ESMA Annual Statistical Report

Performance and Costs of Retail Investment Products in the EU

2020

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ESMA Annual Statistical Report on performance and costs of retail investment products in the EU

2020

 The reporting period of this Report is 1 January 2009 to 31 December 2018, unless indicated otherwise. UK is included as it is a Member of EU in the reporting period. Legal reference of this report: Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC, Article 32 'Assessment of market developments, including stress tests'. '1. The Authority shall monitor and assess market developments in the area of its competence and, where necessary, inform the European Supervisory Authority (European Banking Authority), and the European Supervisory Authority (European Insurance and Occupational Pensions Authority), the ESRB, and the European Parliament, the Council and the Commission about the relevant micro-prudential trends, potential risks and vulnerabilities. The Authority shall include in its assessments an analysis of the markets in which financial market participants operate and an assessment of the impact of potential market developments on such financial market participants." This report, while contributing to ESMA's risk assessment activities, addresses the European Commission mandate to the three European Supervisory Authorities on recurrent reporting on the costs and past performance of the main categories of retail investment insurance and pension products. The report and its contents do not prejudice or impair ESMA's regulatory, supervisory or convergence activities, nor the obligations of market participants thereunder. The information contained in this publication, including text, charts and data, exclusively serves analytical purposes. It does not provide forecasts or investment advice, and does not prejudice, preclude or influence in any way past, present or future regulatory or supervisory obligations on market participants. The charts and analyses in this report are based on data not proprietary to ESMA, including from commercial data providers and public authorities. ESMA uses these data in good faith and does not take responsibility for their accuracy or completeness. ESMA is committed to constantly improving its data sources and reserves the right to alter data sources at any time. The third-party data used in this publication may be subject to provider-specific disclaimers, especially regarding its ownership, its reuse by non-customers and, in particular, the accuracy, completeness or timeliness of the data provided, and the provider's liability related thereto. Please consult the websites of the individual data providers, whose names are detailed throughout this report, for more details on these disclaimers. Where third-party data are used to create any chart, table or analysis the third party is identified and credited as the source. In each case, ESMA is cited by default as a source, reflecting any data management, cleaning, processing, matching, analytical, editorial or other adjustments to raw data undertaken.

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ESAs performance and cost reports: 2019 summary

In order to enhance transparency and ameliorate investor protection, the three European supervisory authorities (ESAs) publish reports on the performance and costs of retail investment products in their remits on an annual basis.

Ahead of unfolding the analysis characterising the current report below we provide a summary of the findings of the first reports published in 2019. This will provide the necessary background to highlight the developments and the enhancements of this year report with respect to the previous one.

ESMA

The 2019 report[1] covers UCITS, AIFs and SRPs. Key findings for UCITS:

— The largest cost impact comes from ongoing costs, while subscription and redemption fees are significantly lower;

— Across asset classes costs differ; they are higher for equity and alternative UCITS;

— Costs are higher for retail compared to institutional investors;

— Active funds have higher costs than passive while net performance, for active, is lower;

— Cost heterogeneity is high across Member States.

— Data quality and availability, including issues related to fund and investor domicile and heterogeneity in national treatment of costs, remained a significant challenge when assessing performance and costs.

There is lack of transparency for retail AIFs and SRPs. No data on costs and performance were available. Key results for retail AIFs are:

— The estimated NAV of AIFs is around EUR 5tn. Retail AIF are 18% of the AIF market;

— Risks related to liquidity transformation and liquidity mismatch are not significant;

— Heterogeneous distribution of retail AIFs in the EU falling under national regulations.

Key findings for SRPs are:

— Limited market size: EUR 500bn in 2017;

— Conclusive analysis is constrained by the large variety of SRPs and data availability.

EIOPA

EIOPA's first Report[2] on Costs and Past Performance presents the net performance – over the period 2013-2017 – of insurance-based investment products (IBIPs) across the European Union (EU) and of some personal pension products (PPPs), showing that:

— Costs vary depending on the type of product, premium, risk category and jurisdiction;

— Reported costs for profit participation products are significantly lower than for unit-linked products;

— Average net returns of unit-linked products have typically but not always outperformed profit participation, however, given the absence of a standardized European methodology to calculate returns for profit participation, net returns for these products may be underestimated;

— Exit costs at maturity are marginal;

— Investment management costs vary significantly in relation to different risk classes and have an impact on the costs borne by policyholders;

— Finally, given data and comparability limitations, market coverage achieved was limited and challenges have been identified in comparing performance, in particular in relation to the impact of risks and volatility on net returns.

[1] ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

[2] EIOPA, 2019, First Report Cost and Past Performance, December 2018

EBA

The report[3] focuses on structured deposits, the only product category in the EBA's consumer protection remit. Key findings:

— The market size for structured deposits in the EU is limited, with data on costs and performance not widely available;

— It includes a mapping of the regulatory requirements on pre-contractual disclosure and/or reporting applicable to structured deposits at European and national level;

— Data sources required to fulfil the analysis are identified.

3 EBA, 2019, "Report on Costs and Past Performance of Structured Deposits".

Executive summary

The 2020 ESMA Annual Statistical Report on the Performance and Costs of Retail Investment Products in the EU provides a comprehensive overview of the EU retail investment products in the period from 2009 to 2018. Undertakings for Collective Investment in Transferable Securities (UCITS) represent the largest investment fund sector in the EU, with more than EUR 9tn assets. Our sample covers two thirds of the market with more than EUR 6tn assets, of which above EUR 4tn are held by retail investors. Alternative investment funds (AIFs) follow with EUR 5.8tn, of which around EUR 1tn are held by retail investors (Retail AIFs). Structured Retail Products (SRPs) are the smallest market, with 6 million contracts and a value of EUR 400bn outstanding. Compared to the 2019 edition, we have further enhanced the report by enlarging the scope of the UCITS analysis. In particular, we provide an improved methodology, an analysis of performance and costs based on risk categorisation and an analysis of management fees. For retail AIFs, there is a preliminary analysis of gross performances. Despite progresses in data coverage and quality, challenges, including cross-EU heterogeneity in cost treatment, unavailability of cost data for AIFs and SRPs and limitations on data comparison across EU Member States, remained. No harmonised regulatory data are available for UCITS and SRPs.

Investment funds: UCITS

UCITS investment funds delivered moderately positive gross annual performance over the one-year investment horizon, amounting to 0.2%. Costs remain a critical component in final investor benefits, with retail investors paying higher costs than institutional investors. Results from both last year's report and the current report show that observed cost reductions are marginal over time. A hypothetical retail investment of EUR 10,000, in equity, bond or mixed assets funds, provided a value of EUR 18,959 in gross terms over ten years. The net payout was EUR 16,168 with costs amounting to EUR 2,791. Heterogeneity persisted across Member States, as reflected in our analysis of management fees. This heterogeneity significantly reduced when the focus goes from the fund- to the investor-based domicile. Active equity UCITS underperformed in net terms passive and ETF equity UCITS; active, equity and bond UCITS underperformed their prospectus benchmarks in net terms; at shorter horizons, the top-25% active equity UCITS outperformed top-25% passive equity UCITS and their own benchmarks, before and after costs. However, the cohort of funds changes over time, making it complicated for investors to consistently identify outperforming UCITS.

Investment funds: Retail AIFs

In 2018, AIFs in the EU had an estimated NAV of around EUR 5.8tn, EUR 800bn more than in 2017. Retail AIF investments accounted for 16% of the AIF market or around EUR 1tn in terms of NAV. In terms of distribution of retail assets, as in 2017, funds of funds and real estate funds displayed high retail participation, with 27% and 16% of the total retail NAV respectively, whereas retail investments in hedge funds, at around 1% of NAV, remained rare. Potential risks related to liquidity transformation and liquidity mismatch were analysed. More than the 78% of the share of AIFs sold to retail investors was composed of open-ended funds. Risk of liquidity mismatch, however, remained limited on an aggregate basis. This held for funds with different degrees of retail investor participation. Liquidity issues may remain for individual AIFs. Differently from 2017, we report the dynamics of gross returns for 2018. Gross returns of AIFs sold to retail investors were negative: -2.1% for funds of funds and -3.3% for the category Other. This reflects the poor performance observed across asset classes, especially at the end of 2018. Significant data challenges persist in relation to the unavailability of cost data.

Structured retail products

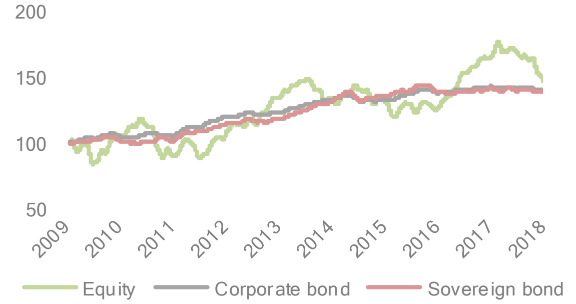
Structured Retail Products (SRPs), with assets at EUR 400bn in 2018, are a market significantly smaller than UCITS retail investment and AIFs sold to retail investors. The analysis is complicated by the large variety of SRPs available and their payoff features, which augments the difference between investments in structured products and long-term investments in funds. Data availability severely constrains the scope for conclusive analysis. Regulatory data are not available, and data from commercial providers limited.

Market environment

Securities markets

In 2018, market valuations remained high by historical standards since 2009. Valuations, however, were weak in 2018 and strongly declining for equity compared to 2017, which was an exceptionally positive year (ASR-PC.1).

ASR-PC.1
Securities market performance over time
2018 declining, yet high by historical standards



Note: Return indices on EU equities (Datastream regional index), EA corporate and sovereign bonds (iBoxx EUR, all maturities), monthly averages, December 2009 =100.
Sources: Refinitiv Datastream, ESMA.

In 4Q17, EU equity valuations increased over the year by around 7% and remained at high levels in the first half of 2018 (7% in 2Q18, year-on-year).[4] This was followed by a steep decline, characterising the last quarter of 2018 (-14% in 4Q18, year-on-year), related to weak economic growth and economic forecasts. Political risk lingered[5] as well as trade tensions and the related risk of an escalation of protectionist measures at a global level.[6] This reflected the performance of other international stock markets, like the US where share prices decreased by around 7% in 2018.[7]

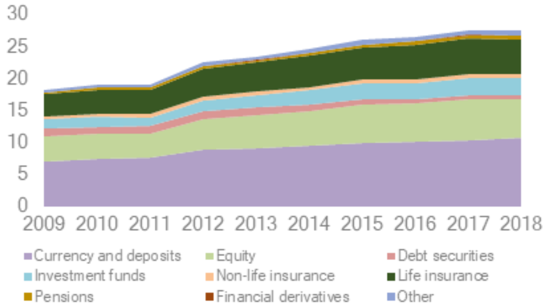
Valuations of European bonds continued to be subdued over the period between 2009 and 2018, in relation to the prevailing low interest rate environment. For sovereign bonds, even if hovering around zero, the average year-on-year return in 2018 was just above 0% while it was slightly negative for corporate bonds at -0.01% (ASR-PC.1).

Low and negative asset performances as well as bouts of volatility, in particular for equity, contributed to a decrease in investor confidence and the reduction in retail investor sentiment in the second half of the year.[8]

Household financial assets

Against this background, in 2018 out of a total of EUR 27.5tn investments in financial assets we observed a decrease in the value of equities and investment funds for households. Equity asset value declined by 6%, from around EUR 6.4tn in 2017 to EUR 6tn in 2018. For investment funds the value of assets declined by 4% from EUR 2.7tn in 2017 to EUR 2.6tn in 2018 (ASR-PC.2, ASR-PC.3).[9] In contrast, the value of assets invested in currency and deposits slightly increased, from EUR 10tn in 2017 to EUR 10.5tn in 2018.

ASR-PC.2
Household financial assets
Decrease in value for investment funds



Note: Households financial assets in the EU, EUR tn. Life and non-life insurance include respectively life insurance and annuity entitlements and no- life insurance non technical reserves. Derivatives includes employee's stock options.
Sources: Eurostat, ESMA.

As for 2017,[10] EU investors' participation in

4 The Eurostoxx 50, for example, increased by around the 7% in 2017, the Europe Stoxx 600 by around 8%.

5 Please note that during the reporting period 2009-2018, UK is still an EU member. Moreover, since the referendum and until December 2019, uncertainty lingered on the deal/no-deal scenarios.

6 ESMA, 2019, TRV No.1 2019.

7 S&P 500.

8 ESMA, 2019, TRV No.1 2019.

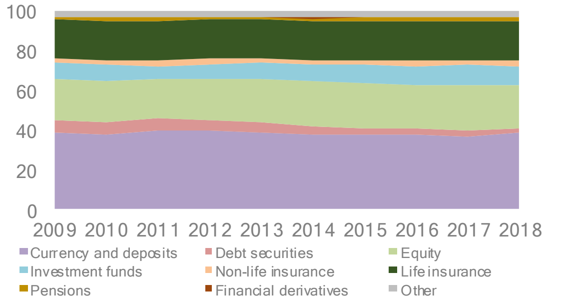
9 Following Eurostat classification, currency and deposits includes: currency in circulation, transferable deposits, inter-bank positions, other transferable deposits and other. Investment funds also includes money market fund shares/units. Life insurance and annuity entitlements include financial assets representing policy and annuity holders' claim against the technical reserves of corporations providing life insurance (both unit-linked and non-unit linked), as well as voluntary pension subscribed on individual initiatives (not linked to employment). Pension entitlements include: pension entitlements either from employer(s) or life (or a non-life) insurer, claims of pension funds on pension managers and entitlements to non-pension benefits. Financial derivatives include: financial derivatives (such as options, forwards and credit derivatives) and employee stock options. Other refers to other accounts receivable and payable. Loans are not included.

10 ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

capital markets remained relatively low in 2018, especially when compared to the US. Data on EU household financial assets show that there was significant potential for increased participation of retail investors in EU capital markets.

Households continued to hold their assets mainly in currency and deposits: 39% of overall household financial assets in 2018, increasing from 37% in 2017.[11] Equity and life insurance assets followed, with 21% and 20%, respectively in 2018 (ASR-PC.3). The share of investment funds' assets remained small compared to other assets, with 9.5% of total households' financial assets in 2018, slightly decreasing from 2017 (9.9%), probably due to the decrease in valuation at the end of 2018.

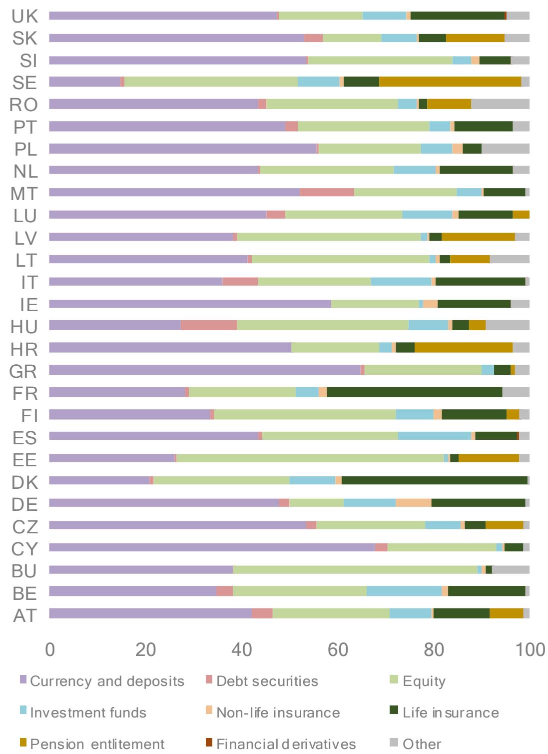
ASR-PC.3
Structure of household financial assets
Increase in share for currency and deposits



Note: Share of households financial assets in the EU, %. Life and non-life insurance include respectively life insurance and annuity entitlements and non life insurance non technical reserves. Derivatives includes employee's stock options.
Sources: Eurostat, ESMA.

Across Member States, the strong heterogeneity observed in last year's analysis persisted. Countries differ strongly on saving choices. For example, in the case of assets related to pension entitlements, they range from 30% in Sweden to zero or no reporting for several other countries, which are significantly different in size as well as in financial and economic development. This is also related to the differences in national pension schemes. In some cases, they can be part of a compensation agreement between the employer and the employee. Currency and deposits, that are on average, in 2018, about 39% of EU household assets, go from around 14% in Sweden to more than 60% in Cyprus and Greece. Equities[12] also strongly differ across countries: they are around 40% in the Baltic countries and below 20% in Croatia, Germany, Ireland and Slovakia (ASR-PC.4).

ASR-PC.4
Structure of households' financial assets by fund domicile
Heterogeneity



Note: Structure of financial assets by Member State, 2018, %.
Sources: Eurostat, ESMA.

These initial statistics indicate the large potential for growth in capital market participation. Increasing the participation of retail investors in capital markets is an EU priority. A large investor base helps financing the economy and allows investors to ensure effective long-term financial planning which cannot be achieved by simply placing their savings into deposits.

[11] Please note that data source is Eurostat.

[12] Equities are a claim on the residual value of a corporation.

Investment funds: UCITS

Summary

UCITS investment funds delivered moderately positive gross annual performance over the one-year investment horizon, amounting to 0.2%. Costs remain a critical component in final investor benefits, with retail investors paying higher costs than institutional investors. Results from both last year's report and the current report show that observed cost reductions are marginal over time. A hypothetical retail investment of EUR 10,000, in equity, bond or mixed assets funds, provided a value of EUR 18,959 in gross terms over ten years. The net payout was EUR 16,168 with costs amounting to EUR 2,791. Heterogeneity persisted across Member States, as reflected in our analysis of management fees. This heterogeneity significantly reduced when the focus goes from the fund- to the investor-based domicile. Active equity UCITS underperformed in net terms passive and ETF equity UCITS; active, equity and bond UCITS underperformed their prospectus benchmarks in net terms; at shorter horizons, the top-25% active equity UCITS outperformed top-25% passive equity UCITS and their own benchmarks, before and after costs. However, the cohort of funds changes over time, making it complicated for investors to consistently identify outperforming UCITS.

Background

The EU UCITS market[13] is one of the largest and most diverse markets for investment funds within the EU and globally. Our reporting on the performance and costs of UCITS funds covers a wide range of measures from different perspectives:

— an analysis over 1-year, 3-year, 7-year and 10-year (2009–2018) horizons ending in 2018;

— an enhanced calculation of the performance, based on geometric average;[14]

— a comparison with the results included in the 2019 ESMA report;[15]

— a distinction between equity, bond, mixed, money market and alternative UCITS;[16]

— a distinction between retail and institutional investors;[17]

— an analysis by risk category within asset types;

— a focus on UCITS Exchange Traded Funds (ETF);[18]

— an extended analysis on the management type: active versus passive management; [19]

— an analysis of the relative performance of actively and passively managed equity and fixed income funds, with respect to their prospectus benchmark;

— a country-by-country analysis when possible;

— a case study on management fees, based on 2018 data;

— an analysis of performance and costs by country of investment focus, that can be different from the fund domicile;

We first provide an overview of the UCITS market in the EU.[20] Second, we analyse past annual performance and costs of UCITS within the EU,

13 The EU market includes the United Kingdom as it is a Member of the EU during the reporting period, 2009-2018. The United Kingdom is reported in the aggregate and in the country-by-country analysis. The data are commercial data from Refinitiv Lipper and are therefore publicly available to subscribers. Having all Member States is envisaged in order to have a more instructive comparison across the current and the previous year report.

14 See box ASR-PC.17.

15 ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

16 Please note that the reported money markets UCITS do not refer to the MMF regulation 2017/1131. Also UCITS alternative strategies refer to a subset of the alternative fund universe with increased protection for retail investors under the UCITS regime.

17 Refinitiv Lipper accounts for funds declaring themselves as institutional. If this is not the case, the fund is considered as being retail, including high net-worth investors. This potentially means a downward bias in the size of the market for institutional investors, especially for domiciles characterised mainly by non-retail investors.

18 A dedicated analysis is provided for exchange traded funds (ETFs) given their strong development.

19 See annex Data and data limitations. The annex reports also detailed information on distribution fees across Member States, based on a questionnaire sent to national supervisors.

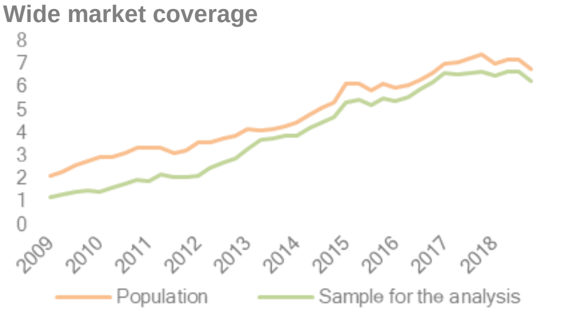
20 The annex on Statistical methods add to the analysis two main robustness checks: surviving and not-surviving funds as well as balanced and unbalanced panels.

at an EU-aggregate level, distinguishing between different asset classes, retail and institutional investors, risk categories within the same asset class, and type of management. The UCITS section concludes with an analysis at a country-by-country level, first from the fund domicile perspective and later from the investor domicile perspective. Despite progress on our data coverage and quality, significant data issues persist, including issues related to fund and investor domicile and availability and treatment of costs at a national level.

The EU UCITS market[21]

At the end of 2018, the NAV of the EU UCITS universe, retail and institutional investors, amounted to EUR 9.2tn,[22] 500bn lower than in 2017. This was the first time, since 2011, that asset managers faced a decrease in asset value. UCITS experienced significant outflows in 2H18, amid negative performance across almost all asset classes in a context of reduced risk appetite.[23] The reduction in the value of underlying assets, jointly with the uncertainty related to economic growth, trade relations and geopolitical developments, are among the main drivers of fund outflows.[24]

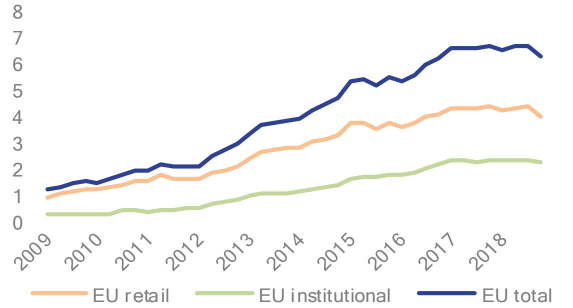
ASR-PC.5
Coverage of EU UCITS market
Wide market coverage



Note: EU UCITS market size in terms of fund value, EUR tn. Population, all observations for which fund value and fund performance are available. Sample, all observations for which fund value, fund performance, netflows, subscription and redemption fees are available.
Sources: Refinitiv Lipper, ESMA.

The data used for our analysis covers EUR 6.2tn (67% of the market, as from EFAMA data) (ASR-PC.5).[25] 65% of our sample is composed by UCITS marketed to retail investors (more than EUR 4tn). The remaining 35% is composed by institutional investors (around EUR 2.2tn) (ASR-PC.6). For both types of investors there has been a decrease in fund value between 2017 and 2018 (-7% for retail investors and -3% for institutional investors).

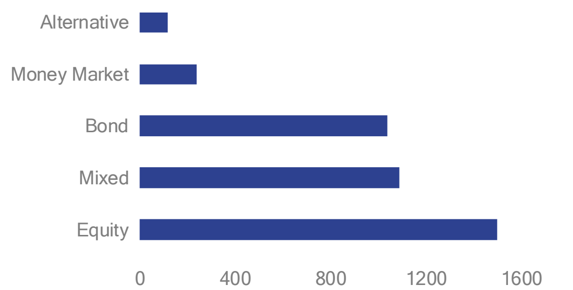
ASR-PC.6
Retail and institutional investors
Retail investors accounts for the largest part



Note: EU UCITS market size in terms of fund value, by type of investor, EUR tn.
Sources: Refinitiv Lipper, ESMA.

For retail investors, UCITS focusing on equity, mixed and bond remained the most relevant asset classes, in 2018, with net assets amounting to EUR 3.6tn, or 90% of the total retail investment. The three asset classes represented, respectively, 37% 27% and 26% of the total amount of UCITS sold to retail investors in 2018 (ASR-PC.7).

ASR-PC.7
Fund value by asset class, retail investors
Equity and mixed largest asset classes



Note: EU UCITS universe, in terms of fund value by asset class, retail investors, 2018, EUR bn.
Sources: Refinitiv Lipper, ESMA.

For institutional investors, equity, bond and money market were the most important asset classes, with 87% of the market, followed by mixed UCITS (7%). UCITS following alternative strategies remained marginal for both retail and institutional investors, EUR 127bn and EUR 111bn, respectively, in 2018 (ASR-PC.7 and ASR-PC-S.8 in the statistical annex).[26]

[21] See footnote 13.

[22] EFAMA, 2019, Quarterly Statistical Release, March 2019 No.76.

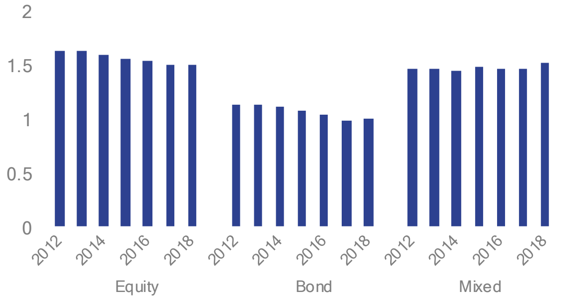
[23] ESMA, 2019, TRV No.1 2019.

[24] EFAMA, 2019, "International Statistical Release 2018:Q4".

[25] The UCITS considered in the analysis exclude EU UCITS ETFs that are included in an ad-hoc analysis.

[26] UCITS alternative strategies can be considered as a subset of the alternative fund universe, with increased protection for retail investors under the UCITS regime. Constraints include limiting eligible assets or leverage and concentration levels, as well as preventing outright shorting. From Refinitiv Lipper alternative assets (or alternative investments) are generally considered not to be mainstream assets like fixed income and equity. Classic examples of alternative assets include private equity, hedge funds, and real estate.

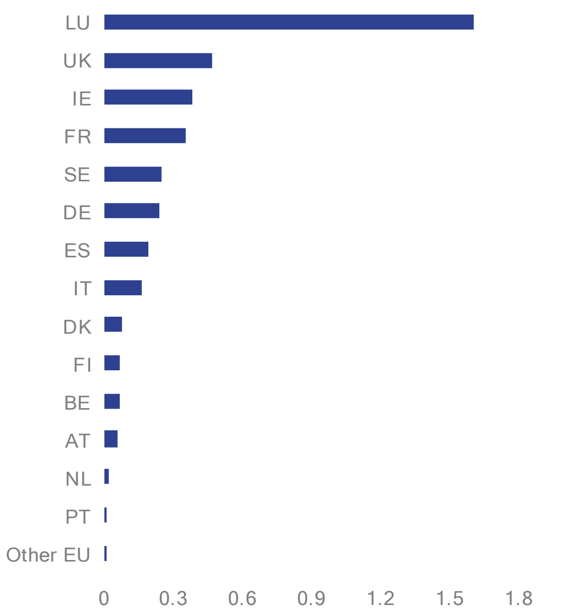
ASR-PC.8
Evolution of ongoing costs
Decline for equity and bonds over time



Note: EU UCITS evolution of ongoing costs by largest asset types for retail investors, asset-weighted average, %.
Sources: Refinitiv Lipper, ESMA.

Focusing on the three largest asset classes for retail investors, at the aggregate level, ongoing costs[27] have been slightly declining over time, for equity and bond funds, while remaining stable for mixed funds. In particular, for equity funds, ongoing costs declined from above 1.6% to 1.5% between 2012 and 2018. This is in line with the analysis published by Investment Company Institute (ICI) in September 2019[28] (ASR-PC.8).

ASR-PC.9
Fund value by domicile, retail investors
Difference in market size relevant

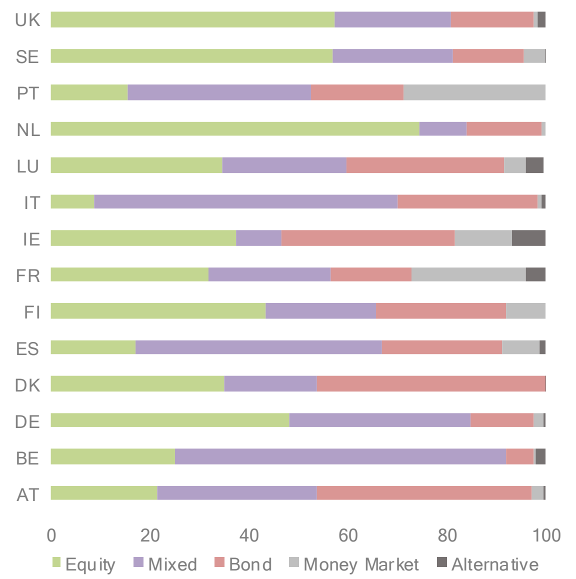


Note: EU UCITS universe in terms of fund value, retail investors, 2018. All observations for which information on fund value, fund performance, netflows, subscription and redemption fees available, EUR tn. Other EU includes: BG, CY, CZ, EE, GR, HR, HU, LT, LV, MT, PL, SI, SK, RO.
Sources: Refinitiv Lipper, ESMA.

The stronger variability of gross annual performance compared to costs implies that, when gross performance is weak, the impact of costs on the final payout felt by an average investor is stronger. This is what we observed between 2017 and 2018: costs were broadly stable while performance strongly declined, implying a lower performance after costs for investors.

Luxembourg, Ireland and France remained the largest domiciles for UCITS funds marketed to retail investors representing 40%, 10% and 9% of the overall EU market, respectively (ASR-PC.9). All markets reported a reduction in the value of assets, compared to 2017, reflecting the weak valuations in underlying assets characterising 2018.[29] The share of the domicile with respect to the EU market varies according to the asset sold to retail investors. In 2018, Luxembourg was the largest domicile, with the exception of money market UCITS mostly domiciled in France, 34% of the total (ASR-PC-S.21). Relative to institutional investors, Luxembourg was by far the largest domicile with EUR 1.1tn, followed by Ireland and France with respectively EUR 592bn and EUR 268bn (ASR-PC-S.26).

ASR-PC.10
Retail asset class share by Member State
Heterogeneity across Member States



Note: EU UCITS share of asset classes over total national fund value per domicile, retail investors 2018, %. Other EU not reported.
Sources: Refinitiv Lipper, ESMA.

As already observed in 2017, in 2018 the relative share of different asset classes in national UCITS markets remained heterogeneous (ASR-PC.10).

[27] Ongoing costs are proxied with the Total Expense Ratio (TER) and cover a wide range of costs including portfolio management, administration, compliance costs as well as legal costs. Distribution costs may be included, even if the treatment is different across jurisdictions. See annex Data and Data limitations.

[28] ICI, ICI Research Perspective, September 2019, "Ongoing charges for UCITS in the European Union".

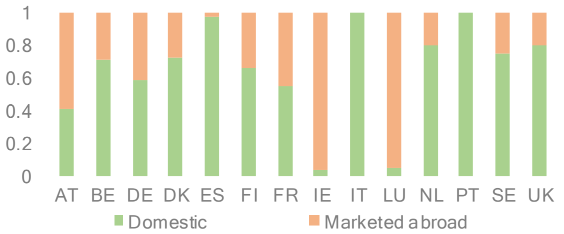
[29] The number of fund share classes reported in Refinitiv Lipper for Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Romania is not large enough to allow for robust statistical analysis. These countries are clustered in the "Other EU" group.

At the end of 2018, 60% of total national retail UCITS domiciled in Belgium and Italy and around 50% of retail UCITS domiciled in Spain were invested in mixed assets. 75% of the UCITS domiciled in the Netherlands, sold to retail investors, were invested predominantly in equity. For other domiciles there was a higher balance between equity and mixed UCITS. In Luxembourg, equity UCITS amounted to around 35% while mixed UCITS were 30% of the national market. In Ireland, equity and mixed UCITS were around 35% of the national fund value. The differences at national level should be kept in mind when interpreting the findings of the country-by-country analysis.

ASR-PC.11
Fund vs investor domicile
Growth of cross-border funds

The data we use for the analysis included in this report is based on the domicile of the fund, not on that of the investor. Fund and investor domiciles coincide only when a fund is sold exclusively in the Member State where the fund is domiciled. Fund and investor domiciles differ when a fund is sold through passporting in other EU Member States. Following the UCITS Directive, an UCITS fund can be freely marketed in any EU Member State through a notification procedure.[30] This contributed to the large increase of cross-border funds within the EU (ASR-PC.13). The cross-border distribution of funds is a significant factor to consider when evaluating the overall costs borne by the retail investor in the country where a fund is sold. This, for example, is the case of administrative fees within ongoing costs. When focusing only on the fund domicile findings therefore do not account for this aspect.

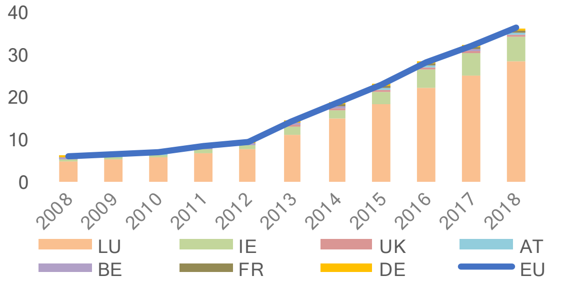
ASR.PC.12
Domestic funds and funds marketed abroad
IE and LU UCITS global platform



Note: Share of UCITS net asset value, by destination (domestic and marketed abroad) per member state, 2018. Domestic funds are those funds produced and distributed only in the member state where the fund is domiciled, and those produced in LU and IE and distributed only in LU, IE and the reported member state. Funds marketed abroad are distributed in at least one member state other than the domicile.
Sources: Refinitiv Lipper, ESMA.

From a domicile perspective, two markets are large global platforms, namely Ireland and Luxembourg. Other domiciles seem to market mostly domestically, like Italy and Spain. For Austria, Germany and France the share between domestic funds and those marketed also abroad is more even (ASR-PC.12). The available data, however, do not provide a complete picture of the different national markets. For example, "Round-trip" funds are not captured.[31]

ASR-PC.13
Cross-border funds
Increased number of cross-border funds



Note: Number of cross-border funds, defined as funds distributed at least in three countries including their domicile, thousands. Reported are selected domiciles presenting the largest number of cross-border funds in the EU.
Sources: Refinitiv Lipper, ESMA.

To have an indicative picture of EU UCITS sold to retail investors available cross border, in line with previous studies, we consider as true cross-border funds those funds sold at least in three countries. Over the last ten years, there has been a significant increase of cross-border funds in the EU. Luxembourg and Ireland are global platforms where the majority of funds is sold cross-border. In other Member States, the marketing seems mostly concentrated domestically (ASR-PC.13).

Performance and costs

Asset class at the EU aggregate level

Overall, the gross annual performance of UCITS sold to retail investors[32] across different asset classes declined to -4.7% in 4Q18 from 5.6% observed in 4Q17.[33] However, the year-on-year change of the gross annual performance is significantly different according to the quarter we focus on. In line with what was observed in the market environment (ASR.PC-1), the annual performance for UCITS was positive on average in 2Q18 and 3Q18, respectively at 2.7% and 2.8%. Costs, on the other hand, have been much more stable. They hovered around 1.5% year-on-year, between 2017 and 2018, irrespective of the quarter considered. Costs in turn affected net annual performance. On average, annual performance after costs in 4Q18 went to -6.2% from 4.1% in 4Q17. This reflects the fact that the lower is the gross annual performance the stronger is the cost impact felt by retail investors.

[30] See annex on Regulatory developments of this report.

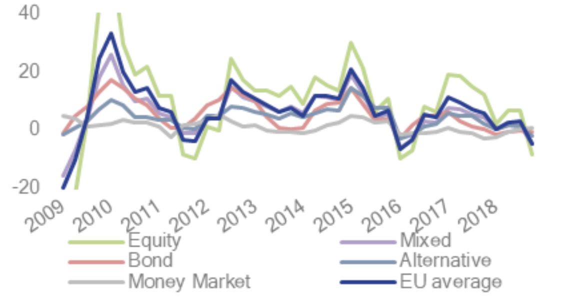
[31] The so-called "round trip" refers to the situation where managers of a country manage funds domiciled in another country and market them in their home country. This is significant for Italy, where domestic funds represent only a small part of the market.

[32] See footnote 13.

[33] The figures in Chart ASR-PC.14, Chart ASR-PC.15 and Chart ASR-PC.16 simply represent the evolution of annual performance and costs across time. They do not account for the investment horizon. By considering only end of 2018, the values will be negative. However, we will miss the value of those investments that have a horizon of one year but are redeemed earlier in 2018 and so have higher performance. Therefore, instead of focusing only on end-2018 we decided to have an investment horizon analysis that aggregates along all the year 2018.

Equity UCITS gross annual performance decreased from 2% in 1Q18 to -8% in 4Q18. To put it in perspective with the previous year, the lowest value of gross annual performance in 2017 was 12% for 4Q17. For mixed UCITS, gross annual performance was at -3.7% in 4Q18. In 2017, gross annual performance was much higher: the lowest was measured in 4Q17 where gross annual performance for mixed UCITS sold to retail investors was at 4.4%. Similarly, for UCITS focusing on alternative strategies, gross annual performance was positive when looking at the first three quarters of 2018 while in 4Q18 turned negative at -2% (ASR-PC.14).[34]

ASR-PC.14
Gross annual performance over time, retail investors
Fluctuations over time

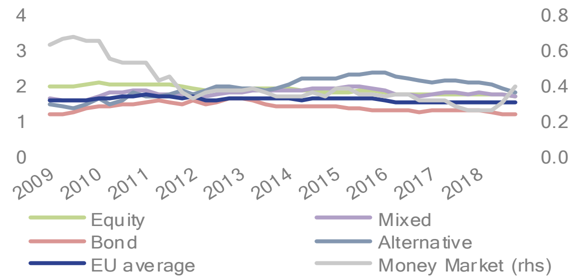


Note: EU UCITS universe, gross annual performances by asset class, retail investors, in %. Money Market refers to MMF UCITS. Primary y-axis cut-off at +40% and -20%.
Sources: Refinitiv Lipper, ESMA.

The strong fluctuations in gross performance follow the volatility of the underlying assets whose valuations were very low in 2018, compared to 2017, especially at the end of 2018.[35] The large variability of performance, however, makes a direct comparison across years difficult and not fully accurate.[36]

For both bond and money market UCITS, gross annual performance of UCITS focusing on money market products turned positive in 4Q18 (0.7%), while it was negative in the previous three quarters of 2018. Costs remained relatively stable across asset classes.[37] MMF UCITS are the only category for which costs slightly increased, from just below 0.3% in the last year's analysis to 0.4% in the current report (ASR-PC.15).

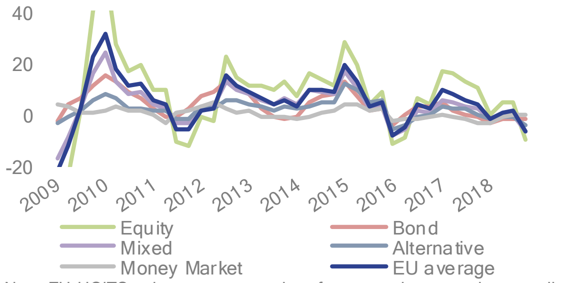
ASR-PC.15
Cost over time, retail investors
Changes limited over time



Note: EU UCITS universe, total costs as ongoing costs, subscription and redemption fees on annual gross returns, by asset class, retail investors, in %. Money Market refers to MMF UCITS on right-hand side axis (rhs).
Sources: Refinitiv Lipper, ESMA.

In terms of net performance (ASR-PC.16), the weak equity valuations at the end of 2018 drive the subdued net annual performance of equity UCITS. In 4Q18, the net performance of UCITS focusing on equity was -10% while it was 10% in 4Q17. Similar dynamics are observable for mixed and bond funds even if to a lower extent compared to equity. Between 4Q17 and 4Q18 mixed UCITS went from 4.4% to -4.7% and bond UCITS net performance went from 0.2% to -2%. UCITS focusing on alternative strategies, around zero in 4Q17, dropped to (-3.7%) in 4Q18.

ASR-PC.16
Net annual performance over time, retail investors
Variability over time follow gross performance



Note: EU UCITS universe, net annual performances by asset class, retail investors, in %. Net performance: gross performance net of ongoing costs, subscription and redemption fees. Money Market refers to MMF UCITS. Primary y-axis cut-off at +40% and -20%.
Sources: Refinitiv Lipper, ESMA.

In the following sections, we analyse in detail the performance and costs of UCITS sold to retail investors, by asset class and investment horizon, distinguishing by one- three- seven- and ten-year horizons. We do the aggregation of performance over time through the geometric mean approach, which fully reflects the compounding nature of an investment. (ASR-PC.17).

[34] Over time, the observable very high and low values across asset classes correspond to periods with very low or high underlying asset valuations, especially equity. In terms of fund asset values, we observe an historical low in 2008, the unfolding of the financial crisis. Then, gross annual performance picked up in 2010 across several share classes. Please note that charts ASR-PC.14 and ASR-PC.16 report values between +40% and -20%.

[35] ESMA, 2019, TRV No.1 2019.

[36] This is true especially at a country-by-country level in which there are more evident structural forces at play, including different market structures and strategies of retail investors within the same asset class that cannot be captured given availability of data.

[37] This result is consistent with the analysis of ESMA, 2019, Performance and Costs of Retail Investment Products in the EU.

ASR-PC.17
UCITS data and methods: main change
Returns over different time horizons: compounding

Geometric average

Average returns across different time horizons can be calculated using arithmetic and geometric averages. Arithmetic averages, however, are not effective in taking into account the effect of compounding and may not always be fully representative of actual returns. We address this issue in this report by using the geometric mean rather than the simple arithmetic mean used in the 2019 report.[38]

Data on gross performance of the UCITS are those as reported in Refinitiv Lipper.[39] This implies aggregating performances across time horizons (one-year, three-year, seven-year and ten-year) as follows:

Mean performance = [(1+r1) (1+r2) (1+r3)… (1+rn)](1/n) – 1

where r = rate of return and n = number of quarters.

The geometric mean fully reflects the compounding nature of an investment. Therefore, it is a more accurate measure of aggregation across time.[40]

The methodology chosen to calculate the annual performance incorporates four annual performances obtained quarterly. This implies that, for example, 1Y horizon aggregates annual performance starting from 1Q18, (from March 2017 to March 2018) and ending in 4Q18, (from December 2017 to December 2018).

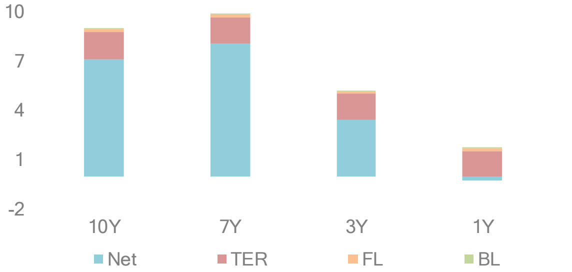
Ongoing costs (proxied by the total expense ratio)

In the ESMA 2019 report[41] we used computations on annual performance net of ongoing costs, proxied by the total expense ratio (TER) as directly computed by Refinitiv Lipper. In the current edition, the TER is used to proxy ongoing costs and we calculate performance net of ongoing costs by subtracting the TER from gross annual performance for each fund share, as downloaded from Refinitiv Lipper. The TER is defined as the total cost associated with managing and operating a fund for a fiscal period, calculated by dividing the total expenses net of waivers and subsidies by the fund's average net assets at a share class level. These fees, among others, like administrator expenses, legal or audit expenses, include management fees. Distribution costs are not accounted for, unless directly included in the management fees. This is different across jurisdictions and should be kept in mind when looking at the country-by-country cost levels. The few identified changes are related to the fact that sample sizes are slightly different due to different available data.

Equity UCITS

Retail equity UCITS, representing the 37% of the total retail investment in UCITS in 2018, had the highest performance among asset classes, across time horizons, between 2009 and 2018. Chart ASR-PC.18 reports average gross annual performance of equity UCITS for retail investors across different time horizons. As in last year report, the investment horizon analysis does not only focus on annual performances recorded in the last quarter of each year but along the four quarters. For this reason, 1Y gross performance shown in chart ASR-PC.18 is very low but positive.[42] Gross annual performance equals the sum of net annual performance and costs. Costs are composed by ongoing costs (proxied by the TER), subscription fees (FL) and redemption (BL) fees.[43]

ASR-PC.18
Equity UCITS performance and costs by time horizon
Low gross and net performance in 2018



Note: EU UCITS equity fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

Equity UCITS gross annual performance was around 9% over the ten-year horizon between 2009 and 2018. This compares to 5.3% over the ten-year horizon between 2008 and 2017.[44] Over the one-year horizon, gross annual performance was 1.5% in 2018 while it was around 16% in 2017. As mentioned in previous sections, this mirrors the performance of underlying assets. Overall, 2018 has been characterised by much lower performance than 2017 (ASR-PC.19).

38 ESMA, 3 October 2019, "SMSG Opinion on the ESMA Report on performance and cost of retail investment products"; Hull, J. C., 2018, "Options futures and other derivatives, Pearson".

39 Data from Refinitiv Lipper on performance and costs are annual and downloaded at quarterly frequencies and then annualised. This implies an averaging across quarters when considering time horizons from 1Y to 10Y.

40 The "SMSG Opinion on ESMA's report on performance and cost of retail investment products" reports an example clarifying this point. Suppose an asset starts from a price of 100, after one year the price is 110 going back to 100 in the second year. The return of the first year is 10%, the return of the second year is -9,1% and the simple average of the returns is 0.45% ((+10%-9.1%)/2)) per annum. This positive average return is clearly at odds with the actual return, which is simply zero (as the initial price is 100 and the final price is 100 as well). Geometric averages can be used to avoid this issue.

41 ESMA, 2019, Performance and Costs of Retail Investment Products in the EU.

42 For example, an investment of one year aggregates all those investments that have a horizon of one year but are redeemed in March, June, September and December, not just at the end of the year. This implies that the average returns for these four periods are not as negative as those observed in 4Q18 (-8% for equity).

43 Subscription and redemption fees are based on Refinitiv Lipper data, which reports the maximum level of fees charged by a fund. Actual fees may be subject to negotiation and thus be lower. Please see annexes on data, data limitations, and statistical methods for more details.

44 Please note that results for the current reference period, between 2009-2018, and for the previous year reference period, from 2008 to 2017, are based on geometric aggregation methodology.

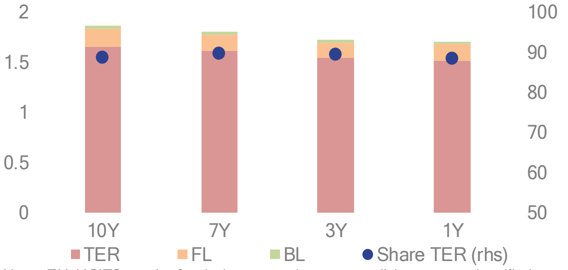
ASR-PC.19
Gross annual performance by time horizon
Strong decline between 2017 and 2018

	2017	2018
1Y	16.0%	1.5%
3Y	10.2%	5.2%
7Y	9.7%	9.9%
10Y	5.3%	9.0%

Note: EU equity UCITS gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

In line with the analysis included in the ESMA 2019 report[45], costs have been changing less than performance. This holds across the reporting period (2008-2017) of last year's analysis and the reporting period (2009-2018) of the current analysis, as in chart ASR-PC-S.40 in the statistical annex.

ASR-PC.20
Equity UCITS costs by time horizon
Cost levels broadly stable across time



Note: EU UCITS equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

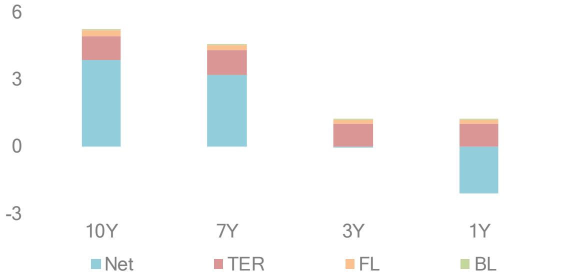
Ongoing costs, which represented more than 85% of costs across time for the period between 2009 and 2018, have decreased from slightly above 1.6% at ten-year and seven-year horizons to around 1.5% at three-year and one-year horizons. In terms of subscription fees, we can observe that they are 0.18% at ten-year horizon and 0.16% and 0.15% respectively, at seven-year and three-year horizons. At the one-year horizon, these fees are around 0.17%. Redemption fees remained broadly unchanged across time horizons, at around 0.03% (ASR-PC.20).[46]

As costs are less variable than performance, net performance follows the pattern of gross performance. The current report shows that at the ten-year horizon (for the period 2009-2018), net annual performance was around 7.1%. In last year's report, instead covering the period 2008-2017, net annual performance was at 3.3%, as a result of the very low performance in 2008. At the seven-year horizon (2012-2018), net annual performance, averaging to 8.1%, was slightly higher than that referring to the period 2011-2017, reaching 7.9%. At three-year and one-year horizons this trend reversed. In fact, net annual performances were respectively 3.5%, -0.3% for three-year and one-year horizons for the period ending in 2018, while they were respectively at 8.5% and 14.2% for the period ending in 2017 (ASR-PC.18).[47]

Bond UCITS

Bonds UCITS were the third largest class of UCITS sold to retail investors in 2018 (26% of the total).

ASR-PC.21
Bond UCITS performance and costs by time horizon
Negative performance at shorter horizons



Note: EU UCITS bond fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

At longer horizons, ten-year and seven-year, gross annual performances equalled 5.2% and 4.6% respectively in line with what we observed in last year's edition. At shorter horizons, gross annual performances were significantly lower compared to last year's report. The gross annual performance at the three-year horizon for the reporting period 2016-2018 was 1.2% while for the reporting period 2015-2017 was 4%. This change was related to the differences between higher gross performances in 2015, averaging to 8%, while they were negative in 2018. Over the one-year horizon, gross performance was equal to -0.9% while it was 2.5% for the one-year horizon corresponding to 2017 (ASR-PC.21, ASR-PC.22).

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45 ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

46 As specified in the related annex on data and data limitations. The level and dynamics of these fees should be critically evaluated. Subscription and redemption fees are based on Refinitiv Lipper data, which reports the maximum level of fees charged by a fund. Actual fees may be subject to negotiation and thus be lower. Moreover, overtime the higher or lower levels of these fees may be driven by an increase or a decrease in inflows or outflows and not necessarily to the increase or decrease of the fee itself.

47 Please note that results for the current reference period, between 2009-2018, and for the previous year reference period, from 2008 to 2017, are based on geometric aggregation methodology.

ASR-PC.22

Gross annual performance by time horizon

Higher at longer time horizons

	2017	2018
1Y	2.5%	-0.9%
3Y	4.0%	1.2%
7Y	5.1%	4.6%
10Y	5.1%	5.2%

Note: EU bond UCITS gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

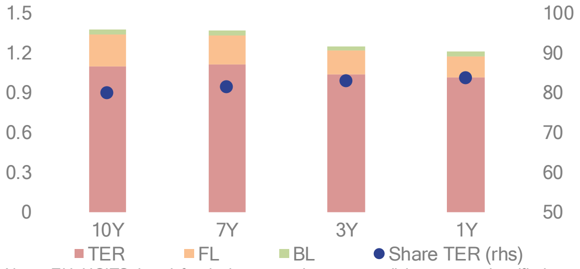
The negative annual gross performance characterising 2018 was mainly driven by the prevailing low interest environment and the weaker overall market environment for 2018 compared to 2017 (ASR-PC.1).

As already observed for equity UCITS sold to retail investors, ongoing charges (TER) are more than 80% of total costs on average across horizons (ASR-PC.23). Costs have very low variability over time (ASR-PC-S.46). Therefore, as gross performance decreases to a larger extent than costs, the relative impact of costs on the average retail investor is higher.

ASR-PC.23

Bond UCITS costs by time horizon

Lower one-off fees at shorter horizons



Note: EU UCITS bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

This is reflected in the differences in net annual performance between the two reporting periods 2008-2017 (last year's analysis)[48] and 2009-2018 (the current analysis). At the longest horizon, ten-year, net annual performance from last year's analysis was only slightly lower than in this year's analysis, 3.8% and 3.9% respectively. This is mainly related to the inclusion or exclusion of 2008, according to the reporting period. Looking at the most recent time horizon, one-year, between 2017 and 2018, gross performance declined more than costs. While gross annual performance turned, on average, from positive to negative, costs hovered around 1%. Therefore, in 2018 net annual performance was equal to -2.1% on average while it was 1.2% in 2017.

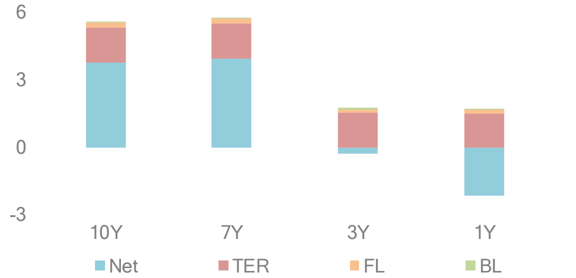
Mixed UCITS

For mixed UCITS (27% of total retail investment), gross annual performance was beyond 5.5% at the ten-year and seven-year horizons, while it was low at three-year and negative at one-year horizons, respectively below 1.5% and - 0.4%. This mirrors the low valuations for bond and equity underlyings in 2018 (ASR-PC.24).

ASR-PC.24

Mixed UCITS performance and costs by time horizon

Performance fluctuating; cost levels stable



Note: EU UCITS mixed fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

The results for mixed UCITS over the period 2009-2018 are different from the results included in ESMA 2019 annual report[49], covering the period between 2008-2017 (ASR-PC.25).

ASR-PC.25

Gross annual performance by time horizon

Substantial differences between 2017 and 2018

	2017	2018
1Y	6.1%	-0.4%
3Y	4.9%	1.5%
7Y	6.1%	5.8%
10Y	4.3%	5.6%

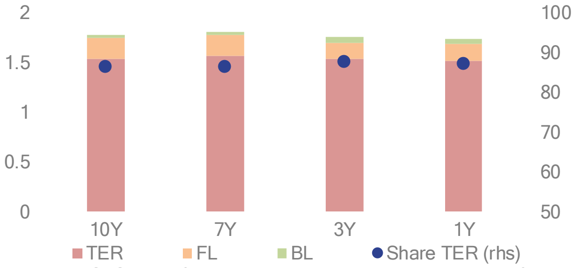
Note: EU mixed UCITS gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

At the ten-year horizon, gross annual performance was higher for the period 2009-2018 (5.6%) compared to the period 2008-2017 (4.3%). This is mainly related to the strongly negative performances registered in 2008 (-19% on average), which are not included in this year's analysis. Differently, at shorter horizons the inclusion of the weak performances of 2018 leads to much lower results for this year's report compared to the one from last year. Over the three-year horizon, gross annual performance was 4.9% for the reporting period ending in 2017 and 1.5% for the reporting period ending in 2018. At the one-year horizon, gross annual performance was negative on average at -0.4% in 2018 while it was 6.1% in 2017.

48 ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

49 ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

ASR-PC.26
Mixed UCITS costs by time horizon
Costs broadly stable



Note: EU UCITS mixed fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

Cost levels have been broadly stable over time with ongoing costs accounting for more than 85% of total costs (ASR-PC.26). Ongoing cost remained slightly beyond 1.5% across time horizons. Subscription fees were around 0.2% while redemption fees were around 0.03% at ten-year and seven-year horizons and 0.05% at three-year and one-year horizons.

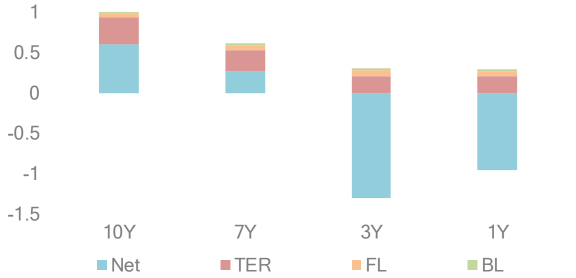
Across time horizons, costs were very similar between the analysis published in 2019 and the current analysis, hovering above 1.5% (ASR-PC-S.52). Given the variability of gross performance, net annual performance follows its developments. Therefore, net annual performance was at 3.8% for the ten-year horizon, for the reporting period 2009-2018, while it was only 2.5% for the period 2008-2017. At three-year and one-year horizons, things change. At the three-year horizon, net annual performance was -0.3 for the period 2016-2018 and 3.1% for the period 2015- 2017. At one-year, for 2018 net annual performance was strongly negative at -2.1% on average, whereas in 2017 it was equal to 4.3% on average.

MMF UCITS

MMF are more common among institutional investors and represented only 6% of total retail investment in UCITS funds in 2018. The gross annual performance of UCITS investing in money market instruments is lower compared to the other asset classes considered. This is driven by the high liquidity, low risk and short maturity of the products themselves.

Gross annual performance remained positive over ten-year and seven-year horizons (1% and 0.6%, respectively) while it was negative over three-year (-1%) and one-year (-0.7%) horizons (ASR-PC.27). The performance of these instruments has been impacted by the low interest rate environment.

ASR-PC.27
MMF UCITS performance and costs by time horizon
Negative net performance at shorter horizons



Note: EU UCITS money market fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

The high variability in gross annual performance across years reflects the strong differences between last year's analysis and the current one (ASR-PC.28). For example, focusing on the one-year horizon, gross annual performance was lower in last year's analysis (-1%) compared to this year (-0.7%).

ASR-PC.28
Gross annual performance by time horizon
Negative at 3Y and 1Y for 2018

	2017	2018
1Y	-1.0%	-0.7%
3Y	0.4%	-1.0%
7Y	0.8%	0.6%
10Y	1.3%	1.0%

Note: EU money market UCITS gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

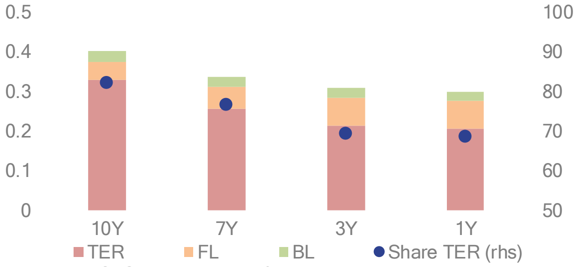
Costs have been slightly declining over time, ranging between 0.4% over the ten-year horizon and 0.3% over the one-year horizon. Ongoing costs have been the main driver, representing about 70% of total costs (ASR-PC.29). For the period between 2009 and 2018, ongoing costs went from 0.3% over the ten-year horizon to 0.2% over the one-year horizon. In the period between 2008 and 2017, ongoing costs were slightly higher, going from 0.4% over the ten-year horizon to 0.2% over the one-year horizon. One-off fees hovered around 0.07% at the ten-year horizon and 0.08% at the seven-year horizon and went beyond 0.09% at three-year and one-year horizons.[50]

As cost reductions are marginal over time, net performance is highly impacted by movement in gross performance (ASR-PC.27). Our current analysis shows that net performance was positive over longer time horizons (respectively 0.6% and 0.3% over ten-year and seven-year horizons),

[50] See footnote 45.

while they turned negative at three-year (-1.3%) and one-year horizons (just above -1%).

ASR-PC.29
Money Market UCITS costs by time horizon
Ongoing costs higher than 65%

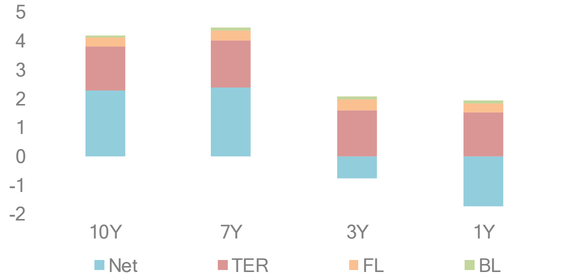


Note: EU UCITS money market fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

Alternative UCITS

The overall size of the market for UCITS following alternative strategies sold to retail investors has been much smaller than other asset classes (3% of total retail investment in UCITS in 2018). This also implied having a relatively small sample available for the analysis.

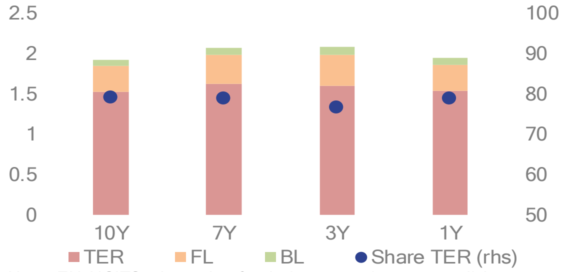
ASR-PC.30
Alternative UCITS performance and costs by time horizon
Very low performance at 3Y and 1Y



Note: EU UCITS alternative fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

Gross annual performance of alternative UCITS was at around 4.3% at ten-year and seven-year while it was very low at three-year (1.3%) and one-year horizons (0.2%). This may also mirror the documented rapid fall in sales in alternative UCITS in the EU (ASR-PC.30).[51]

ASR-PC.31
Alternative UCITS costs by time horizon
Changes in costs not relevant



Note: EU UCITS alternative fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

Costs have remained broadly stable across time horizons. Ongoing costs continued to be the most prominent: they were just below 80% of total costs, across time horizons (ASR-PC.31). On average, the analysis shows that over the ten-year horizon, ongoing costs hovered around 1.5%, subscription fees just above 0.3% and redemption fees around 0.07%.

ASR-PC.32
Gross annual performance by time horizon
Performance significantly declined at 3Y and 1Y

	2017	2018
1Y	4.5%	0.2%
3Y	4.5%	1.3%
7Y	4.6%	4.5%
10Y	3.9%	4.2%

N Note: EU equity UCITS ETFs gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

As for the other asset classes, also for UCITS investing in alternative strategies we can observe limited cost reductions over time. Therefore, declines in gross annual performance strongly impact net annual performance across time horizons. Looking at the short term, over the one-year horizon, net annual performance for 2018 was on average significantly different from that of the ESMA 2019 report[52]. In 2017, gross annual performance on average was equal to 4.5%, significantly higher than the 0.2% that we identified for 2018. This implies that despite the small decline in costs between 2017 and 2018, with ongoing costs going from 1.6% to 1.5%, net annual performance decreased substantially from 2017 (2.3%) to 2018 (-1.7%) (ASR-PC.30, ASR-PC.32).

[51] As from the Financial Times article "Alternative mutual funds sales plunge as investors turn wary" from July 2018. Sales for alternative mutual funds in the US fell by 90% between 2013 and 2017. In Europe net sales declined by a third in 2017 versus the 2015 peak continuing to strongly decline in 2018.

[52] ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

ASR-PC.33
Value of investment across asset classes
Significant impact of costs on net performance

This box provides an example of the value of an investment of EUR 10,000 over the period 2009-2018. Over the ten-year horizon, the average gross annual performance was 6.4% across asset classes for retail investors and 4.8% in net terms. This implies that the value of an EUR 10,000 investment was of EUR 18,672 at a gross level that reduced to EUR 16,045 after costs. The costs paid by a retail investor amounted to EUR 2,627 on average.[53]

Retail investment was concentrated on equity, mixed and bond UCITS. Over the ten-year horizon, average annual gross performance was around 9% for equity and, respectively, 5.2% and 5.6% for bond and mixed UCITS. As total costs were about 1.9% for equity, just below 1.4% for bonds, and 1.8% for mixed funds, in net terms annual performance across the three asset classes was, respectively, 7.1%, 3.9% and 3.8%. Therefore, on average, the gross value of a ten-year investment in funds focusing on these three asset classes was of EUR 18,959, reducing to EUR 16,168 after costs equal to EUR 2,791.

At the single asset class level, by investing EUR 10,000 in a UCITS fund focusing on equity in 2009, an EU retail investor would get EUR 23,654 in gross terms after ten years. The payout after costs, however, becomes EUR 19,854. This means EUR 3,800 less than before costs. For bonds, gross annual performance was lower as well as costs. An investment of EUR 10,000 in bonds, for a retail investor, in 2009 would then lead to a gross payout of EUR 16,671 after ten years. The estimated costs would reduce the payout by EUR 2,055 leading to an amount of EUR 14,616. A ten-year investment of EUR 10,000 in UCITS focusing on mixed asset would lead to an EU retail investor to get EUR 14,518 after having taken costs of EUR 2,699 into account.

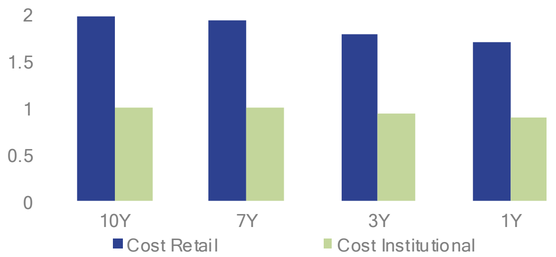
Concerning institutional investors, even if costs significantly reduce performance and consequently the final value of an investment, costs were much lower compared to those paid by retail investors over the reporting period. For example, in the case of UCITS investing in equity, we showed above that a gross payout for a retail investor would be EUR 23,654 over the period 2009-2018. This reduces to EUR 19,854 when costs are considered. On the contrary, for institutional investors the gross payout would equal to EUR 24,424 on average, reducing to EUR 22,364 after considering costs. These figures confirm the drain of costs on fund performance and the significantly higher level of costs for retail compared to institutional investors.

Retail and institutional investors

With reference to the type of investor[54], we analyse the level of total costs borne by retail and institutional investors by asset class.[55] As already observed in previous sections, different asset classes face different cost levels with riskier asset classes showing higher costs. What is consistent across asset classes and investment horizons is, however, the higher level of costs for retail investors compared to institutional investors. The higher individual investment amount that leads institutional investors to have a better bargaining position when negotiating fees compared to retail investors.

The distribution between asset classes differs among retail and institutional investors. As in last year's report, while retail investors have been focusing mostly on UCITS investing in equity, mixed and bond assets, institutional investors have been preferring equity, bond and money market UCITS. The largest observed difference characterised the investment in mixed and money market UCITS funds. In 2018, for retail investors, mixed and money market stood respectively at 27% and 6% of total investment in UCITS, while for institutional investors the share was reversed with 7% of the total invested in mixed UCITS and 29% of the total invested in money market UCITS.

ASR-PC.34
Equity UCITS costs by time horizon and investor type
Persisting higher cost for retail investors



Note: EU UCITS equity fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

As in the previous report, costs were higher for retail investors compared to institutional investors. For the reporting period 2009-2018, on average across time horizons, for equity UCITS, costs for retail investors were around 50% higher than for institutional investors. For retail investors costs were higher than 1.8% at ten-year and seven-year horizons and 1.7% at three-year and one-year horizons, while they were around 0.9% across time horizons for institutional investors (ASR-PC.34). These results are consistent with the ones identified in the ESMA 2019 report[56], covering the period 2008-2017.

Similarly, for funds focusing on bonds, total costs for retail investors were on average 50% higher across time horizons compared to institutional investors. On average total costs were around

[53] Subscription fees would be paid by the investor at the beginning of the period, while redemptions fees at the end of the period. This hypothetical exercise provides an overall picture and does not account for these dynamics.

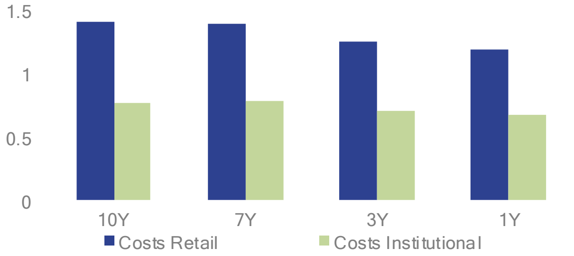
[54] The classification of investor as retail or institution follows Refinitiv Lipper classification. See footnote 17.

[55] This analysis is not performed at the single Member State level as the sample becomes scarcer. A detailed analysis at a domicile by domicile level would be of limited significance and potentially lead to simplistic conclusions.

[56] ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

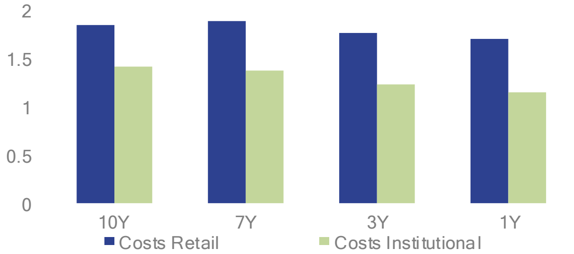
1.4% at longer time horizons and around 1.2% at three-year and one-year horizons for retail investors while they were around 0.7% for institutional investors across time horizons (ASR-PC.35).

ASR-PC.35
Bond UCITS costs by time horizon and investor type
Costs declining but higher for retail



Note: EU UCITS bond fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

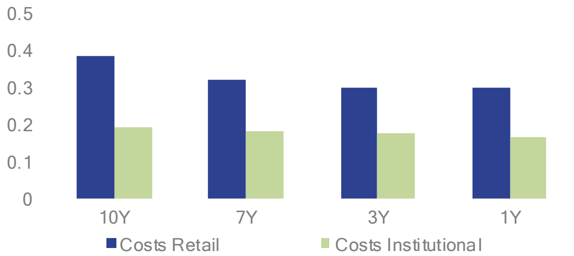
ASR-PC.36
Mixed UCITS costs by time horizon and investor type
Divergence lower than other assets



Note: EU UCITS mixed fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

For mixed funds, even if costs for retail investors remained higher, the difference between retail and institutional investors was lower than for other asset classes. On average, costs for retail investors were 30% higher than for institutional investors (ASR-PC.36).

ASR-PC.37
MMF UCITS costs by time horizon and investor type
Divergence similar to equity and bond funds



Note: EU UCITS money market fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL),, aggregated by horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

Regarding MMFs, costs for retail investors were on average 50% higher than for institutional (ASR-PC.37).

Also, in the case of alternative funds, retail investors faced much larger costs than institutional investors (ASR-PC.38). It is important to keep in mind that the sample of retail investors investing in UCITS focusing on alternative strategies remained significantly small.

ASR-PC.38
Alternative UCITS costs by time horizon and investor type
Higher costs for retail investors

Note: EU UCITS alternative fund sahres total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

Risk categories

This section focuses on performance and costs by risk category, based on the synthetic risk and reward indicator (SRRI).[57] The SRRI aims to provide investors with a meaningful indication of the overall risk and reward profile of UCITS and of the different degrees of risk within the same asset class. It considers the specific features of the different types of UCITS. It is comprehensible and can be easily implemented and supervised.[58] UCITS focusing on the three major asset classes for retail investors (equity, bond and mixed) are considered. For each asset, UCITS are grouped by risk class according to the SRRI classification from 1 to 7 with 1 indicating the lowest risk category and 7 the highest. The SRRI distribution of UCITS in the three asset classes is very different. Equity UCITS seems to focus mostly on riskier SRRI classes (4, 5 and 6) while bond UCITS are allocated on the lower levels SRRI risk classes (mostly SRRI 2 and 3). Mixed UCITS, mainly composed of equity and bond underlying assets, are in between the two asset types, and concentrated in risk categories 3 and 4. Equity is an asset class entailing higher risks and therefore in theory providing higher returns compared to bonds.

[57] Annex I, Commission Regulation 583/2010 implementing Directive 2009/65/EC.

[58] For details on the methodology and classes of risk, CESR, 2010, CESR's guidelines on the methodology for the calculation of the synthetic risk and reward indicator in the KIID.

ASR-PC.39
UCITS assets by asset type across SRRI class
Equity entails highest risks, bond lowest

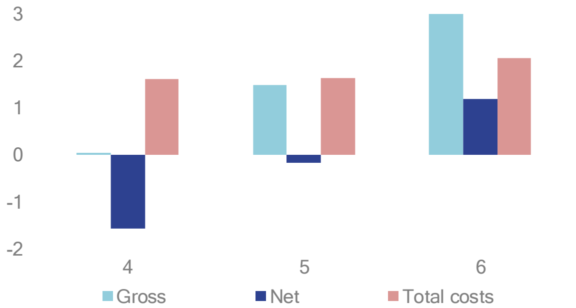
Note: EU UCITS SRRI distribution in terms of asset value by asset type, retail investors, 2018, EUR thousands.
Sources: Refinitiv Lipper, ESMA.

Chart ASR-PC.39 shows that, in 2018, 69% of the total assets of equity UCITS sold to retail investors (EUR 1.3tn) was concentrated on the SRRI risk class 5, followed by 15% and 14% respectively reporting SRRIs of 6 and 4. Bond UCITS (total assets sold to retail around EUR 936bn) were concentrated on SRRI classes 2 (30%), 3 (25%) and 4 (9%). SRRI class 1 followed with around 4% of the total assets. Finally, mixed UCITS (total asset value of around EUR 1tn in 2018) were concentrated on classes 3 and 4, with a share of 48% and 44% respectively. In terms of number of funds, the distribution remained the same. Against this background, we focus our analysis on the most relevant SRRI risk classes by asset class.

Equity UCITS

The performance and cost analysis of equity UCITS focuses on the SRRI classes 4, 5 and 6, the most relevant for this asset class. Gross annual performance was higher as risk increased. It rose from 0.06% for class 4 to 1.5% for class 5 and 3.3% for class 6.[59] After including costs, net annual performance was lower and turned negative for classes 4 and 5. In decreasing order, net annual performance went from 1.3% for the highest risk class (SRRI class 6) to -0.16% for class 5 and to -1.6% for class 4 (ASR-PC.40).

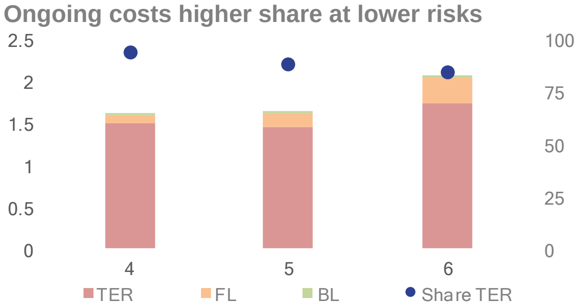
ASR-PC.40
Equity UCITS performance and costs by SRRI class
Equity gross and net performance low



Note: EU UCITS equity fund shares gross and net annual performances and total costs, retail investors, by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Total costs were larger for the highest risk class, around 2.1% for risk class 6, compared to the other two risk classes 5 and 4 for which costs hovered around 1.6%. Ongoing costs accounted for the large majority of costs across risk classes, reaching 95% for class 4 (ASR-PC.41).

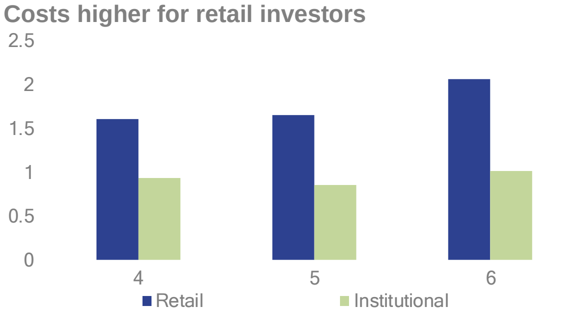
ASR-PC.41
Equity UCITS costs by SRRI class
Ongoing costs higher share at lower risks



Note: EU UCITS equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Costs for retail investors were twice as big as those of institutional investors. For both categories of investors, costs were significantly higher for the highest risk class considered (SRRI class 6), reaching 2.1% for retail investors and just above 1% for institutional (ASR-PC.42).

ASR-PC.42
Equity UCITS costs by SRRI class and investor type
Costs higher for retail investors



Note: EU UCITS equiy fund shares total costs, aggregated by SRRI class and investor type, 2018, %.
Sources: Refinitiv Lipper, ESMA.

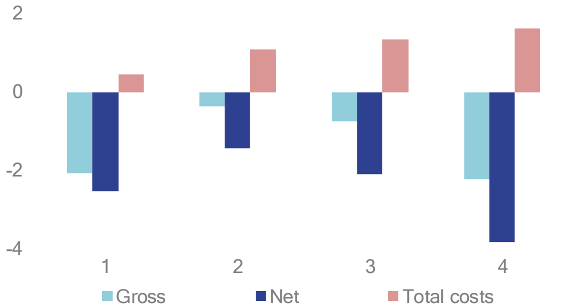
[59] Performance was low across the three risk classes in 2018, confirming what was previously observed for the entire cohort of equity UCITS funds sold to retail investors.

Bond UCITS

As for equity, the SRRI classes considered here are those in which retail investor assets focusing on EU bond UCITS were mostly concentrated in 2018. This means, in decreasing order of degree of concentration, classes 2, 3, 4 and 1.

In 2018, gross annual performance was below zero across risk classes (ASR-PC.43). This reflects both the negative dynamics of valuations of underlying assets and the prevailing low interest rate environment. Gross performance was lower for SRRI risk classes 1 and 4, respectively -2.1% and -2.2%. For classes 2 and 3 gross annual performance was respectively around -0.4% and - 0.8%. As for equity, the higher the degree of risk the higher the total costs.

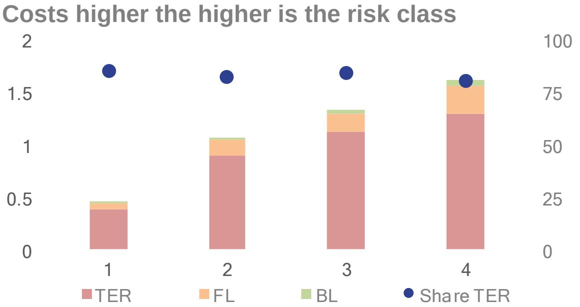
ASR-PC.43
Bond UCITS performance and costs by SRRI class
Bond gross and net performance negative



Note: EU UCITS bond fund shares gross and net annual performances and total costs, retail investors, by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Total costs went from a minimum of 0.5% for risk class 1, to just above 1.6% for the highest degree of risk considered here, class 4. This is the case for all the different cost components, ongoing, subscription and redemption fees (ASR-PC.44).

ASR-PC.44
Bond UCITS costs by SRRI class
Costs higher the higher is the risk class



Note: EU UCITS bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Ongoing costs went from a minimum of 0.4% to a maximum of 1.3%. Subscription fees increased from SRRI class 1 to 4, from 0.06% to 0.26%. Redemption fees went from 0.01% to 0.06%.

ASR-PC.45
Bond UCITS costs by SRRI class and investor type
Retail investors subject to higher costs

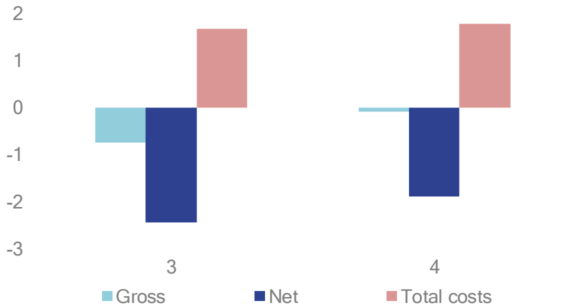
Note: EU UCITS bond fund shares total costs, aggregated by SRRI class and investor type, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Retail investors bore higher costs than institutional investors. On average, across the four risk classes considered here, retail investors have been paying twice as much as institutional investors (ASR-PC.45). The largest difference between costs paid by retail and institutional investors was observable for SRRI class 3 where costs for institutional investors were 47% of those paid on average by retail investors.

Mixed UCITS

For UCITS focusing on mixed assets, in 2018 the most relevant risk categories were SRRI risk classes 3 and 4. Gross annual performance was negative for these two classes considered (ASR-PC.46).

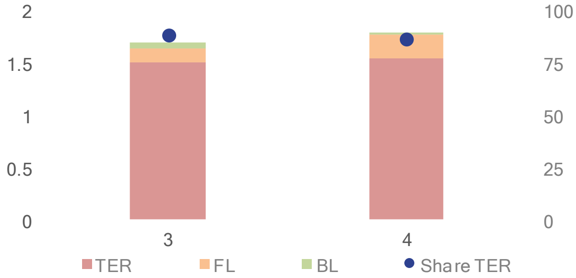
ASR-PC.46
Mixed UCITS performance and costs by SRRI class
Performance higher for the riskier class



Note: EU UCITS mixed fund shares gross and net annual performances and total costs, retail investors, by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Over one-year investor horizon, gross annual performance was -0.01% for UCITS in class 4 and -0.7% for funds in class 3. Total costs were very close among the two SRRI classes, being 1.8% for funds in class 4 and 1.7% in class 3. This implies a higher net annual performance (-1.9%) for the riskier class 4 than for the less risky class 3 (-2.4%).

ASR-PC.47
Mixed UCITS costs by SRRI class
Ongoing costs the most relevant



Note: EU UCITS mixed fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

Total costs were similar across risk classes, yet the composition was different in terms of subscription and redemption fees. In class 4 subscription fees were higher than in class 3, respectively 0.22% and 0.14%. Redemption fees were instead slightly higher for the class entailing lower risks: 0.02% for mixed UCITS belonging to SRRI class 4 and 0.05% for those in class 3 (ASR-PC.47).

Compared to equity and bond UCITS, the difference between costs for retail and institutional investors was lower for mixed UCITS. For SRRI class 4, costs for institutional investors were 61% of those paid by retail investors, while for the class 3 institutional investors bore costs that were 76% of those of retail investors (ASR-PC.48).

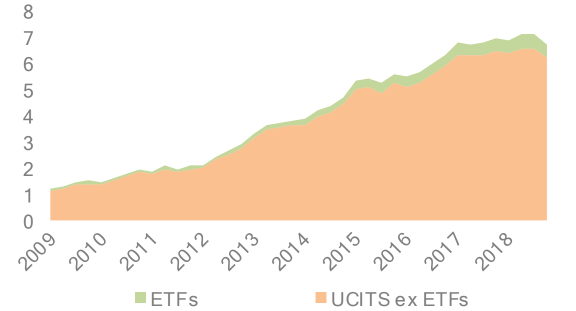
ASR-PC.48
Mixed UCITS costs by SRRI class across investor type
Costs higher for retail investors

Note: EU UCITS mixed fund shares total costs, aggregated by SRRI class and investor type, 2018, %.
Sources: Refinitiv Lipper, ESMA.

UCITS ETFs

We analyse UCITS ETFs as a single category, in light of their specific characteristics.[60] With a total of EUR 528bn in 2018, ETFs represented a small share (8%) of the UCITS market (ASR-PC.49). Assets invested in UCITS ETFs, however, strongly increased between 2014 and 2018, in particular in the case of those focusing on equity.

ASR-PC.49
UCITS ETFs market size
ETFs increasing yet small market share



Note: UCITS market size in terms of fund value, distinguishing between UCITS excluding ETFs and UCITS ETFs, EUR tn.
Sources: Refinitiv Lipper, ESMA.

ETFs are growing in popularity. The growth of ETFs investing is related to several factors including, the fact that they are a low-cost investment, they ease diversification, giving exposure to different securities or strategies, and they are easily traded. However, ETFs investing does not come along without risks. For example, main drawbacks are related to the fact that, in some cases, exposure may be focused only on certain sectors missing on significant gains related to growth opportunities. Also, some investors, especially retail investors having a longer investment horizon, may miss benefits related to short-term price changes for those ETFs largely traded on stock exchanges. In terms of costs, UCITS ETFs involve trading costs that can make the initial investment more expensive than an investment in more traditional UCITS. On the other hand, UCITS ETFs entail lower ongoing charges. Over time it may be cheaper to hold an UCITS ETFs to an equivalent UCITS. When deciding on the type of investment, this trade-off should be considered.[61]

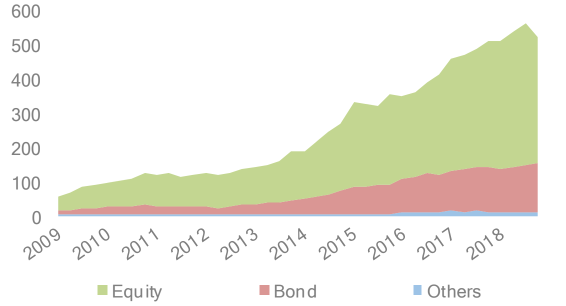
The EU ETF market remains overall much smaller than the US one. Besides differences in the two markets — the US more market-based and the EU more bank-based — it should also be noted that the EU market is highly fragmented with multiple listings across many exchanges.[62]

60 One of the main features of an ETF is that ETFs trade like a common security on a trading venue and, as such, experience price changes throughout the day as they are bought and sold. Moreover, there are also ETFs following so-called “quasi-active” approaches such as ETFs following smart-beta strategies. The manager passively follows an index that is however based on factors aiming to outperform the market. For details on performance and risk please refer to ESMA, “Performance and risks of exchange-traded funds”, Report on TRV No. 2, 2014.

61 The analysis does not include information on bid-ask spreads, as data are not available. However, the potential costs related to ETFs’ bid-ask spreads could be significant, especially in markets characterised by lower liquidity. Investors bear these costs on the secondary markets whereas subscription and redemption fees only apply to investors when shares are subscribed or redeemed on the primary market and not if traded on the secondary market.

62 CEPS, 2018, “The European ETF Market: What can be done better?”.

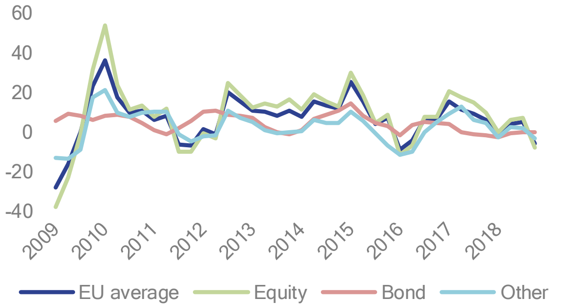
ASR-PC.50
Fund value distribution by asset class
Equity largest asset class, followed by bonds



Note: Fund value evolution of EU UCITS ETFs over time by asset class, in EUR bn.
Sources: Refinitiv Lipper, ESMA

The analysis uses a sample representing about the 85% of the overall EU UCITS ETFs universe as reported by EFAMA at the end of 2018 (EUR 624bn). The sample includes both retail and institutional investors. In order to ensure consistency with the UCITS analysis, extraction and data processing are performed similarly.[63] At EU level, at the end of 2018, almost 70% of UCITS ETFs (EUR 367bn) were invested in equity and 28% in bonds (EUR 144bn). The residual 2% was spread across all the other asset classes. This proportion remained relatively stable over time (ASR-PC.50).

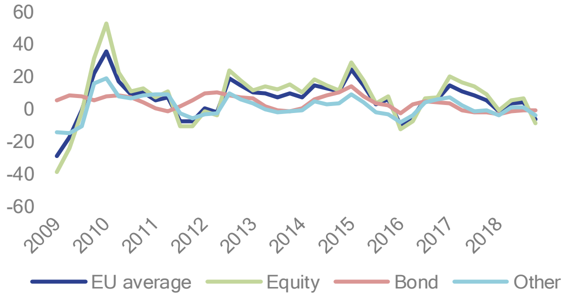
ASR-PC.51
Gross annual performance over time
Lower fluctuations at end 2018



Note: EU UCITS ETFs universe, gross annual performance by asset, %. Other includes Mixed, Alternative and Money Market strategies.
Sources: Refinitiv Lipper, ESMA

In 4Q18, gross annual performance was negative for equity UCITS ETFs (-7.6%) and slightly positive for UCITS ETFs investing primarily in bonds (0.2%) (ASR-PC.51). For the residual 2% of UCITS ETFs investing in other assets, including mixed alternative and money market strategies, gross annual performance was negative (-4.4%). Gross annual performance is highly variable as reflected by the difference between 2018 and 2017. While in 4Q18, except for bonds, UCITS gross annual performance was negative across asset classes, in 4Q17 it was strongly positive, in particular for equity (9.5%).

ASR-PC.52
Net annual performance over time
Highly variable following gross performance



Note: EU UCITS ETFs universe, net annual performance by asset class, %. Other includes Mixed, Alternative and Money Market strategies.
Sources: Refinitiv Lipper, ESMA

For bonds the trend is reversed. In fact, while in 4Q18 gross annual performance for bonds was slightly positive, in 4Q17 was negative (-1.3%). On average, gross annual performance for UCITS ETFs having bonds as underlying was more stable than equity. This is in line with the low risk-return profile for bonds and with the procyclical behaviour of equities.

Similarly to the rest of UCITS, as gross annual performance in 2018 was very low while costs only marginally declined, net annual performance was mostly influenced by the movements in gross annual performance (ASR-PC.52).[64] For UCITS ETFs, net annual performance, at 4Q18, was -8.2% for equity and -0.2% for bonds. In 4Q17, it was respectively 9.1% and -1.7%.

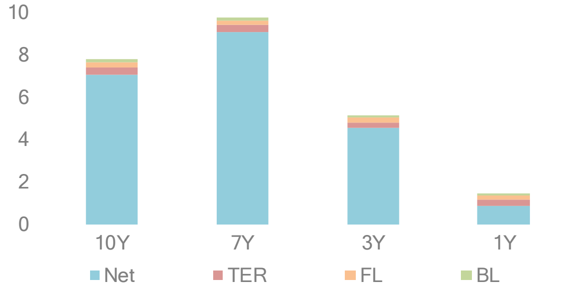
Equity UCITS ETFs

Focusing on equity ETFs, over the ten-year investment horizon, gross annual performance was higher for the period 2009-2018 (7.8%) than for the period 2008-2017 (4%). The main reason for this difference is that 2008, the year of the financial crisis, is not included in the reporting period considered in this year's report. Over the three-year horizon, within the reporting period ending in 2018, gross annual performance was at 5.2% compared to 9% over the period 2015-2017 (ASR-PC53).

[63] Our data does not contain information on the UCITS ETFs bid-ask spread – which are not included in the analysis. The potential costs related to ETFs bid-ask spreads could be significant especially in markets with lower liquidity and therefore exert significant impact in terms of reduction of performance.

[64] Please note that results for the current reference period, between 2009-2018, and for the previous year reference period, 2008-2017, are based on geometric aggregation methodology.

ASR-PC.53
Equity UCITS ETFs performance and cost by time horizon
Large decline in performance



Note: EU UCITS ETFs equity fund shares gross annual performance, classified as net performance, ongoing costs, subscription (FL) and redemption (BL) fees, aggregated by time horizon, in %.
Sources: Refinitiv Lipper, ESMA

At the one-year horizon, gross annual performance went from 16% in 2017 to 1.5% in 2018 (ASR-PC.54), mirroring equity valuations in 2018.

ASR-PC.54
Gross annual performance by time horizon
Equity UCITS ETFs follow equity UCITS performance

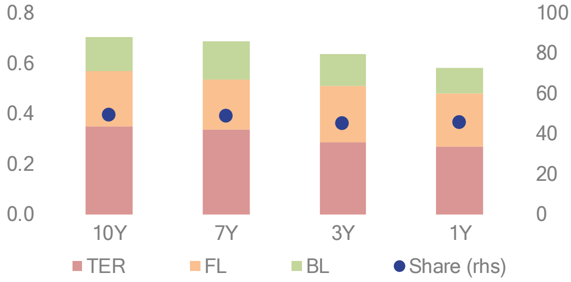
	2017	2018
1Y	16.0%	1.5%
3Y	9.6%	5.2%
7Y	9.2%	9.8%
10Y	4.0%	7.8%

Note: EU equity UCITS ETFs gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

Consistently with the rest of UCITS funds, costs remained more stable than performance. For equity UCITS ETFs, costs decreased, especially in the case of redemption fees. When longer horizons are considered, ongoing, subscription and redemption fees were respectively 0.34%, 0.21% and 0.14%. On average, the same levels can be observed when the reporting period moves from 2009-2018 to 2008-2017. At the shorter term, for three-year and one-year horizons, ongoing charges were on average around 0.28% while subscription and redemption fees were respectively just above 0.21% and 0.12% (ASR-PC.55).[65]

Also, at shorter horizons costs remained broadly stable between the current analysis and the last year's one. Interesting is the role of ongoing costs, whose share over total costs was around 50% for equity UCITS ETFs in the period 2009-2018, i.e. much lower than for other UCITS funds (ASR-PC.55).[66]

ASR-PC.55
Equity UCITS ETFs costs by time horizon
Lower share of ongoing costs over total

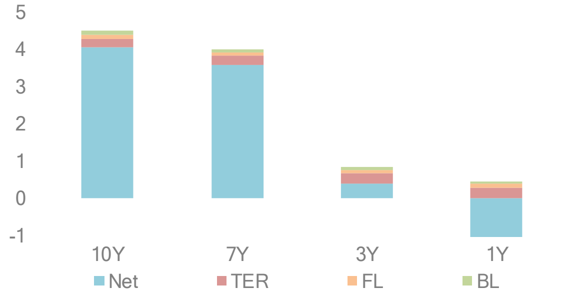


Note: EU UCITS ETFs equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, aggregated by time horizon, %. Share of ongoing costs over total costs, %.
Sources: Refinitiv Lipper, ESMA

Bond UCITS ETFs

For the ten-year and seven-year horizons, over the reporting period 2009-2018, gross annual performance for bond ETFs was respectively 4.5% and 4%.

ASR-PC.56
Bond UCITS ETFs performance and cost by time horizon
Negative performance at one-year horizon



Note: EU UCITS ETFs bond fund shares gross annual performance, classified as net performance, ongoing costs, subscription (FL) and redemption (BL) fees, aggregated by time horizon, in %.
Sources: Refinitiv Lipper, ESMA

For the reporting period 2008-2017, gross annual performance was 4.5% at the ten-year horizon and 4.2% at seven-year. The similar trend in both analyses is linked to the unfolding of the financial crisis followed by the monetary stimulus impacting interest rates over the years. In 2018, for the one-year horizon, at -0.9% gross annual performance was negative and lower than 2017 when performance, even if significantly low was positive, at 0.4% (ASR-PC.56, ASR-PC.57).

[65] As explained more in detail in the active and passive section, the cohort of funds does not remain necessarily constant over time.

[66] For more details on the dynamics related to costs for ETFs please look at footnote 60 and the annex Data and data limitations.

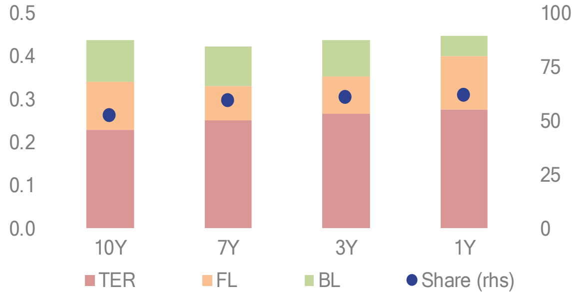
ASR-PC.57
Gross annual performance by time horizon
Bond UCITS ETFs performance low at 3Y and 1Y

	2017	2018
1Y	0.4%	-0.9%
3Y	3.6%	0.8%
7Y	4.5%	4%
10Y	4.9%	4.5%

Note: Note: EU bond UCITS ETFs gross annual performance by investment horizon, geometric mean aggregation. 2018 covers the reporting period 2009-2018. 2017 covers the reporting period 2008-2017.
Sources: Refinitiv Lipper, ESMA.

Focusing on costs, for bond ETFs costs were overall lower than for equity UCITS ETFs. We did not identify any difference across time horizons.[67] Ongoing costs were around 69% of total costs, a lower share than non-UCITS ETFs (ASR-PC.58).

ASR-PC.58
Bond UCITS ETFs costs by time horizon
Stable costs across horizons

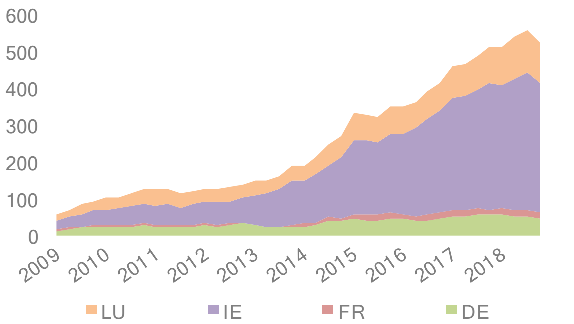


Note: EU UCITS ETFs bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, aggregated by time horizon, %. Share of ongoing costs over total costs, %.
Sources: Refinitiv Lipper, ESMA

ETF performance in Member States

As mentioned above, we observed significant heterogeneity across domiciles due to a number of factors including structural differences across countries, types of investors and overall economic environment that vary from one domicile to another.

ASR-PC.59
Fund value distribution by country
Four main domiciles

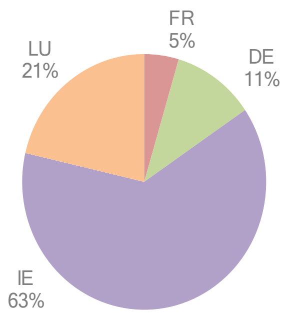


Note: EU UCITS ETFs universe in terms of fund value by domicile, over time, EUR bn. Only the four largest domiciles reported.
Sources: Refinitiv Lipper, ESMA.

Based on available data, at the end of 2018, 99.2% of the total EU UCITS ETFs market (EUR 528bn) was domiciled in four countries: 66.7% in Ireland, 21% in Luxembourg, 8.8% in Germany and 2.7% in France (ASR-PC.59). On a country-by-country basis, we focus the analysis on equity ETFs only.[68]

ASR-PC.60 reports the distribution of assets within UCITS ETFs focused on equity across countries. At the end of 2018, 63% of the equity UCITS ETFs were domiciled in Ireland (EUR 231bn), 21% in Luxembourg (EUR 79bn), 11% in Germany (EUR 40bn) and 5% in France (EUR 17bn).

ASR-PC.60
Equity UCITS ETFs fund value share by domicile
Global platforms have the largest share



Note: EU UCITS ETFs equity fund value share by domicile, in %, 4Q18.
Sources: Refinitiv Lipper, ESMA.

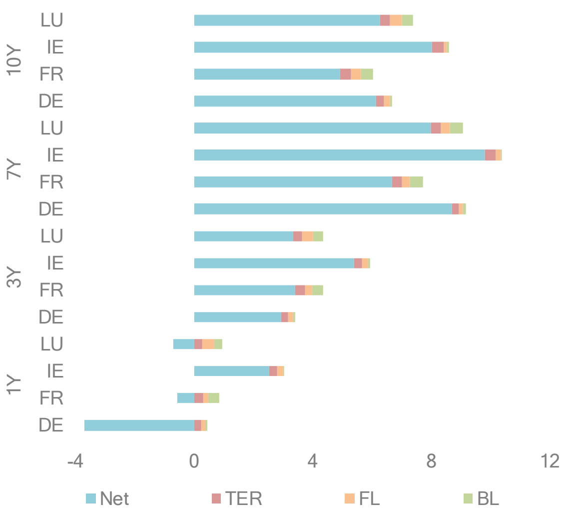
Across domiciles, gross annual performance of equity UCITS ETFs varied significantly and it was overall much lower compared to last year's analysis. This reflects the lower equity valuations prevailing in 2018 (ASR-PC.61). The very strong variation observable across domiciles, such as in the case of the lowest performance in Germany (-3.2%), and the highest in Ireland (3.1%), is related to several factors. These include differences in the market size and type of platform. Ireland is among the biggest fund markets in the EU and has a global reach. Moreover, a significant impact on performance comes from strategies and styles of the sample of funds used in our analysis. For example, our sample of equity UCITS ETFs domiciled in Germany have a predominant geographical focus on Europe, mostly Germany, and US. In both cases, the financial environment has been extremely weak in the second half of 2018. Differently, the 40% of our sample of UCITS ETFs domiciled in Ireland has a geographical focus outside of Europe and the United States. As for the rest of the analysis, also the fund style (e.g. growth or income) should be evaluated.

[67] The significantly small share of ETFs focusing on bonds in the EU should be acknowledged.

[68] Equity represents around the 70% of the UCITS ETF market.

However, the data we have at our disposal do not allow for this. The issues related to data availability restrict our analysis limiting direct comparability across domiciles.

ASR-PC.61
Equity UCITS ETFs gross and net performances by domicile
Performance very low at shorter horizons



Note: EU UCITS ETFs equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by domicile and time horizon, in %. The rest of EU countries not reported as domiciles not significant.
Sources: Refinitiv Lipper, ESMA.

The decline from gross to net annual performance continued to be heterogeneous across countries as costs remained significantly different. Heterogeneity may be related to market structure, different national regulations on cost treatment across jurisdictions, and investor preferences. Across countries, the impact of ongoing costs was lower for UCITS ETFs than for all other UCITS excluding ETFs. Ongoing costs represented around 50% of total costs for Germany and Ireland, and only around 30% of total costs in Luxembourg and France. For UCITS excluding ETF, this figure hovered around 80%.[69]

Compared to last year's analysis, while costs remained broadly the same across countries, gross annual performance significantly changed. It, in turn, determined the dynamics in net performance. Overall, it strongly reduced across countries.

Management type

Over the last decade, the debate on the merits of active and passive fund management has intensified in the EU following the increased development of passive investment options, in particular in the equity market segment.

Distinguishing by type of fund management is important to discern about the level of costs involved. Broadly speaking, passive portfolio management, or "index strategy" is an investment strategy that tracks the returns of a market benchmark. Given that stock selection is determined by the index followed and that tracking a benchmark should imply lower intervention by the fund manager, passively managed funds can therefore be generally offered at lower overall costs to investors.

Active management of a portfolio, instead, implies stock selection and active trading in order to generate higher returns compared to a given benchmark. An active portfolio manager looks for higher returns through "stock-picking", choosing specific stocks outside a market benchmark, and/or relying on different weights for stocks that are part of a market benchmark. This requires higher knowledge and skills for the management, matched with higher compensation and consequently, larger fees and costs for investors.

UCITS ETFs can primarily be considered as passively managed funds.[70] We analyse ETFs separately in this report, given their particular features and the large expansion of ETFs over the past years.

Against this background there may be differences between actively managed UCITS and passive or ETFs UCITS according to the dynamics of the market for underlyings (e.g. longer-term bull or bear markets as well as low to highly fluctuating markets). This is linked to the fact that developments during the reporting period may have an effect on the analysis of the different management types.[71]

Academic and industry researchers have focused on the study of costs and benefits related to active and passive fund management (Malkiel,

69 The analysis does not include information on bid-ask spreads, as data are not available. However, these costs could be significant. Investors bear these costs on the secondary markets whereas subscription and redemption fees only apply to investors when shares are subscribed or redeemed on the primary. See annex Data and data limitation for a more detailed explanation on subscription and redemption fees for ETFs.

70 The majority of ETF funds are passively managed funds and therefore they are mostly considered among passive funds. However, even if still marginal especially in the EU, there are so-called active ETFs. Active ETFs are structured to pursue a strategy that may be different from simply tracking an index. And aiming to above-average returns.

71 For example, from 2009 to 2018, the equity market continued to increase being at historical highs while being weaker and more volatile in 2018 (ASR-PC.1).

1995[72]; Busse et al., 2014[73]; SPIVA Europe Scorecard; Vanguard, 2017[74]; J.P. Morgan 2019[75]). This topic has also attracted the attention of supervisors and regulators (FCA, 2018[76]; ESMA 2019[77]; Anadu et al., 2018[78]; Sushko and Turner, 2018[79]), in particular with reference to investor protection and financial stability. The two are significantly interconnected, as the choice of a certain investment strategy is related to market information, price discovery and ultimately market efficiency.

Investor protection concerns relate to the benefits and costs of investing in active and passive strategies, or, in other words, to the performance of active UCITS versus their own benchmarks or versus passive UCITS as well as ETFs, before and after costs. This becomes an even stronger concern when considering retail investors. Retail investors have lower access to ex-ante information and therefore might be more exposed to losses than informed agents.

From a financial stability perspective, the discussion focuses on the implications of the rise of passive management on liquidity transformation and redemption risks, market volatility, concentration in the asset-management industry, asset valuations and co-movements (Anadu et al. 2018; Sushko and Turner, 2018). Such concerns include the risk of unrealistic investors' expectations about the liquidity of ETFs in times of stress, when the underlying market is impaired.

The structural move from active to passive investments also raises questions about the functioning of orderly markets. Active fund management, through selection of stocks as opposed to passively tracking an index, has an important role to play in terms of efficient allocation of capital in the economy and ensuring high levels of capital market efficiency.[80]

In terms of active equity fund performance, Davydoff and Klages (2014) [81] report mixed evidence for the EU, with equity funds outperforming their benchmark in some EU countries and underperforming in others (performance is in nominal terms net of ongoing costs and before subscription and redemption fees). The UK FCA (2017) [82] reports that, on average, active equity funds underperform their benchmarks in terms of net performance. More recently, the ESMA 2019 report observes that actively managed equity funds have on average lower performance net of costs compared to passive equity funds with high heterogeneity across EU national markets.[83]

In this section, we first focus on the EU UCITS equity market distinguishing between active, passive and ETF funds. In the EU, most passive portfolios concentrate on equities. The following analysis focuses on equity UCITS performance dynamics, before and after costs,[84] for actively and passively managed UCITS and the relative performance of actively managed EU UCITS versus their own prospectus benchmarks.[85] We then conclude with the performance of the top- and bottom-25% performers and that of the 25% largest and smallest funds in terms of assets.

Finally, we investigate the performance of UCITS investing in bonds relative to their own benchmarks, the top- and bottom-25% performers and that of the 25% largest and smallest funds.

72 Malkiel, B., G., 1995, "Returns from Investing in Equity Mutual Funds 1971 to 1991", The Journal of Finance, 50.

73 Busse, J., Goyal, A. and Wahal S., 2014,: "Investing in a global world", Review of Finance, vol 18, issue 2, 561–90.

74 Vanguard, 2017, "Making the implicit explicit: A framework for the active-passive decision".

75 J.P. Morgan, 2019, Global ETFs Handbook.

76 FCA, 2018, "Now you see it: drawing attention to charges in the asset management industry", Occasional Paper 32.

77 ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

78 Anadu et al, 2018, "The Shift from Active to Passive Investing: Potential Risks to Financial Stability", Working Paper, Federal Reserve of Boston.

79 Sushko and Turner, 2018, "The Implications of Passive Investing for Securities Markets", BIS Quarterly Review, March 2018.

80 Grossman and Stiglitz (1980) or Pace et al. (2016).

81 Davydoff and Klages define their performance indicators as "[….] based on the variation of the net asset value (NAV) of each fund. The NAV is calculated as the net value of the portfolio of a fund, divided by the number of the fund's shares held by investors. Each day, operating costs, trading costs and management fees are already deducted pro-rata from the value of the portfolio for the calculation of the NAV. […], entry fees and redemption fees should be deducted from the performance, on the first and last year of the period under review". For additional details please see Davydoff and Klages (2014).

82 FCA, 2017, Asset Management Market Study, Final Report, Financial Conduct Authority.

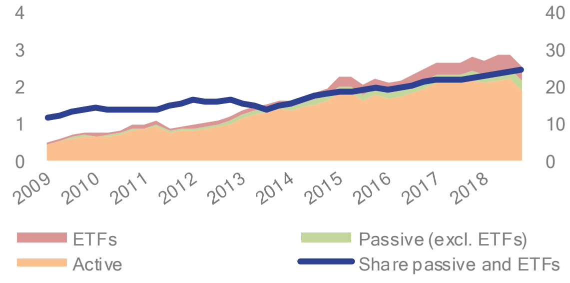
83 ESMA, 2019, "Annual Statistical Report, Performance and costs of retail investment products in the EU".

84 As stated previously and detailed in the annex on data and data limitations, subscription and redemption fees may be overestimated. Actual entry and exit fees are infact subject to negotiation. Moreover, data on the costs related to ETFs bid-ask spreads are not available. Investors bear these costs on the secondary markets whereas subscription and redemption fees only apply on the primary market.

85 The choice of prospectus benchmarks over technical benchmarks is linked to the fact that retail investors have access to UCITS prospectuses or UCITS KIID information. Technical benchmarks are usually developed by data providers and may not be accessible or known by retail investors.

EU equity UCITS: market overview

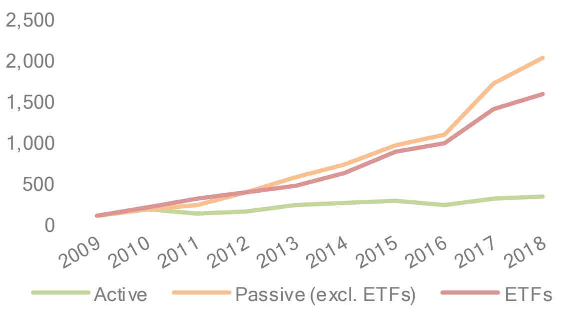
ASR-PC.62
Equity UCITS market size
Passive and ETFs funds share increase



Note: Market size for EU-domiciled UCITS equity, actively and passively managed, and ETFs. All observations for which information on fund value, fund performance, net flows, subscription and redemption fees are available, EUR tn. Share of passive and ETFs in %, right-hand size.
Sources: Refinitiv Lipper, ESMA.

At the end of 2018, the EU equity UCITS market size was at EUR 2.1tn.[86] ETFs investing in equity amounted to EUR 367bn.[87] Active UCITS accounted for around 75% of the overall market in 2018. Passive UCITS and ETFs accounted respectively for the remaining 10% and 15%, up from only 8% and 10% in 2014. Between 2014 and 2018, passive UCITS and ETFs assets increased respectively by 65% and 85%, while actively managed UCITS assets increased by 18%, mirroring a significant shift towards passive UCITS and ETFs (ASR-PC.62). This seems to be in line with US evidence where passive equity funds, including mutual funds and ETFs, accounted for 45% of total assets by the end of 2017.

ASR-PC.63
Equity UCITS cumulated netflows
Significant increase of passive UCITS and ETF

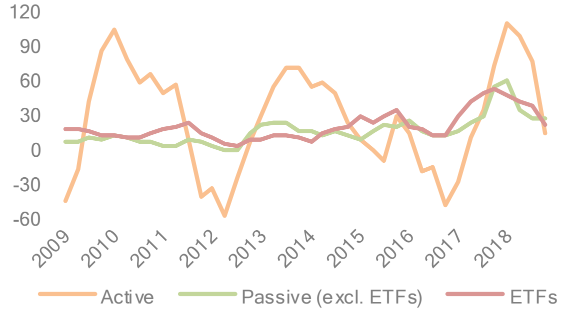


Note:: EU-domiciled equity UCITS by management type, active passive, and ETFs. Cumulative netflows, 4Q09 = 100.
Sources: Refinitiv Lipper, ESMA.

The larger growth for UCITS passively managed and ETFs compared to active UCITS is evident when looking at the cumulated netflows characterising EU equity UCITS over the ten years between 2009 and 2018. (ASR-PC.63).

Moreover, the dynamics of fund flows clearly show how these have been much more volatile in the case of active compared to passive or ETFs UCITS (ASR-PC.64). This is probably partially related to the difference in the management style, as passive flows are less sensitive to past performance (Anadu et al., 2018) [88].

ASR-PC.64
Equity UCITS netflows
Decreasing inflows in 2018



Note: EU-domiciled equity UCITS by management type, active passive, and ETFs. Annual netflows at quarterly frequencies, EUR bn.
Sources: Refinitiv Lipper, ESMA.

Over 2018, as valuations on underlying equity strongly declined, we can observe outflows from the equity UCITS market, much more pronounced for active rather than passive and UCITS ETFs. On a year-on-year basis, flows declined by 80% for actively managed equity UCITS while by around 50% for passively managed equity UCITS and equity UCITS ETFs.

The following section is the analysis of performance and costs for actively and passively managed EU equity UCITS and EU equity UCITS ETFs. Main findings show that: (i) net annual performance for active equity UCITS was lower than that of passive and ETFs equity UCITS; (ii) actively managed EU equity UCITS underperformed in net terms relative to their prospectus benchmarks, across time horizons; (iii) ongoing costs had the largest impact on performance; (iv) at shorter time horizons, active top performers (top-25% of active equity UCITS) performed better than their benchmark and passively managed funds, before and after costs. In aggregate terms, similar results were observable, at one-year and three-year horizons. However, the cohort of top-25% performers does not remain constant.[89] Generally, it changes over

[86] EUR 2.1tn includes both institutional and retail investors. Institutional and retail investors are both considered in this analysis due to the very small share of passively managed funds.

[87] The data reported refers to our sample. The EFAMA quarterly statistical release in 2018 reports overall equity UCITS assets at 3.5tn with UCITS ETF assets standing at EUR 624bn in 2018. See EFAMA, 2019 Quarterly Statistical Release, No.76 2018Q4.

[88] ESMA, 2019, "Performance and Costs of Retail Investment Products in the EU".

[89] Several academic studies, including the seminal analysis of Carhart (1997) did not find a strong persistence of the performance of mutual funds.

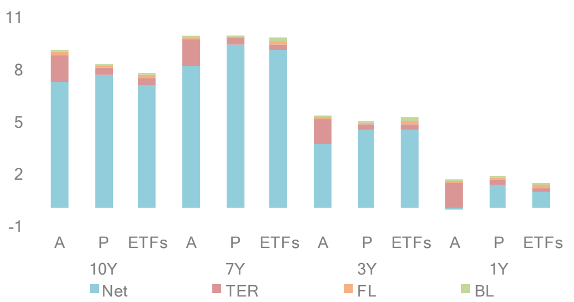
time complicating the opportunities for investors to consistently choose outperforming funds.[90]

EU equity UCITS: performance and costs

Across time horizons, except for one-year, gross annual performance was equal (seven-year horizon) or slightly higher on average for active equity UCITS than for passively managed equity UCITS and equity UCITS ETFs (ASR-PC.65).

At the three-year horizon, gross annual performance for active UCITS was 5.3% on average and around 5% for passive and ETFs. Over the one-year horizon, across asset classes, gross annual performance was subdued as returns on equity underlyings were low in 2018.[91] However, if actively managed funds, at 1.5%, showed gross annual performance slightly higher than ETFs (1.45%) it was lower than passively managed funds (1.8%).[92]

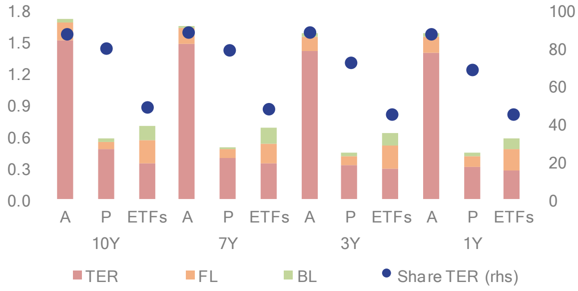
ASR-PC.65
Active, passive and ETFs equity UCITS performance
Costs significantly higher for active funds



Note: EU equity UCITS gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by management type, active (A), passive (P) and ETFs, by time horizon, in %.
Sources: Refinitiv Lipper, ESMA.

Things change when considering net performance. At the three-year horizon, net annual performance dropped to 3.7% for actively managed equity UCITS while to 4.5% for passive and ETFs. Similar patterns can be observed at longer time horizons. At one-year, net annual performance was negative for active funds, and low but positive for passive (around 1.4%) and UCITS ETFs (0.9%). The largest difference in costs across management types was related to ongoing costs, much higher for actively managed UCITS compared to passive and ETFs. In contrast, at three-year and one-year horizons, ongoing costs were around 1.4% for active UCITS, for passive and UCITS ETFs ongoing costs were around 0.3% (ASR-PC.66).[93]

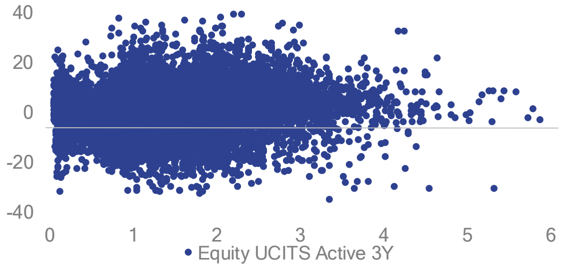
ASR-PC.66
Active, passive and ETFs equity UCITS total costs
Ongoing costs higher for active UCITS



Note: EU equity UCITS fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, by management type, aggregated by time horizon, %. Share of ongoing costs on total costs, % on the right hand side (rhs)
Sources: Refinitiv Lipper, ESMA.

At longer horizons, the difference between active, passive and ETFs remained. The share of ongoing costs over total costs was around 90% for active, 80% for passive and below 50% for UCITS ETFs. For ETFs, one-off fees had a larger share of total costs, probably in relation to their structure. ETFs can be traded as securities on trading venues.

ASR-PC.67
Distribution of performance and costs, active equity UCITS
Costs uncorrelated with performance



Note: EU equity UCITS active, gross annual performance (y-axis) and ongoing costs (x-axis), proxied by the total expense ratio TER), %. Funds lowest level of TER starts at 0.5%. 3Y time horizon.
Sources: Refinitiv Lipper, ESMA

Focusing on cost distribution and dispersion, notwithstanding the management type, higher costs do not correspond to higher performance (ASR-PC.67), i.e. no correlation is observed between fund costs and performance. For active equity UCITS, costs have been on average concentrated between 1% and 3% irrespective of gross annual performance.[94] Within our sample,

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91 Gross performances of actively managed and passive or ETFs UCITS may be different in relation to the dynamics of the market for underlying assets (e.g. longer-term bull or bear markets as well as low to highly fluctuating markets). Changes in the reporting period may be related to differences in gross performance of funds.

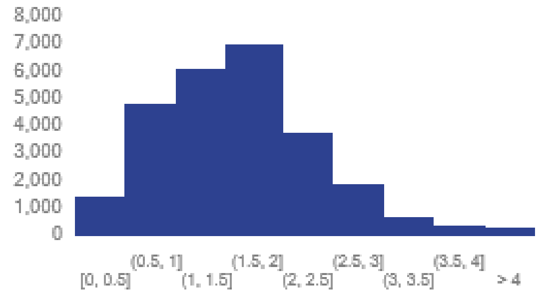
92 Reported performance is lower compared to as the article published with the ESMA TRV No.2 2019 as the aggregating methodology now follows the geometrical mean rather than the simple arithmetic mean retaining the compounding aspects of an investment.

93 See annex "Data and data limitation" on the potential overestimation of entry and exit fees. For UCITS ETFs this can be even more so as investor do not bore these fees is trading on the secondary markets. In this case, trading costs, that are not available, should be evaluated when investing.

94 See R. Losada, "Managerial ability, risk preferences and the incentives for active management", 2016 and M. I. Cambon on "Spanish mutual fund performance: an analysis of the determinants", 2011.

over the three-year horizon, most of active funds had fees between 1% and below 3% (ASR-PC.68).

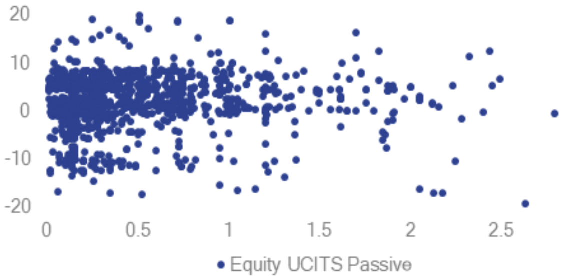
ASR-PC.68
Range of ongoing costs, active equity UCITS
Costs distributed mostly between 1% and 2%



Note: EU equity UCITS distribution of actively managed funds (y-axis, number of funds) by ongoing costs (x axys in %) at 3Y horizon.
Sources: Refinitiv Lipper, ESMA

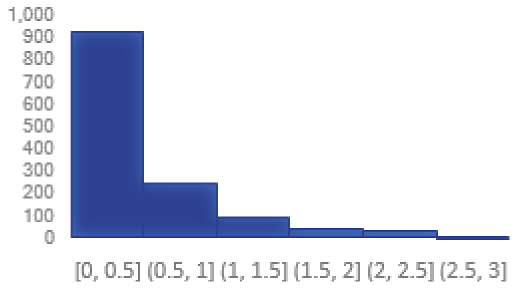
The lack of correlation between performance and costs held across management types (ASR-PC.69).

ASR-PC.69
Distribution of performance and costs, passive equity UCITS
Concentration of funds at low cost levels



Note: EU equity UCITS passive, gross annual performance (y-axis) and ongoing (x-axis), proxied by the total expense ratio, %. 3Y time horizon.
Sources: Refinitiv Lipper, ESMA

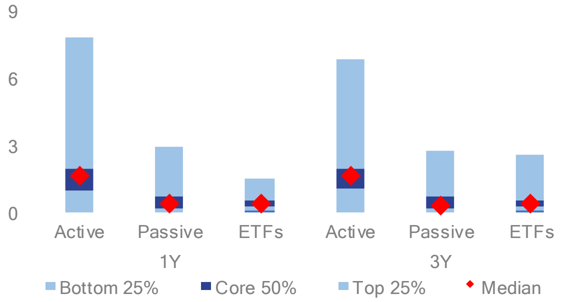
ASR-PC.70
Distribution of passive equity UCITS by ongoing costs range
Ongoing costs mostly below 1%



Note: EU equity UCITS distribution of passively managed funds (y-axis, number of funds) by ongoing costs (x axys in %) at 3Y horizon.
Sources: Refinitiv Lipper, ESMA

For passive funds, costs are lower: the majority of ongoing costs lies between 0% and 1% (ASR-PC.70).

ASR-PC.71
Dispersion of ongoing costs across management type
Higher dispersion for active funds



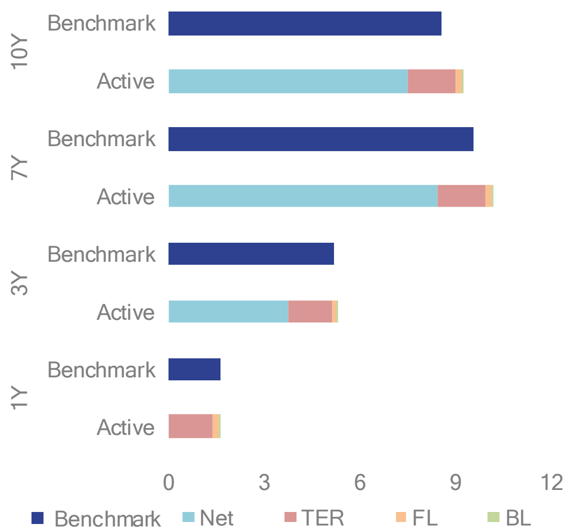
Note: Dispersion of ongoing costs, proxied by the total expense ratio (TER), 3Y and 1Y horizons, %.
Sources: Refinitiv Lipper, ESMA

A similar relation holds at one-year time horizon. Besides having overall higher ongoing costs, active funds also show higher dispersion in costs (ASR-PC.71) compared to passively managed and also ETF funds.

EU equity UCITS: prospectus benchmarks

A second key layer of analysis concerns the performance of actively and passively managed equity UCITS against their own prospectus benchmark.[95]

ASR-PC.72
Active equity UCITS and prospectus benchmarks
Performance lower in net terms



Note: EU UCITS equity active funds and respective benchmark gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

Regarding gross annual performance, actively managed UCITS outperformed prospectus benchmarks across all horizons, even if at a

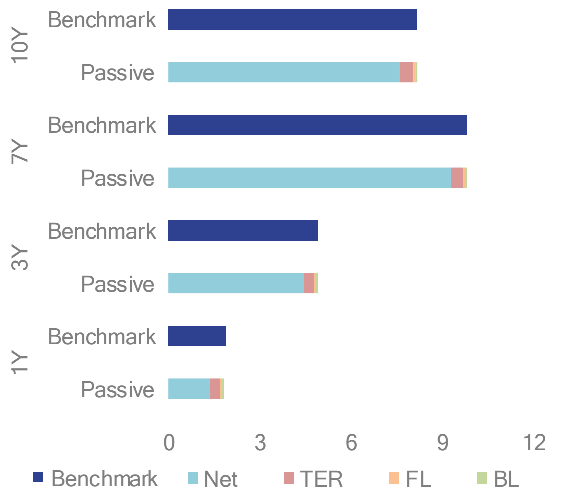
[95] Please note that these results are, in magnitude, different from the previous analysis of active, passive and ETFs due to differences in the sample. The only funds considered are those for which information on the primary prospectus benchmark is available. The number of funds for which information on primary prospectus benchmarks is available is lower than when the entire cohort of funds is considered. It represents around 70% of the total number of funds in our sample, or around 80% in term of asset value.

significant lower extent with respect to last year's analysis. Gross annual performance went from the highest levels of 10.2% for active funds and 9.6% for related benchmarks at the seven-year horizon, to the lowest at one-year, 1.63% for active and 1.61% for the benchmark. The difference between gross annual performance of active funds and related benchmarks narrowed in 2018, when asset valuations were largely subdued. (ASR-PC.72).

When costs are taken into account, the picture changes with active UCITS underperforming the related benchmarks on average.[96] Gross annual performance is more variable than costs. Total costs only marginally decrease across time, therefore the strong reduction in annual performance for equity assets impacts the final benefit for an average investor. Investors take an extra hit where there is an overall low gross performance. Therefore, for the reporting period 2009-2018, when returns were at the highest levels, at the seven-year horizon, the difference between the average net annual performance of active UCITS (8.5%) was only 1 percentage point (ppt) lower than the average benchmark net performance (9.6%). Differently at the one-year horizon, when gross returns were the lowest, this difference increased to 1.4ppt (0.04% for active UCITS against 1.6% for the benchmark).

Regarding passive UCITS, in gross terms, average annual performance for passive UCITS was similar to benchmark performance. Gross annual performance was the highest (9.8%) at seven-year and the lowest at one-year (beyond 1.8% for passive UCITS, and below 1.9% for related benchmarks on average).[97] In net terms, passive UCITS underperformed related benchmarks, however, at a lower degree than active UCITS (ASR-PC.73). For example, when performance was the highest, at the seven-year, net annual performance was 9.3% for passive UCITS. At the one-year horizon, characterised by the lowest performance, net performance dropped to 1.4% (ASR-PC.73).[98]

ASR-PC.73
Passive equity UCITS and prospectus benchmarks
Reduction in net returns lower than active



Note: EU UCITS equity passive funds and respective benchmark gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.

EU equity UCITS: top performing funds

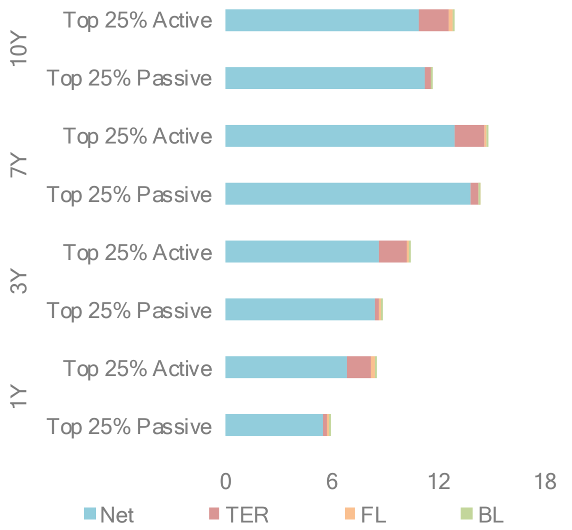
At ten-year and seven-year horizons, while in gross terms active outperformed passive UCITS, things reverse when looking at net performance, which was slightly higher for passively managed UCITS. Differently, at the three-year and one-year horizons the top-25% active UCITS outperformed the top-25% passive UCITS, both in gross and net terms. At the three-year horizon, gross and net annual performances for active were 10.5% and 8.7%, respectively, while passive UCITS had gross annual performance equal to 8.9% and net annual performance equal to 8.5%. At the one-year horizon, gross and net annual performances for active UCITS were 8.6% and 6.9% respectively, against just below 6% and 5.5% for passive UCITS (ASR-PC.74).

[96] Subscription and redemption fees may be overestimated as we have only maximum values available. Actual entry and exit fees are subject to negotiation. Moreover, data on the costs related to ETFs bid-ask spreads are not available. Investors bear these costs on the secondary markets whereas subscription and redemption fees only apply on the primary market.

[97] Please note, average performance for those benchmarks related to passive UCITS are higher than those of the benchmarks relating to active UCITS. This may stem from the fact that the sample of funds and related benchmarks are different. The only funds considered are those for which information on the primary prospectus benchmark is available. Moreover, average results in gross terms between passive and benchmark annual performance is only very slightly different. For, example at one-year horizon results show that passive UCITS have gross annual performance equal to 1.84% while benchmarks' average gross annual performance is 1.88%.

[98] Gross performances of actively managed and passive or ETFs UCITS may be different in relation to the dynamics of the market for underlying assets (e.g. longer-term bull or bear markets as well as low to highly fluctuating markets). Changes in the reporting period may be related to differences in gross performance of funds.

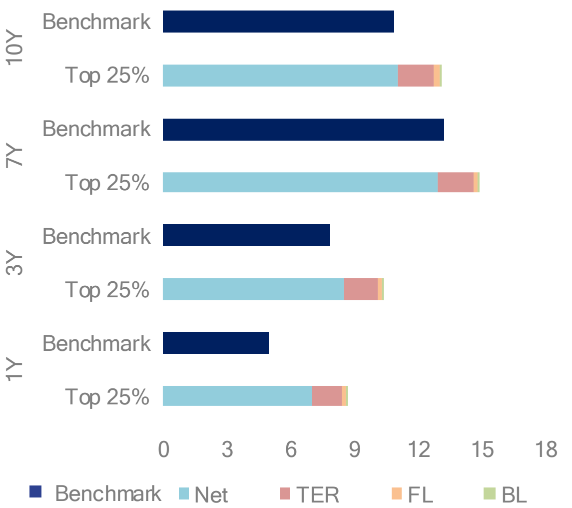
ASR-PC.74
Top performing active and passive equity UCITS
Performance changes across horizons



Note: EU UCITS equity funds gross annual performance for best performing active and passive funds, classified as net perfromance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

The top-25% performing active funds also showed performance, before and after costs, higher than their prospectus benchmarks. Focusing on three-year and one-year horizons, the net annual performances of top performing active UCITS were around 8.6% and 7%, versus 7.9% and 5% for their prospectus benchmarks (ASR-PC.75).

ASR-PC.75
Top performing active and prospectus benchmarks
Higher net performance at shorter horizons



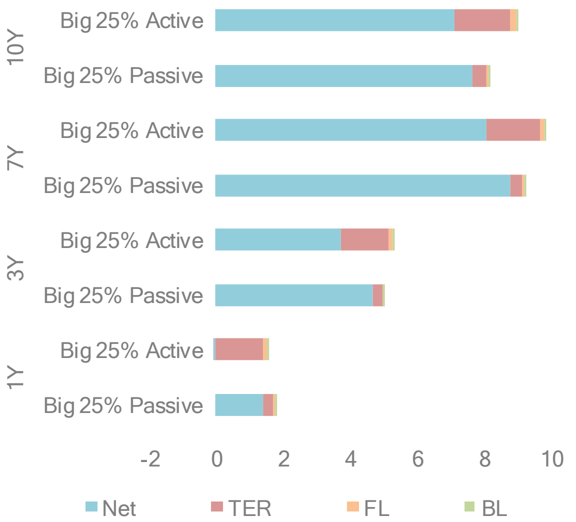
Note: EU UCITS equity funds gross annual performance for top performing active funds and corresponding benchmarks, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

The past outperformance of a fund is not necessarily a predictor of future outperformance. The cohort of top- or bottom-performing UCITS does not remain constant. Generally, it changes over time, complicating the opportunities for investors to consistently choose outperforming funds.

EU equity UCITS: top size funds

In this section we focus on the 25% largest active and passive UCITS (ASR-PC.76). For the reporting period 2009-2018, in terms of gross annual performance, the 25% largest active UCITS always outperformed the 25% largest passive UCITS. This is not the case when we account for costs. Over the three-year horizon, annual performance after costs was higher for the 25% largest passively managed UCITS. Net annual performance was 3.7% for the 25% largest active UCITS and 4.7% for the 25% largest passive. Over the one-year horizon, net annual performance was just below zero for the 25% largest active UCITS and 1.4% for passive.

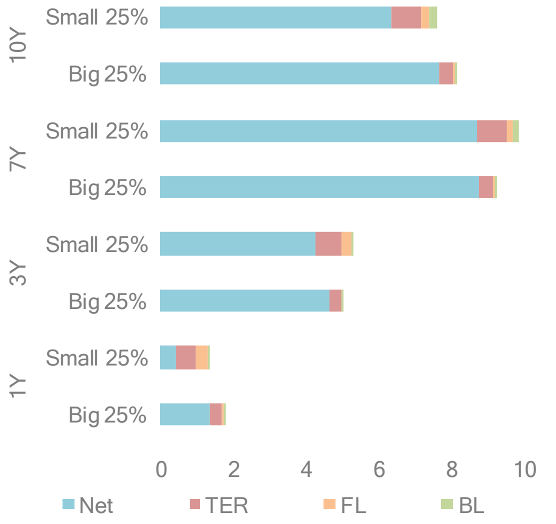
ASR-PC.76
Equity UCITS performance by fund size
Higher net performance for larger funds



Note: EU UCITS equity funds gross annual performance for largest active and passive funds in terms of assets, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

On average, the 25% largest active UCITS showed higher gross and net annual performances than the smallest. The largest UCITS bear lower costs probably also as a consequence of economies of scale. Similar results also hold for passive UCITS (ASR-PC.77).

ASR-PC.77
Active equity UCITS performance by fund size
Larger funds lower costs

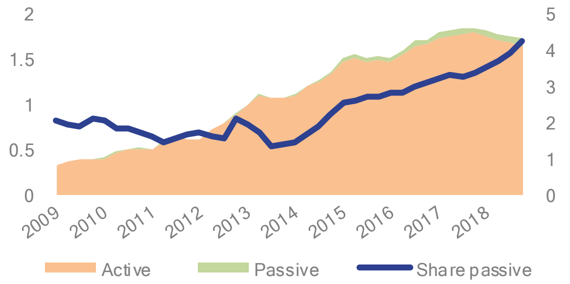


Note: EU UCITS equity funds gross annual performance for largest and smallest active funds in terms of assets, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

EU bond UCITS: market overview

Differently from UCITS focused on equity, the bond UCITS market is mostly composed of UCITS which are actively managed.[99] Passively managed UCITS remained limited in the EU bond UCITS market for the period ending in 2018. Even if they have strongly increased between 2014 and 2018, they only accounted for around 4% of the bond UCITS market as at the end of 2018.[100] Given the extremely small share of passive bond UCITS, we focus our analysis on the performance of bond UCITS relative to their own benchmarks.

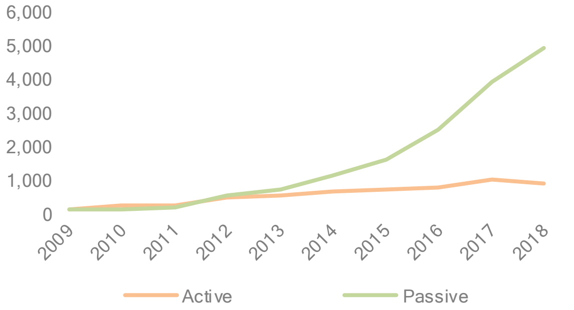
ASR-PC.78
Bond UCITS market size
Passive fund share still small



Note: Market size for EU-domiciled UCITS bond, actively and passively managed. All observations for which information on fund value, fund performance, netflows, subscription and redemption fees are available, EUR tn. Share of passive in %, right-hand size.
Sources: Refinitiv Lipper, ESMA.

Overall, at the end of 2018, the EU bond UCITS market size, according to our sample, reached EUR 1.7tn, of which EUR 1.6tn were actively managed and EUR 73bn were passively managed funds. With 4% of total assets, despite the positive growth, the share of passively managed bond UCITS was still negligible at the end of 2018 (ASR-PC.78).[101]

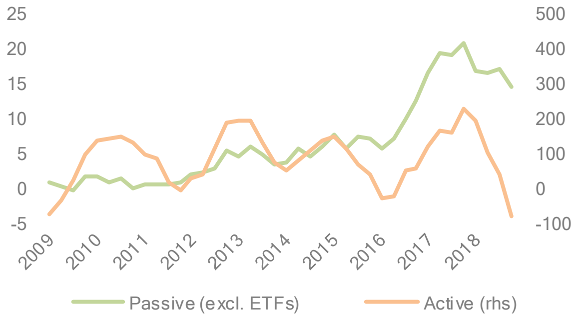
ASR-PC.79
Bond UCITS cumulated netflows
Large increase for passive bond UCITS



Note: EU-domiciled bond UCITS by management type, active and passive, Cumulated netflows at quarterly frequencies, EUR bn. 4Q09=100.
Sources: Refinitiv Lipper, ESMA.

Even if the EU UCITS bond market has been so far mostly composed of actively managed UCITS, looking at cumulated netflows, the increase in assets invested in UCITS passively managed over 2009 and 2018 is evident (ASR-PC.79).

ASR-PC.80
Bond UCITS netflows
Ouflows for bond active UCITS in 2018



Note: EU-domiciled bond UCITS by management type, active and passive. Annual netflows at quarterly frequencies, EUR bn.
Sources: Refinitiv Lipper, ESMA.

The analysis of netflows better highlights the dynamics of fund flows over time (ASR-PC.80). Following a period of increasing netflows from mid-2016, the trend reverses in 2018. Such decline is much more pronounced in the case of active rather than passive funds. While for passive funds there has been a reduction in inflows (EUR 14bn in netflows), for active UCITS

99 The excessively small share of passively managed funds led to an analysis considering both institutional and retail investors.

100 The share of passive UCITS investing in bonds in the EU is significantly smaller than in the US market. In US, as of December 2017, passive bond mutual funds, accounted for around 20% of total AuM in bond funds, (Anadu et al., 2018).

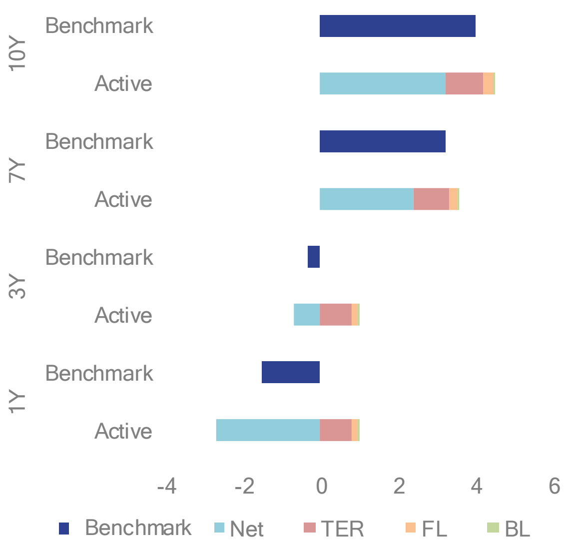
101 EFAMA data report bond UCITS assets at EUR 2.5tn, for 2018. EFAMA, 2019, Quarterly Statistical Release, No.76 2018Q4.

there have been outflows (EUR -82bn).

EU bond UCITS: prospectus benchmarks[102]

For the reporting period between 2009-2018, gross annual performance for actively managed bond UCITS was higher compared to their related benchmarks at ten-year, seven-year and three-year horizons. Over shorter horizons, annual performance for bond UCITS has been very low, also given the prolonged low interest rate environment. At the one-year horizon, gross performance was negative in the case of both active UCITS and their respective benchmarks. Moreover, on average, gross annual performance was lower for actively managed funds (-1.7%) compared to their own benchmarks (- 1.5%). At the three-year horizon, even if very low, gross annual performance remained positive (0.34%) for active UCITS. It was instead negative (-0.3%) for their related benchmarks. The picture, however, reverses when returns after costs are considered. Active UCITS always underperformed their own benchmarks irrespective of the time horizon. To note, when returns are very low, the impact of costs on investors is higher (ASR-PC.81).

ASR-PC.81
Active bond UCITS and prospectus benchmarks
Lower net performance for active funds

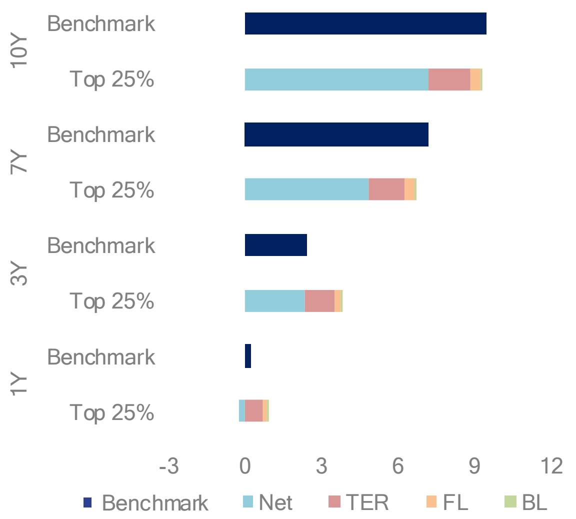


Note: EU UCITS bond active funds and respective benchmark gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by management type and time horizon, %.
Sources: Refinitiv Lipper, ESMA.

EU bond UCITS: top performing funds

The top-25% actively managed bond UCITS, at ten-year and seven-year horizons, reported lower gross and net annual performances than the corresponding prospectus benchmarks.[103] At more recent horizons, actively managed bond UCITS outperformed their benchmark at gross level. At the three-year horizon, the gross annual performance for the active top-25% performing bond UCITS was 3.8%, against the 2.5% average benchmark performance. At the one-year horizon, it was 0.7% for the active top-25% performing bond UCITS, and below 0.3% for their related benchmarks. After accounting for costs, net annual performance for the active top-25% bond UCITS was on average lower than their respective benchmarks across investment horizons. Total costs were around 2% at longer horizons, while around 1% at three-year and one-year horizons, with more than 80% of total costs composed by ongoing costs (ASR-PC.82). For the bottom-25% performing active UCITS, net annual performance was always lower than their respective benchmarks.

ASR-PC.82
Top performing active bond UCITS and prospectus benchmarks
Lower net performance for active bond funds



Note: EU UCITS bond funds gross annual performance for top performing active funds and corresponding benchmarks, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, and time horizon, in %.
Sources: Refinitiv Lipper, ESMA.

As already in the case of equity, the top-, as well as the bottom-25% performing funds, changes over time. Past outperformance of a fund is not necessarily a predictor of future outperformance, making it complicated for investors to consistently choose the top performing funds.

EU bond UCITS: top size funds

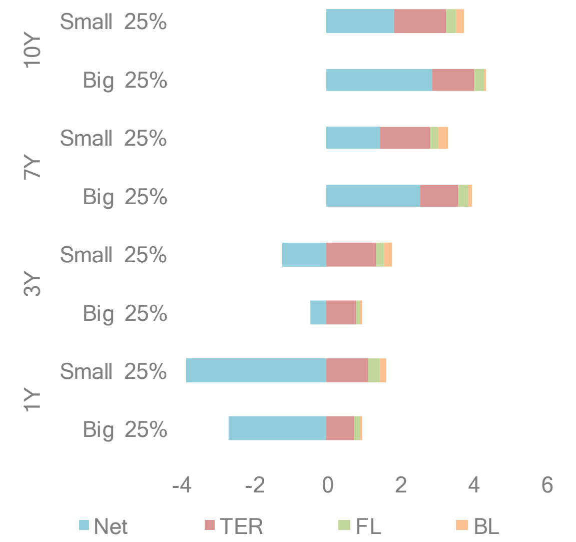
On average the 25% largest actively managed

[102] See footnote 94.

[103] Gross performance is also related to overall performance of the underlying market: higher performance of underlying assets is a driver of the performance of the fund itself and the related benchmark.

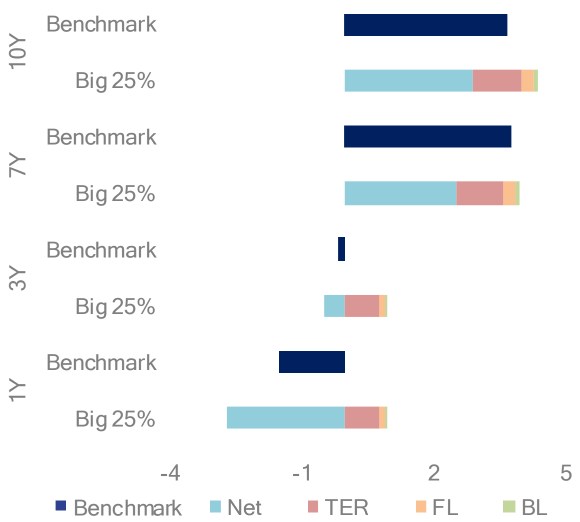
bond UCITS had higher performance and lower costs compared to smallest bond UCITS, potentially also in relation to economies of scale (ASR-PC.83)

ASR-PC.83
Active bond UCITS performance by fund size
Higher gross and net returns for larger funds



Note: EU UCITS bond funds gross annual performance for largest and smallest active funds, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC.84
EU bond UCITS performance largest funds and benchmarks
Lower net performance than benchmark



Note: EU UCITS bond funds gross annual performance for largest active funds and corresponding benchmarks, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

On average, net performance for the 25% largest actively managed bond UCITS was always lower than the related benchmark (ASR-PC.84). Similar results hold for the 25% smallest actively managed bond UCITS.

Fund domicile[104]

In the market overview, we have already highlighted the significant degree of heterogeneity across markets, limiting the comparability across Member States (ASR-PC.10). As in the previous report, we identify differences in market and fund size, in investors preferences for asset classes. Moreover, within the same asset class significant differences in costs may arise according to the predominant strategy followed in a particular market. For example, a market that focuses mostly on growth funds, rather than income funds or a mix of the two, entails costs that are higher. This distinction could not be made so far, given the absence of data availability. It should however be considered when interpreting results in the country-by-country analysis. Additional differences may arise due to the domestic and cross-border characteristics of national fund markets, the composition of the sample used in the analysis, as well as marketing practices. An important source of heterogeneity for costs at a country-by-country level was related to differences in the regulatory treatment of costs at national level. For example, the significant differences in the type of marketing channels predominant in a particular country as well as the treatment of distribution costs have a major impact on the level of overall costs identified for that country. Across member states the treatment of distribution costs has been highly heterogeneous. There are countries, such as Austria and Portugal in which distribution costs are the input of entry charges and direct fees paid by investors. In other jurisdictions, such as Belgium, Denmark, France, Germany, Ireland, Italy and Malta, distribution costs are included both in direct fees, such as management fees, and indirect fees. In Finland, Greece, Norway, Slovenia and Spain distribution costs are included in management fees.[105] In several cases there is fee sharing between the UCITS manager and the distributor. Some others (like the

[104] The EU market includes the United Kingdom as it was a Member of the EU during the reporting period, 2009-2018. The United Kingdom is reported in the aggregate and in the country-by-country analysis. The data are commercial data from Refinitiv Lipper and are therefore publicly available to subscribers. Having all Member States is envisaged in order to have a more instructive comparison across the current and the previous year report.

[105] According to communication from CNMV, on average in 2018, in Spain 54% of the management fees charged by investment funds were rebated to distributors (banking institutions and investment firms).

Netherlands or the United Kingdom) have been having inducement bans in place. Moreover, UCITS reporting is based on the domicile of the fund and not on the domicile of the investor. All the above adds complexity to the analysis limiting the possibility to draw firm conclusions and highlighting how essential are improvements in availability and usability of data.

ASR-PC.85

Performance evidence from Member States

New analysis carried out by some jurisdictions

A direct comparison across national countries continues to be not straightforward. Ahead of the analysis, this box highlights two recent publications on UCITS carried out directly by two NCAs within their own jurisdictions, namely the Austrian Financial Market Authority (FMA)[106] and the Greek Hellenic Capital Market Commission (HCMC)[107], in the course of the last year.

The study on Austrian retail funds, based on FMA collected data on the Austrian market, includes the following main findings:

— The volume-weighted average of the fees of all retail funds is 1.2% for the maximum management fee, 1.1% for ongoing costs and 3.6% for the maximum entry charges. There were no significant changes compared to 2017 analysis.
— Different fees applied across investment strategies and risk classes. MMFs and short-term bond funds reported the lowest charges, followed by bond funds, real estate fund, mixed funds and equity funds.
— The analysis also covered sustainable retail funds. Those were not associated with higher fees in comparison with the market as a whole.

The study carried out by the Greek HCMC is based on the second edition of a survey sent to supervised Mutual Fund Management Companies on fees and charges of UCITS in Greece. Main findings identified the following:

— A decrease in subscription (0.4% to 0.31%) and redemption (0.3% to 0.24%) fees from 2017 to 2018.
— A decrease in ongoing charges for all categories going from 2.35% in 2017 to 2.08% in 2018.

Besides these two publications, the monitoring and supervision of specific national markets continues, complementing EU actions towards enhancing investor information and literacy, and increasing investor protection

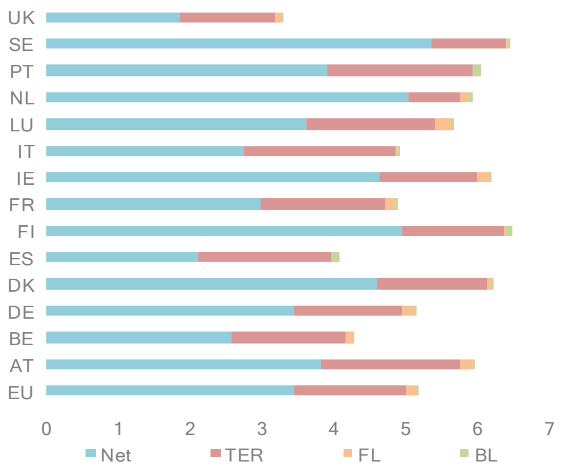
Equity UCITS

Both gross and net annual performances were heterogeneous across Member States, limiting the direct comparability among countries (ASR-PC.86).[108] Overall, at EU level there was a reduction in gross annual performance due to the subdued equity valuations in 2018. There is however significant variation across domiciles, with some domiciles having incurred in smaller reductions compared to previous year analysis than others. This heterogeneity was related to national investor preferences and strategies followed by the funds composing the sample under analysis, different market structures and regulatory requirements on cost treatment across Member States that may imply a different cost classification (e.g. management, distribution, administrative fees). The above issues and data problems still persist and should be taken into account in a cross-country analysis.

ASR-PC.86

Equity UCITS performance by domicile, 3Y horizon

Gross performance and cost fluctuating



Note: EU UCITS equity funds annual gross returns, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon %. Other EU countries are not reported. Sources: Refinitiv Lipper, ESMA.

Portugal witnessed the smallest decline in gross annual performance, from 7.1% in 2017 to 6.1% in 2018. In Denmark, Finland and Sweden, that were among the top gross performers, performance declined to just below 6.5% in 2018 from more than 12% in 2017. Belgium and Spain were among the lowest performers, with performance just above 4% in 2018, decreasing from 9.8% and 7.8% in 2017, respectively.

For UCITS focusing on equity, total costs went from more than 2% for some domiciles to less than 1% for others, with cost dispersion higher at the one-year horizon (ASR-PC.87). Overall, some domiciles were above the EU average while others were significantly below.

The strong variability in gross annual performance and the differences in costs determined the variability in net annual

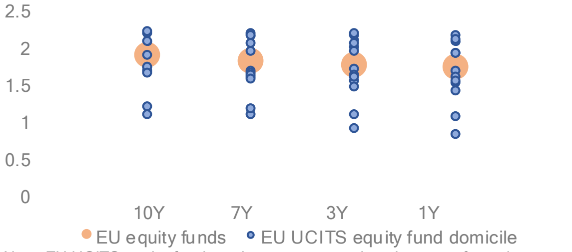
106 AT FMA, 2019, "FMA Market Study of Austrian Retail Funds".

107 HCMC, 2019, "Survey of fees and charges applicable on UCITS in Greece".

108 The charts in the text refer to the three-year horizon. To see in details all other time horizons please look in the Statistical annex of this report. Data refers to the EU and fourteen individually reported Member States. Among those not reported are Bulgaria, Cyprus, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Greece and Romania. These are domiciles whose markets are not significant for the analysis given the size and the scarce availability of information. Findings are based on geometric aggregation both for 2018 and 2017. See box ASR-PC.17 in the text.

performance. Over the three-year horizon, it went from a minimum of 1.8% to a maximum of 5.4% (ASR-PC.86). The large reduction in 2018 gross annual performance implied an increase of the impact of costs and a reduction in the level of net performance.

ASR-PC.87
Equity UCITS dispersion in total costs by time horizon
Dispersion high across horizons

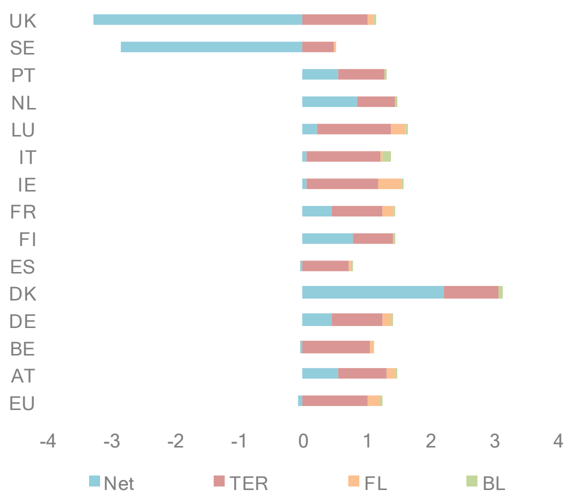


Note: EU UCITS equity fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for DK, FI, and PT at 10Y. Data not available for PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Bond UCITS

In 2016-2018, performance was significantly low for all countries and lower than it was in 2015-2017. As already observed for equity the relative performance across countries changed. While Spain's gross annual performance compared to other countries improved, for Ireland and Italy it was the opposite (ASR-PC.88). The lowest gross annual performance was observed for bond UCITS domiciled in Sweden and in the United Kingdom, around -2% over the three-year horizon (ASR-PC.88).

ASR-PC.88
Bond gross and net performance by domicile, 3Y horizon
Low performance related to low interest rates

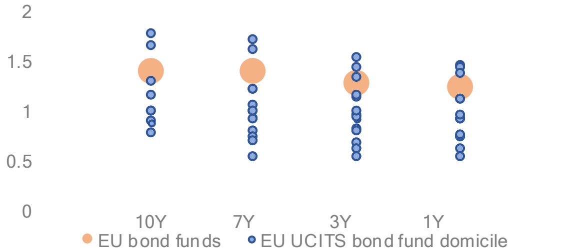


Note: EU UCITS bond fund annual gross returns, classified as net returns, ongoing costs (TER), inflation, subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %.
Sources: Refinitiv Lipper, ESMA.

For UCITS investing mostly in bonds, costs were on average lower than for equity and mixed UCITS.

Large dispersion characterised annual gross performance as well as costs. Costs were higher at longer time horizons. At ten-year horizon total costs went from a minimum of 0.8% to a maximum of 1.7%, while at one-year horizon minimum costs were around 0.5% and maximum total costs stand at just above 1.4%.

ASR-PC.89
Bond UCITS dispersion in total costs by time horizon
Higher costs at longer time horizon



Note: EU UCITS bond fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for DK, FI, NL, PT, SE at 10Y. Data not available for PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

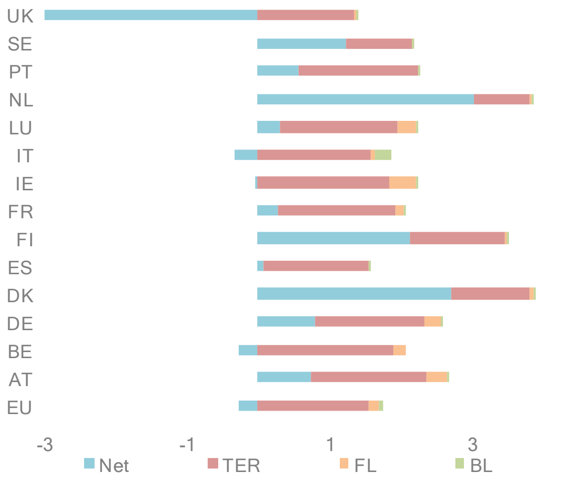
Over the three-year horizon, net annual performance in several countries was close to zero or negative in some cases (ASR-PC.88). At the one-year horizon for all countries net annual performance turned negative. The variability that can be observed across domiciles, as previously highlighted, is due to structural market differences, market size, investor preferences and strategies of those funds composing the sample under analysis. This implies that a direct comparison across domiciles is limited.

Mixed UCITS

The increasing development of UCITS focusing on mixed assets is related to the possibility of taking positions across different asset classes. This is the case especially for retail investors, unable to actively reallocate their portfolios to ensure a constantly high performance.

Mixed UCITS have been focusing mostly on equity and bond assets. The subdued performances of both these underlyings in 2018 impacted the performance of mixed funds themselves (ASR-PC.90). In the current report, gross annual performance for UCITS focusing on mixed assets at the three-year horizon, on average, was much lower than the gross annual performance observed in last year's analysis. This is related to the overall decline in valuations characterising 2018.

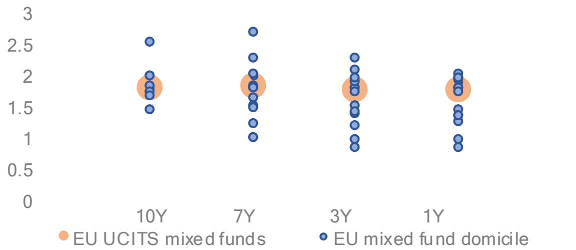
ASR-PC.90
Mixed UCITS gross and net performance by domicile, 3Y horizon
Heterogeneity across countries



Note: EU UCITS mixed fund annual gross returns, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %.
Sources: Refinitiv Lipper, ESMA.

Large markets such as those of France and Italy had respectively performances equal to 2.1% and 1.5% for the three-year horizon in the current analysis while, for last year's report, performances were above 5.6% for France and 3.7% for Italy. High performers, such as Denmark and the Netherlands, also had much lower performances in the current analysis (just below 4% for the three-year horizon) than in last year's analysis (around 7%). The heterogeneity of performances across markets can be related to a different allocation of assets within the portfolios of mixed funds. Therefore, the strategies of the funds considered in the sample are very important. The lack of harmonisation among Member States is evident looking at cost levels (ASR-PC.91). There were significant differences among Member States. Dispersion was low at the most recent horizon. At one-year horizon, costs went from a minimum of 0.8% and a maximum of 2%. Across horizons, the lowest cost levels were registered in Denmark, Sweden and the Netherlands while the highest were observed in Austria, Belgium, Ireland, Italy, Luxembourg.

ASR-PC.91
Mixed UCITS dispersion in total costs by time horizon
Dispersion higher at seven- and three-year



Note: EU UCITS mixed fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for DK, FI, NL, PT, SE at 10Y. Data not available for PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Denmark and the Netherlands had the highest gross annual performances and the lowest cost levels. This implied that these countries reported the highest net annual performances (2.7% and 3% respectively). Regulatory differences[109] in cost treatment across Member States is a significant determinant of the variability at a country-by-country level making a direct comparison cumbersome.[110]

ASR-PC.92
2018 management fees

Heterogeneity across Member States

One of the limitations of the past and current analysis relates to the limited availability of information on components of ongoing costs, proxied by the TER. In Refinitiv Lipper, the TER has been provided only at an aggregate level, therefore, components of the TER are not available. So far, this has had significant consequences on the interpretation of conclusions especially on a country-by-country basis. Differences in strategies, market structures and regulatory practices across domiciles contribute to explain the high variability of cost levels and the limited comparability across Member States.
In this case study, we analyse one of the components of ongoing costs: management fees.[111]

The analysis focuses on 2018, as for previous years the information at fee type-level has been very scarce, statistically limiting the scope of the analysis. In order to analyse fees at a more disaggregated level, we merge Morningstar Direct data with our data extracted from Refinitiv Lipper. Data are taken at fund share level and are then aggregated by domicile through a weighted average, where weights are based on NAV. The chart below reports the final results of the analysis distinguishing between asset classes.

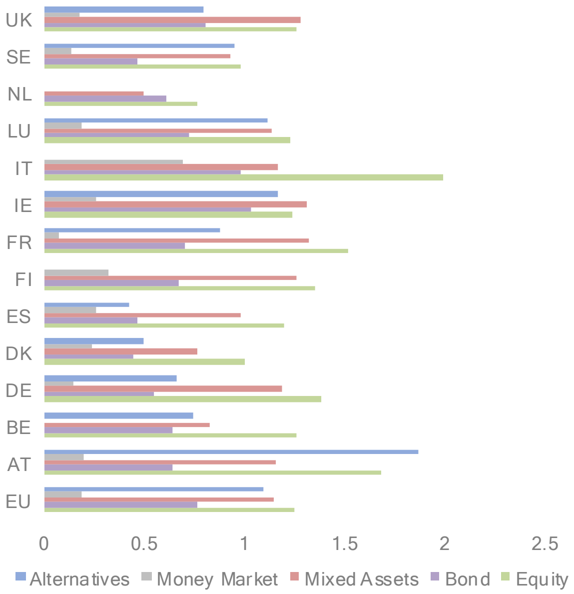
Across domiciles and asset classes, in 2018 management fees significantly differed with several countries above the EU average (ASR-PC.93). For bond funds, Ireland, Italy and Luxembourg reported higher management fees, while for funds focusing on mixed assets fees seemed to be the highest in France, Ireland and Italy.

109 See annexes: Regulatory developments and Data and data limitations.

110 Data for MMF and alternative UCITS not reported at country-by-country level, given the limited number of observations.

111 We tried to analyse performance fees also. However, scarce data availability impaired a comprehensive analysis. ESMA has, in fact, been continuing to investigate on the availability and usability of more comprehensive data on performance to enrich the accuracy of its analysis, also in line with the "SMSG Advice to ESMA: response to ESMA's Consultation Paper on Guidelines on performance fees in UCITS", published in November 2019.

ASR-PC.93
Management fees by domicile
Cost levels broadly stable across time



Note: Management fees by country and asset class, retail investors, 2018, %. Other EU not included.
Sources: Morningstar Direct, Refinitiv Lipper, ESMA.

Overall, the different cost classification and national regulatory treatment should be kept in mind to explain these differences and when interpreting results. This implies that a direct comparison across domiciles is not straightforward (e.g. management fees in some countries are affected by the inclusion of distribution costs).

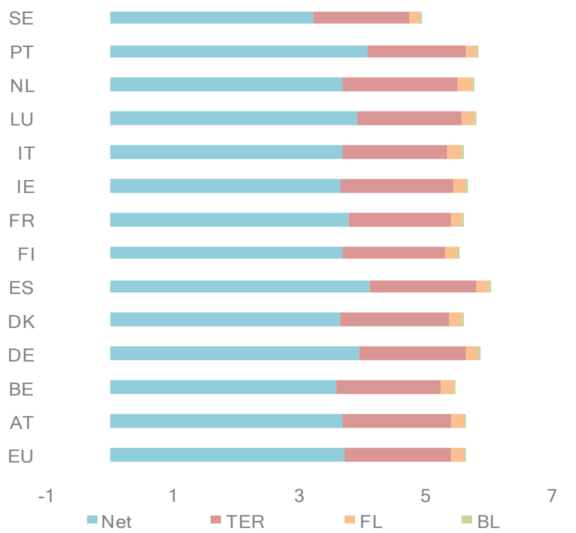
Investor domicile

The analysis presented so far has been focused on the fund domicile. Investor and fund domiciles coincide when a fund is only sold in the home (domicile) Member State. In the EU, a fund domiciled in a Member State is often passported and marketed in other Member States. For instance, according to our sample, in 2018 there were 6,282 funds domiciled and sold in Luxembourg. Of these 6,282, more than 4,000 funds could also be sold in Germany, more than 3,000 in Austria, France and Italy and more than 2,000 in the Netherlands, Spain and Sweden. Of the 1,040 funds domiciled and sold in Ireland, more than 800 could also be sold in the United Kingdom and more than 700 in Germany (ASR-PC-S.181). However, funds domiciled in Italy, Portugal and Spain could be sold only in the country of domicile.[112] For other Member States, funds could be sold to a larger extent in countries closely related for proximity, culture, economic and market structure to their domicile. For example, of the 718 funds domiciled in Austria 429 could also be sold in Germany, and of the 406 funds domiciled in Sweden, 86 could also be sold in Finland.

Given the bias that an analysis by domicile may imply at a country-by-country level, we analyse the performance and costs of funds from the point of view of the country in which the fund is sold, that may be different from the country of domicile.

The source of data is Refinitiv Lipper and data are the same as those used in the previous analysis. Instead of focusing on the domicile, however, the focus is based on the country in which a fund is authorised to sell. The information in terms of assets, flows, performance, costs is only provided at the domicile level. No information on the distribution of these metrics is available for the sold-in countries. Therefore, we apply the domicile-based data to the country in which a fund is marketed. This analysis may involve some double counting of funds and related metrics.[113]

ASR-PC.94
Equity UCITS performance by sold-in country, 3Y horizon
Cost levels broadly stable across time



Note: EU UCITS equity funds annual gross returns, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by marketed country, 3Y horizon %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Main findings show that the strong heterogeneity previously observed significantly reduces. At the three-year horizon, for equity UCITS, there were countries, namely Denmark, Finland, Sweden, the Netherlands and Ireland that presented lower gross annual performance and higher total costs in the sold-in analysis compared to the domicile-

[112] We have very few instances for Spain and none for Italy and Portugal. This may be related to the sample available and may potentially lead to bias in the analysis. One example is the "round-trip" case, see footnote 31.

[113] Very similar cost levels across countries in the analysis based on investor domicile is driven by the weighting used when aggregating funds, based on the NAV of the fund domicile and not that of the investor domicile. In the Netherlands, for example, the cost figure would have been lower accounting for its national inducement ban.

based analysis. For Austria, Luxembourg and Portugal the sold-in analysis showed a decline for both gross performances and costs (ASR-PC.94). For other time horizons and asset classes the trend was similar to the one observed for the three-year horizon, apart from noticeable differences in magnitude. For example, at one-year horizon performances were much lower across the board due to weak valuations in the underlying assets.

Overall, the analysis based on the UCITS available in each jurisdiction reduced observable national differences due to regulation, market structure and investor preferences. This showed that in order to comprehensively and consistently perform an accurate analysis at a country-by-country level and have a clear-cut interpretation of results, improvements in availability and usability of data are essential.

Summary findings

Through this analysis we highlight the evolution of performance and costs of UCITS across asset classes, and by class of risk at the EU level. We also add a detailed analysis of performance and costs by management type, distinguishing between active, passive and UCITS ETFs and the relative performance to reference benchmarks. The report concludes with an analysis of performance and costs based on fund domicile and investors' domicile.

For 2018, the key findings of our analysis include:

— A concentration of 90% of retail investment in equity, bond and mixed UCITS.
— Very weak gross annual performance in 2018, impacted by the subdued performance of underlying asset classes.
— Significant impact of costs on the final value of investment. The reduction of costs over time has been marginal. For example, by investing EUR 10,000 in a fund focusing on equity, an EU investor could get EUR 23,654 in ten years in gross terms. The payout after costs, however, was EUR 19,854. This means EUR 3,800 less than the gross figure.
— Largest impact of ongoing costs (on average more than 80% of total costs).
— Higher total costs for retail rather than institutional investors, on average.
— Asset concentration in the highest risk classes for equity and lowest risk classes for bonds.
— Higher gross performance as risk increases for equity and mixed, but not for bond funds.
— Costs are higher for riskier classes.
— UCITS ETFs focusing on equity and bonds shows the following:
  - Performance in line with that of other UCITS investing in these assets.
  - Costs in line with passive UCITS.
— Significant differences between active funds, passive funds and UCITS ETFs.
— Underperformance in net terms of active equity UCITS, on average, compared to passive equity and UCITS ETFs.
— Underperformance, in net terms, of active equity and bond UCITS versus their prospectus benchmarks.
— Costs significantly higher for active UCITS compared to passive and ETFs UCITS, ultimately impacting performance.
— Outperformance of the top-25% active equity UCITS compared to the top-25% passive equity UCITS and their related benchmarks, before and after costs at shorter horizons. The cohort of UCITS changes over time and making it complicated for investors to consistently identify outperforming UCITS.
— Underperformance, in net terms, for the top-25% actively managed bond UCITS versus the corresponding benchmarks.
— Persisting heterogeneity across Member States also linked to structural market differences, investors' preferences and lack of harmonisation in national regulation.
— Reduced heterogeneity when the analysis is centred on the investment focus.

Investment funds: Retail AIFs

Summary
In 2018, AIFs in the EU had an estimated NAV of around EUR 5.8tn, EUR 800bn more than in 2017. Retail AIF investments accounted for 16% of the AIF market or around EUR 1tn in terms of NAV. In terms of distribution of retail assets, as in 2017, funds of funds and real estate funds displayed high retail participation, with 27% and 16% of the total retail NAV respectively, whereas retail investments in hedge funds, at around 1% of NAV, remained rare. Potential risks related to liquidity transformation and liquidity mismatch were analysed. More than the 78% of the share of AIFs sold to retail investors was composed of open-ended funds. Risk of liquidity mismatch, however, remained limited on an aggregate basis. This held for funds with different degrees of retail investor participation. Liquidity issues may remain for individual AIFs. Differently from 2017, we report the dynamics of gross returns for 2018. Gross returns of AIFs sold to retail investors were negative: -2.1% for funds of funds and -3.3% for the category Other. This reflects the poor performance observed across asset classes, especially at the end of 2018. Significant data challenges persist in relation to the unavailability of cost data.

Background

Compared to UCITS, alternative products involve lower market transparency, lower liquidity and reduced correlation with traditional financial investments, which imply different performance and risk measurements. Investment in alternative assets leads to potentially above-average returns and risks, given the return-risk profile of the alternative investment products. This has encouraged investors to focus on alternative assets.[114]

Regulators and supervisors are keen to ensure access to returns and diversification associated with these products, at the same time guaranteeing an adequate level of transparency and information. Against this background, this report extends the analysis to alternative investment products sold to retail investors (retail AIFs). The following analysis is based on data from the Directive on Alternative Investment Fund Managers (AIFMD)[115] regime, that regulates fund investment managers managing AIFs within the EU.

AIFs under AIFMD include a very wide range of investment products and funds. Funds authorised under the UCITS Directive are not included.[116] The definition of AIFs covers not only hedge funds (HF), but also private equity (PE) funds, venture capital (VC), real estate (RE), some funds of funds (FoFs) (e.g., funds of hedge funds), and structures that have not opted to be authorised under the UCITS regime. In this last case, AIFs offered to retail investors may pursue a strategy similar to UCITS that may not be considered necessarily as alternative.

The EU retail AIF market[117]

Based on AIFMD data, the size of EU AIF industry was of EUR 5.8tn in terms of NAV at the end of 2018, increasing from the EUR 4.9tn in 2017.[118] The higher values for assets may be explained by two main factors: the general positive trend in AIF growth as well as better market coverage. The overall data coverage for the AIF market went from around 80% in 2017 to the 100% in 2018. The market was mostly composed of professional investors. At the end of 2018, retail investors accounted only for 16% of the market, slightly decreasing from 18% in 2017.[119] The enhanced transparency and lower riskiness of UCITS seemed to make AIFs less appealing to retail investors. Moreover, retail investment in AIFs is subject to underestimation

[114] ECB, 2017, “Developing macroprudential policy for alternative investment funds”, Occasional Paper Series.

[115] Directive 2011/61/EU.

[116] Directive 2009/65/EC.

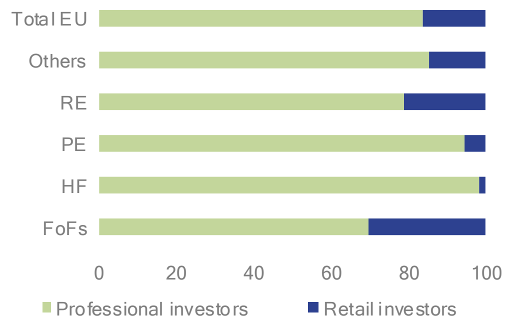
[117] The EU market includes the United Kingdom as it is a Member of the EU 2018.

[118] ESMA, 2020, “ESMA Annual Statistical Report - EU Alternative Investment Funds”.

[119] Data from EFAMA Quarterly Statistical Release March 2019 is in line with the total assets of AIFs, at EUR 5.8tn, from the AIFMD. It should be noted that the current report is based on AIFMD data and AIFMD definitions according to which professional investors are identified following the criteria specified in Annex II of Directive 2014/65/EC. See Directive 2011/61/EU, article 4 (1ag) and Annex II of Directive 2014/65/EC.

as retail investors may buy products invested in AIFs through banks or insurance firms. In 2018, the share of retail investors was mostly relevant for FoFs and RE funds (respectively, 31% and 21% of the total NAV).[120]

ASR-PC.95
AIF NAV by type of client
Persisting focus on FoFs and RE for retails



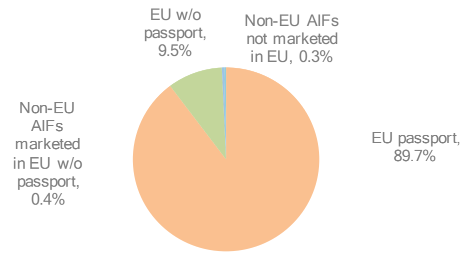
Note: NAV of AIFs by type of client reported at the end of 2018 under the AIFM Directive, in %.
Sources:National Competent Authorities, ESMA

FoFs, although holding shares in HF, have limited financial or synthetic leverage compared to other types of funds, limited liquidity risk and provide investors with higher diversification. Nonetheless, fees charged by FoFs are potentially high, with an incentive fee component that may, in some cases, exceed the realised return on the fund. According to analysis developed in the ESMA 2020 ASR on AIFs, 84% of FoFs investment was concentrated in UCITS and 16% in AIFs, mainly EU-domiciled equity and bond funds.[121]

Focusing on the retail segment, most of the assets of AIFs sold to retail investors, almost 90%, benefited from the passporting regime, i.e. can be sold across the EU (ASR-PC.96).

In terms of type of AIFM status, according to data reported under the AIFMD umbrella, there was a lot of heterogeneity across Member States. Some countries so far have principally reported registered managers, which can market their products only in the jurisdiction where they are registered, whereas other countries mostly or exclusively reported authorised AIFMs.

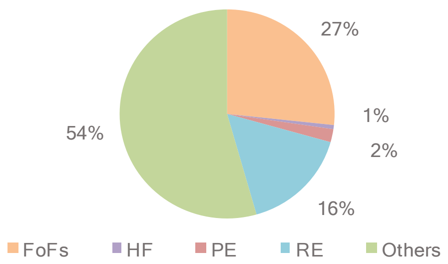
ASR-PC.96
AIFMD passport by NAV of retail investors AIFs
Passporting regime prominent



Note: NAV of retail AIFs by manager's access to AIFMD passport, end 2018, %. Authorised EU AIFMs access AIFMD passport or market non-EU AIFs to professional investors w/o passport, sub-threshold managers are registered only in national jurisdictions w/o passporting rights.
Sources: National Competent Authorities, ESMA

Focusing on retail investment, assets of retail investors were concentrated in the type of AIFs classified as Others (54%), FoFs (27%) and RE (16%) (ASR-PC.97).[122] "Others" consists of fixed income funds, equity fund, infrastructure funds, commodity funds, and other funds.[123] Compared to 2017, retail investments in Others decreased by 2% in 2018, while investments in RE increased by 2%. The participation of retail clients in HF and PE remained very low over the last year.

ASR-PC.97
Retail investor NAV by AIF type
Highest concentration "Others", FoFs and RE



Note: Share of NAV of AIF by type, retail clients, end 2018, in %. Reporting according to the AIFMD. AIFs managed by authorised and registered managers.
Sources:National Competent Authorities, ESMA

According to the ESMA ASR on AIFs (2020),[124] which considers both retail and professional investors, fixed income strategy held the largest share of NAV in 2018 (25%).[125] Focusing on retail clients, most of the NAV was concentrated on the

120 Investment in FoFs and RE represent respectively around 27% and 16% of the NAV attributable to retail investment see figure ASR-PC.96.

121 See ESMA, 2020, "ESMA Annual Statistical Report - EU Alternative Investment Funds".

122 ESMA, 2020, "ESMA Annual Statistical Report - EU Alternative Investment Funds". In the Level II Commission Delegated Regulation (EU) No 231/2013, AIFs are classified into five main types: hedge funds, real estate funds, funds-of-funds, private equity funds, and 'other AIFs'. The residual category of 'other AIFs', labelled as 'Others' in the chart ASR-PC.97, covers commodity and infrastructure funds together with conventional non-UCITS investment funds pursuing more traditional strategies and targeting primarily traditional asset classes such as equities and bonds. The 'other AIF' type includes a further residual category of other unspecified strategies, 'other-other'. Often 'special funds' set up by single investors like insurance undertakings and pension funds fall into this residual category.

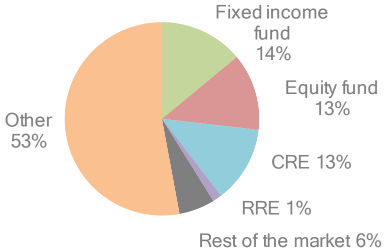
123 Annex IV, Commission delegated regulation (EU) No 231/2013 supplementing Directive 2011/16/EU.

124 ESMA, 2020, "ESMA Annual Statistical Report - EU Alternative Investment Funds". See chart ASR-AIF.96.

125 ESMA, 2020, "ESMA Annual Statistical Report - EU Alternative Investment Funds". There are thirty-five possible investment strategies admitted by the Level II Regulation. The top five alone (fixed income, 'other-other', equity, other funds of funds and commercial real estate) account for around 80% of total assets.

strategy "Other" (53%), including FoFs, decreasing from the 56% in 2017.[126] Differently from 2017, retail clients invested more in fixed income funds (14%) than equity funds (13%) (ASR-PC.98). In the RE segment there is a prevalence towards commercial real estate (CRE) that may give rise to prudential risks.[127]

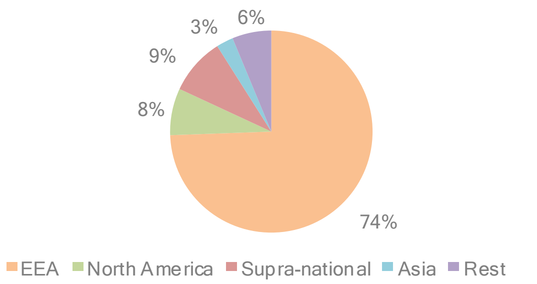
ASR-PC.98
Retail investors NAV by AIF strategy
Five dominant investment strategies



Note: Share of NAV by investment strategy, end of 2018 retail clients, reported under AIFMD, in %. FI = Fixed Income; CRE = Commercial Real Estate; RRE: Residential Real; Estate.
Sources:National Competent Authorities, ESMA

Looking at the investment focus (ASR-PC.99), the European Economic Area (EEA) was the dominant investment region for funds with a 100% retail client participation for 2018.[128]

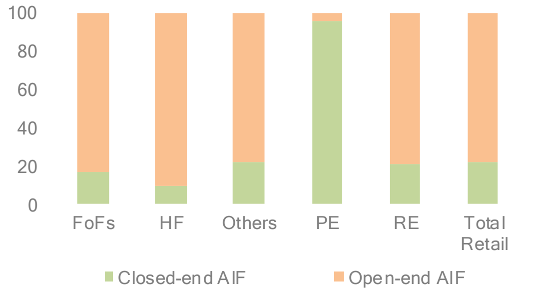
ASR-PC.99
Retail investor NAV by regional investment focus
Key regional focus Europe for retail AIFs



Note: NAV of AIFs by regional investment focus, retail clients, end of 2018, in %. Reported according to the AIFMD. AIFs managed by authorised and registered AIFMs.
Sources: National Competent Authorities, ESMA.

In terms of risks, liquidity, and especially liquidity transformation, is among the most prominent risks in the fund industry. On one side, there is the possibility for clients to redeem shares when needed according to the redemption rights granted by the AIF. On the other side, there is the ability of the fund to meet redemption requests without necessarily causing significant market impact and safeguarding the fund investment objectives and strategies. Redemption rights and liquidity mismatches are then crucial for clients and especially retail clients, who have a lower level of information and flexibility than professional investors.[129]

ASR-PC.100
Redemption rights to retail investors
Majority of open-ended funds



Note: NAV of AIF by redemption rights offered to retail clients, end 2018, %. Reported according to AIFMD. AIFs managed by authorised and registered AIFMs.
Sources: National Competent Authorities, ESMA.

According to our sample as reported in 2018, most of the share of NAV was composed of open-ended funds, 78% of NAV (ASR-PC.100). The open-ended feature adds to the risk of potential liquidity mismatches. In this respect, the AIFMD requires specific disclosures to NCAs and investors.[130] These include a description of the investment strategy and structure of the AIF as well as information on redemption rights, notice periods, lock-up periods and circumstances in which the normal redemption mechanisms might be suspended. Consistently with the results of ESMA 2019 report[131], the PE segment is almost exclusively dominated by closed-end funds.

Potential liquidity mismatches may arise from the difference between portfolio and investor liquidity profiles, shown in ASR-PC.101. The portfolio liquidity profile refers to the time needed by the fund to liquidate its assets whereas the retail investor profile refers to the shortest period at which the investor herself can redeem the fund.

[126] Under Art.24(1) of Directive 2011/61/EU, for each EU AIF managed or marketed in the Union, managers are required to report on the breakdown of investment strategies, the concentration of investors, the main categories of assets held by the AIF, including principal exposures and concentration, and the regional investment focus.

[127] ESMA, 2018, AIFMD – a framework for risk monitoring, TRV No.1 2018 already highlighted issues related to micro- and macro-prudential risks.

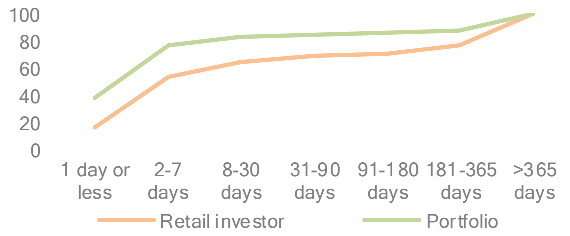
[128] 100% retail client participation refers to those funds for which the reporting refers to 100% retail clients. By focusing on these funds, we would then account exclusively for retail clients.

[129] Article 16 Directive 2011/61/EU states that "AIFMs shall for each fund managed, not closed-end, employ an appropriate liquidity management system, […]". Article 46 of the Delegated Regulation 231/2013 requires that 2[…] managers demonstrate to the relevant NCAs of their home Member State that an appropriate liquidity management system and effective procedures are in place in relation to the investment strategy, liquidity profile and the redemption policy of the AIF they manage".

[130] Article 23 and article 24 Directive 2011/61/EU. Reporting template for regulatory disclosures 2013/1359.

[131] ESMA, 2019, "ESMA Performance and Costs of Retail Investment Products in the EU".

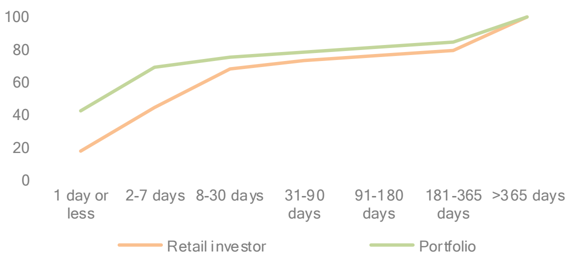
ASR-PC.101
Portfolio and investor liquidity
100% retail participation: no mismatch



Note: AIFs portfolio and investor liquidity profiles, retail investors. The portfolio liquidity profile is determined by the percentage of the fund portfolios that can be liquidated within the period specified on the horizontal axis. The retail investor liquidity profile reflects the shortest period at which the fund could be withdrawn or investors could receive redemption payments.
Sources: National Competent Authorities, ESMA.

Overall, AIFs with a 100% participation of retail clients showed no significant sign of liquidity mismatch, in line with ESMA ASR on EU AIFs.[132] This was true on an aggregated basis, but liquidity issues with individual AIFs remained possible. The only asset type that presented a different liquidity risk profile was HF with 100% retail client participation where for time periods longer than three months the percentage of portfolio liquidity was lower than investor liquidity needs.

ASR-PC.102
Portfolio and investor liquidity
60% retail participation: absence of risks



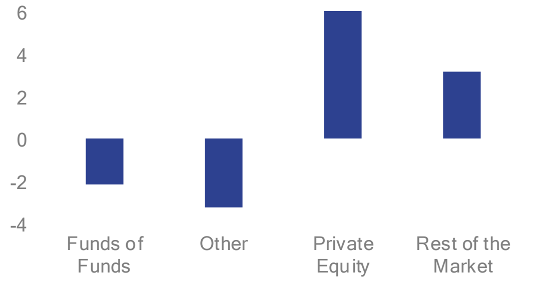
Note: AIFs portfolio and investor liquidity profiles, retail investors. The portfolio liquidity profile is determined by the percentage of the fund portfolios that can be liquidated within the period specified on the horizontal axis. The retail investor liquidity profile reflects the shortest period at which the fund could be withdrawn or investors could receive redemption payments. 60% retail participation.
Sources: National Competent Authorities, ESMA.

As specified in the related annex, the largest part of AIFs sold to retail investors had a complete (100%) retail investor participation in 2018. However, we consider different degrees of participation. Focusing on a retail participation of 60%, the main results in terms of liquidity did not change (ASR-PC.102). The dynamics remained similar when looking at other levels of retail investor participation (e.g., 40%).

Gross performance

The analysis on gross performance focuses on a sample that in 2018 covered more than the 50% of the total NAV for AIF entirely sold to retail investors, or EUR 476bn.[133]

ASR-PC.103
Gross performance AIFs sold to retail investors
Strong negative returns for FoFs



Note: EU AIFs annualised monthly gross performance by fund type, %, 2018. Reported according to AIFMD. Rest of the market includes Hedge Funds, Real Estate and None.
Sources: National Competent Authorities, ESMA.

Chart ASR-PC.103 shows annualised monthly gross performance for 2018 by fund type. For FoFs and Other, the types of funds on which retail investment was focused, performance was negative, respectively -2.1% and -3.3%. In both cases, this may be related to the poor valuations characterising 2018, especially the second half of the year, across asset classes. Focusing on FoFs, this is also in line with the analysis performed by ESMA on AIFs that identified the 84% of FoFs investment concentrated in UCITS whose performances have been significantly subdued in 2018.[134]

Summary findings

Main results suggest that:

— In 2018, retail investors accounted for 16% of the market in terms of NAV. Professional investors held the largest share.
— Out of the total assets invested in AIF by retail investors, 27% was concentrated in FoFs and 16% in RE.
— 90% of the assets of AIFs sold to retail investors were managed by authorised AIFMs.
— The largest part of retail investment was concentrated in AIFs entirely sold to retail investors. For example, our sample of equity UCITS ETFs domiciled in Germany have a predominant geographical entirely to retail investors.

[132] ESMA, 2020, "ESMA Annual Statistical Report - EU Alternative Investment Funds".

[133] For more details refer to the Annex on Statistical methods.

[134] ESMA, 2020, "ESMA Annual Statistical Report - EU Alternative Investment Funds".

— In terms of liquidity risk, overall, AIFs with a 100% participation of retail clients showed no noteworthy sign of liquidity mismatch. The only asset type that presented a different liquidity risk profile was HF.

— In 2018 annualised monthly gross performance of those fund types on which retail investment was concentrated, namely FoFs and funds identified as Other, was negative, respectively -2.1% and -3.3%.

Structured retail products

Summary
Structured Retail Products (SRPs), with assets at EUR 400bn in 2018, are a market significantly smaller than UCITS retail investment and AIFs sold to retail investors. The analysis is complicated by the large variety of SRPs available and their payoff features, which augments the difference between investments in structured products and long-term investments in funds. Data availability severely constrains the scope for conclusive analysis. Regulatory data are not available, and data from commercial providers limited.

Background

Structured products are investments whose return is linked to the performance of one or more reference indices, prices or rates (reference values). Such reference values may include stock indices, the prices of individual equities or other assets, and interest rates. The return of a structured product is determined by a pre-specified formula, which sets out how the product performs in different scenarios defined with respect to the reference value(s). For instance, if a stock index falls over a specified time interval, the formula may determine that the product yields zero return for the investor, while if the index instead increases then the investor receives a positive return in proportion to the increase.

The total outstanding amount of structured products held by EU retail investors at the end of 2018 is around EUR 400bn. This is far less than holdings in UCITS which, according to data available for this report, are around EUR 4tn for retail investors and less than half of the holdings in AIFs sold to retail investors (EUR 928bn).[135]

Many different types of structured products are offered to retail investors in the EU. In many cases their payoff structures can be complex. These features, together with the existence of significant costs and charges for retail investors, prompt continued market surveillance. At the same time, the variety of structured products complicates the analysis of costs and performance. Another major analytical constraint is limited data availability.

Unlike long-term investment products such as funds, many structured products may be designed for hedging purposes or to speculate on price movements over the period of months or years. Consequently, structured products should – as a general rule – not be regarded as long-term investments in the same way as funds.

Product features

Payoff structures

Various payoff structures are possible. For example, a 'knock-out' feature may be triggered based on a threshold level of the underlying assets at a given point in time. Knock-outs may even be triggered based on various statistics calculated from a basket of reference assets. 'Barriers', which provide limited or conditional capital protection, may be designed in various ways. Other payoff features such as coupons and participation rates can also be varied by the product designer. The large number of different types of payoffs are likely to preclude an exhaustive analysis of costs and performance for every type of structured product.

Risk levels may vary even across products that share many similar features. Even if two products have capital protection and the same underlying asset, for example, they may offer different expected returns, depending on their structure.

Product distribution

Product distribution is another source of heterogeneity in the market for structured products. First, some standardised products are issued on a continuous basis, while others are issued as part of a tranche with a pre-determined subscription period.[136] Second, the EU market

135 The financial net worth of EU households stood at around EUR 25tn in 4Q18. Outstanding amounts of structured retail products in the EU were around EUR 400bn in December 2018, according to the dataset used in this article.

136 According to the commercial data used in this section, approximately one sixth of outstanding product volumes at the end of 2018 in Europe were tranche products.

involves both bank-issued and exchange-issued products. There is geographical variation in this respect, e.g. exchange-based issuance tends to be more common in Germany while bank-based issuance is seen more in Italy.

Issuer margin

Two key types of costs involved are those embedded in the product when it is issued (issuer margin), and costs involved in distributing the product, such as sales commissions.

A number of empirical studies on SRPs have examined issuer margin (ASR-PC.104). A significant level of such costs has been found in several studies. As might be expected, the results vary by market, by the type of product analysed and by the period of the analysis.

ASR-PC.104
Published studies on SRPs
Significant costs highlighted

Study	Country, time	Products	Issuer margin
Bertrand & Prigent (2014)	FR, 2014	Structured funds	2%-7%
Burth et al (2001)	Switz., 2001	RCs and DCs	3% (RCs); 1% (DCs)
Joergensen et al (2011)	DK, '98-'01	Principal protected notes	6%
Mueller et al (2017) (*)	DE, 2016	RCs, CLNs, BCs, DCs, ECs, TCs, UCP, O, CO, CPC, Other	<1%-2%
Stoimenov & Wilkens (2005)	DE, 2005	Equity-linked products	1%-5%
Szymanowska et al (2008)	NL, '99-'02	RCs	6%
Wilkens et al (2003)	DE, 2003	RCs and DCs	3% (RCs); 4% (DCs)

(*) Mueller et al conducted their study on behalf of the German Derivatives Association, the Deutscher Derivative Verband (DDV). Corresponding figures in the table are for maximum and minimum reported average issuer margin by product type, on a non-annualised basis, where the authors weight averages by investment volume one month after issuance.

Note: Issuer margin is estimated intrinsic cost to investor at issuance and is not annualised. "RCs"=Reverse Convertibles. "DCs"=Discount Certificates. "CLNs"=Credit-Linked Notes. "BCs"=Bonus Certificates. "TCs"=Tracker Certificates. "ECs"=Express Certificates. "UCP"=Uncapped Capital Protection. "O"=Outperformance. "CO"=Capped Outperformance", "CPC"=Capital Protection with Coupon. Figures rounded to nearest percentage point.

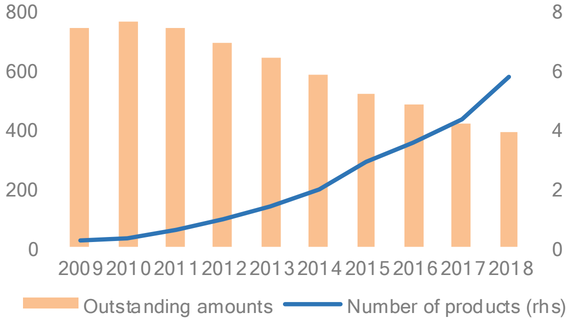
In 2013, ESMA published a report on retailisation in the EU.[137] Part of the report estimated the costs faced by retail investors for a sample of different types of structured products, across several EU countries. Issuer margin was 4% in the case of capital protection products and 6% in the case of other products, or 1.2% and 2.1% respectively as measured on an annualised basis. There was significant variation in the figures: the 90th percentile of issuer margin was 10% while the 10th percentile was 0.4%.

In a study prepared on behalf of the German derivatives association, the *Deutscher Derivate Verband* (DDV), Mueller et al (2017) report that across several (but not all) types of SRPs, average issuer margin is comparable in size to average sales commissions. The study, based on data provided by DDV members who voluntarily disclosed issuer margin from 2014 onwards, estimates issuer margin at the lower end of the range found in the literature.

The EU SRP market

The retail market for structured products made up around 2% of the financial net worth of EU households in 2018.[138] From 2010 to 2018 there has been a constant decline in outstanding amounts of SRPs (ASR-PC.105).

ASR-PC.105
Outstanding amounts of structured retail products in Europe
Outstanding amount decline over time



Note: Outstanding amounts of SRP in EU, EUR bn. Number of products in millions.
Sources: StructuredRetailProducts.com, ESMA.

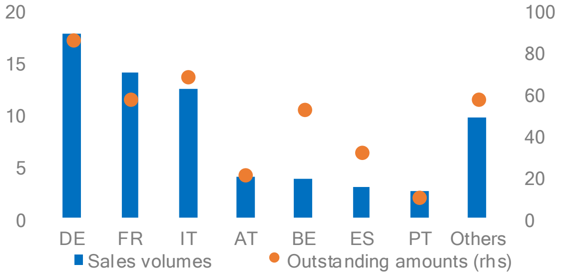
In 2018, volumes outstanding stood at around EUR 400bn, having reached its historical high of EUR 800bn in 2010. In contrast, numbers of outstanding contracts continued to rise, reaching 6 million at the end of 2018. This opposite dynamics between volumes and number of products may be related to changes in market practices as well as the regulatory environment. A possible factor relating to market practices is higher turnover. In particular, many products have an early redemption option. The threshold to obtain the early redemption may be more frequently met in periods of positive market performance such as those seen in recent years, leading to new products being frequently issued.

[137] ESMA, 2013, "Economic Report. Retailisation in the EU", No.1 2013.

[138] The statistics are from *StructuredRetailProducts.com*. See the annex related to Data and data limitations. Estimates of certain metrics based on data from this provider may differ significantly from those from other sources. For example, estimates of the total amount of outstanding products from national associations tends to be lower than those from this provider.

Another relevant factor is that increasing number of products have been listed on exchanges. On-exchange products tend to be issued in smaller volumes than over-the-counter (OTC) products, the latter typically being sold through large distribution networks. Several regulatory changes have characterised this market in recent years, both country-specific and EU-wide, aimed at enhancing consumer and investor protection.[139]

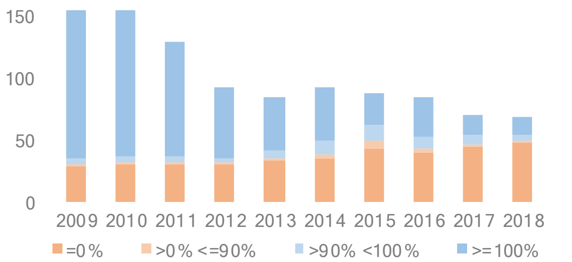
ASR-PC.106
Sales volumes and outstanding amounts by country
Sales highest in DE, FR, IT



Note: Sales volumes, EUR mn, and outstanding amounts, EUR bn, of structured retail products in 2018 for top 7 EU countries by sales volumes, EUR bn. "Others"=EU countries not otherwise listed.
Sources: StructuredRetailProducts.com, ESMA.

There was considerable heterogeneity among retail markets for structured products across Member States in terms of distribution channels, types of products issued and the size of the market.[140] Sales volumes and outstanding amounts were the highest in DE, FR and IT (ASR-PC.106).

ASR-PC.107
Volume of products sold by level of capital protection
Significant decline in capital protection

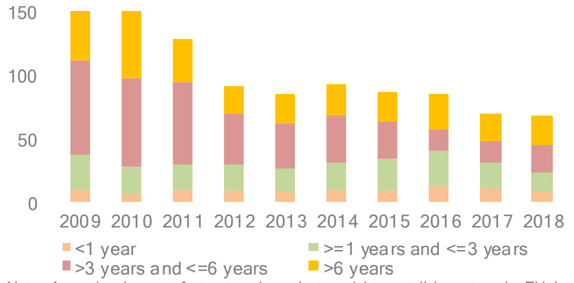


Note: Annual volumes of structured products sold to retail investors in EU by level of capital protection, EUR bn and expressed as percentages of the total in selected cases.
Sources: StructuredRetailProducts.com, ESMA.

The level of capital protection of a product is one indication of the level of downside market risk an investor faces. From 2009 to 2018, the share of products with a capital guarantee of at least 100% declined from 77% to 20%, while those with no capital protection increased from 19% in 2009 to 70% in 2018 (ASR-PC.107).

Intermediate levels of capital protection continued to represent only a marginal share of products by sales volume The trend of declining capital protection is likely to be at least in part attributable to the low interest rate environment and the consequent search for yield by investors, though supply factors may of course also be an important determinant.[141]

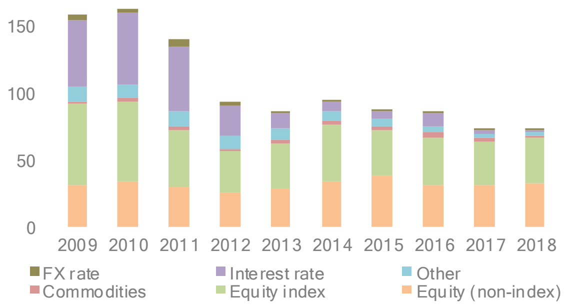
ASR-PC.108
Volume of products sold by term
Reversal of trend to short-term products



Note: Annual volumes of structured products sold to retail investors in EU by investment term, EUR bn and expressed as percentages of total. Listed percentages may not sum to 100% due to rounding.
Sources: StructuredRetailProducts.com, ESMA.

Turning to the term of products sold, trends differed between the number of products issued and sales volumes.[142] While the clear majority of products were short-term (<1 year), as regards volumes there was a more even split between very short term (<1 year), short term (1-3 years) medium-term (3–6 years) and long-term (>6 years) products. However, in 2018, more than 60% of sales volume concentrated on products with a term of more than 3 years (ASR-PC.108).

ASR-PC.109
Volume of products sold by type of underlying asset
Vast majority of sales volumes equity-related



Note: Annual volumes of structured products sold in EU to retail investors by asset class, EUR bn. Percentages of total annual volumes for selected asset classes.
Sources: StructuredRetailProducts.com, ESMA.

Regarding types of underlying assets, the vast majority of sales volumes – around 90% in 2018

[139] For further details, see the Annex on Regulatory developments of this report. See also ESMA Opinion, 2014, "Structured Retail Products – Good practices for product governance arrangements", ESMA/2014/332 article.

[140] For a summary of popular product types in a selection of Member States, see ESMA TRV no.2, 2018, pp. 52-65.

[141] In a low interest rate environment, it may be harder to offer products with capital protection that also have attractive rates of return.

[142] 'Term' here refers to the duration of the product at issuance.

– related to products having equities or equity indices as underlying, as opposed to other types of underlying such as interest rates, exchange rates or commodities (ASR-PC.109). This share has grown over the last few years, while sales volumes of products having interest rates as underlying fell to 3% in 2018, down from 24% in 2011. This trend may relate to the very accommodative monetary environment. Retail investors may have expected that interest rates would remain near the lower bound during this period and hence looked to riskier assets for real returns.

Performance and costs

Difficulties in studying performance are related to several factors. Absolute performance for structured products is only determined for those products that have matured, in contrast with fund performance.[143] The absolute performance of structured products does not quantify the risks faced by investors. For many kinds of structured products there is no natural benchmark against which to compare performance since the payoff function itself transforms the exposure to the underlying asset.[144]

As structured products generally offer transformed risk-return profiles, risk-adjusted performance measures appear relevant. In contrast to funds, where standard statistics such as the Sharpe Ratio or Information Ratio lend themselves to standard interpretations, in the case of structured products generally assessment of risk-adjusted performance is likely to require numerical simulations, again due to the fact that the return profile is a non-linear transformation of the underlying return, in some cases involving path-dependent payoffs. For example, a reverse convertible could have a 'knock-in barrier' set considerably below the strike price, meaning that the investor's capital is protected unless there is a very large drop in price of the underlying (in which case the investor suffers losses in proportion to the price fall). Such cases involve a downside tail-risk to the investor, which may be unlikely to materialise over an observation period of even several years. Monte Carlo simulations based on historical price data of a given underlying asset could in theory be a way to simulate the ex-ante return profile, and hence to consider the risk taken on by investors alongside the ex-post performance. However, this approach would be a very ambitious undertaking. A more modest way to gain some insight on the risks of investing in a given product is available in the data on ex-ante performance scenarios and Summary Risk Indicators in KIDs published under PRIIPs. As in the case of costs, it may be possible to obtain data from KIDs via some NCAs, meaning that it could be possible in future to obtain issuer-estimated ex-ante performance scenarios and/or Summary Risk Indicators for products in some countries. Finally, simply comparing absolute performance of structured products against performance in underlying markets could provide some additional context.

In terms of costs, available information has been so far scarce. To assess the overall costs of structured products in a given market, it may be possible to use issuers' own cost estimates if such information can be collected systematically from providers. Unlike in many other EU Member States, some issuers in Germany have since 2014 voluntarily disclosed their estimated initial value (EIV) of each issued product.[145] Alternatives to issuer-estimated costs included providing own estimates for a stratified sample of products using publicly available information.

Summary findings

The total outstanding amount of structured products held by EU retail investors declined in 2018. Overall, compared to holdings of retail investors in UCITS and AIFs the SRP market is far smaller.

These products should not in general be regarded as long-term investments like investment funds. They may be designed for hedging as well as speculative purposes and their structure may involve significant level complexity and reduced transparency.

These features, together with the variety of structured products and the limited data availability, complicate the analysis.

[143] Such data are not required in KIDs under PRIIPs. Related to this is the fact that performance will depend not only on the date at which the product matures (which may be earlier than the maximum term of the product, if the product has a 'knock out' feature) but also the date of issuance.

[144] An exception is capital-protected products, where the performance of the product relative to the risk-free rate adjusted for market-implied counterparty risk is likely to be instructive.

[145] For details of cost estimates for the German market in recent years, see the section on SRPs in ESMA, "Performance and Costs of Retail Investment Products in the EU", 2019.

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Annexes

Regulatory developments

During the reporting period, numerous initiatives and regulatory changes were undertaken that impact the performance of retail investment products, directly or indirectly. The most recent regulatory and supervisory developments in asset management related to UCITS, AIFMD, PRIIPs and MiFID II.

UCITS

In the context of the Capital Market Union (CMU) objective of enhancing cross-border investment, a new regulatory framework aiming at facilitating cross-border distribution of collective investment funds was recently developed. The main aim is enhancing the CMU process by removing regulatory barriers for investment funds and diverging national rules. The development of the distribution of investment funds intra-EU across Member States should provide investors with a larger choice, more efficient investment strategies and better investor protection.

This resulted in a Directive[146] and a Regulation[147] on the cross-border distribution of collective investment undertakings of 20 June 2019, published on 12 July 2019. The transposition of the Directive into national law is to done by 2 August 2021, while the new Regulation has been effective since 1 August 2019.

The main amendments to the UCITS Directive[148] are as follows:

— Art. 17(8) and 93(8) are modified to include a process for competent authorities to prevent changes to UCITS that would result in non-compliance with the UCITS Directive of the UCITS Management Company (ManCo). This process is harmonised with the AIFMD.

— Art. 92 is modified to further specify the obligation of UCITS ManCos to make available facilities to investors to perform certain tasks relating to subscription, repurchase or redemption of units or shares, or to make payments to, or receive payments from, investors in the host Member States. To fulfil these tasks the appointment of a local physical presence is no longer required.

— Art. 93(1) is modified to include harmonised rules with the AIFMD on the process for notification of cross-border marketing of UCITS.

— A new Art. 93a is implemented to introduce the possibility to de-notify a UCITS in order to cease marketing in a host Member State:
  - Submission of the de-notification request to the competent authority of the home Member State, which will forward it to the competent authority of the host Member State.
  - De-notification is subject to certain conditions, including a blanket offer to repurchase or redeem all units or shares held by investors in the host Member State, the provision of information to investors of the marketing termination, as well as disclosure obligations towards remaining investors.

Pursuant to Art. 5 of the Directive, the Commission will assess the merit of implementing the concept of “pre-marketing” for UCITS by 2 August 2023.

The main changes following the new Regulation[149] include:

— Art. 4 on common rules on marketing communications.

— Art. 6 on transparency relating to national provisions on marketing requirements, including an ESMA central database on the national marketing requirements (by 2 February 2022).

— Art. 7 on the ex-ante verification of marketing communications by competent authorities;

— Art. 9 and 10 on the level of regulatory fees and charges levied by national competent

[146] Directive (EU) 2019/1160 of the European Parliament and of the Council of 20 June 2019 amending Directives 2009/65/EC and 2011/61/EU with regard to cross-border distribution of collective investment undertakings.

[147] Regulation (EU) 2019/1156 of the European Parliament and of the Council of 20 June 2019 on facilitating cross-border distribution of collective investment undertakings and amending Regulations (EU) No 345/2013, (EU) No 346/2013 and (EU) No 1286/2014.

[148] Directive (EU) 2019/1160 of the European Parliament and of the Council of 20 June 2019 amending Directives 2009/65/EC and 2011/61/EU with regard to cross-border distribution of collective investment undertakings.

[149] Regulation (EU) 2019/1156 of the European Parliament and of the Council of 20 June 2019 on facilitating cross-border distribution of collective investment undertakings and amending Regulations (EU) No 345/2013, (EU) No 346/2013 and (EU) No 1286/2014.

authorities in relation to cross-border activities of fund managers, transparency on these regulatory fees and charges, and publication on ESMA's website of hyperlinks to the websites of national competent authorities relating to such fees and charges (by 2 February 2022).

— Art. 12 on an ESMA central database listing UCITS and AIFs marketed on a cross-border basis (by 2 February 2022).

To note is also the extension of the deadline for UCITS to provide PRIIPs-KIDs to 31 December 2021 from 31 December 2019.[150]

Focus has also been devoted to performance fees. Ensuring supervisory convergence regarding performance fee structures and payments has been among ESMA key priorities for 2019.[151] Since it is not further detailed in EU regulation and considering the degree of the UCITS cross-border distribution, ensuring a level playing field in the EU is of major importance. Currently there are different practices across jurisdictions both in terms of performance fee structures and payments. This in turn may create a risk of regulatory arbitrage and concerns to investor protection.

Against this background, in July 2019, ESMA published a consultation paper on guidelines on performance fees for UCITS that should provide input to the finalisation of the guidelines themselves.[152] The draft guidelines included in this consultation paper identifies common criteria aimed to promote supervisory convergence on the following:

— General principles on performance fee calculation methods.
— Consistency between the performance fee model and the fund's investment objectives, strategy and policy.
— Frequency for the crystallisation of the performance fee.
— Disclosure of performance fee model.

AIFMD[153]

The Directive and Regulation on cross-border marketing of collective investment undertakings mentioned above introduce amendments to the regulatory framework applicable to cross-border marketing of AIFs, including European Social Entrepreneurship Funds (EuSEFs) and the European venture Capital Fund (EuVECA)[154]. The main amendments to the AIFMD are as follows:

— New Art. 4(1) (aea) and 30a are implemented to introduce the concept of "pre-marketing" of AIFs, which allows an AIFM to test the interest of potential investors to subscribe shares or units of an AIF which is not yet established or marketed.
— Art. 32(7) and 33(6) are modified to include a process for competent authorities to prevent changes to AIFs that would result in non-compliance with the AIFMD of the AIFM. This process is harmonised with the UCITS Directive.
— A new Art. 32a is implemented to introduce the possibility to de-notify an AIF in order to cease marketing in a host Member State:
  - The AIFM submits a de-notification request to the competent authority of its home Member State, which will forward it to the competent authority of the host Member State.
  - De-notification is subject to certain conditions, including a blanket offer to repurchase or redeem all units or shares held by investors in the host Member State, the provision of information to investors of the marketing termination, as well as disclosure obligations towards remaining investors.
— A new Art. 43a is implemented to introduce the obligation of AIFMs to make available facilities to retail investors – but not to professional investors – to perform certain tasks relating to subscription, repurchase or redemption of units or shares, or to make payments to, or receive payments from, investors in the host Member States. To fulfil these tasks, however, the appointment of a local physical presence is not required.
— A new art. 69a is implemented to specify that the Commission will assess the need to extend the passport regime non-EU AIFMs.

150 Refer to art.32 of the latest consolidated version at 01 August 2019 of Regulation (EU) 1286/2014 of the European Parliament and of the Council of 26 November 2014 on PRIIPs KID.

151 ESMA, 6 February 2019, Supervisory Convergence Work Programme 2019.

152 ESMA, 16 July 2019, Consultation Paper on Guidelines on performance fees in UCITS.

153 Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010.

154 Articles 15 and 16 of the Regulation duplicate the amendments to the AIFMD into the EuSEF and EuVECA Regulations.

The main changes following the new Regulation include:

- Art. 4 on common rules on marketing communications.
- Art. 6 on transparency relating to national provisions on marketing requirements, including an ESMA central database on the national marketing requirements (by 2 February 2022).
- Art. 7 on the ex-ante verification of marketing communications by competent authorities.
- Art. 9 and 10 on the level of regulatory fees and charges levied by national competent authorities in relation to cross-border activities of fund managers, transparency on these regulatory fees and charges, and publication on ESMA's website of hyperlinks to the websites of national competent authorities relating to such fees and charges (by 2 February 2022).
- Art. 12 on an ESMA central database listing UCITS and AIFs marketed on a cross-border basis (by 2 February 2022).
- Art. 69 of AIFMD foresees a review of the application and scope of the Directive, its impact on investors, within the EU and elsewhere, and the degree to which its objectives have been met.

Ahead of this the European Commission (EC) published a report in January 2019[155] that confirms the significant contribution of the AIFMD to the creation of an internal market for AIFs by establishing a harmonised and stringent regulatory and supervisory framework for AIFMs. It also identifies a number of areas which require further in-depth analysis.

The study is based on a survey and provides an assessment of the extent to which specific rules are effective, efficient, coherent and relevant. It analyses the experiences of the industry and regulators in applying AIFMD, the relevant national transformation acts as well as the AIFMD impact on AIFs and AIFMs in the EU, investors and other stakeholders. Among others, main findings highlight the following:

- The major role of AIFMD in helping to create an internal market for AIFs and a harmonised and stringent regulatory and supervisory framework for AIFMs.
- Further harmonisation in few areas in order to prevent rule arbitrage and to ensure a common level playing field.
- Large volumes of data are submitted by AIFMs to NCAs with respondents noting that some data maybe insufficient while some duplicative, with differences in national interpretation and filing procedures exacerbating costs.

The use of high leverage is rare in AIFs. Respondents and interviewees noted that it would be helpful to harmonise the calculation methodologies for leverage across AIFMD, UCITS and other relevant legislation. ESMA's Action Plan for 2019 includes work on leverage.

PRIIPs

Since 1 January 2018, intermediaries distributing investment products to retail investors are required by the PRIIPs Regulation[156] to provide them with a key information document (KID). All the funds currently using a UCITS key investor information document (KIID) benefit from an exemption until 31 December, 2021 and do not need to produce a PRIIPs KID.[157]

As of October 2019, the three ESAs published a joint consultation paper[158] concerning amendments to the PRIIPs Delegated Regulation[159]. The main discussion relates to the following:

- The probabilistic performance scenario methodology and presentation.
- The use of illustrative performance scenarios.
- The inclusion of information on past performance.
- Methodology and presentation of costs and summary cost indicators.
- Transaction costs.

The consultation paper also refers to the suggestion of the ESAs on the timing of potential legislative proposals to address the requirements that would apply to UCITS from 1 January 2022 onwards. The ESAs intend to submit their final proposals to the European Commission towards the end of the first quarter of 2020.

Focusing on SRPs, under PRIIPs, cost estimates are required to be published in KIDs. Some NCAs

[155] European Commission, January 2019, "Report on the Operation of the Alternative Investment Fund Managers Directive (AIFMD) – Directive 2011/61/EU".

[156] Regulation (EU) 1286/2014 of the European Parliament and of the Council of 26 November 2014 on PRIIPs KID.

[157] See footnote 152.

[158] ESMA, October 2019, JC 2019 63. Joint Consultation Paper concerning amendments to the PRIIPs KID.

[159] The amendments refer to the draft amendments to Commission Delegated Regulation (EU) 2017/653 of 8 March 2017 on PRIIPs KID.

have pre-notification requirements, which may facilitate construction of datasets on issuer-estimated costs in those countries. One issue to bear in mind in such cases is that these data depend on the methodology and pricing models used. To some extent this concern is addressed by the fact the PRIIPs regulatory technical standards (RTS) aims at mitigating the concern related to heterogeneity of methodologies and pricing models by harmonising the way costs should be measured.

MiFID II

On 3 January 2018, MiFID II/MiFIR entered into application.[160] This new legislative framework strengthens investor protection and improve the functioning of financial markets making them more efficient, resilient and transparent. In MiFID II, the main provisions relevant to costs are the conduct of business rules related to suitability, product governance and the disclosure of costs and charges to investors.

In terms of suitability requirements, ESMA has developed a dedicated guideline[161] in relation to the provision set out in Article 54(9)[162]. Amongst other things, it clarifies that firms should be able to justify situations where a more costly or complex product is chosen or recommended over an equivalent one. They should also document and keep records of these decisions.[163] These requirements are a key factor in ensuring that firms rationalise their product assortment and carefully consider products' costs during the distribution process.

The MiFID II requirements on product governance aim to ensure that the cost-element is not only considered at point-of-sale, but from the very beginning of each product's lifecycle[164]. This complements the abovementioned requirement on suitability as it requires manufacturers to ensure that financial instrument's costs and charges are compatible with their target clients.

In terms of costs and charges disclosures to investors, MiFID II strengthens the regime already identified in MiFID I and also extended it to relationships with professional clients and eligible counterparties (although MIFID I already included costs and charges disclosure requirements for non-retails, but at a very high level). The aim is to ensure that all categories of clients benefit from such increased transparency. Considering the importance of the topic, ESMA has also issued questions and answers (Q&As)[165] to clarify aspects such as the relationship between the PRIIPs and MiFID II disclosure requirements; the aggregation of costs; timing, periodicity and granularity of disclosures; calculations of transaction costs, disclosures in case of telephone trading.

Forthcoming steps involve ESMA further work in these areas and particularly focusing on costs and charges. In July 2019, ESMA launched a call for evidence on, among other things, costs and charges disclosures. This will assist ESMA in studying in detail the impact of the costs and charges disclosures, as requested by the European Commission mandate of 23 May 2019.[166]

ESMA also recently launched a common supervisory action (CSA) which participant NCAs will carry out simultaneously, over the course of 2020. The CSA will focus on the application of the MiFID II requirements on the assessment of suitability and will aim at analysing, among other things, whether and how the costs of investment products is taken into account by firms when recommending an investment product to a client.

[160] ESMA, 6 November 2018, "Guidelines on certain aspects of the MiFID II suitability requirements".

[161] Article 54(9) of the MiFID II Delegated Regulation requires firms providing investment advice and portfolio management, to "assess, while taking into account cost and complexity, whether equivalent investment services or financial instruments can meet their client's profile".

[162] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU. Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012.

[163] ESMA, 6 November 2018, "Guidelines on certain aspects of the MiFID II suitability requirements".

[164] Specifically, Art.9(12) of 2014/65/EC states that "financial instrument's costs and charges are compatible with the needs, objectives and characteristics of the target market".

[165] ESMA, 4 December 2019, "Questions and Answers. On MiFID II and MiFIR investor protection and intermediaries' topics".

[166] EC, 23 May 2019, "Formal request to ESMA for technical advice on the reports to be submitted by the Commission under Article 90 of Directive 2014/65/EU and Article 52 of Regulation (EU) No 600/2014".

Inflation impact

This annex reports net real performance for UCITS, taking inflation into account. It addresses the mandate[167] we received from the European Commission to provide recurrent reports on the cost and past performance of retail investment products by also accounting for inflation among costs. The separation from the main analysis takes into account two main caveats:

— Inflation is exogenous for fund managers.
— Inflation is related to the fund domicile and not to the investor domicile. This has notable implications when we move from the EU aggregate to the national level. When we consider cross-border funds, the inflation taken into account only refers to the domicile of the fund and not to the domicile of the investor.

Asset class at the EU aggregate level

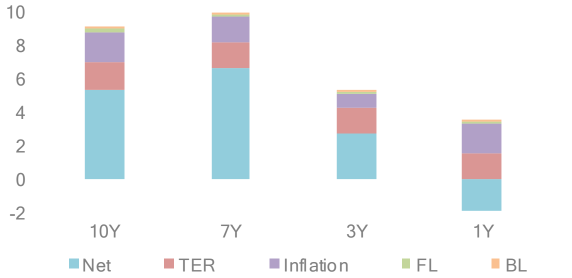
Inflation data is sourced from Eurostat.[168] One point worth mentioning: during the reporting period (2009 to 2018) there are the post crisis year of 2009 and the years 2015 and 2016 where inflation has been negative. During these periods, taking inflation into account will increase real net performance for investors.

Equity UCITS

As gross annual performance is highly variable adding the cost of inflation significantly reduces net performance when gross performance declines. The impact of inflation, in fact, significantly changes across time horizons, both in relation to the inflation dynamics and gross performance dynamics. The cost of inflation went from the highest at 1.8% for the ten-year horizon to the lowest, 0.8%, at the three-year horizon.

Including inflation among overall costs, for the reporting period 2009-2018, the reduction of net annual performance and the final impact on investor depends on the level of gross annual performance. When gross annual performance was the highest (9.9%), at the seven-year horizon, net performance was at 6.6% (8.1% excluding inflation). Differently, at one-year horizon, where gross annual performance was 1.5%, net annual performance dropped to -2% (-0.3% when inflation is not included) (ASR-PC.110).

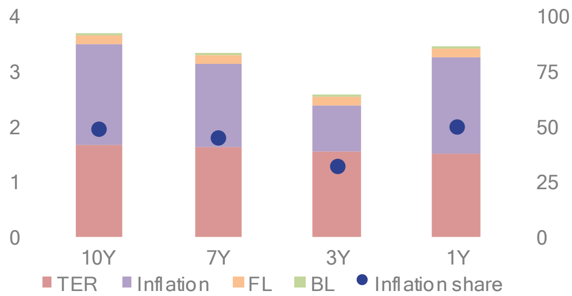
ASR-PC.110
Equity UCITS real performance and costs by horizon
Variable impact of inflation



Note: EU UCITS equity fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), inflation, subscription (FL) and redemption fees, aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

When inflation is included, the share of TER previously beyond 80% strongly reduced, going below 50%. The only exception was at the three- year horizon when it increases to 60% (ASR-PC.111). Conversely inflation accounted just below the 50% across horizons except for the three-year horizon when it accounted for 32% of total costs.

ASR-PC.111
Equity UCITS costs and inflation by horizon
Inflation and TER the most significant



Note: EU UCITS equity fund shares total costs, retail investors, classified as ongoing costs (TER), inflation, subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of inflation on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

Bond UCITS

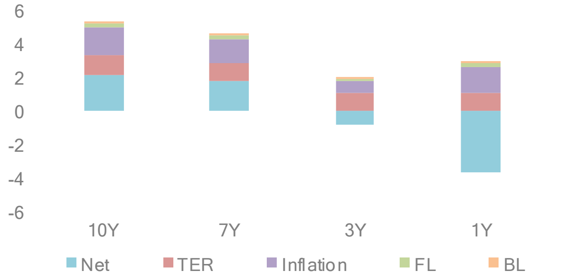
Apart from the three-year horizon when inflation proves to be significantly low, across all horizons, inflation is consistently higher than ongoing costs. After considering inflation among other costs, for the reporting period 2009-2018, net annual performance for bond UCITS was positive at

[167] European Commission, October 2017, "Request to the European Supervisory Authorities to report on the cost and past performance of the main categories of retail investment insurance and pension products."

[168] The analysis refers to the annual rate of change of the Harmonised Index of Consumer Prices (HICP) reported at a monthly frequency.

longer horizons 2.2% at ten-year and 1.7% at seven-year while was negative at three-year, -0.8% and one-year -3.7% ASR-PC.112).

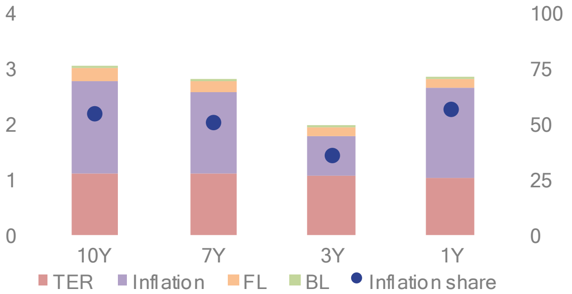
ASR-PC.112
Bond UCITS real performance and costs by horizon
Negative net performance at 3Y and 1Y



Note: EU UCITS bond fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), inflation, subscription (FL) and redemption fees, aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

Apart from the three-year horizon that reports inflation as 37% of total costs, for all other horizons inflation accounts for more than 50% to total costs (ASR-PC.113).

ASR-PC.113
Bond UCITS costs and inflation by horizon
Strong inflation impact

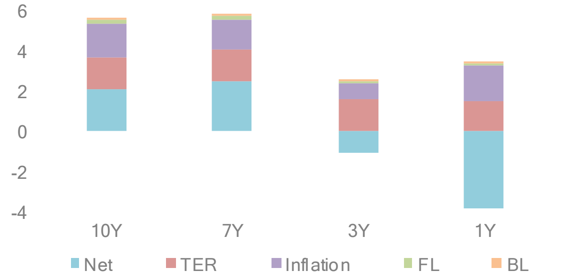


Note: EU UCITS bond fund shares total costs, retail investors, classified as ongoing costs (TER), inflation, subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of inflation on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

Mixed UCITS

Taking inflation into account confirms what was previously observed for equity and bond UCITS. The highest levels of net annual real performance were observed at ten-year and seven-year when gross annual performance was the highest. At ten-year starting from a gross annual performance of 5.6%, net annual real performance was 2.1%. Similarly, at seven-year, when gross annual performance was 5.8%, net annual real performance was 2.5%. At three-year and one-year instead net annual real performance was negative, respectively -1.1% and -3.9% (ASR-PC.114).

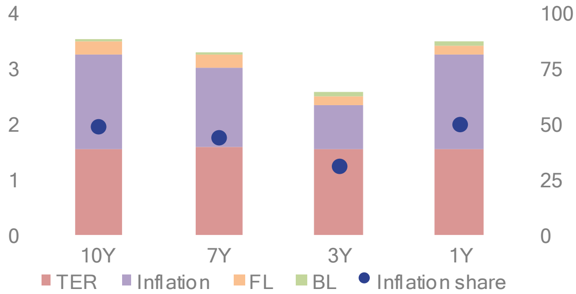
ASR-PC.114
Mixed UCITS real performance and costs by horizon
Performance below zero at 3Y and 1Y



Note: EU UCITS mixed fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), inflation, subscription (FL) and redemption fees, aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

Taking inflation into account confirms what previously observed for equity and bond UCITS. The significance of inflation was as high as that of ongoing costs apart from the three-year horizon when inflation was lower than the rest of the horizons considered (ASR-PC.115).

ASR-PC.115
Mixed UCITS costs and inflation by horizon
Inflation and ongoing costs main costs



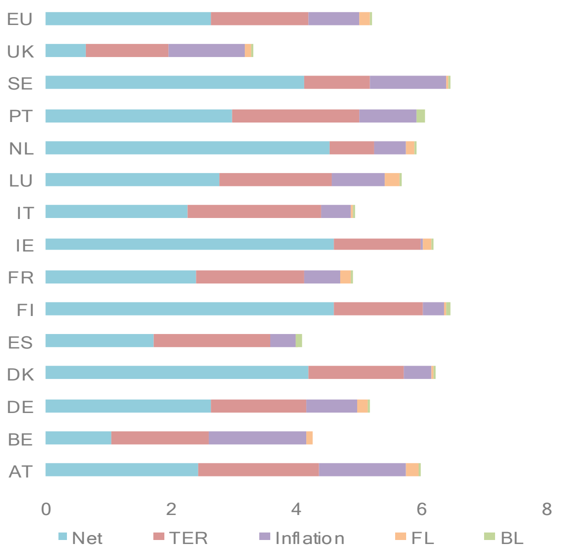
Note: EU UCITS mixed fund shares total costs, retail investors, classified as ongoing costs (TER), inflation, subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of inflation on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

The other two asset classes, namely money market and alternative UCITS, are not of main focus for retail investors. The dynamics however were similar to what observed before: inflation exerted a significant drain on net annual performance and accounted for as much as the ongoing costs.

Fund domicile

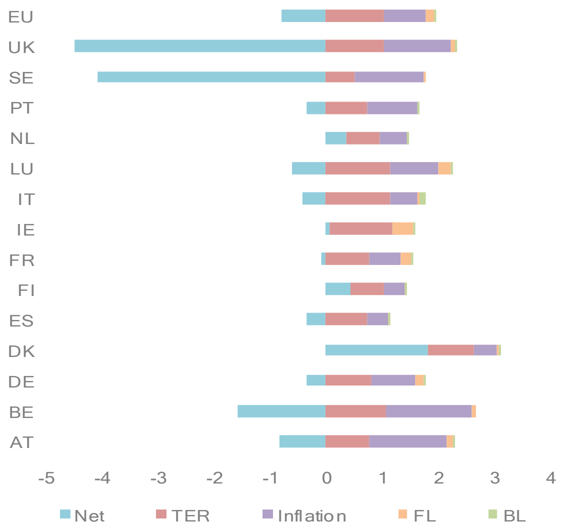
The country-by-country analysis focuses on the three-year horizon.[169] As shown above, over the reporting horizon 2009-2018, inflation has been a significant drain for gross annual performance across assets. This held over the three-year horizon, even if the inflation impact was the lowest. Heterogeneity was significant across Member States with inflation costs going from around zero in Ireland to a maximum of 1.6% in Belgium across assets (ASR-PC.116, ASR-PC.117, ASR-PC.118). These results should be put into perspective given that, as previously highlighted, the inflation that is considered only refers to the domicile of the fund and not to the domicile of the investor. For MMF and UCITS focusing on alternative strategies, the analysis is not performed on a country-by-country level due to the excessively small sample sizes. The impact on the final net annual real performance differed according to the level of initial gross performance. For those assets and domiciles where gross annual performance was the highest the impact on net annual performance was the smallest.

ASR-PC.116
Equity UCITS real performance and costs by domicile
Heterogeneity across countries



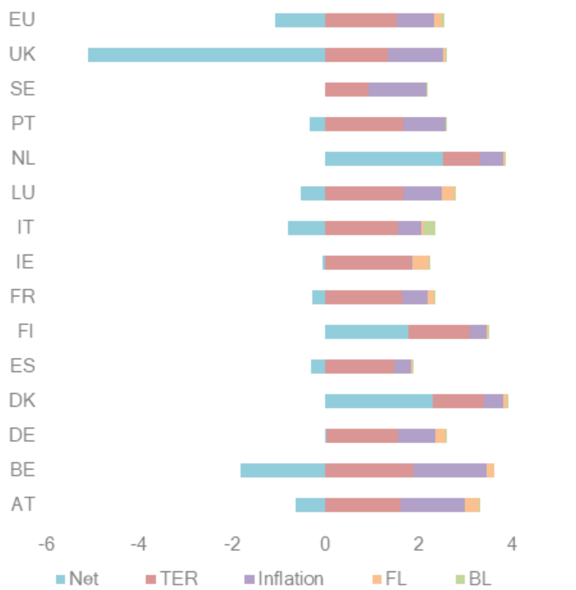
Note: EU UCITS equity funds annual gross returns, classified as net returns, ongoing costs (TER), inflation, subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC.117
Bond UCITS real performance and costs by domicile
Large inflation impact



Note: EU UCITS bond fund annual gross returns, classified as net returns, ongoing costs (TER), inflation, subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC.118
Mixed UCITS real performance and costs by domicile
Uneven impact across domiciles



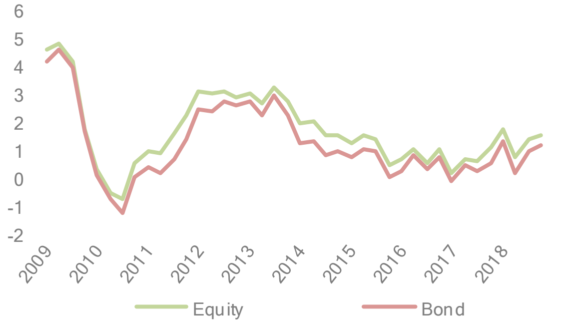
Note: EU UCITS mixed fund annual gross returns, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

[169] Charts for other time horizons are in the statistical annex. It should be noted that the inflation cost relates to the domicile of the fund and not necessarily of the investor.

ETFs

Also, for UCITS ETFs, inflation is calculated by domicile. As for the rest of UCITS, inflation increased the impact of costs on gross annual performance (ASR-PC.119).

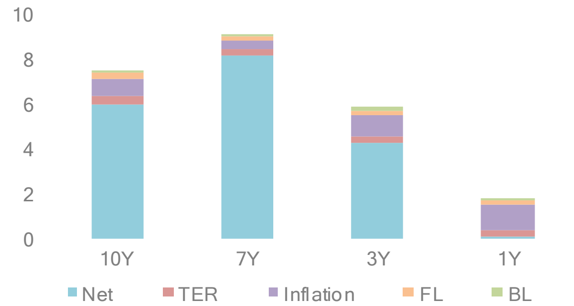
ASR-PC.119
Cost impact by asset including inflation by domicile
Cost impact higher when inflation included



Note: EU UCITS ETFs universe, impact of ongoing costs, inflation, subscritption and redemption fees on gross return, %.
Sources: Refinitiv Lipper, ESMA

In line with UCITS, in periods when inflation is negative in some domiciles (2009, 2015, 2016) the impact of costs declines for both equity and bond funds. The behaviour, across UCITS ETFs and UCITS non-ETFs, are different probably in relation to how inflation unfolds in the domiciles covered, which are different in the two samples.

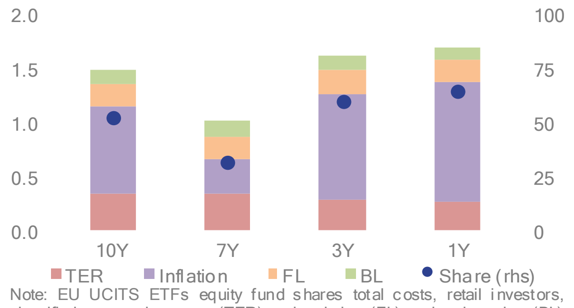
ASR-PC.120
Equity UCITS ETFs real performance and costs by horizon
Inflation impact varies across horizons



Note: EU UCITS ETFs equity fund shares annual gross returns, classified as net returns, ongoing costs, subscription (FL) and redemption (BL) fees, aggregated by time horizon, in %.
Sources: Refinitiv Lipper, ESMA

As before, due to EU ETFs focused on equity and to a lesser extent on bonds, the analysis on real annual performance focuses on these two asset classes. Inflation costs significantly reduced annual performance. When gross annual performance was higher, at ten-year (7.5%) and seven-year (9.1%), it remained above zero, respectively at 6% and 8.1%. At shorter horizons, characterised by lower gross annual performance, net real performance reduced to 4.2% at three-year and below 0.1% at one-year horizons (ASR-PC.120).

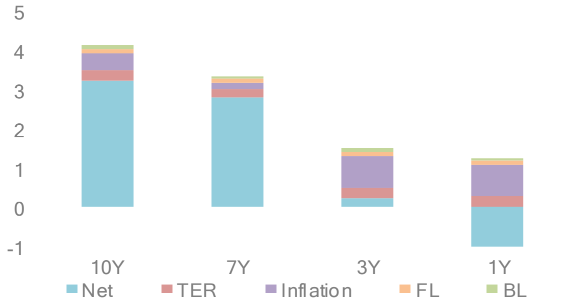
ASR-PC.121
Equity UCITS ETFs costs and inflation by horizon
Inflation most relevant cost



Note: EU UCITS ETFs equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, aggregated by time horizon, %. Share of inflation over total costs, %.
Sources: Refinitiv Lipper, ESMA

Once included, inflation accounted for the most, with a share of 52% at ten-year, above 60% at three-year and 65% at one-year. The only exception was the seven-year horizon in which it accounted for a 32% of total costs (ASR-PC.121).

ASR-PC.122
Bond UCITS ETFs real performance and costs by horizon
Impact higher at shorter horizons

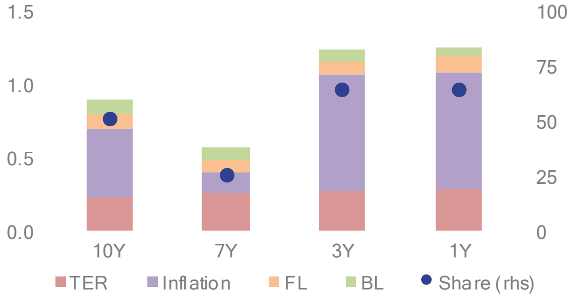


Note: EU UCITS ETFs bond fund shares annual gross returns, classified as net returns, ongoing costs, subscription (FL) and redemption (BL) fees, aggregated by time horizon, in %.
Sources: Refinitiv Lipper, ESMA

Focusing on bonds the overall dynamic was similar to the case of equity. Inflation was lower at longer horizons, being 0.46% at ten-year and just 0.14% at the seven-year horizon (the lowest across horizons). For both the three-year and one-year horizons it was at 0.8%. Overall gross annual performance was lower than equity and significantly low at shorter horizons, net annual real performance turned negative. At ten-year and seven-year horizons, net annual real performance was respectively 3.3% and 2.8% while at the three-year horizon net annual real performance dropped to 0.26% turning negative, to -1.8% at one-year (ASR-PC.122).

In terms of relevance among other costs, over ten-year, inflation costs accounted for the 51% of total costs. At seven-year dropped to 26% to then increase again to 64% of total costs at three-year and one-year horizons (ASR-PC.123).

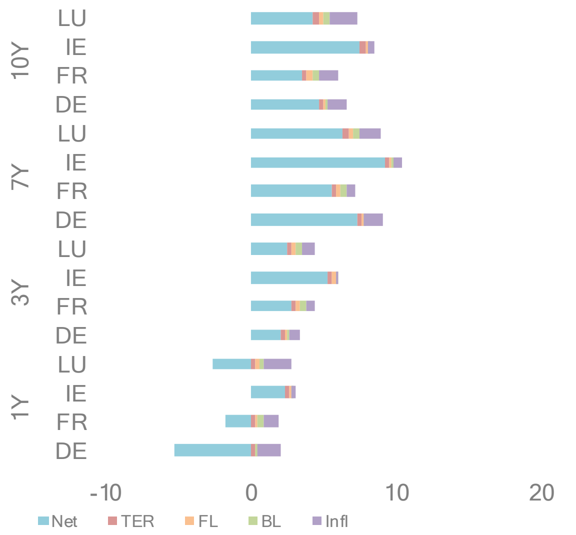
ASR-PC.123
Bond UCITS ETFs costs and inflation by horizon
Impact higher at shorter horizons



Note: EU UCITS ETFs bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, aggregated by time horizon, %. Share of inflation over total costs, %.
Sources: Refinitiv Lipper, ESMA

Since equity UCITS ETFs were 70% of total EU market share, and bond were only 28%, the country-by-country analysis focuses only on equity. We consider the four largest domiciles: Ireland and Luxembourg, followed by Germany and France, in order of market size. Charts ASR-PC.124 reports results. The information provided, however, should be critically evaluated for all the reasons previously mentioned, including the fact that inflation should be evaluated in the countries where funds are marketed rather than domiciled.

ASR-PC.124
Equity UCITS ETFs real performance and costs by domicile
Heterogeneity across countries



Note: EU UCITS ETFs equity funds annual gross returns, classified as net returns, ongoing costs (TER), subscription (FL) and redemption (BL) fees, and inflation by domicile and time horizon, in %. The rest of EU countries not reported as domiciles not significant.
Sources: Refinitiv Lipper, ESMA.

Data and data limitations

An assessment of the performance and cost of investment products in the remit of ESMA is structurally impeded by the absence of relevant regulatory data: UCITS fund data are not accessible at EU level, AIFMD regulatory data do not cover granular evidence on fund costs, and on SRPs, neither do regulatory data exist, nor do commercially available data provide a level of granularity and accuracy typically required for the purposes of our reporting.

This annex reports on the following:

— Data and related limitations for this ESMA report distinguishing by type of retail product considered.

UCITS

The largest amount of data continues to be gathered from Refinitiv Lipper. Data based on disclosure requirements stemming from EU directives and regulations have only started to become available over most recent years and currently do not cover the complete time horizon as requested by the European Commission. Data coming from the UCITS Directive and PRIIPs are not yet available and usable at an EU level.

This has three main implications:

— Use of information based on the domicile of the fund.
— Lack of granularity and harmonisation in cost data and absence of information on distribution costs and performance fees.
— Refinitiv Lipper cost data partly use a different cost taxonomy compared to the current EU regulation, as reported below.

The issue concerning the use of information based on the domicile of the fund rather than that of the investor remains. Available data are based on the domicile of the fund. This is related to the absence of information on the investor domicile that has a significant impact if a fund is sold cross-border. Therefore, we are unable to capture the so-called "round-trip" cases, where a fund management company of a specific Member State produces a fund through its subsidiary based in another market and then sells the fund in the Member State (this is usually the case when a market serves as a global platform such as Luxembourg or Ireland). This situation is relevant for a number of Member States, such as Italy.[170]

Ongoing costs and entry and exit fees

Using commercial data has the implication that the costs considered are ongoing costs and one-off fees, entry and exit.

Ongoing costs – proxied by the total expense ratio (TER). The TER includes all charges paid to the fund itself to cover the costs of resources used to design and operate the fund, as well as to pay for external services employed in the process. However, the TER is provided at an aggregate level and components of the TER are not available in our database. Accordingly, potential different practices in the TER computation are not captured (including the cost charged by funds in which UCITS invest) and that contributes to explain the high variability of costs across countries.

Compared to last year, in this current report we have been able to develop an analysis based on few more data available at a more disaggregated level. These are data on 2018 management fees. The source is Morningstar Direct. This investigation continues to try to cover additional types of fees. So far, however, this information remains scarce, but it seems to ameliorate over time.

Entry and exit fees – reported at their maximum level for each fund share class by Refinitiv Lipper. This is in line with regulatory requirements. It may lead to an overestimation, as actual entry and exit fees are often subject to negotiation and may vary for individual fund transactions. EC regulation No 583/2010 specifies that a statement disclosing the actual entry and exit fees should be issued where applicable.[171] This means that the UCITS KIIDs will report them. These statements, however, are either not accessible, as the identification as being an investor required, or not reported in a harmonised format (e.g. layout or languages, etc.).

For UCITS ETFs as well, Refinitiv Lipper reports entry and exit fees at their maximum level for each share class. We include this information in

[170] In Italy, according to a study from Assogestioni, even if the number has declined over recent years, more than the 30% of open-end funds are identified as round-trip funds.

[171] Articles 10 and 11, Commission Regulation No 583/2010.

the analysis. However, these fees only apply when investors subscribe or redeem shares on the primary market, while they do not apply when investors trade on the secondary market where bid-ask spreads should be factored in.

Performance fees

We do not include performance fees in our analysis as the reporting field for performance fees either in Refinitiv Lipper or Morningstar Direct is not adequately filled to provide consistent results.

An underlying reason for the scarcity of data is the heterogeneity in the way performance fees are computed across markets due to a lack of EU regulatory requirements on calculation and reporting of performance fees.[172]

Distribution fees

Distribution costs are a crucial component impacting the total cost borne by investors. The assessment of distribution costs is, however, significantly impaired due to scarce data availability and significant heterogeneity across markets, across channels but also, for the same channel, across investors. Lack of harmonisation characterises the level of granularity, data formats as well as language. Distribution costs may be part of the analysis to the extent they are included in ongoing costs and/or the entry charges presented in the KIID. However, they are not included as a specific cost as we are not able to identify such fees.

Distribution: a survey from Member States

At the EU level, previous studies try to go more in details on the treatment of distribution costs. The 2018 European Commission study[173] on distribution systems of retail investment products across the EU, as well as the ESMA 2019 Report[174], highlights the lack of transparency and the heterogeneity across Member States. From a regulatory perspective, the Directive 2019/1160[175] (12 July 20190 published in the Official Journal of the EU aims, among other things, to eliminate regulatory barriers to the cross-border distribution of funds, as well as to improve transparency by aligning national marketing requirements and regulatory fees.

To try to overcome the lack of information, ESMA carried out a survey in July 2019 across jurisdictions on distribution costs.[176] Twenty-two countries participated to the survey. Lack of harmonisation in distribution channels and cost treatment is evident.

In terms of distribution channels, most of the countries identify banking institutions as the main distributors, notwithstanding different market structures, investor preferences or regulatory frameworks. Most respondents report that banks are the main distribution channels for UCITS among retail investors across the different asset classes, with an indicative share of more than 50%. Three countries report this share as beyond 90%. Austria, Croatia, Germany, Greece, Italy, Romania and Spain highlight the importance of banks as the main marketing channel for funds. In markets like Belgium, Finland, Hungary, Latvia and the Netherlands additional channels explicitly mentioned include investment companies. Banks, however, detain the predominant role as distributors. There are countries in which insurance service providers are identified as the main marketing channels as, for example, in France and Ireland. Malta mentions the presence of financial advisors, covering below the 10% of the market. Banking institutions remain the major distribution channel also in Malta. In Denmark trading platforms, fund supermarkets, insurance service providers as well as independent financial advisers are all mentioned as alternative marketing channels. However, these alternative distributors account only for less than the 10% of the Danish market, while banking institutions seem to cover more than the 50%. Fund supermarkets as a mean of distribution are also mentioned in Norway. Luxembourg refers to the cross-border distribution of funds and to a variety of distribution channels: bank branch networks, independent financial advisers, life insurance companies or directly the management company.[177]

172 For more details on regulatory developments please refer to the related Annex, Regulatory developments, in this report.

173 European Commission, 2018, Distribution systems of retail investment products across the European Union.

174 ESMA, 2019, "Annual Statistical Report Performance and costs of retail investment products in the EU".

175 Directive (EU) 2019/1160 of the European Parliament and of the Council of 20 June 2019 amending Directives 2009/65/EC and 2011/61/EU with regard to cross-border distribution of collective investment undertakings.

176 In August 2018, an ESMA survey was addressed to National Competent Authorities aiming to obtain additional information on management and distribution fees. The current survey is in line with the previous one carried out in 2018.

177 Please note that the CSSF considers that marketing of shares/units of UCITS in Luxembourg is subject to the provisions of the UCITS Directive. UCITS established in Luxembourg may market their shares/units to Luxembourg investors with no further agreement/procedure required. Differently, to market an UCITS not domiciled in Luxembourg a passport must be granted.

In terms of costs levels, replies were more scarce than in the 2018 edition of the survey.[178] In several cases, it was specified that not enough detailed information is available to allow for systematic analysis.[179] Several jurisdictions, including Luxembourg, Greece and Ireland, report the absence of specific disclosures about the compensation for distributors. Some countries mention that having costs expressed in a bundled fee structure implies the absence of information at a more granular basis. This suggests an absence of the distinction of the distribution fees from the management fees.

Replies to the survey indicate that distribution costs are input of entry charges and direct fees paid by investors in Austria and Portugal. In other jurisdictions, including Belgium, Denmark, France, Germany, Ireland, Italy, Malta, distribution costs are included in direct fees, such as management fees, and indirect fees. In Finland, Greece, Norway, Slovenia, Spain distribution costs are included in management fees that are part of the ongoing costs. In several cases there is fee sharing between the UCITS manager and the distributor. Thus, investors are indirectly affected. As for the effects of the MiFID II inducements rules, there appears to be a wide spectrum across markets. Jurisdictions that had already introduced an inducement ban or significant limitations on the permissibility of inducements (such as Finland, the Netherlands and the United Kingdom) did not observe any effect. Some respondents mentioned the increased transparency and information on inducements, both on an ex-ante and ex-post basis, and an increase in investment advice (e.g. France, Spain). Still others highlighted the various and at times contrary effects on fees the rules have had (e.g. in Belgium, some managers seem to have reduced the management fees for distributors providing independent advice while others increased their management fees to compensate for the costs of research). In other jurisdictions (e.g., Germany), more and more manufacturers started providing products without distribution fees built into the product costs, leaving it to the distributors to charge such costs directly to the client. Luxembourg reported that there are no specific requirements for funds to explicitly disclose detailed information about the compensation for distributors. Detailed disclosures on global costs are provided by the fund on a voluntary basis. The Commission de Surveillance du Secteur Financier (CSSF) does not require a cap on distribution fees, although it asks for justification in case fees are deemed as unreasonably high. In Belgium, the prospectus of a Belgian UCITS has to mention all fees and cost charged to the share- or unitholders. In addition, a substantial part of Belgian UCITS, in order to discourage early redemptions, charges a significant redemption fee if the units are redeemed within a period of one month after subscription. However, this particular fee is only to be paid in very specific conditions that might not be taken into account by some commercial databases, overestimating the fees.[180]

Indicatively, across jurisdictions, differences are observable in terms of cost levels for the same type of distribution channel or asset. For example, focusing on equity funds, the banking distributors charge higher costs in Italy and Greece, compared to Finland, Malta or Slovakia. High costs are also indicated for France, Hungary and Portugal. In Italy on average costs across distributors seem to be higher compared to the twelve countries for which replies are available.

Focusing on the type of products sold, again on the basis of the twelve replies received, banking distributors tend to sell more in-house rather than third party products compared to other distribution channels, consistently across jurisdictions.

Taxonomy of costs: EU regulation and commercial data

There are differences in the definitions on costs used by Refinitiv Lipper and by current EU Regulation: UCITS Directive and Delegated Acts, MiFID II and PRIIPs regulation.

Ongoing costs

UCITS: Chapter IX, Section 3, of the Level 1 Directive (2009/65/ES) refers to key investor information (KIID) and art. 78(3) specifies that KIID shall provide information also on cost and charges. Details of the content and format shall

178 Only twelve participants replied to this specific question. For few countries, no information was provided on the indicative ranking of the cost level or of in-house/third-party products. For some countries instead there are replies for some type of distributors but not others.

179 From the information provided, it seems that the banking channel is the most expensive and more expensive than trading platforms. For Italy at an aggregate level, as already specified last year, management companies on average hand back 70% of management fees to the distributor.

180 Please note that for this reason, in the case of Belgium redemption fees are not considered.

be provided in delegated acts adopted by the Commission (art. 78(7)).

UCITS KIID: From the UCITS Directive, details on content and format have been left to be developed further by means of implementing measures, which should be specific enough to ensure that investors receive the information they need in respect to particular fund structures (Recital (1) Commission Regulation (EU) No 583/2010). Art.10 Section 3 of the Commission Regulation No 583/2010 defines the charges and their presentation.

For ongoing costs (art.10, 2(b)), a single figure shall be shown for charges taken from the UCITS over a year, representing all annual charges and other payments taken from the assets of the UCITS over the defined period, and based on the figures for the preceding year.

The following is the definition on the reporting of charges in Annex II of the UCITS regulation:

"Ongoing charge: [] % charges taken from the fund under certain specific conditions".

CESR guidelines: CESR guidelines on the methodology for the calculation of the ongoing charges figure in the KIID contain the definition of the ongoing charge figures to be disclosed, including an indicative but not exclusive list on the types of ongoing charges. As from the guidelines, ongoing charges include the following:

- All payments to the management company of the UCITS, directors of the UCITS if an investment company, the depositary, the custodian(s), any investment adviser, also including any person to whom they have delegated any function.
- All payments to any person providing outsourced services to any of the above;
- Registration, regulatory fees and similar charges.
- Audit fees.
- Payments to legal and professional advisers.
- Any costs of distribution.
- Cost charged to the funds in which the UCITS is invested where such funds represent a material share of the UCITS' portfolio.
- Charges and payments that do not form part of the amount to be disclosed as ongoing charges in the KIID include but are not limited to: entry/exit charges; a performance-related fee payable to the management company or investor advisor; transaction costs; interest on borrowing; payments to third parties […].

PRIIPs: Details are referred to the Commission delegated regulation (EU) 2017/653.

Annex VI refers to the methodology for the calculation of costs. Part I, refers to the list of costs, one-off fees, recurring costs, incidental costs. Recurring costs are payments deducted from the assets of an AIF or UCITS and represent the following: expenses necessarily incurred in their operations; any payments, including remunerations, to parties connected with the AIF or UCITS or providing services to them; transaction costs. Annex VI fully harmonises the way to measure and disclose transaction costs.

The cost indicator to be used is the reduction in yield (RIY). In terms of what recurring costs include, CESR guidelines previously reported (see above), these are in line with PRIIPs.

MIFID II: Directive 2014/65/EU of the European Parliament and of the Council.

Art.1 of MiFID II sets out the scope: "The MIFID II Directive applies to investment firms, market operators, data reporting service providers and third-country firms providing investment services or performing investment activities through the establishment of a branch in the Union. […]".

UCITS funds and managers are generally exempt from MIFID II, except to the extent that they also conduct MIFID investment services and activities in relation to financial products.

Art. 24(4 and 5) of MiFID II refer to costs and charges to be reported and how to report them. Art. 24(13) of MiFID II empowers the Commission to adopt delegated acts to ensure compliance with the principles set out in Art. 24 of MiFID II. Art. 50 of the Commission Delegated Regulation 2017/565 then prescribes in more detail how the disclosures have to be made.

Annex II of this regulation includes examples on disclosures on ongoing charges.

Commercial data: Refinitiv Lipper data are mainly based on information provided by the fund management company. Total Expense Ratio (TER) can include one of the following figures.

- Expense Ratio (ER)
- Fund Expense Ratio (FER)
- Management Expense Ratio (MER)
- Ongoing Charges (OC)
- Total Expense Ratio (TER)

For the EU, TER mostly refers to OC and is used as a proxy for ongoing costs.

More details can be found in the paper titled “Adjusted Performance Lipper Calculation Definition Methodology Research Team” from Refinitiv Lipper.

Entry and exit charges

UCITS KIID: Art.10 (2)(a) Commission Regulation No 583/2010 clarifies that entry and exit charges shall each be the maximum percentage which might be deducted from the investor’s capital commitment to the UCITS”.

Art. 11(1)(a) follows by clarifying that:

— regarding entry and exit charges, it shall be made clear that the charges are always maximum figures, as in some cases the investor might pay less;
— a statement shall be included stating that the investor can find out the actual entry and exit charges from their financial adviser or distributor.

PRIIPs: Annex VI, Part 1–List of costs, includes the definition for one-off costs. A one-off cost is an entry or exit cost which is either paid directly by the retail investor; or deducted from a payment received by or due to the retail investor.

One-off costs include, but are not limited to, the following types of up-front initial costs that shall be taken into account in the cost amount to be disclosed in the KIID: distribution fee, to the extent that the amount is known to the management company.

If the actual amount is not known to the management company, the maximum of the possible known distribution costs for the specific PRIIP shall be shown; constitution costs (up-front part); marketing costs (up-front part); subscription fee including taxes.

MIFID II: Annex II of Reg. 2017/585 shows how entry and exit fees should be reported by MIFID investment firms.

Commercial data: Maximum subscription (redemption) fees or front (back) loads are disclosed as percentages of the initial investment (withdrawals). Both are reported according to the fund disclosure.

As most of institutions report the maximum fees, as required by regulation, these are the fees available.

Performance fees

UCITS KIID: Art. 12(3) of the Regulation No 583/2010 foresees the inclusion of a performance fee to be disclosed in accordance with art 10(2) (c) of the same regulation. The amount charged during the UCITS last financial year shall be included as a percentage figure. Details on the presentation of charges are reported in Annex II.

PRIIPs KID: Annex VI harmonises the way to measure and disclose performance fees.

CESR guidelines: In the guidelines (page 5) it is specified that a performance-related fee payable to the management company or any investor advisor “shall not form part of the amount to be disclosed as ongoing charges in the KIID”.

MIFID II: Annex II of Reg. 2017/585 includes examples on how to report performance fees. These are considered as incidental costs.

Commercial data: Performance fees not included in the TER.

AIFs sold to retail investors

The reporting obligations established by the AIFMD and the Implementing Regulation provide a standard data collection framework and ultimately improve transparency to NCAs. These obligations together with PRIIPs requirements should ultimately enable NCAs and ESMA to acquire a complete overview of the structure of AIFs and AIFMs. Not all the data currently reported, however, show an adequate level of quality. Together with the high degree of diversity and complexity in the AIF industry, the quality of relevant information poses challenges from an analytical perspective. ESMA together with NCAs is continuing to work on improving the coverage and quality of AIFMD data. Nonetheless, even if from an AIFMD perspective work is still ongoing trying to ameliorate data quality, data to be collected from PRIIPs are not yet available. This lack of information impacted on the type of studies previously developed as well as on the current study focusing on alternative investments.

Focusing on the current analysis, given the lack of data and lingering data quality issues, a full analysis has not yet been fully developed. This implies a sample analysis on gross performances and not on the full universe. This is however an improvement compared to 2019 ESMA report. Since, in the AIFMD, the reporting on costs is not required, a cost analysis is, so far, missing. In addition, there is no commercial database at our disposal that consistently and comprehensively covers this segment of the market.

SRPs

No regulatory data are available on SRPs across the EU. PRIIPs has been applicable only since 1 January 2018, KIDs-based data would not cover products issued before this date. Moreover, data on the costs faced by investors are not generally available, for most EU Member States, even if, under PRIIPs, cost estimates are required to be published in the KIDs. However, such data are not required to be reported to ESMA, meaning that the information is dispersed across large numbers of documents.

One issue to bear in mind is that these data depend on the methodology and pricing models used, which may vary between providers.

Approaches to replication

If costs are not disclosed by the issuer, or the credibility of the issuer's disclosure is questionable, an own estimate of costs can be made, though this can be complex.

Structured products can be understood as products that combine at least two single financial instruments of which at least one is a derivative (Das, 2000). The law of one price thus suggests that a structured product's price can be calculated simply by adding together the prices of its components. A cost estimate may then be derived by comparing the price a retail investor pays with the prices of the component instruments that would replicate the product's payoffs.

For example, in options markets, a reverse convertible is a bond that can be exchanged into shares of common stock at the discretion of the issuer. A long position in a reverse convertible can therefore be replicated by a long position in a coupon-bearing bond issued by the issuer of the reverse convertible, and a short position in a put option, i.e. a written put. A structured product with reverse convertible payoffs can be similarly priced or valued.

To come up with a fair price for a structured product, its components must be correctly identified. For every structured product, there are many ways to replicate its payoff structure. For example, a reverse convertible can be replicated by a long position in a bond and a short position in a put option or by a combination of bonds, a short call, and a forward contract. Economic reasoning suggests that the most efficient replication of a structured product is done by using the fewest possible components.

Two approaches exist to find the prices of different structured product components. One is to observe the prices of the components that are traded on an exchange and using a financial model for those that are not traded. This approach, used by e.g. Szymanowska et al. (2008), uses few assumptions. However, it will not always be possible to find the respective components on an exchange, as sometimes the component does not exist, or there is no incentive to trade it on an exchange.

Another approach is to use a financial model for all components of the structured product. This approach does not run the risk of issuer bias and virtually every option can be priced. However, using a financial model for the option component can be time-consuming. Additionally, decisions should be taken with respect to the model that will be used and the inputs. These decisions, as for example the assumed volatility, can have a big impact on the price. Replicating prices using financial models is by far the most common approach taken in research. A detailed summary of results of this approach can be found in Bouveret et al. (2013).

Statistical methods

For the current 2020 report we have developed specific methodology when calculating past performance and costs for funds to account for different aggregation, investment horizons as well as type of data available. This annex reports on the following:

- Statistical methods referring to the main methodology of the analysis.
- Robustness checks focusing on survivorship bias and on potential issues related to the choice of type of panel if balanced or unbalanced.

UCITS analysis

Data are entity-specific share class level and cover a ten-year period between January 2009 and December 2018. As previously mentioned, for the UCITS analysis we rely on commercial data providers, as data based on reporting requirements under Union law are not available for the entire reporting period.

We use the following data for our analysis[181]:

- Gross annual performances;
- TER data as a proxy for ongoing costs;
- annual fund value as a proxy for net asset value;
- annual netflows;
- EU Member State inflation rates.

Data scope and availability are likely to change and improve over time. Therefore, the methodology is designed in a flexible way. In practice this means that the different cost elements are treated separately. This allows to add cost categories overtime and to incorporate data from different data sources where this improves the analysis. This is reflected in this year's report that includes an analysis of management fees once data gathered from Morningstar Direct were merged with those obtained from Refinitiv Lipper.

We distinguish between the following:

- Gross performances;
- Ongoing costs;
- Performances net of ongoing costs, which equals the difference between gross returns and TER;
- Net performances, which equals gross returns net of TER and subscription and redemption fees charged directly by the fund (proxied by entry and exit charges);
- Net performances minus inflation, where annual inflation is provided on a monthly basis. It is downloaded from the ECB statistical data warehouse and it is based on Eurostat data.

The analysis does not cover the impact of taxation on fund performance.

Turning to the technical specification of individual metrics used in this study, the gross performance of a fund, r^G, represents the gross performance of the portfolio, in which the fund is invested in and ongoing costs are proxied by the TER. Both r^G and TER are obtained directly from the data provider. Performance net of TER, r^N, is therefore:

$$r^N = r^G - TER$$

Next, we factor in subscription and redemption fees (FL and BL) by deducting respective fees as weighted by the ratio of netflows to fund values (FV). Hence performance net of TER and subscription and redemption fees, r^{NL}, are

$$r^{NL} = r^N - \left|\frac{net\ flows}{FV}\right|(FL/BL)$$

The variable r^{NL} denotes the performance net of ongoing costs FL and BL. These fees are provided as time-invariant information and the maximum fees are used when information on actual fees is not available. This implies a potential upward bias.

Information on netflows[182] is considered to take into account the fact that these fees are not applied constantly over time, but they depend on actual redemptions or subscriptions of investors. We weight these fees by the ratio of netflows over FV across quarters limiting their impact.[183] The weighting is structured in this way in order to

[181] The data are retrieved from Refinitiv Lipper (performances, TER, netflows, fund value) are annual data at quarterly frequencies. We are also able to retrieve static information on front and back fees, asset types, domiciles, jurisdictions in which the share class is marketed. For inflation, annual inflation rates at monthly frequencies come from the ECB Statistical Data Warehouse.

[182] Please note that Refinitiv Lipper provides netflows and does not distinguish between inflows and outflows.

[183] Not having gross inflows or outflows, we can have net inflows or net outflows. When the weights calculated are negative, we only consider redemption otherwise only subscription fees. Weights are between 0 and 1. However, this could potentially imply an upward bias to smaller or newly created funds. We could also overestimate the impact as considering quarterly frequencies we could include subscription and redemption fees at potentially at higher frequencies then those actually incurred by investors.

account for potential variability in the holding period. Once more granular data on actual subscription and redemption fees is available a more accurate calculation will be possible in future reports.

Finally, we also subtract inflation, i.e. the inflation rate π for the country, in which the respective fund is domiciled, and generate the metric on returns net of TER, subscription and redemption fees, and inflation.

$$r^{NLI} = r^{NL} - \pi$$

Data on inflation are retrieved from the ECB Statistical Data Warehouse and refer to the annual Harmonised Index of Consumer Prices (HICP) rate of change for the Euro Area changing composition.

Data are available at a share class level. To have data at an aggregated level, we aggregate data at share class level through a weighted average by the size of the share class within the size of the domicile for the specific asset class considered. To have data by time horizon, we then compute a geometric average across time according to the time horizon considered.[184]

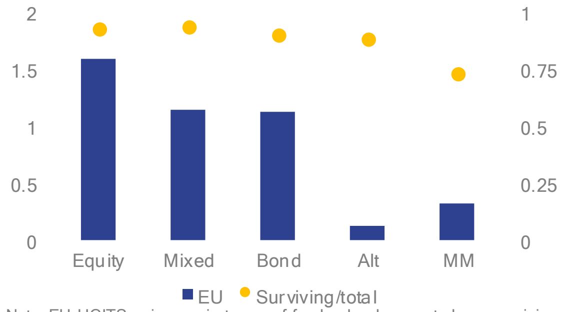
UCITS robustness checks

Surviving and non-surviving funds

This section refers to the potential for survivorship bias. Survivorship bias stems from the reliance on a sample of performances only of existing funds in the market without considering those that have disappeared. In turn, this may result in an overestimation of fund past performance. The same analysis previously focusing only on funds identified as surviving is now run for both surviving and non-surviving funds.

Focusing only on retail investors at end-2018. The overall sample of funds, surviving and non-surviving, stood at EUR 4.4tn, 9% higher than the sample only focusing on surviving funds. The largest difference held for those asset classes like MMFs (+26%) and alternative funds (+11%) whose so far have been of marginal importance for retail investors. The largest investments have been focusing, in fact, on equity, bond and mixed funds. Focusing on these three asset classes, the total sample (surviving and non-surviving) was not significantly higher than the sample based only on surviving funds. The difference was the lowest for mixed and equity funds, respectively 5.6% and 6.5% while being around 8.9% for bond funds (ASR-PC.125).

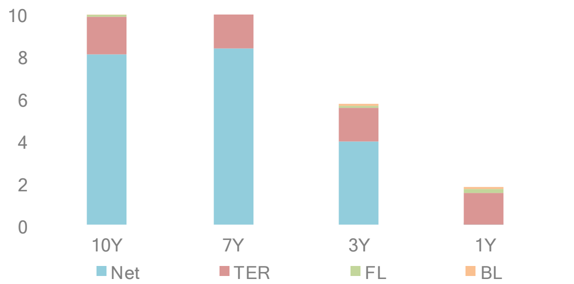
ASR-PC.125
Surviving and non-surviving funds for retail investors
Marginal difference with only surviving funds



Note: EU UCITS universe, in terms of fund value by asset class, surviving and non surviving funds, retail investors, 4Q18, EUR tn. Ratio only surviving funds over total funds by asset class on right-hand axis.
Sources: Refinitiv Lipper, ESMA.

When we look at findings in terms of performance and costs, results remained very similar. This held across time horizons and asset classes. As an example, focusing on equity, chart ASR-PC.126 shows how gross annual performance oscillated from a maximum of 9.9% at seven-year horizon to a minimum of 1.5% at a one-year horizon.

ASR-PC.126
Equity UCITS surviving and non-surviving
Findings similar to main analysis



Note: EU UCITS equity fund shares, surviving and non-surviving funds, annual gross returns, retail investors, calssified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

The results of the main analysis based only on surviving funds (ASR-PC.18) also shows the highest gross annual performance at seven-year horizon (10%) and the lowest at one-year horizon around 1.5%. In levels, as expected, performances were slightly different yet with similar trends.

In terms of costs dynamics, results were similar. Overall costs were much less volatile than performances. Ongoing costs continued to represent more than 85% of costs across time and decreased over time, going from 1.7% at longer horizons to around 1.5% at shorter

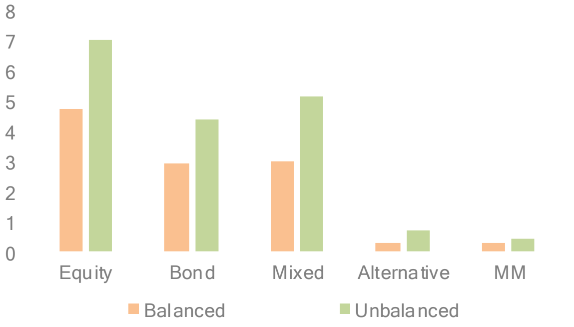
[184] For details on the methodology please refer to ASR-PC.17 of this publication.

horizons. Again, similarly to the analysis based only on surviving funds, subscription fees have been slightly increasing to around 0.17% at one-year horizon in 2018 from 0.15% over seven-year and three-year horizons. Redemption fees remained broadly stable across time horizons, around 0.03%. Being costs broadly stable, net performance followed the pattern of gross performance.

Balanced and unbalanced panel

The long horizon that the report needs to cover, 2009-2018 implies that we would have a large number of funds entering and exiting the market. This issue raises the question regarding the type of sample to rely on: if balanced or unbalanced. A balanced sample will include only funds having data over the entire time horizon. The number of fund shares remains constant in the sample (i.e. over the three-year horizon we only consider those funds present from the beginning to the end of the three years). An unbalanced sample includes all fund shares where data are available at some point during 2009 to 2018. The number of fund shares will therefore change over time. This may raise concerns on if and how results might change when the two different samples are considered. The following analysis reports on the comparison between balanced and unbalanced samples at an aggregate level for the three- and one-year horizons.

ASR-PC.127
Number of funds per asset class 3Y horizon
Number of UCITS reduces by 30%

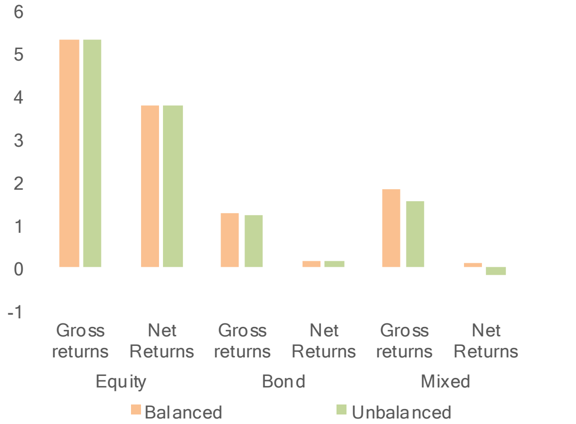


Note: EU UCITS universe, number of funds per asset class, balanced and unbalanced samples. 3Y horizon, thousands.
Sources: Refinitiv Lipper, ESMA.

Focusing on the three largest retail asset classes, over the three-year horizon the number of fund shares reduced by around 30%, for equity and bond funds, moving from an unbalanced to a balanced panel (ASR-PC.127).[185] For mixed funds this difference was larger being about 40%.

For equity and mixed funds, the unbalanced sample reports on average around 2,200 funds more than the balanced sample. In the case of bonds this difference was about 1,500 funds.

ASR-PC.128
Performance per asset class 3Y horizon
Similar performances across samples



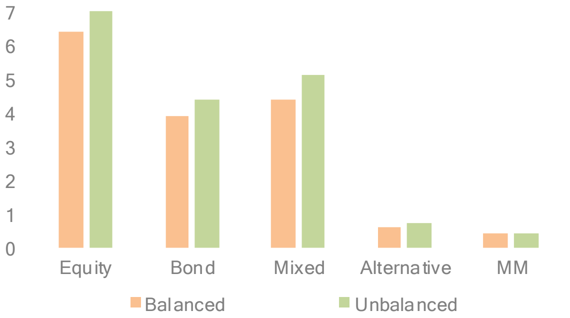
Note: EU UCITS gross and net performances for the largest retail asset classes, balanced and unbalanced samples. 3Y horizon, %.
Sources: Refinitiv Lipper, ESMA.

In terms of gross and net performances, the difference was limited when we considered the two different samples, in particular for equity and bonds, while being larger for mixed funds (ASR-PC.128). For equity and bond UCITS both in gross and net terms performances remained the same across the two samples. We observed a difference mainly in the case of mixed UCITS. This difference was mainly related to the availability of information that was much larger in 2018 rather than in previous years. In details, 20% of UCITS were not at all present before 2018. 80% of the UCITS were present also in preceding years but not enough information was available for the analysis. This implied that these funds were excluded from the final sample. Overall, it seemed that more recently reporting has been improving.

Moving from three- to one year, as expected, the differences were lower as the two samples, balanced and unbalanced, were more similar. In terms of number of funds, between beginning of 2018 and end of 2018, the change has been of 10%, 12% and 16% respectively for equity, bonds and mixed funds (ASR-PC.129). The longer is the time period, the larger the change in number of UCITS should be. The three largest asset classes, equity, bond and mixed UCITS, reported on average an increase of less than 800 UCITS between the beginning and the end of 2018.

185 Alternative and money market UCITS are not considered in the analysis on performances of balance and unbalanced sample. This is due to the fact that the larger asset classes on which retail investment is focused are equity, bond and mixed funds. Moreover, the reduced size of the sample for alternative and money market UCITS, especially at longer time horizons, does not provide significant results.

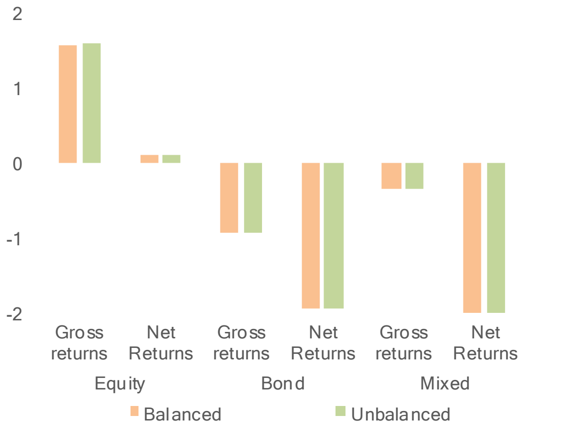
ASR-PC.129
Number of funds per asset class 1Y horizon
Limited differences across samples



Note: EU UCITS universe, number of funds per asset class, balanced and unbalanced samples, 1Y horizon, thousands.
Sources: Refiinitiv Lipper, ESMA.

In terms of gross and net performances, deviations were less than 4% (ASR-PC.130). Against this background, we based the main analysis on an unbalanced panel in order to keep the largest number of observations.

ASR-PC.130
Performance per asset class 1Y horizon
Performances similar yet negative across samples



Note: EU UCITS, gross and net performances for the largest retail asset classes, balanced and unbalanced samples, 1Y horizon, %.
Sources: Refinitiv Lipper, ESMA.

AIFs sold to retail investors

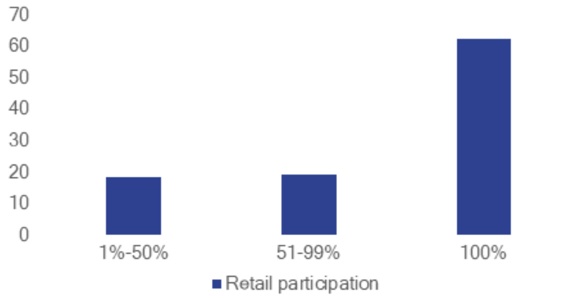
Data come from AIFMD reporting. Over 2018, the coverage largely improved moving from around 80% of the AIFs managed or marketed in the EU by authorised asset managers to 100%. Data concerning market size, by type of investor, by fund category, geographical focus are yearly fund level data. Aggregation is then performed by the mean of a simple average.

AIF gross performance analysis

The current report also provides a sample analysis of fund gross returns for 2018. The definition of gross returns stems from the European Commission delegated regulation[186] supplementing AIFMD. This means having monthly returns at a fund-by-fund level (gross of management and performance fees). We then annualise the monthly returns and aggregate across funds. This aggregation consists in a weighted average across funds category, using NAV or AuM as available.[187]

The focus goes on those funds having 100% retail investment. For 2018, this equalled EUR 624bn or 67% of the total retail investment in AIFs. By focusing on 100% retail investment, we are able to directly observe the dynamics of alternative investment only for retail clients. Moreover, in terms of retail participation rates to AIFs sold to retail, for 2018, 63% of our observations were concentrated in AIFs sold to retail investor that had only 100% retail investment. The 19% of our observation was related to rates of participation between 51% and 99%. The rest was concentrated on participation below the 50% (ASR-PC.131).

ASR-PC.131
Level of participation of retail investment in AIF sold to retail
Concentration at 100%



Note: AIF sold to retail investors, retail participation in terms of number of funds, %.
Sources: AIFMD. ESMA.

Differently from the market overview analysis, however, we based this analysis on a smaller sample of funds. The sample reduced because we eliminated the following:

— Those funds for which data on performance were not at all available.
— Those funds for which data were available only for less than eight out of the twelve months of the year 2018.
— Those funds for which data on gross performance and NAV were not jointly available.
— Those funds reporting monthly gross performance outside the range -/+ 10%. This

186 Commission delegated regulation 231/2013 supplementing Directive2011/61/EU (reporting obligations of NCAs are reported in article 24 of the Directive). The details on the reporting templates can be also found in the "AIFMD reporting IT technical guidance (rev.4). [Updated]" published by ESMA.

187 In our sample NAV and AuM do not significantly differ.

did not impact on the final NAV. The decision was linked to background analysis on hedge fund data based on Heureka Hedge. The maximum and minimum of gross performance for the ten years up to 2018 did not exceed the range identified above.[188]

By doing this, we used a resulting sample of 2,460 observations and a NAV of EUR 476bn or 51% of AIFs reporting 100% retail investment.

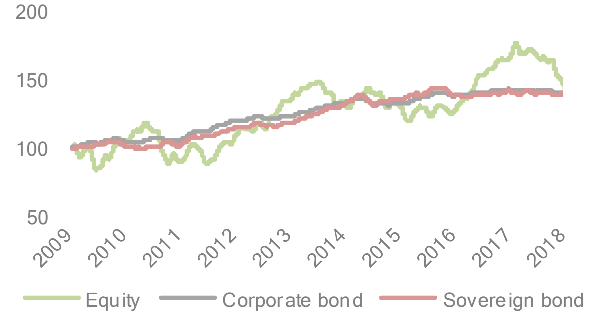
[188] ESMA, 2019, TRV No. 2, 2019 Statistical Annex, chart A.161.

Statistics

Market environment[189]

ASR-PC-S.1

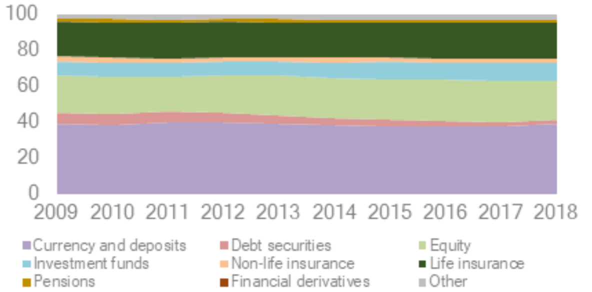
Securities market performance over time



Note: Return indices on EU equities (Datastream regional index), EA corporate and sovereign bonds (iBoxx EUR, all maturities), monthly averages, December 2009 =100.
Sources: Refinitiv Datastream, ESMA.

ASR-PC-S.2

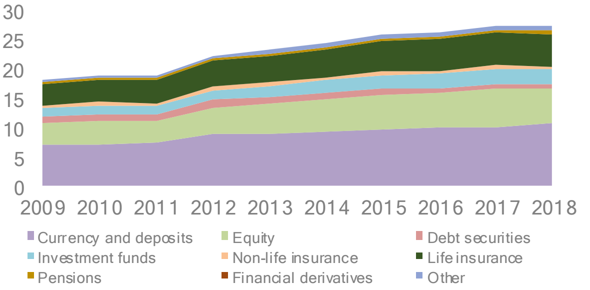
Structure of household financial assets



Note: Share of households financial assets in the EU, %. Life and non-life insurance include respectively life insurance and annuity entitlements and non life insurance non technical reserves. Derivatives includes employee's stock options.
Sources: Eurostat, ESMA.

ASR-PC-S.3

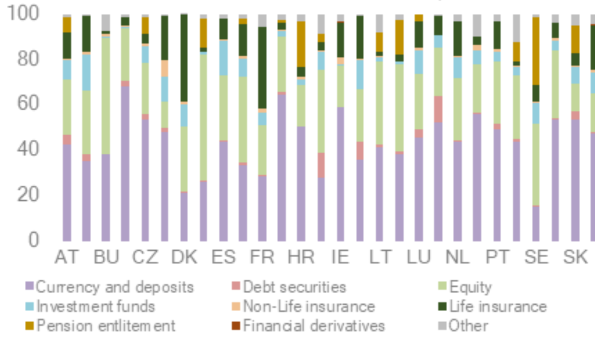
Household financial assets



Note: Households financial assets in the EU, EUR tn. Life and non-life insurance include respectively life insurance and annuity entitlements and no- life insurance non technical reserves. Derivatives includes employee's stock options.
Sources: Eurostat, ESMA.

ASR-PC-S.4

Structure of households' financial assets by fund domicile



Note: Structure of financial assets by Member State, 2018, %.
Sources: Eurostat, ESMA.

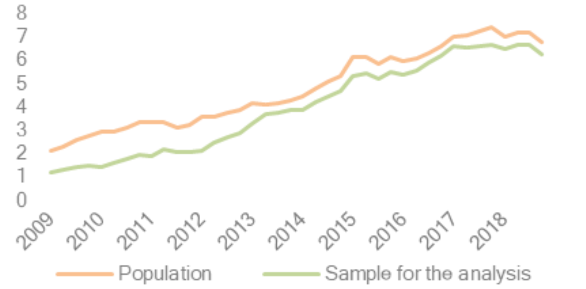
[189] The EU market includes the United Kingdom as it is a Member of the EU during the reporting period, 2009-2018. The United Kingdom is reported in the aggregate and in the country-by-country analysis. The data are commercial data from Refinitiv Lipper. The data are therefore publicly available to subscribers. Having all Member States is envisaged in order to have a more instructive comparison across the current and the previous year report.

UCITS

Market overview

ASR-PC-S.5

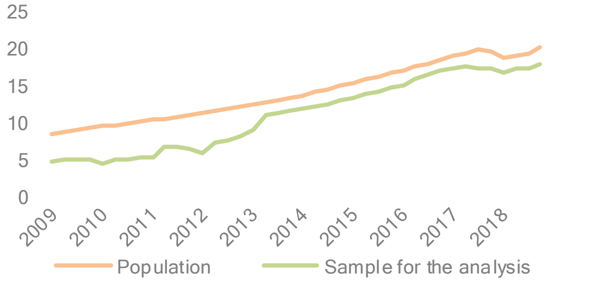
UCITS market size



Note: EU UCITS market size in terms of fund value, EUR tn. Population, all observations for which fund value and fund performance are available. Sample, all observations for which fund value, fund performance, netflows, subscription and redemption fees are available.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.6

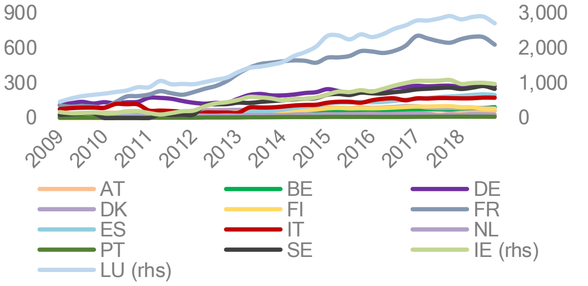
Number of UCITS funds



Note: EU UCITS market size in terms of number of funds. Population, all observations for which fund value and fund performance are available. Sample, all observations for which fund value, fund performance, net flows, subscription and redemption fees are available, thousands.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.7

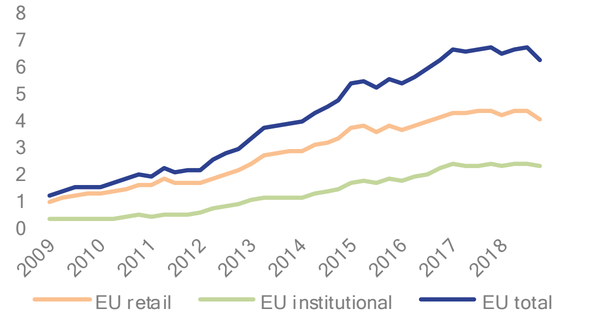
UCITS market size by country



Note: EU UCITS market size in terms of fund value, by country, EUR bn. All observations for which fund value, fund performance, net flows, subscription and redemption fees are available. All those EU countries with value less than EUR 100bn not included.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.8

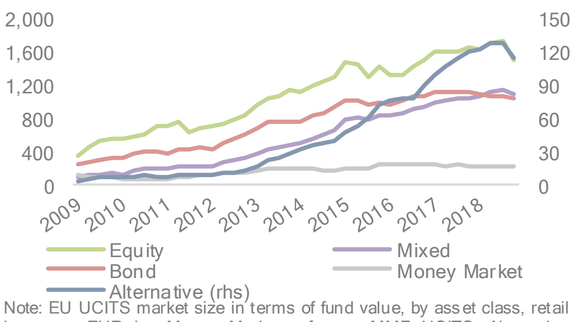
UCITS market size by type of investor



Note: EU UCITS market size in terms of fund value, by type of investor, EUR tn.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.9

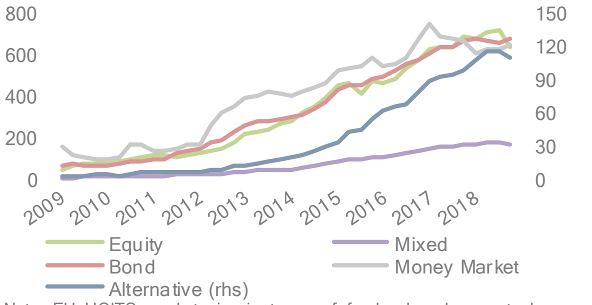
UCITS retail market size by asset class



Note: EU UCITS market size in terms of fund value, by asset class, retail investors, EUR bn. Money Market refers to MMF UCITS. Alternative strategies on the right hand side axis (rhs).
Sources: Refinitiv Lipper, ESMA.

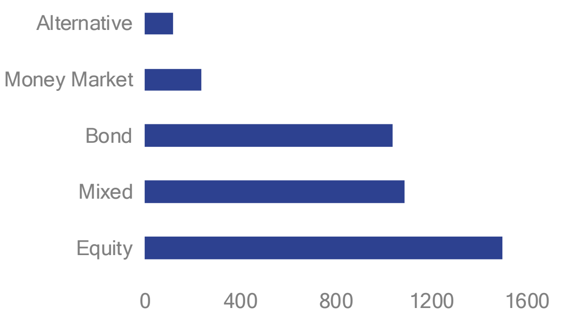
ASR-PC-S.10

UCITS institutional market size by asset class



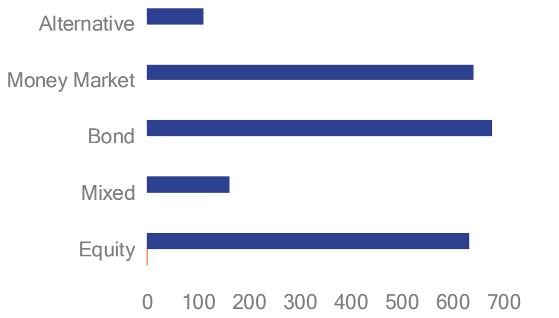
Note: EU UCITS market size in terms of fund value, by asset class, institutional investors, EUR bn. Money Market refers to MMF UCITS. Alternative strategies on the right hand side axis (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.11
UCITS retail market size by asset class – 2018



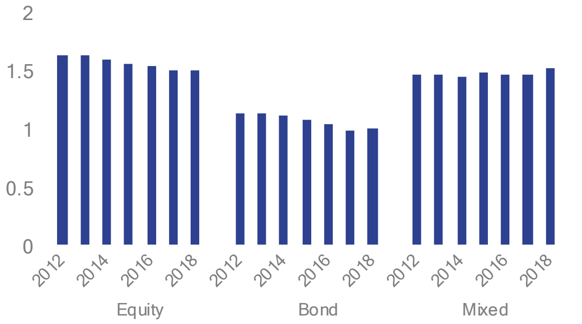
Note: EU UCITS universe, in terms of fund value by asset class, retail investors, 2018, EUR bn.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.12
UCITS institutional market size by asset class – 2018



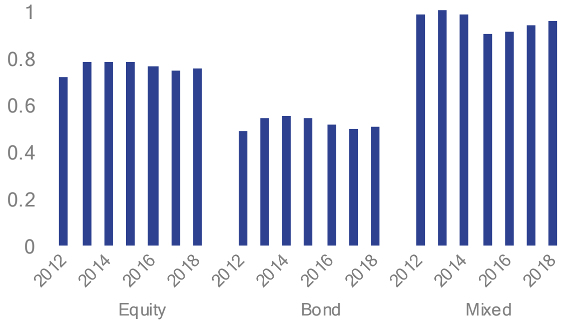
Note: EU UCITS universe, in terms of fund value by asset class, institutional investors, 2018, EUR bn.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.13
UCITS retail market size by asset class – 2018



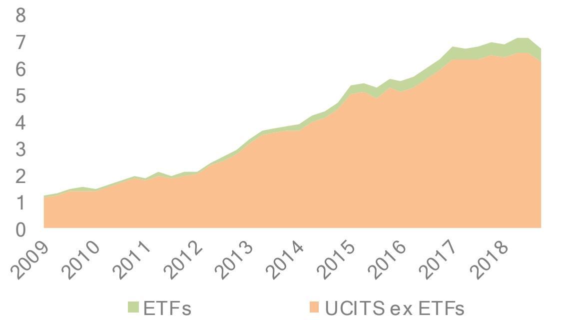
Note: EU UCITS evolution of ongoing costs by largest asset types for retail investors, asset-weighted average, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.14
UCITS institutional market size by asset class – 2018



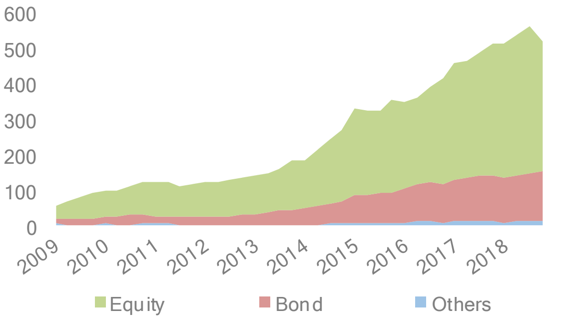
Note: EU UCITS evolution of ongoing costs by largest asset types for institutional investors, asset-weighted average, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.15
UCITS ETFs market size



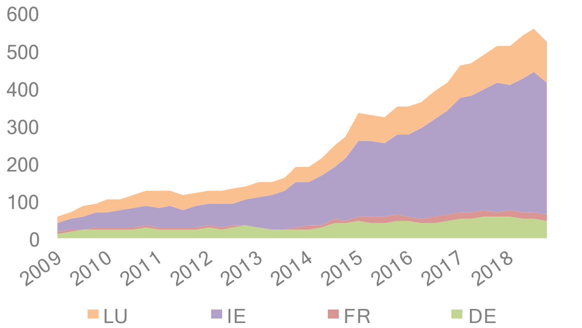
Note: UCITS market size in terms of fund value, distinguishing between UCITS excluding ETFs and UCITS ETFs, EUR tn.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.16
UCITS ETFs fund value distribution by asset class



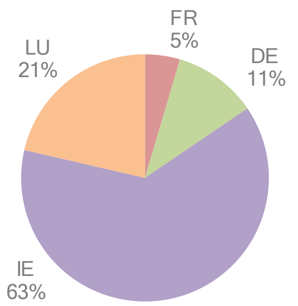
Note: Fund value evolution of EU UCITS ETFs over time by asset class, in EUR bn.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.17
UCITS ETFs equity fund value distribution - by domicile



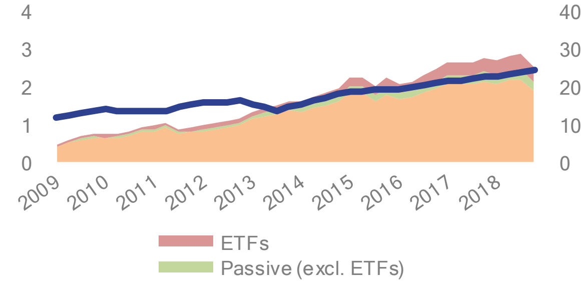
Note: EU UCITS ETFs universe in terms of fund value by domicile, over time, EUR bn. Only the four largest domiciles reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.18
UCITS ETFs equity fund 2018 share - by domicile



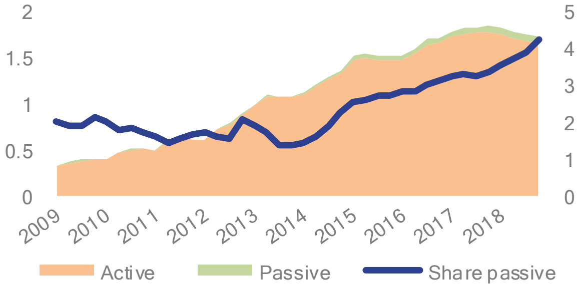
Note: EU UCITS ETFs equity fund value share by domicile, in %, 2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.19
UCITS equity funds – active and passive funds size



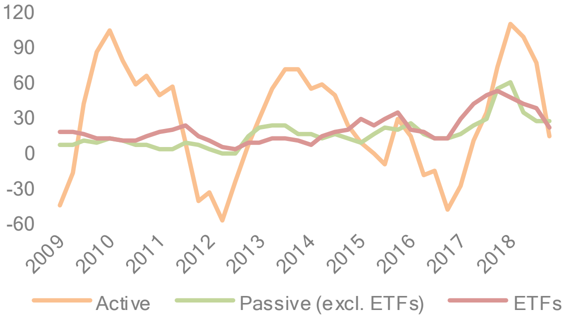
Note: Market size for EU-domiciled UCITS equity, actively and passively managed, and ETFs. All observations for which information on fund value, fund performance, net flows, subscription and redemption fees are available, EUR tn. Share of passive and ETFs in %, right-hand size.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.20
UCITS bond funds – active and passive funds size



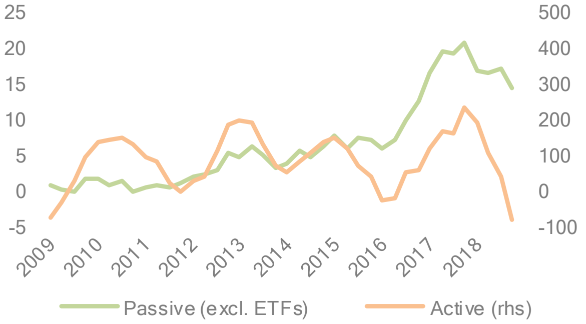
Note: Market size for EU-domiciled UCITS bond, actively and passively managed. All observations for which information on fund value, fund performance, netflows, subscription and redemption fees are available, EUR tn. Share of passive in %, right-hand size.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.21
UCITS equity funds – active and passive netflows



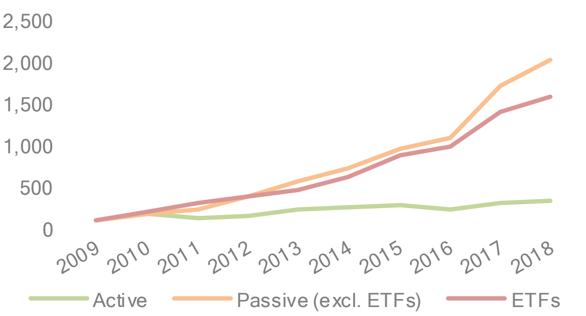
Note: EU-domiciled equity UCITS by management type, active passive, and ETFs. Annual netflows at quarterly frequencies, EUR bn.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.22
UCITS bond funds – active and passive netflows



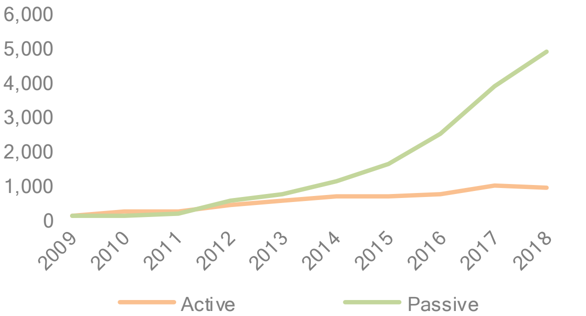
Note: EU-domiciled bond UCITS by management type, active and passive. Annual netflows at quarterly frequencies, EUR bn.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.23
UCITS equity funds – active and passive cumulated flows



Note:: EU-domiciled equity UCITS by management type, active passive, and ETFs. Cumulative netflows, 4Q09 = 100.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.24
UCITS bond funds – active and passive cumulated flows



Note: EU-domiciled bond UCITS by management type, active and passive, Cumulated netflows at quarterly frequencies, EUR bn. 4Q09=100.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.25

UCITS market share of domiciles by asset class – retail investors

	AT	BE	DE	DK	ES	FI	FR	IE
Equity	0.79	1.17	7.72	1.84	2.19	2.09	7.52	9.59
Mixed	1.67	4.34	8.20	1.34	8.76	1.49	8.01	3.20
Bond	2.37	0.39	2.92	3.47	4.52	1.86	5.62	12.79
Alternative	0.11	0.99	1.08	0.01	1.51	0.00	12.71	19.34
Money market	0.54	0.12	1.88	0.02	6.06	2.35	34.09	18.56

	IT	LU	NL	PT	SE	UK	Other EU
Equity	0.95	37.03	1.26	0.08	9.52	18.25	0.02
Mixed	9.52	37.12	0.22	0.28	5.64	10.21	0.03
Bond	4.61	49.68	0.37	0.15	3.47	7.71	0.08
Alternative	0.82	51.36	0.00	0.00	0.06	6.48	0.00
Money market	0.58	29.17	0.09	0.98	4.42	1.11	0.05

Note: Share of national fund value versus the EU total at 4Q18, by domicile, for retail investors, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.26

UCITS market share of domiciles by asset class – institutional investors

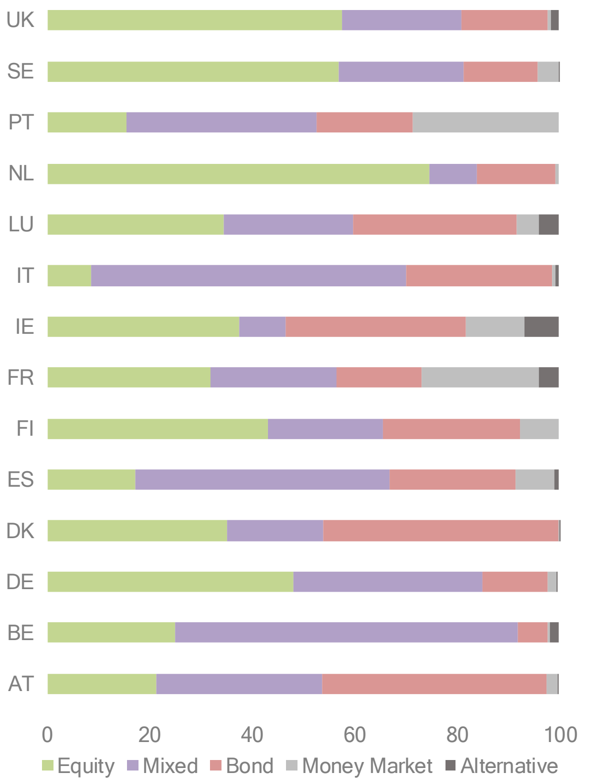
	AT	BE	DE	DK	ES	FI	FR	IE
Equity	0.01	1.72	1.18	0.32	0.21	0.05	3.48	21.73
Bond	0.07	0.89	3.54	0.00	0.37	0.28	4.90	9.44
Alternatives	0.02	0.56	1.96	0.25	0.01	0.73	6.91	26.12
Mixed	0.00	0.09	0.89	0.00	0.00	0.00	10.98	24.54
Money market	0.00	0.89	0.04	0.00	0.18	0.00	28.76	36.08

	IT	LU	NL	PT	SE	UK	Other EU
Equity	0.38	51.73	0.02	0.00	0.21	18.96	0.00
Bond	1.40	66.58	0.03	0.00	0.00	12.50	0.00
Alternatives	0.39	58.54	0.29	0.00	0.05	4.17	0.00
Mixed	0.20	57.39	0.00	0.00	0.00	5.92	0.00
Money market	0.18	31.88	0.00	0.00	0.17	1.82	0.00

Note: Share of national fund value versus the EU total at 4Q18, by domicile, for institutional investors, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.27

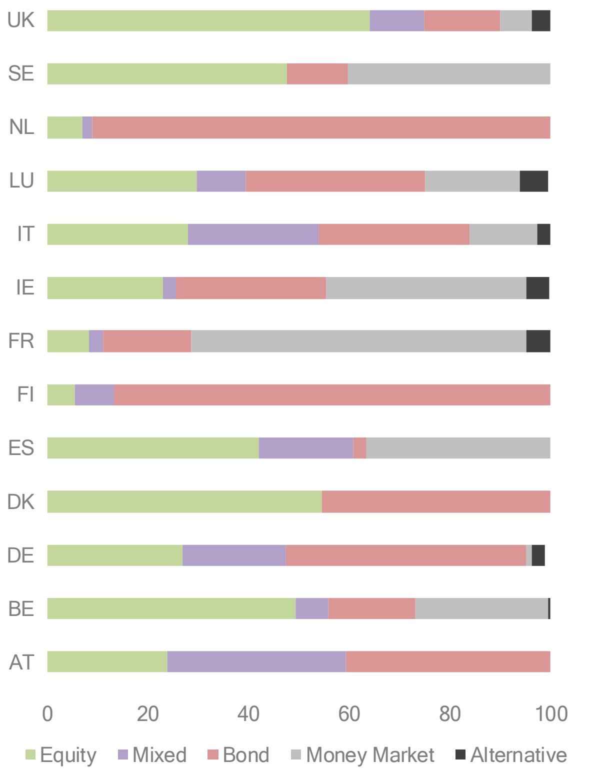
UCITS share of asset classes, by domicile – retail



Note: EU UCITS share of asset classes over total national fund value per domicile, retail investors 2018, %. Other EU not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.28

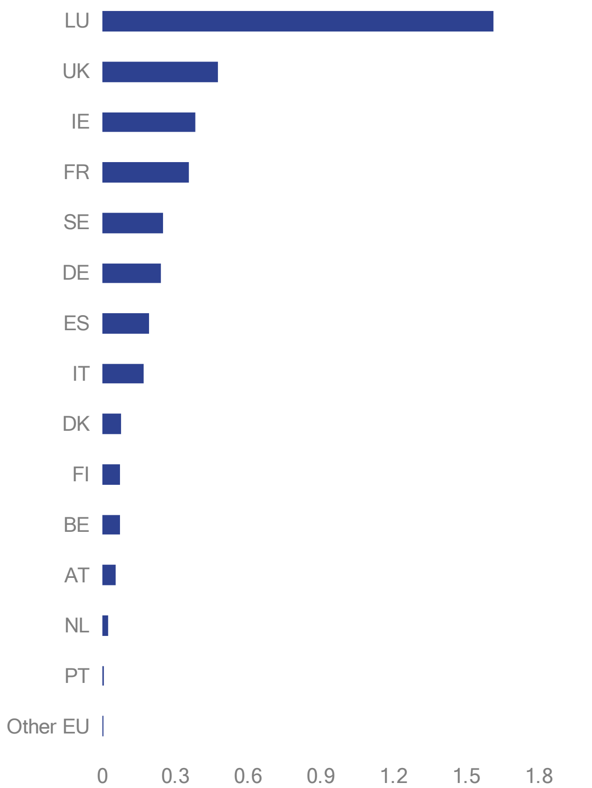
UCITS share of asset classes, by domicile – institutional



Note: EU UCITS share of asset classes over total national fund value per domicile, institutional, 2018, %. No data for PT. Other EU not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.29

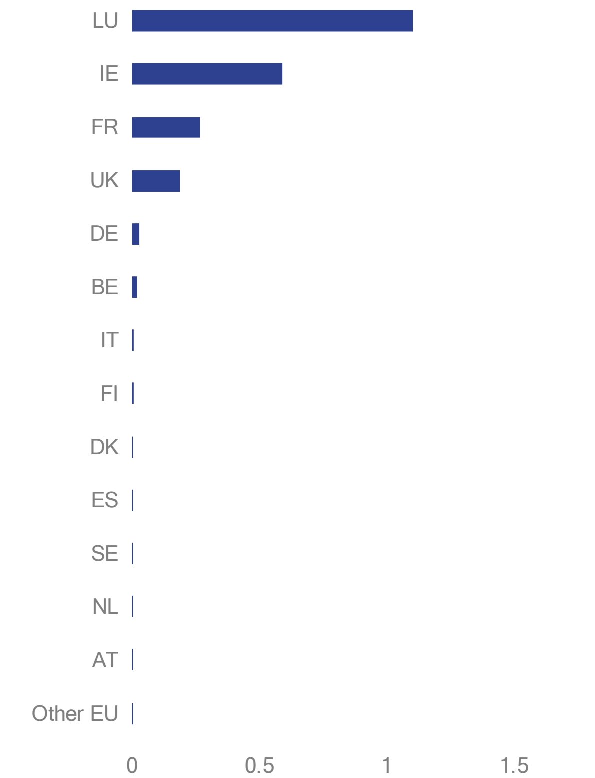
UCITS retail market size by domicile



Note: EU UCITS universe in terms of fund value, retail investors, 2018. All observations for which information on fund value, fund performance, netflows, subscription and redemption fees available, EUR tn. Other EU includes: BG, CY, CZ, EE, GR, HR, HU, LT, LV, MT, PL, SI, SK, RO.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.30

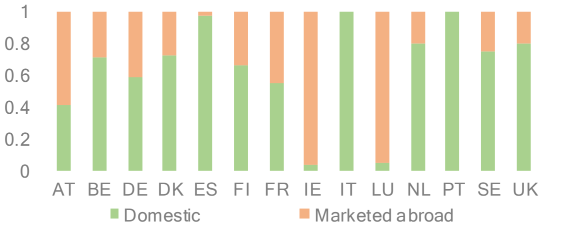
UCITS institutional market size by domicile



Note: EU UCITS universe in terms of fund value, institutional investors, 2018. All observations for which information on fund value, fund performance, netflows, subscription and redemption fees available, EUR tn. Other EU includes: BG, CY, CZ, EE, GR, HR, HU, LT, LV, MT, PL, SI, SK, RO. PT not reported as data not available.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.31

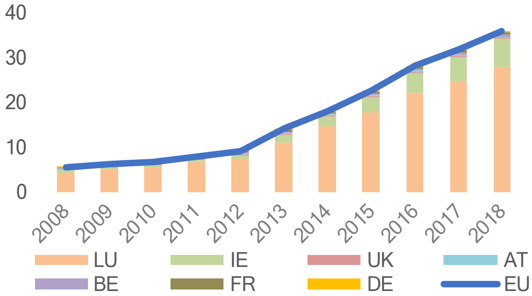
UCITS share of funds marketed domestically or abroad



Note: Share of UCITS net asset value, by destination (domestic and marketed abroad) per member state, 2018. Domestic funds are those funds produced and distributed only in the member state where the fund is domiciled, and those produced in LU and IE and distributed only in LU, IE and the reported member state. Funds marketed abroad are distributed in at least one member state other than the domicile.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.32

UCITS number of cross-border funds

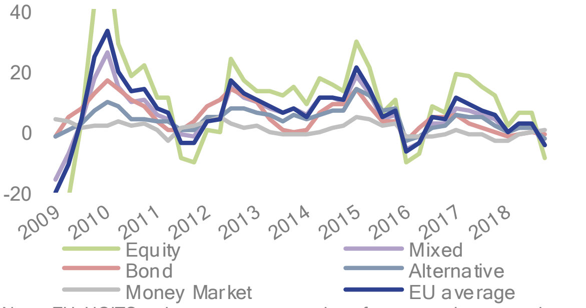


Note: Number of cross-border funds, defined as funds distributed at least in three countries including their domicile, thousands. Reported are selected domiciles presenting the largest number of cross-border funds in the EU.
Sources: Refinitiv Lipper, ESMA.

Performance and costs, by asset class

ASR-PC-S.33

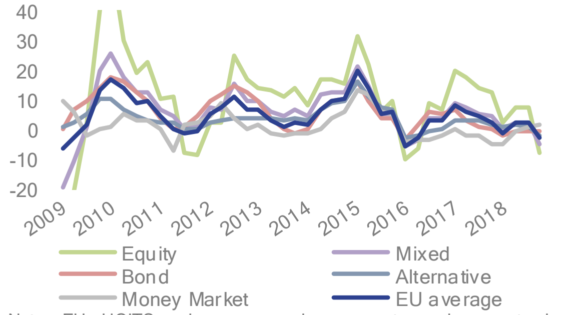
UCITS annual gross performance – retail investors



Note: EU UCITS universe, gross annual performances by asset class, retail investors, in %. Money Market refers to MMF UCITS. Primary y-axis cut-off at +40% and -20%.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.34

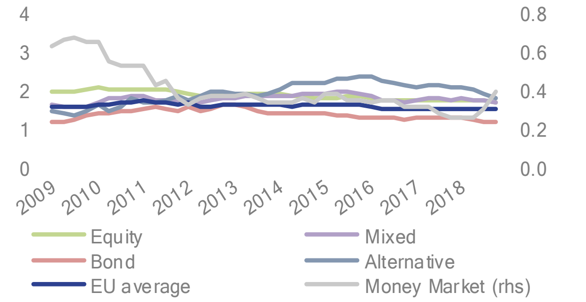
UCITS annual gross performance – institutional investors



Note: EU UCITS universe, annual gross returns by asset class, institutional investors, %. Money Market refers to MMF UCITS. Y-axis cut-off at +40% and -20%.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.35

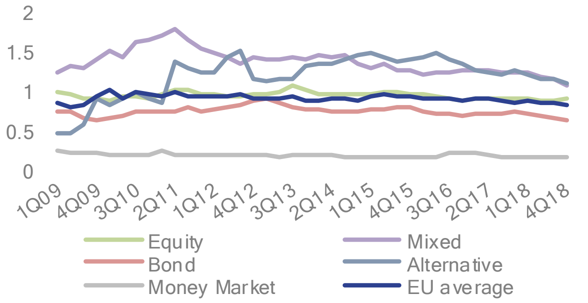
UCITS fund costs – retail investors



Note: EU UCITS universe, total costs as ongoing costs, subscription and redemption fees on annual gross returns, by asset class, retail investors, in %. Money Market refers to MMF UCITS on right-hand side axis (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.36

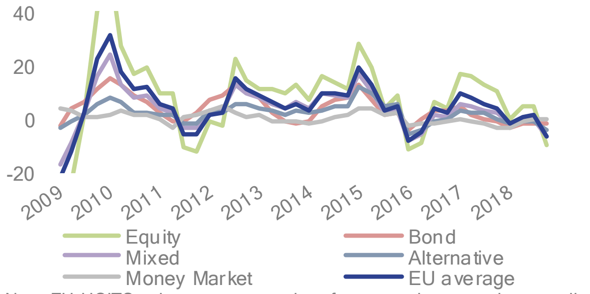
UCITS fund costs – institutional investors



Note: EU UCITS universe, impact of ongoing costs, subscription and redemption fees on annual gross returns, by asset class, institutional investors, ppt. Money Market refers to MMF UCITS on right-hand side axis.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.37

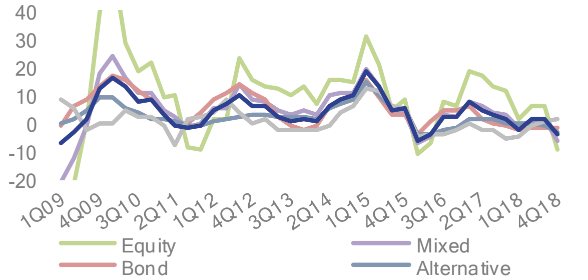
UCITS annual net performance – retail investors



Note: EU UCITS universe, net annual performances by asset class, retail investors, in %. Net performance: gross performance net of ongoing costs, subscription and redemption fees. Money Market refers to MMF UCITS. Primary y-axis cut-off at +40% and -20%.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.38

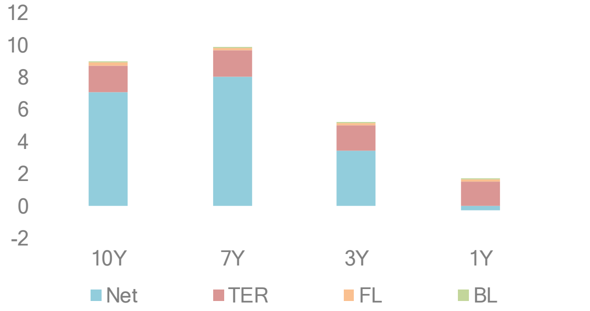
UCITS annual net performance – institutional investors



Note: EU UCITS universe, annual net returns by asset class, institutional investors, %. Net return: gross return net of ongoing costs, subscription and redemption fees. Money Market refers to MMF UCITS. Y-axis cut-off at +40% and -20%.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.39

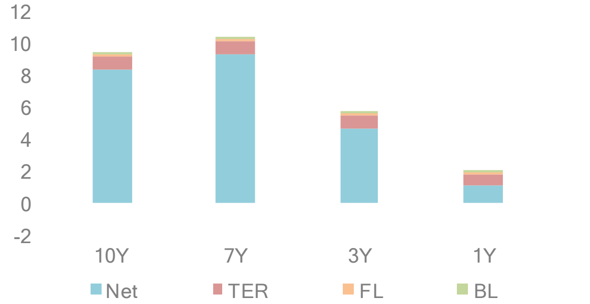
Equity UCITS performance and costs – retail



Note: EU UCITS equity fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.40

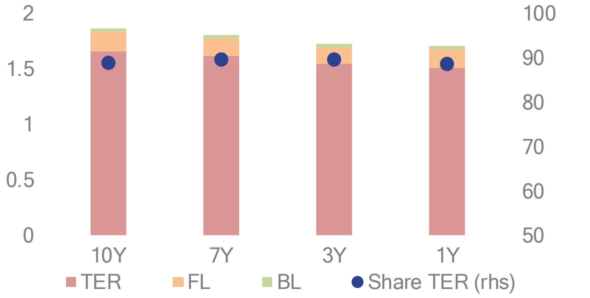
Equity UCITS performance and costs – institutional



Note: EU UCITS equity fund shares annual gross returns, institutional investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.41

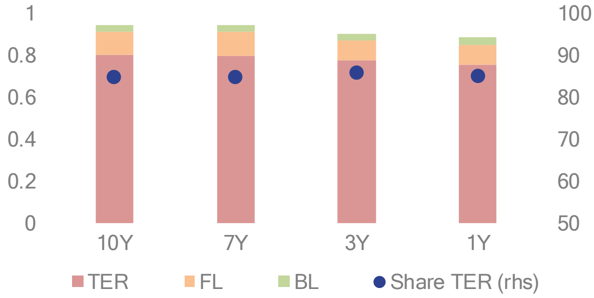
Equity UCITS costs by time horizon - retail



Note: EU UCITS equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.42

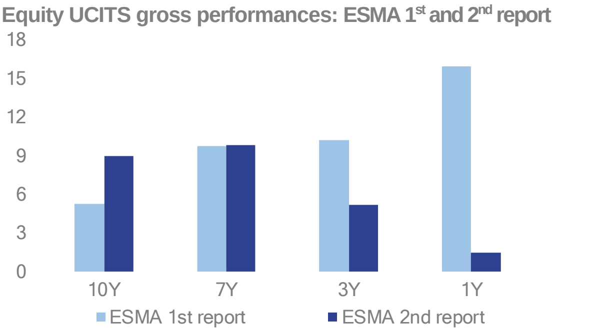
Equity UCITS costs by time horizon - institutional



Note: EU UCITS equity fund shares total costs, institutional investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.43

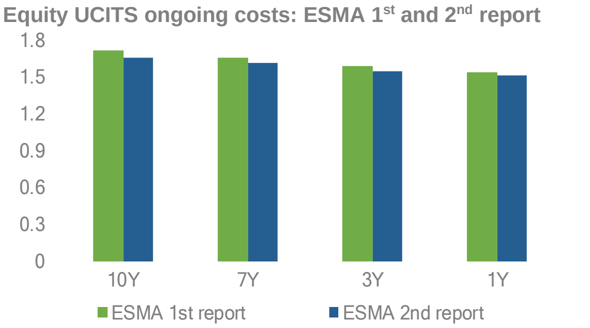
Equity UCITS gross performances: ESMA 1st and 2nd report



Note: EU UCITS equity fund shares annual gross returns, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.44

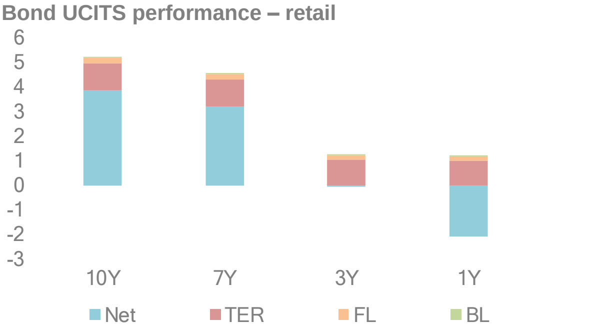
Equity UCITS ongoing costs: ESMA 1st and 2nd report



Note: EU UCITS equity fund shares ongoing costs, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and the ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.45

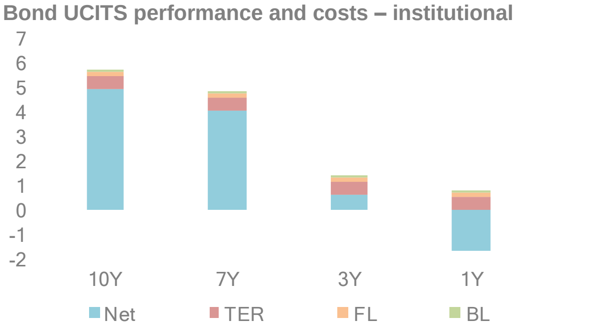
Bond UCITS performance – retail



Note: EU UCITS bond fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.46

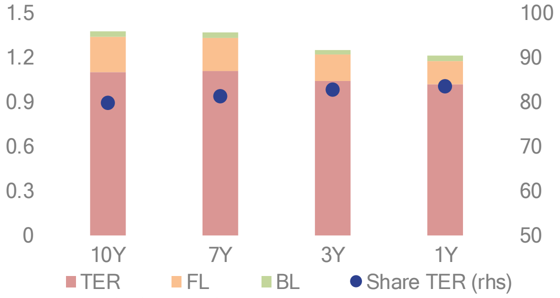
Bond UCITS performance and costs – institutional



Note: EU UCITS bond fund shares annual gross returns, institutional investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.47

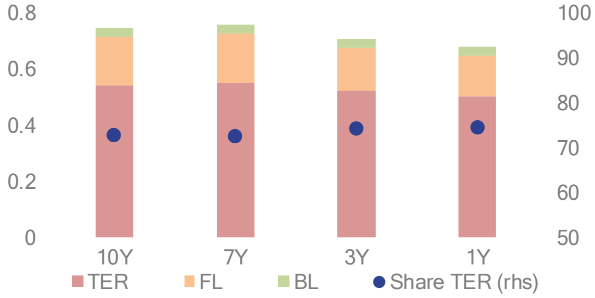
Bond UCITS costs by time horizon - retail



Note: EU UCITS bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.48

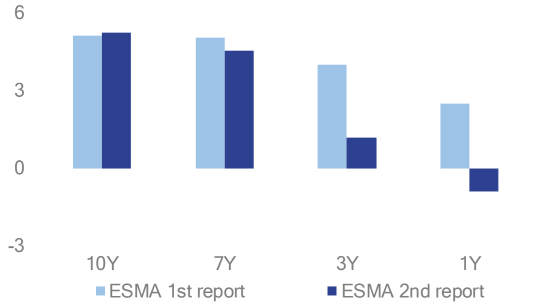
Bond UCITS costs by time horizon - institutional



Note: EU UCITS bond fund shares total costs, institutional investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.49

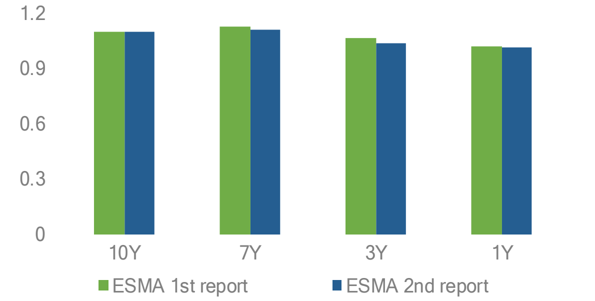
Bond UCITS gross performances: ESMA 1st and 2nd report



Note: EU UCITS bond fund shares annual gross returns, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.50

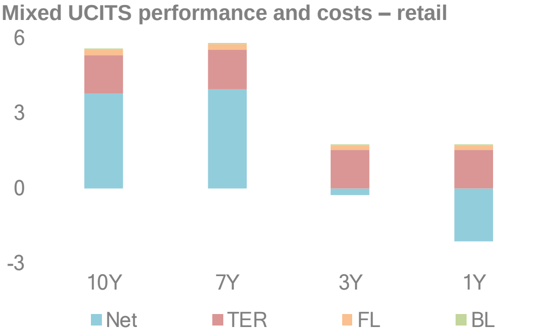
Bond UCITS ongoing costs: ESMA 1st and 2nd report



Note: EU UCITS bond fund shares ongoing costs, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and the ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.51

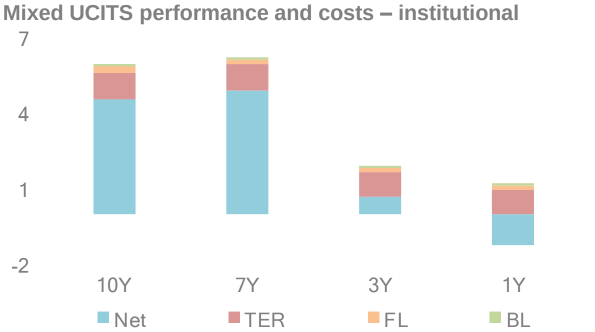
Mixed UCITS performance and costs – retail



Note: EU UCITS mixed fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.52

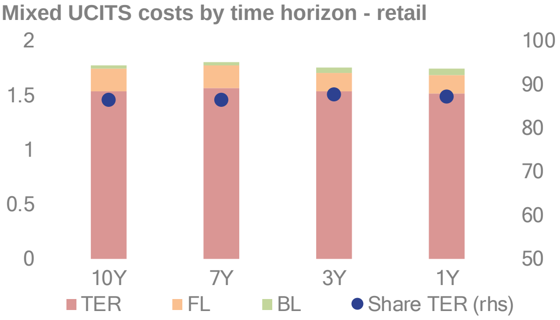
Mixed UCITS performance and costs – institutional



Note: EU UCITS alternative fund shares annual gross returns, institutiona investors, classified as net returns, ongoing costs (TER), subscription (FL and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.53

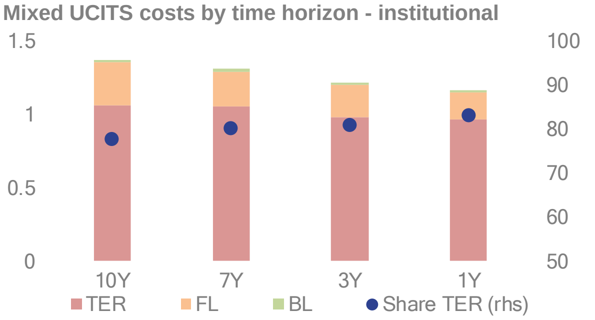
Mixed UCITS costs by time horizon - retail



Note: EU UCITS mixed fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.54

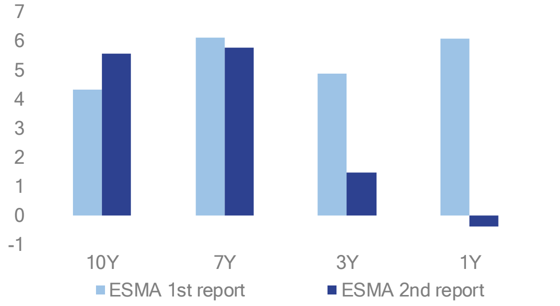
Mixed UCITS costs by time horizon - institutional



Note: EU UCITS mixed fund shares total costs, institutional investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.55

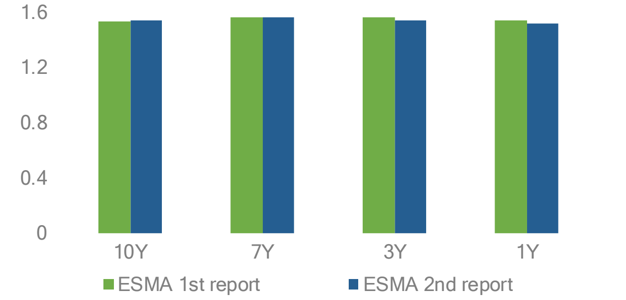
Mixed UCITS gross performances: ESMA 1st and 2nd report



Note: EU UCITS mixed fund shares annual gross returns, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.56

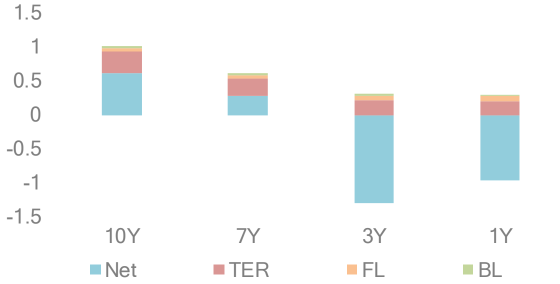
Mixed UCITS ongoing costs: ESMA 1st and 2nd report



Note: EU UCITS mixed fund shares ongoing costs, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and the ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.57

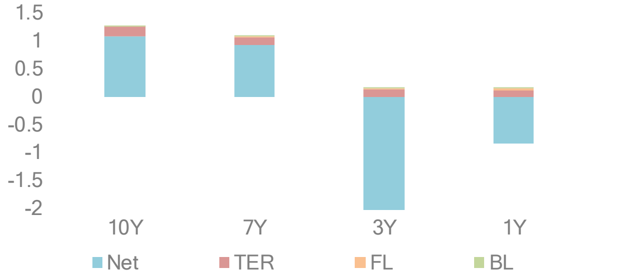
MMF UCITS performance and costs– retail



Note: EU UCITS money market fund shares annual gross returns, reta investors, classified as net returns, ongoing costs (TER), subscriptio (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.58

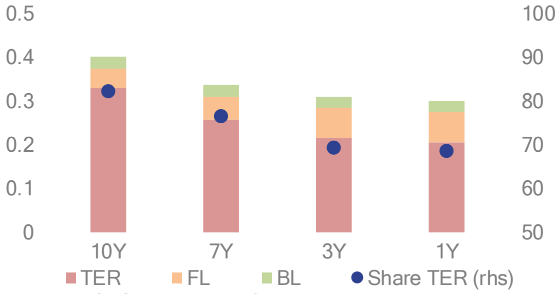
MMF UCITS performance and costs – institutional



Note: EU UCITS money market fund shares annual gross returns, institutional investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.59

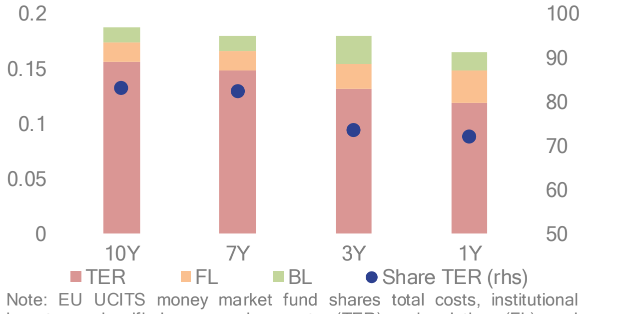
MMF UCITS costs by time horizon - retail



Note: EU UCITS money market fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.60

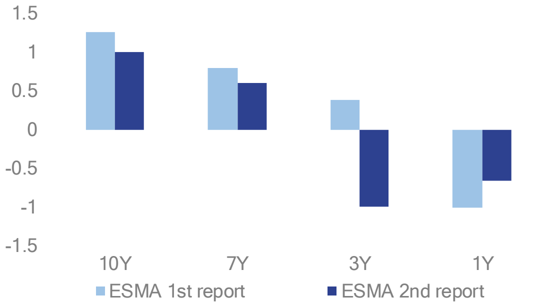
MMF UCITS costs by time horizon - institutional



Note: EU UCITS money market fund shares total costs, institutional investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.61

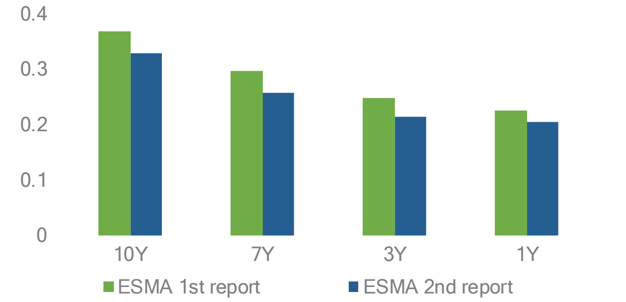
MMF UCITS gross performances: ESMA 1st and 2nd report



Note: EU UCITS money market fund shares annual gross returns, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.62

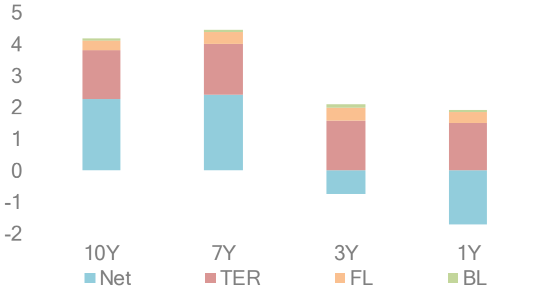
MMF UCITS ongoing costs: ESMA 1st and 2nd report



Note: EU UCITS money market fund shares ongoing costs, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and the ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.63

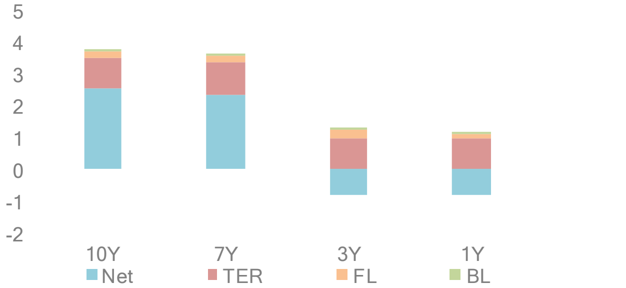
Alternative UCITS performance and costs – retail



Note: EU UCITS money marke fund shares annual gross returns, retail investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.64

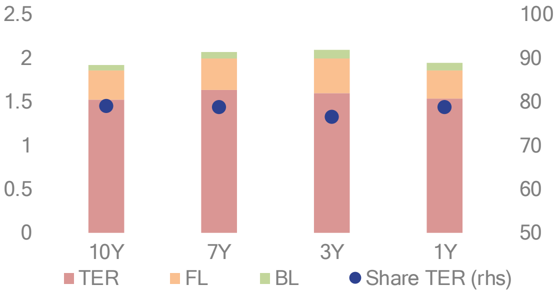
Alternative UCITS performance and costs – institutional



Note: EU UCITS alternative fund shares annual gross returns, institutional investors, classified as net returns, ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.65

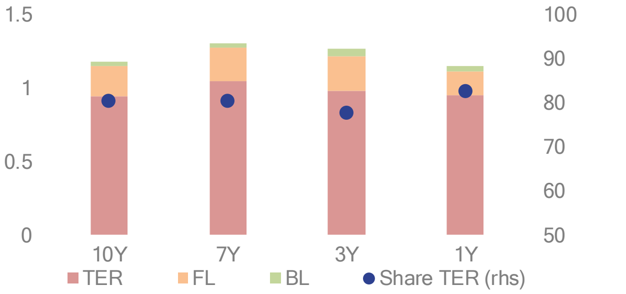
Alternative UCITS costs by time horizon - retail



Note: EU UCITS alternative fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.66

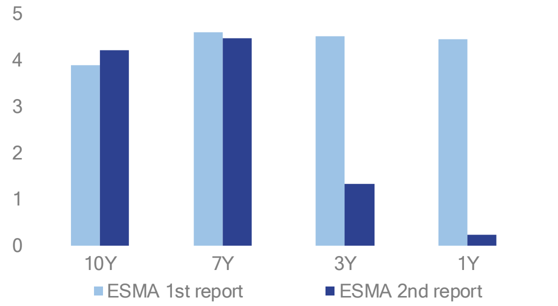
Alternative UCITS costs by time horizon - institutional



Note: EU UCITS alternative fund shares total costs, institutional investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon, %. Share of ongoing costs on total costs in % on the right hand side (rhs).
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.67

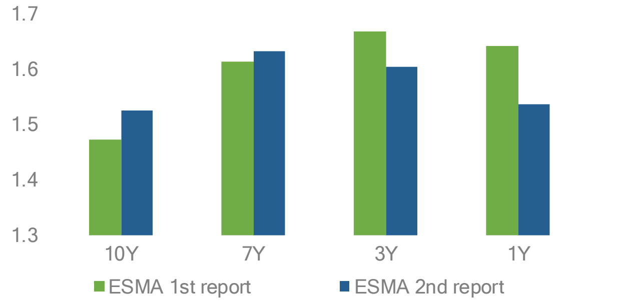
Alternative UCITS gross performances: ESMA 1st and 2nd report



Note: EU UCITS alternative fund shares annual gross returns, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.68

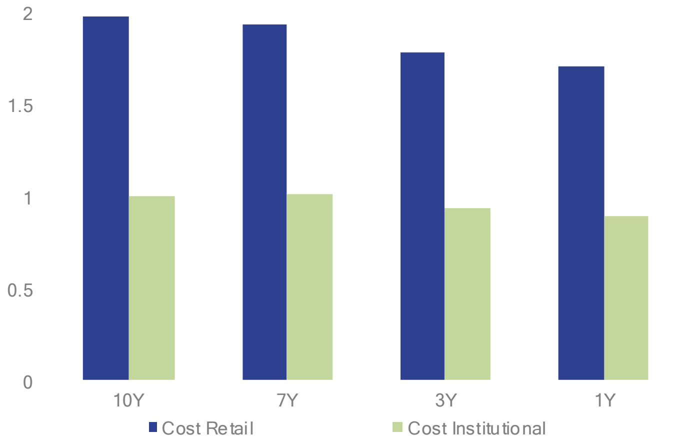
Alternative UCITS ongoing costs: ESMA 1st and 2nd report



Note: EU UCITS alternative fund shares ongoing costs, retail investors, reported by time horizons, %. ESMA 1st report covers the period 2008-2017 and the ESMA 2nd report covers the period 2009-2018.
Sources: Refinitiv Lipper, ESMA.

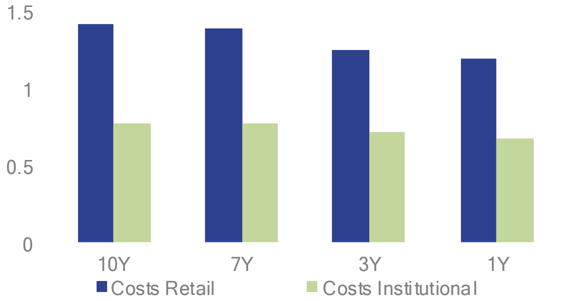
Costs, by type of investor

ASR-PC-S.69
Equity UCITS costs – by investor type



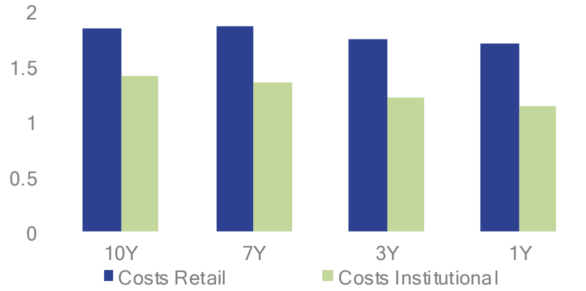
Note: EU UCITS equity fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.70
Bond UCITS costs – by investor type



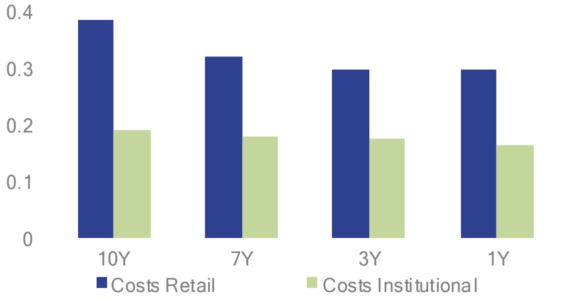
Note: EU UCITS bond fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.71
Mixed UCITS costs – by investor type



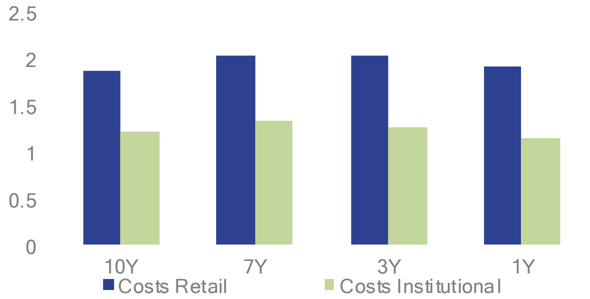
Note: EU UCITS mixed fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.72
MMF UCITS costs – by investor type



Note: EU UCITS money market fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

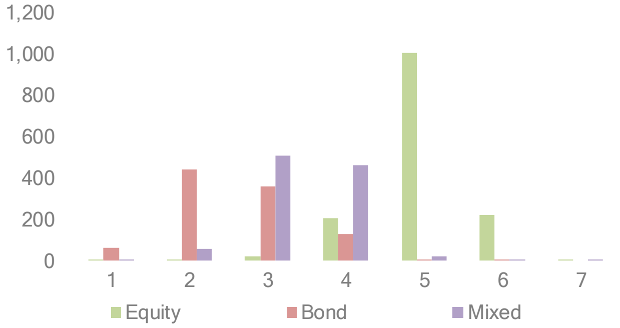
ASR-PC-S.73
Alternative UCITS costs – by investor type



Note: EU UCITS alternative fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by time horizon and type of investor, %.
Sources: Refinitiv Lipper, ESMA.

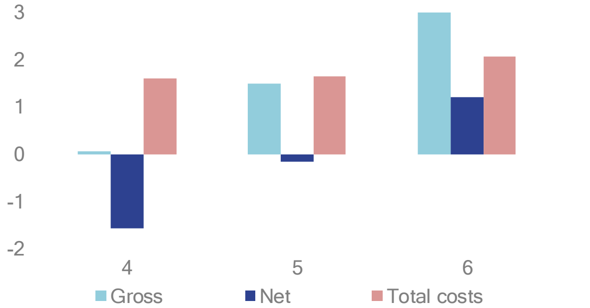
Performance and costs, by risk category

ASR-PC-S.74
UCITS assets by asset type across SRRI class



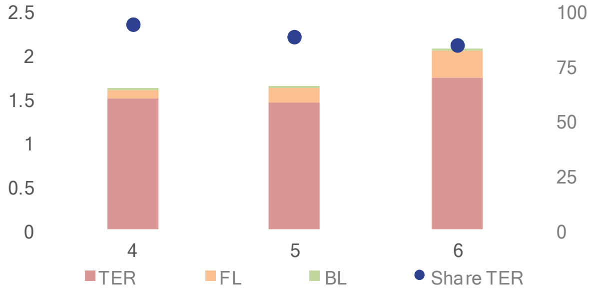
Note: EU UCITS SRRI distribution in terms of asset value by asset type, retail investors, 2018, EUR thousands.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.75
Equity UCITS performance and costs by SRRI class



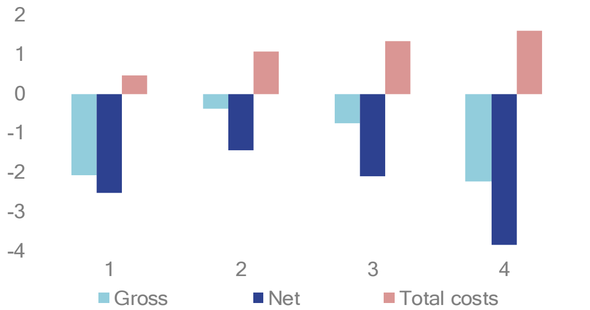
Note: EU UCITS equity fund shares gross and net annual performances and total costs, retail investors, by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.76
Equity UCITS costs by SRRI class



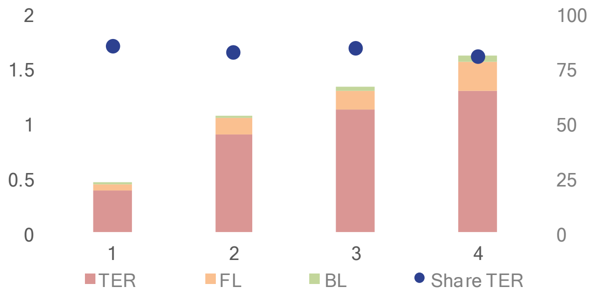
Note: EU UCITS equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.77
Bond UCITS performance and costs by SRRI class



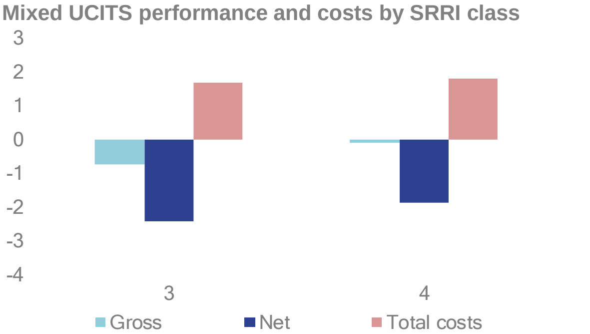
Note: EU UCITS bond fund shares gross and net annual performances and total costs, retail investors, by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.78
Bond UCITS costs by SRRI class



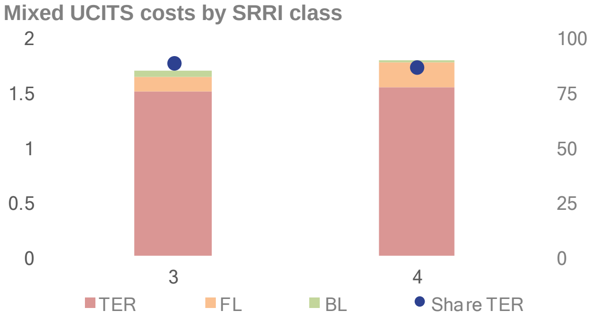
Note: EU UCITS bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.79
Mixed UCITS performance and costs by SRRI class



Note: EU UCITS mixed fund shares gross and net annual performances and total costs, retail investors, by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

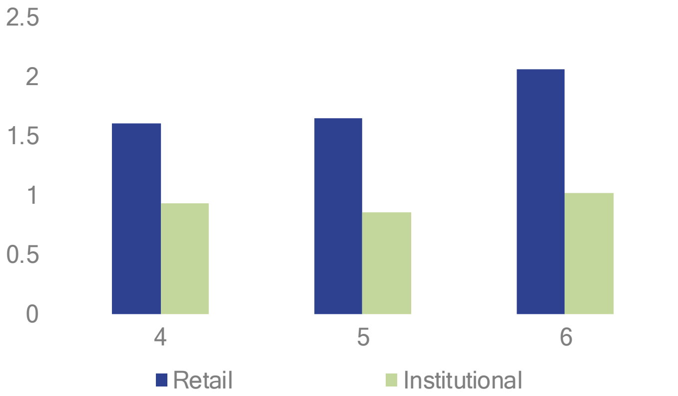
ASR-PC-S.80
Mixed UCITS costs by SRRI class



Note: EU UCITS mixed fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption fees (BL), aggregated by SRRI class, 2018, %.
Sources: Refinitiv Lipper, ESMA.

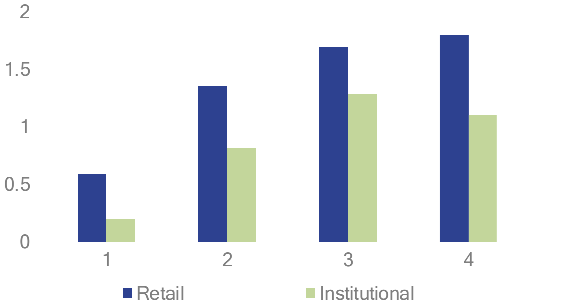
Performance and costs, by risk category per investor type

ASR-PC-S.81
Equity UCITS costs by SRRI class and investor type



Note: EU UCITS equiy fund shares total costs, aggregated by SRRI class and investor type, 2018, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.82
Bond UCITS costs by SRRI class and investor type



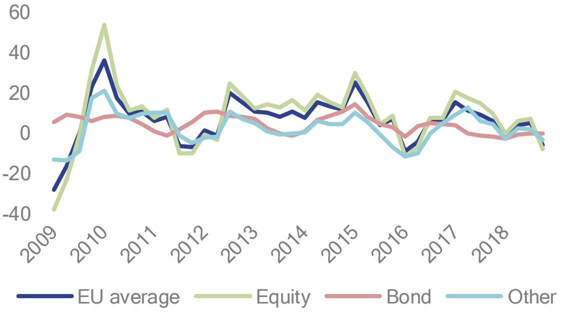
Note: EU UCITS bond fund shares total costs, aggregated by SRRI class and investor type, 2018, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.83
Mixed UCITS costs by SRRI class and investor type

Note: EU UCITS mixed fund shares total costs, aggregated by SRRI class and investor type, 2018, %.
Sources: Refinitiv Lipper, ESMA.

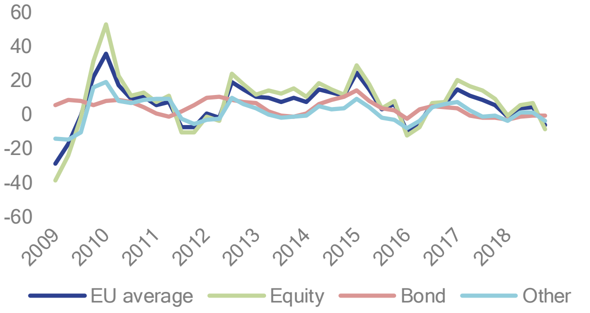
Performance and costs, UCITS ETFs

ASR-PC-S.84
Annual gross performance over time



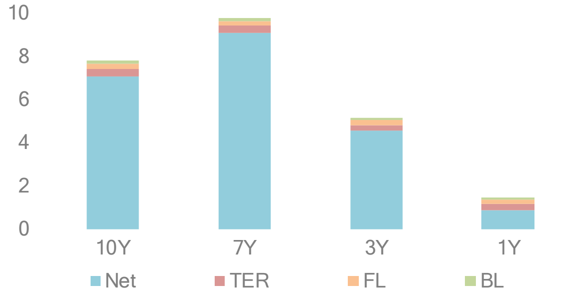
Note: EU UCITS ETFs universe, gross annual performance by asset, %. Other includes Mixed, Alternative and Money Market strategies.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.85
Net annual performance over time



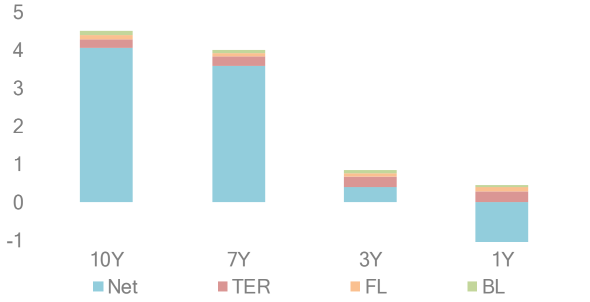
Note: EU UCITS ETFs universe, net annual performance by asset class, %. Other includes Mixed, Alternative and Money Market strategies.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.86
Equity UCITS ETFs performance and cost by time horizon



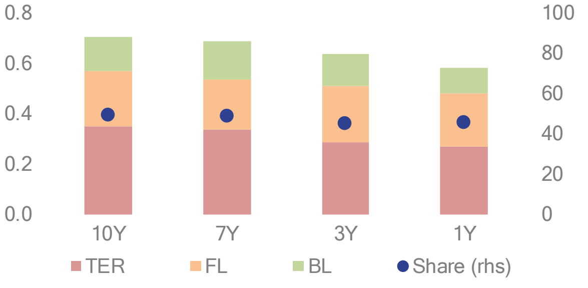
Note: EU UCITS ETFs equity fund shares gross annual performance, classified as net performance, ongoing costs, subscription (FL) and redemption (BL) fees, aggregated by time horizon, in %.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.87
Bond UCITS ETFs performance and costs by time horizon



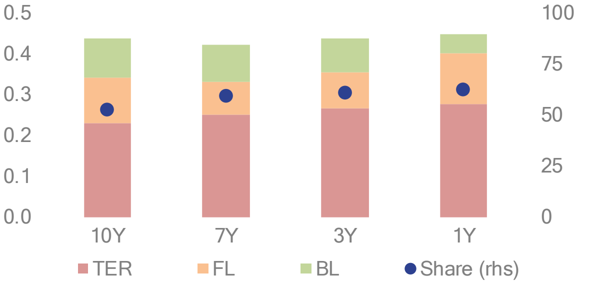
Note: EU UCITS ETFs bond fund shares gross annual performance, classified as net performance, ongoing costs, subscription (FL) and redemption (BL) fees, aggregated by time horizon, in %.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.88
Equity UCITS ETFs costs by time horizon



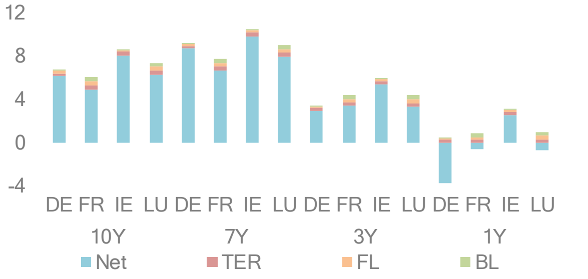
Note: EU UCITS ETFs equity fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, aggregated by time horizon, %. Share of ongoing costs over total costs, %.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.89
Bond UCITS ETFs costs by time horizon



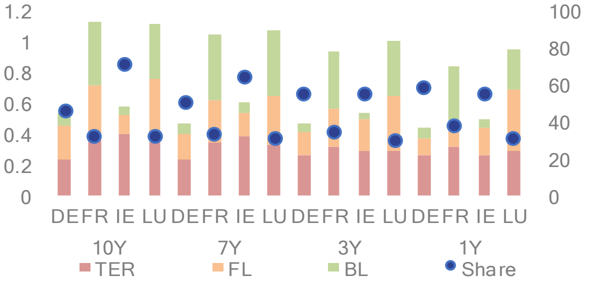
Note: EU UCITS ETFs bond fund shares total costs, retail investors, classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, aggregated by time horizon, %. Share of ongoing costs over total costs, %.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.90
Equity UCITS ETFs performances by domicile



Note: EU UCITS ETFs equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by domicile and time horizon, in %. The rest of EU countries not reported as domiciles not significant.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.91
Equity UCITS ETFs costs by domicile

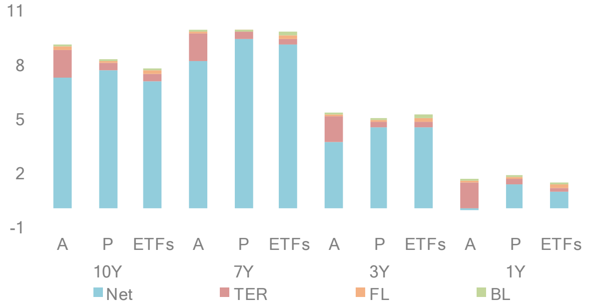


Note: EU UCITS ETFs equity funds annual total costs classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, by domicile and time horizon, in %. The rest of EU countries not reported as domiciles not significant.
Sources: Refinitiv Lipper, ESMA.

Performance and costs, by management type

ASR-PC-S.92

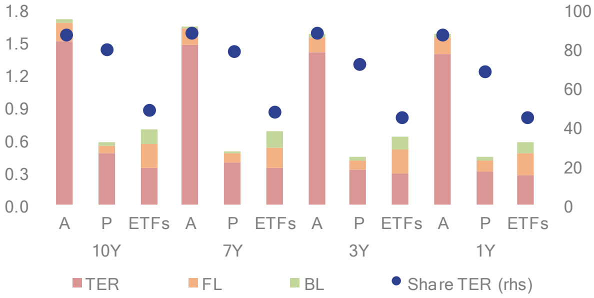
Active, passive and ETFs equity UCITS performance



Note: EU equity UCITS gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by management type, active (A), passive (P) and ETFs, by time horizon, in %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.93

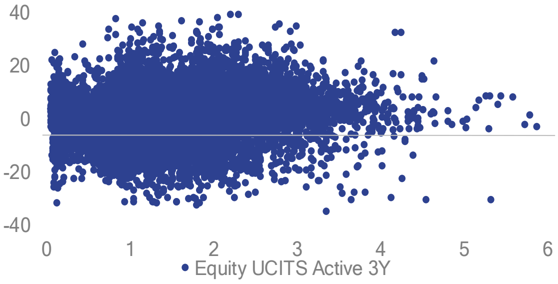
Active, passive and ETFs equity UCITS total costs



Note: EU equity UCITS fund shares total costs classified as ongoing costs (TER), subscription (FL) and redemption (BL) fees, by management type, aggregated by time horizon, %. Share of ongoing costs on total costs, % on the right hand side (rhs)
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.94

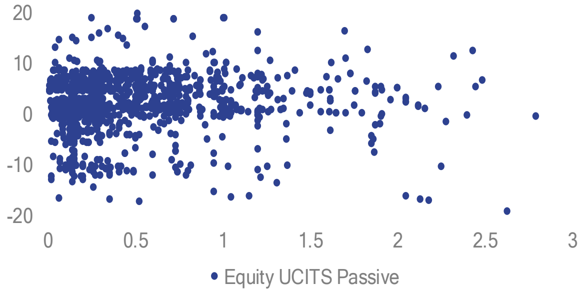
Distribution of performance and costs, active equity UCITS



Note: EU equity UCITS active, gross annual performance (y-axis) and ongoing costs (x-axis), proxied by the total expense ratio TER), %. Funds lowest level of TER starts at 0.5%. 3Y time horizon.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.95

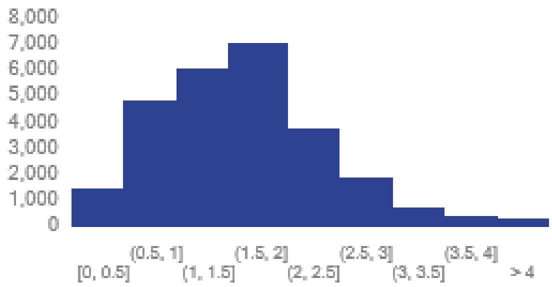
Distribution of performance and costs, passive equity UCITS



Note: EU equity UCITS passive, gross annual performance (y-axis) and ongoing costs (x-axis), proxied by the total expense ratio, %. 3Y time horizon.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.96

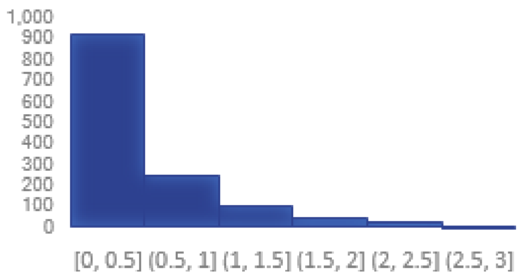
Range of ongoing costs, active equity UCITS



Note: EU equity UCITS distribution of actively managed funds (y-axis, number of funds) by ongoing costs (x axys in %) at 3Y horizon.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.97

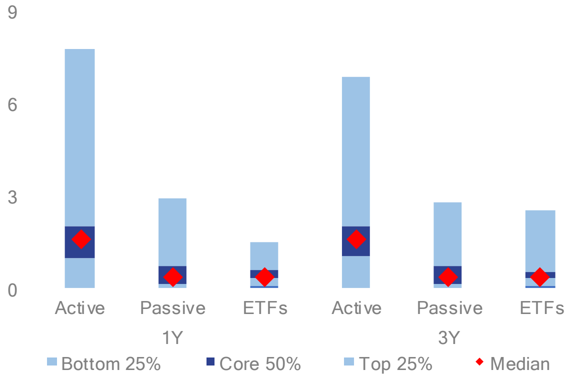
Range of ongoing costs, passive equity UCITS



Note: EU equity UCITS distribution of passively managed funds (y-axis, number of funds) by ongoing costs (x axys in %) at 3Y horizon.
Sources: Refinitiv Lipper, ESMA

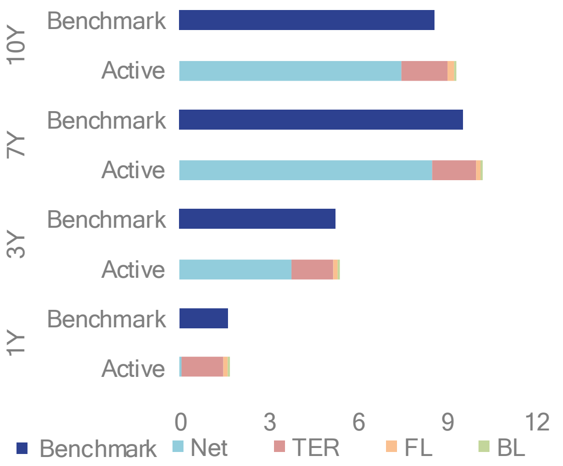
ASR-PC-S.98

Dispersion of ongoing costs across management type



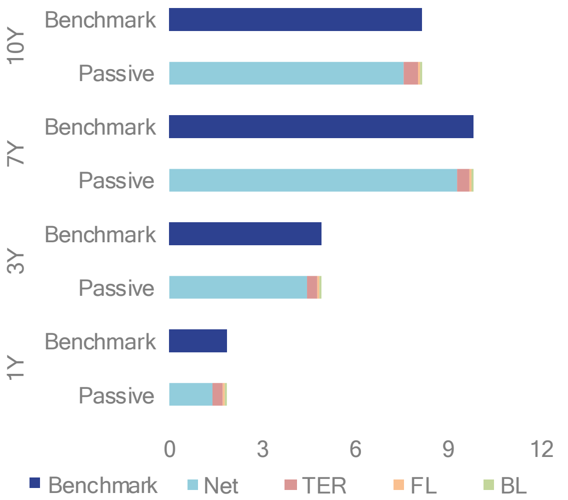
Note: Dispersion of ongoing costs, proxied by the total expense ratio (TER), 3Y and 1Y horizons, %.
Sources: Refinitiv Lipper, ESMA

ASR-PC-S.99
Active equity UCITS and prospectus benchmarks



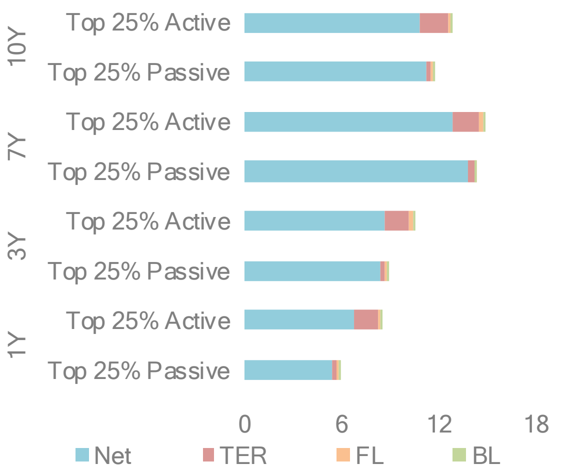
Note: EU UCITS equity active funds and respective benchmark gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.100
Passive equity UCITS and prospectus benchmarks



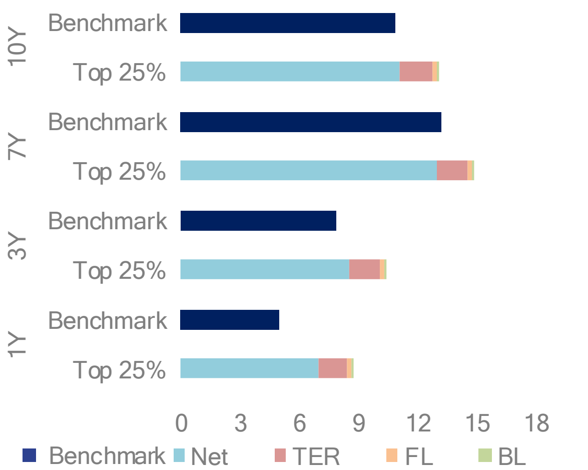
Note: EU UCITS equity passive funds and respective benchmark gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.

ASR-PC-S.101
Top performing active and passive equity UCITS



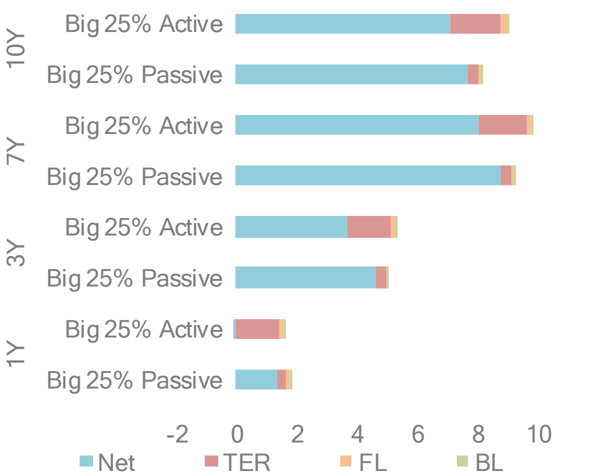
Note: EU UCITS equity funds gross annual performance for best performing active and passive funds, classified as net perfromance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.102
Top performing active equity UCITS and prospectus benchmarks



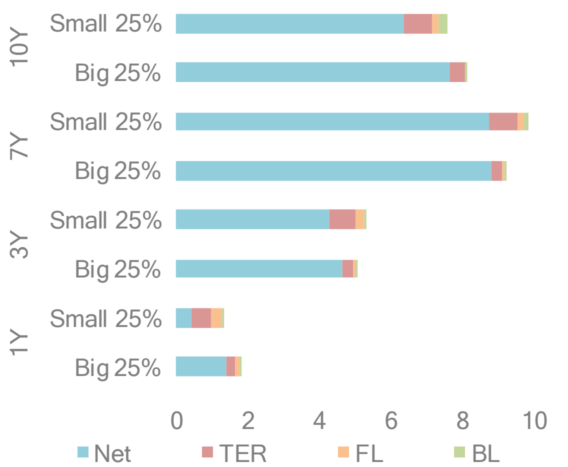
Note: EU UCITS equity funds gross annual performance for top performing active funds and corresponding benchmarks, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.103
Equity UCITS performance by fund size, active and passive



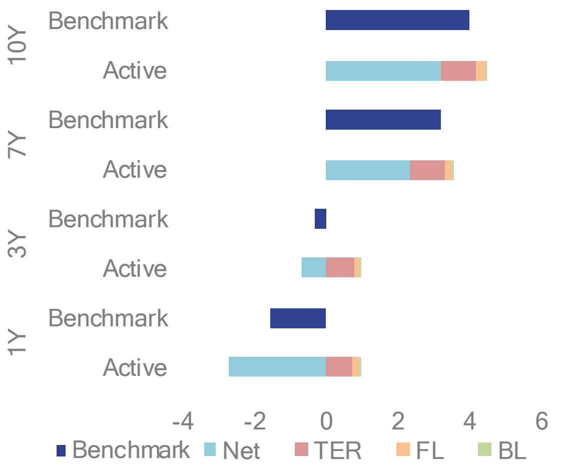
Note: EU UCITS equity funds gross annual performance for largest active and passive funds in terms of assets, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.104
Active equity UCITS performance by fund size



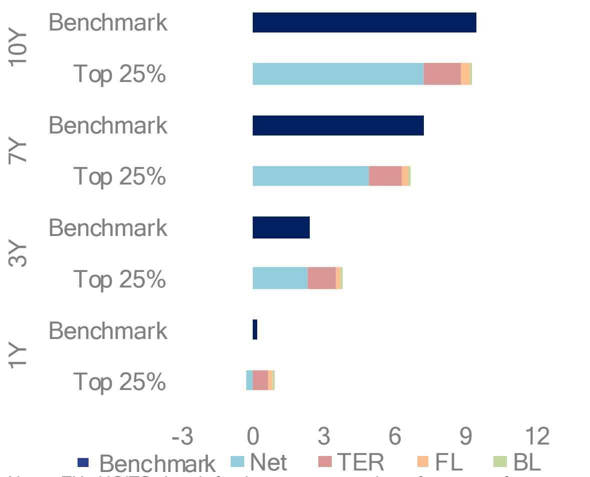
Note: EU UCITS equity funds gross annual performance for largest and smallest active funds in terms of assets, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.105
Active bond UCITS and prospectus benchmarks



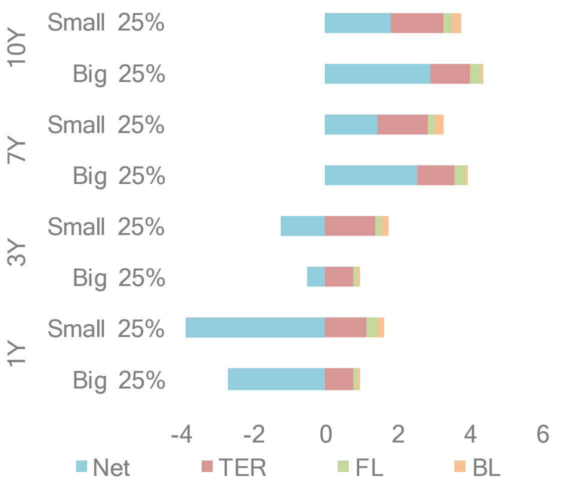
Note: EU UCITS bond active funds and respective benchmark gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by management type and time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.106
Top performing active bond UCITS and prospectus benchmarks



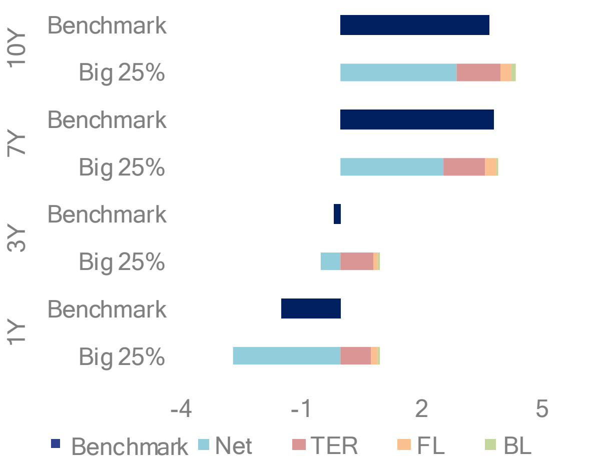
Note: EU UCITS bond funds gross annual performance for top performing active funds and corresponding benchmarks, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, and time horizon, in %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.107
Active EU bond UCITS costs by fund size



Note: EU UCITS bond funds gross annual performance for largest and smallest active funds, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.108
EU bond UCITS performance largest funds and benchmarks

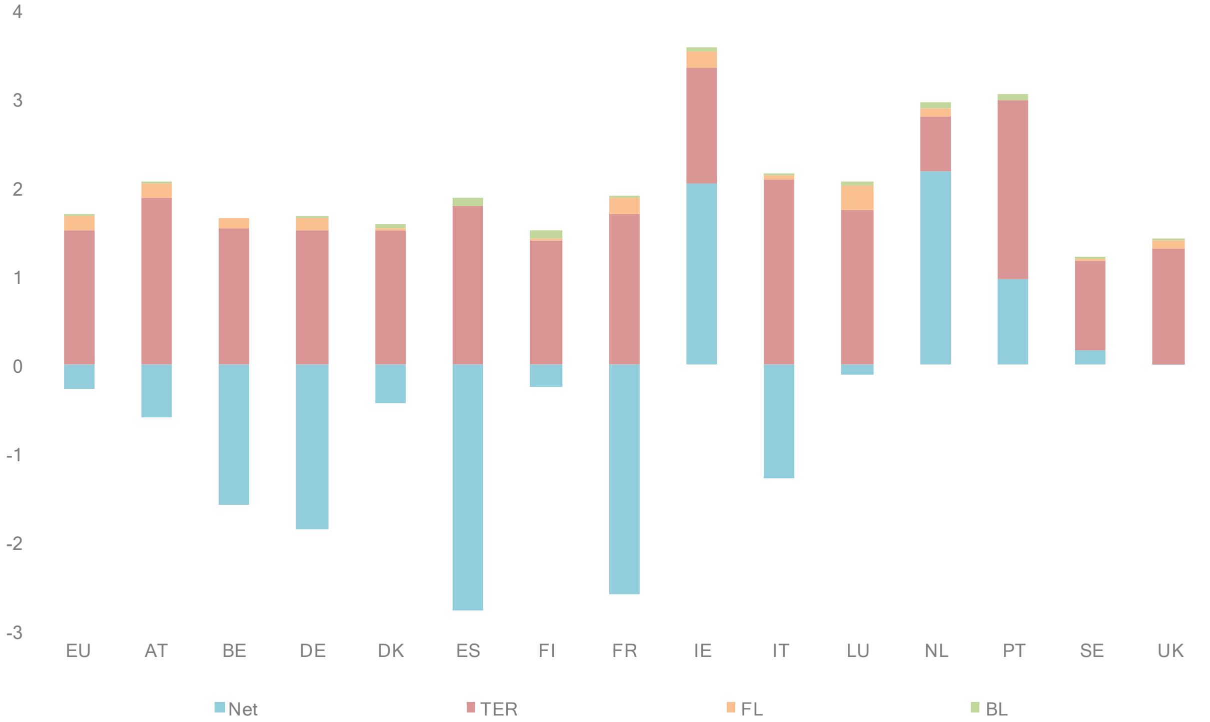


Note: EU UCITS bond funds gross annual performance for largest active funds and corresponding benchmarks, classified as net performance, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon, %.
Sources: Refinitiv Lipper, ESMA.

Performance and costs, by fund domicile

ASR-PC-S.109

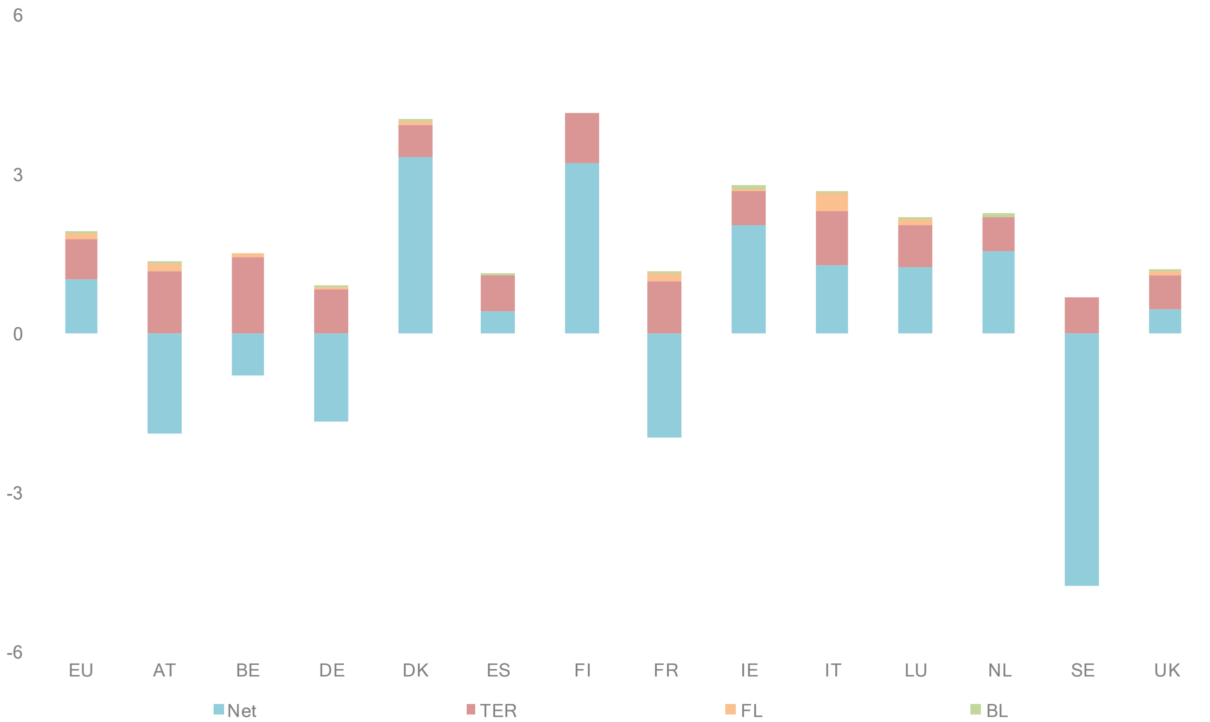
Equity UCITS gross performance and cost impact by domicile – retail investors – 1Y horizon



Note: EU UCITS equity funds gros annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.110

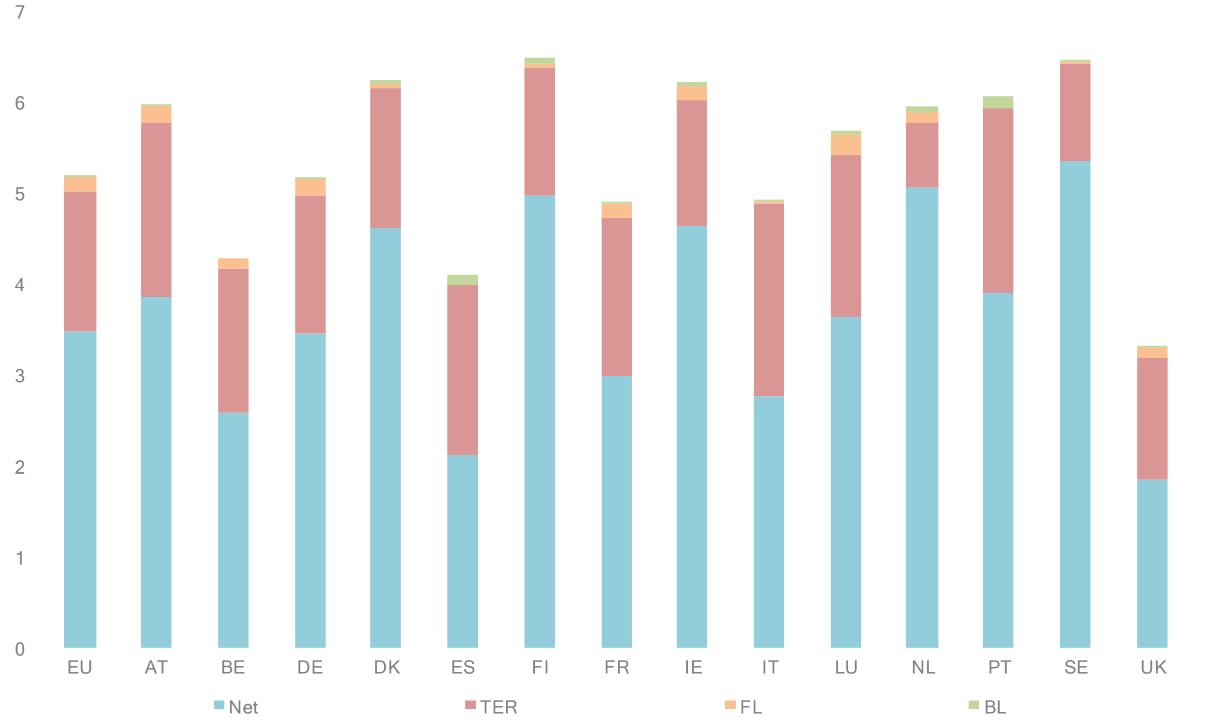
Equity UCITS gross performance and cost impact by domicile – institutional investors – 1Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon %. PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.111

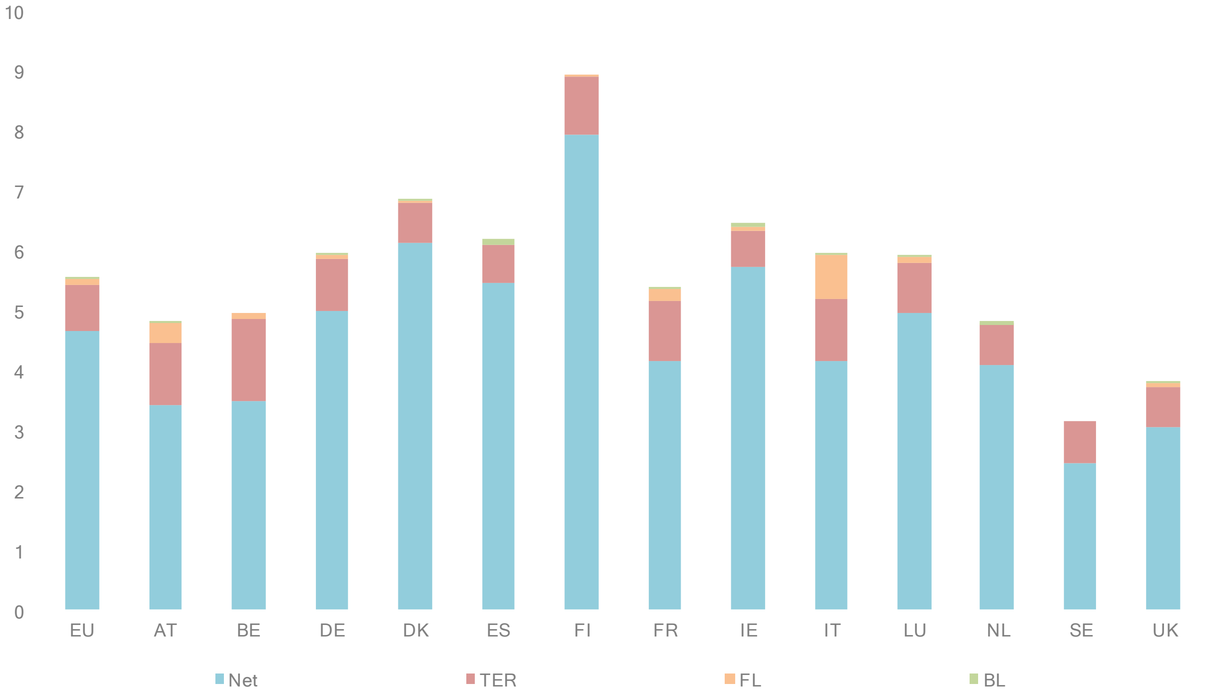
Equity UCITS gross performance and cost impact by domicile – retail investors – 3Y horizon



Note: EU UCITS equity funds annual gross performance, classified as net performance, going costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.112

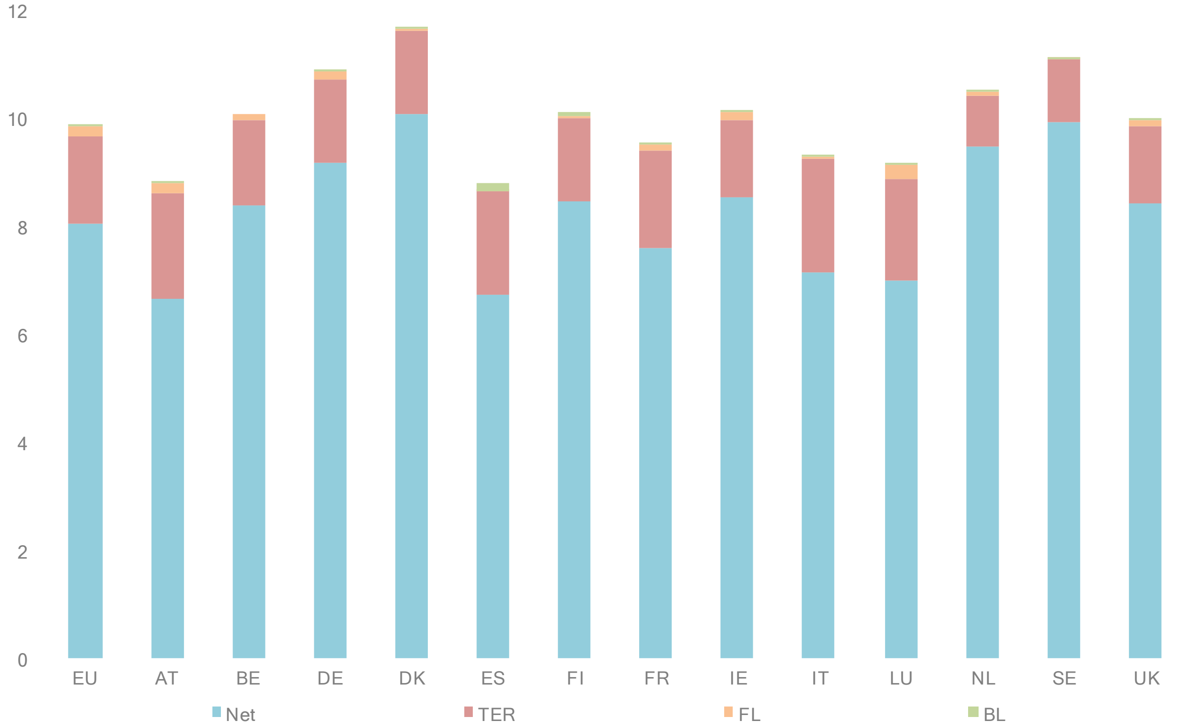
Equity UCITS gross performance and cost impact by domicile – institutional investors –3Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.113

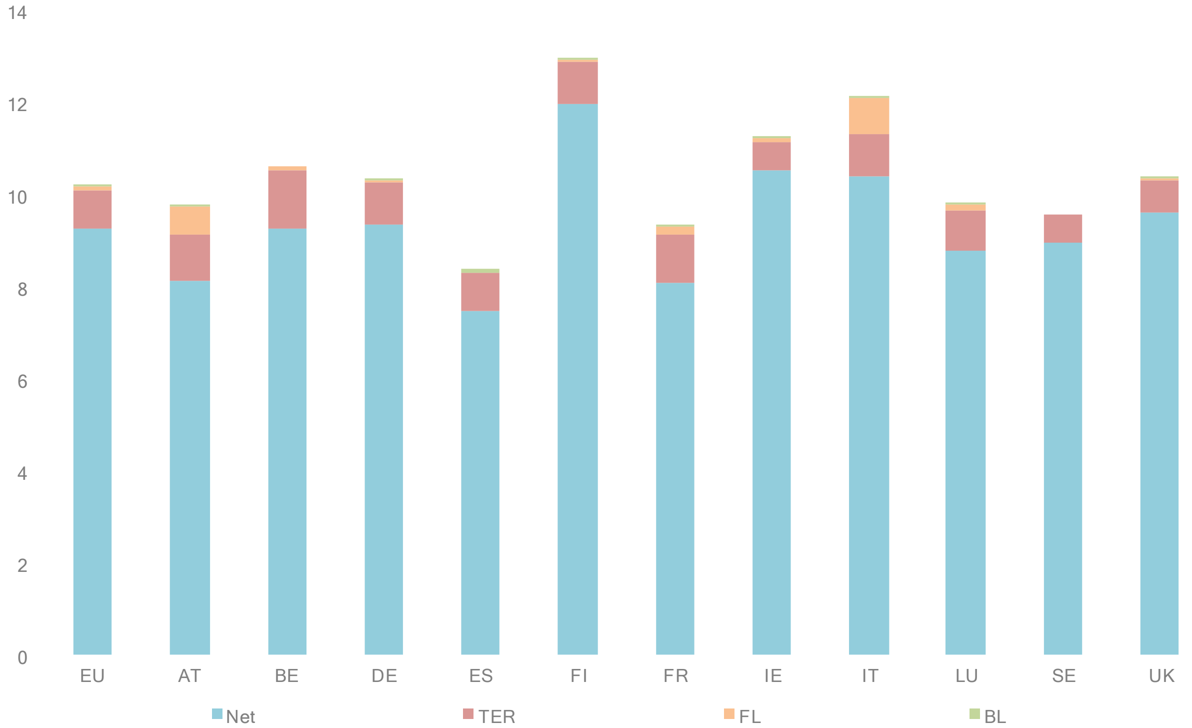
Equity UCITS gross performance and cost impact by domicile – retail investors – 7Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.114

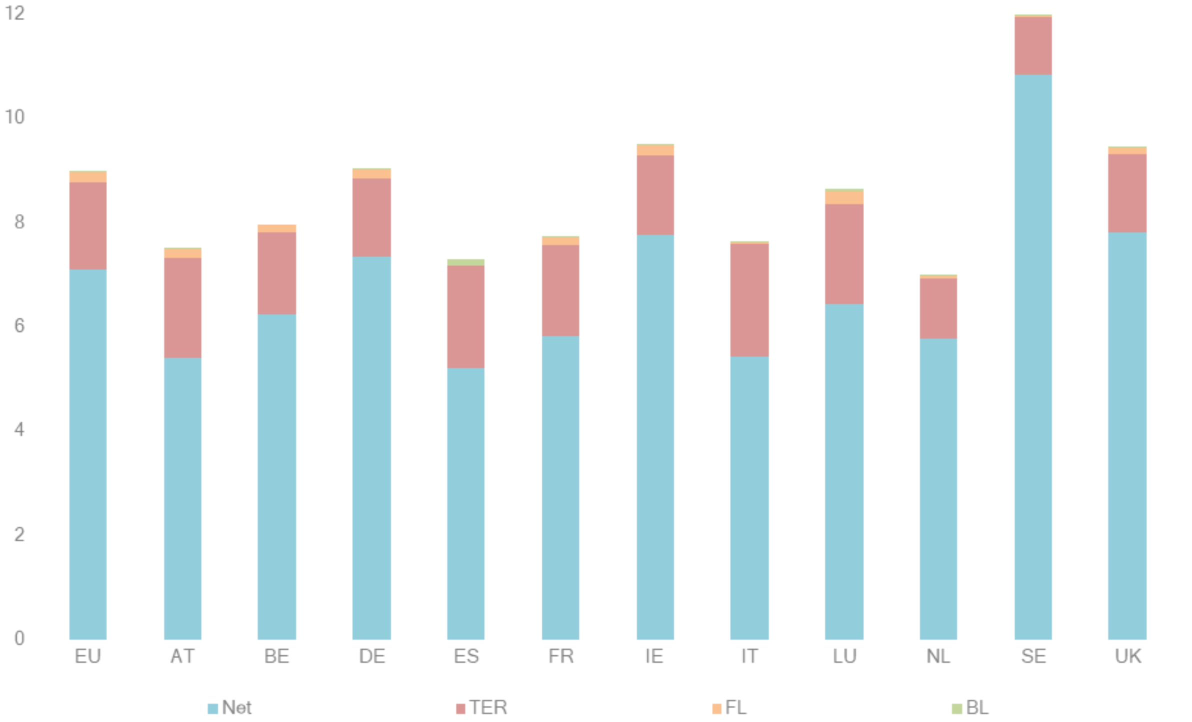
Equity UCITS gross performance and cost impact by domicile – institutional investors – 7Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %.DK, NL, PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.115

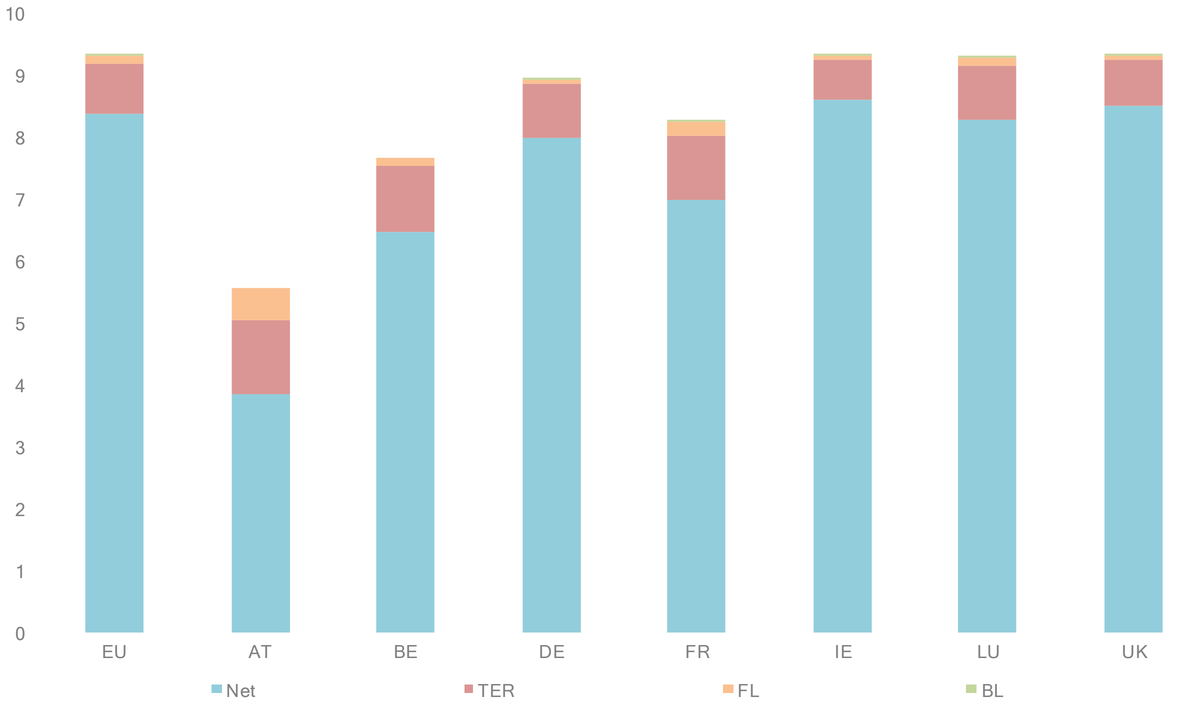
Equity UCITS gross performance and cost impact by domicile – retail investors – 10Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon %. DK, FI, PT and Other EU countries not reported.
Sources: Refinitiv Lipperiv Lipper, ESMA.

ASR-PC-S.116

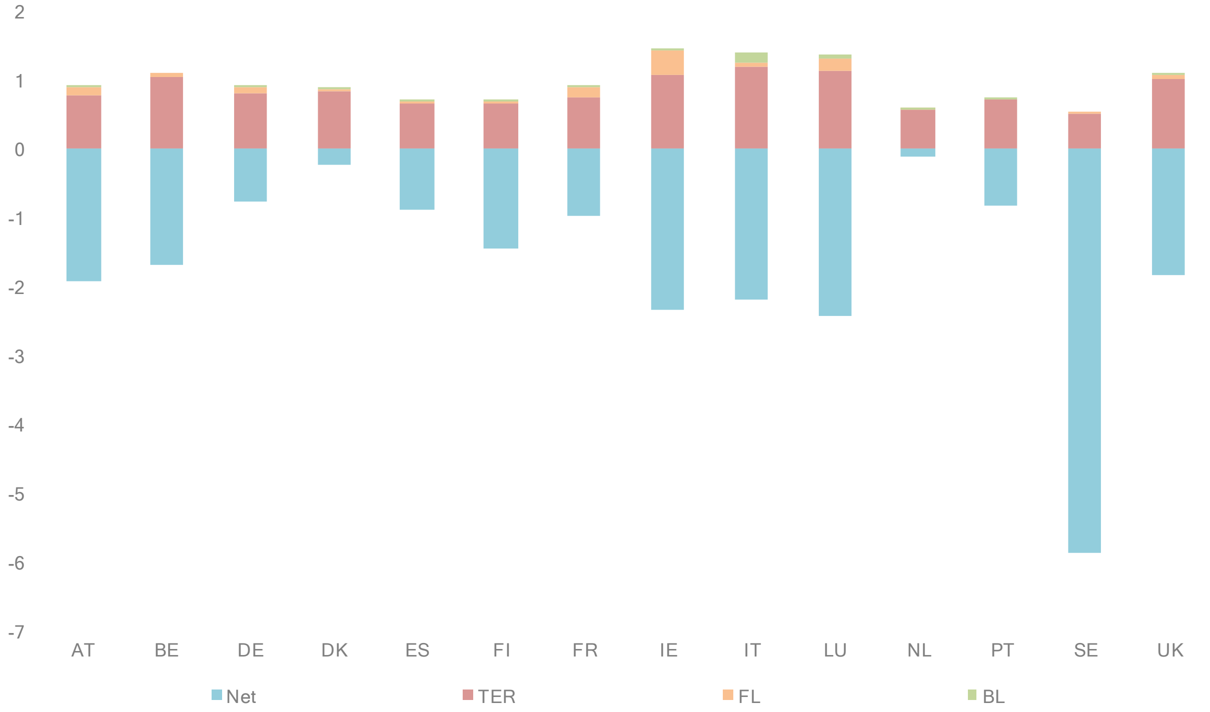
Equity UCITS gross performance and cost impact by domicile – institutional investors – 10Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon %. DK, ES, FI, IT, NL, PT , SE and Other EU countries not reported.
Sources: Refinitiv Lipperiv Lipper, ESMA.

ASR-PC-S.117

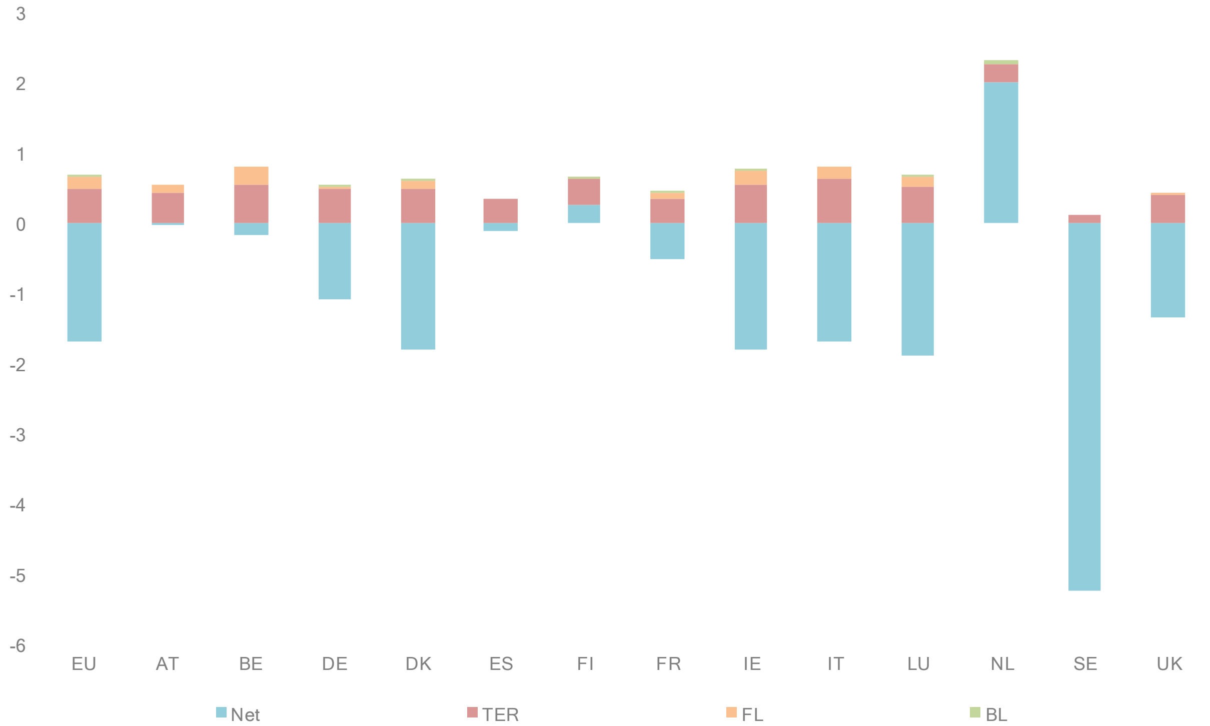
Bond UCITS gross performance and cost impact by domicile – retail investors – 1Y horizon



Note: EU UCITS bond gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.118

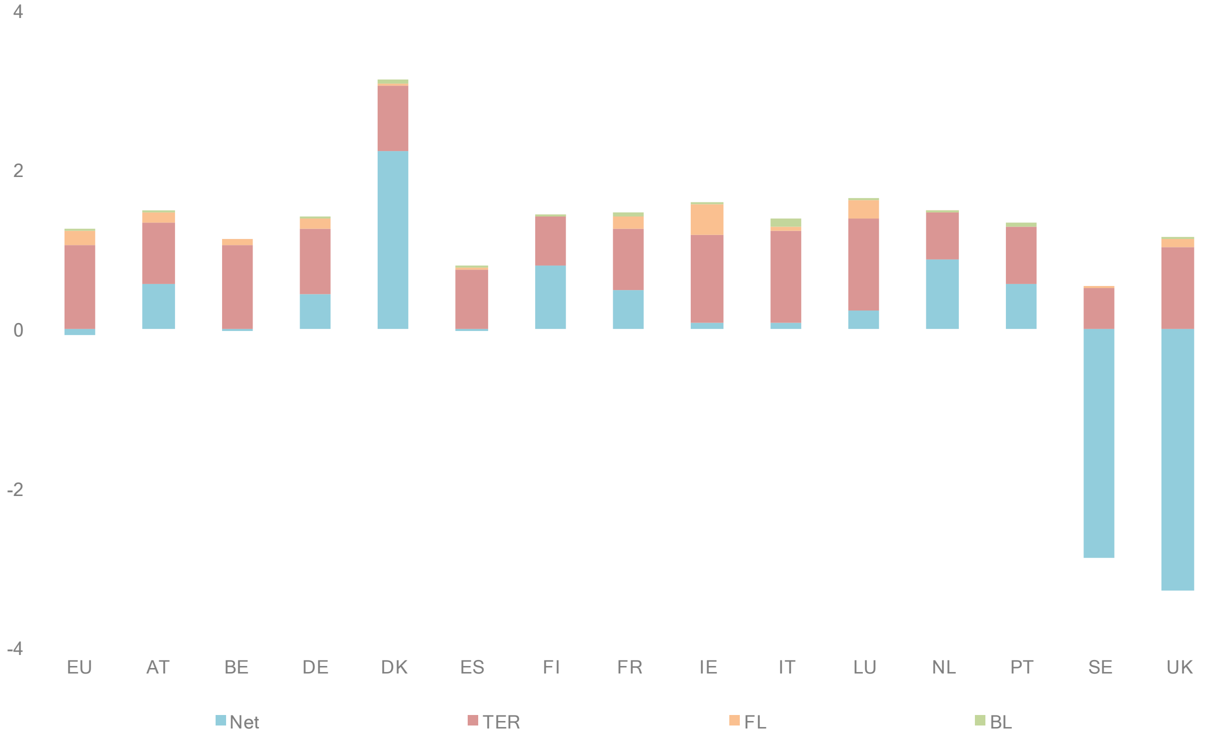
Bond UCITS gross performance and cost impact by domicile – institutional investors – 1Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon, %. PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.119

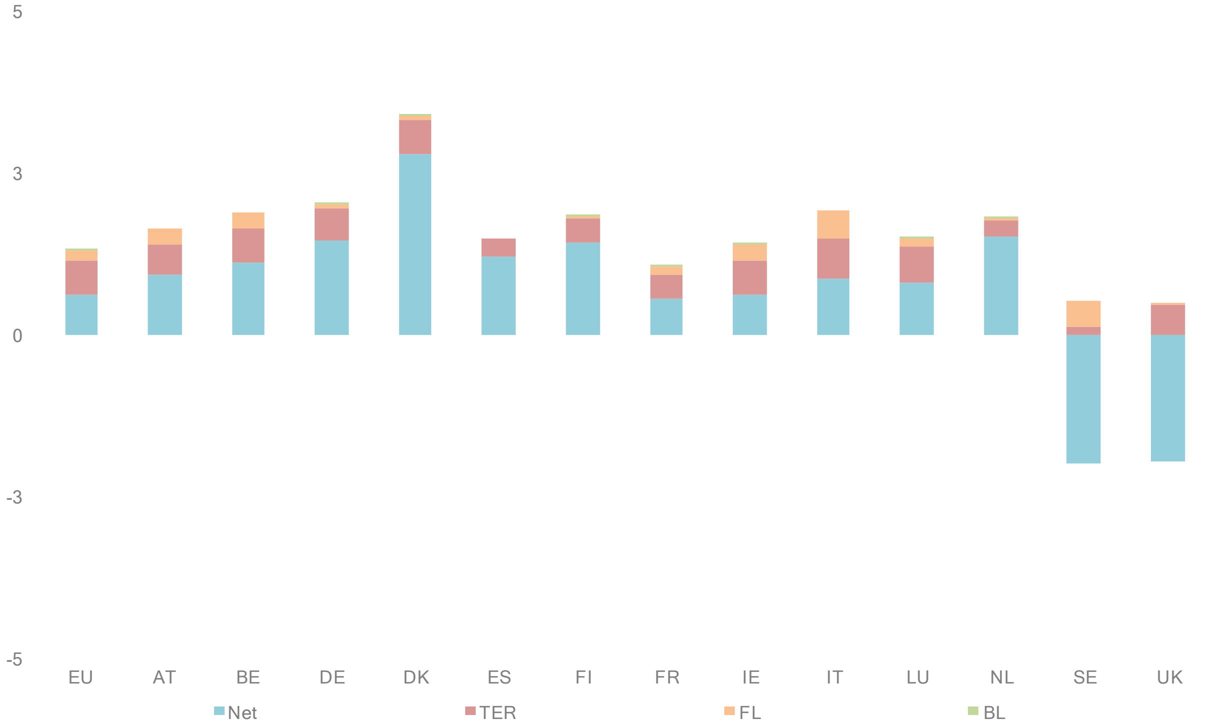
Bond UCITS gross performance and cost impact by domicile – retail investors – 3Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retai investors, by domicile, 3Y horizon, %. Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.120

Bond UCITS gross performance and cost impact by domicile – institutional investors – 3Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. SE and Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

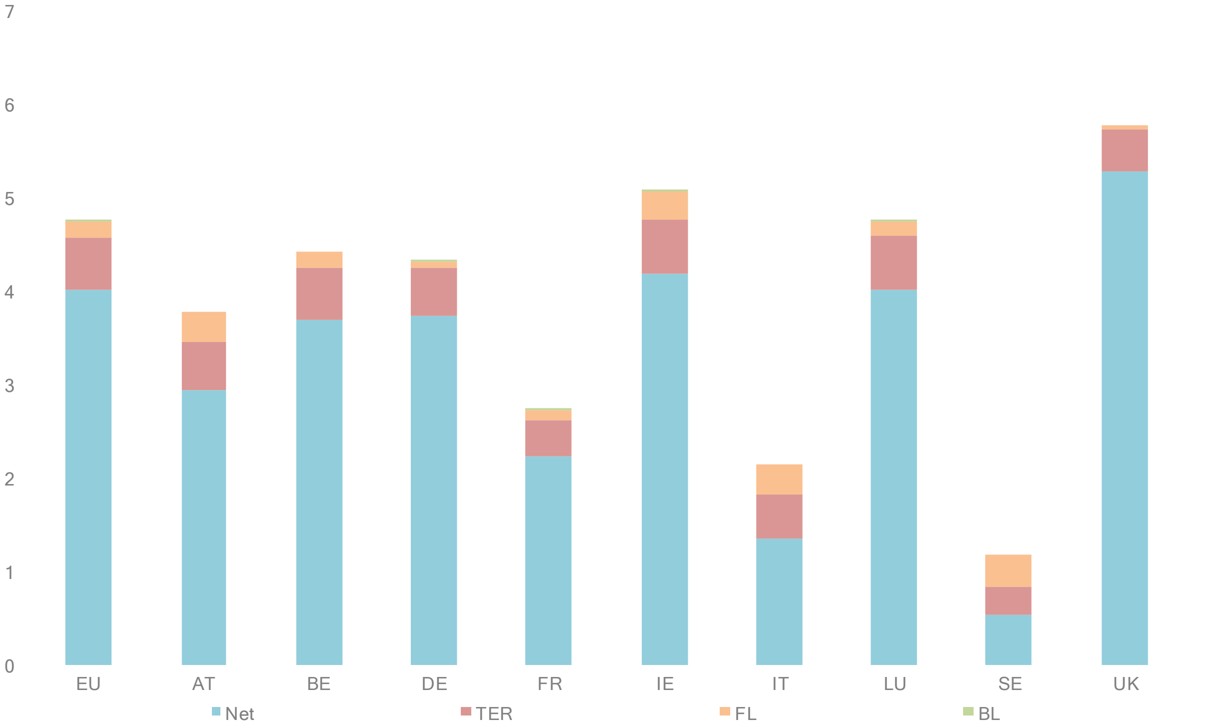
ASR-PC-S.121

Bond UCITS gross performance and cost impact by domicile – retail investors – 7Y horizon

Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.122

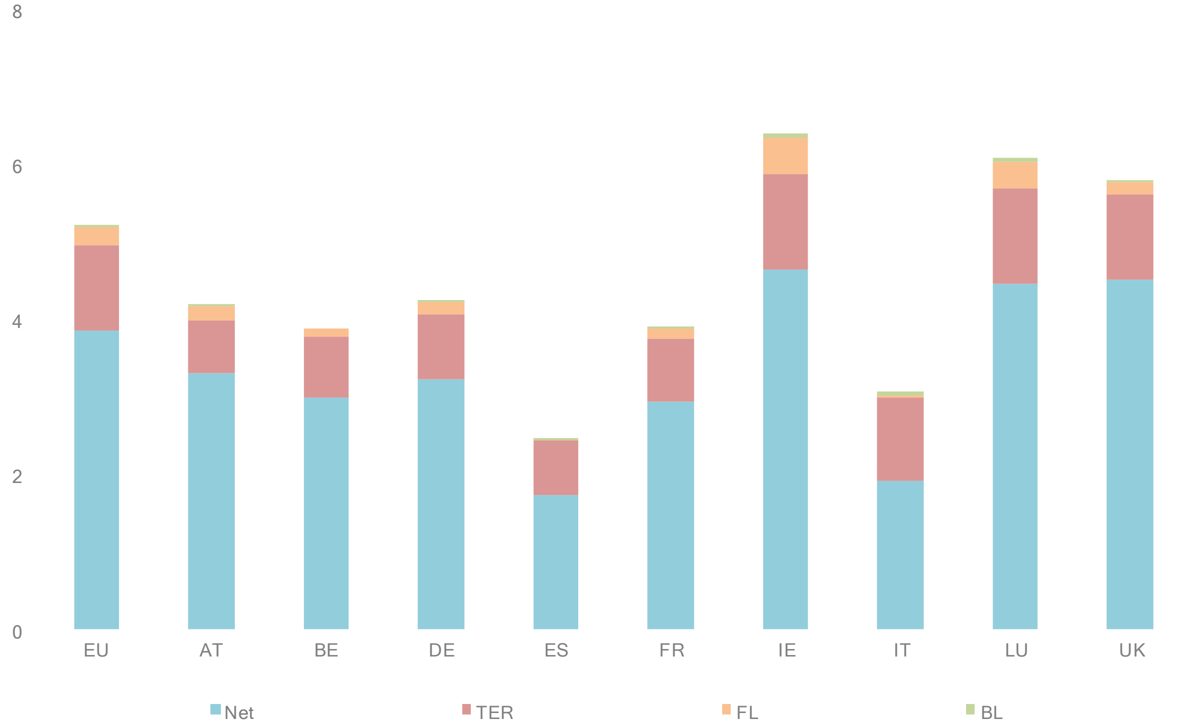
Bond UCITS gross performance and cost impact by domicile – institutional investors – 7Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. DK, ES, NL, PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.123

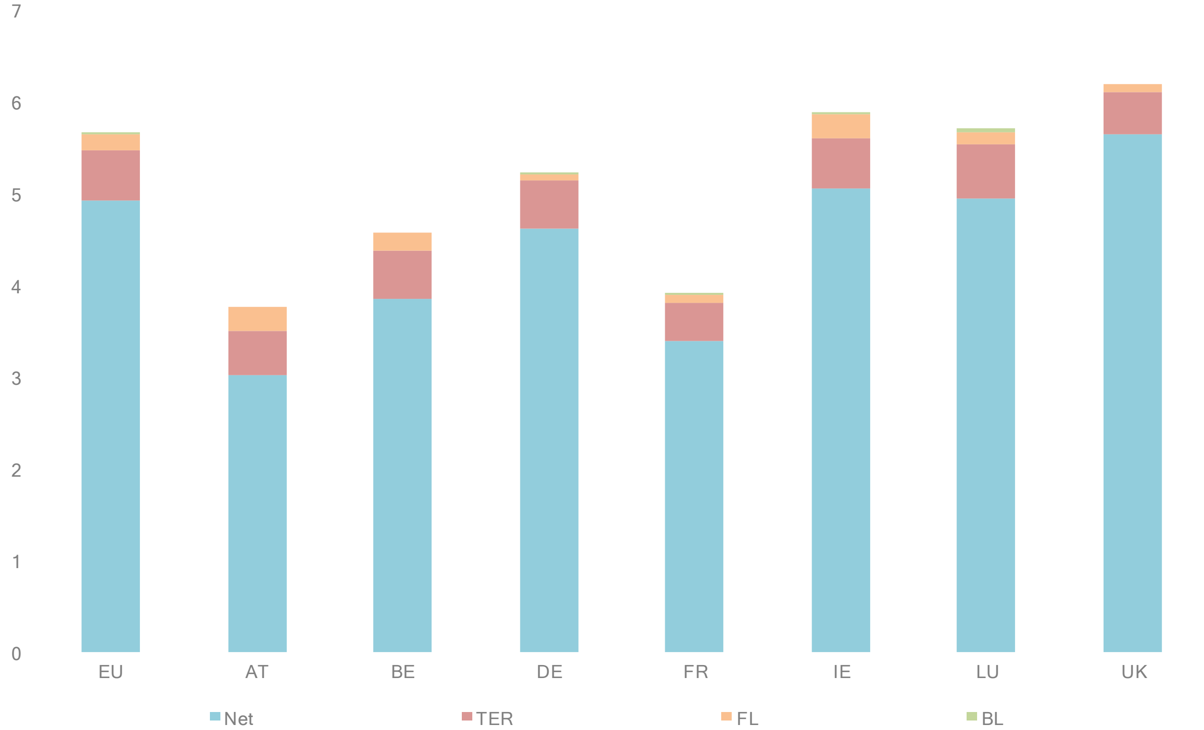
Bond UCITS gross performance and cost impact by domicile – retail investors – 10Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ce, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon, %. DK, FI, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.124

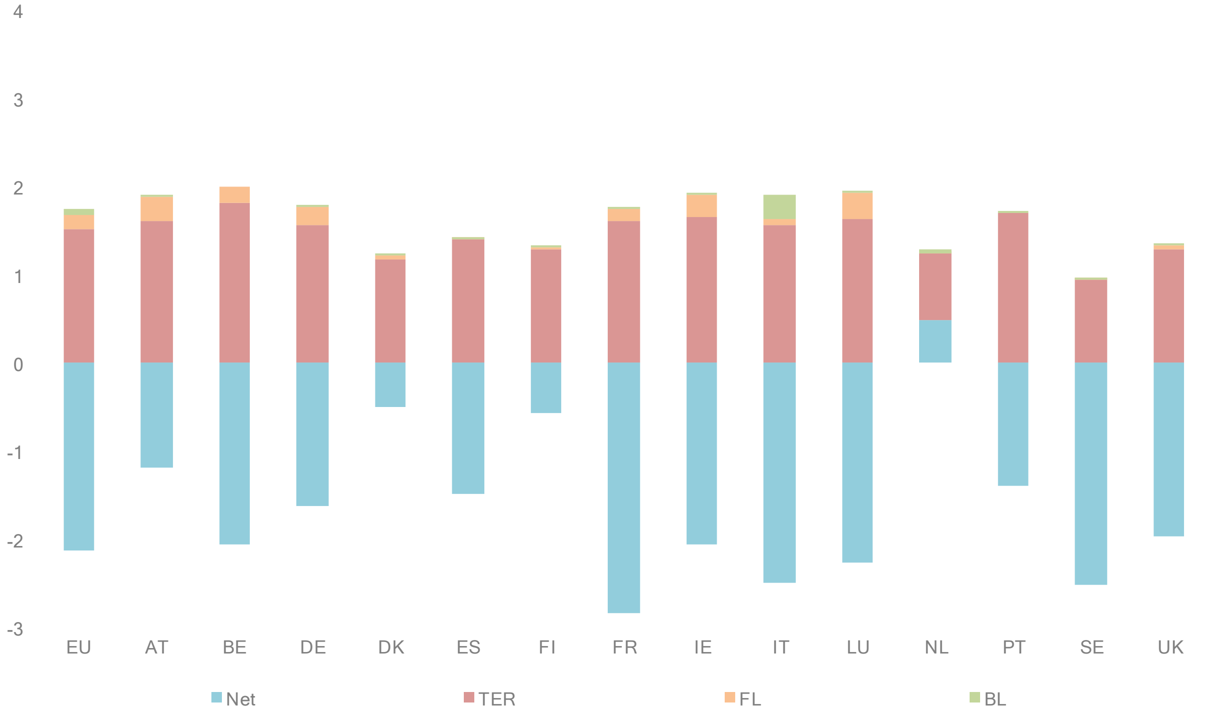
Bond UCITS gross performance and cost impact by domicile – institutional investors – 10Y horizon



Note: EU UCITS bond funds annual gross performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon, %. DK, ES, FI, IT, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.125

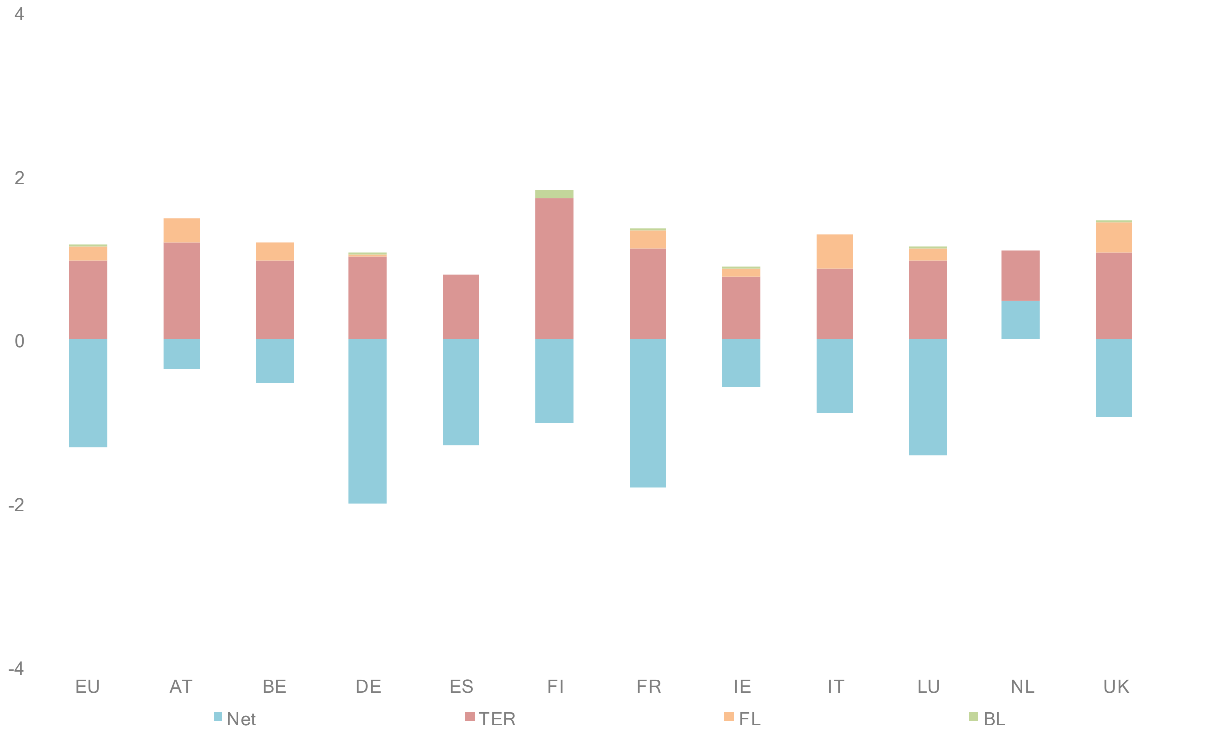
Mixed UCITS gross performance and cost impact by domicile – retail investors – 1Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon, %. Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.126

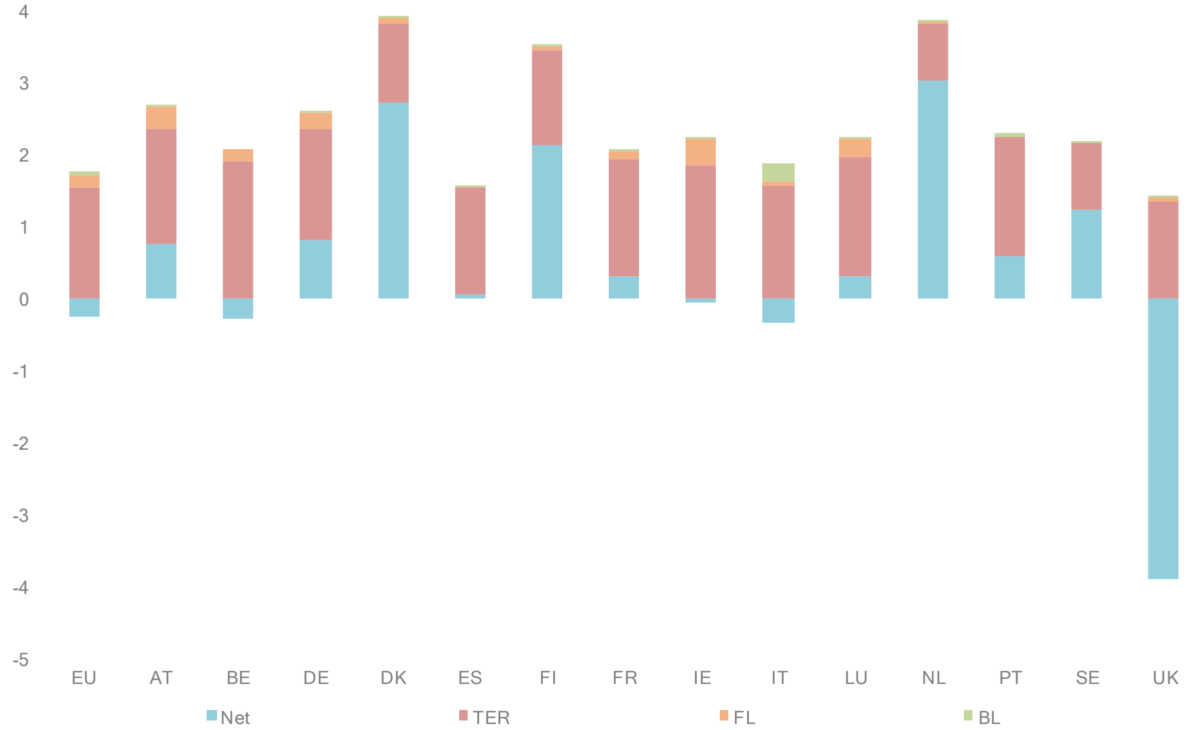
Mixed UCITS gross performance and cost impact by domicile – institutional investors – 1Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon, %. DK,PT,SE and Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.127

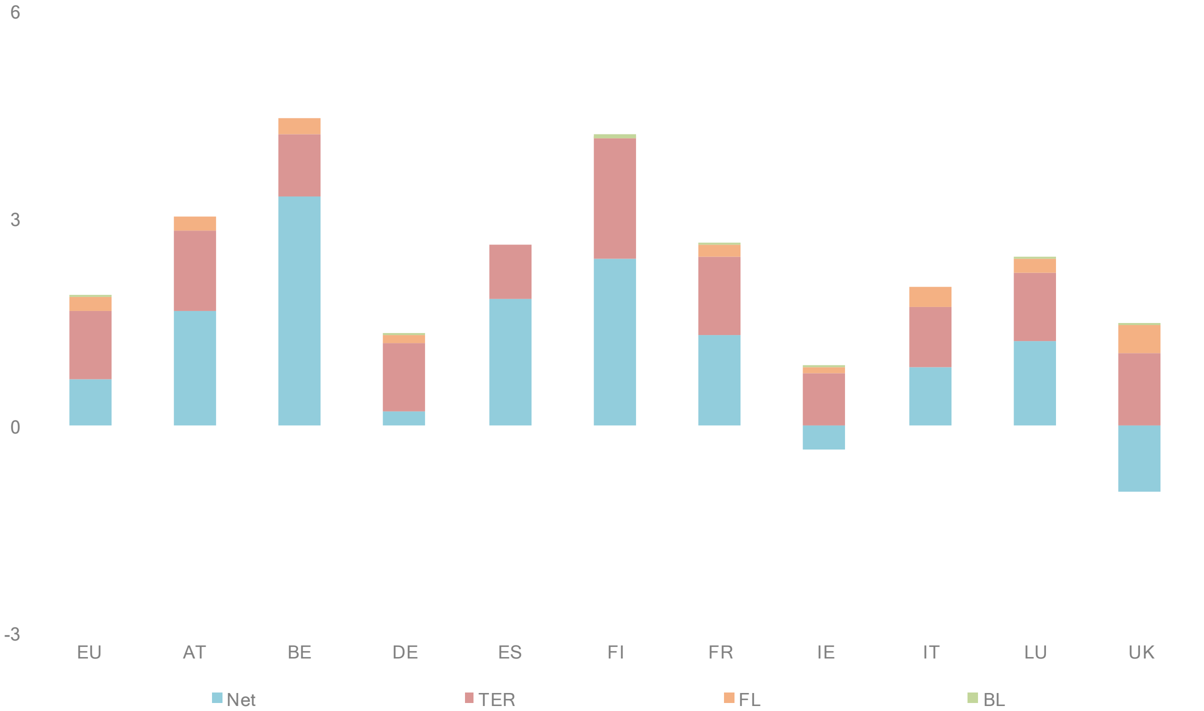
Mixed UCITS gross performance and cost impact by domicile – retail investors – 3Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.128

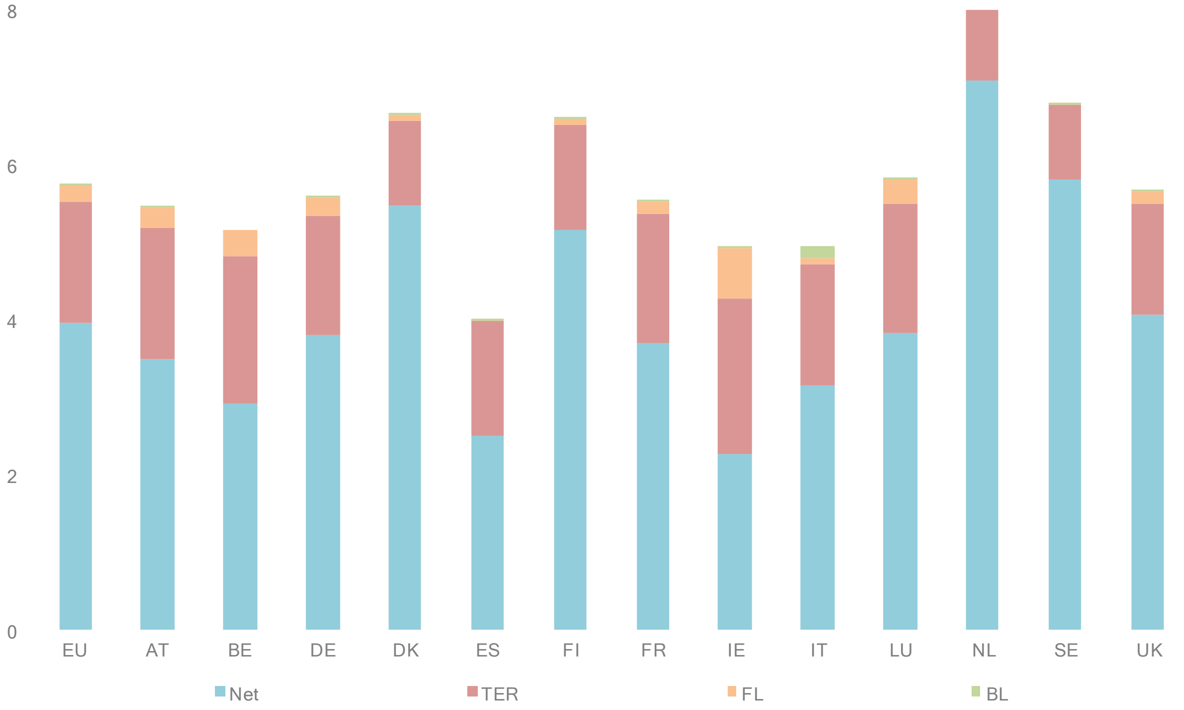
Mixed UCITS gross performance and cost impact by domicile – institutional investors – 3Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, (rhs), %. DK, PT, NL, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.129

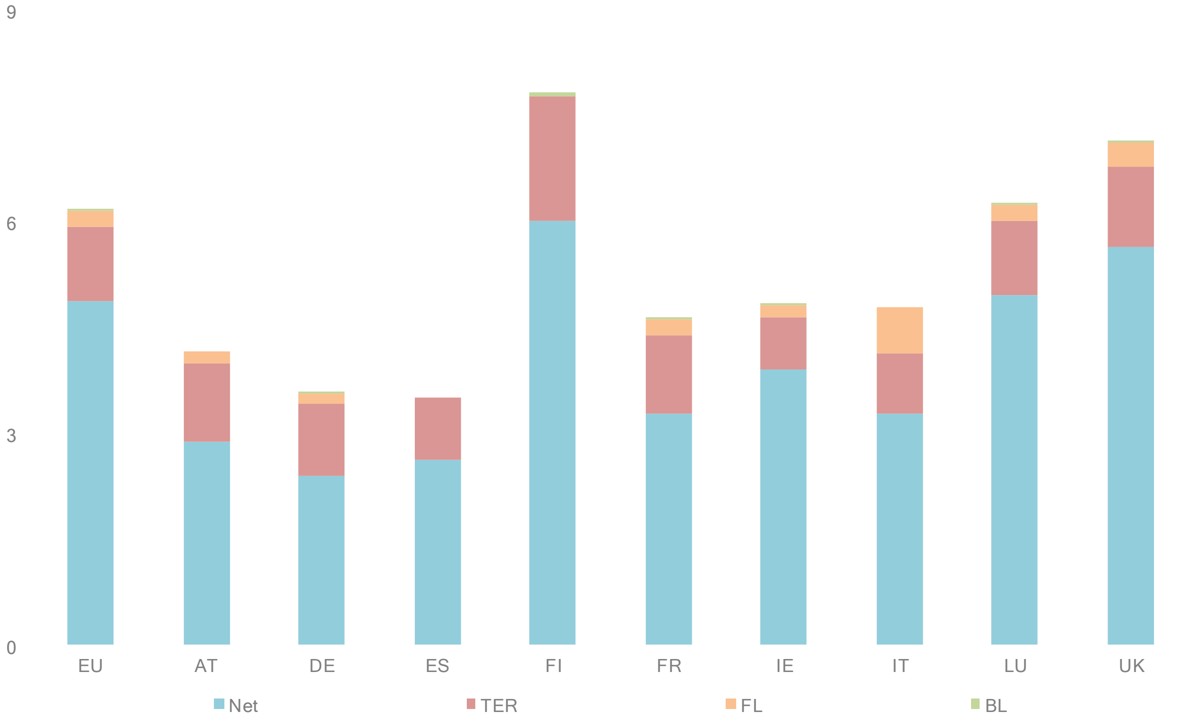
Mixed UCITS gross performance and cost impact by domicile – retail investors – 7Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.130

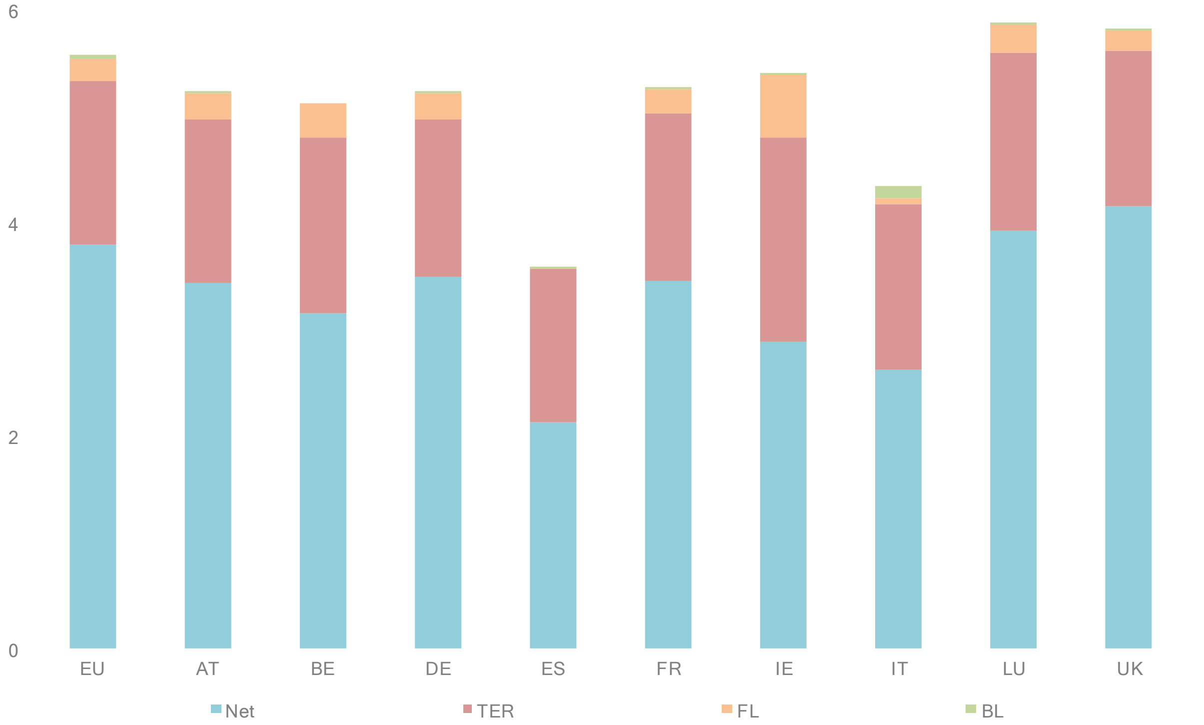
Mixed UCITS gross performance and cost impact by domicile – institutional investors – 7Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. BE, DK, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.131

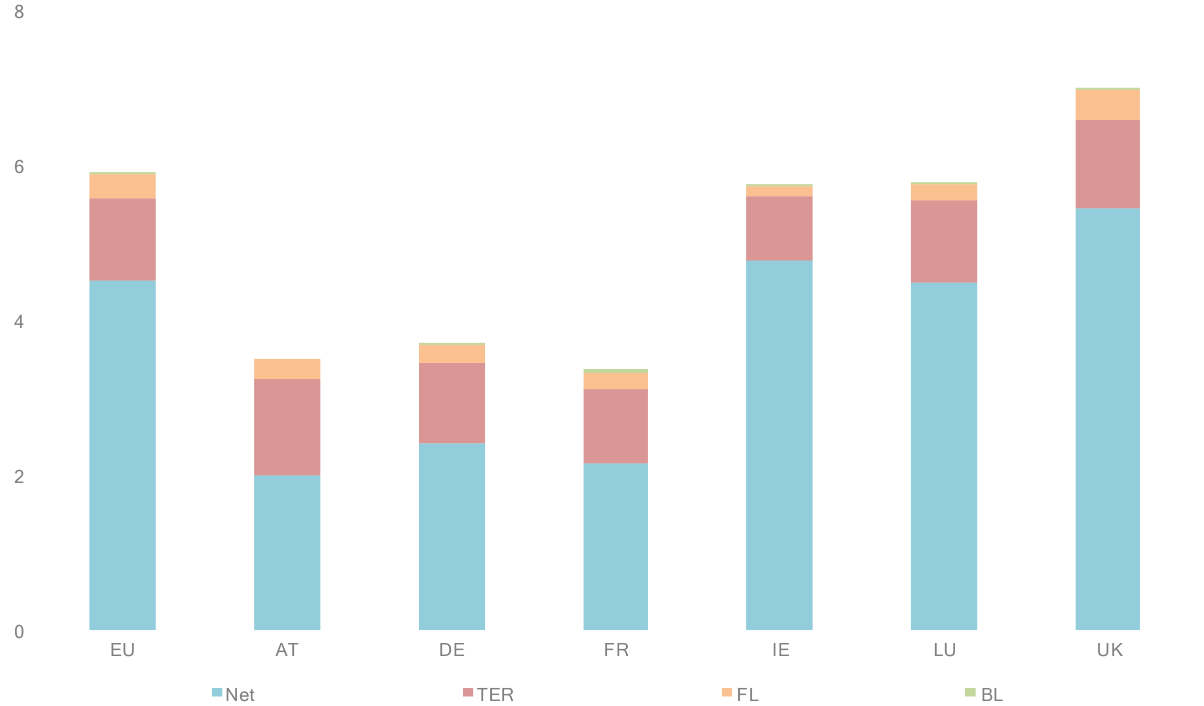
Mixed UCITS gross performance and cost impact by domicile – retail investors – 10Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon, %. DK, FI, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.132

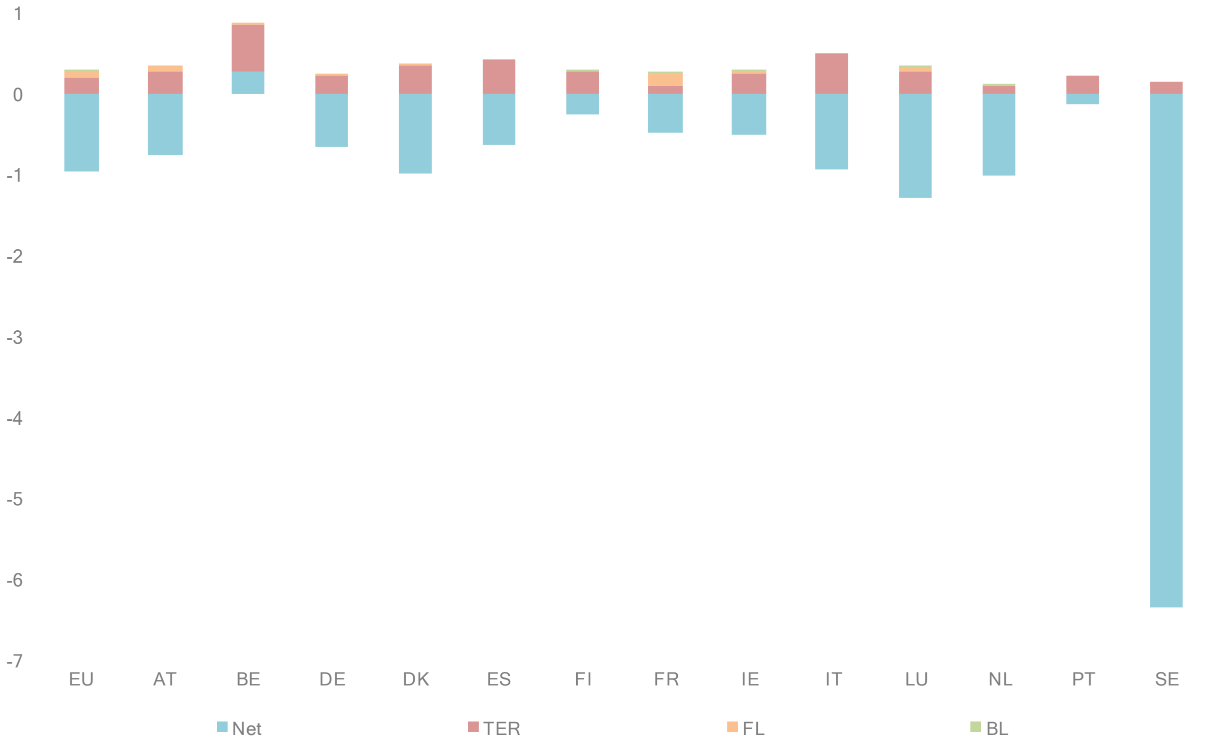
Mixed UCITS gross performance and cost impact by domicile – institutional investors – 10Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon, %. BE, DK, ES, FI, IT, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.133

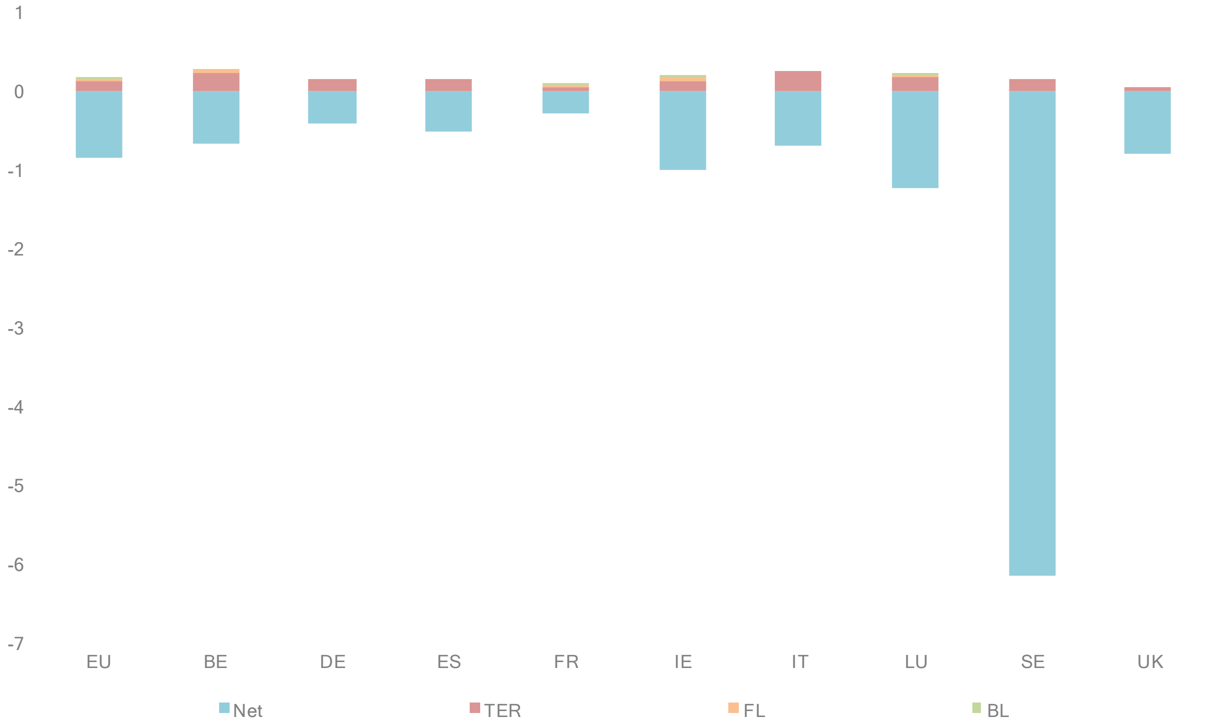
Money market UCITS gross performance and cost impact by domicile – retail investors – 1Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by country, 1Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.134

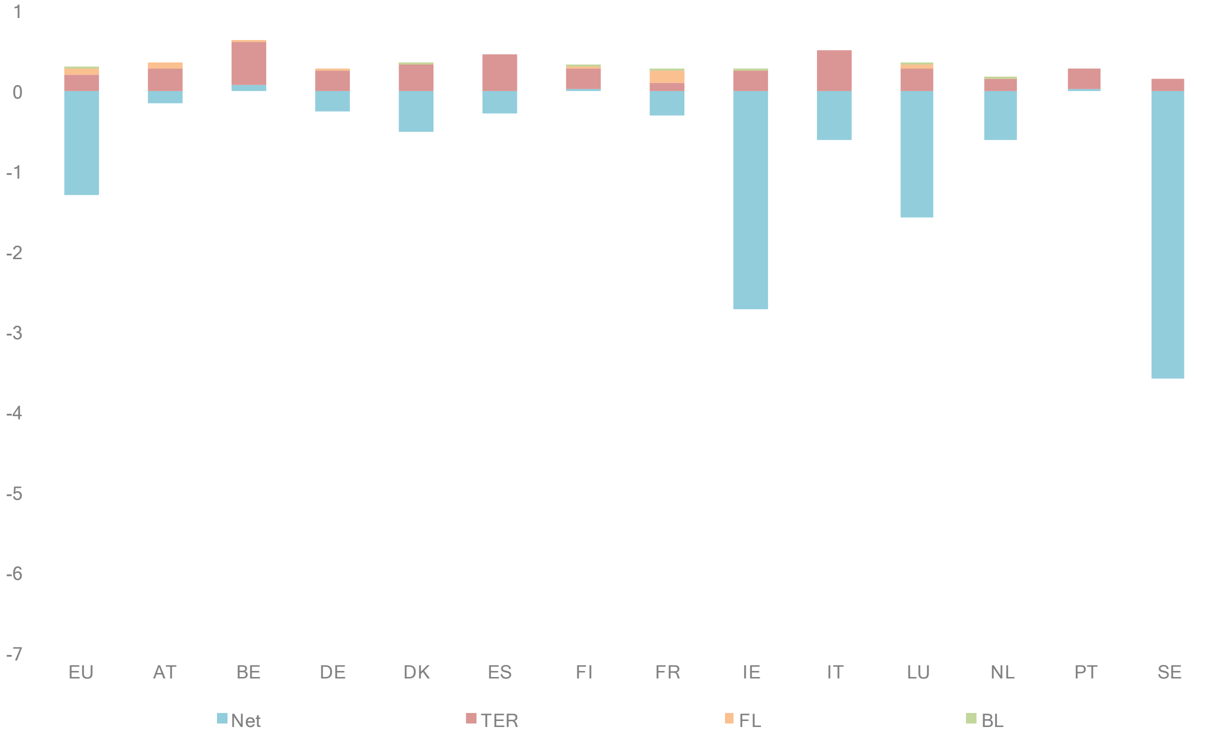
Money market UCITS gross performance and cost impact by domicile – institutional investors – 1Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by country, 1Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. AT, DK, FI, NL, PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.135

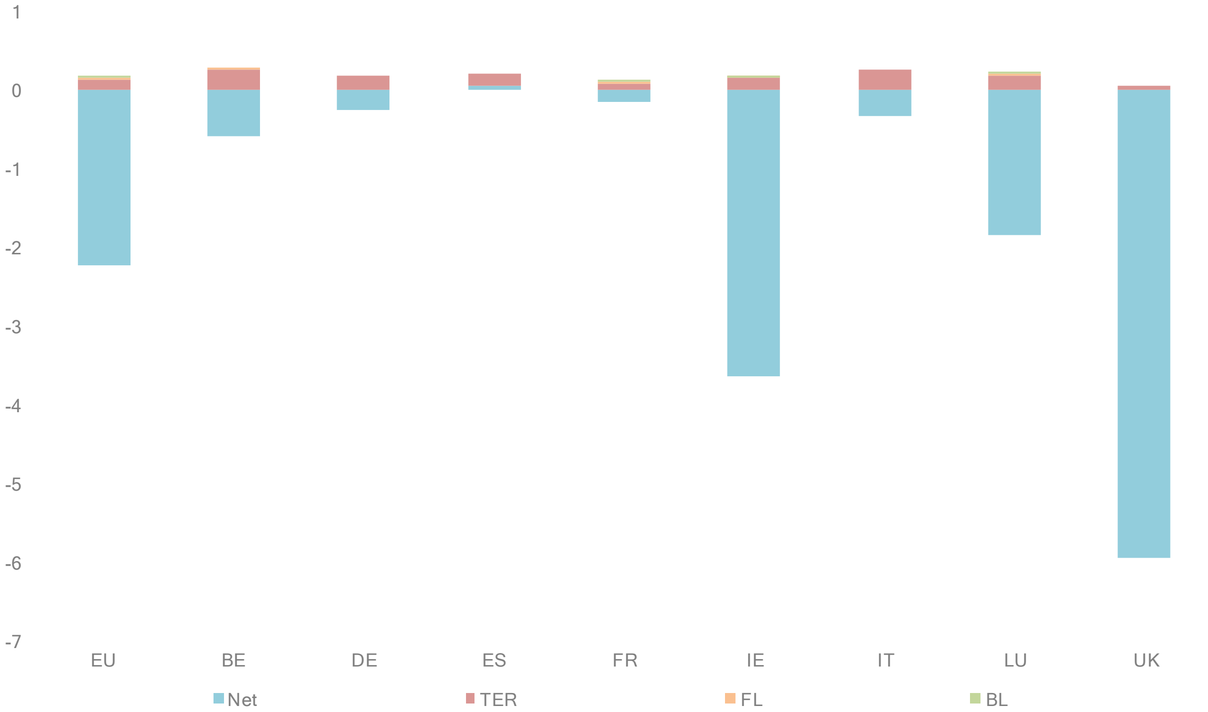
Money market UCITS gross performance and cost impact by domicile – retail investors – 3Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by country, 3Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.136

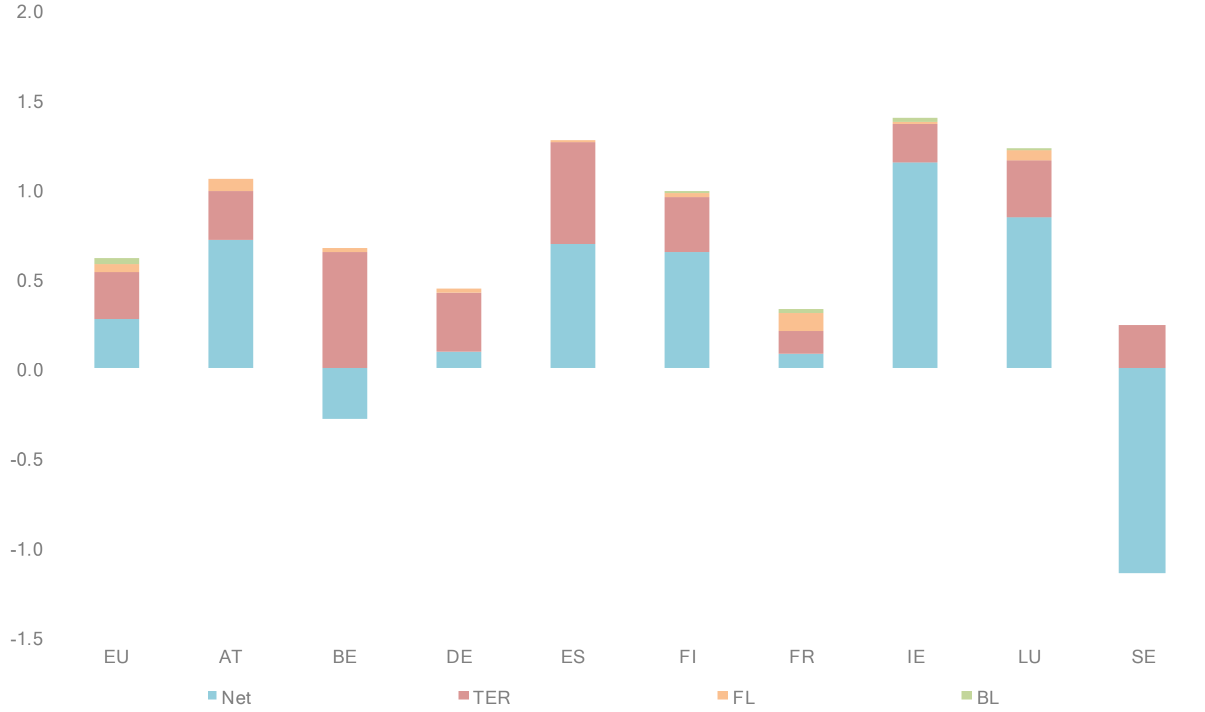
Money market UCITS gross performance and cost impact by domicile – institutional investors – 3Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by country, 3Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. AT, DK, FI, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.137

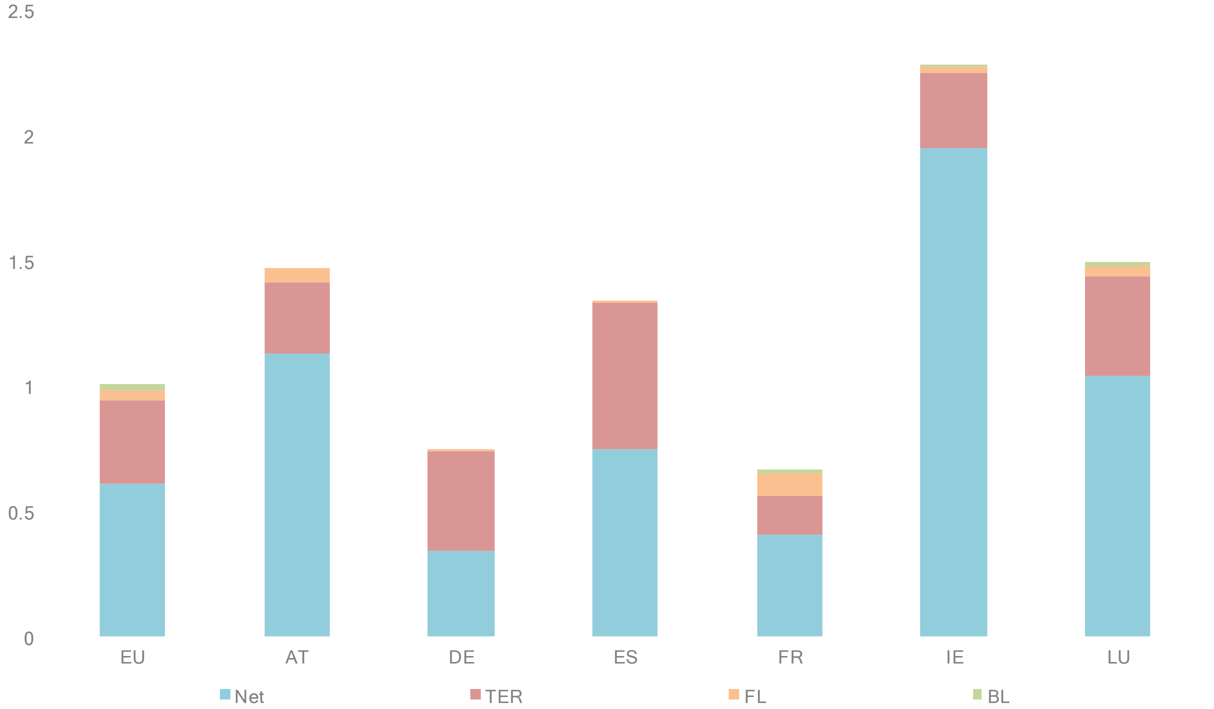
Money market UCITS gross performance and cost impact by domicile – retail investors – 7Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by country, 7Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. DK, IT, NL, PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.138

Money market UCITS gross performance and cost impact by domicile – imstitutional investors – 10Y horizon

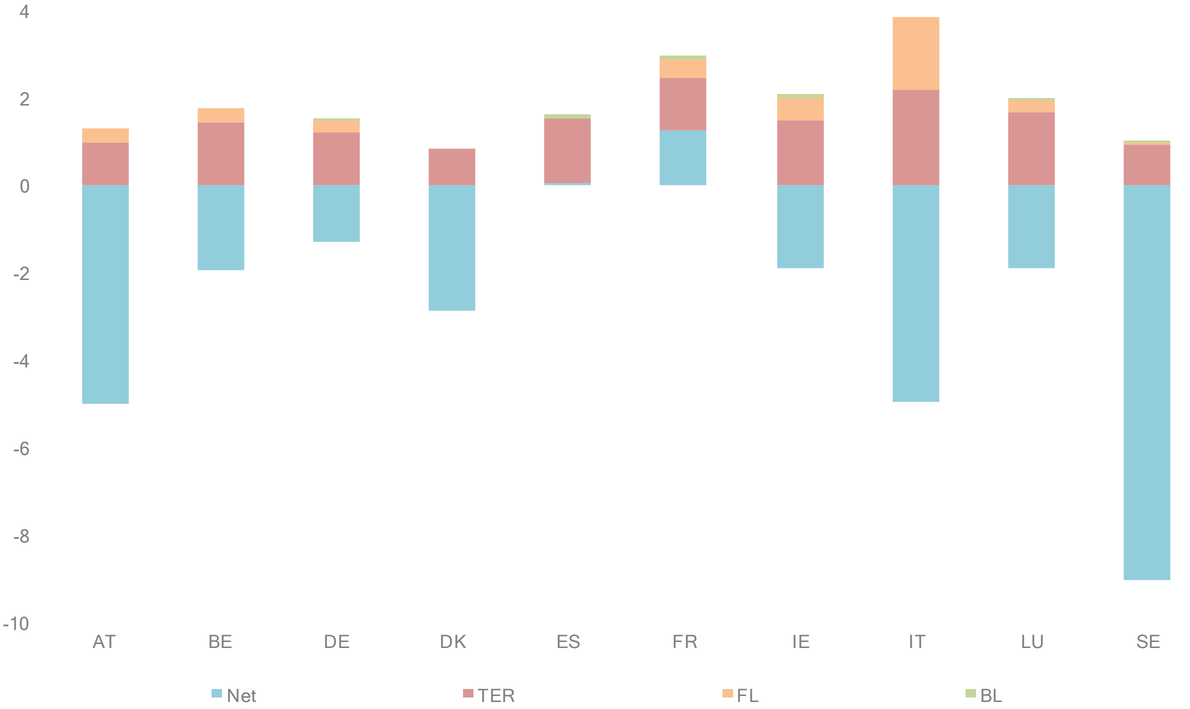


Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by country, 10Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. BE, DK, FI, IT, NL, PT, SE, UK and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Please note that institutional investors for money market UCITS at 7Y and 10Y are not reported as sample at a country-by-country level too small

ASR-PC-S.139

Alternative UCITS gross performance and cost impact by domicile – retail investors – 1Y horizon



Note: EU UCITS alternative funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y time horizon, %. FI, NL, PT, and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.140

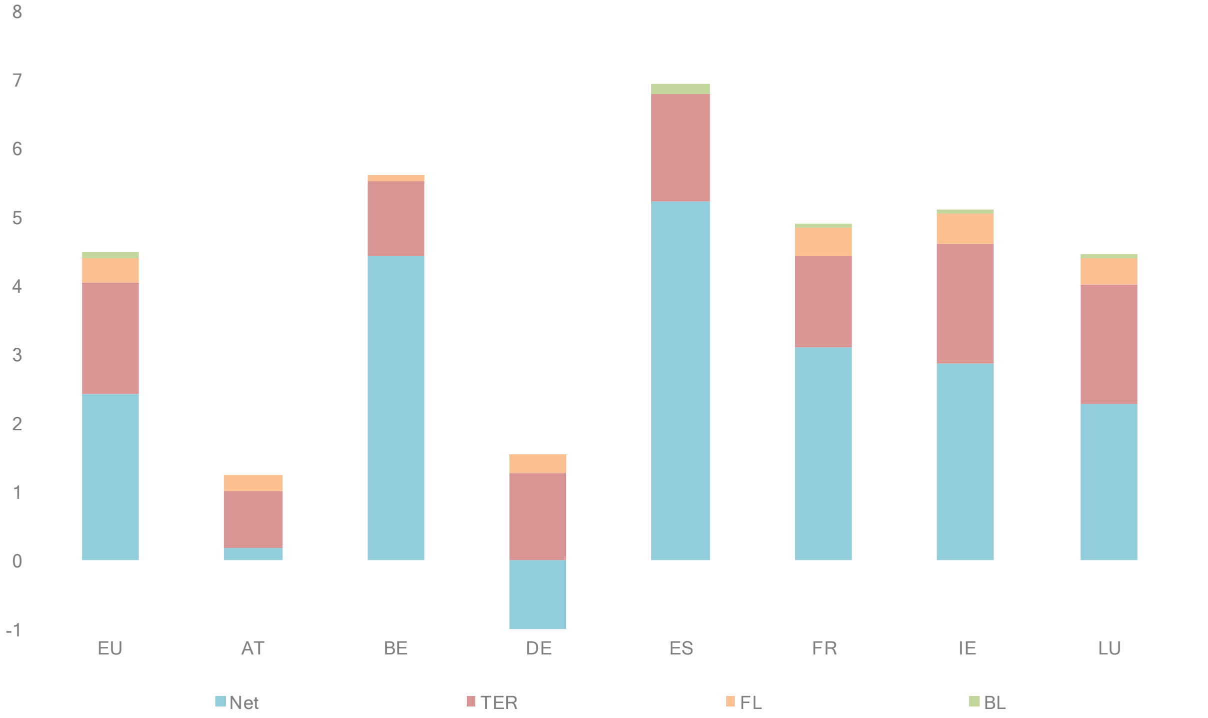
Alternative UCITS gross performance and cost impact by domicile – retail investors – 3Y horizon

Note: EU UCITS alternative funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y time horizon, %.FI, NL, PT, and Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

Please note that institutional investors for alternative UCITS are not reported as sample at a country-by-country level too small

ASR-PC-S.141

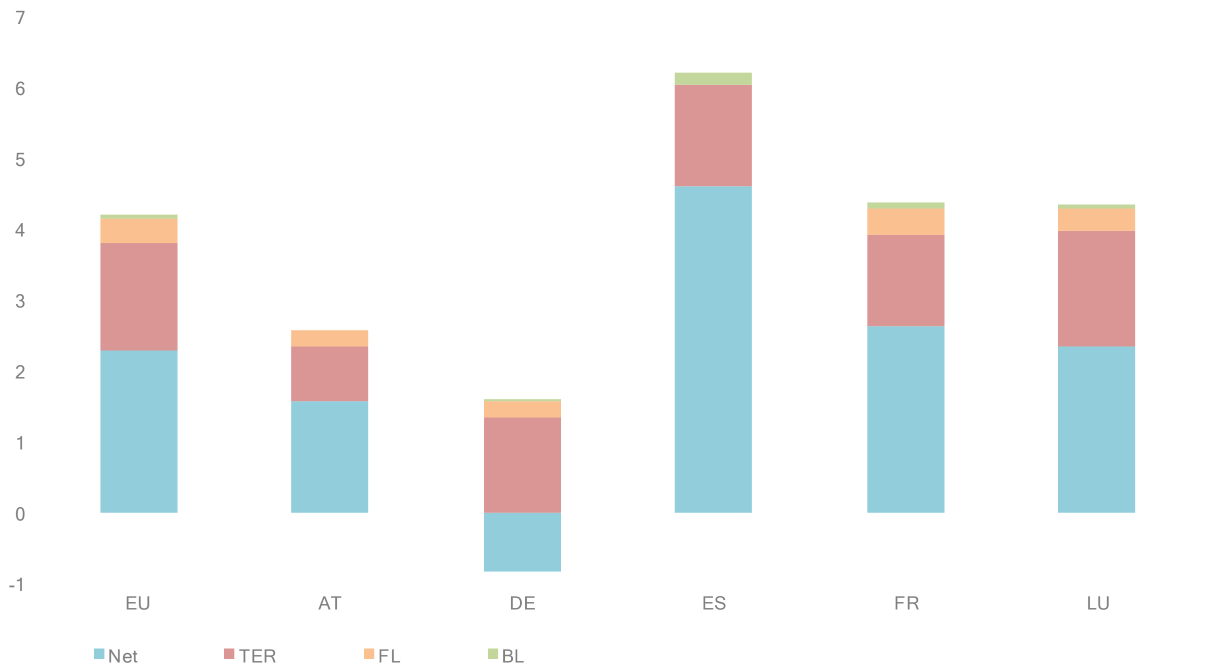
Alternative UCITS gross performance and cost impact by domicile – retail investors – 7Y horizon



Note: EU UCITS alternative funds gross annual performance, classified as net performance, rmance, , ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y time horizon, %. DK, FI, IT, NL, PT, SE and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.142

Alternative UCITS gross performance and cost impact by domicile – retail investors – 10Y horizon

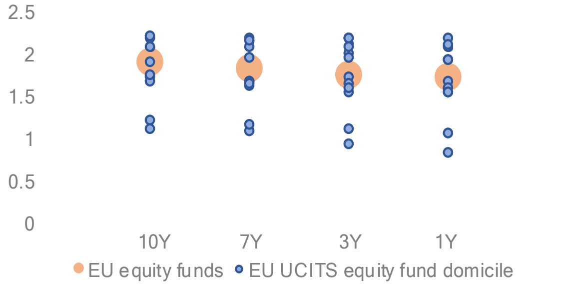


Note: EU UCITS alternative funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y time horizon, %. BE, DK, FI, IE, IT, NL, PT, SE, UK and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Please note that institutional investors for alternative UCITS are not reported as sample at a country-by-country level too small

ASR-PC-S.143

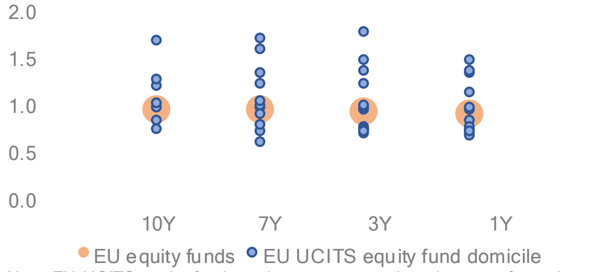
Equity UCITScost dispersion by domicile - retail



Note: EU UCITS equity fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for DK, FI, and PT at 10Y. Data not available for PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.144

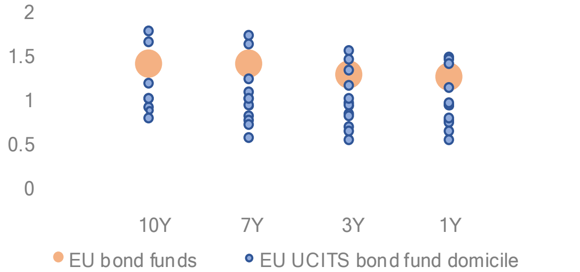
Equity UCITScost dispersion by domicile - institutional



Note: EU UCITS equity fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, institutional investors, %. Data not available for DK, ES, FI, IT, NL and SE at 10Y. Data not available for DK and NL at 7Y. Data for PT not available. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.145

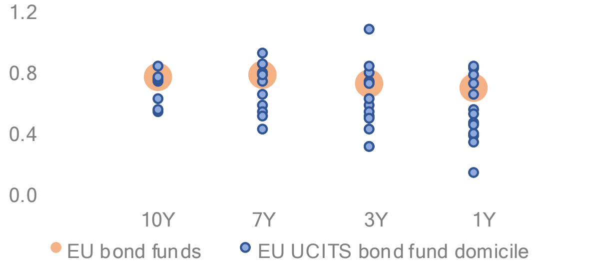
Bond UCITS cost dispersion in EU - retail



Note: EU UCITS bond fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for DK, FI, NL, PT, SE at 10Y. Data not available for PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.146

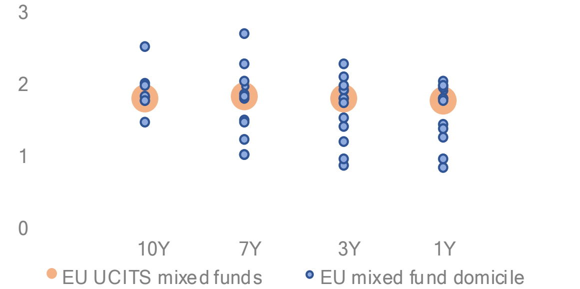
Bond UCITS cost dispersion in EU - institutional



Note: EU UCITS bond fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, institutional investors, %. Data not available for DK, ES, FI, IT, NL and SE at 10Y. Data not available for DK, ES and NL at 7Y. Data not available for PT. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.147

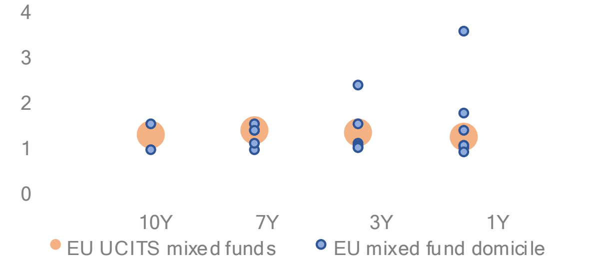
Mixed UCITS cost dispersion in EU - retail



Note: EU UCITS mixed fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for DK, FI, NL, PT, SE at 10Y. Data not available for PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.148

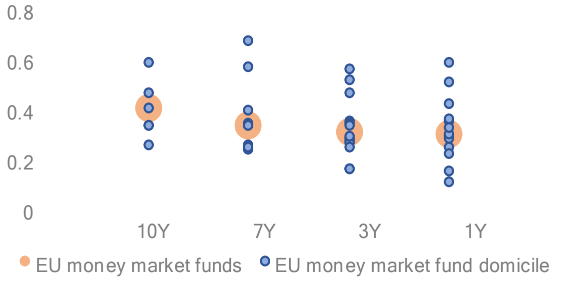
Mixed UCITS cost dispersion in EU - institutional



Note: EU UCITS mixed fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, institutional investors, %. Data not available for BE, IE, IT and UK at 10Y. Data not available for BE and IT at 7Y. Data not available for AT, DK, ES, FI, NL, PT and SE. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.149

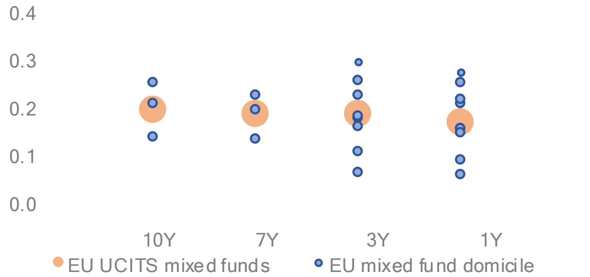
Money market UCITScost dispersion in EU - retail



Note: EU UCITS money market fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for BE, DK, FI, IT, NL, PT, SE and UK at 10Y. Data not available for DK, IT, NL, PT at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.150

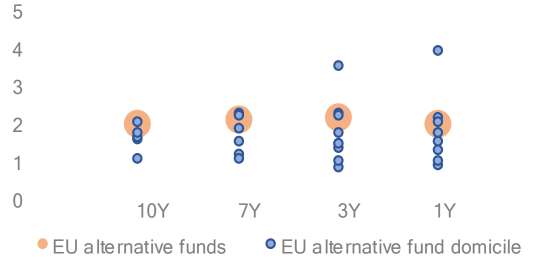
Money market UCITS cost dispersion in EU - institutional



Note: EU UCITS mixed fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, institutional investors, %. Data not available for BE, ES, IE, NL, IT, SE and UK at 10Y and 7Y. Data not available for AT, DK, FI, NL and PT. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.151

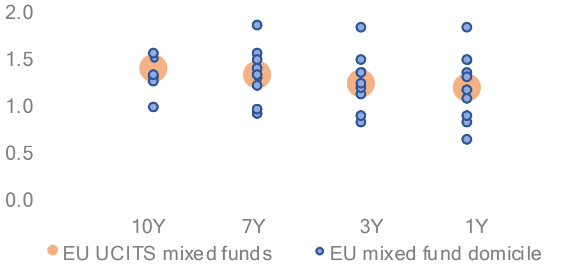
Alternative UCITScost dispersion in EU - retail



Note: EU UCITS alternative fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, retail investors, %. Data not available for FI,NL and PT. Data not available for BE, DK, IE, IT, SE and UK at 10Y. Data not available for DK, IT, SE at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.152

Alternative UCITS cost dispersion in EU - institutional

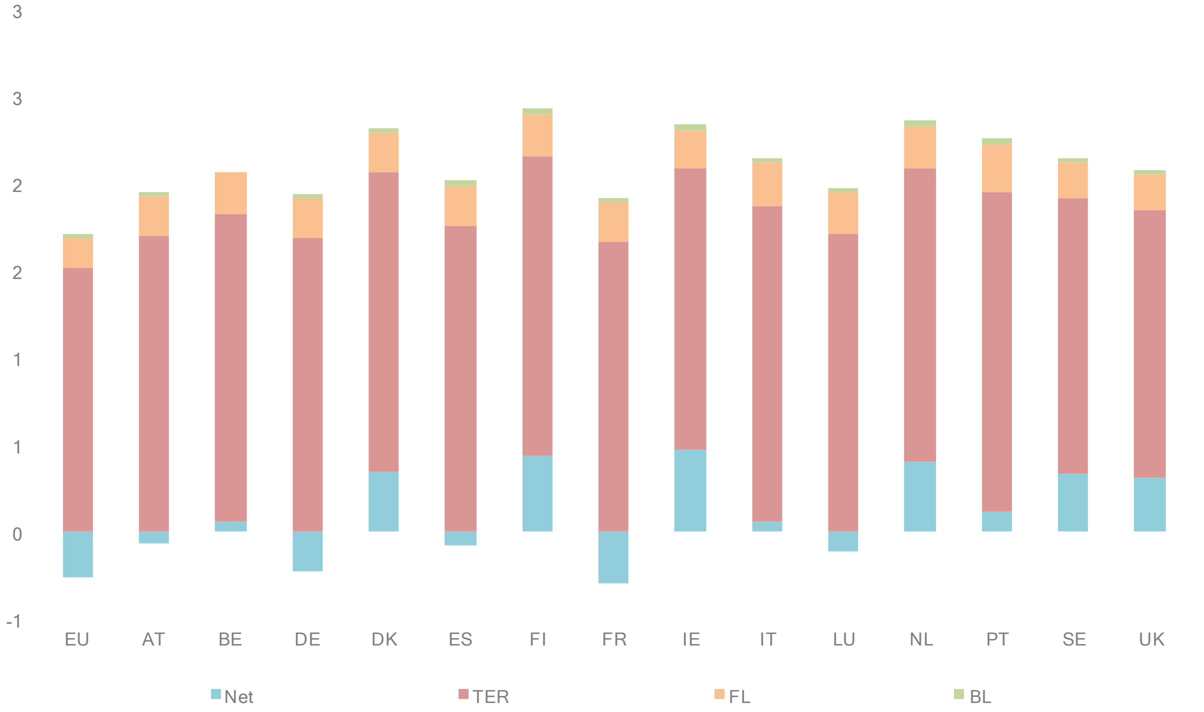


Note: EU UCITS mixed fund, total costs computed as the sum of ongoing costs (TER), subscription and redemption fees, institutional investors, %. Data not available for BE, ES, FI, IT and NL at 10Y. Data not available for BE and NL at 7Y. Data not available for DK, PT and SE. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Performance and costs, by retail investor domicile

ASR-PC-S.153

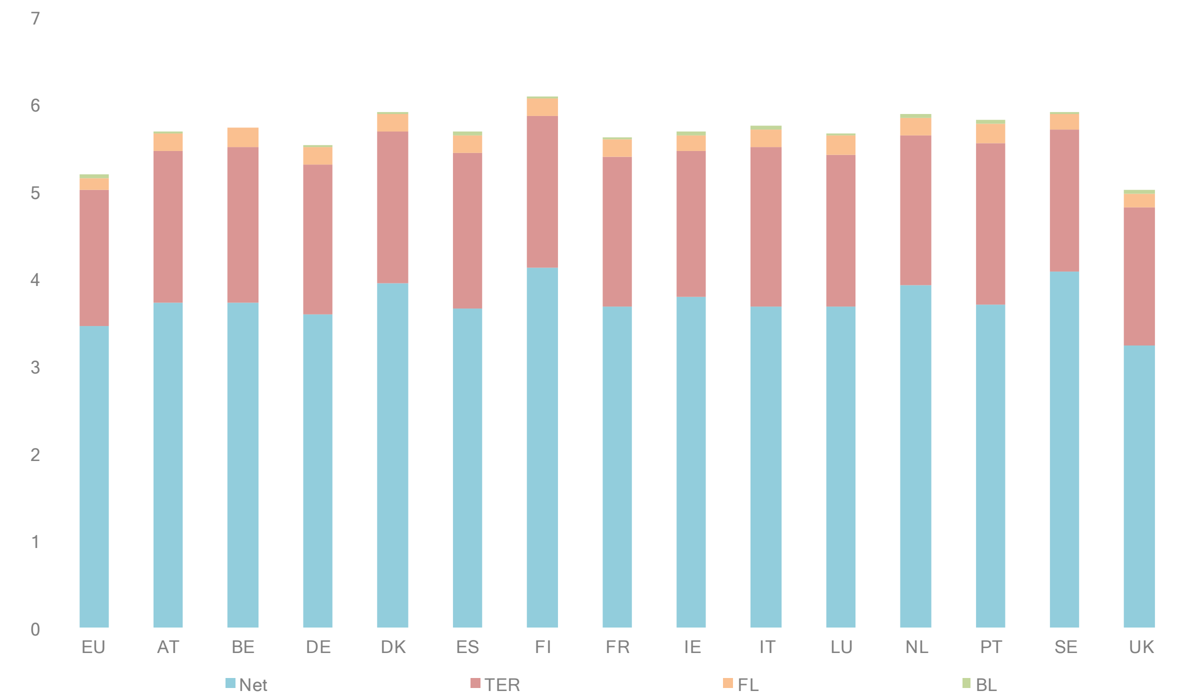
Equity UCITS gross performance and cost impact by retail investor domicile – 1Y horizon



Note: EU UCITS equity funds gros annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.154

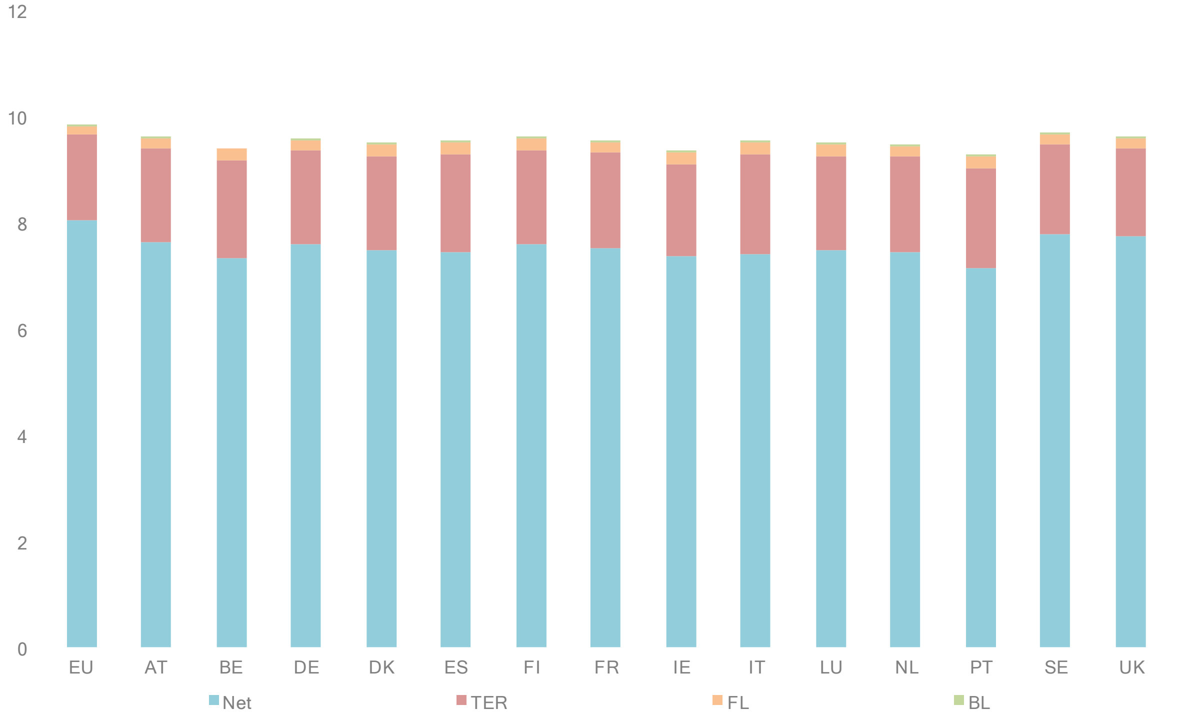
Equity UCITS gross performance and cost impact by domicile by retail investor domicile – 3Y horizon



Note: EU UCITS equity funds annual gross performance, classified as net performance, going costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.155

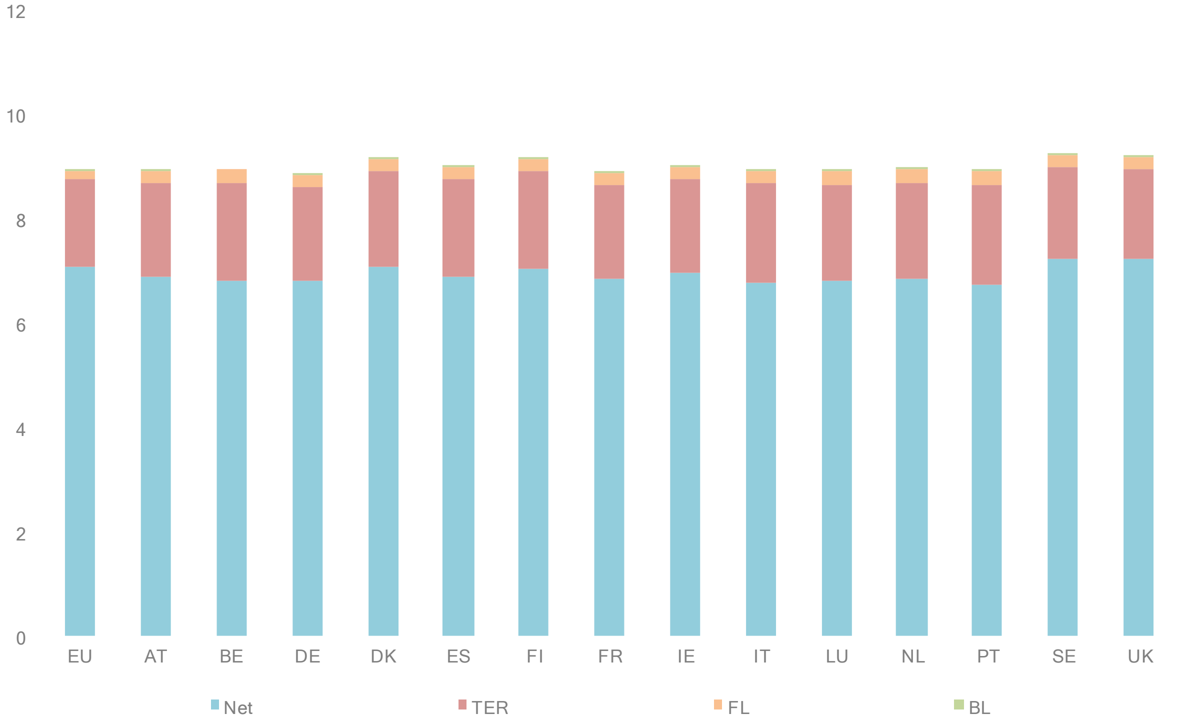
Equity UCITS gross performance and cost impact by by retail investor domicile – 7Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.156

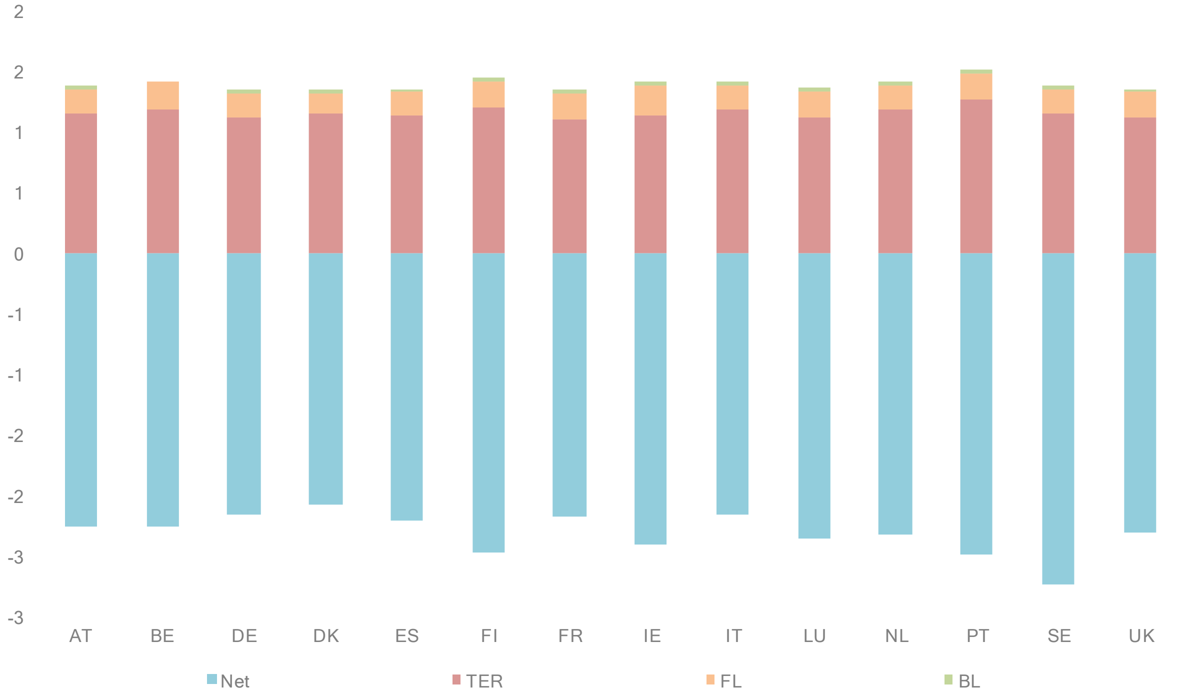
Equity UCITS gross performance and cost impact by retail investor domicile –10Y horizon



Note: EU UCITS equity funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon %. Other EU countries not reported.
Sources: Refinitiv Lipperiv Lipper, ESMA.

ASR-PC-S.157

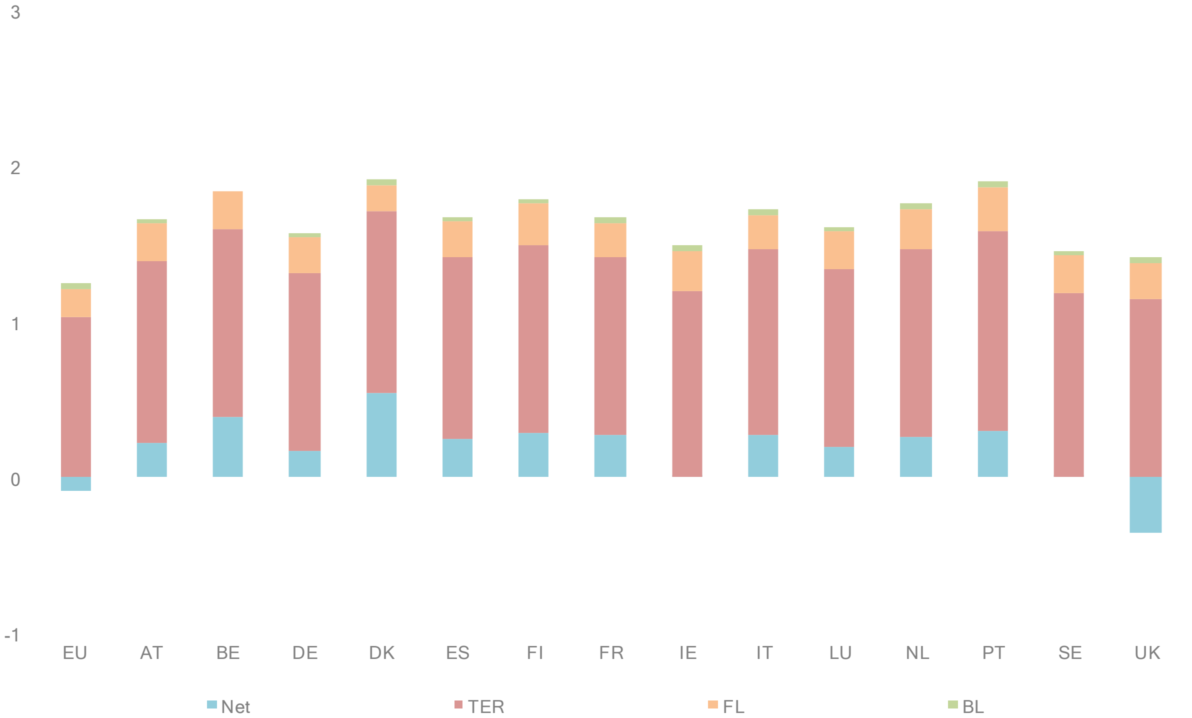
Bond UCITS gross performance and cost impact by retail investor domicile – 1Y horizon



Note: EU UCITS bond gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.158

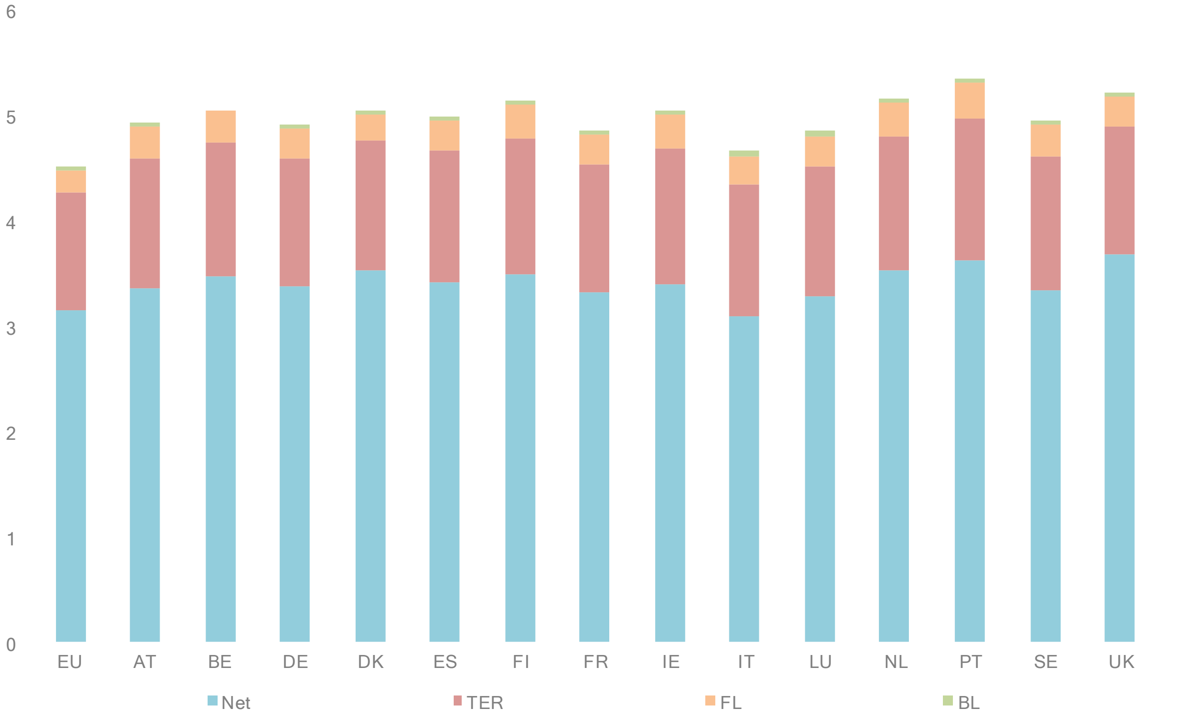
Bond UCITS gross performance and cost impact by retail investor domicile – 3Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.159

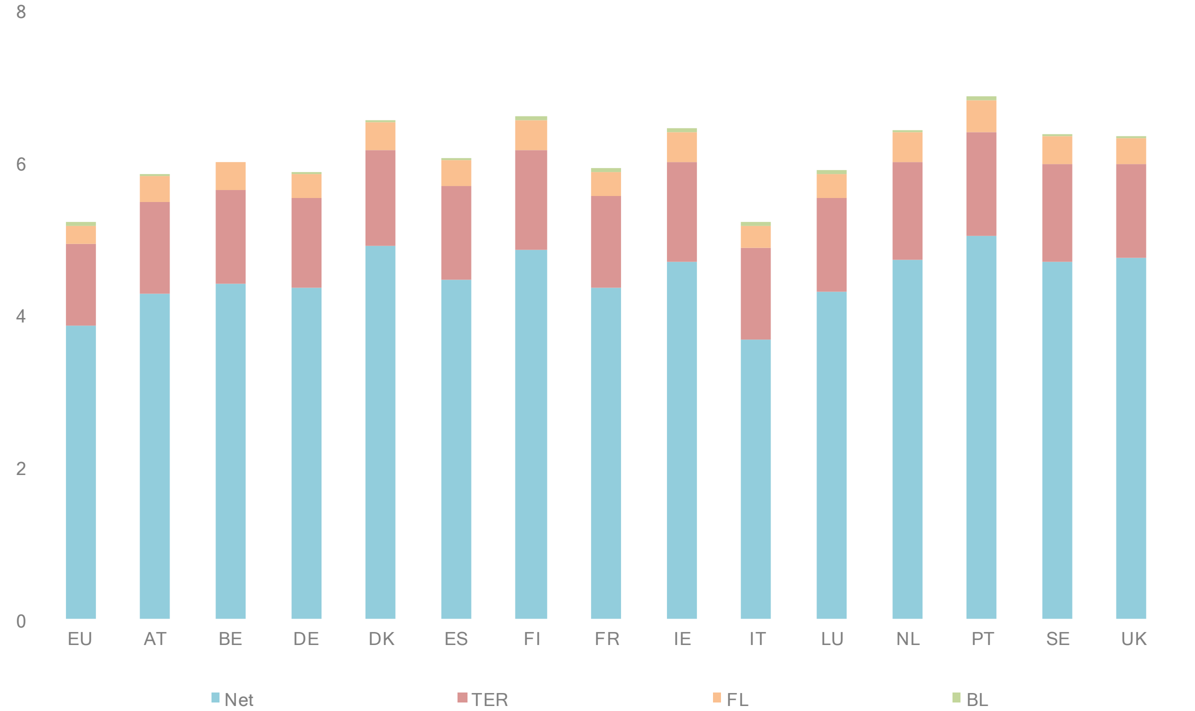
Bond UCITS gross performance and cost impact by retail investor domicile – 7Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.160

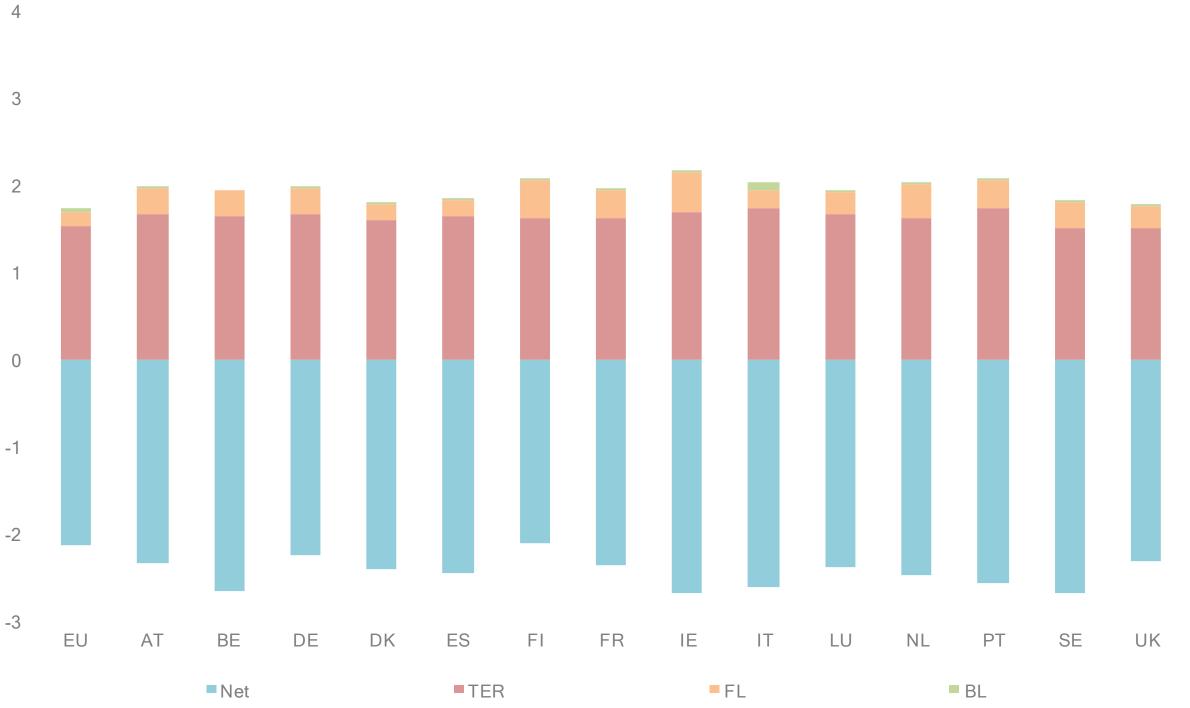
Bond UCITS gross performance and cost impact by retail investor domicile – 10Y horizon



Note: EU UCITS bond funds gross annual performance, classified as net performance, ce, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.161

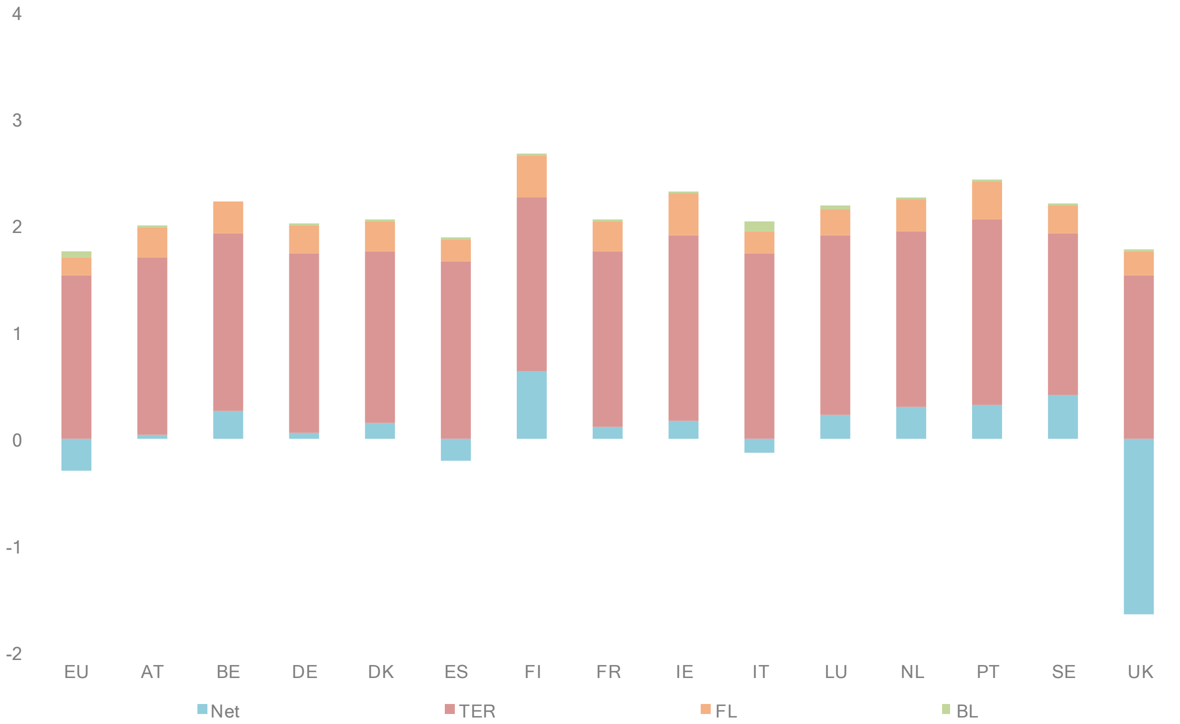
Mixed UCITS gross performance and cost impact by retail investor domicile – 1Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon, %. Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.162

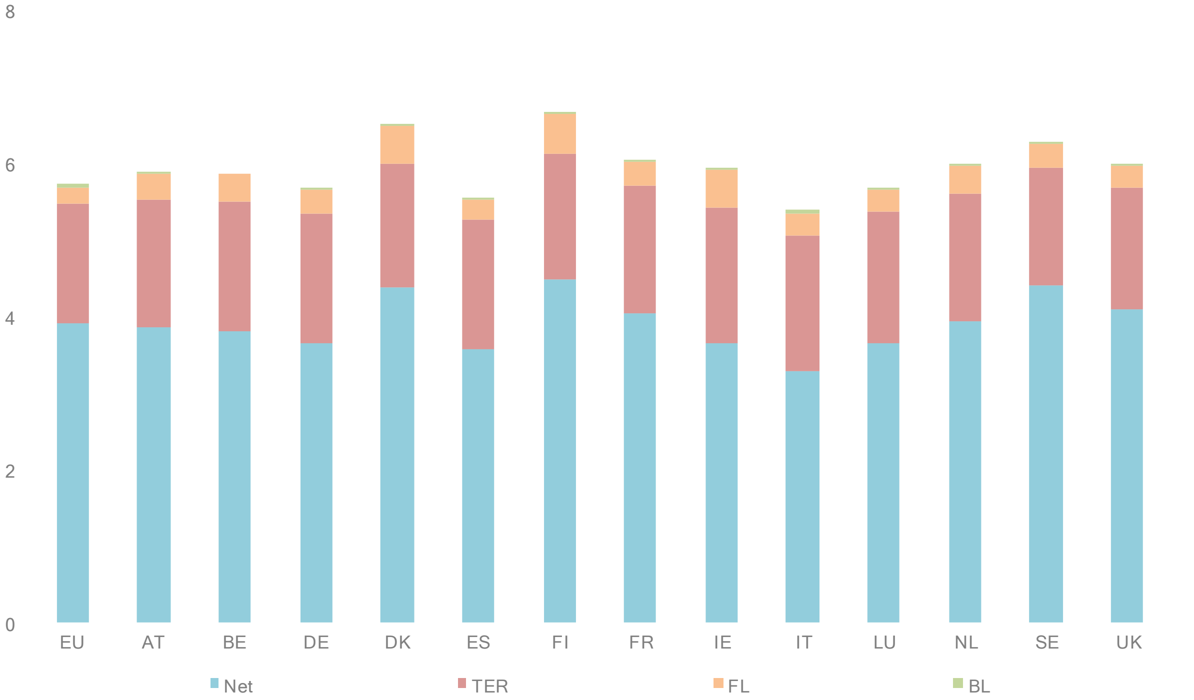
Mixed UCITS gross performance and cost impact by retail investor domicile – 3Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.163

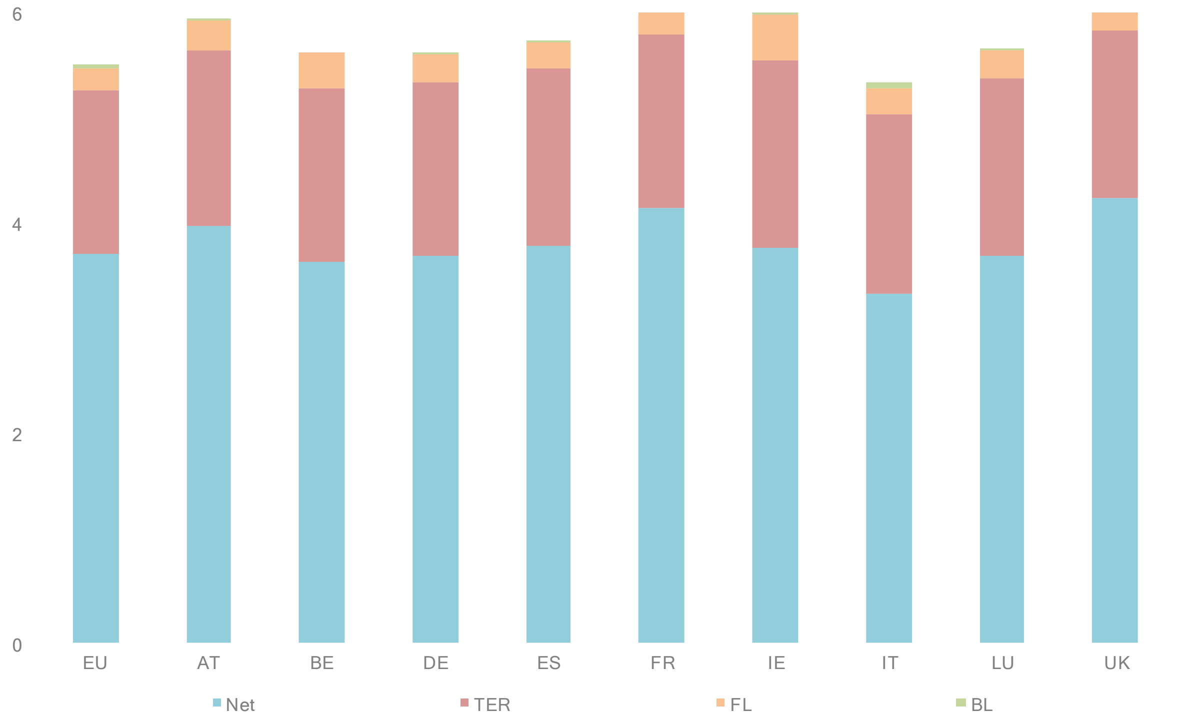
Mixed UCITS gross performance and cost impact by retail investor domicile – 7Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.164

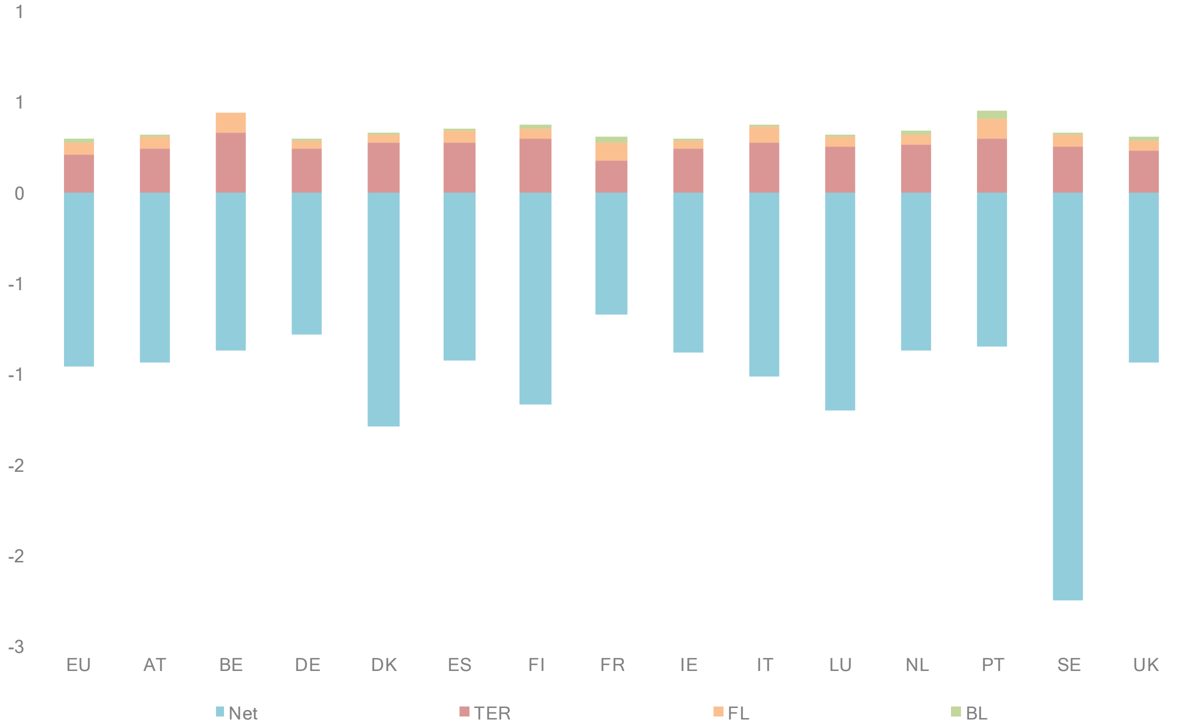
Mixed UCITS gross performance and cost impact by retail investor domicile – 10Y horizon



Note: EU UCITS mixed funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.165

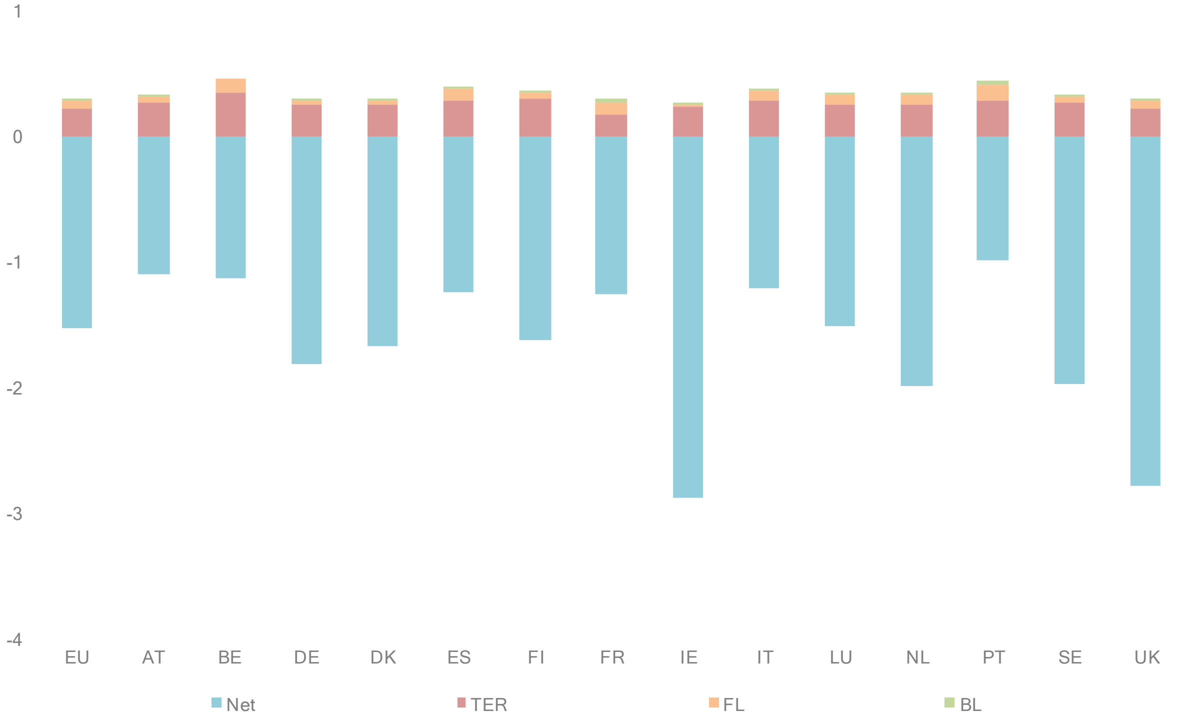
Money market UCITS gross performance and cost impact by retail investor domicile – 1Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.166

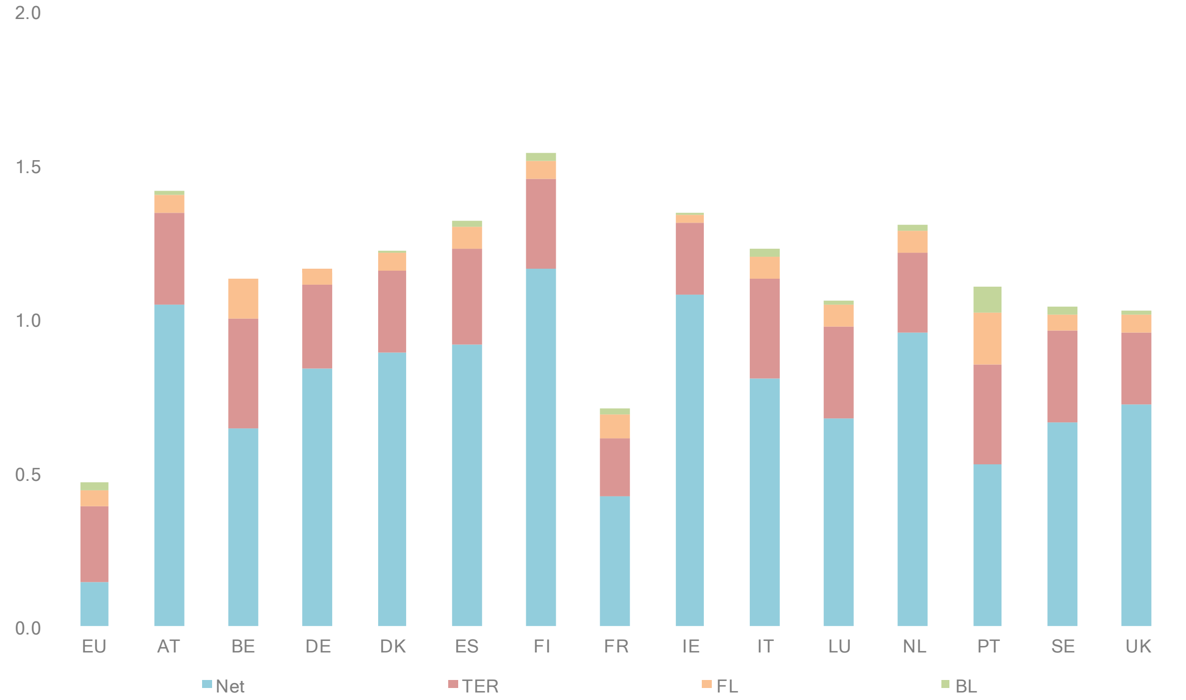
Money market UCITS gross performance and cost impact by retail investor domicile – 3Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.167

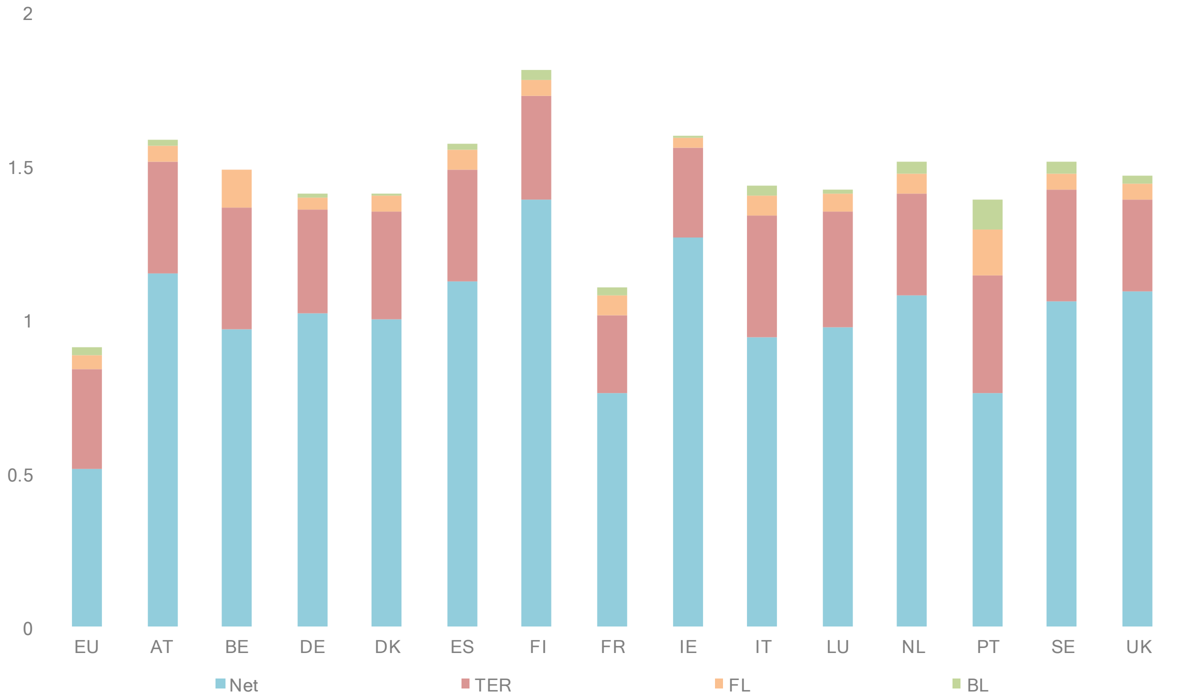
Money market UCITS gross performance and cost impact by retail investor domicile – 7Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.168

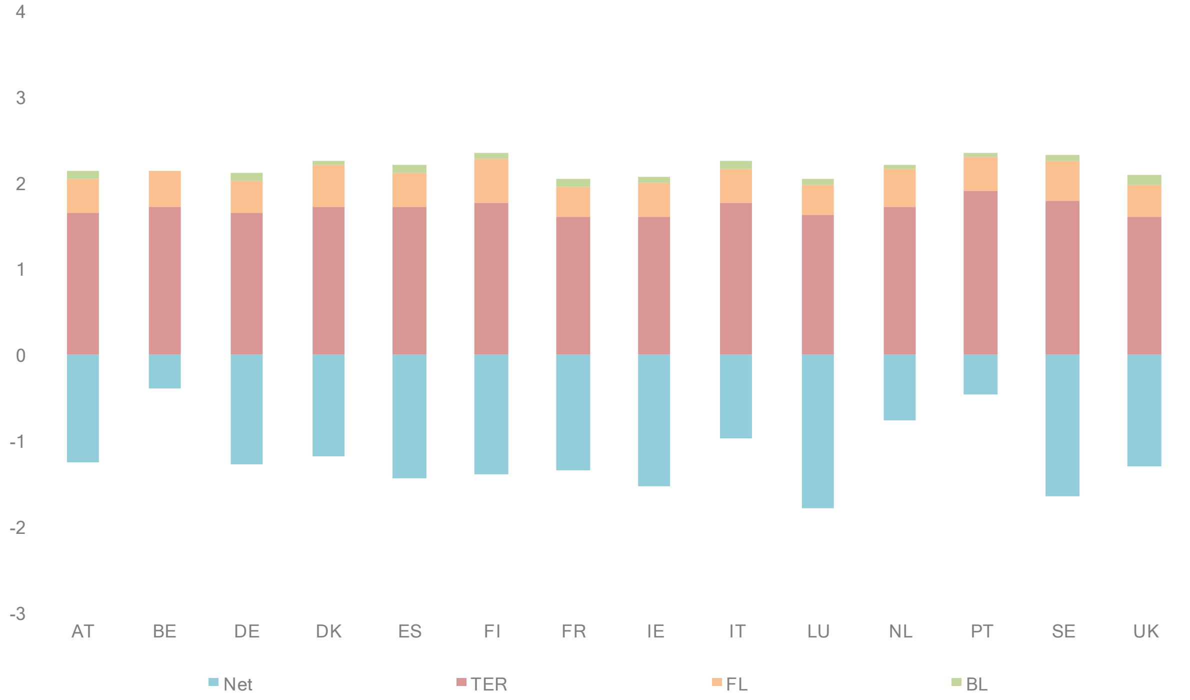
Money market UCITS gross performance and cost impact by retail investor domicile – 10Y horizon



Note: EU UCITS money market funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y horizon,%. Returns reported in EUR, includes currency movements for non-EUR denominated MMFs. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.169

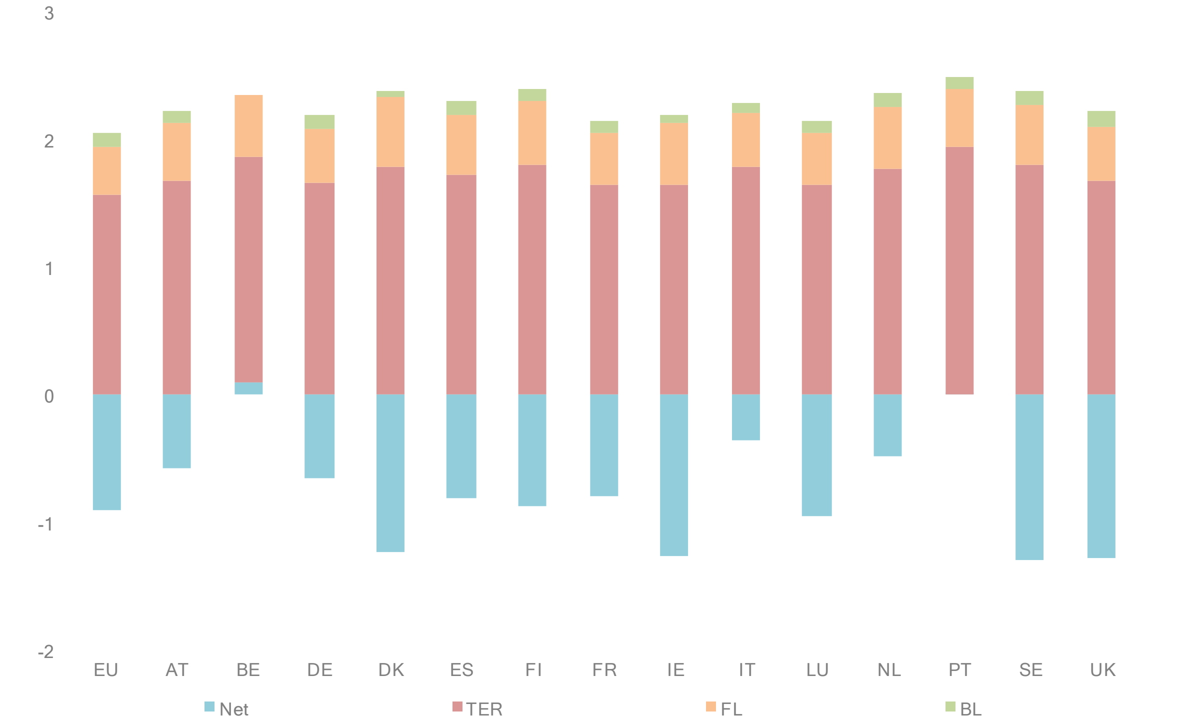
Alternative UCITS gross performance and cost impact by retail investor domicile – 1Y horizon



Note: EU UCITS alternative funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 1Y time horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.170

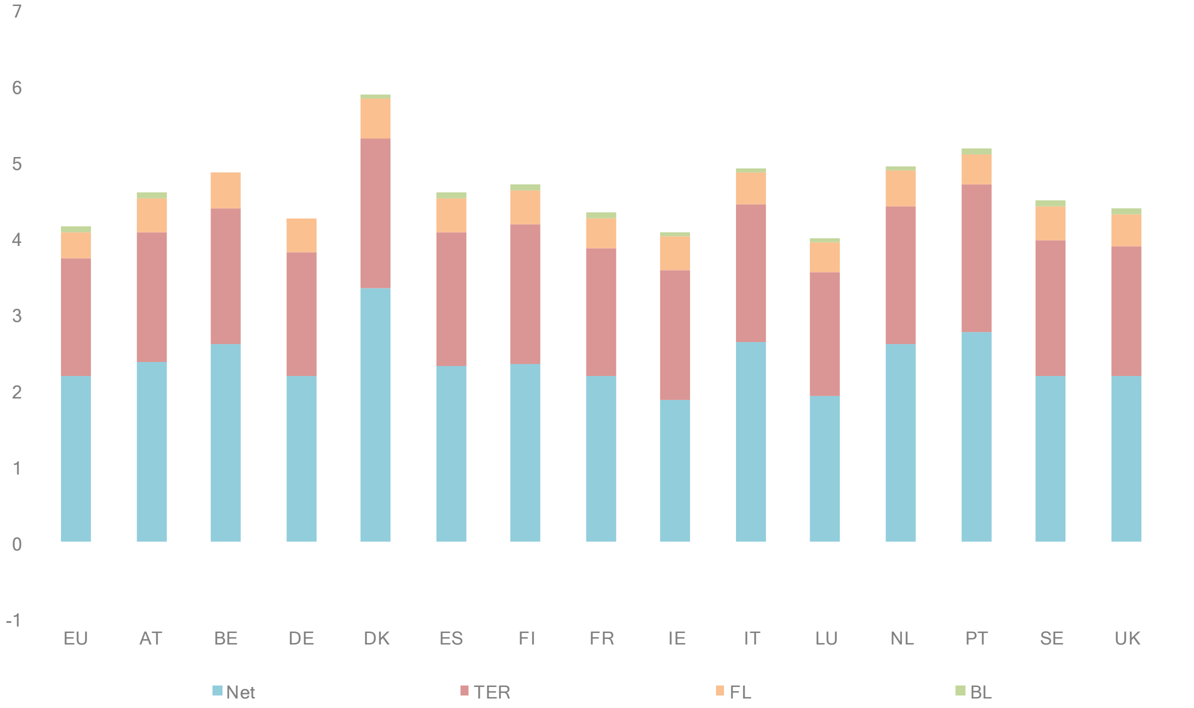
Alternative UCITS gross performance and cost impact by retail investor domicile – 3Y horizon



Note: EU UCITS alternative funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 3Y time horizon, %. Other EU countries not reported
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.171

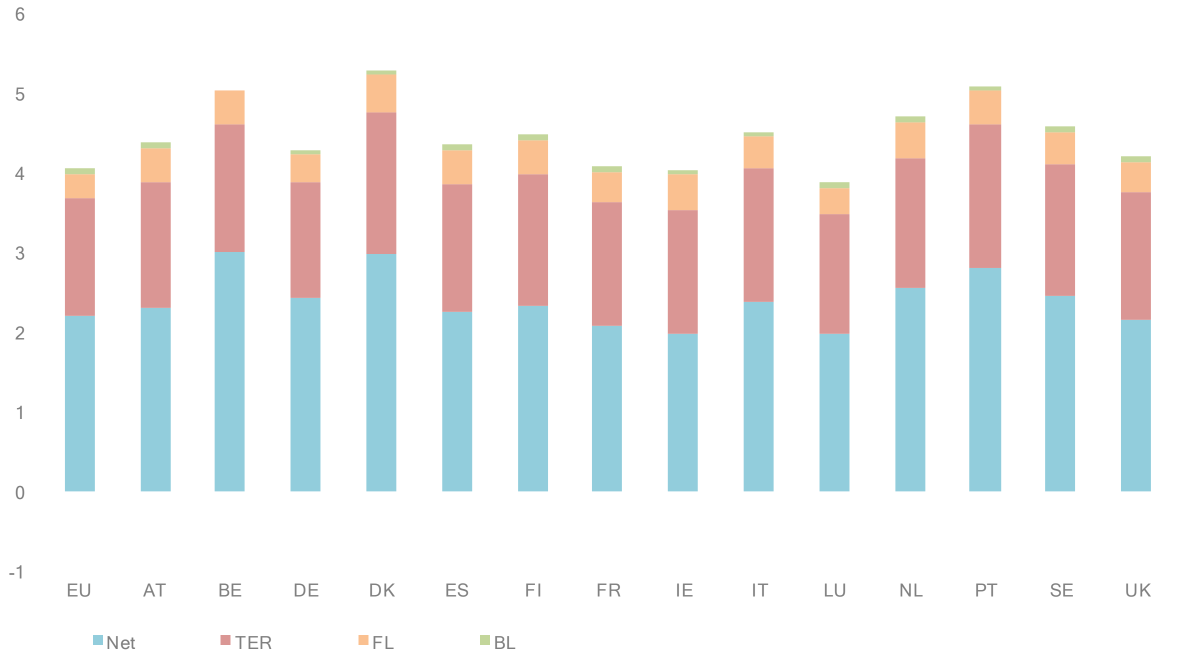
Alternative UCITS gross performance and cost impact by retail investor domicile – 7Y horizon



Note: EU UCITS alternative funds gross annual performance, classified as net performance, rmance, , ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 7Y time horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.172

Alternative UCITS gross performance and cost impact by retail investor domicile – 10Y horizon



Note: EU UCITS alternative funds gross annual performance, classified as net performance, ongoing costs (TER), subscription (FL) and redemption fees (BL), retail investors, by domicile, 10Y time horizon, %. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Gross and net performance by asset classes and domiciles

ASR-PC-S.173

Equity UCITS - gross and net performance and costs by country for different investment horizons

			10Y					7Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	7.50	5.40	1.91	0.19	0.00	8.82	6.66	1.97	0.18	0.00
BE	7.95	6.23	1.59	0.13	0.00	10.10	8.40	1.58	0.12	0.00
DE	9.01	7.33	1.52	0.16	0.00	10.86	9.20	1.52	0.15	0.00
DK	-	-	-	-	-	11.70	10.10	1.53	0.04	0.03
ES	7.31	5.21	1.97	0.00	0.13	8.79	6.74	1.93	0.00	0.12
FI	-	-	-	-	-	10.14	8.49	1.52	0.05	0.08
FR	7.73	5.82	1.74	0.14	0.02	9.54	7.61	1.79	0.13	0.02
IE	9.50	7.76	1.52	0.20	0.03	10.17	8.54	1.43	0.17	0.03
IT	7.62	5.44	2.15	0.03	0.01	9.32	7.14	2.14	0.02	0.01
LU	8.65	6.43	1.91	0.27	0.04	9.17	7.01	1.87	0.25	0.04
NL	7.01	5.77	1.16	0.04	0.03	10.54	9.48	0.96	0.06	0.04
PT	-	-	-	-	-	-	-	-	-	-
SE	11.97	10.83	1.12	0.02	0.00	11.10	9.95	1.14	0.01	0.00
UK	9.45	7.80	1.50	0.13	0.00	9.97	8.41	1.45	0.11	0.01
EU	8.99	7.10	1.68	0.18	0.03	9.88	8.07	1.63	0.16	0.03
			3Y					1Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	5.96	3.85	1.93	0.18	0.00	1.48	-0.59	1.88	0.18	0.00
BE	4.29	2.58	1.59	0.12	0.00	0.07	-1.59	1.54	0.11	0.00
DE	5.15	3.45	1.52	0.18	0.00	-0.21	-1.87	1.52	0.14	0.00
DK	6.24	4.61	1.55	0.04	0.04	1.16	-0.42	1.52	0.03	0.04
ES	4.10	2.12	1.87	0.00	0.11	-0.88	-2.78	1.80	0.01	0.09
FI	6.49	4.96	1.42	0.04	0.07	1.26	-0.26	1.40	0.03	0.09
FR	4.91	2.98	1.74	0.16	0.03	-0.69	-2.60	1.70	0.19	0.02
IE	6.22	4.64	1.39	0.16	0.04	3.59	2.06	1.31	0.17	0.05
IT	4.93	2.76	2.13	0.03	0.01	0.88	-1.27	2.10	0.05	0.01
LU	5.69	3.63	1.79	0.23	0.04	1.95	-0.12	1.76	0.28	0.03
NL	5.95	5.06	0.71	0.12	0.06	2.98	2.18	0.62	0.10	0.07
PT	6.08	3.91	2.03	0.00	0.14	3.07	0.98	2.01	0.00	0.08
SE	6.44	5.36	1.06	0.02	0.00	1.21	0.16	1.03	0.02	0.00
UK	3.29	1.84	1.35	0.10	0.00	1.42	0.01	1.30	0.10	0.00
EU	5.20	3.46	1.56	0.15	0.03	1.45	-0.26	1.52	0.17	0.03

Note: EU UCITS equity fund shares' annual gross and net returns, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon and country, %. For BE, BL not considered. DK, FI and PT at 10Y. PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.174

Bond UCITS - gross and net performances and costs by country for different investment horizons

			10Y					7Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	4.17	3.31	0.69	0.17	0.00	3.61	2.70	0.73	0.18	0.00
BE	3.89	3.00	0.79	0.10	0.00	3.45	2.41	0.93	0.11	0.00
DE	4.22	3.24	0.85	0.14	0.00	3.72	2.74	0.84	0.14	0.00
DK	-	-	-	-	-	4.08	3.19	0.82	0.04	0.04
ES	2.48	1.73	0.71	0.02	0.03	2.56	1.77	0.74	0.02	0.02
FI	-	-	-	-	-	3.80	3.08	0.66	0.02	0.03
FR	3.92	2.95	0.82	0.13	0.02	3.42	2.44	0.80	0.15	0.03
IE	6.40	4.66	1.24	0.47	0.04	4.91	3.23	1.23	0.43	0.02
IT	3.07	1.93	1.06	0.04	0.04	2.99	1.79	1.10	0.04	0.06
LU	6.09	4.47	1.25	0.33	0.04	5.00	3.41	1.26	0.28	0.05
NL	-	-	-	-	-	4.44	3.77	0.65	0.00	0.02
PT	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	0.46	-0.06	0.52	0.00	0.00
UK	5.80	4.52	1.12	0.16	0.01	5.23	4.04	1.10	0.09	0.01
EU	5.24	3.87	1.10	0.24	0.04	4.56	3.20	1.11	0.22	0.04
			3Y					1Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	1.47	0.56	0.76	0.14	0.00	-1.03	-1.94	0.78	0.13	0.00
BE	1.10	-0.02	1.06	0.06	0.00	-0.58	-1.68	1.04	0.07	0.00
DE	1.38	0.44	0.82	0.12	0.00	0.12	-0.78	0.81	0.09	0.00
DK	3.14	2.23	0.84	0.02	0.05	0.68	-0.22	0.85	0.02	0.04
ES	0.79	0.00	0.74	0.02	0.03	-0.16	-0.88	0.67	0.01	0.04
FI	1.45	0.78	0.63	0.01	0.03	-0.73	-1.44	0.67	0.01	0.03
FR	1.46	0.48	0.78	0.16	0.03	-0.05	-0.97	0.76	0.14	0.02
IE	1.59	0.07	1.11	0.38	0.03	-0.89	-2.34	1.09	0.33	0.03
IT	1.38	0.07	1.16	0.04	0.11	-0.78	-2.20	1.20	0.04	0.17
LU	1.65	0.22	1.16	0.22	0.04	-1.07	-2.43	1.13	0.20	0.04
NL	1.48	0.87	0.58	0.00	0.02	0.48	-0.12	0.57	0.00	0.02
PT	1.33	0.55	0.74	0.00	0.04	-0.09	-0.84	0.71	0.00	0.04
SE	-2.36	-2.87	0.50	0.01	0.00	-5.36	-5.87	0.50	0.01	0.00
UK	-2.17	-3.30	1.04	0.08	0.01	-0.76	-1.85	1.00	0.08	0.01
EU	1.18	-0.07	1.04	0.18	0.04	-0.89	-2.11	1.02	0.16	0.04

Note: EU UCITS bond fund shares' annual gross and net returns, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon and country, %. For BE, BL not considered. DK, FI, NL, PT and SE not reported at 10Y. PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.175

Mixed UCITS - gross and net performances and costs by country for different investment horizons

			10Y					7Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	5.23	3.44	1.55	0.25	0.00	5.47	3.50	1.69	0.27	0.00
BE	5.13	3.17	1.65	0.31	0.00	5.18	2.92	1.91	0.35	0.00
DE	5.22	3.49	1.48	0.24	0.00	5.60	3.82	1.55	0.23	0.00
DK	-	-	-	-	-	6.67	5.47	1.12	0.07	0.01
ES	3.58	2.14	1.43	0.00	0.00	4.00	2.52	1.48	0.00	0.00
FI	-	-	-	-	-	6.62	5.17	1.36	0.08	0.02
FR	5.26	3.46	1.59	0.21	0.00	5.54	3.72	1.67	0.15	0.00
IE	5.40	2.89	1.92	0.58	0.01	4.96	2.28	1.99	0.67	0.01
IT	4.35	2.62	1.55	0.07	0.11	4.96	3.16	1.57	0.08	0.15
LU	5.90	3.94	1.67	0.27	0.02	5.85	3.84	1.67	0.32	0.02
NL	-	-	-	-	-	8.06	7.09	0.94	0.01	0.02
PT	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	6.79	5.82	0.97	0.00	0.00
UK	5.82	4.16	1.47	0.19	0.00	5.67	4.06	1.45	0.14	0.00
EU	5.58	3.80	1.55	0.21	0.03	5.78	3.97	1.57	0.21	0.03
			3Y					1Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	2.66	0.76	1.61	0.29	0.00	0.69	-1.19	1.61	0.28	0.00
BE	1.80	-0.27	1.90	0.17	0.00	-0.05	-2.05	1.81	0.19	0.00
DE	2.58	0.81	1.54	0.23	0.00	0.16	-1.62	1.56	0.21	0.00
DK	3.90	2.73	1.10	0.06	0.01	0.74	-0.50	1.18	0.06	0.01
ES	1.55	0.06	1.49	0.00	0.00	-0.07	-1.49	1.41	0.01	0.00
FI	3.51	2.14	1.32	0.03	0.01	0.78	-0.56	1.30	0.02	0.02
FR	2.06	0.29	1.63	0.14	0.00	-1.07	-2.84	1.61	0.16	0.00
IE	2.20	-0.05	1.85	0.38	0.03	-0.12	-2.06	1.65	0.25	0.04
IT	1.55	-0.33	1.57	0.07	0.24	-0.57	-2.49	1.57	0.07	0.28
LU	2.25	0.30	1.66	0.26	0.02	-0.31	-2.26	1.64	0.28	0.02
NL	3.86	3.04	0.79	0.01	0.02	1.30	0.49	0.75	0.01	0.05
PT	2.29	0.58	1.66	0.00	0.05	0.33	-1.40	1.72	0.00	0.01
SE	2.17	1.23	0.93	0.00	0.00	-1.59	-2.53	0.94	0.00	0.00
UK	-2.52	-3.91	1.34	0.05	0.00	-0.63	-1.97	1.30	0.03	0.00
EU	1.49	-0.27	1.54	0.16	0.05	-0.39	-2.13	1.52	0.17	0.05

Note: EU UCITS mixed fund shares' annual gross and net returns, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon and country, %. For BE, BL not considered. DK, FI, NL, PT and SE not reported at 10Y. PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.176

MMF UCITS – gross and net performances and costs by country for different investment horizons

			10Y					7Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	1.47	1.13	0.28	0.06	0.00	1.06	0.72	0.28	0.06	0.00
BE	-	-	-	-	-	0.38	-0.29	0.65	0.02	0.00
DE	0.75	0.34	0.40	0.01	0.00	0.44	0.10	0.33	0.01	0.00
DK	-	-	-	-	-	-	-	-	-	-
ES	1.34	0.75	0.59	0.00	0.00	1.27	0.70	0.57	0.00	0.00
FI	-	-	-	-	-	0.98	0.65	0.32	0.02	0.00
FR	0.67	0.41	0.15	0.09	0.02	0.34	0.08	0.13	0.10	0.02
IE	2.29	1.96	0.30	0.02	0.01	1.40	1.16	0.21	0.01	0.01
IT	-	-	-	-	-	-	-	-	-	-
LU	1.50	1.04	0.40	0.04	0.02	1.24	0.84	0.33	0.05	0.02
NL	-	-	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-0.90	-1.15	0.24	0.00	0.00
UK	-	-	-	-	-	0.63	0.16	0.38	0.09	0.00
EU	1.01	0.61	0.33	0.05	0.03	0.61	0.28	0.26	0.05	0.03
			3Y					1Y		
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	0.20	-0.15	0.28	0.07	0.00	-0.42	-0.77	0.26	0.09	0.00
BE	0.63	0.07	0.55	0.01	0.00	0.87	0.28	0.59	0.00	0.00
DE	0.02	-0.25	0.26	0.02	0.00	-0.42	-0.66	0.22	0.02	0.00
DK	-0.16	-0.50	0.34	0.00	0.00	-0.62	-0.98	0.36	0.00	0.00
ES	0.18	-0.29	0.47	0.00	0.00	-0.21	-0.63	0.42	0.00	0.00
FI	0.31	0.02	0.27	0.01	0.01	0.03	-0.26	0.28	0.00	0.01
FR	-0.04	-0.31	0.10	0.15	0.02	-0.20	-0.49	0.09	0.15	0.04
IE	-2.45	-2.73	0.25	0.02	0.02	-0.20	-0.50	0.26	0.02	0.02
IT	-0.09	-0.61	0.52	0.00	0.00	-0.43	-0.94	0.51	0.00	0.00
LU	-1.25	-1.58	0.28	0.05	0.01	-0.96	-1.28	0.26	0.05	0.01
NL	-0.45	-0.60	0.15	0.00	0.00	-0.92	-1.02	0.10	0.00	0.00
PT	0.27	0.03	0.24	0.00	0.00	0.08	-0.14	0.22	0.00	0.00
SE	-3.42	-3.58	0.16	0.00	0.00	-6.22	-6.37	0.15	0.00	0.00
UK	-5.50	-5.90	0.20	0.20	0.00	-0.52	-0.74	0.18	0.04	0.00
EU	-0.99	-1.30	0.22	0.07	0.03	-0.66	-0.96	0.21	0.02	0.02

Note: EU UCITS money market fund shares' annual gross and net returns, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon and country, %. For BE, BL not considered. BE, FI, IT, NL, PT, SE and UK not reported at 10Y. IT, NL and PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.177

Alternative UCITS - gross and net performances and costs by country for different investment horizons

	10Y					7Y				
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	2.57	1.56	0.78	0.23	0.00	1.24	0.18	0.81	0.25	0.00
BE	-	-	-	-	-	5.60	4.42	1.09	0.09	0.00
DE	0.72	-0.84	1.33	0.23	0.00	0.49	-1.02	1.25	0.26	0.00
DK	-	-	-	-	-	-	-	-	-	-
ES	6.23	4.62	1.43	0.00	0.18	6.94	5.22	1.58	0.00	0.14
FI	-	-	-	-	-	-	-	-	-	-
FR	4.37	2.64	1.29	0.37	0.07	4.91	3.08	1.36	0.41	0.06
IE	-	-	-	-	-	5.09	2.86	1.74	0.44	0.06
IT	-	-	-	-	-	-	-	-	-	-
LU	4.36	2.35	1.61	0.34	0.06	4.45	2.26	1.74	0.38	0.07
NL	-	-	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	-	-	-	-
UK	-	-	-	-	-	2.76	1.27	1.21	0.14	0.15
EU	4.22	2.29	1.53	0.33	0.07	4.48	2.41	1.63	0.36	0.08

	3Y					1Y				
	Gross	Net	TER	FL	BL	Gross	Net	TER	FL	BL
AT	-1.05	-2.36	0.88	0.43	0.00	-3.72	-5.01	0.98	0.31	0.00
BE	3.44	1.99	1.24	0.21	0.00	-0.16	-1.94	1.45	0.34	0.00
DE	0.58	-0.83	1.14	0.27	0.00	0.23	-1.28	1.20	0.30	0.01
DK	0.95	0.16	0.79	0.00	0.00	-2.02	-2.85	0.83	0.00	0.00
ES	2.69	0.76	1.64	0.00	0.28	1.63	0.05	1.47	0.00	0.11
FI	-	-	-	-	-	-	-	-	-	-
FR	4.04	2.34	1.25	0.40	0.06	2.96	1.24	1.23	0.42	0.07
IE	1.25	-0.97	1.57	0.57	0.08	0.19	-1.91	1.47	0.52	0.11
IT	1.45	-2.07	2.29	1.23	0.00	-1.11	-4.96	2.17	1.68	0.00
LU	1.38	-0.82	1.74	0.36	0.10	0.12	-1.90	1.69	0.27	0.06
NL	-	-	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-	-	-
SE	-8.53	-9.51	0.95	0.02	0.01	-8.06	-9.04	0.96	0.02	0.00
UK	-3.21	-4.60	1.12	0.11	0.17	-2.38	-3.58	1.01	0.03	0.17
EU	1.34	-0.76	1.60	0.39	0.10	0.23	-1.72	1.54	0.33	0.08

Note: EU UCITS alternative fund shares' annual gross and net returns, ongoing costs (TER), subscription (FL) and redemption (BL) fees, by time horizon and country, %. For BE, BL not considered. BE, DK, IE, IT, SE and UK not reported at 10Y. DK, IT and SE not reported at 7Y. FI, NL, PT and Other EU countries not reported.

Sources: Refinitiv Lipper, ESMA.

Gross and net performance by country, including inflation

ASR-PC-S.178 Equity UCITS - gross and net performances and costs by country for different investment horizons

	10Y						7Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	7.50	3.34	1.91	2.06	0.19	0.00	8.82	4.68	1.97	1.98	0.18	0.00
BE	7.95	4.14	1.59	2.10	0.13	0.00	10.10	6.67	1.58	1.73	0.12	0.00
DE	9.01	5.90	1.52	1.43	0.16	0.00	10.86	7.89	1.52	1.31	0.15	0.00
DK	-	-	-	-	-	-	11.70	9.11	1.53	0.99	0.04	0.03
ES	7.31	3.69	1.97	1.52	0.00	0.13	8.79	5.67	1.93	1.07	0.00	0.12
FI	-	-	-	-	-	-	10.14	6.95	1.52	1.53	0.05	0.08
FR	7.73	4.45	1.74	1.38	0.14	0.02	9.54	6.51	1.79	1.10	0.13	0.02
IE	9.50	7.28	1.52	0.48	0.20	0.03	10.17	7.97	1.43	0.57	0.17	0.03
IT	7.62	3.84	2.15	1.60	0.03	0.01	9.32	5.80	2.14	1.34	0.02	0.01
LU	8.65	4.44	1.91	1.99	0.27	0.04	9.17	5.40	1.87	1.61	0.25	0.04
NL	7.01	4.34	1.16	1.44	0.04	0.03	10.54	8.14	0.96	1.34	0.06	0.04
PT	-	-	-	-	-	-	-	-	-	-	-	-
SE	11.97	9.35	1.12	1.48	0.02	0.00	11.10	9.00	1.14	0.95	0.01	0.00
UK	9.45	5.39	1.50	2.41	0.13	0.00	9.97	6.35	1.45	2.06	0.11	0.01
EU	8.99	5.29	1.68	1.81	0.18	0.03	9.88	6.57	1.63	1.49	0.16	0.03
	3Y						1Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	5.96	2.44	1.93	1.41	0.18	0.00	1.48	-2.82	1.88	2.23	0.18	0.00
BE	4.29	1.04	1.59	1.55	0.12	0.00	0.07	-3.62	1.54	2.04	0.11	0.00
DE	5.15	2.65	1.52	0.80	0.18	0.00	-0.21	-3.47	1.52	1.60	0.14	0.00
DK	6.24	4.19	1.55	0.42	0.04	0.04	1.16	-1.34	1.52	0.92	0.03	0.04
ES	4.10	1.73	1.87	0.38	0.00	0.11	-0.88	-4.44	1.80	1.66	0.01	0.09
FI	6.49	4.61	1.42	0.36	0.04	0.07	1.26	-1.03	1.40	0.77	0.03	0.09
FR	4.91	2.40	1.74	0.57	0.16	0.03	-0.69	-3.73	1.70	1.13	0.19	0.02
IE	6.22	4.62	1.39	0.02	0.16	0.04	3.59	1.86	1.31	0.19	0.17	0.05
IT	4.93	2.27	2.13	0.49	0.03	0.01	0.88	-2.49	2.10	1.22	0.05	0.01
LU	5.69	2.78	1.79	0.85	0.23	0.04	1.95	-2.02	1.76	1.90	0.28	0.03
NL	5.95	4.54	0.71	0.51	0.12	0.06	2.98	1.13	0.62	1.05	0.10	0.07
PT	6.08	2.99	2.03	0.91	0.00	0.14	3.07	-0.43	2.01	1.41	0.00	0.08
SE	6.44	4.13	1.06	1.23	0.02	0.00	1.21	-1.61	1.03	1.77	0.02	0.00
UK	3.29	0.62	1.35	1.22	0.10	0.00	1.42	-2.72	1.30	2.74	0.10	0.00
EU	5.20	2.64	1.56	0.83	0.15	0.03	1.45	-2.00	1.52	1.74	0.17	0.03

Note: EU UCITS equity fund shares' annual gross and net returns, ongoing costs (TER), subscription fees (FL), redemption (BL) fees and inflation (INFL), by time horizon and country, %. For BE, BL not considered. DK, FI and PT not reported at 10Y. PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.179 Bond UCITS - gross and net performances and costs by country for different investment horizons

	10Y						7Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	4.17	1.39	0.69	1.92	0.17	0.00	3.61	0.74	0.73	1.96	0.18	0.00
BE	3.89	1.10	0.79	1.91	0.10	0.00	3.45	0.69	0.93	1.71	0.11	0.00
DE	4.22	1.90	0.85	1.34	0.14	0.00	3.72	1.44	0.84	1.30	0.14	0.00
DK	-	-	-	-	-	-	4.08	2.21	0.82	0.97	0.04	0.04
ES	2.48	0.35	0.71	1.38	0.02	0.03	2.56	0.71	0.74	1.07	0.02	0.02
FI	-	-	-	-	-	-	3.80	1.57	0.66	1.52	0.02	0.03
FR	3.92	1.69	0.82	1.26	0.13	0.02	3.42	1.35	0.80	1.09	0.15	0.03
IE	6.40	4.28	1.24	0.38	0.47	0.04	4.91	2.66	1.23	0.57	0.43	0.02
IT	3.07	0.42	1.06	1.51	0.04	0.04	2.99	0.46	1.10	1.33	0.04	0.06
LU	6.09	2.64	1.25	1.82	0.33	0.04	5.00	1.82	1.26	1.59	0.28	0.05
NL	-	-	-	-	-	-	4.44	2.43	0.65	1.34	0.00	0.02
PT	-	-	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	0.46	-0.99	0.52	0.93	0.00	0.00
UK	5.80	2.15	1.12	2.36	0.16	0.01	5.23	2.00	1.10	2.04	0.09	0.01
EU	5.24	2.18	1.10	1.68	0.24	0.04	4.56	1.75	1.11	1.45	0.22	0.04
	3Y						1Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	1.47	-0.83	0.76	1.39	0.14	0.00	-1.03	-4.16	0.78	2.23	0.13	0.00
BE	1.10	-1.58	1.06	1.56	0.06	0.00	-0.58	-3.71	1.04	2.02	0.07	0.00
DE	1.38	-0.35	0.82	0.79	0.12	0.00	0.12	-2.38	0.81	1.60	0.09	0.00
DK	3.14	1.83	0.84	0.41	0.02	0.05	0.68	-1.15	0.85	0.93	0.02	0.04
ES	0.79	-0.37	0.74	0.36	0.02	0.03	-0.16	-2.56	0.67	1.67	0.01	0.04
FI	1.45	0.42	0.63	0.36	0.01	0.03	-0.73	-2.21	0.67	0.77	0.01	0.03
FR	1.46	-0.09	0.78	0.56	0.16	0.03	-0.05	-2.10	0.76	1.12	0.14	0.02
IE	1.59	0.07	1.11	0.00	0.38	0.03	-0.89	-2.52	1.09	0.18	0.33	0.03
IT	1.38	-0.41	1.16	0.48	0.04	0.11	-0.78	-3.42	1.20	1.22	0.04	0.17
LU	1.65	-0.62	1.16	0.84	0.22	0.04	-1.07	-4.34	1.13	1.90	0.20	0.04
NL	1.48	0.36	0.58	0.51	0.00	0.02	0.48	-1.17	0.57	1.05	0.00	0.02
PT	1.33	-0.35	0.74	0.90	0.00	0.04	-0.09	-2.24	0.71	1.40	0.00	0.04
SE	-2.36	-4.11	0.50	1.24	0.01	0.00	-5.36	-7.64	0.50	1.78	0.01	0.00
UK	-2.17	-4.50	1.04	1.20	0.08	0.01	-0.76	-4.58	1.00	2.73	0.08	0.01
EU	1.18	-0.81	1.04	0.73	0.18	0.03	-0.90	-3.73	1.02	1.62	0.16	0.04

Note: EU UCITS bond fund shares' annual gross and net returns, ongoing costs (TER), subscription fees (FL), redemption (BL) fees and inflation (INFL), by time horizon and country, %. For BE, BL not considered. DK, FI, NL, PT and SE not reported at 10Y. PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.180

Mixed UCITS - gross and net performances and costs by country for different investment horizons

	10Y						7Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	INFL
AT	5.23	1.49	1.55	1.95	0.25	0.00	5.47	1.53	1.69	1.97	0.27	1.97
BE	5.13	1.21	1.65	1.96	0.31	0.00	5.18	1.21	1.91	1.72	0.35	1.72
DE	5.22	2.12	1.48	1.37	0.24	0.00	5.60	2.51	1.55	1.30	0.23	1.30
DK	-	-	-	-	-	-	6.67	4.49	1.12	0.98	0.07	0.98
ES	3.58	0.73	1.43	1.41	0.00	0.00	4.00	1.45	1.48	1.07	0.00	1.07
FI	-	-	-	-	-	-	6.62	3.66	1.36	1.52	0.08	1.52
FR	5.26	2.16	1.59	1.30	0.21	0.00	5.54	2.62	1.67	1.09	0.15	1.09
IE	5.40	2.48	1.92	0.42	0.58	0.01	4.96	1.72	1.99	0.57	0.67	0.57
IT	4.35	1.11	1.55	1.52	0.07	0.11	4.96	1.85	1.57	1.31	0.08	1.31
LU	5.90	2.08	1.67	1.86	0.27	0.02	5.85	2.25	1.67	1.59	0.32	1.59
NL	-	-	-	-	-	-	8.06	5.76	0.94	1.33	0.01	1.33
PT	-	-	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	6.79	4.88	0.97	0.94	0.00	0.94
UK	5.82	1.79	1.47	2.37	0.19	0.00	5.67	2.03	1.45	2.03	0.14	2.03
EU	5.58	2.08	1.55	1.71	0.21	0.03	5.78	2.51	1.57	1.45	0.21	1.45

	3Y						1Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	INFL
AT	2.66	-0.63	1.61	1.39	0.29	0.00	0.69	-3.42	1.61	2.23	0.28	2.23
BE	1.80	-1.82	1.90	1.55	0.17	0.00	-0.05	-4.08	1.81	2.03	0.19	2.03
DE	2.58	0.01	1.54	0.79	0.23	0.00	0.16	-3.22	1.56	1.60	0.21	1.60
DK	3.90	2.32	1.10	0.41	0.06	0.01	0.74	-1.43	1.18	0.92	0.06	0.92
ES	1.55	-0.30	1.49	0.36	0.00	0.00	-0.07	-3.16	1.41	1.67	0.01	1.67
FI	3.51	1.79	1.32	0.36	0.03	0.01	0.78	-1.34	1.30	0.77	0.02	0.77
FR	2.06	-0.28	1.63	0.57	0.14	0.00	-1.07	-3.97	1.61	1.13	0.16	1.13
IE	2.20	-0.06	1.85	0.01	0.38	0.03	-0.12	-2.24	1.65	0.18	0.25	0.18
IT	1.55	-0.81	1.57	0.48	0.07	0.24	-0.57	-3.71	1.57	1.22	0.07	1.22
LU	2.25	-0.54	1.66	0.84	0.26	0.02	-0.31	-4.16	1.64	1.90	0.28	1.90
NL	3.86	2.52	0.79	0.51	0.01	0.02	1.30	-0.56	0.75	1.05	0.01	1.05
PT	2.29	-0.33	1.66	0.91	0.00	0.05	0.33	-2.81	1.72	1.40	0.00	1.40
SE	2.17	0.01	0.93	1.23	0.00	0.00	-1.59	-4.30	0.94	1.77	0.00	1.77
UK	-2.52	-5.10	1.34	1.19	0.05	0.00	-0.63	-4.70	1.30	2.73	0.03	2.73
EU	1.49	-1.07	1.54	0.79	0.16	0.05	-0.39	-3.87	1.52	1.73	0.17	1.73

Note: EU UCITS mixed fund shares' annual gross and net returns, ongoing costs (TER), subscription fees (FL), redemption (BL) fees and inflation (INFL), by time horizon and country, %. For BE, BL not considered. DK, FI, NL, PT and SE not reported at 10Y. PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.181

MMF UCITS – gross and net performances and costs by country for different investment horizons

	10Y						7Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	1.47	-0.79	0.28	1.92	0.06	0.00	1.06	-1.25	0.28	1.97	0.06	0.00
BE	-	-	-	-	-	-	0.38	-0.01	0.65	-0.28	0.02	0.00
DE	0.75	-1.00	0.40	1.34	0.01	0.00	0.44	-1.21	0.33	1.31	0.01	0.00
DK	-	-	-	-	-	-	-	-	-	-	-	0.01
ES	1.34	-0.63	0.59	1.38	0.00	0.00	1.27	-0.37	0.57	1.07	0.00	0.00
FI	-	-	-	-	-	-	0.98	-0.88	0.32	1.52	0.02	0.02
FR	0.67	-0.83	0.15	1.26	0.09	0.02	0.34	-0.99	0.13	1.08	0.10	0.00
IE	2.29	1.61	0.30	0.35	0.02	0.01	1.40	0.60	0.21	0.56	0.01	0.01
IT	-	-	-	-	-	-	-	-	-	-	-	0.15
LU	1.50	-0.75	0.40	1.80	0.04	0.02	1.24	-0.74	0.33	1.58	0.05	0.02
NL	-	-	-	-	-	-	-	-	-	-	-	0.02
PT	-	-	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	-0.90	-2.07	0.24	0.93	0.00	0.00
UK	-	-	-	-	-	-	0.63	-1.88	0.38	2.04	0.09	0.00
EU	1.01	-0.78	0.33	1.39	0.05	0.03	0.61	-0.89	0.26	1.17	0.05	0.03

	3Y						1Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	0.20	-1.53	0.28	1.38	0.07	0.00	-0.42	-3.00	0.26	2.23	0.09	0.00
BE	0.63	0.70	0.55	1.56	0.01	0.00	0.87	-0.81	0.59	1.09	0.00	0.00
DE	0.02	-1.04	0.26	0.78	0.02	0.00	-0.42	-2.26	0.22	1.60	0.02	0.00
DK	-0.16	-0.91	0.34	0.40	0.00	0.00	-0.62	-1.90	0.36	0.93	0.00	0.01
ES	0.18	-0.65	0.47	0.35	0.00	0.00	-0.21	-2.31	0.42	1.67	0.00	0.00
FI	0.31	-0.32	0.27	0.35	0.01	0.01	0.03	-1.03	0.28	0.77	0.00	0.02
FR	-0.04	-0.85	0.10	0.56	0.15	0.02	-0.20	-1.57	0.09	1.08	0.15	0.00
IE	-2.45	-2.71	0.25	0.00	0.02	0.02	-0.20	-0.66	0.26	0.15	0.02	0.04
IT	-0.09	-1.08	0.52	0.47	0.00	0.00	-0.43	-2.16	0.51	1.22	0.00	0.28
LU	-1.25	-2.40	0.28	0.82	0.05	0.01	-0.96	-3.18	0.26	1.90	0.05	0.02
NL	-0.45	-1.11	0.15	0.51	0.00	0.00	-0.92	-2.07	0.10	1.04	0.00	0.05
PT	0.27	-0.88	0.24	0.90	0.00	0.00	0.08	-1.54	0.22	1.40	0.00	0.01
SE	-3.42	-4.81	0.16	1.23	0.00	0.00	-6.22	-8.15	0.15	1.78	0.00	0.00
UK	-5.50	-7.06	0.20	1.22	0.20	0.00	-0.52	-3.47	0.18	2.72	0.04	0.00
EU	-0.99	-1.87	0.22	0.58	0.07	0.03	-0.66	-2.25	0.21	1.29	0.07	0.05

Note: EU UCITS money market fund shares' annual gross and net returns, ongoing costs (TER), subscription fees (FL), redemption (BL) fees and inflation (INFL), by time horizon and country, %. For BE, BL not considered. BE, DK, FI, IT, NL, PT, SE and UK not reported at 10Y. IT, NL and PT not reported at 7Y. Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

ASR-PC-S.182

Alternative UCITS – gross and net performances and costs by country for different investment horizons

	10Y						7Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	2.57	-0.36	0.78	1.92	0.23	0.00	1.24	-1.79	0.81	1.97	0.25	0.00
BE	-	-	-	-	-	-	5.60	2.68	1.09	1.74	0.09	0.00
DE	0.72	-2.17	1.33	1.33	0.23	0.00	0.49	-2.31	1.25	1.29	0.26	0.00
DK	-	-	-	-	-	-	-	-	-	-	-	-
ES	6.23	3.20	1.43	1.41	0.00	0.18	6.94	4.19	1.58	1.03	0.00	0.14
FI	-	-	-	-	-	-	-	-	-	-	-	-
FR	4.37	1.37	1.29	1.27	0.37	0.07	4.91	1.98	1.36	1.10	0.41	0.06
IE	-	-	-	-	-	-	5.09	2.30	1.74	0.56	0.44	0.06
IT	-	-	-	-	-	-	-	-	-	-	-	-
LU	4.36	0.53	1.61	1.83	0.34	0.06	4.45	0.67	1.74	1.60	0.38	0.07
NL	-	-	-	-	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	-	-	-	-	-	-
UK	-	-	-	-	-	-	2.76	-0.79	1.21	2.06	0.14	0.15
EU	4.22	0.63	1.53	1.66	0.33	0.07	4.48	1.00	1.63	1.41	0.36	0.08

	3Y						1Y					
	Gross	Net	TER	INFL	FL	BL	Gross	Net	TER	INFL	FL	BL
AT	-1.05	-3.75	0.88	1.39	0.43	0.00	-3.72	-7.24	0.98	2.23	0.31	0.00
BE	3.44	0.42	1.24	1.57	0.21	0.00	-0.16	-3.98	1.45	2.03	0.34	0.00
DE	0.58	-1.61	1.14	0.78	0.27	0.00	0.23	-2.88	1.20	1.60	0.30	0.01
DK	0.95	-0.25	0.79	0.41	0.00	0.00	-2.02	-3.78	0.83	0.93	0.00	0.00
ES	2.69	0.41	1.64	0.35	0.00	0.28	1.63	-1.61	1.47	1.67	0.00	0.11
FI	-	-	-	-	-	-	-	-	-	-	-	-
FR	4.04	1.78	1.25	0.56	0.40	0.06	2.96	0.11	1.23	1.12	0.42	0.07
IE	1.25	-0.97	1.57	0.01	0.57	0.08	0.19	-2.09	1.47	0.18	0.52	0.11
IT	1.45	-2.56	2.29	0.49	1.23	0.00	-1.11	-6.18	2.17	1.22	1.68	0.00
LU	1.38	-1.65	1.74	0.83	0.36	0.10	0.12	-3.80	1.69	1.90	0.27	0.06
NL	-	-	-	-	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-	-	-	-	-
SE	-8.53	-10.74	0.95	1.23	0.02	0.01	-8.06	-10.81	0.96	1.78	0.02	0.00
UK	-3.21	-5.80	1.12	1.21	0.11	0.17	-2.38	-6.31	1.01	2.73	0.03	0.17
EU	1.34	-1.41	1.60	0.65	0.39	0.10	0.23	-3.21	1.54	1.50	0.33	0.08

Note: EU UCITS alternative fund shares' annual gross and net returns, ongoing costs (TER), subscription fees (FL), redemption (BL) fees and inflation (INFL), by time horizon and country, %. For BE, BL not considered. BE, DK, IE, IT, SE and UK not reported at 10Y. DK, IT and SE not reported at 7Y. FI, NL, PT and Other EU countries not reported.
Sources: Refinitiv Lipper, ESMA.

Fund domicile and marketing country

ASR-PC-S.183

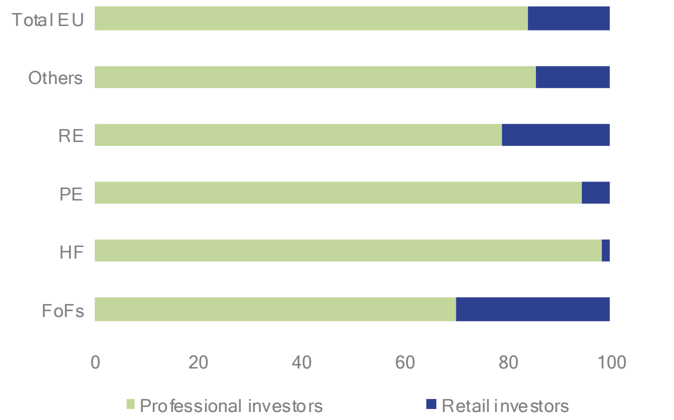
Number of funds by country: domicile and sold in

Domicile \ Sold-in	AT	BE	DK	FI	FR	DE	IE	IT	LU	NL	PT	ES	SE	UK	Other EU
AT	718	0	1	1	25	429	0	23	3	5	0	19	5	5	175
BE	88	522	0	0	92	96	0	31	98	28	0	37	0	2	156
DK	6	0	466	5	96	42	0	0	31	28	0	10	36	30	0
FI	0	1	6	283	31	7	0	9	10	1	4	9	72	0	25
FR	93	81	0	8	1,869	175	6	164	93	50	17	125	16	52	10
DE	283	6	2	2	27	901	2	12	36	7	3	19	1	6	1
IE	529	261	254	353	646	725	1,040	482	485	393	158	497	425	873	105
IT	0	0	0	0	0	0	0	629	0	0	0	0	0	0	0
LU	3,177	2,235	1,277	1,998	3,337	4,245	1,181	3,069	6,282	2,403	1,323	2,876	2,250	2,618	4,774
NL	3	10	0	0	1	12	0	1	10	94	0	2	0	1	0
PT	0	0	0	0	0	0	0	0	0	0	107	0	0	0	0
ES	0	0	0	0	1	0	0	5	0	0	2	1,021	0	2	0
SE	0	0	0	86	7	0	0	0	22	6	0	0	406	1	6
UK	82	56	43	37	128	131	122	53	58	61	35	71	63	1,083	6
Other EU	0	0	0	2	1	3	0	0	0	0	0	0	3	0	50

Note: EU UCITS number of funds by country of domicile (rows) and marketed country (columns). Please note that a fund appearing as marketed in a country will also appear in the domicile.
Sources: Refinitiv Lipper, ESMA.

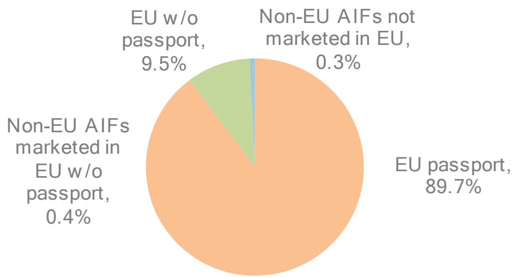
AIFs sold to retail investors

ASR-PC-S.184
AIF NAV by type of client



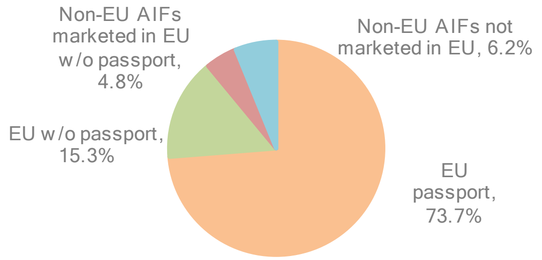
Note: NAV of AIFs by type of client reported, end of 2018 under the AIFMD, in %. FoFs = fund of funds; HF = hedge funds; PE = private equity; RE = real estate.
Sources:National Competent Authorities, ESMA

ASR-PC-S.185
AIFMD passport by NAV of retail investors AIFs



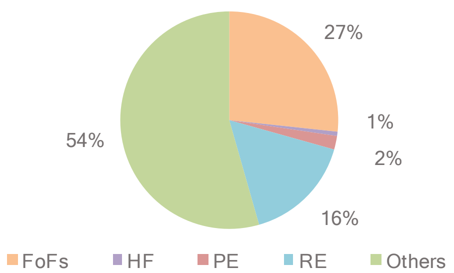
Note: NAV of retail AIFs by manager's access to AIFMD passport, end 2018, %. Authorised EU AIFMs access AIFMD passport or market non-EU AIFs to professional investors w/o passport, sub-threshold managers are registered only in national jurisdictions w/o passporting rights.
Sources: National Competent Authorities, ESMA

ASR-PC-S.186
AIFMD passport by NAV of professional investors AIFs



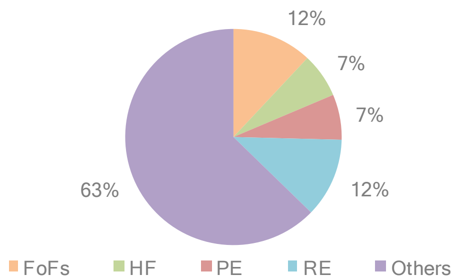
Note: NAV of retail AIFs by manager's access to AIFMD passport, end 2018, %. Authorised EU AIFMs access AIFMD passport or market non-EU AIFs to professional investors w/o passport, sub-threshold managers are registered only in national jurisdictions w/o passporting rights.
Sources: National Competent Authorities, ESMA

ASR-PC-S.187
Retail investor NAV by AIF type



Note: Share of NAV of AIF by type, retail clients, end 2018, in %. Reporting according to the AIFMD. AIFs managed by authorised and registered managers.
Sources:National Competent Authorities, ESMA

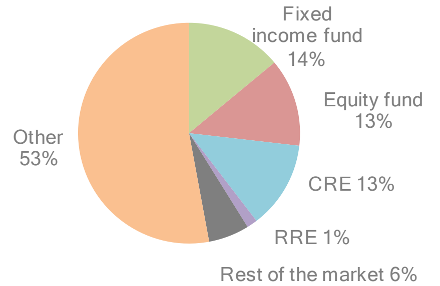
ASR-PC-S.188
Professional investor NAV by AIF type



Note: Share of NAV of AIF type, professional clients, end of 2018, in %. Reporting according to AIFMD. AIFs managed by authorised and registered managers.
Sources:National Competent Authorities, ESMA

ASR-PC-S.189

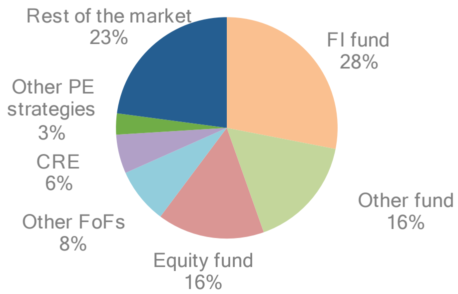
Retail investors NAV by AIF strategy



Note: Share of NAV by investment strategy, end of 2018 retail clients, reported under AIFMD, in %. FI = Fixed Income; CRE = Commercial Real Estate; RRE; Residential Real; Estate.
Sources:National Competent Authorities, ESMA

ASR-PC-S.190

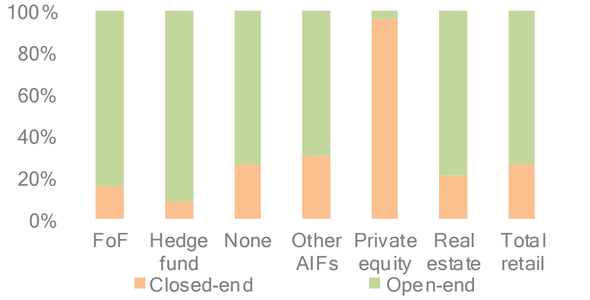
Professional investors NAV by AIF strategy



Note: Share of NAV by investment strategy, end of 2018 professional clients, reported under AIFMD, in %. FI = Fixed Income; CRE = Commercial Real Estate; PE= Private Equity.
Sources:National Competent Authorities, ESMA

ASR-PC-S.191

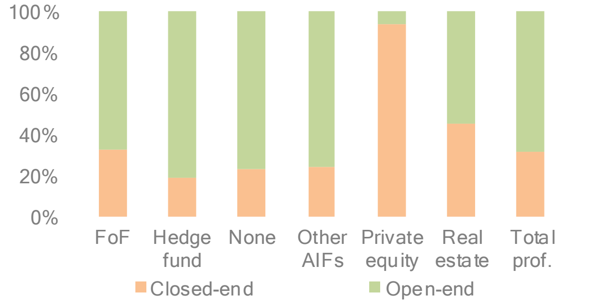
Redemption rights to retail investors



Note: NAV of AIF by redeption rights offered to retail investors, end of 2018, in %, reporting according to AIFMD. AIFs managed by authorised and registered AIFMs.
Sources: National Competent Authorities, ESMA

ASR-PC-S.192

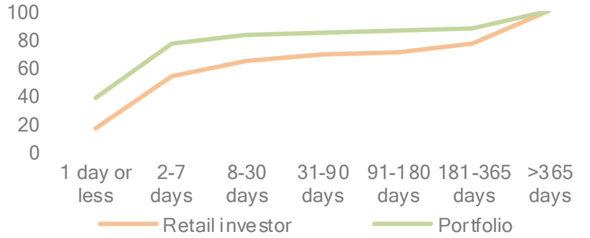
Redemption rights to professional investors



Note: : NAV of AIF by redeption rights offered to professional investors, end of 2018, in %, reporting according to AIFMD. AIFs managed by authorised and registered AIFMs.
Sources: National Competent Authorities, ESMA

ASR-PC-S.193

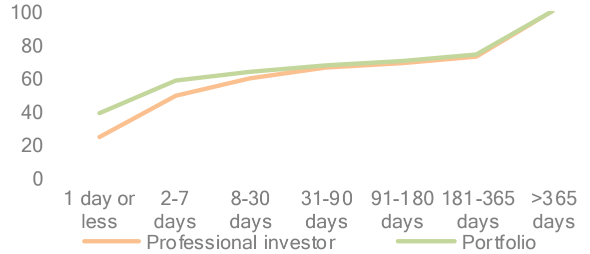
Liquidity risk – 100% investors retail participation



Note: AIFs portfolio and investor liquidity profiles, retail investors. The portfolio liquidity profile is determined by the percentage of the fund portfolios that can be liquidated within the period specified on the horizontal axis. The retail investor liquidity profile reflects the shortest period at which the fund could be withdrawn or investors could receive redemption payments.
Sources: National Competent Authorities, ESMA.

ASR-PC-S.194

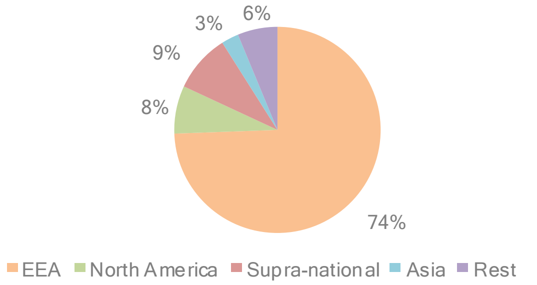
Liquidity risk – 100% profesional investors participation



Note: AIFs portfolio and investor liquidity profiles, professional investors. The portfolio liquidity profile is determined by the percentage of the fund portfolios that can be liquidated within the period specified on the horizontal axis. The professional investor liquidity profile reflects the shortest period at which the fund could be withdrawn or investors could receive redemption payments.
Sources: National Competent Authorities, ESMA

ASR-PC-S.195

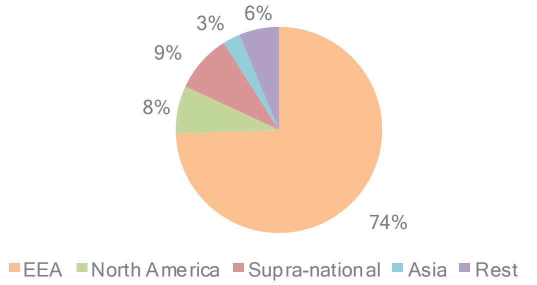
Retail investor NAV by regional investment focus



Note: NAV of AIFs by regional investment focus, retail clients, end of 2018, in %. Reported according to the AIFMD. AIFs managed by authorised and registered AIFMs.
Sources: National Competent Authorities, ESMA.

ASR-PC-S.196

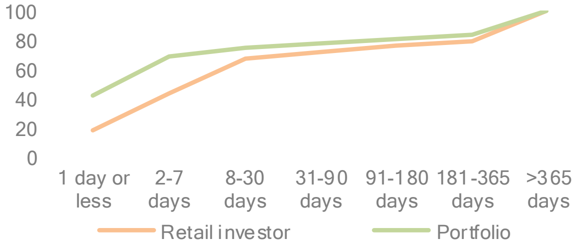
Professional investor NAV by regional investment focus



Note: NAV of AIFs by regional investment focus, retail clients, end of 2018, in %. Reported according to the AIFMD. AIFs managed by authorised and registered AIFMs.
Sources: National Competent Authorities, ESMA.

ASR-PC-S.197

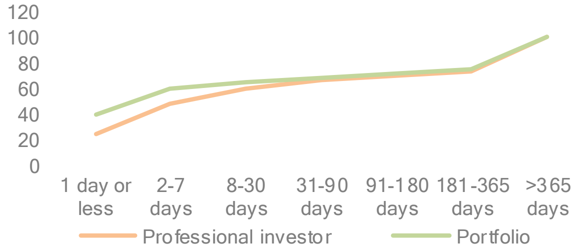
Liquidity risk – 60% retail investors participation



Note: AIFs portfolio and investor liquidity profiles, retail investors. The portfolio liquidity profile is determined by the percentage of the fund portfolios that can be liquidated within the period specified on the horizontal axis. The retail investor liquidity profile reflects the shortest period at which the fund could be withdrawn or investors could receive redemption payments. 60% retail participation.
Sources: National Competent Authorities, ESMA.

ASR-PC-S.198

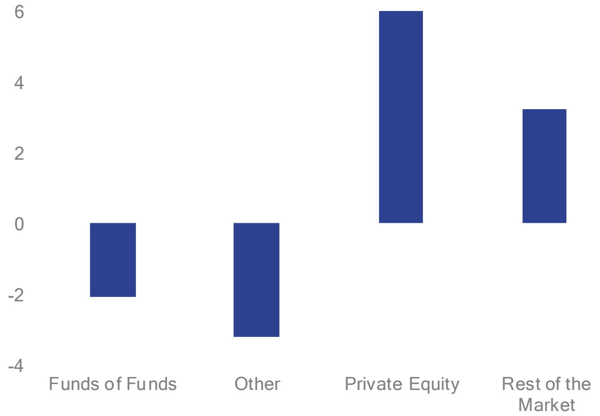
Liquidity risk – 60% professional investors participation



Note: AIFs portfolio and investor liquidity profiles, professional investors. The portfolio liquidity profile is determined by the percentage of the fund portfolios that can be liquidated within the period specified on the horizontal axis. The professional investor liquidity profile reflects the shortest period at which the fund could be withdrawn or investors could receive redemption payments. 60% professional participation.
Sources: National Competent Authorities, ESMA

ASR-PC-S.199

Gross performance AIFs sold to retail investors

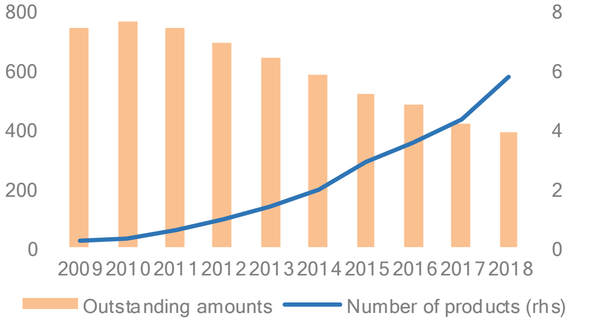


Note: EU AIFs gross monthly returns by fund type, %, 2018. Reported according to AIFMD. Annualized returns. Rest of the market includes Hedge Funds, Real Estate and None.
Sources: National Competent Authorities, ESMA.

Structured retail products

ASR-PC-S.200

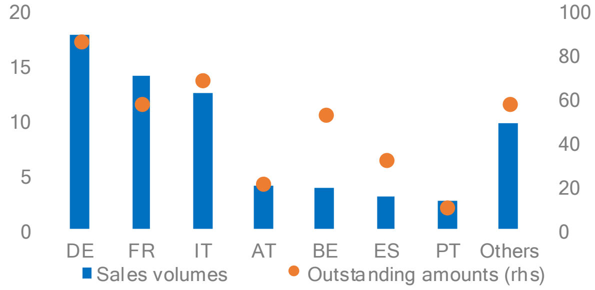
Outstanding amounts of structured retail products in EU



Note: Outstanding amounts of SRP in EU, EUR bn. Number of products in millions.
Sources: StructuredRetailProducts.com, ESMA.

ASR-PC-S.201

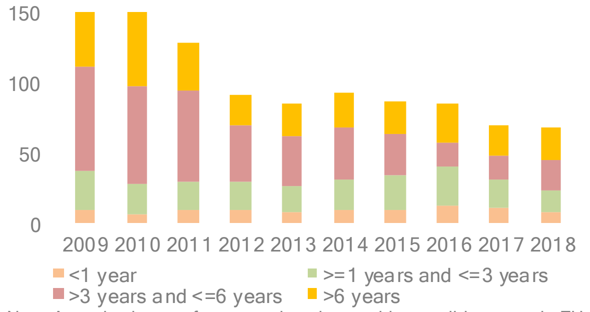
Sales volumes and outstanding amounts by country



Note: Sales volumes, EUR mn, and outstanding amounts, EUR bn, of structured retail products in 2018 for top 7 EU countries by sales volumes, EUR bn. "Others"=EU countries not otherwise listed.
Sources: StructuredRetailProducts.com, ESMA.

ASR-PC-S.202

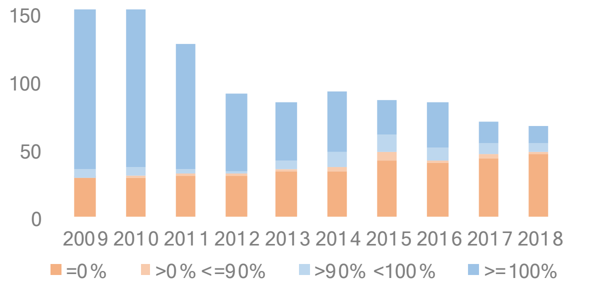
Volume of products sold by term



Note: Annual volumes of structured products sold to retail investors in EU by investment term, EUR bn and expressed as percentages of total. Listed percentages may not sum to 100% due to rounding.
Sources: StructuredRetailProducts.com, ESMA.

ASR-PC-S.203

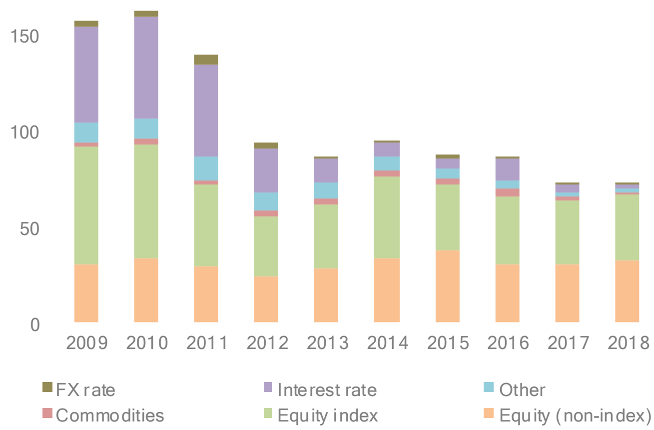
Volume of products sold by level of capital protection



Note: Annual volumes of structured products sold to retail investors in EU by level of capital protection, EUR bn and expressed as percentages of the total in selected cases.
Sources: StructuredRetailProducts.com, ESMA.

ASR-PC-S.204

Volume of products sold by type of underlying



Note: Annual volumes of structured products sold in EU to retail investors by asset class, EUR bn. Percentages of total annual volumes for selected asset classes.
Sources: StructuredRetailProducts.com, ESMA.

List of abbreviations

AIF	Alternative Investment Fund
AIFM	Alternative Investment Fund Manager
AIFMD	Alternative Investment Fund Managers Directive
AMF	Autorité des marches financiers
ASR	Annual Statistical Report
AuM	Assets under Management
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht
BIS	The Bank of International Settlements
BL	Redemption fees (back loads)
BPS	Basis points
CESR	Committee of European Securities Regulators
CMU	Capital Market Union
CONSOB	Commissione Nazionale per le Società e la Borsa
CSSF	Commission de Surveillance du Secteur Financier
EBA	European Banking Authority
ECB	European Central Bank
EFAMA	European Fund and Asset Management Association
EIOPA	European Insurance and Occupational Pensions Authority
ESAs	European Supervisory Authorities
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETF	Exchange Traded Fund
EU	European Union
FCA	Financial Conduct Authority
FL	Subscription fees (front loads)
FMA	Financial Market Authority
FoFs	Fund of funds
FSMA	Financial Services and Markets Authority
HCMC	Hellenic Capital Market Commission
HFs	Hedge Funds
IBIPs	Insurance-based investment products
IDD	Insurance Distribution Directive
IORP	Directive on the activities and supervision of institutions for occupational retirement provision
KID/KIID	Key Information Document
MiFID	Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
MMF	Money Market Fund
NAV	Net Asset Value
NCA	National Competent Authority
PE	Private Equity
PRIIPs	Packaged retail investment and insurance products
PPPs	Personal pension products
PPT	Percentage points
RE	Real Estate
RTS	Regulatory Technical Standards
SMSG	Securities and Markets Stakeholder Group
SRPs	Structured Retail Products
SRRI	Synthetic Risk and Reward Indicator
TRV	Trends Risk and Vulnerabilities
UCITS	Undertaking for Collective Investment in Transferable Securities

Countries abbreviated according to ISO standards except for Greece (GR) and United Kingdom (UK)
Currencies abbreviated according to ISO standards