



Marketing Material

Fixed Income ETFs: From Evolution to Revolution



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IN A NUTSHELL

- The growth of Fixed Income ETFs is unstoppable. They have become an
 integral part of modern and efficient portfolio construction. The
 continued evolution of the ETF ecosystem has led to their emergence as a
 dependable anchor for allocations, driven by simplicity, diversification
 and reliability.
- Granularity is becoming increasingly important. Fixed Income ETFs are
 poised for a more dynamic chapter, as fixed income yields are back and
 remain volatile. This opens up new tactical and strategic allocation
 solutions that have long been out of sight. ETFs will solve essential
 challenges along yield curves and make opportunities in credit
 investable.
- This revolutionises the role Fixed Income ETFs play in asset allocation.
 The increasing depth and breadth of fixed income in portfolios also brings diversification considerations back on the agenda.

1 / The New Era of Fixed Income

Since its debut in 1990, the exchange-traded fund (ETF) has woven itself into modern investment strategy. Access to hundreds of bonds or equities in a single line remains their key feature, and asset allocators have come to appreciate this. The pace of Fixed Income ETF development has been more measured than that of equities. Given today's favourable fixed income environment, however, they are catching up with higher growth rates. In this paper, we explore the most important drivers of the Fixed Income ETF evolution and identify the innovations that will redefine their future in asset allocation.

Despite their remarkable success, with assets under management exceeding \$1.9\$ trillion globally, the potential applications for Fixed Income ETFs remain vast. In addition to shaping and modernising fixed income investing through standardised and affordable access, such as incremental and transparent pricing, Fixed Income ETFs have catalysed improvements in technology and market infrastructure. For example, they have spurred the development of electronic trading platforms, increasing the connectivity of an otherwise fragmented bond market.

After a challenging two years of rising interest rates amid inflationary pressures, Fixed Income ETFs regained momentum in 2023. This resurgence was fuelled by several factors, including attractive yields of over 4% in EUR investment grade credit (up from 0.6% at the start of 2022) and a more optimistic economic outlook. At the end of 2023, Fixed Income ETFs recorded their strongest year of inflows at EUR 63bn, accounting for 43% of total market inflows, well above their 24% ETF market share in Europe². We expect this trend to continue into 2024 and beyond. At the same time, trading volumes have continued to grow steadily and are well above the levels seen in 2020, when we last looked at the market in detail in our publication Fixed Income ETFs: Behind the growth story³. In this paper, we will explore the two major trends in Fixed Income ETFs that have been supporting recent growth:

- Evolution: Fixed Income ETFs have undergone a remarkable transformation, reshaping the investment landscape. Standardised access, technological advances and transparent market infrastructure continue to increase efficiency and liquidity. These economies of scale of ETFs and their ecosystem around them play an important role in explaining the recent growth.
- Revolution: However, the story does not end there. The comeback of yields has sparked a revolution in the use
 of Fixed Income ETFs. Investors are now demanding more granular exposures, looking for specific credit
 segments or themes and, above all, ways to secure current yield levels for the longer term. This marks the
 beginning of a new chapter for even quicker Fixed Income ETF adoption.

¹ DWS International GmbH, Bloomberg. As of 13/02/2024

² DWS International GmbH, Bloomberg. As of 29/12/2023

³ Fixed Income ETFs: Behind the growth story (dws.com)

2 / Fixed Income Evolution:behind the growth story of ETFs

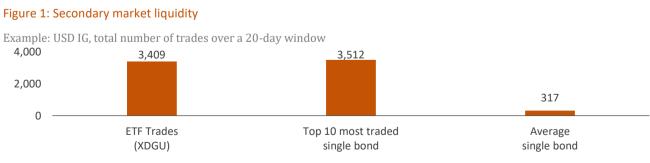
On paper, the benefits of ETFs are well documented. However, as with everything in investing, a track record is worth a thousand words and Fixed Income ETFs have built an impressive one. In this section, we look at the three fundamental pillars of growth that have driven and continue to drive passive implementation.

Pillar 1: Simplicity

Fixed Income ETFs offer investors standardised, efficient and affordable access to an otherwise complex bond market. ETFs are typically associated with affordable total expense ratios (TERs), and although this is far from the only factor, it is the most immediate indicator of implementation costs. Recent figures from the UCITS ETF market show that the average euro invested in Fixed Income ETFs charged a TER of 0.18%⁴ – significantly lower than many other vehicles.

The benefits go beyond lower running costs, as Fixed Income ETFs feature several tradability advantages over individual bonds and traditional mutual funds. All of these are closely related to what we would call 'layers of liquidity' provided by the ETF ecosystem. Understanding these is essential for this paper and we encourage readers to take a closer look at Box 1. Overall, the trading related advantages of a passive implementation can be summarised in three categories:

- 1. Lower investment barriers: Bonds mostly trade over-the-counter (OTC) with high associated transaction costs and large denominations, which results in fragmented quotes and markets. This creates significant barriers to diversified, direct bond investing. Minimum increments are often as high as 100,000 notional in the currency of issue. Fixed income ETFs break through this barrier, making bond markets accessible to a wider range of investors with Net Asset Values (NAVs) per ETF share in the low double digits.
- 2. Improved liquidity: Contrary to popular belief, the liquidity of an ETF is not limited to its underlying market. In fact, it is often significantly higher. Figure 1 is a useful comparison between ETFs and their underlying market, and one that we often refer to. Here we look at a USD Corporate UCITS ETF and compare it to the single bond data available via the US consolidated tape TRACE, which contains single bond trade data. The result is striking no matter what universe we look at the ETF is not only more liquid than the average bond in the universe it rivals the most liquid bonds in the universe.
- 3. Lower transaction costs: A natural consequence of (2) is also that ETFs trade at lower on exchange spreads. Fixed Income ETFs trade on exchanges throughout the day, offering potentially tighter bid-ask spreads compared to the underlying bond market.



Source: Number of trades for the Xtrackers USD Corporate Bond UCITS ETF on European exchanges compared to trades recorded via US TRACE in the underlying bond index constituents. Top 10 refers to the average of the ten most traded bonds in the index. Values reflect the sum over a 20 day window, for illustrative purposes only.

For institutional investors and professional investors

 $^{^{\}rm 4}$ DWS International GmbH, Trackin sight, as of 31/01/2024.

Box 1: The Fixed Income ETF ecosystem offers layers of liquidity

Secondary Market

ETFs are traded on exchange, so just like shares, its liquidity is derived from the bid/offer spread and trading volumes. Depending on the market environment and the asset class, a large share of ETF trading takes place in the secondary market.

Primary Market

However, unlike stocks, ETFs are open-ended vehicles; such that new shares can be created, and existing shares can be redeemed. The most common approach for this in fixed income is via the custom in-kind process which involves Authorised Participants (APs) working with ETF portfolio managers to provide an optimised basket of the underlying bonds in the reference index. For a creation trade, the AP will provide bonds in exchange for ETF units. Conversely, when an AP redeems, they will receive a basket of bonds in exchange for sale of the ETF. The custom in-kind process means that the portfolio manager and liquidity provider do not have to trade all the bonds in the underlying index, but often only a representative sample. This process is particularly beneficial in fixed income markets where only a portion of the underlying bonds trade frequently and trading costs can be significant. It also means that the creation/redemption mechanism effectively externalises trading costs and shields remaining investors. This is often an underestimated feature, particularly for longer-term investors compared to other fund wrappers.

Pillar 2: Diversification

The bond market is a maze that Fixed Income ETFs help to navigate. Fixed income ETFs offer a generational shift in the way investors approach the market. Traditionally, single bond investors have delved into all corners of the fixed income market, not least to capture illiquidity premiums. Fixed Income ETFs instead focus on a well-defined, liquid subset of bonds. This streamlined approach exploits the frictionless trading of ETFs. Nevertheless, Fixed Income ETFs scratch more than the surface, tracking indices such as the Bloomberg Global Aggregate Index, which reflects a universe of close to 30,000 bonds. As with equities, the building block approach of ETFs brings structure, standardisation, and a common language to an otherwise difficult market to navigate.

Passive portfolio construction circumvents the debt dilemma. While passive investing has conquered equity markets, surpassing the AuM of their active counterparts in the US in 2023⁵, with its market-cap weighting approach, concerns arise when it is applied to fixed income. The relevant weighting metric here becomes market value of debt. Recent 'winner-takes-all' rallies in market-cap-weighted equity indices, including the so-called 'Magnificent Seven', have increased concentration in equity indices. Similar concentrations of creditors can be a real concern for risk-aware fixed income investors and have led some investors to question a passive construction. However, it would be a mistake to equate higher debt levels with lower credit quality, as the size bias is significant in fixed income. Established issuers with strong financials can comfortably manage higher levels of absolute and relative leverage. Furthermore, it is often forgotten that market values naturally reflect the market's perception of creditworthiness. In addition, fixed income indices mitigate concentration risk through their rules-based structure. Eligibility criteria and issuer caps, often as low as 3% per issuer, prevent overexposure to specific issuers. These built-in safeguards ensure broad diversification, which in the case of EUR and USD corporate bond indices, for example, far exceeds that of large and mid-cap equity indices. Risk-managed allocation to a number of well-rated issuers is essential, while downgrade and default risk is spread across a large number of smaller issuers.

⁵ It's Official: Passive Funds Overtake Active Funds | Morningstar January 2024

35%
30%
BBB+
2.5

2.5

2.0

AAAAA1.5 | 9| |

Figure 2: Fixed income indices are diversified by default

5%

0%

0.00%-0.25%

Source: DWS International GmbH, Bloomberg, based on USD Corporate Index using Bloomberg rating, as of January 2024

0.25%-0.50%

Ultimately, it is broad diversification that raises the long-term appeal of a passive asset allocation in fixed income. Fixed income investing is characterised by negative kurtosis since upside is limited but downside is not. For many investors, therefore, this has traditionally been a place where more active risk management could be applied. A recent S&P study⁶ throws a curveball at this debate. The study finds broader evidence of active funds outperforming their benchmarks over shorter periods, and less over longer periods. Index diversification, which ultimately spreads default and downgrade risks across the investable universe, is a key driver behind this result. This highlights the balancing act investors face, when choosing the appropriate fixed income investment vehicle, but also how broad-based, diversified benchmark indexing, provides a crucial foundation for building resilient fixed income portfolios for longer horizons.

0.75%-1.00%

1.00%-1.75%

0.50%-0.75%

Issuer weight in the index

0.5

0.0

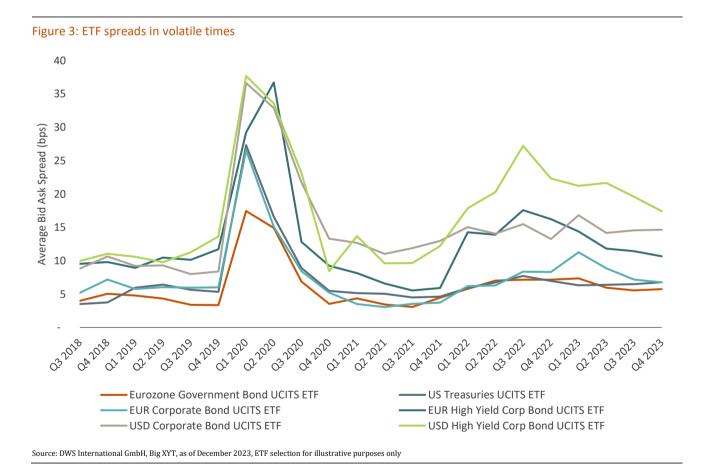
1.75%-3.00%

⁶ The Hare and the Tortoise – Assessing Passive's Potential in Bonds - Research | S&P Dow Jones Indices (spglobal.com) February 2024

Pillar 3: Reliability

The 2020 fixed income liquidity crunch was a turning point for Fixed Income ETF adoption. As liquidity in the underlying bond market evaporated in March 2020, Fixed Income ETFs emerged as the instrument of choice for many investors. Their multi-layered liquidity discussed in Box 1 became crucial. The secondary-to-primary market ratio for Fixed Income ETFs jumped from 1.3x in 2019 to 3.5x in March 2020⁷. This means that for every €1 traded in the primary market, a remarkable €3.5 traded through Fixed Income ETFs. In essence, the secondary market liquidity of Fixed Income ETFs acted as a buffer.

The experience in 2022 and 2023 is a confirmation of this. More recently, we also find a similarly resilient performance of the ETF ecosystem during the hiking cycle in 2022 and 2023. A good measure to look at is the secondary market spreads compared to the bid-ask spread of the underlying bonds in the index. For example, when comparing a Eurozone Government Bond UCITS ETF to its underlying index in January 2022, the average ETF spread is 64% tighter than the index spread of the underlying. This experience has firmly established ETFs as the market access tool of choice, also in volatile times.



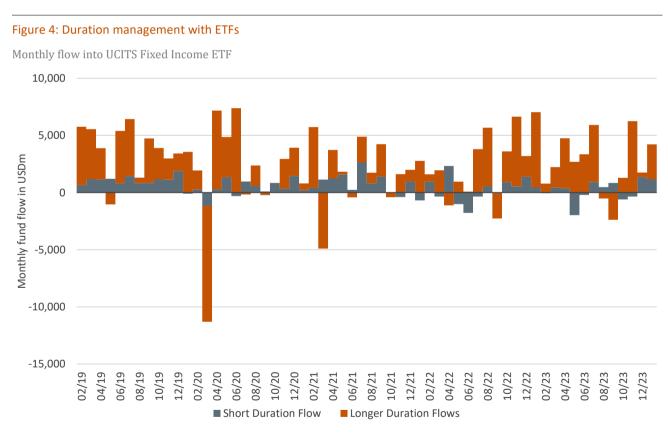
⁷ ETF trading in volatile times (dws.com) April 2020

3 / Fixed Income Revolution: In search for granularity

The Fixed Income ETF market is still in its infancy, representing only 3%8 of the liquid global fixed income market size. We expect this situation to change dramatically in the next few years. Fixed income yields are back, and so is dispersion of returns, opening up new tactical and strategic allocation needs (and solutions) that have long been out of sight and out of mind. As access to fixed income markets has been rationalised and made more efficient via indices and ETFs, much like in equities, there is virtually no limit to the Fixed Income ETF granularity. We expect three main drivers to revolutionise the portfolio application of Fixed Income ETFs going forward.

Driver 1: Playing the yield curve

Investors are underappreciating opportunities to be flexible in rates. While navigating rate curves is potentially even more challenging than equity rotation, the reality is that passive investors arguably acted 'too late' and did 'too little' to shift allocations in 2022-23. Figure 5 showcases monthly flows into UCITS Fixed Income ETFs by duration, highlighting a promising adoption of ETFs as an investment vehicle overall but also limited uptake of short-duration allocations.



Source: DWS International GmbH, Bloomberg, flow data based on UCITS Fixed Income ETFs with more than EUR200m in AUM, flows are sourced via Bloomberg, shorter duration refers to ETFs with modified duration < 3. As of February 2024.

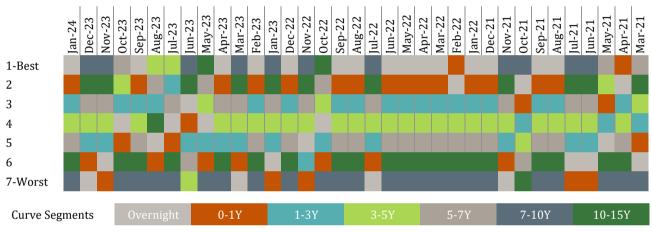
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⁸ DWS International GmbH, Bloomberg. ETF asset under management compared to market value of Bloomberg Multiverse Index. As of February 2024

Moving forward, investors may want to take advantage of the more granular tools at their disposal. Fixed income has historically been viewed as a 'tame' asset class, where passive investors parked their capital for steady returns. However, the recent volatility within seemingly safe havens like EUR government bonds necessitates a rethink. Figure 6 unveils a surprising dispersion in performance along the EUR yield curve, highlighting hidden tactical opportunities even amidst rising yields. As a theoretical example, an equal-weighted allocation to the three best performing maturity bands of the EUR government yield curves every month over 2022 and 2023, for example, would have turned a benchmark return of -12.4% into a respectable gain of +20%, highlighting the hidden tactical opportunities even against a rising yield tide. Admittedly, predicting yield curve movements in 2022 and 2023 was a near impossible task. However, avoiding the worst-performing (typically long duration) segment would have yielded a flat return.

Figure 5: Eurozone Government Bonds performance across curve segments

Ranking of monthly performance of yield curve segments



Source: DWS International, Bloomberg, Past performance is not a reliable indicator of future returns, as of February 2024

Driver 2: Making yields investable again

Reaping the benefits of near-cash allocations while favourable winds persist. While yield curves remain inverted well into 2024, investors may fare well with investing at the front end of the curve. In 2023, investments here would have earned returns of 3.31%, 4.58% and 5.12% in EUR, GBP and USD respectively, making 1-day maturity the best performing maturity allocations across the curve 10. Nevertheless, past returns in this segment are unlikely to repeat as yield curve inversions do not last indefinitely and historically yield curve normalisation has been swift. Analysing the past 7 US recessions shows that the yield curve normalises around the recession declaration, followed by rapid steepening. A recent study by our CIO confirms that typical turning points in the economic cycle have been opportunities to add duration to the portfolio, particularly in the 5-year bucket, where performance has tended to outperform the front end of the curve over 3-, 5- and 10-year horizons. At the same time, this study finds less evidence for extending duration beyond what investors can reasonably justify by their investment horizon 11.

Corporate bond allocations are also attractive from a strategic asset allocation perspective. As early 2024 data shows, investor reallocation to corporate bonds is gaining momentum. History supports this move, as transitions into corporate bonds have been opportune around turning points in economic cycle and outperform government bonds of similar duration over the following 18 months¹². What might surprise some, the timing is less important,

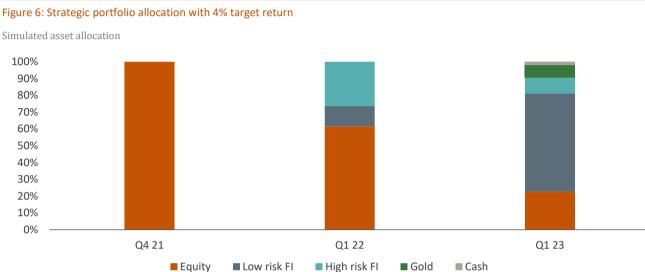
⁹ Based on total return comparison between the iBoxx Eurozone Sovereign Index and the following seven maturity bands: Overnight (i.e. 1 day maturity), 0-1Y, 1-3Y, 3-5Y, 5-7Y, 7-10Y, 10-15Y

¹⁰ Figures are based on Xtrackers Overnight Rate ETF Series and are after costs. Source: DWS International GmbH

¹¹ Fixed income strategies in times of an inverted yield curve (dws.com) October 2023

 $^{^{\}rm 12}$ The DWS Macro Metric Part II – Investment Grade January 2024

which gives opportunities to reconsider their role in strategic asset allocation. In fact, with yields back at attractive levels, it seems possible to achieve nominal return targets with a lower allocation to equities and greater allocation flexibility. Figure 7 illustrates a recent study based on the DWS Long View: investors with a target return of 4% can achieve the same annual return as in Q4 2021 with a reduced allocation to equities and an increased allocation to fixed income in 202313.



Optimisation based on the DWS Long View expected returns denominated in Euro. Low risk FI includes DM sovereigns and IG corporate bonds. High risk FI includes EM hard currency debt and DM HY corporate debt. Source: DWS Investment GmbH; as of: August 2023. Please see The Global Market Portfolio (dws.com) for further details.

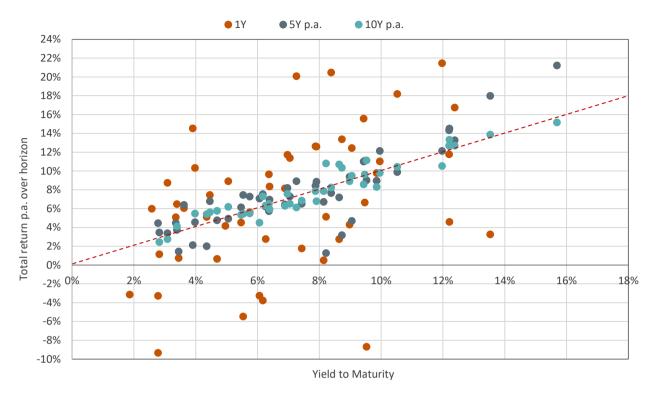
Making yields investable remains a challenge for investors with a short to middle term target investment horizon.

Despite this renewed appeal, some applications have been limited by the fact that Fixed Income ETFs, like most mutual funds, have a fairly stable duration. By continuously replacing maturing bonds with new issues Fixed Income ETFs maintain a diversified portfolio and become a 'buy-and-maintain' allocation. This dynamic nature posed a challenge for single-line investors seeking actual yields to maturity. It is worth noting that bond indices perform according to the yield implied, but only over longer holding periods. Figure 8 illustrates this by looking at the US IG universe, which has a long history starting in 1973: for each calendar year, we plot the yield in January against the realised annual return over the next 1, 5 and 10 years. Over a 10-year period, we find that the yield at the time of investment is a solid predictor of total returns, with returns within +/-20bps of expectations. This is significant given that duration has been fairly constant at around 8 years. However, over the 1- and 5-year holding periods, returns deviate more from expectations. Therefore, especially at shorter horizons, there is a need for new tools to make returns accessible to investors so that they can use them as a stable and predictable source of income in portfolios.

Figure 7: Relationship between yield to maturity at time of investment and realised returns

Based on Bloomberg US Corporate Bond Index, assuming investment, annual data from 1973 to 2023

¹³ The Global Market Portfolio (dws.com) September 2023



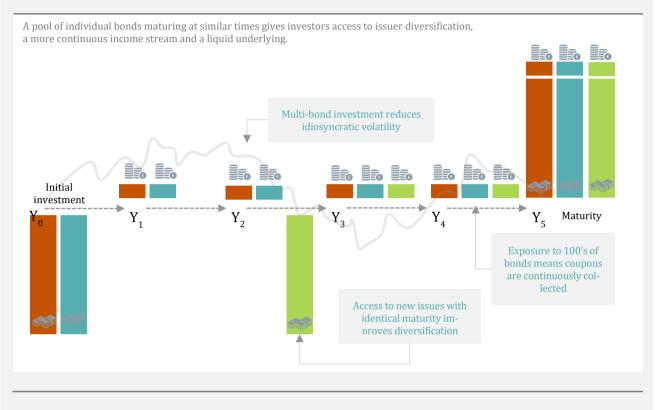
 $Source: DWS\ International\ GmbH, Past\ performance\ is\ not\ a\ reliable\ indicator\ of\ future\ performance.\ February\ 2024$

	AVG. RETURN DEVIATION	STD. RETURN DEVIATION
1Y	0.4%	7.2%
5Y p.a.	0.3%	2.2%
10Y p.a.	0.2%	1.0%

Every bond investor can be a Target Maturity ETF investor. The recipe sounds simple: by holding a basket of bonds to maturity, subject to standard index maintenance such as downgrades and new issues, current bond yields to maturity become a much more meaningful indicator. While these ETFs still carry interest rate risk over their lifetime, it is declining rather than stable. The closer the portfolio is to maturity, the lower the volatility as investors take advantage of the pull-to-par effect. The application of this concept has yet to be fully understood and explored by investors of all levels of sophistication. Income streams can fund ongoing expenses, while a fixed maturity can act as a substitute for a term deposit for the individual investor. For institutional investors, they are becoming powerful tools for liability-driven investment problems with known liabilities (such as pension entitlements). Matching the duration of a Target Maturity ETF to the horizon of the liabilities can be a useful way of reducing interest rate risk. In a more complex environment, this can be extended by using a range of Target Maturity ETFs to provide duration matching or laddering.

Box 1: Target maturity indices in practice

The experience of investing in Target Maturity ETFs is best described across two distinct phases. In the first phase the Target Maturity ETFs mimic the characteristics of a coupon paying bond and a second period where the ETF aim to mimic the maturing and redemption of a bond.



Phase 1: During the holding period of a Target Maturity ETF:

Broad exposure: Rather than investing in a few selected bonds, Target Maturity funds offer access to a large number of eligible corporate bonds.

Maturity: Each ETF is composed of a diversified basket of individual bonds maturing within the twelve months prior to the maturity date, as indicated in the ETFs' name.

Phase 2:

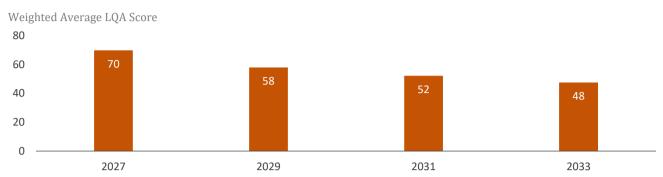
When a Target Maturity ETF matures:

The final months of the ETF: During the twelve months prior to the maturity date, bonds begin to mature. The cash received from the maturing bonds is reinvested in lower risk Euro Treasury bills at the month end rebalance to prepare for the final pay-out. This maintains liquidity and has a lower opportunity cost than holding cash.

Final distribution: Once all bonds have matured, the ETF is liquidated, and investors receive all remaining fund assets as a distribution.

Every Target Maturity ETF leverages the Fixed Income ETF foundations. In Part 1, we looked at the factors that have allowed Fixed Income ETFs to grow, and Target Maturity ETFs follow the same principles. This may seem contradictory given, for example, the typical narrative that bonds become illiquid as they age. However, Target Maturity ETFs invest in a growing basket of bonds over their lifetime, as new issues join the index and contribute to higher liquidity scores at overall portfolio level. Also, hundreds of bonds in a shorter Target Maturity ETF keep creation and redemption options wide open thanks to sampling. On the other hand, Target Maturity ETFs complete a planned rebalancing to government bills with the principal returned by maturing bonds in the final months. Results are as expected: we find that the Liquidity Assessment Scores (LQA), a proprietary Bloomberg liquidity measure, for a Target Maturity ETF with three years to maturity increases by 34% compared to an ETF with seven years to maturity (Figure 8).

Figure 8: Liquidity scores for different target maturities



Source: DWS International GmbH, See LQA Fact Sheet - English (bloomberglp.com) for further details Bloomberg. As of 31/01/2024

Driver 3: Seizing diversification opportunities

Despite the resounding comeback of fixed income and the resulting increased use of the ETF toolkit, we would like to end on a cautionary note. Investors should be careful not to be seduced by yield alone to the detriment of other aspects of fixed income allocation. Fixed income allocations will grow, and as allocations grow, diversification becomes increasingly important. Indeed, the comeback of DM government and credit is evidence of the high correlation within these traditional buckets, at least in the face of a structural shock. Add to this the cross-asset perspective and the fact that it was only in the late stages of this hiking cycle that equity markets provided a real counterweight to fixed income losses, and it is clear that investors also need to rethink diversification from the ground up. While this topic requires a rewrite of traditional diversification recipes, it is beyond the scope of this paper. We would like to conclude with a simple but powerful starting point that can already be incorporated into the rebalancing process:

- Diversifying across rates and spreads: We have discussed interest rate curve positioning and credit pickup opportunities. While they may appear more correlated than in previous cycles, the use of different building blocks provides a robust foundation. For example, blending different sources of spread pick-up, whether government induced ('yield plus') or via traditional corporates, brings benefits to the portfolio. A wide range of currency hedging tools, including a choice of hedged share classes at the ETF wrapper level itself, makes these available for local currency investors, who can now add a US credit component to a EUR or GBP portfolio while hedging the FX.
- Identifying opportunities in EM debt: Our 2023 EM Local paper¹⁴ has already shown that a small allocation to EM local currency debt can make a meaningful contribution to portfolio risk management and provide a useful macro hedge going forward, as the economic cycles particularly for India and China are expected to diversify further. India benefits from additional tailwinds from index inclusion. For investors less willing to take on the world's two most populous countries, broad EM portfolios can be a useful allocation. The strength of an EM local bond ETF will also lie in its convenience. As an example, local custody in the name of foreign investors is not straight forward and tax-related constraints make it tedious for traditional Western or Asian investors to access this market.
- Realising real returns: Another diversification tool for investors is hidden in plain sight. This is the opportunity to invest in inflation-linked bonds, which allow investors to access real rather than nominal interest rates. The recent decline in inflationary pressures has pushed down not only realised inflation but also its expectations. This provides entry points for investors to shift allocations to a real yield basis. Traditionally, 10-year Treasuries and their inflation-linked counterparts have a correlation of just 0.7, and with many economists still warning about underestimating the prospect of structurally higher inflation, a partial allocation to real yields can be a good driver of diversification.

¹⁴ EM Local Government Bonds: From de-dollarization to diversification (dws.com) July 2023

Related reading

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