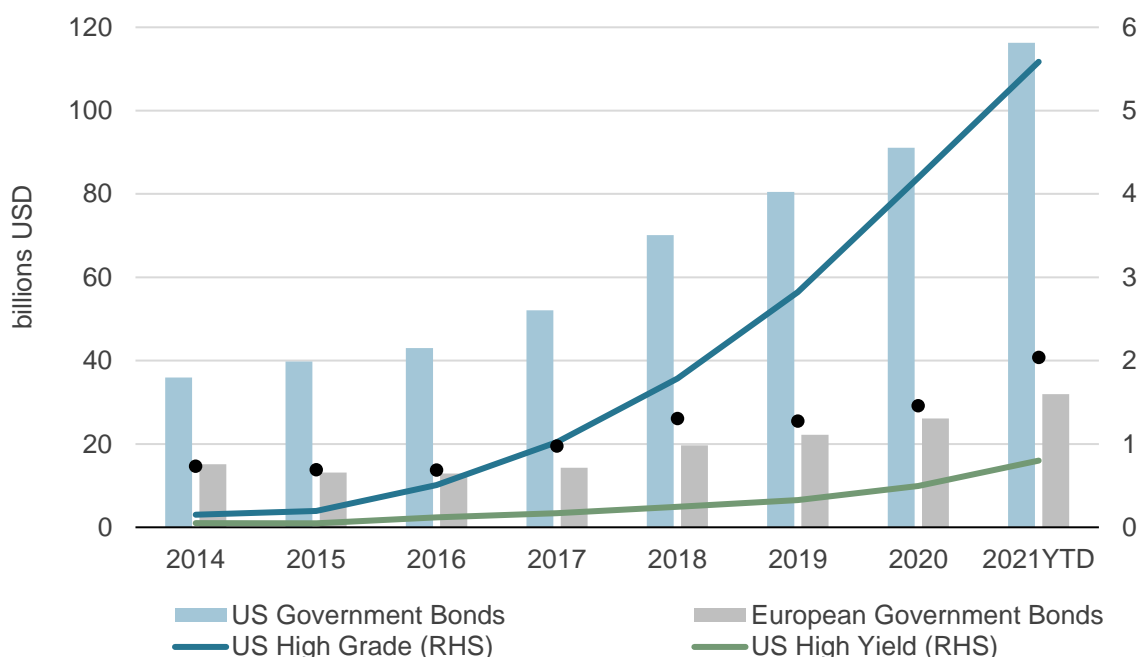
⁴ See "Has corporate bond market liquidity fallen?" Y. Baranova, L.Chen and N.Vause, Bank of England Underground paper, August 2015.

...combined to move bond markets towards exchanges and electronic venues

As bank operating models changed, they morphed into part market-maker, part brokers in cash bonds, rarely taking outright positions. Barriers to entry to the market also fell, as new IT made more trading venues available and increased the trading data and transparency of transactions through systems like TRACE. Many banks withdrew from market-making completely, as volatility fell, term structures flattened with QE programs and stricter regulation intervened. The transition from a bank market-maker driven model, to an agency-driven model, was helped by the growth in ETF trading, and related demand for pricing of baskets and portfolios of bonds. As the proportion of bond inventory held by buy-side investors has increased, relative to bank market-makers, investor-to-investor, or “All-to-All” trading venues have become more important⁵.

Average deal size also fell, as electronic platforms facilitated more transactions of smaller size, with lower costs. Different platforms developed to suit a wide range of investor needs in government and corporate bonds, with the deepest and most liquid electronic markets in homogenous assets, like government bonds, differing only in coupon and maturity. Chart 2 shows the growth in bond trading volumes electronically, led by US Treasuries. Corporate cash bonds trade less electronically, because of the range of bonds in seniority, coupon structure, tenor, security, etc. However, even the share of corporate bonds traded electronically has increased in recent years.

Chart 2: Average daily volumes of bonds traded electronically



Source: Tradeweb, February 2021.

⁵ See “Innovation and evolution in the fixed income market”, Vanguard Commentary, October 2016.

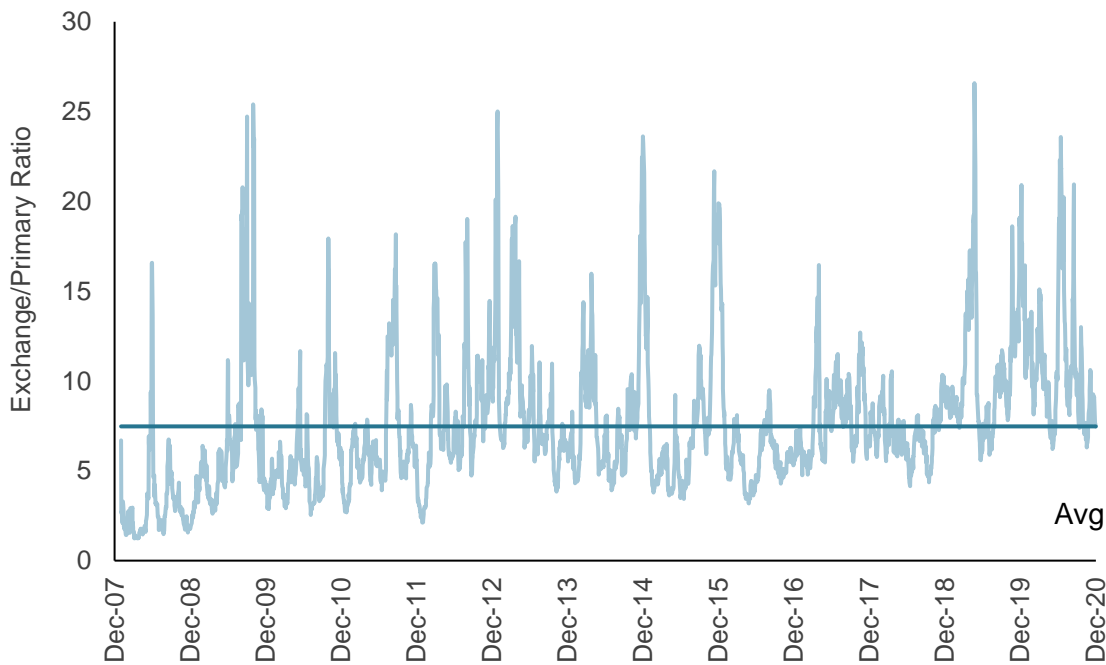
ETFs helped facilitate bond trading on an exchange for the first time...

Bond ETFs were an important part of these developments and helped move bond trading onto exchanges. Bond ETFs had existed since July 2002 (when iShares launched three US Treasury ETFs and an investment grade corporate bond ETF) and were able to take bonds that traded OTC onto an exchange in an ETF by capturing a representative sample of underlying bonds in the ETF⁶ to minimize tracking error. Regulators also set requirements for the new structures. As ETF primary activity deepened, the fungibility between bonds traded OTC and on the ETF exchange increased. Although the ETF provider sets the bonds that are acceptable in exchange for ETF shares, it is not in the interests of the ETF that low quality, illiquid bonds be deemed acceptable in the exchange, since it would increase the tracking error of the ETF.

...and liquidity infrastructure helped underlying bond liquidity and price discovery

Because ETFs trade on an organized exchange, they have given investors access to the bond asset class on an exchange for the first time. The liquidity infrastructure of ETFs (via authorized participants [Aps]) also means they can respond to changes in demand for bond ETFs by either creating or redeeming ETFs, with the issuer. The primary and secondary market liquidity offered by ETFs allows the trading of baskets of bonds and whole portfolios. Trading in the ETF secondary market on exchange creates another source of liquidity for investors and does not require trading in underlying securities. Typically, secondary market ETF trading volumes are a multiple of primary market activity, where ETFs are created or redeemed, as Chart 3 shows.

Chart 3. ETF Exchange fixed income secondary trading volumes/ ETF primary activity



Source: Blackrock, December 31, 2020.

⁶See "15 years of Bond ETFs in a nutshell", Cynthia Murphy, ETF Report, October 2017.

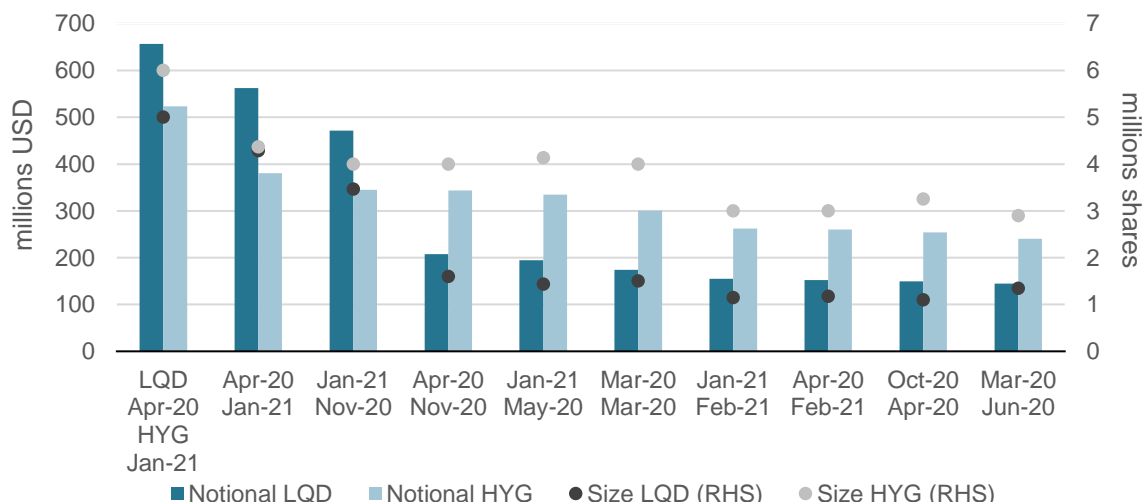
However, increased demand for ETFs can drive increased activity in the OTC market, where ETF dealers are required to find ways of delivering baskets of bonds to meet the demand, or selling baskets for redemptions. So as ETF primary volumes have increased, there has been a recovery in trading volume in the underlying market⁷. This also helps price discovery in the underlying bonds. As a result, trading desks in cash bonds and ETFs have often been merged to facilitate these processes of price and true NAV discovery.

Indeed, recent evidence suggests that where discrepancies arise between NAV on underlying bond baskets and the ETF, ETF pricing may be more timely than the pricing of underlying cash bonds. This became evident during the initial COVID crash in March/April 2020^{8,9}, when ETF prices fell to substantial discounts versus NAV of the underlying cash bonds; one plausible explanation being that this was because NAV pricing was stale and outdated. Thus, ETFs and IT developments have helped re-build market liquidity, but in a different way, as electronic trading platforms and ETF infrastructure developed.

ETFs and bond indexes allowed investors to express market views in asset allocation

In the asset allocation area, before ETFs and a broader range of fixed income indexes arrived, investors could only buy single bonds or bond mutual funds (from the mid-1980s), comprising the fund manager’s views on the asset class. Index investors in the asset class, who wished to buy a basket of bonds, were obliged to accept the fund manager’s view. As the range of fixed income ETFs increased, institutional investors became able to express market views, both in strategic and tactical asset allocation, and not be tied to a specific view on the asset class, and ETF block trades grew. The Top 10 ETF block trades (a single trade of over US\$5m), in the last 12 months, in the iShares LQD and HYG ETFs are shown in Chart 4. The black dots show the number of shares traded in the investment grade ETF, and the grey dots show the number traded for the high yield ETF.

Chart 4: Top 10 ETF block trades in investment grade (LQD) and high yield (HYG) ETFs in past 12 Months



Source: Blackrock, March 10, 2021.

⁷ The Modernisation of the Bond Market, Blackrock, 2018.

⁸ See “The recent distress in corporate bond markets; cues from ETFs”, S. Aramonte and F. Avalos, BIS Bulletin No 6, April 2020.

⁹ See “The bond ETF liquidity crisis that never was”, FTSE Russell, October 2020.

And a broader range of both plain and smart beta products has developed

In response to investor demand for low cost exposure to different fixed income asset classes and growth in index investment, plain and smart Beta fixed income ETFs and benchmark indexes have developed, enabling investors to gain exposure to both broad asset classes, and different factors, like value, credit quality, duration and ESG. Feedback loops between ETFs and index benchmarks have evolved to broaden asset allocation choices. Smart beta fixed income is more complex than the equity equivalent, given the wider range of bonds issued by the same corporate, as opposed to one equity, and less reliable liquidity. However, some academic research suggests that the same factors should apply across asset classes and a broader range of both plain and smart beta products in fixed income is emerging¹⁰.

So, market structure is developing quickly to meet asset allocation needs, with ETFs central to that evolution

Bond market structure has developed quickly in recent years as changes in the banking system and market shocks such as the GFC exposed severe flaws in the previous model. This was a fragmented, bank market-maker driven model, which traded OTC. Regulatory change of the banking system, and the desire to make bond trading more transparent, effectively forced change and innovation to more exchange and electronic trading.

Although bond trading still occurs on multiple venues, and market fragmentation persists, an increasing role is played by investor-to-investor, or All-to-All trading, driving down intermediation costs. Success in withstanding the COVID shock has also enhanced the status of ETFs in credit markets, which was confirmed by the Fed's decision to include bond ETFs in its QE program, after revising its initial proposal to buy high yield credit on an individual basis¹¹. The ETF has become a key part of this market, even if the complexities of the fixed income asset class, with a much larger number of bonds in issue, from the same issuer, has meant that bond ETFs operate in a different way, using representative baskets, rather than exact ETF mappings from underlying equities.

A return to a fixed income market structure built around individual securities and fragmented cash markets is unlikely, given the capital-intensity of that structure, growth in index-driven, smart beta and factor investment, the trading in baskets of bonds required for asset allocation, and regulatory changes to the financial system. Market structure in fixed income is likely to continue to develop with ETFs central to both price discovery, overall market liquidity and asset allocation.

¹⁰See "Value and Momentum everywhere", C. Asness, T. Moskowitz, L.H. Pedersen, Journal of Finance, January 2013.

¹¹ US Federal Reserve Secondary Market Corporate Credit Facility (SMCCF), announced March 23, updated April 9, 2020.

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