

Tailor-made solutions for individual problems Innovative investment approaches in the bond sector

After more than a decade of low and negative yields, bonds are trading at more reasonable and positive levels following the sharp rise in 2022. In many investment-grade segments, especially non-financial and financial bonds, euro bonds are again offering yields of 3% and more (Table 1).

This opens up the possibility for investors to act more strategically again, away from traditional benchmark-oriented investment approaches, which tend to be more trading intensive, and to rely more on individual bond strategies. This is because the focus is no longer on avoiding negative interest rates and penalty charges, but rather on ordinary income, individual problems and tailor-made solutions.

On the following pages we present three individual approaches: (1) target maturity portfolios; (2) ladder structure portfolios; and (3) payout-oriented bond portfolios. We discuss possible applications as well as advantages and disadvantages.

Table 1: Current yield landscape of euro bonds

Average yields in EUR by sector, credit rating and residual maturity

Sector / Rating	Maturity in Years					
	1-3	3-5	5-7	7-10	10-15	>15
Non-Financials						
AA	3.53	3.52	3.56	3.60	3.72	3.83
A	3.74	3.73	3.79	3.86	4.01	4.14
BBB	4.18	4.33	4.40	4.29	4.41	4.51
Financials						
AA	3.84	3.88	3.87	3.89	3.96	4.05
A	4.04	4.21	4.32	4.32	4.41	4.29
BBB	4.56	4.67	5.00	4.95	4.51	4.72
Covered Bonds						
AAA	3.70	3.56	3.46	3.42	3.48	3.47
AA	3.80	3.65	3.56	3.58	3.67	3.64
A	3.98	3.84	3.70	3.60		
BBB						
Sovereigns						
AAA	3.08	2.80	2.68	2.66	2.74	2.68
AA	3.15	3.02	3.00	3.05	3.28	3.37
A	3.28	3.31	3.36	3.49	3.75	3.92
BBB	3.63	3.73	3.89	4.14	4.38	4.52
Quasi-Sovereigns						
AAA	3.36	3.28	3.21	3.21	3.36	3.44
AA	3.52	3.36	3.31	3.32	3.43	3.48
A	3.82	3.80	3.88	3.87	3.93	3.97
BBB	4.03	4.47	4.74	5.21	5.40	5.82

Data as of 28/02/2023

Source: ICE, own calculation

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Investors are again looking for individual solutions that meet their payout requirements.

Target maturity portfolio: profile of a broadly diversified bond

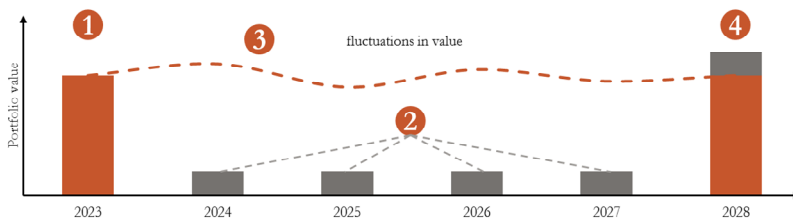
Target maturity portfolios are ideal for investors who want to combine the payoff profile of a bond with the benefits of a broadly diversified portfolio. They are structured that all bonds mature within a pre-defined period – for example, in 2028. Typically, bonds are held to maturity and portfolio turnover is kept low. During the life of the portfolio, coupon payments are distributed to investors. At maturity, the bonds are repaid together with the final coupon payments (Figure 1).

Combines the payoff profile of a bond with the diversification benefits of a portfolio investment

Figure 1: How a target maturity portfolio works

- 1 Purchase of the bonds
- 2 Over the investment horizon, the accumulated coupon payments are distributed on a regular basis
- 3 During the investment period, the strategy is subject to fluctuations in value
- 4 Repayment of the bonds at 100 plus distribution of the coupon payments accumulated in the last year

Schematic illustration



Source: Own illustration

Market overview

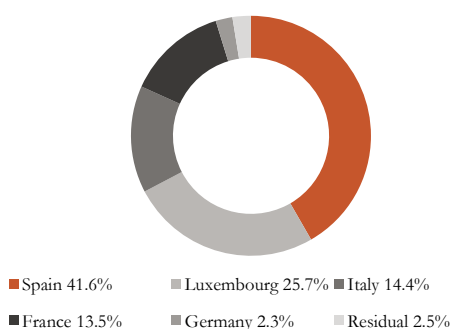
Target maturity portfolios are often implemented as mutual funds. In total, there were more than 450 mutual funds in Europe with a market volume of EUR 75bn as at the end of 2022. Around 70% of the funds were launched in Spain, Italy and France (Figure 2). In these countries, target maturity funds are already a popular vehicle in retail banking. The share of Luxembourg funds is also considerable at 19%. However, these are mostly launched for distribution in other countries. The share of German target maturity funds is 2.3%, but the share of funds with a sales registration in Germany is 12.3% (Figure 3).

Maturity funds increasingly interesting for German investors as well

Target maturity funds have recently played only a subordinate role in Germany. On the one hand, this could be due to the low and negative interest rate environment of

Figure 2: Southern Europe and France dominate the market

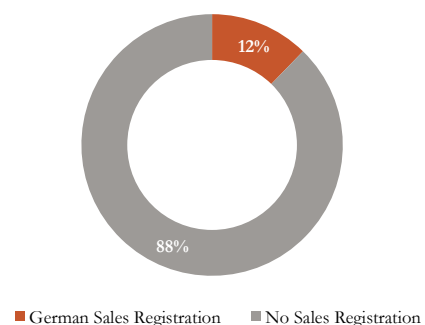
Distribution by countries of target maturity funds



Data as of 31/12/2022
Source: Morningstar, own calculation

Figure 3: Only a small share with a sales registration for Germany

Share of EUR-denominated target maturity funds with a sales registration for Germany



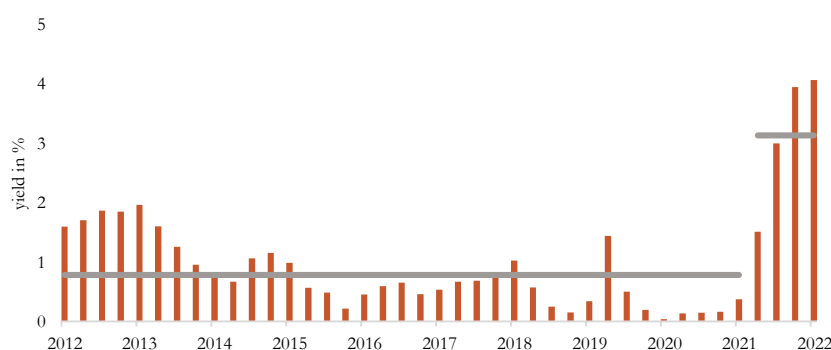
Data as of 31/12/2022
Source: Morningstar, own calculation

recent years. On the other hand, in other countries, for example France, these are part of the investment for retirement provision and accordingly tax privileged, which explains their greater importance. Based on an analysis of the possible achievable initial yields for a maturity portfolio with a five-year term and a focus on euro-denominated non-financial and financial bonds with investment-grade ratings, the average yield for the period between the end of 2012 and 2021 was 0.78% pa gross of fees. By the end of the fourth quarter of 2022, this value had risen to 4.06% (Figure 4).

*Initial yields significantly
more attractive*

Figure 4: Initial yields of target maturity portfolios are significantly more attractive again

Quarterly simulation of possible average initial yields (median, pa) of five-year maturity portfolios of euro investment-grade non-financial and financial bonds.



Time period: 31/12/2012 - 31/12/2022

Source: ICE, own calculation

Risk characteristics of a target maturity portfolio

The risk characteristics (Table 2) of a target maturity portfolio are comparable to those of a bond. Interest rate and credit risk, measured by the modified and spread duration, decreases over time. With a focus on investment-grade-rated bonds, the default risk also remain manageable. Here, the average cumulative five-year default rate of European investment-grade issuers from the non-financial sector was 0.29%¹. Due to the target maturity structure concentrated on one year, the reinvestment risk, ie the risk of reinvestment at possibly worse conditions, is an uncertainty factor that must be taken into account. As long as there is no need for liquidity in the meantime and all bonds are held until maturity, the liquidity risk, on the other hand, is of little significance.

Interest rate and credit risks decline over time

Table. 2: Risk characteristics

Overview of main risks

Risks	Charateristics
Interest rate risk (modified duration)	Decreasing over time
Credit risk (spread-duration)	Decreasing over time
Reinvestment risk	High, due to longer-term capital commitment
Liquidity risk	Low ("buy and maintain" approach)

¹ S&P Global Ratings, 2021 Annual Global Corporate Default and Rating Transition Study

Why a fund solution seems advantageous

In general, investors who invest in a target maturity portfolio want to achieve predictable returns for a certain medium-term investment horizon and have their capital repaid at the end of the term – comparable to a one-time investment in a bond. However, the problems may differ between retail and institutional investors:

Lot size problems and diversification

For *retail investors*, target maturity portfolios often represent an attractive and broadly diversified substitute for individual bonds. For this customer group, however, there is the increasing problem that many bonds can only be acquired with a nominal volume of at least EUR 100k. Consequently, an investment in a broadly diversified portfolio is only feasible for larger investment amounts. Thus, fund investments have a clear advantage, as they enable an investment in a broadly diversified target maturity portfolio even for smaller investment amounts.

Accounting effort

For *institutional investors*, the challenge lies more in the operational effort, since each individual bond of a broadly diversified portfolio must be booked and accounted for individually. In the case of a fund investment, the accounting effort is considerably reduced, as only one fund position is recorded.

Active management and risk management

Both investor groups benefit from active and professional fund management. This takes care of the fundamental analysis and the thorough selection of the individual bonds and issuers. In addition, it is responsible for the ongoing monitoring of the portfolio components. Risk management is a key component of the target maturity strategy. Even if individual securities are to be held to maturity, the fundamental situation of individual issuers and bonds can deteriorate over time and increase the default risk. Professional asset managers can act more quickly here, recognise negative trends and reduce risks specific to individual securities.

Excursus: target maturity funds as an alternative to fixed-term deposits?

Target maturity funds can be used as an alternative to fixed-term deposits and offer several advantages. Both ways have the plannable return and the fixed term in common. However, there are decisive differences in the other characteristics. For example, a target maturity fund remains fungible during the investment horizon and investors can redeem their units every trading day. With fixed-term deposits, on the other hand, the capital is tied up and is only paid back at the end of the term. In addition, a professional portfolio management takes care of the composition of the target maturity portfolio and the ongoing risk management, and ensures a broad diversification of individual risks. In the case of fixed-term deposits, the risk is concentrated at one address (Table 3).

Mutual funds offer ...

... especially for retail investors, even with smaller sums, a high degree of diversification, ...

... reduce the operational effort for institutional investors ...

... and benefit from professional and active risk management.

Table 3: Comparison between fixed-term deposit and target maturity fund
Overview of main characteristics

	Fixed-term deposit	Target maturity fund
Fixed term	•	•
Predicable return	•	•
Fungibility		•
Active management		•
Ongoing risk management		•
Broad diversification		•

Ladder structure portfolio: plannable returns with rolling reinvestment

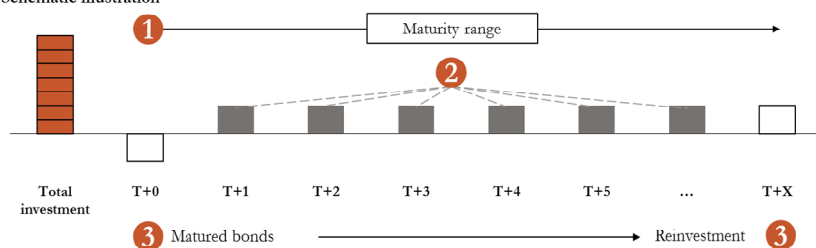
A ladder structure portfolio is a strategy with an indefinite investment horizon, equally distributed maturity structure and revolving reinvestment of matured bonds. During the initial construction, the maturity range to be covered by the portfolio needs to be determined. Sub-portfolios are then formed, each with the same maturity and volume. The maturity of individual sub-portfolios usually covers a quarter or half-year. Each sub-portfolio is now treated as a target maturity portfolio and populated with bonds whose final maturity falls precisely within this sub-portfolio. As part of the ongoing management, the bonds redeemed in the front sub-portfolio are reinvested at the end of the ladder structure in bonds with appropriate maturities (Fig. 5). This ladder-like structure and the staggered reinvestments give the ladder structure portfolio its name. Since ideally all bonds are held until final maturity, investors benefit from a low turnover rate and low transaction costs. Due to the high degree of individualisation, however, implementation in a mutual fund is often difficult to realise.

Plannable income with low transaction costs

Figure 5: How a ladder structure portfolio works

- 1 A maturity range is defined
- 2 Total investment is distributed over sub-portfolios (e.g. quarters) in which investments are made evenly
- 3 Matured bonds are reinvested at the end of the ladder structure with the appropriate final maturity date

Schematic illustration



Source: Own illustration

Use cases

This portfolio is aimed at investors who are dependent on recurring and predictable income and are seeking at least nominal long-term capital preservation. Revolving reinvestment at short intervals reduces the reinvestment risk, as the investor invests at the current interest rate level. If interest rates have risen in the meantime, reinvestment takes place at more attractive levels. In the opposite case, the investor profits from investments already made on previous reinvestment dates at higher levels. It is

important to mention that rolling bond maturities also provide a high degree of flexibility and thus unpredicted liquidity requirements can be satisfied to the extent of the amount of matured bonds.

Examples of use for *institutional investors* are the investment of a company's strategic reserve or the management of pension funds. For *retail investors*, a ladder structure is an attractive option, especially if a critical mass of assets has been built up to benefit from ongoing and regular coupon payments.

Risk structure

In contrast to a target maturity portfolio, a ladder structure portfolio has an almost constant interest rate risk (Table 4). The credit risk, on the other hand, depends on the credit rating structure in the portfolio. Assuming an unchanged rating distribution, the credit risk remains constant in the long term. However, if the credit rating structure changes, for example if the business outlook of a company deteriorates, this leads to a change in the credit risk. Since maturities are reinvested on a revolving basis, the reinvestment risk, on the other hand, can be classified as low. Although the individual maturity is sometimes reinvested in an environment of high interest rates and sometimes in an environment of low interest rates, this effect is balanced out on a long-term average if one assumes a sufficiently long investment horizon. Since this is also a "buy and maintain" approach, the liquidity risk can also be neglected.

Reinvestment risk decreases with a long-term perspective

Table 4: Risk characteristics

Overview of main risks

Risks	Characteristics
Interest rate risk (mod. duration)	Almost constant over time
Credit risk (spread-duration)	Almost constant over time
Reinvestment risk	Low for investors with a long-term investment horizon
Liquidity risk	Low ("buy and maintain" approach)

Historical simulation

For the simulation, a ladder structure portfolio with a maximum maturity of five years was constructed and broken down into 20 sub-portfolios (quarters). Within the sub-portfolios, all bonds with a suitable residual maturity from the benchmark universe (ICE 1-5 Year Euro Corporate Index, ticker ER0V) were included, their average monthly performance calculated and aggregated at portfolio level. Only euro-denominated non-financial and financial bonds with investment-grade ratings were considered. Bonds maturing during the year were included from the previous year's benchmark universe. Although the ladder structure portfolio is a specialised and individual solution, the performance of the ladder structure portfolio is comparable to typical bond indices with a low tracking error (Figure 6). This is also understandable, as both are subject to the same market drivers.

Low tracking error...

However, there are conceptual differences between a ladder structure portfolio and classic bond indices. As a rule, bond indices do not hold bonds with a remaining maturity of less than one year. The maturity structure in the index is also not evenly distributed and results from new issuance activity on the capital market. In contrast, in the ladder structure portfolio, bonds are held to maturity and the investment amounts are evenly distributed among the sub-portfolios. These structural differences explain the shorter and more stable duration of the ladder structure portfolio compared to a matching bond index (Figure 7).

... but differences in conception

Overall, it can be stated that a comparison is only possible if the constructed ladder structure portfolio has similar restrictions. As the degree of individuality increases, it becomes more challenging to find a suitable benchmark.

Payout profile-oriented bond portfolio

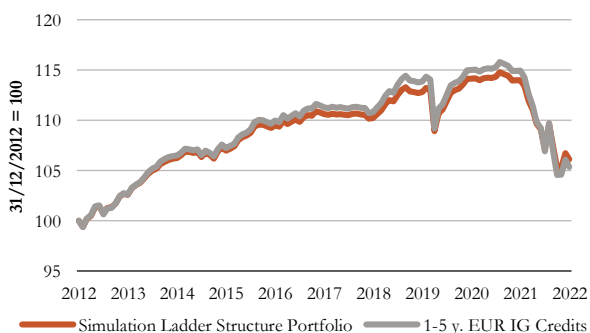
Many investors, especially from the institutional sector, are increasingly confronted with more complex problems and need solutions that are adapted to irregular payout profiles or project schedules. A concrete application in the corporate sector could be, for example, the matching of the maturity structure to the repayment schedule of a debt financing or to the payout profile of a construction project. Payout profile-oriented bond portfolios can do this, as their maturity structure is aligned in such a way that the liquidity is available at the planned time. Both repayment and, to a lesser extent, coupon payments are available to service the payout schedule (Figure 8).

Complex problems smart ...

... and flexibly solved at the same time

Figure 6: Lower tracking error...

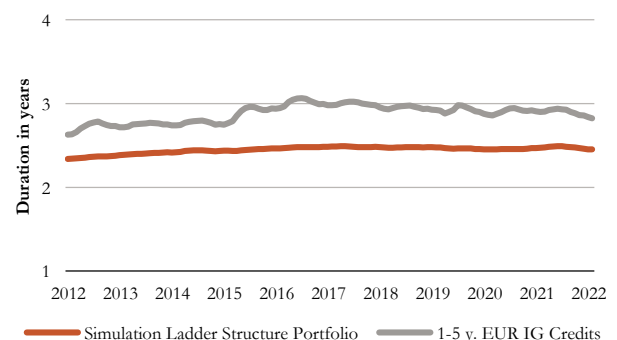
Performance of a simulated ladder structure portfolio with up to five-year maturities compared to one- to five-year EUR IG Credits



Time period: 31/12/2012 - 31/01/2023, Source: ICE, own calculation, Gross performance, commissions, costs, fees and taxes are not taken into account. Simulations are not a reliable indicator of future performance.

Figure 7: ... despite lower duration

Rolling three-month average duration: Simulated ladder structure portfolio compared to one- to five-year EUR IG Credits



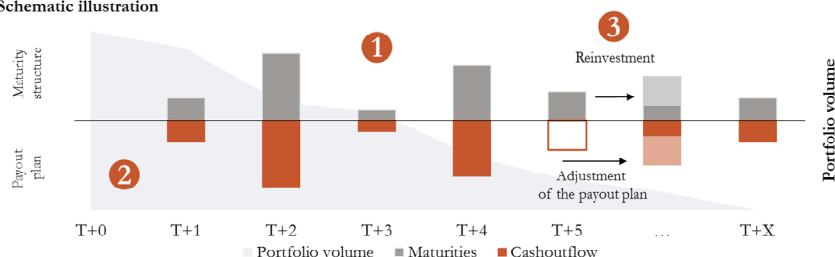
Time period: 31/12/2012 - 31/01/2023, Source: ICE, own calculation, Gross performance, commissions, costs, fees and taxes are not taken into account. Simulations are not a reliable indicator of future performance.

At the same time, the strategy offers sufficient flexibility to be able to react to changes in the plan. If payments are postponed, the freed-up liquidity can be re-invested. If it is needed earlier, bond positions are sold on the market, thus ensuring payment. Different payout scenarios can also be considered in the structure. For example, the portfolio structure can be based on the earliest payout dates or implemented on a probability-weighted basis.

Figure 8: How a payoff profile-oriented bond portfolio works

- 1 Individual matching of bond maturities to the payout plan
- 2 Portfolio volume declining over time
- 3 Flexible reinvestment and alignment with adjusted payout plan

Schematic illustration



Source: Own illustration

Risk structure

The portfolio is subject to fluctuations in value over time. However, one of the advantages of the strategy lies in the precise alignment and thus the immunisation of the interest rate risk in relation to the individual payout date. Interest rate risks can therefore be neglected in the portfolio context. Since security and predictability are paramount, special attention should be paid to the fundamental quality and credit risk of individual issuers and bonds during the construction. It is recommended that only bonds with a good credit rating, but at least with an investment-grade rating, be used. A reinvestment and liquidity risk only exists if strategy adjustments are made and the original planning is deviated from.

Table 5: Risk characteristics

Overview of main risks

Risk	Characteristics
Interest rate risk (mod. duration)	Immunised, related to the individual cash-out flow On portfolio level declining over time
Credit risk (spread-duration)	Declining over time, but with a special focus on high credit quality of issuers and bonds
Reinvestment risk	In the event of deviations from the original planning
Liquidity risk	In the event of deviations from the original planning



Summary

The changed interest rate environment allows retail and institutional investors to act strategically again and no longer define the avoidance of negative interest rates as the primary goal. The strategies presented show solutions for different individual requirements and problems.

Despite the differences in the payout profile and scope of application, they have some important similarities: since the bonds are usually intended to be held to maturity, all strategies are characterised by a “buy and maintain” character. This leads to predictable returns, low turnover rates and low transaction costs. Investors know the future cash flows and can base their liquidity planning on them. In some cases, implementation as a mutual or special fund is also possible. In particular, target maturity portfolios implemented in a mutual fund offer both retail and institutional investors some advantages. This is because retail investors can benefit from the bond-like payout profile and broad diversification even with small investment amounts, and for institutional investors the accounting effort is significantly reduced.

Solution-oriented, individual with manageable transaction costs



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