

SPIVA[®] U.S. Scorecard

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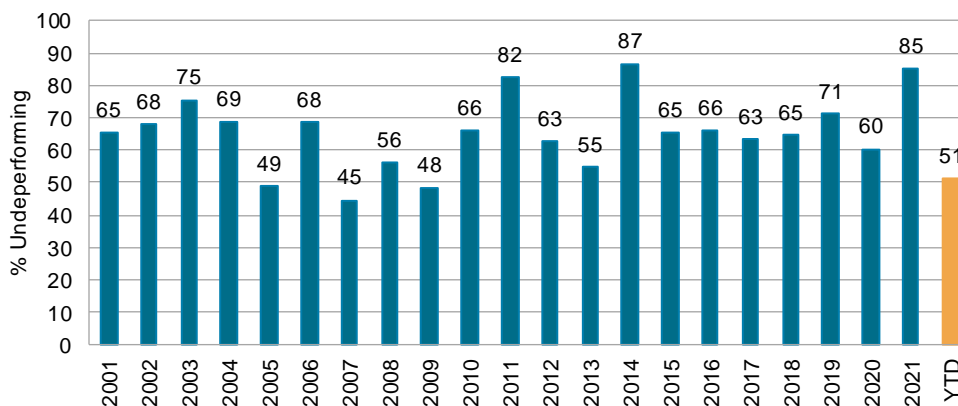
Experience the active vs. passive debate on a global scale.

Summary

The **S&P 500[®]** made an all-time high on the first trading day of 2022, but as monetary taps tightened, **U.S. equity markets turned bearish**. The Federal Reserve had telegraphed its intention to raise rates before the year turned, but when the conflict in Ukraine triggered a spike in energy and raw commodity prices, producing a 40-year high in U.S. inflation, the central bank accelerated its plans. A series of rate hikes helped send the S&P 500 into a 20% drawdown by mid-June, and **fixed income offered few safe harbors** as yields rose across the curve and longer-dated Treasury bonds made their worst start to a year this century.

Declining markets make active management skills all the more valuable, and our report shows that a significant minority of active managers were able to outperform in several categories. After suffering an 85% underperformance rate in 2021, **just 51% of large-cap domestic equity funds lagged the S&P 500 in the first six months of 2022**, putting actively managed large-cap U.S. equity funds on track for their best (i.e., lowest) underperformance rate since 2009.

Exhibit 1: Percentage of Large-Cap Domestic Equity Funds Underperforming the S&P 500 Each Year



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

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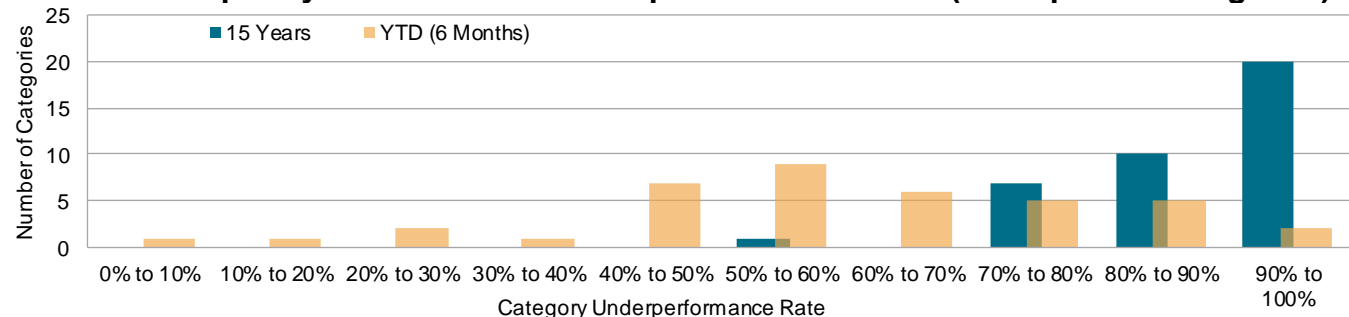
Similarly, **54% of mid-cap and 63% of small-cap funds underperformed the S&P MidCap 400 and the S&P SmallCap 600**, respectively, in H1. There was a wide range of performance across various domestic equity categories, topped by a creditable **33% of Mid-Cap Core** funds underperforming in H1. At the other end of the spectrum, a turn to outperformance from value accompanied a **disappointing period for growth managers**, 79%, 84% and 89% of whom underperformed in the large-, small- and mid-cap Growth categories, respectively, in H1.

In international equities, a majority of actively managed funds underperformed in every category during H1 but, in relative terms, **managers in the International Small-Cap category continued to outshine their peers**, with just 57% underperforming compared to H1 underperformance rates of 68%, 71% and 74%, in the Global, International, and Emerging Market categories, respectively.

The February 2022 completion of the merger between IHS Markit and S&P Global brought a new range of fixed income indices to the S&P DJI stable,¹ and **this edition of our SPIVA U.S. Scorecard welcomes a new range of fixed income comparison indices**, as well as several new fixed income categories. Highlights from the H1 fixed income statistics included 93% of Core Plus Bond funds and 59% of actively managed high-yield U.S. funds *outperforming* the iBoxx \$ Liquid Investment Grade Index and iBoxx \$ Liquid High Yield Index, respectively, but **benchmark-beating returns were harder to find in the Loan Participation, General Municipal Debt and Intermediate U.S. Government categories**—with underperformance rates of 83%, 86% and 89%, respectively.

Echoing a frequent theme of SPIVA Scorecards over the past 20 years, **underperformance rates generally rose with the length of the period in which they were measured**. Exhibit 2 illustrates the marked differences in the distributions of short- and longer-term underperformance rates across all the reported fund categories in our scorecard. While there was a broad mix of underperformance rates in H1, over a 15-year horizon, more than 70% of actively managed funds failed to outperform their comparison index in 38 out of 39 categories.

Exhibit 2: Frequency Distribution of Underperformance Rates (All Reported Categories)



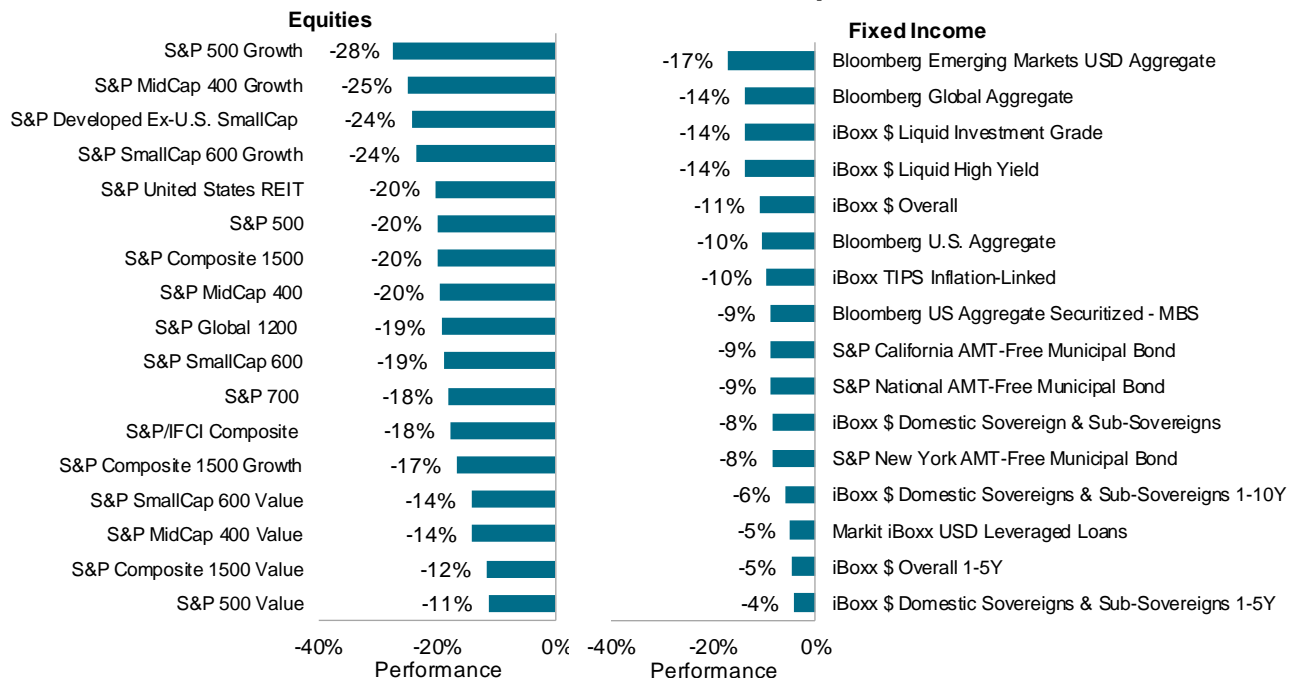
Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. See Reports 1a, 6a and 11a. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

¹ <https://investor.spglobal.com/news-releases/news-details/2022/SP-Global-Completes-Merger-with-IHS-Markit-Creating-a-Global-Leader-to-Power-the-Markets-of-the-Future/>

Market Context

In contrast to the largely positive market returns of 2021, the first half of 2022 was a challenging period for many market participants. Notwithstanding a notable (and related) surge in commodity prices, there were material declines in most other major asset classes and geographies. Exhibit 3 shows the H1 2022 losses across the indices used to benchmark active fund performances in the SPIVA U.S. Scorecard.

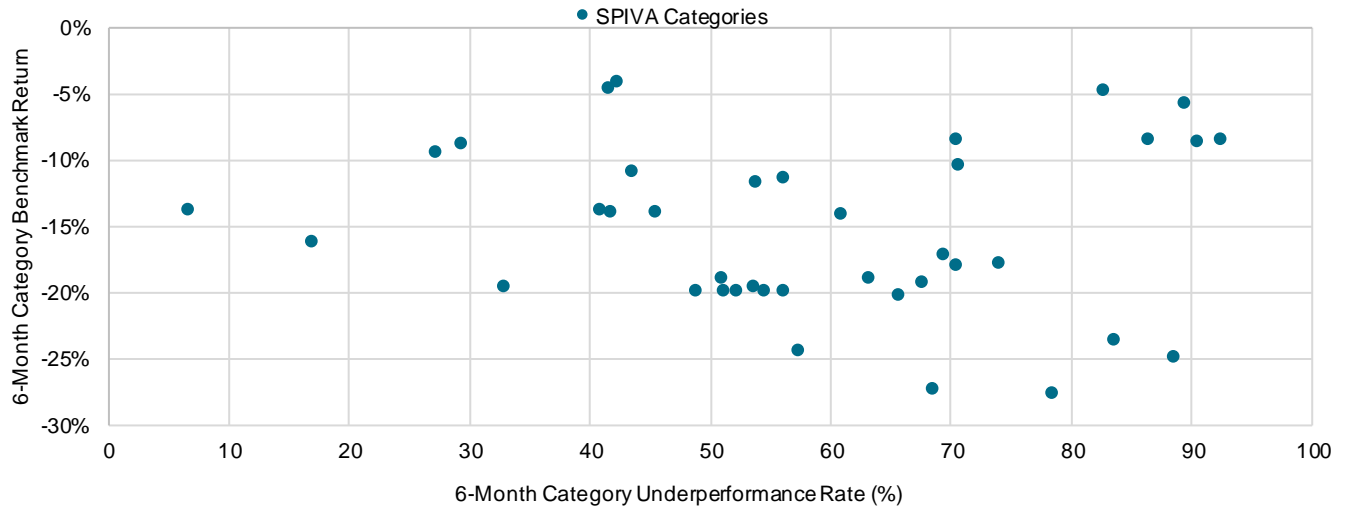
Exhibit 3: H1 2022 Performances of U.S. Scorecard Comparison Indices



Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Index performance based on total returns in U.S. dollars. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Market downturns putatively offer abundant hunting grounds for active managers, but, in the first half of 2022, the cross-sectional relationship between market performance and the relative returns of active funds reminds us that opportunities for embarrassment were just as plentiful. Exhibit 4 illustrates this point, comparing the magnitude of benchmark losses and underperformance rates across our reported fund categories. The variables are statistically uncorrelated; in categories with better-performing benchmarks, underperformance rates spanned the full range of the data. However, despite the absence of a clear linear relationship, the exhibit also makes it clear that **in the categories that saw the most severe benchmark declines, underperformance rates tended to be slightly higher.**

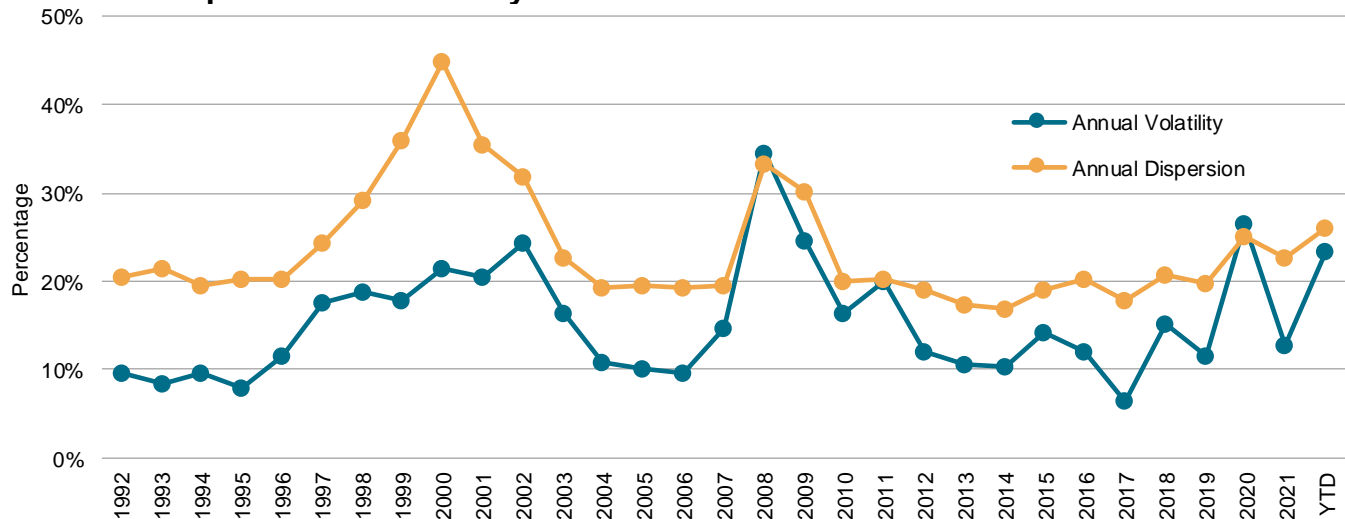
Exhibit 4: Underperformance Rates and Benchmark Returns (H1 2022)



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

Focusing more narrowly on large-cap U.S. equities, Exhibit 5 shows the annual average dispersion and volatility for the S&P 500 over the past three decades (with the 2022 figure based on a YTD average). Broadly speaking, **large-cap U.S. equity dispersion and volatility have both been trending higher since 2017**, with dispersion currently on track for its highest average annual reading since 2009, which is perhaps not coincidentally the last time we saw this level of outperformance for large-cap domestic equity funds. **Higher dispersion implies a greater possibility of generating above-average performance** through judicious stock selection but—since we cannot *all* be above average—it also implies a magnified risk of selecting a laggard. The near-equal frequency of under- and outperformance rates by actively managed funds in H1 2022 may reflect the combination of greater opportunity *and* the difficulty of separating signal from noise.

Exhibit 5: Dispersion and Volatility in the S&P 500



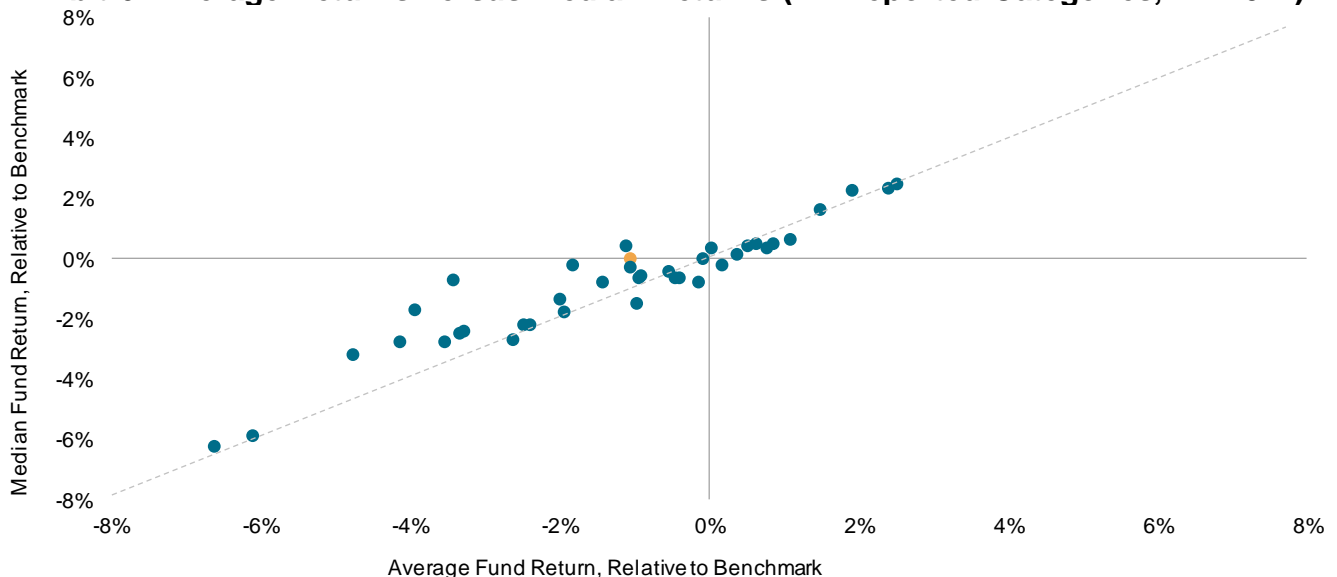
Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Annual average of monthly annualized dispersion and volatility. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Another consequence of the increase in S&P 500 dispersion can be found in the **high dispersion among active fund performances**, as evidenced by their interquartile range (see Report 5). In order to be in the top quartile among actively managed U.S. large-cap equity funds in H1, a manager was required to limit losses to 13.3%, outperforming the median fund by 6.8%. However, the boundary for the lowest quartile was a loss of 28.1%, which is 8.1% below the median return. The different gaps between quartile breakpoints and the median offer evidence of a negative skew in the cross-section of fund returns, which is to say: **when fund performances differed significantly from the median, they were more likely to be significant underperformers.**

This has an important consequence when interpreting underperformance rates, because **if fund returns are negatively skewed in the cross-section, underperformance rates may offer an unduly generous perspective.** For example, although just 51% of actively managed large-cap U.S. equity funds underperformed the S&P 500 in H1 2022, and while the median fund return was, to the first decimal place, equal to the benchmark return of -20.0%, **the average fund return was -21.0%, which was 1% lower than the benchmark return** (see Report 3).

Exhibit 6 illustrates the impact of skew across all reported categories by comparing the *average* fund excess return (relative to the benchmark) versus the *median* fund excess return. The dashed grey diagonal identifies an equal median and average return, while the point corresponding to the U.S. Large-Cap category is highlighted in yellow. **In most categories, results were above and to the left of the diagonal line, meaning that the average excess return was lower than the median excess return.** More simply said, there were more big losers than big winners, which is perhaps an important context to bring to bear on the reported underperformance rates.

Exhibit 6: Average Returns versus Median Returns (All Reported Categories, H1 2022)



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

A Unique Scorecard for the Active Versus Passive Debate

There is nothing novel about the index versus active debate. It has been a contentious subject for decades, and there are a few strong believers on both sides, with the vast majority of market participants falling somewhere in between. Since its first publication in 2002, the SPIVA Scorecard has served as the de facto scorekeeper of the active versus passive debate. When headline numbers have deviated from their beliefs, we have heard passionate arguments from both camps.

Beyond the SPIVA Scorecard's widely cited headline numbers is a rich data set that addresses issues—often far more fascinating though far less discussed—about measurement techniques, universe composition and fund survivorship. These data sets are rooted in the following fundamental principles of the SPIVA Scorecard, with which regular readers will be familiar.

- **Survivorship Bias Correction:** Many funds might be liquidated or merged during a period of study. However, for someone making an investment decision at the beginning of the period, these funds are part of the opportunity set. Unlike other commonly available comparison reports, SPIVA Scorecards account for the entire opportunity set—not just the survivors—thereby eliminating survivorship bias.
- **Apples-to-Apples Comparison:** Fund returns are often compared to popular benchmarks such as the S&P 500, regardless of size or style classification. SPIVA Scorecards avoid this pitfall by measuring a fund's returns against the returns of a benchmark appropriate for that particular investment category.
- **Asset-Weighted Returns:** Average returns for a fund group are often calculated using only equal weighting, which results in the returns of a USD 10 billion fund affecting the average in the same manner as the returns of a USD 10 million fund. A more accurate representation of how market participants fared in a particular period is found by calculating weighted average returns where each fund's return is weighted by net assets. SPIVA Scorecards show both equal- and asset-weighted averages.
- **Style Consistency:** SPIVA Scorecards measure style consistency for each style category across different time horizons. Style consistency is an important metric because style drift (the tendency of funds to diverge from their initial investment categorization) can have an impact on asset allocation decisions.
- **Data Cleaning:** SPIVA Scorecards avoid double-counting multiple share classes in all count-based calculations, using only the share class with greater assets. Since this is meant to be a scorecard for active managers, it excludes index funds, leveraged and inverse funds, and other index-linked products.

Reports

Report 1a: Percentage of U.S. Equity Funds Underperforming Their Benchmarks (Based on Absolute Return)

Fund Category	Comparison Index	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)	20-Year (%)
All Domestic Funds	S&P Composite 1500	52.25	65.29	88.49	87.53	91.79	92.11	93.10
All Large-Cap Funds	S&P 500	51.23	55.43	85.88	84.47	90.03	89.38	95.22
All Mid-Cap Funds	S&P MidCap 400	53.61	54.38	69.13	58.03	79.55	89.88	93.64
All Small-Cap Funds	S&P SmallCap 600	63.21	55.44	79.70	74.01	91.36	92.00	94.16
All Multi-Cap Funds	S&P Composite 1500	48.97	63.70	87.26	85.32	89.59	91.20	93.62
Large-Cap Growth Funds	S&P 500 Growth	78.54	91.00	93.36	90.04	97.03	97.13	98.36
Large-Cap Core Funds	S&P 500	54.59	62.30	78.44	88.34	95.34	94.55	97.19
Large-Cap Value Funds	S&P 500 Value	56.22	55.56	62.42	69.72	89.56	75.35	84.98
Mid-Cap Growth Funds	S&P MidCap 400 Growth	88.70	86.72	64.18	36.30	64.88	86.14	92.34
Mid-Cap Core Funds	S&P MidCap 400	32.93	28.24	59.00	68.10	85.15	96.40	96.30
Mid-Cap Value Funds	S&P MidCap 400 Value	45.45	32.79	60.94	75.93	92.05	91.40	91.35
Small-Cap Growth Funds	S&P SmallCap 600 Growth	83.58	84.54	77.66	52.46	84.77	93.94	98.86
Small-Cap Core Funds	S&P SmallCap 600	51.08	40.17	79.13	83.70	96.41	94.30	93.80
Small-Cap Value Funds	S&P SmallCap 600 Value	60.94	32.35	71.74	85.15	92.86	93.00	89.06
Multi-Cap Growth Funds	S&P Composite 1500 Growth	68.63	82.21	87.13	89.42	92.72	96.61	94.94
Multi-Cap Core Funds	S&P Composite 1500	56.22	78.72	88.64	90.57	93.27	92.77	94.53
Multi-Cap Value Funds	S&P Composite 1500 Value	53.81	62.96	78.74	88.50	88.46	90.13	86.32
Real Estate Funds	S&P United States REIT	65.75	68.49	45.57	51.81	72.73	87.37	82.14

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

Report 1b: Percentage of U.S. Equity Funds Underperforming Their Benchmarks (Based on Risk-Adjusted Return)

Fund Category	Comparison Index	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)	20-Year (%)
All Domestic Funds	S&P Composite 1500	90.44	90.65	96.79	95.17	96.93
All Large-Cap Funds	S&P 500	87.06	88.71	96.81	92.48	96.89
All Mid-Cap Funds	S&P MidCap 400	67.11	56.72	81.51	88.64	92.37
All Small-Cap Funds	S&P SmallCap 600	80.83	74.91	90.99	91.05	93.69
All Multi-Cap Funds	S&P Composite 1500	90.15	88.26	96.08	94.08	95.74
Large-Cap Growth Funds	S&P 500 Growth	89.38	91.29	96.70	99.52	100.00
Large-Cap Core Funds	S&P 500	74.77	86.57	95.85	94.94	98.13
Large-Cap Value Funds	S&P 500 Value	65.53	71.25	86.71	72.09	83.10
Mid-Cap Growth Funds	S&P MidCap 400 Growth	64.93	39.26	76.19	88.61	95.22
Mid-Cap Core Funds	S&P MidCap 400	55.00	64.66	85.15	91.89	92.59
Mid-Cap Value Funds	S&P MidCap 400 Value	53.13	68.52	75.00	88.17	82.69
Small-Cap Growth Funds	S&P SmallCap 600 Growth	79.26	58.47	87.82	93.43	98.86
Small-Cap Core Funds	S&P SmallCap 600	79.13	83.70	93.27	92.98	92.25
Small-Cap Value Funds	S&P SmallCap 600 Value	80.85	82.27	91.16	91.66	94.15
Multi-Cap Growth Funds	S&P Composite 1500 Growth	84.80	88.36	94.17	98.31	97.75
Multi-Cap Core Funds	S&P Composite 1500	90.00	91.39	97.55	94.28	95.02
Multi-Cap Value Funds	S&P Composite 1500 Value	87.40	89.38	93.85	86.18	88.46
Real Estate Funds	S&P United States REIT	41.77	46.99	61.36	83.16	75.00

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

Report 2: Survivorship and Style Consistency of U.S. Equity Funds

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
1-Year			
All Domestic Funds	1,936	97.68	91.27
All Large-Cap Funds	644	98.45	93.48
All Mid-Cap Funds	274	97.45	87.96
All Small-Cap Funds	487	97.74	95.07
All Multi-Cap Funds	540	96.85	87.04
Large-Cap Growth Funds	211	97.63	97.16
Large-Cap Core Funds	191	99.48	88.48
Large-Cap Value Funds	243	98.35	94.24
Mid-Cap Growth Funds	128	96.09	85.16
Mid-Cap Core Funds	85	97.65	89.41
Mid-Cap Value Funds	61	100.00	91.80
Small-Cap Growth Funds	194	98.45	97.94
Small-Cap Core Funds	229	96.51	96.07
Small-Cap Value Funds	68	100.00	83.82
Multi-Cap Growth Funds	163	95.09	77.91
Multi-Cap Core Funds	188	97.34	89.89
Multi-Cap Value Funds	189	97.88	92.06
Real Estate Funds	73	97.26	100.00
3-Year			
All Domestic Funds	2,103	86.78	74.61
All Large-Cap Funds	765	89.41	74.51
All Mid-Cap Funds	298	87.25	70.47
All Small-Cap Funds	532	85.15	83.27
All Multi-Cap Funds	518	84.17	68.15
Large-Cap Growth Funds	226	92.04	84.07
Large-Cap Core Funds	218	89.91	70.64
Large-Cap Value Funds	322	87.27	70.50
Mid-Cap Growth Funds	134	87.31	76.12
Mid-Cap Core Funds	100	86.00	65.00
Mid-Cap Value Funds	64	89.06	67.19
Small-Cap Growth Funds	188	88.83	93.09
Small-Cap Core Funds	254	84.65	83.86
Small-Cap Value Funds	92	79.35	61.96
Multi-Cap Growth Funds	171	84.21	64.33
Multi-Cap Core Funds	220	87.73	62.27
Multi-Cap Value Funds	127	77.95	83.46
Real Estate Funds	79	89.87	98.73

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

Report 2: Survivorship and Style Consistency of U.S. Equity Funds (cont.)

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
5-Year			
All Domestic Funds	2,245	78.66	65.08
All Large-Cap Funds	850	80.71	66.94
All Mid-Cap Funds	305	75.08	62.30
All Small-Cap Funds	558	78.49	75.45
All Multi-Cap Funds	545	77.61	53.03
Large-Cap Growth Funds	241	82.57	78.01
Large-Cap Core Funds	283	82.69	55.48
Large-Cap Value Funds	327	77.68	68.81
Mid-Cap Growth Funds	135	75.56	69.63
Mid-Cap Core Funds	116	75.86	56.03
Mid-Cap Value Funds	54	72.22	57.41
Small-Cap Growth Funds	183	82.51	88.52
Small-Cap Core Funds	276	76.45	76.09
Small-Cap Value Funds	101	77.23	50.50
Multi-Cap Growth Funds	189	82.54	47.62
Multi-Cap Core Funds	244	75.41	49.59
Multi-Cap Value Funds	113	74.34	69.03
Real Estate Funds	83	79.52	97.59
10-Year			
All Domestic Funds	2,557	63.08	49.00
All Large-Cap Funds	1,003	63.01	56.83
All Mid-Cap Funds	357	61.34	45.10
All Small-Cap Funds	544	65.81	59.56
All Multi-Cap Funds	663	61.99	30.62
Large-Cap Growth Funds	303	59.74	65.68
Large-Cap Core Funds	386	62.95	48.70
Large-Cap Value Funds	316	66.14	58.23
Mid-Cap Growth Funds	168	61.31	55.95
Mid-Cap Core Funds	101	54.46	46.53
Mid-Cap Value Funds	88	69.32	22.73
Small-Cap Growth Funds	197	62.94	80.71
Small-Cap Core Funds	223	67.26	56.05
Small-Cap Value Funds	126	68.25	33.33
Multi-Cap Growth Funds	206	65.05	32.04
Multi-Cap Core Funds	327	66.36	28.44
Multi-Cap Value Funds	130	46.15	33.85
Real Estate Funds	88	81.82	79.55

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

Report 2: Survivorship and Style Consistency of U.S. Equity Funds (cont.)

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
20-Year			
All Domestic Funds	2,245	31.00	42.67
All Large-Cap Funds	836	26.32	51.44
All Mid-Cap Funds	393	33.33	35.88
All Small-Cap Funds	428	38.08	46.26
All Multi-Cap Funds	611	30.93	32.73
Large-Cap Growth Funds	304	20.07	50.66
Large-Cap Core Funds	320	25.94	56.88
Large-Cap Value Funds	213	36.15	44.13
Mid-Cap Growth Funds	209	25.84	48.33
Mid-Cap Core Funds	81	32.10	29.63
Mid-Cap Value Funds	104	50.00	15.38
Small-Cap Growth Funds	176	29.55	65.91
Small-Cap Core Funds	129	42.64	44.19
Small-Cap Value Funds	128	46.09	21.09
Multi-Cap Growth Funds	178	25.28	40.45
Multi-Cap Core Funds	201	31.84	34.83
Multi-Cap Value Funds	234	34.62	24.79
Real Estate Funds	56	46.43	78.57

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

Report 3: Average U.S. Equity Fund Performance (Equal-Weighted)

Category	YTD (%)	1-Year (%)	3-Year (Ann., %)	5-Year (Ann., %)	10-Year (Ann., %)	20-Year (Ann., %)
S&P Composite 1500	-19.91	-11.02	10.29	10.92	12.79	9.17
All Domestic Funds	-21.74	-17.41	6.83	7.78	10.03	7.52
S&P 500	-19.96	-10.62	10.60	11.31	12.96	9.08
All Large-Cap Funds	-21.01	-14.20	7.94	8.89	10.56	7.40
S&P MidCap 400	-19.54	-14.64	6.87	7.02	10.90	9.55
All Mid-Cap Funds	-22.96	-19.36	5.95	7.13	9.66	7.94
S&P SmallCap 600	-18.94	-16.81	7.30	7.20	11.26	9.58
All Small-Cap Funds	-22.86	-21.39	5.21	5.94	9.20	7.79
S&P Composite 1500	-19.91	-11.02	10.29	10.92	12.79	9.17
All Multi-Cap Funds	-21.01	-16.59	7.16	8.14	10.04	7.18

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 3: Average U.S. Equity Fund Performance (Equal-Weighted) (cont.)

Category	YTD (%)	1-Year (%)	3-Year (Ann., %)	5-Year (Ann., %)	10-Year (Ann., %)	20-Year (Ann., %)
Large-Cap						
S&P 500 Growth	-27.62	-16.41	11.64	13.46	14.35	9.97
Large-Cap Growth Funds	-31.14	-25.75	7.21	10.61	11.78	8.00
S&P 500	-19.96	-10.62	10.60	11.31	12.96	9.08
Large-Cap Core Funds	-19.76	-11.50	8.90	9.09	10.64	7.52
S&P 500 Value	-11.41	-4.86	8.23	8.19	10.97	7.84
Large-Cap Value Funds	-12.34	-5.68	7.56	7.28	9.37	6.70
Mid-Cap						
S&P MidCap 400 Growth	-24.93	-20.50	5.15	6.52	10.49	9.44
Mid-Cap Growth Funds	-31.53	-29.31	4.56	8.24	10.10	8.05
S&P MidCap 400	-19.54	-14.64	6.87	7.02	10.90	9.55
Mid-Cap Core Funds	-17.60	-11.45	6.59	6.40	9.25	8.03
S&P MidCap 400 Value	-14.01	-8.64	7.93	7.09	10.97	9.44
Mid-Cap Value Funds	-13.48	-7.89	7.06	5.45	9.23	7.82
Small-Cap						
S&P SmallCap 600 Growth	-23.65	-19.63	6.09	7.39	11.35	10.19
Small-Cap Growth Funds	-29.75	-30.39	3.51	7.77	10.24	7.89
S&P SmallCap 600	-18.94	-16.81	7.30	7.20	11.26	9.58
Small-Cap Core Funds	-19.02	-16.06	5.70	5.10	8.67	7.62
S&P SmallCap 600 Value	-14.16	-13.93	8.02	6.75	11.01	8.85
Small-Cap Value Funds	-14.28	-12.08	7.02	4.75	8.57	7.90
Multi-Cap						
S&P Composite 1500 Growth	-27.38	-16.67	11.14	12.89	14.04	9.99
Multi-Cap Growth Funds	-31.52	-28.51	6.25	9.51	10.85	7.90
S&P Composite 1500	-19.91	-11.02	10.29	10.92	12.79	9.17
Multi-Cap Core Funds	-20.44	-14.82	7.28	7.41	9.61	6.90
S&P Composite 1500 Value	-11.63	-5.36	8.23	8.08	10.98	8.04
Multi-Cap Value Funds	-12.66	-7.43	7.73	7.00	9.66	6.92
Real Estate						
S&P United States REIT	-20.20	-6.20	4.02	5.26	7.22	8.74
Real Estate Funds	-20.59	-8.36	4.33	5.09	6.42	7.28

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 4: Average U.S. Equity Fund Performance (Asset-Weighted)

Category	YTD (%)	1-Year (%)	3-Year (Ann., %)	5-Year (Ann., %)	10-Year (Ann., %)	20-Year (Ann., %)
S&P Composite 1500	-19.91	-11.02	10.29	10.92	12.79	9.17
All Domestic Funds	-22.78	-17.62	7.84	9.09	11.25	8.05
S&P 500	-19.96	-10.62	10.60	11.31	12.96	9.08
All Large-Cap Funds	-22.64	-16.36	8.57	9.67	11.53	7.82
S&P MidCap 400	-19.54	-14.64	6.87	7.02	10.90	9.55
All Mid-Cap Funds	-23.58	-21.40	5.90	7.54	10.32	8.53
S&P SmallCap 600	-18.94	-16.81	7.30	7.20	11.26	9.58
All Small-Cap Funds	-24.37	-22.82	4.76	6.87	9.86	8.18
S&P Composite 1500	-19.91	-11.02	10.29	10.92	12.79	9.17
All Multi-Cap Funds	-22.40	-17.95	7.39	8.78	11.37	8.28
Large-Cap						
S&P 500 Growth	-27.62	-16.41	11.64	13.46	14.35	9.97
Large-Cap Growth Funds	-31.46	-26.56	7.74	10.89	12.63	8.62
S&P 500	-19.96	-10.62	10.60	11.31	12.96	9.08
Large-Cap Core Funds	-19.93	-10.78	8.91	9.36	11.67	7.46
S&P 500 Value	-11.41	-4.86	8.23	8.19	10.97	7.84
Large-Cap Value Funds	-11.89	-4.60	9.04	8.79	10.50	7.66
Mid-Cap						
S&P MidCap 400 Growth	-24.93	-20.50	5.15	6.52	10.49	9.44
Mid-Cap Growth Funds	-31.44	-29.42	4.22	8.26	10.81	8.99
S&P MidCap 400	-19.54	-14.64	6.87	7.02	10.90	9.55
Mid-Cap Core Funds	-19.01	-12.77	6.69	6.67	10.07	8.18
S&P MidCap 400 Value	-14.01	-8.64	7.93	7.09	10.97	9.44
Mid-Cap Value Funds	-13.76	-8.85	8.45	6.96	9.87	8.20
Small-Cap						
S&P SmallCap 600 Growth	-23.65	-19.63	6.09	7.39	11.35	10.19
Small-Cap Growth Funds	-28.73	-28.56	3.56	8.66	11.15	8.11
S&P SmallCap 600	-18.94	-16.81	7.30	7.20	11.26	9.58
Small-Cap Core Funds	-19.09	-15.63	5.99	5.90	9.15	8.15
S&P SmallCap 600 Value	-14.16	-13.93	8.02	6.75	11.01	8.85
Small-Cap Value Funds	-14.87	-12.30	6.54	4.88	8.78	8.20

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 4: Average U.S. Equity Fund Performance (Asset-Weighted) (cont.)

Category	YTD (%)	1-Year (%)	3-Year (Ann., %)	5-Year (Ann., %)	10-Year (Ann., %)	20-Year (Ann., %)
Multi-Cap						
S&P 500 Growth	-27.38	-16.67	11.14	12.89	14.04	9.99
Large-Cap Growth Funds	-31.75	-29.14	7.71	10.69	12.72	9.14
S&P 500	-19.91	-11.02	10.29	10.92	12.79	9.17
Large-Cap Core Funds	-20.24	-16.81	7.22	7.89	10.02	8.40
S&P 500 Value	-11.63	-5.36	8.23	8.08	10.98	8.04
Large-Cap Value Funds	-12.37	-7.43	8.23	6.88	10.40	7.67
Real-Estate						
S&P United States REIT	-20.20	-6.20	4.02	5.26	7.22	8.74
Real Estate Funds	-18.86	-6.42	4.19	5.25	6.62	7.85

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 5: Quartile Breakpoints of U.S. Equity Funds

Fund Category	Third Quartile	Second Quartile	First Quartile
YTD			
All Domestic Funds	-28.10	-20.17	-14.33
All Large-Cap Funds	-28.11	-20.03	-13.27
All Mid-Cap Funds	-30.39	-20.31	-14.48
All Small-Cap Funds	-28.28	-20.71	-16.64
All Multi-Cap Funds	-25.54	-19.51	-12.91
Large-Cap Growth Funds	-33.82	-30.42	-27.95
Large-Cap Core Funds	-21.82	-20.21	-18.27
Large-Cap Value Funds	-14.65	-12.09	-8.68
Mid-Cap Growth Funds	-34.79	-31.21	-28.22
Mid-Cap Core Funds	-20.26	-17.35	-14.36
Mid-Cap Value Funds	-14.89	-13.62	-11.22
Small-Cap Growth Funds	-32.96	-29.53	-25.53
Small-Cap Core Funds	-21.08	-18.97	-16.07
Small-Cap Value Funds	-16.33	-15.01	-12.63
Multi-Cap Growth Funds	-34.65	-30.20	-26.52
Multi-Cap Core Funds	-22.24	-20.38	-18.71
Multi-Cap Value Funds	-14.74	-11.98	-9.49
Real-Estate Funds	-22.32	-20.87	-19.49

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 5: Quartile Breakpoints of U.S. Equity Funds (cont.)

Fund Category	Third Quartile	Second Quartile	First Quartile
1-Year			
All Domestic Funds	-23.90	-14.19	-8.36
All Large-Cap Funds	-21.78	-11.98	-5.80
All Mid-Cap Funds	-27.19	-15.16	-7.71
All Small-Cap Funds	-27.41	-18.10	-12.53
All Multi-Cap Funds	-20.12	-13.50	-7.57
Large-Cap Growth Funds	-29.67	-25.15	-21.29
Large-Cap Core Funds	-13.61	-12.55	-9.07
Large-Cap Value Funds	-7.76	-5.32	-1.89
Mid-Cap Growth Funds	-34.36	-28.05	-22.93
Mid-Cap Core Funds	-14.69	-10.76	-6.93
Mid-Cap Value Funds	-8.94	-7.17	-5.95
Small-Cap Growth Funds	-36.32	-29.83	-23.56
Small-Cap Core Funds	-19.37	-15.15	-11.55
Small-Cap Value Funds	-14.36	-11.79	-9.40
Multi-Cap Growth Funds	-32.94	-25.35	-18.28
Multi-Cap Core Funds	-16.88	-14.02	-11.49
Multi-Cap Value Funds	-9.79	-6.47	-4.01
Real-Estate Funds	-8.40	-7.28	-5.93
3-Year			
All Domestic Funds	4.82	7.05	9.20
All Large-Cap Funds	6.60	8.35	9.85
All Mid-Cap Funds	4.17	6.04	7.93
All Small-Cap Funds	3.04	5.45	7.12
All Multi-Cap Funds	5.27	7.54	9.44
Large-Cap Growth Funds	5.57	7.80	9.98
Large-Cap Core Funds	7.69	9.45	10.57
Large-Cap Value Funds	6.58	7.89	9.28
Mid-Cap Growth Funds	2.80	4.62	6.27
Mid-Cap Core Funds	5.54	6.71	8.36
Mid-Cap Value Funds	5.68	7.44	8.64
Small-Cap Growth Funds	1.66	3.10	6.09
Small-Cap Core Funds	4.12	5.73	7.17
Small-Cap Value Funds	5.75	7.12	9.22
Multi-Cap Growth Funds	4.25	6.87	9.99
Multi-Cap Core Funds	5.81	8.19	9.63
Multi-Cap Value Funds	6.31	7.30	8.30
Real-Estate Funds	3.10	5.01	6.05

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 5: Quartile Breakpoints of U.S. Equity Funds (cont.)

Fund Category	Third Quartile	Second Quartile	First Quartile
5-Year			
All Domestic Funds	5.94	8.07	10.10
All Large-Cap Funds	7.59	9.17	10.82
All Mid-Cap Funds	5.82	7.50	9.04
All Small-Cap Funds	4.56	5.95	7.89
All Multi-Cap Funds	6.38	8.28	10.37
Large-Cap Growth Funds	9.34	11.14	12.45
Large-Cap Core Funds	8.25	9.86	10.74
Large-Cap Value Funds	6.34	7.85	8.86
Mid-Cap Growth Funds	7.22	8.76	10.06
Mid-Cap Core Funds	5.29	6.35	8.04
Mid-Cap Value Funds	4.21	5.98	7.37
Small-Cap Growth Funds	5.84	8.11	9.71
Small-Cap Core Funds	4.33	5.57	6.88
Small-Cap Value Funds	3.66	4.93	5.98
Multi-Cap Growth Funds	8.26	10.18	12.12
Multi-Cap Core Funds	6.01	8.07	9.55
Multi-Cap Value Funds	5.80	6.79	7.86
Real-Estate Funds	4.13	5.73	6.64
10-Year			
All Domestic Funds	9.14	10.45	11.89
All Large-Cap Funds	9.95	11.13	12.46
All Mid-Cap Funds	9.18	10.16	11.17
All Small-Cap Funds	8.65	9.63	10.56
All Multi-Cap Funds	8.80	10.45	12.01
Large-Cap Growth Funds	11.60	12.77	13.48
Large-Cap Core Funds	10.40	11.48	12.36
Large-Cap Value Funds	9.19	10.02	10.72
Mid-Cap Growth Funds	9.78	10.84	11.82
Mid-Cap Core Funds	8.79	9.83	10.94
Mid-Cap Value Funds	8.71	9.65	10.60
Small-Cap Growth Funds	9.34	10.28	11.28
Small-Cap Core Funds	8.24	9.21	10.18
Small-Cap Value Funds	8.17	9.17	9.92
Multi-Cap Growth Funds	9.94	11.47	13.11
Multi-Cap Core Funds	8.30	9.90	11.55
Multi-Cap Value Funds	9.38	10.11	10.97
Real-Estate Funds	5.19	6.79	7.50

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 5: Quartile Breakpoints of U.S. Equity Funds (cont.)

Fund Category	Third Quartile	Second Quartile	First Quartile
20-Year			
All Domestic Funds	7.35	8.16	9.08
All Large-Cap Funds	7.31	7.99	8.77
All Mid-Cap Funds	7.66	8.53	9.30
All Small-Cap Funds	7.51	8.23	9.16
All Multi-Cap Funds	6.92	8.05	9.04
Large-Cap Growth Funds	7.93	8.67	9.37
Large-Cap Core Funds	7.37	8.08	8.67
Large-Cap Value Funds	6.94	7.53	8.22
Mid-Cap Growth Funds	7.78	8.71	9.57
Mid-Cap Core Funds	7.61	8.39	9.18
Mid-Cap Value Funds	7.22	8.28	9.23
Small-Cap Growth Funds	8.18	8.72	9.42
Small-Cap Core Funds	7.58	8.09	9.14
Small-Cap Value Funds	7.33	8.09	8.64
Multi-Cap Growth Funds	8.60	9.10	9.60
Multi-Cap Core Funds	6.80	7.72	8.78
Multi-Cap Value Funds	6.53	7.44	8.41
Real-Estate Funds	6.76	8.16	9.40

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 6a: Percentage of International Equity Funds Underperforming Their Benchmarks

Fund Category	Comparison Index	YTD	1-Year	3-Year	5-Year	10-Year	20-Year
Global Funds	S&P Global 1200	67.73	75.45	84.48	83.75	90.52	87.83
International Funds	S&P 700	70.54	66.30	78.78	80.69	88.77	94.31
International Small-Cap Funds	S&P Developed Ex-U.S. SmallCap	57.33	60.27	54.76	61.90	70.91	87.10
Emerging Markets Funds	S&P/IFCI Composite	74.07	76.72	72.68	83.41	84.30	95.83

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

Report 6b: Percentage of International Equity Funds Underperforming Their Benchmarks (Based on Risk-Adjusted Return)

Fund Category	Comparison Index	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)	20-Year (%)
Global Funds	S&P Global 1200	87.50	87.08	95.26	86.55	91.30
International Funds	S&P 700	82.23	82.54	88.42	86.83	93.95
International Small-Cap Funds	S&P Developed Ex-U.S. SmallCap	58.33	61.90	70.91	75.00	90.32
Emerging Markets Funds	S&P/IFCI Composite	73.66	84.30	87.21	91.36	94.44

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

Report 7: Survivorship of International Equity Funds

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
1-Year			
Global Funds	220	94.55	88.18
International Funds	368	97.83	88.32
International Small-Cap Funds	73	97.26	95.89
Emerging Markets Funds	189	97.35	100.00
3-Year			
Global Funds	232	83.62	60.34
International Funds	377	88.06	62.86
International Small-Cap Funds	84	80.95	78.57
Emerging Markets Funds	205	81.46	99.51
5-Year			
Global Funds	240	76.25	47.92
International Funds	378	82.01	50.26
International Small-Cap Funds	84	72.62	69.05
Emerging Markets Funds	223	72.20	93.27
10-Year			
Global Funds	211	54.98	21.33
International Funds	285	61.05	32.98
International Small-Cap Funds	55	67.27	50.91
Emerging Markets Funds	172	67.44	92.44

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 7: Survivorship of International Equity Funds (cont.)

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
20-Year			
Global Funds	115	33.91	26.09
International Funds	281	34.52	21.00
International Small-Cap Funds	31	41.94	16.13
Emerging Markets Funds	72	45.83	95.83

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 8: Average International Equity Fund Performance (Equal-Weighted)

Category	YTD (%)	1-Year (%)	3-Year (Ann., %)	5-Year (Ann., %)	10-Year (Ann., %)	20-Year (Ann., %)
S&P Global 1200	-19.29	-13.36	7.54	8.22	10.04	7.93
Global Funds	-22.58	-19.62	4.76	5.50	7.55	6.20
S&P 700	-18.03	-18.04	2.62	3.54	6.04	6.38
International Funds	-21.35	-21.13	0.99	2.42	5.05	4.88
S&P Developed Ex-U.S. SmallCap	-24.39	-24.92	1.37	1.82	6.87	7.94
International Small-Cap Funds	-27.00	-26.75	0.92	1.39	5.97	7.26
S&P/IFCI Composite	-17.76	-24.26	1.26	2.70	3.95	9.37
Emerging Markets Funds	-22.53	-29.11	-0.58	0.83	2.14	7.30

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 9: Average International Equity Fund Performance (Asset-Weighted)

Category	YTD (%)	1-Year (%)	3-Year (Ann., %)	5-Year (Ann., %)	10-Year (Ann., %)	20-Year (Ann., %)
S&P Global 1200	-19.29	-13.36	7.54	8.22	10.04	7.93
Global Funds	-23.85	-20.74	4.97	5.85	8.64	7.24
S&P 700	-18.03	-18.04	2.62	3.54	6.04	6.38
International Funds	-22.31	-23.26	1.83	2.28	5.60	5.68
S&P Developed Ex-U.S. SmallCap	-24.39	-24.92	1.37	1.82	6.87	7.94
International Small-Cap Funds	-28.17	-27.43	1.29	2.00	6.75	7.94
S&P/IFCI Composite	-17.76	-24.26	1.26	2.70	3.95	9.37
Emerging Markets Funds	-23.29	-29.69	-0.11	2.04	3.35	8.28

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 10: Quartile Breakpoints of International Equity Institutional Accounts

Fund Category	Third Quartile	Second Quartile	First Quartile
YTD			
Global Funds	-27.56	-21.72	-17.69
International Funds	-24.82	-20.52	-17.35
International Small-Cap Funds	-32.35	-27.15	-21.28
Emerging Markets Funds	-25.02	-20.97	-17.74
1-Year			
Global Funds	-24.68	-17.97	-13.27
International Funds	-23.50	-20.22	-17.04
International Small-Cap Funds	-30.64	-25.88	-20.91
Emerging Markets Funds	-31.98	-28.44	-24.41
3-Year			
Global Funds	3.27	4.99	6.63
International Funds	0.03	1.37	2.56
International Small-Cap Funds	-0.49	1.62	2.98
Emerging Markets Funds	-1.60	0.12	1.88
5-Year			
Global Funds	4.01	5.81	7.95
International Funds	0.78	1.96	3.38
International Small-Cap Funds	0.29	1.85	3.26
Emerging Markets Funds	0.07	1.27	2.56
10-Year			
Global Funds	6.74	8.37	9.60
International Funds	4.23	5.16	5.81
International Small-Cap Funds	5.08	6.40	7.83
Emerging Markets Funds	1.64	2.43	3.74
20-Year			
Global Funds	5.77	6.92	8.33
International Funds	4.39	5.26	6.11
International Small-Cap Funds	7.10	7.29	9.25
Emerging Markets Funds	6.60	7.85	8.52

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 11a: Percentage of Fixed Income Funds Underperforming Their Benchmarks

Fund Category	Comparison Index	YTD	1-Year	3-Year	5-Year	10-Year	15-Year
General Government Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns	70.59	67.65	79.41	86.79	80.26	78.43
Government Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	89.47	89.47	80.00	100.00	88.24	78.26
Government Short & Short-Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	42.31	50.00	75.76	90.91	95.24	94.64
General Investment-Grade Funds	iBoxx \$ Liquid Investment Grade	17.07	20.24	40.24	89.66	89.08	94.95
Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate	70.80	78.83	55.24	70.34	56.99	73.29
Investment-Grade Short & Intermediate Funds	iBoxx \$ Overall 1-5Y	41.73	38.73	58.62	71.79	73.53	86.73
General Bond Funds	iBoxx \$ Overall	43.59	53.85	51.52	61.54	65.22	71.43
High Yield Funds	iBoxx \$ Liquid High Yield	40.91	41.45	35.90	62.74	70.35	82.01
Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized - MBS	29.41	43.75	46.00	71.15	74.58	85.11
Core Plus Bond Funds	iBoxx \$ Liquid Investment Grade	6.74	25.58	71.05	93.06	-	-
Inflation-Linked Funds	iBoxx TIPS Inflation-Linked	27.27	43.18	78.72	98.15	93.55	100.00
Global Income Funds	Bloomberg Global Aggregate	41.76	46.74	48.39	60.19	59.63	57.69
Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate	69.49	76.27	82.26	85.00	98.18	95.00
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond	86.49	91.89	85.14	80.26	58.67	78.05
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond	90.63	93.75	91.43	85.29	45.45	88.10
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond	92.59	92.59	89.29	84.62	78.57	90.91
Loan Participation Funds	Markit iBoxx USD Leveraged Loans	82.69	88.46	94.55	98.04	94.74	100.00

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 11b: Percentage of Fixed Income Funds Underperforming Their Benchmarks (Based on Risk-Adjusted Return)

Fund Category	Comparison Index	3-Year	5-Year	10-Year	15-Year
General Government Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns	-	86.79	90.79	96.08
Government Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	-	90.91	100.00	100.00
Government Short & Short-Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	81.82	78.79	92.86	96.43
General Investment-Grade Funds	iBoxx \$ Liquid Investment Grade	-	67.82	67.23	71.72
Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate	-	71.72	70.97	91.30
Investment-Grade Short & Intermediate Funds	iBoxx \$ Overall 1-5Y	-	87.18	83.09	96.46
General Bond Funds	iBoxx \$ Overall	45.45	69.23	65.22	85.71
High Yield Funds	iBoxx \$ Liquid High Yield	-	63.68	64.82	69.06
Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized - MBS	-	69.23	76.27	85.11
Core Plus Bond Funds	iBoxx \$ Liquid Investment Grade	-	65.28	-	-
Inflation-Linked Funds	iBoxx TIPS Inflation-Linked	63.83	77.78	90.32	100.00
Global Income Funds	Bloomberg Global Aggregate	-	-	63.30	73.08
Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate	-	-	98.18	100.00
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond	-	93.42	86.67	90.24
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond	-	97.06	93.94	97.62
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond	-	96.15	96.43	100.00
Loan Participation Funds	Markit iBoxx USD Leveraged Loans	87.27	84.31	86.84	84.21

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Results not shown for periods in which the benchmark return was negative. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 12: Survivorship and Style Consistency of Fixed Income Funds

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
YTD			
General Government Funds	34	94.12	100.00
Government Intermediate Funds	19	100.00	100.00
Government Short & Short-Intermediate Funds	26	100.00	96.15
General Investment-Grade Funds	82	92.68	98.78
Investment-Grade Intermediate Funds	137	94.16	100.00
Investment-Grade Short & Intermediate Funds	139	97.84	100.00
General Bond Funds	39	97.44	97.44
High Yield Funds	154	100.00	100.00
Mortgage-Backed Securities Funds	51	100.00	100.00
Core Plus Bond Funds	89	98.88	98.88
Inflation-Linked Funds	44	97.73	100.00
Global Income Funds	91	96.70	100.00
Emerging Market Debt Funds	59	94.92	100.00
General Municipal Debt Funds	74	98.65	100.00
California Municipal Debt Funds	32	100.00	100.00
New York Municipal Debt Funds	27	100.00	100.00
Loan Participation Funds	52	100.00	98.08
1-Year			
General Government Funds	34	94.12	100.00
Government Intermediate Funds	19	100.00	100.00
Government Short & Short-Intermediate Funds	26	100.00	96.15
General Investment-Grade Funds	84	89.29	98.81
Investment-Grade Intermediate Funds	137	94.16	100.00
Investment-Grade Short & Intermediate Funds	142	94.37	100.00
General Bond Funds	39	94.87	97.44
High Yield Funds	152	100.00	100.00
Mortgage-Backed Securities Funds	48	100.00	100.00
Core Plus Bond Funds	86	97.67	98.84
Inflation-Linked Funds	44	97.73	100.00
Global Income Funds	92	95.65	100.00
Emerging Market Debt Funds	59	94.92	100.00
General Municipal Debt Funds	74	97.30	100.00
California Municipal Debt Funds	32	100.00	100.00
New York Municipal Debt Funds	27	100.00	100.00
Loan Participation Funds	52	98.08	98.08

Sources: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 12: Survivorship and Style Consistency of Fixed Income Funds (cont.)

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
3-Year			
General Government Funds	34	88.24	100.00
Government Intermediate Funds	20	95.00	100.00
Government Short & Short-Intermediate Funds	33	84.85	87.88
General Investment-Grade Funds	82	89.02	93.90
Investment-Grade Intermediate Funds	143	86.71	96.50
Investment-Grade Short & Intermediate Funds	145	88.28	98.62
General Bond Funds	33	81.82	90.91
High Yield Funds	156	91.67	99.36
Mortgage-Backed Securities Funds	50	94.00	98.00
Core Plus Bond Funds	76	94.74	97.37
Inflation-Linked Funds	47	89.36	97.87
Global Income Funds	93	87.10	100.00
Emerging Market Debt Funds	62	82.26	100.00
General Municipal Debt Funds	74	93.24	95.95
California Municipal Debt Funds	35	94.29	97.14
New York Municipal Debt Funds	28	92.86	100.00
Loan Participation Funds	55	92.73	98.18
5-Year			
General Government Funds	53	75.47	75.47
Government Intermediate Funds	11	81.82	90.91
Government Short & Short-Intermediate Funds	33	84.85	87.88
General Investment-Grade Funds	87	82.76	88.51
Investment-Grade Intermediate Funds	145	81.38	95.17
Investment-Grade Short & Intermediate Funds	156	80.77	93.59
General Bond Funds	39	74.36	66.67
High Yield Funds	212	83.49	75.47
Mortgage-Backed Securities Funds	52	84.62	96.15
Core Plus Bond Funds	72	93.06	90.28
Inflation-Linked Funds	54	75.93	96.30
Global Income Funds	108	77.78	87.96
Emerging Market Debt Funds	60	66.67	95.00
General Municipal Debt Funds	76	85.53	94.74
California Municipal Debt Funds	34	88.24	97.06
New York Municipal Debt Funds	26	88.46	100.00
Loan Participation Funds	51	92.16	100.00

Sources: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 12: Survivorship and Style Consistency of Fixed Income Funds (cont.)

Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
10-Year			
General Government Funds	76	71.05	56.58
Government Intermediate Funds	17	47.06	88.24
Government Short & Short-Intermediate Funds	42	59.52	88.10
General Investment-Grade Funds	119	71.43	63.87
Investment-Grade Intermediate Funds	186	66.13	67.20
Investment-Grade Short & Intermediate Funds	136	70.59	77.21
General Bond Funds	69	49.28	42.03
High Yield Funds	199	70.85	82.41
Mortgage-Backed Securities Funds	59	72.88	83.05
Core Plus Bond Funds	-	-	-
Inflation-Linked Funds	31	58.06	93.55
Global Income Funds	109	66.06	76.15
Emerging Market Debt Funds	55	61.82	52.73
General Municipal Debt Funds	75	80.00	86.67
California Municipal Debt Funds	33	90.91	93.94
New York Municipal Debt Funds	28	82.14	96.43
Loan Participation Funds	38	92.11	97.37
15-Year			
General Government Funds	51	49.02	72.55
Government Intermediate Funds	23	47.83	78.26
Government Short & Short-Intermediate Funds	56	50.00	71.43
General Investment-Grade Funds	99	46.46	58.59
Investment-Grade Intermediate Funds	161	50.31	73.91
Investment-Grade Short & Intermediate Funds	113	46.90	84.07
General Bond Funds	14	35.71	64.29
High Yield Funds	139	58.27	83.45
Mortgage-Backed Securities Funds	47	63.83	87.23
Core Plus Bond Funds	-	-	-
Inflation-Linked Funds	28	46.43	89.29
Global Income Funds	52	63.46	67.31
Emerging Market Debt Funds	20	65.00	85.00
General Municipal Debt Funds	82	62.20	90.24
California Municipal Debt Funds	42	69.05	92.86
New York Municipal Debt Funds	33	66.67	90.91
Loan Participation Funds	19	73.68	94.74

Sources: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 13: Average Fixed Income Fund Performance (Equal-Weighted)

Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)
iBoxx \$ Domestic Sovereign & Sub-Sovereigns	-8.46	-8.90	-0.85	0.85	1.32	2.91
General Government Funds	-9.87	-9.73	-1.47	0.20	0.79	2.65
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	-5.82	-6.37	-0.25	0.99	1.23	2.66
Government Intermediate Funds	-7.81	-8.22	-0.88	0.24	0.42	2.03
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	-4.19	-4.84	0.08	1.04	1.10	2.26
Government Short & Short-Intermediate Funds	-3.80	-4.57	-0.35	0.42	0.41	1.44
iBoxx \$ Liquid Investment Grade	-13.83	-12.63	-0.63	1.61	3.72	4.80
General Investment-Grade Funds	-13.71	-13.69	-1.00	0.86	1.86	3.13
Bloomberg U.S. Aggregate	-10.35	-10.29	-0.93	0.88	1.54	3.26
Investment-Grade Intermediate Funds	-10.78	-11.06	-1.03	0.62	1.56	2.79
iBoxx \$ Overall 1-5Y	-4.70	-5.30	0.12	1.09	1.22	2.33
Investment-Grade Short & Intermediate Funds	-4.66	-5.12	0.01	0.76	1.06	1.61
iBoxx \$ Overall	-10.98	-10.86	-0.89	0.97	1.57	3.27
General Bond Funds	-10.34	-10.63	-1.20	0.52	1.65	2.78
iBoxx \$ Liquid High Yield	-13.83	-12.63	-0.63	1.61	3.72	4.80
High Yield Funds	-13.05	-12.07	-0.20	1.33	3.24	3.90
Bloomberg US Aggregate Securitized – MBS	-8.78	-9.03	-1.44	0.36	1.18	2.98
Mortgage-Backed Securities Funds	-7.92	-8.71	-1.27	0.28	1.07	2.56
iBoxx \$ Liquid Investment Grade	-13.83	-12.63	-0.63	1.61	3.72	4.80
Core Plus Bond Funds	-11.41	-11.54	-0.87	0.85	-	-
iBoxx TIPS Inflation-Linked	-9.53	-5.76	3.00	3.24	1.73	3.97
Inflation-Linked Funds	-8.42	-5.34	2.37	2.53	1.10	2.89
Bloomberg Global Aggregate	-13.91	-15.25	-3.22	-0.55	0.11	2.26
Global Income Funds	-12.42	-13.80	-2.88	-0.49	0.51	2.38
Bloomberg Emerging Markets USD Aggregate	-17.14	-18.02	-3.54	-0.29	2.48	4.60
Emerging Market Debt Funds	-18.08	-20.61	-5.16	-2.02	0.06	2.18
S&P National AMT-Free Municipal Bond	-8.55	-8.12	-0.12	1.51	2.23	3.38
General Municipal Debt Funds	-10.48	-10.31	-0.82	0.96	1.90	2.71
S&P California AMT-Free Municipal Bond	-8.66	-8.19	-0.30	1.35	2.48	3.61
California Municipal Debt Funds	-11.13	-10.84	-1.09	0.77	2.25	3.03
S&P New York AMT-Free Municipal Bond	-8.44	-8.05	-0.33	1.20	2.20	3.37
New York Municipal Debt Funds	-10.82	-10.57	-1.02	0.72	1.78	2.75
Markit iBoxx USD Leveraged Loans	-4.81	-3.15	1.61	2.48	3.37	3.61
Loan Participation Funds	-5.71	-4.46	0.31	1.41	2.56	2.62

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 14: Average Fixed Income Fund Performance (Asset-Weighted)

Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)
iBoxx \$ Domestic Sovereign & Sub-Sovereigns	-8.46	-8.90	-0.85	0.85	1.32	2.91
General Government Funds	-10.07	-9.82	-0.82	0.67	0.91	2.82
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	-5.82	-6.37	-0.25	0.99	1.23	2.66
Government Intermediate Funds	-8.36	-8.49	-0.66	0.13	1.01	2.82
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	-4.19	-4.84	0.08	1.04	1.10	2.26
Government Short & Short-Intermediate Funds	-3.28	-3.86	0.24	0.88	0.82	2.13
iBoxx \$ Liquid Investment Grade	-13.83	-12.63	-0.63	1.61	3.72	4.80
General Investment-Grade Funds	-15.87	-15.55	-1.32	0.95	2.06	3.19
Bloomberg U.S. Aggregate	-10.35	-10.29	-0.93	0.88	1.54	3.26
Investment-Grade Intermediate Funds	-10.79	-10.85	-0.42	1.20	1.98	3.54
iBoxx \$ Overall 1-5Y	-4.70	-5.30	0.12	1.09	1.22	2.33
Investment-Grade Short & Intermediate Funds	-5.18	-5.58	0.07	0.99	1.33	2.07
iBoxx \$ Overall	-10.98	-10.86	-0.89	0.97	1.57	3.27
General Bond Funds	-9.81	-9.83	-0.80	1.11	1.98	3.16
iBoxx \$ Liquid High Yield	-13.83	-12.63	-0.63	1.61	3.72	4.80
High Yield Funds	-12.86	-11.45	0.42	1.89	3.90	4.43
Bloomberg US Aggregate Securitized – MBS	-8.78	-9.03	-1.44	0.36	1.18	2.98
Mortgage-Backed Securities Funds	-8.51	-8.85	-1.38	0.30	1.15	2.93
iBoxx \$ Liquid Investment Grade	-13.83	-12.63	-0.63	1.61	3.72	4.80
Core Plus Bond Funds	-12.09	-12.12	-1.09	0.70	-	-
iBoxx TIPS Inflation-Linked	-9.53	-5.76	3.00	3.24	1.73	3.97
Inflation-Linked Funds	-8.29	-4.91	2.59	2.72	1.44	3.56
Bloomberg Global Aggregate	-13.91	-15.25	-3.22	-0.55	0.11	2.26
Global Income Funds	-13.62	-14.66	-4.20	-1.22	0.45	2.61
Bloomberg Emerging Markets USD Aggregate	-17.14	-18.02	-3.54	-0.29	2.48	4.60
Emerging Market Debt Funds	-18.48	-20.41	-5.50	-2.27	0.98	3.52
S&P National AMT-Free Municipal Bond	-8.55	-8.12	-0.12	1.51	2.23	3.38
General Municipal Debt Funds	-10.89	-10.44	-0.53	1.34	2.42	3.23
S&P California AMT-Free Municipal Bond	-8.66	-8.19	-0.30	1.35	2.48	3.61
California Municipal Debt Funds	-11.01	-10.57	-0.75	1.21	2.64	3.40
S&P New York AMT-Free Municipal Bond	-8.44	-8.05	-0.33	1.20	2.20	3.37
New York Municipal Debt Funds	-11.60	-11.00	-0.72	1.32	2.19	2.94
Markit iBoxx USD Leveraged Loans	-4.81	-3.15	1.61	2.48	3.37	3.61
Loan Participation Funds	-5.39	-3.67	0.51	1.52	2.67	2.72

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Results not shown for the “Core Plus Bond” category for periods beginning prior to the category’s inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 15: Quartile Breakpoints of Fixed Income Funds

Fund Category	Third Quartile	Second Quartile	First Quartile
YTD			
General Government Funds	-10.33	-9.26	-7.25
Government Intermediate Funds	-8.99	-7.21	-6.97
Government Short & Short-Intermediate Funds	-4.36	-4.09	-3.03
General Investment-Grade Funds	-15.37	-13.79	-11.16
Investment-Grade Intermediate Funds	-11.60	-11.04	-10.24
Investment-Grade Short & Intermediate Funds	-5.45	-4.37	-3.66
General Bond Funds	-11.59	-10.71	-9.11
High Yield Funds	-14.21	-13.54	-12.47
Mortgage-Backed Securities Funds	-9.03	-8.34	-7.03
Core Plus Bond Funds	-12.45	-11.56	-10.84
Inflation-Linked Funds	-9.57	-8.96	-8.22
Global Income Funds	-15.90	-12.30	-9.42
Emerging Market Debt Funds	-19.64	-18.68	-15.44
General Municipal Debt Funds	-11.37	-10.36	-9.36
California Municipal Debt Funds	-11.93	-10.93	-9.91
New York Municipal Debt Funds	-11.52	-10.65	-10.16
Loan Participation Funds	-6.29	-5.44	-4.97
1-Year			
General Government Funds	-10.44	-9.37	-7.50
Government Intermediate Funds	-9.17	-8.09	-7.02
Government Short & Short-Intermediate Funds	-5.22	-4.84	-3.69
General Investment-Grade Funds	-15.50	-13.69	-11.20
Investment-Grade Intermediate Funds	-11.73	-11.13	-10.41
Investment-Grade Short & Intermediate Funds	-5.88	-4.77	-4.03
General Bond Funds	-12.14	-10.63	-7.93
High Yield Funds	-13.15	-12.34	-11.30
Mortgage-Backed Securities Funds	-9.67	-8.86	-7.88
Core Plus Bond Funds	-12.38	-11.55	-10.70
Inflation-Linked Funds	-6.15	-5.71	-5.11
Global Income Funds	-17.26	-13.23	-9.74
Emerging Market Debt Funds	-22.60	-20.13	-17.89
General Municipal Debt Funds	-10.86	-10.02	-9.16
California Municipal Debt Funds	-11.32	-10.65	-9.38
New York Municipal Debt Funds	-11.19	-10.33	-9.77
Loan Participation Funds	-5.04	-4.29	-3.59

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 15: Quartile Breakpoints of Fixed Income Funds (cont.)

Fund Category	Third Quartile	Second Quartile	First Quartile
3-Year			
General Government Funds	-1.79	-1.29	-0.92
Government Intermediate Funds	-1.15	-0.76	-0.37
Government Short & Short-Intermediate Funds	-0.57	-0.30	0.29
General Investment-Grade Funds	-1.44	-1.03	-0.55
Investment-Grade Intermediate Funds	-1.23	-0.90	-0.50
Investment-Grade Short & Intermediate Funds	-0.12	0.09	0.40
General Bond Funds	-1.23	-0.29	0.35
High Yield Funds	-0.79	-0.11	0.50
Mortgage-Backed Securities Funds	-1.64	-1.40	-1.19
Core Plus Bond Funds	-1.19	-0.92	-0.54
Inflation-Linked Funds	2.20	2.74	2.99
Global Income Funds	-4.23	-2.57	-1.36
Emerging Market Debt Funds	-6.17	-5.13	-4.04
General Municipal Debt Funds	-0.89	-0.56	-0.28
California Municipal Debt Funds	-1.06	-0.77	-0.53
New York Municipal Debt Funds	-1.04	-0.79	-0.62
Loan Participation Funds	0.05	0.72	1.22
5-Year			
General Government Funds	0.10	0.33	0.64
Government Intermediate Funds	0.14	0.44	0.70
Government Short & Short-Intermediate Funds	0.25	0.50	0.76
General Investment-Grade Funds	0.61	0.93	1.21
Investment-Grade Intermediate Funds	0.51	0.72	1.05
Investment-Grade Short & Intermediate Funds	0.71	0.96	1.20
General Bond Funds	0.61	1.17	1.73
High Yield Funds	1.01	1.48	1.96
Mortgage-Backed Securities Funds	0.01	0.23	0.55
Core Plus Bond Funds	0.54	0.82	1.13
Inflation-Linked Funds	2.43	2.82	3.07
Global Income Funds	-1.56	-0.50	0.58
Emerging Market Debt Funds	-2.87	-1.69	-0.73
General Municipal Debt Funds	0.93	1.25	1.48
California Municipal Debt Funds	0.80	1.10	1.26
New York Municipal Debt Funds	0.75	0.92	1.00
Loan Participation Funds	1.25	1.72	2.07

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 15: Quartile Breakpoints of Fixed Income Funds (cont.)

Fund Category	Third Quartile	Second Quartile	First Quartile
10-Year			
General Government Funds	0.60	0.95	1.34
Government Intermediate Funds	0.47	0.65	0.98
Government Short & Short-Intermediate Funds	0.30	0.56	0.68
General Investment-Grade Funds	1.61	2.13	2.51
Investment-Grade Intermediate Funds	1.42	1.68	2.02
Investment-Grade Short & Intermediate Funds	0.85	1.09	1.45
General Bond Funds	1.82	2.37	2.83
High Yield Funds	3.14	3.60	4.03
Mortgage-Backed Securities Funds	0.70	0.97	1.42
Core Plus Bond Funds	-	-	-
Inflation-Linked Funds	1.21	1.31	1.53
Global Income Funds	-0.30	0.62	1.56
Emerging Market Debt Funds	-0.94	0.73	1.52
General Municipal Debt Funds	2.03	2.25	2.51
California Municipal Debt Funds	2.27	2.52	2.68
New York Municipal Debt Funds	1.82	2.00	2.23
Loan Participation Funds	2.52	2.81	3.09
15-Year			
General Government Funds	2.44	2.80	3.53
Government Intermediate Funds	2.09	2.36	2.73
Government Short & Short-Intermediate Funds	1.47	1.77	1.98
General Investment-Grade Funds	2.83	3.45	3.96
Investment-Grade Intermediate Funds	2.97	3.28	3.65
Investment-Grade Short & Intermediate Funds	1.68	2.06	2.45
General Bond Funds	3.49	3.97	4.39
High Yield Funds	4.10	4.50	4.92
Mortgage-Backed Securities Funds	2.37	2.61	2.93
Core Plus Bond Funds	-	-	-
Inflation-Linked Funds	2.92	3.27	3.50
Global Income Funds	1.82	2.56	3.13
Emerging Market Debt Funds	3.01	3.56	3.94
General Municipal Debt Funds	2.95	3.21	3.45
California Municipal Debt Funds	3.15	3.36	3.56
New York Municipal Debt Funds	2.90	3.11	3.27
Loan Participation Funds	2.43	2.87	2.99

Source: S&P Dow Jones Indices LLC, Factset. Data as of June 30, 2022. Returns shown are annualized for periods greater than one year. Results not shown for the "Core Plus Bond" category for periods beginning prior to the category's inception in 2017. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

APPENDIX A: MAPPING

SPIVA Styles and Lipper Fund Classifications

The SPIVA U.S. Scorecard for the U.S. equity markets reports on the nine traditional style boxes, as well as multi-cap core, growth and value funds. Style classifications are based on fundamental characteristics such as the P/E ratio, return on equity (ROE) and earnings growth expectation. Growth and value characteristics are assigned based on a subjective method, with a large weighting on the median of the three statistics and the preferred benchmark. Market capitalization is subjective and based on the distribution of holdings as well as the preferred benchmark.

U.S. Equity

SPIVA covers major capitalization levels (large-, mid-, small- and multi-cap funds) and investment styles (growth, core and value). S&P Dow Jones Indices uses the Lipper fund classifications, which determine a fund portfolio's capitalization and investment style assignments.

Lipper assigns a market capitalization to each fund based on the percentages of a fund's three-year weighted equity assets that fall into each of Lipper's three defined market capitalization slices. The market capitalization breakpoints are calculated using all common stocks, excluding all non-U.S. domiciled stocks and ADRs, trading on the NYSE, AMEX and NASDAQ. Funds are assigned to the capitalization level in which they have a 75% or higher weighting. Any fund that has less than 75% of its three-year weighted allocation in any of the three market capitalization ranges is classified as a multi-cap fund.

For investment style selection, the Lipper classification system uses three-year fundamental portfolio characteristics (price/earnings, price/book, and three-year sales-per-share growth) and, if necessary, confirms secondary characteristics (price-to-sales and price-to-operating cash flow). Fund statistics are compared to their relevant S&P Dow Jones Indices capitalization-level index to determine the growth, core or value style.

In some cases, S&P Dow Jones Indices combines closely related Lipper fund classifications in one SPIVA category. Exhibit A1 maps the SPIVA U.S. Equity fund categories to Lipper classifications.

Exhibit A1: U.S. Equity Category Mappings

SPIVA Institutional Category	Lipper Fund Classification
Large-Cap Growth Equity	Large-Cap Growth Funds
Large-Cap Core Equity	Large-Cap Core Funds
Large-Cap Value Equity	Large-Cap Value Funds
	Equity Income Funds
Mid-Cap Growth Equity	Mid-Cap Growth Funds
Mid-Cap Core Equity	Mid-Cap Core Funds
Mid-Cap Value Equity	Mid-Cap Value Funds
Small-Cap Growth Equity	Small-Cap Growth Funds
Small-Cap Core Equity	Small-Cap Core Funds
Small-Cap Value Equity	Small-Cap Value Funds
Multi-Cap Growth Equity	Multi-Cap Growth Funds
Multi-Cap Core Equity	Multi-Cap Core Funds
Multi-Cap Value Equity	Multi-Cap Value Funds

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

International Equity

For international equity, SPIVA reports on four major categories (global, international, international small-cap and emerging market) of interest to global asset allocators. These categories also include multiple Lipper capitalization and style classifications.

Exhibit A2: International Equity Category Mappings

SPIVA Category	Lipper Funds Classification
Global Funds	Global Large-Cap Growth Funds
	Global Large-Cap Core Funds
	Global Large-Cap Value Funds
	Global Multi-Cap Growth Funds
	Global Multi-Cap Core Funds
	Global Multi-Cap Value Funds
International Funds	International Large-Cap Growth Funds
	International Large-Cap Core Funds
	International Large-Cap Value Funds
	International Multi-Cap Growth Funds
	International Multi-Cap Core Funds
	International Multi-Cap Value Funds
International Small-Cap Funds	International Small-/Mid-Cap Growth Funds
	International Small-/Mid-Cap Core Funds
	International Small-/Mid-Cap Value Funds
Emerging Market Funds	Emerging Markets Funds

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

Fixed Income

SPIVA reports on 12 domestic, two global, and three municipal fixed income categories. The Lipper domestic fixed income classifications are based on maturity and credit quality. For maturity, long is over 10 years, intermediate is 5-10 years, short/intermediate is 1-5 years, and short is 1-3.5 years. For credit quality, bonds are assigned to U.S. Treasury, U.S. government (includes government and agency issues), A- or BBB-rated (according to Lipper fund rating methodology), loan participations, and high yield classifications. Lipper also includes U.S. mortgages and Government National Mortgage Association (GNMA) classifications.

In global fixed income, Lipper differentiates between global (including the U.S.) and international (excluding the U.S.) objectives. For municipal debt funds, we include the general classification (invests in the top four credit ratings) plus two state funds (California and New York)

Exhibit A3: Fixed Income Category Mappings

SPIVA Category	Lipper Funds Classification
General Government Funds	General U.S. Government Funds
Government Intermediate Funds	General U.S. Treasury Funds Intermediate U.S. Government Funds
Government Short & Short-Intermediate Funds	Short-Intermediate U.S. Government Funds Short U.S. Government Funds
General Investment-Grade Funds	Short U.S. Treasury Funds Corporate Debt Funds A Rated
Investment-Grade Intermediate Funds	Corporate Debt Funds BBB-Rated Intermediate Investment Grade Debt Funds
Investment-Grade Short & Intermediate Funds	Short-Intermediate Investment Grade Debt Funds Short Investment Grade Debt Funds
General Bond Funds	General Bond Funds
High Yield Funds	High Current Yield Funds
Mortgage-Backed Securities Funds	U.S. Mortgage Funds GNMA Funds
Core Plus Bond Funds	Core Plus Bond Funds
Inflation-Linked Funds	Inflation Protected Bond Funds
Global Income Funds	Global Income Funds International Income Funds
Emerging Market Debt Funds General Municipal Debt Funds	Emerging Markets Debt Funds General & Insured Municipal Debt Funds
California Municipal Debt Funds	California Municipal Debt Funds
New York Municipal Debt Funds	New York Municipal Debt Funds
Loan Participation Funds	Loan Participation Funds
General Government Funds	General U.S. Government Funds
Loan Participation Funds	General U.S. Treasury Funds

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

APPENDIX B: GLOSSARY

Percentage of Funds Underperforming the Index

To correct for survivorship bias, we use the opportunity set available at the beginning of the period as the denominator. We determine the count of funds that have survived and beat the index. We then report the index outperformance percentage.

Survivorship (%)

This measure represents the percentage of products in existence at the beginning of the time period that is still active at the end of the time period.

Style Consistency (%)

This calculation shows the percentage of funds that had the same style classification at the end of the time period as at the beginning of the time period.

Equal-Weighted Performance

Equal-weighted returns for a particular style category are determined by calculating a simple average return of all active managers in that category in a particular month.

Asset-Weighted Performance

Asset-weighted returns for a particular style category are determined by calculating a weighted average return of all funds in that category in a particular month, with each fund's return weighted by its total net assets. Asset-weighted returns are a better indicator of fund category performance because they more accurately reflect the returns of the total money invested in that particular style category.

Quartile Breakpoints

The p^{th} percentile for a set of data is the value that is greater than or equal to $p\%$ of the data but is less than or equal to $(100-p)\%$ of the data. In other words, it is a value that divides the data into two parts: the lower $p\%$ of the values and the upper $(100-p)\%$ of the values. The first quartile is the 75th percentile, the value separating the elements of a population into the lower 75% and the upper 25%. The second quartile is the 50th percentile and the third quartile is the 25th percentile.

Survivorship Bias

Many funds might liquidate or merge during a period of study. This usually occurs due to continued poor performance by the fund. Therefore, if index returns were compared to fund returns using only surviving funds, the comparison would be biased in favor of the fund

category. These reports remove this bias by (a) using the entire investment opportunity set, made up of all funds in that particular category at the outset of the period, as the denominator for outperformance calculations, (b) explicitly showing the survivorship rate in each category, and (c) constructing peer average return series for each category based on all available funds at the outset of the period.

Fees

The fund returns used are net of fees, excluding loads.

Indices²

A benchmark index provides an investment vehicle against which fund performance can be measured.

U.S. Equity

S&P 500

Widely regarded as the best single gauge of the U.S. equities market, this market-capitalization-weighted index includes a representative sample of 500 leading companies in the foremost industries of the U.S. economy and provides over 80% coverage of U.S. equities.

S&P MidCap 400

This index consists of 400 mid-sized companies and covers approximately 7% of the U.S. equities market.

S&P SmallCap 600

This index consists of 600 small-cap stocks and covers approximately 3% of the U.S. equities market.

S&P Composite 1500

This is a broad, market-capitalization-weighted index of 1500 stocks. The index is comprised of three size-based indices: the S&P 500, [S&P MidCap 400](#) and [S&P SmallCap 600](#), which are designed to measure the performance of large-, mid- and small-cap stocks, respectively. The index represents approximately 90% of U.S. equities.

² For more information on S&P Dow Jones Indices, please visit <http://www.spglobal.com/spdji>

S&P 500 Growth and Value Indices

These indices form an exhaustive, multi-factor style series covering the entire market capitalization of the S&P 500. Constituents, weighted according to market capitalization, are classified as growth, value or a mix of growth and value.

S&P MidCap 400 Growth and Value Indices

These indices form an exhaustive, multi-factor style series covering the entire market capitalization of the S&P MidCap 400.

S&P SmallCap 600 Growth and Value Indices

These indices form an exhaustive, multi-factor style series covering the entire market capitalization of the S&P SmallCap 600.

S&P Composite 1500 Growth and Value Indices

These indices form an exhaustive, multi-factor style series covering the entire market capitalization of the S&P Composite 1500.

S&P United States REIT

This index measures the investable universe of publicly traded real estate investment trusts.

International Equity

S&P Global 1200

Capturing approximately 70% of the world's capital markets by market capitalization, the [S&P Global 1200](#) is a composite of seven headline indices, many of which are accepted leaders in their regions. It includes the S&P 500 (U.S.), [S&P Europe 350[®]](#) (Europe), [S&P/TOPIX 150](#) (Japan), [S&P/TSX 60](#) (Canada), [S&P/ASX All Australian 50](#) (Australia), [S&P Asia 50](#) (Asia Ex-Japan) and [S&P Latin America 40](#) (Latin America).

S&P International 700

This index is designed to measure the non-U.S. component of the global equity markets, covering all the regions included in the S&P Global 1200, excluding the U.S. (S&P 500).

S&P Developed EX-U.S. SmallCap

This index represents the small-cap segment—the bottom 15%—of the world's universe of institutionally investable securities, excluding the U.S.

S&P/IFCI Composite

This index is widely recognized as a comprehensive and reliable measure of the world's emerging markets. It is designed to measure the returns of stocks that are legally and practically available to foreign investors.

Fixed Income

iBoxx \$ Liquid High Yield Index

This index consists of USD-denominated corporate high yield debt from developed markets with maturities greater than 1 year and less than 15 years.

iBoxx \$ Liquid Investment Grade Index

This index consists of USD-denominated corporate investment grade debt from developed markets with maturities greater than three years.

iBoxx TIPS Inflation Linked Index

This index measures the performance of the U.S. Treasury Inflation Protected Securities (TIPS) market across all maturities.

iBoxx \$ Domestic Sovereigns & Sub-Sovereigns Index

This index comprises US-denominated sovereign and sub-sovereign bonds that have an investment grade rating and are SEC registered. Eligible bonds must have maturities greater than one year.

iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y Index

This index comprises U.S.-denominated sovereign and sub-sovereign bonds that have an investment grade rating and are SEC registered. Eligible bonds must have maturities greater than one year and less than five years.

iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y Index

This index comprises US-denominated sovereign and sub-sovereign bonds that are SEC registered. Eligible bonds must have maturities greater than one year and less than five years.

iBoxx \$ Overall Index

This index is a broad set of U.S.-denominated bonds, comprising U.S. treasuries, sovereigns, sub-sovereigns, corporates, and covered bonds with an investment grade rating. It includes bonds from developed markets and emerging markets. Eligible bonds must have maturities greater than one year.

iBoxx \$ Overall 1-5Y Index

This index is a broad set of US-denominated bonds, comprising US treasuries, sovereigns, sub-sovereigns, corporates, and covered bonds with an investment grade rating. It includes bonds from developed markets and emerging markets. Eligible bonds must have maturities greater than 1 year and less than 5 years.

Markit iBoxx USD Leveraged Loans Index

This index represents the main sections of the USD leveraged loan market. It comprises rated, non-rated and defaulted loans. Eligible rated loans must have a non-investment grade rating. The minimum initial time to maturity for loans is one year and the minimum amount outstanding is USD 100 million.

Bloomberg Mortgage-Backed Securities Index

This index includes 15- and 30-year fixed-rate securities backed by mortgage pools of the Government National Mortgage Association (GNMA), Federal Home Loan Mortgage Corporation (FHLMC) and Federal National Mortgage Association (FNMA).

Bloomberg Global Aggregate Bond Index

This index covers the most-liquid portion of the global investment grade, fixed-rate bond market, including government, credit, and collateralized securities.

Bloomberg Capital Emerging Markets Index

This index includes fixed- and floating-rate U.S. dollar-denominated debt from emerging markets.

S&P National AMT-Free Municipal Bond Index

This index is a broad, comprehensive, market-value-weighted index designed to measure the performance of the investment grade U.S. municipal bonds that are exempt from the Alternative Minimum Tax.

S&P California AMT-Free Municipal Bond Index

This index is designed to measure the performance of the investment grade California municipal bonds that are exempt from the alternative minimum tax.

S&P New York AMT-Free Municipal Bond Index

This index is designed to measure the performance of the investment grade New York bonds that are exempt from the alternative minimum tax.

S&P/LSTA U.S. Leveraged Loan 100 INDEX

This index is designed to reflect the performance of the largest facilities in the floating-rate bank loan, or senior loan, market.

APPENDIX C: CHANGE OF CATEGORIES AND BENCHMARKS IN FIXED INCOME

Since the inaugural U.S. SPIVA Scorecard was published in 2002, the landscape of actively managed fixed income funds and the availability of benchmarks to measure them have changed appreciably. Despite the evolution of indices and active fund marketplaces over the past two decades, SPIVA Scorecards have largely retained the original assignments of categories and benchmarks—primarily in order to facilitate year-on-year comparisons. In this edition, we make several changes.

February 2022 brought an opportunity to review the fixed income fund categories and their associated benchmarks via the merger of S&P Global and IHS Markit, which resulted in a material expansion in the range of fixed income indices available to S&P DJI for use in the production of SPIVA reports.³ Accordingly, this scorecard incorporates several changes in fixed income reports, including the addition of several previously unreported categories and an updated assignment of benchmarks. **The previous assignments of SPIVA categories and benchmarks are summarized in Exhibit C1, and the new assignments are summarized in Exhibit C2 for purposes of comparison.**

To form the new assignments, funds were first grouped into appropriate SPIVA categories, and benchmarks for each category were assigned, through a combination of quantitative and qualitative considerations. These included:

- All else equal, the organization of the historical U.S. scorecards was followed or approximated where possible.
- Where sensible, smaller fund categories were grouped with similar categories to provide broader sample sizes, with size measured both on the number of funds and their aggregate assets under management.
- Lipper category and benchmark definitions were reviewed for similarities and differences.
- The benchmarks reported by the various active funds in each category were reviewed in comparison to potential category benchmarks.

³ <https://investor.spglobal.com/news-releases/news-details/2022/SP-Global-Completes-Merger-with-IHS-Markit-Creating-a-Global-Leader-to-Power-the-Markets-of-the-Future/>

- The correlations and tracking errors between fund category returns (both asset-weighted and equal weighted) and potential category benchmarks were examined over various time horizons.

Although the new assignments seek a degree of continuity, the SPIVA Mid-Year 2022 U.S. Scorecard incorporates a methodological “break” with prior editions for some fixed income fund categories. The updated categorization scheme generally improves the correspondence between category and benchmark performance and expands the fund universe to include several previously excluded categories.

Exhibit C1: Previous Fixed Income SPIVA Assignments

Lipper Category	Previous SPIVA Category	Previous Comparison Index
General U.S. Government Funds General U.S. Treasury Funds	Government Long Funds	Bloomberg US Aggregate Government – Long
Intermediate U.S. Government Funds Short-Intermediate U.S. Government Funds	Government Intermediate Funds	Bloomberg US Aggregate Government - Intermediate
Short U.S. Government Funds Short U.S. Treasury Funds	Government Short Funds	Bloomberg US 1-3 Year Government
Corporate Debt Funds A Rated Corporate Debt Funds BBB-Rated	Investment-Grade Long Funds	Bloomberg US Aggregate Government & Credit - Long
Intermediate Investment Grade Debt Funds Short-Intermediate Investment Grade Debt Funds	Investment-Grade Intermediate Funds	Bloomberg US Intermediate Government/Credit
Short Investment Grade Debt Funds	Short Investment-Grade Funds	Bloomberg US Aggregate Government & Credit (1-3 Y)
High Current Yield Funds	High Yield Funds	Bloomberg US High Yield – Corporate
U.S. Mortgage Funds GNMA Funds	Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized – MBS
Global Income Funds International Income Funds	Global Income Funds	Bloomberg Global Aggregate
Emerging Markets Debt Funds	Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate
General & Insured Municipal Debt Funds	General Municipal Debt Funds	S&P National AMT-Free Municipal Bond
California Municipal Debt Funds	California Municipal Debt Funds	S&P California AMT-Free Municipal Bond Index
New York Municipal Debt Funds	New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond Index
Loan Participation Funds	Loan Participation Funds	S&P/LSTA U.S. Leveraged Loan 100 Index
Inflation Protected Bond Funds	Not previously included	Not previously included
Core Plus Bond Funds	Not previously included	Not previously included
General Bond Funds	Not previously included	Not previously included

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

Exhibit C2: New Fixed Income SPIVA Assignments

Lipper Category	New SPIVA Category	New Comparison Index
General U.S. Government Funds General U.S. Treasury Funds	General Government Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns
Intermediate U.S. Government Funds	Government Intermediate Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns 1-10Y
Short-Intermediate U.S. Government Funds Short U.S. Government Funds Short U.S. Treasury Funds	Government Short & Short-Intermediate Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns 1-5Y
Corporate Debt Funds A Rated Corporate Debt Funds BBB-Rated	General Investment-Grade Funds	iBoxx \$ Liquid Investment Grade
Intermediate Investment Grade Debt Funds	Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate
Short-Intermediate Investment Grade Debt Funds Short Investment Grade Debt Funds	Investment-Grade Short & Intermediate Funds	iBoxx \$ Overall 1-5Y
High Current Yield Funds	High Yield Funds	iBoxx USD Liquid High Yield
U.S. Mortgage Funds GNMA Funds	Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized - MBS
Global Income Funds International Income Funds	Global Income Funds	Bloomberg Global Aggregate
Emerging Markets Debt Funds	Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate
General & Insured Municipal Debt Funds	General Municipal Debt Funds	S&P National AMT-Free Municipal Bond
California Municipal Debt Funds	California Municipal Debt Funds	S&P California AMT-Free Municipal Bond
New York Municipal Debt Funds	New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond
Loan Participation Funds	Loan Participation Funds	Markit iBoxx USD Leveraged Loans
Inflation Protected Bond Funds	Inflation-Linked Funds	iBoxx TIPS Inflation-Linked
Core Plus Bond Funds	Core Plus Bond Funds	iBoxx \$ Liquid Investment Grade
General Bond Funds	General Bond Funds	iBoxx \$ Overall

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

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