

# Europe Persistence Scorecard

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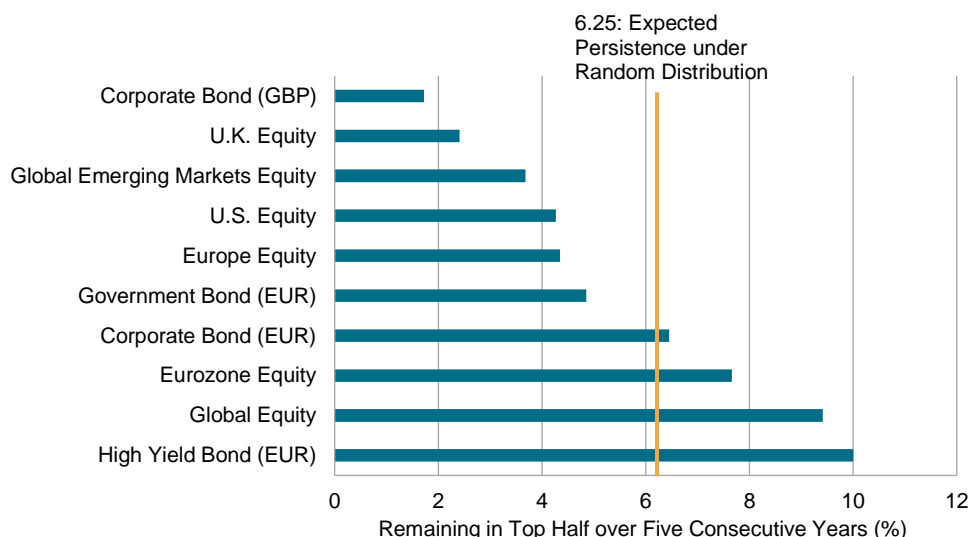
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## Summary

Can investment results be attributed to skill or luck? Genuine skill is more likely to persist, while luck is random and fleeting. Thus, one measure of skill is the consistency of a fund’s performance relative to its peers. The Persistence Scorecard measures that consistency and shows that, regardless of asset class or style focus, active management outperformance is typically relatively short-lived, with few funds consistently outranking their peers.

In five of the six reported equity fund categories and three of the four reported fixed income categories, **not a single manager** whose performance placed them in the top quartile for the 12-month period ending December 2018 **managed to remain in the top quartile for the next four years** (see Report 2 and Report 8).<sup>1</sup>

### Exhibit 1: Percentage of Funds Remaining in Top Half in Five Consecutive One-Year Periods



Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Chart is provided for illustrative purposes. Past performance is no guarantee of future results.

<sup>1</sup> Lazzara, Craig, “[Shooting Hoops with Michael Jordan: An Allegory](#),” S&P Dow Jones Indices LLC, Sept. 29, 2022.

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On the other hand, lowering the bar from the top quartile to the top half provides tentative evidence of persistence among a fraction of EUR-denominated fund categories. As Exhibit 1 illustrates, 10% of active funds in the High Yield Bond (EUR) category, 9% of active funds in the Global Equity category and 8% of active funds in the Eurozone Equity category were able to maintain their top-half status over five consecutive one-year periods.

## Report Highlights

- Very few actively managed equity and fixed income funds managed to maintain consistent outperformance relative to their peers over the three- or five-year periods ending in December 2022.
- Of the actively managed Europe Equity and U.S. Equity funds whose 12-month performance placed them in the top quartile of their respective category as of December 2020, not a single fund maintained its top-quartile performance over the next two 12-month intervals.
- Over a five-year horizon, it was statistically nearly impossible to find consistent outperformance. Among the 1,102 actively managed funds whose performance over the 12-month period ending December 2018 placed them in the top quartile in one of our reported categories, just two funds remained in the top quartile in each of the five subsequent one-year periods ending December 2022.
- Over discrete five-year periods, a greater-than-expected proportion of funds in three of six equity categories and two of four fixed income categories maintained relative outperformance. If performance were purely random in terms of comparing funds to their peers, one would expect 50% of top-half funds to remain in the top half over a subsequent five-year period. Our scorecard reports that an unweighted average of 54% of top-half Emerging Markets Equity and High Yield Bond (EUR) funds remained in the top half for two consecutive five-year periods.
- Over the long term, poor performance has proven to be a reliable indicator of future fund closures. Across the 10 categories reported by our scorecard, an unweighted average of 37% of actively managed funds whose performance placed them in the bottom quartile in the five-year period ending December 2017, were subsequently merged or liquidated over the next five years, while the comparable figure for funds whose performance placed them in the top quartile of performance for their category over the five years ending December 2017 was just 20%.

# About the Persistence Scorecard

The phrase “past performance is no guarantee of future results” (or some variation thereof) can be found in the fine print of most mutual fund literature. Yet many investors and advisors consider past performance and related metrics to be important factors in fund selection. So, does past performance really matter?

To answer this question, the semiannual S&P Persistence Scorecard tracks the degree to which historical relative performance is predictive of future relative performance. For a more detailed description of the Persistence Scorecard’s allocation of funds to appropriate categories, and how funds are screened and selected for inclusion, please see the corresponding [SPIVA Europe Year-End 2022 Scorecard](#).

Key features of the S&P Persistence Scorecard include:

- **Historical rankings without survivorship bias:** For anyone making an investment decision, all funds available at the time of that decision are part of the initial opportunity set. Ignoring funds that liquidate or merge during a period of study biases measurements of persistence. The S&P Persistence Scorecard ranks all funds available at each point in time and tracks the top-quartile and top-half performers throughout the time.
- **Clean universe:** The fund universe used in these reports comprises actively managed domestic European equity funds. Index funds and leveraged funds are excluded from the sample. To avoid double counting multiple share classes, only the share class with the highest previous period return of each fund is used.
- **Tracking reports of top performers:** The tracking reports show the percentage of funds that remain in the top-quartile or top-half rankings over consecutive three- and five-year periods.
- **Transition matrices:** Transition matrices show the movements across quartiles and halves over non-overlapping three- and five-year periods. They also track the percentage of funds that have merged or liquidated.

As in our widely followed SPIVA Europe Scorecards, Morningstar serves as our underlying data source.

# Reports

## Report 1: Performance Persistence of European Equity Funds over Three Consecutive 12-Month Periods

Fund Category	Fund Count at Start (December 2020)	Percentage Remaining in Top Quartile	
		December 2021	December 2022
<b>Top Quartile</b>			
<b>Euro-Denominated Funds (EUR)</b>			
Europe Equity	252	34.52	0.00
Eurozone Equity	138	32.61	0.72
Global Equity	308	17.86	1.30
Emerging Markets Equity	82	8.54	1.22
U.S. Equity	86	8.14	0.00
<b>Pound Sterling-Denominated Funds (GBP)</b>			
U.K. Equity	82	43.90	1.22
Fund Category	Fund Count at Start (December 2020)	Percentage Remaining in Top Half	
		December 2021	December 2022
<b>Top Half</b>			
<b>Euro-Denominated Funds (EUR)</b>			
Europe Equity	504	49.21	10.32
Eurozone Equity	275	48.00	14.18
Global Equity	615	41.95	14.31
Emerging Markets Equity	163	32.52	14.11
U.S. Equity	171	37.43	13.45
<b>Pound Sterling-Denominated Funds (GBP)</b>			
U.K. Equity	163	50.92	7.36

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 1b: Alpha Persistence of Domestic Equity Funds over Three Consecutive 12-Month Periods

Fund Category	Benchmark	Total Fund Count	Funds Outperforming the Benchmark (December 2020)		Percentage Continuing to Outperform the Benchmark	
			Count	Percentage (%)	December 2021	December 2022
<b>Euro-Denominated Funds (EUR)</b>						
Europe Equity	S&P Europe 350	1,078	691	64.10	28.51	1.30
Eurozone Equity	S&P Eurozone BMI	572	253	44.23	38.34	5.14
Global Equity	S&P Global 1200	1,281	604	47.15	16.23	2.15
Emerging Markets Equity	S&P/IFCI Composite	350	147	42.00	14.97	4.08
U.S. Equity	S&P 500	361	182	50.42	11.54	2.75
<b>Pound Sterling-Denominated Funds (GBP)</b>						
U.K. Equity	S&P United Kingdom BMI	340	279	82.06	45.16	2.51

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 2: Performance Persistence of European Equity Funds over Five Consecutive 12-Month Periods

Fund Category	Fund Count at Start (December 2018)	Percentage Remaining in Top Quartile			
		December 2019	December 2020	December 2021	December 2022
<b>Top Quartile</b>					
<b>Euro-Denominated Funds (EUR)</b>					
Europe Equity	253	28.46	15.81	7.11	0.00
Eurozone Equity	137	21.17	6.57	2.92	0.00
Global Equity	266	44.36	24.44	7.52	0.38
Emerging Markets Equity	82	13.41	6.10	3.66	0.00
U.S. Equity	82	41.46	29.27	2.44	0.00
<b>Pound Sterling-Denominated Funds (GBP)</b>					
U.K. Equity	83	18.07	12.05	4.82	0.00
Fund Category	Fund Count at Start (December 2018)	Percentage Remaining in Top Half			
		December 2019	December 2020	December 2021	December 2022
<b>Top Half</b>					
<b>Euro-Denominated Funds (EUR)</b>					
Europe Equity	506	49.01	31.03	17.98	4.35
Eurozone Equity	274	50.73	27.74	17.52	7.66
Global Equity	531	57.82	39.74	23.54	9.42
Emerging Markets Equity	163	38.65	22.09	9.82	3.68
U.S. Equity	164	57.93	42.07	17.68	4.27
<b>Pound Sterling-Denominated Funds (GBP)</b>					
U.K. Equity	166	35.54	22.89	10.24	2.41

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

### Report 3: Three-Year Transition Matrix – Performance of European Equity Funds over Two Non-Overlapping Three-Year Periods (Based on Quartiles)

Quartile	Fund Count at Start (December 2016-December 2019)	Three-Year Percentages at End (December 2019-December 2022)				
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)
<b>Euro-Denominated Funds (EUR)</b>						
<b>Europe Equity</b>						
1st Quartile	223	26.01	20.63	21.08	18.39	13.90
2nd Quartile	222	22.07	23.87	20.72	13.51	19.82
3rd Quartile	223	15.25	21.08	21.52	19.73	22.42
4th Quartile	223	16.14	13.45	15.70	27.80	26.91
<b>Eurozone Equity</b>						
1st Quartile	128	32.81	25.78	14.84	14.06	12.50
2nd Quartile	128	15.63	25.00	21.09	21.88	16.41
3rd Quartile	128	20.31	17.97	27.34	15.63	18.75
4th Quartile	128	13.28	12.50	18.75	30.47	25.00
<b>Global Equity</b>						
1st Quartile	228	38.16	21.05	17.98	13.60	9.21
2nd Quartile	227	27.31	26.87	19.82	13.22	12.78
3rd Quartile	228	10.09	21.05	28.51	25.88	14.47
4th Quartile	228	11.40	17.54	20.18	34.21	16.67
<b>Emerging Markets Equity</b>						
1st Quartile	68	22.06	27.94	20.59	16.18	13.24
2nd Quartile	68	26.47	25.00	19.12	17.65	11.76
3rd Quartile	68	17.65	16.18	26.47	20.59	19.12
4th Quartile	69	15.94	11.59	15.94	27.54	28.99
<b>U.S. Equity</b>						
1st Quartile	67	25.37	16.42	17.91	35.82	4.48
2nd Quartile	67	20.90	29.85	23.88	8.96	16.42
3rd Quartile	67	14.93	25.37	22.39	17.91	19.40
4th Quartile	67	23.88	11.94	19.40	22.39	22.39
<b>Pound Sterling-Denominated Funds (GBP)</b>						
<b>U.K. Equity</b>						
1st Quartile	76	17.11	21.05	18.42	39.47	3.95
2nd Quartile	76	22.37	11.84	26.32	25.00	14.47
3rd Quartile	76	21.05	31.58	27.63	10.53	9.21
4th Quartile	76	23.68	18.42	10.53	9.21	38.16

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 4: Three-Year Transition Matrix – Performance of European Equity Funds over Two Non-Overlapping Three-Year Periods (Based on Halves)

Half	Fund Count at Start (December 2016- December 2019)	Three-Year Percentages at End (December 2019-December 2022)		
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)
<b>Euro-Denominated Funds (EUR)</b>				
<b>Europe Equity</b>				
Top Half	445	46.29	36.85	16.85
Bottom Half	446	32.96	42.38	24.66
<b>Eurozone Equity</b>				
Top Half	256	49.61	35.94	14.45
Bottom Half	256	32.03	46.09	21.88
<b>Global Equity</b>				
Top Half	455	56.70	32.31	10.99
Bottom Half	456	30.04	54.39	15.57
<b>Emerging Markets Equity</b>				
Top Half	136	50.74	36.76	12.50
Bottom Half	137	30.66	45.26	24.09
<b>U.S. Equity</b>				
Top Half	134	46.27	43.28	10.45
Bottom Half	134	38.06	41.04	20.90
<b>Pound Sterling-Denominated Funds (GBP)</b>				
<b>U.K. Equity</b>				
Top Half	152	36.18	54.61	9.21
Bottom Half	152	47.37	28.95	23.68

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 5: Five-Year Transition Matrix – Performance of European Equity Funds over Two Non-Overlapping Five-Year Periods (Based on Quartiles)

Quartile	Fund Count at Start (December 2012- December 2017)	Five-Year Percentages at End (December 2017-December 2022)				
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/ Liquidated (%)
<b>Euro-Denominated Funds (EUR)</b>						
<b>Europe Equity</b>						
1st Quartile	188	20.74	17.55	19.68	23.40	18.62
2nd Quartile	187	21.39	18.18	19.79	16.04	24.60
3rd Quartile	187	19.25	17.65	17.65	13.37	32.09
4th Quartile	188	10.64	18.09	14.89	19.15	37.23
<b>Eurozone Equity</b>						
1st Quartile	116	19.83	17.24	18.97	23.28	20.69
2nd Quartile	115	27.83	22.61	12.17	13.91	23.48
3rd Quartile	116	18.97	22.41	19.83	14.66	24.14
4th Quartile	116	8.62	12.93	24.14	24.14	30.17
<b>Global Equity</b>						
1st Quartile	182	35.71	25.82	12.09	9.34	17.03
2nd Quartile	181	24.86	20.99	19.34	12.71	22.10
3rd Quartile	181	9.39	18.23	24.31	24.86	23.20
4th Quartile	182	7.69	12.64	21.98	31.32	26.37
<b>Emerging Markets Equity</b>						
1st Quartile	56	28.57	21.43	7.14	10.71	32.14
2nd Quartile	55	25.45	32.73	18.18	10.91	12.73
3rd Quartile	56	10.71	16.07	28.57	21.43	23.21
4th Quartile	56	8.93	3.57	19.64	30.36	37.50
<b>U.S. Equity</b>						
1st Quartile	56	32.14	25.00	14.29	12.50	16.07
2nd Quartile	56	30.36	17.86	19.64	10.71	21.43
3rd Quartile	56	8.93	21.43	25.00	17.86	26.79
4th Quartile	57	5.26	10.53	17.54	35.09	31.58
<b>Pound Sterling-Denominated Funds (GBP)</b>						
<b>U.K. Equity</b>						
1st Quartile	73	26.03	15.07	23.29	26.03	9.59
2nd Quartile	72	25.00	16.67	19.44	16.67	22.22
3rd Quartile	72	16.67	19.44	12.50	16.67	34.72
4th Quartile	73	6.85	21.92	17.81	15.07	38.36

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.



## Report 6: Five-Year Transition Matrix – Performance of European Equity Funds over Two Non-Overlapping Five-Year Periods (Based on Halves)

Half	Fund Count at Start (December 2012- December 2017)	Five-Year Percentages at End (December 2017-December 2022)		
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)
<b>Euro-Denominated Funds (EUR)</b>				
<b>Europe Equity</b>				
Top Half	375	38.93	39.47	21.60
Bottom Half	375	32.80	32.53	34.67
<b>Eurozone Equity</b>				
Top Half	231	43.72	34.20	22.08
Bottom Half	232	31.47	41.38	27.16
<b>Global Equity</b>				
Top Half	363	53.72	26.72	19.56
Bottom Half	363	23.97	51.24	24.79
<b>Emerging Markets Equity</b>				
Top Half	111	54.05	23.42	22.52
Bottom Half	112	19.64	50.00	30.36
<b>U.S. Equity</b>				
Top Half	112	52.68	28.57	18.75
Bottom Half	113	23.01	47.79	29.20
<b>Pound Sterling-Denominated Funds (GBP)</b>				
<b>U.K. Equity</b>				
Top Half	145	41.38	42.76	15.86
Bottom Half	145	32.41	31.03	36.55

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 7: Performance Persistence of European Fixed Income Funds over Three Consecutive 12-Month Periods

Fund Category	Fund Count at Start (December 2020)	Percentage Remaining in Top Quartile	
		December 2021	December 2022
<b>Top Quartile</b>			
Corporate Bond (EUR)	83	18.07	6.02
Government Bond (EUR)	50	6.00	2.00
High Yield Bond (EUR)	43	37.21	9.30
Corporate Bond (GBP)	28	7.14	3.57
Fund Category	Fund Count at Start (December 2020)	Percentage Remaining in Top Half	
		December 2021	December 2022
<b>Top Half</b>			
Corporate Bond (EUR)	165	47.88	18.79
Government Bond (EUR)	99	24.24	12.12
High Yield Bond (EUR)	85	56.47	27.06
Corporate Bond (GBP)	55	36.36	14.55

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 7b: Alpha Persistence of Fixed Income Funds over Three Consecutive 12-Month Periods

Fund Category	Benchmark	Total Fund Count	Funds Outperforming the Benchmark (December 2020)		Percentage Continuing to Outperform the Benchmark	
			Count	Percentage	December 2021	December 2022
Corporate Bond (EUR)	iBoxx Euro Corporates Overall	346	133	38.44	60.90	37.59
Government Bond (EUR)	iBoxx Euro Sovereign	208	33	15.87	57.58	51.52
High Yield Bond (EUR)	iBoxx EUR Liquid High Yield Index	179	85	47.49	47.06	15.29
Corporate Bond (GBP)	iBoxx Sterling Non-Gilts Overall	113	76	67.26	65.79	27.63

Source: S&P Dow Jones Indices LLC, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 8: Performance Persistence of Domestic Fixed Income Funds over Five Consecutive 12-Month Periods

Fund Category	Fund Count at Start (December 2018)	Percentage Remaining in Top Quartile			
		December 2019	December 2020	December 2021	December 2022
<b>Top Quartile</b>					
Corporate Bond (EUR)	78	17.95	12.82	1.28	0.00
Government Bond (EUR)	52	28.85	23.08	0.00	0.00
High Yield Bond (EUR)	40	15.00	7.50	5.00	2.50
Corporate Bond (GBP)	29	3.45	3.45	3.45	0.00
Fund Category	Fund Count at Start (December 2018)	Percentage Remaining in Top Half			
		December 2019	December 2020	December 2021	December 2022
<b>Top Half</b>					
Corporate Bond (EUR)	155	50.97	40.00	18.71	6.45
Government Bond (EUR)	103	56.31	48.54	11.65	4.85
High Yield Bond (EUR)	80	41.25	32.50	16.25	10.00
Corporate Bond (GBP)	58	36.21	25.86	10.34	1.72

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 9: Three-Year Transition Matrix – Performance of European Fixed Income Funds over Two Non-Overlapping Three-Year Periods (Based on Quartiles)

Quartile	Fund Count at Start (December 2016- December 2019)	Five-Year Percentages at End (December 2019-December 2022)				
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/ Liquidated (%)
<b>Corporate Bond (EUR)</b>						
1st Quartile	71	19.72	33.80	11.27	16.90	18.31
2nd Quartile	70	14.29	28.57	31.43	15.71	10.00
3rd Quartile	71	16.90	11.27	28.17	26.76	16.90
4th Quartile	71	30.99	8.45	11.27	22.54	26.76
<b>Government Bond (EUR)</b>						
1st Quartile	45	8.89	22.22	40.00	17.78	11.11
2nd Quartile	44	4.55	18.18	22.73	34.09	20.45
3rd Quartile	44	25.00	18.18	9.09	13.64	34.09
4th Quartile	45	35.56	13.33	2.22	8.89	40.00
<b>High Yield Bond (EUR)</b>						
1st Quartile	34	23.53	32.35	20.59	5.88	17.65
2nd Quartile	33	15.15	24.24	33.33	12.12	15.15
3rd Quartile	34	23.53	17.65	14.71	26.47	17.65
4th Quartile	34	17.65	5.88	11.76	35.29	29.41
<b>Corporate Bond (GBP)</b>						
1st Quartile	26	26.92	7.69	7.69	42.31	15.38
2nd Quartile	26	0.00	50.00	30.77	11.54	7.69
3rd Quartile	26	15.38	19.23	30.77	15.38	19.23
4th Quartile	26	42.31	7.69	15.38	19.23	15.38

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 10: Three-Year Transition Matrix – Performance of European Fixed Income Funds over Two Non-Overlapping Three-Year Periods (Based on Halves)

Half	Fund Count at Start (December 2016- December 2019)	Three-Year Percentages at End (December 2019-December 2022)		
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)
<b>Corporate Bond (EUR)</b>				
Top Half	141	48.23	37.59	14.18
Bottom Half	142	33.80	44.37	21.83
<b>Government Bond (EUR)</b>				
Top Half	89	26.97	57.30	15.73
Bottom Half	89	46.07	16.85	37.08
<b>High Yield Bond (EUR)</b>				
Top Half	67	47.76	35.82	16.42
Bottom Half	68	32.35	44.12	23.53
<b>Corporate Bond (GBP)</b>				
Top Half	52	42.31	46.15	11.54
Bottom Half	52	42.31	40.38	17.31

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 11: Five-Year Transition Matrix - Performance of European Fixed Income Funds over Two Non-Overlapping Five-Year Periods (Based on Quartiles)

Quartile	Fund Count at Start (December 2012- December 2017)	Five-Year Percentages at End (December 2017-December 2022)					Merged/ Liquidated (%)
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)		
<b>Corporate Bond (EUR)</b>							
1st Quartile	64	39.06	15.63	14.06	10.94	20.31	
2nd Quartile	63	15.87	33.33	23.81	6.35	20.63	
3rd Quartile	63	12.70	17.46	26.98	25.40	17.46	
4th Quartile	64	9.38	9.38	10.94	34.38	35.94	
<b>Government Bond (EUR)</b>							
1st Quartile	47	23.40	29.79	14.89	12.77	19.15	
2nd Quartile	46	15.22	8.70	32.61	13.04	30.43	
3rd Quartile	46	10.87	13.04	6.52	26.09	43.48	
4th Quartile	47	14.89	10.64	8.51	12.77	53.19	
<b>High Yield Bond (EUR)</b>							
1st Quartile	27	33.33	22.22	18.52	7.41	18.52	
2nd Quartile	27	22.22	29.63	22.22	14.81	11.11	
3rd Quartile	27	14.81	14.81	7.41	25.93	37.04	
4th Quartile	27	7.41	7.41	25.93	29.63	29.63	
<b>Corporate Bond (GBP)</b>							
1st Quartile	23	26.09	13.04	4.35	30.43	26.09	
2nd Quartile	23	4.35	34.78	34.78	13.04	13.04	
3rd Quartile	23	21.74	13.04	30.43	13.04	21.74	
4th Quartile	23	21.74	8.70	0.00	17.39	52.17	

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Report 12: Five-Year Transition Matrix – Performance of European Fixed Income Funds over Two Non-Overlapping Five-Year Periods (Based on Halves)

Half	Fund Count at Start (December 2012- December 2017)	Five-Year Percentages at End (December 2017-December 2022)		
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)
<b>Corporate Bond (EUR)</b>				
Top Half	127	51.97	27.56	20.47
Bottom Half	127	24.41	48.82	26.77
<b>Government Bond (EUR)</b>				
Top Half	93	38.71	36.56	24.73
Bottom Half	93	24.73	26.88	48.39
<b>High Yield Bond (EUR)</b>				
Top Half	54	53.70	31.48	14.81
Bottom Half	54	22.22	44.44	33.33
<b>Corporate Bond (GBP)</b>				
Top Half	46	39.13	41.30	19.57
Bottom Half	46	32.61	30.43	36.96

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 30, 2022. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

# Appendix

## SPIVA Styles and Morningstar Fund Classifications

Data from Morningstar Europe is obtained for all actively managed funds<sup>2</sup> for which month-end data is available during the performance period. The data includes funds domiciled in European markets. Offshore European equity funds are excluded. Funds are classified based on the Morningstar fund classification system.

## European Equity Funds Denominated in EUR and GBP

The Europe Persistence Scorecard covers regional and country-specific funds that are denominated in EUR and GBP, and they have been mapped to the relevant Morningstar fund categories as indicated in Exhibit 2. The Morningstar classification system produces narrow, style-based classifications for funds, particularly in relation to European and international equities. S&P Dow Jones Indices has consolidated the style-based categories in order to generate a larger sample size and develop a broad-market comparison to market-based benchmarks. A narrow, style-based comparison would yield a limited sample size, given that value and growth style segments are not consistently discernible over the past five years.

Morningstar categories have been mapped to SPIVA peer groups in the following manner:

### Exhibit 2: Morningstar Categories and SPIVA Peer Groups for European Equity Funds

European Funds Denominated in Euros (EUR)	
Morningstar Category	SPIVA Category
EAA Fund Europe Flex-Cap Equity	Europe Equity
EAA Fund Europe Large-Cap Blend Equity	
EAA Fund Europe Large-Cap Growth Equity	
EAA Fund Europe Large-Cap Value Equity	
EAA Fund Europe Mid-Cap Equity	
EAA Fund Europe Small-Cap Equity	Eurozone Equity
EAA Fund Eurozone Flex-Cap Equity	
EAA Fund Eurozone Large-Cap Equity	
EAA Fund Eurozone Mid-Cap Equity	
EAA Fund Eurozone Small-Cap Equity	

Source: S&P Dow Jones Indices LLC and Morningstar. Table is provided for illustrative purposes.

<sup>2</sup> Includes UCITs and non-UCITs open-end funds and ETFs.



## Exhibit 2: Morningstar Categories and SPIVA Peer Groups for European Equity Funds (cont.)

European Funds Denominated in Euros (EUR)	
Morningstar Category	SPIVA Category
EAA Fund Global Large-Cap Blend Equity	Global Equity
EAA Fund Global Large-Cap Growth Equity	
EAA Fund Global Large-Cap Value Equity	
EAA Fund Global Small/Mid-Cap Equity	U.S. Equity
EAA Fund U.S. Large-Cap Blend Equity	
EAA Fund U.S. Large-Cap Growth Equity	
EAA Fund U.S. Large-Cap Value Equity	
EAA Fund U.S. Mid-Cap Equity	
EAA Fund U.S. Flex-Cap Equity	
EAA Fund U.S. Small-Cap Equity	Emerging Markets Equity
EAA Fund Global Emerging Markets Equity	
European Funds Denominated In British Pound Sterling (GBP)	
Morningstar Category	SPIVA Category
EAA Fund UK Large-Cap Blend Equity	U.K. Equity
EAA Fund UK Large-Cap Growth Equity	
EAA Fund UK Large-Cap Value Equity	
EAA Fund UK Mid-Cap Equity	
EAA Fund UK Small-Cap Equity	
EAA Fund UK Flex-Cap Equity	

Source: S&P Dow Jones Indices LLC and Morningstar. Table is provided for illustrative purposes.

## Fixed Income Funds

The Europe Persistence Scorecard reports on Corporate Bond, High Yield Bond and Government Bond categories in EUR, and on the Corporate Bond category in GBP. They have been mapped to the relevant Morningstar fund categories as shown in Exhibit 3.

## Exhibit 3: Morningstar Categories and SPIVA Peer Groups European Fixed Income Funds

Morningstar Category	SPIVA Category
EAA Fund EUR Corporate Bond	Corporate Bond (EUR)
EAA Fund EUR Government Bond	Government Bond (EUR)
EAA Fund EUR High Yield Bond	High Yield Bond (EUR)
EAA Fund GBP Corporate Bond	Corporate Bond (GBP)

Source: S&P Dow Jones Indices LLC and Morningstar. Table is provided for illustrative purposes.

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