

SPIVA[®] U.S. Scorecard

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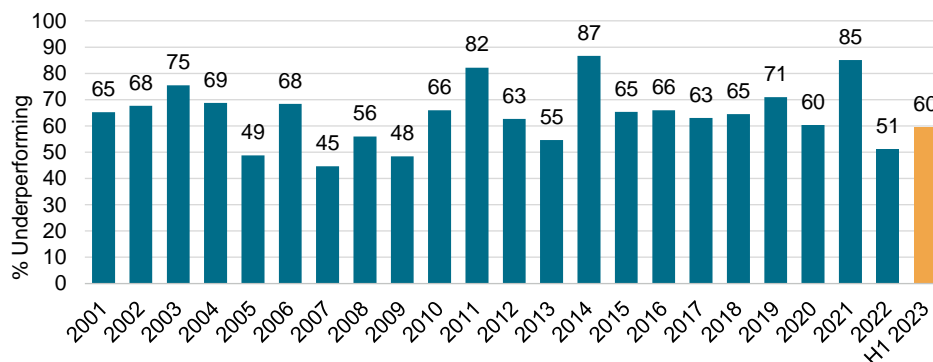
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Summary

The **S&P 500[®]** rose by 16.9% in the first six months of 2023, marking a sharp rebound from its decline of 18.1% in 2022. The rally extended to smaller stocks, although less emphatically, as the **S&P MidCap 400[®]** increased 8.8% and the **S&P SmallCap 600[®]** returned 6.0%. Fixed income markets also gained ground, despite the uncertain course of inflation, continued Fed tightening, an inverted yield curve, and ructions connected to the demise of several regional banks.

Although active managers in a number of categories were able to outpace their benchmarks in the first six months of the year, in our largest and most closely watched comparison, **60% of all active large-cap U.S. equity managers underperformed the S&P 500**. As Exhibit 1 illustrates, a majority of large-cap managers outperformed in only 3 of the last 23 years (missing by a whisker in 2022). But active underperformance is not a coincidence,¹ and, as we will discuss, some of the factors that made it close last year worked in the opposite direction in the first six months of 2023.

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



Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

¹ Ganti, Anu and Craig J. Lazzara, "Shooting the Messenger," S&P Dow Jones Indices, November 2022.

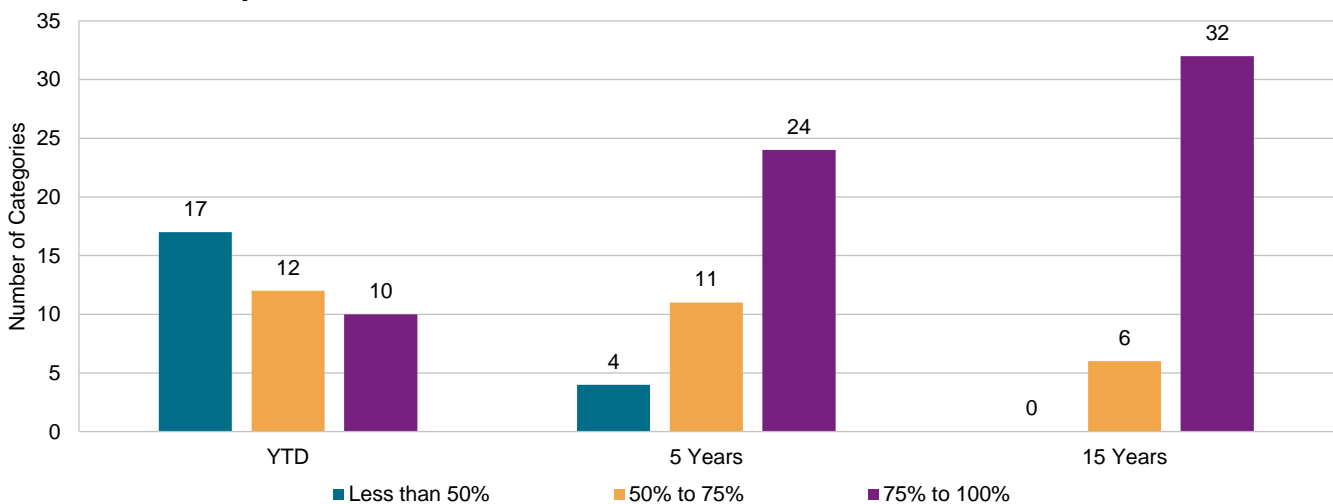
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For smaller-capitalization U.S. equity managers, first-half results were more promising. Only 48% of mid-cap managers lagged the S&P MidCap 400, while a creditable 28% of small-cap managers underperformed the S&P SmallCap 600. What was particularly striking about our U.S. equity results was the divergent performance of growth and value specialists. Only 13% of large-cap growth managers underperformed the [S&P 500 Growth](#) index, with similar success rates among their mid- and small-cap counterparts. Meanwhile, 90% of large-cap value managers lagged the [S&P 500 Value](#) index; most mid- and small-cap value specialists also underperformed, although by smaller margins.

Funds incorporating non-U.S. stocks produced mixed results: slight outperformance among larger-cap international managers and modest underperformance among smaller caps, with generally good results for emerging markets and disappointing performance for global funds. Fixed income results were likewise mixed. The bright spots for active fixed income came in the municipal and some investment grade categories. Most government funds lagged their benchmarks, as did 100% of Core Plus Bond funds and 89% of funds in the General Investment-Grade category.

As we’ve noted in previous reports, **underperformance rates typically rise as time horizons lengthen.**² Exhibit 2 illustrates the point. In the first six months of 2023, 10 of the 39 categories in this report saw more than 75% of managers underperform their benchmark. Over a five-year horizon, 24 categories saw this level of underperformance, and after 15 years, the tally rose to 32 categories. Meanwhile, after 15 years, there were **no** categories in which the majority of active managers outperformed.

Exhibit 2: Underperformance Rates Rise over Time



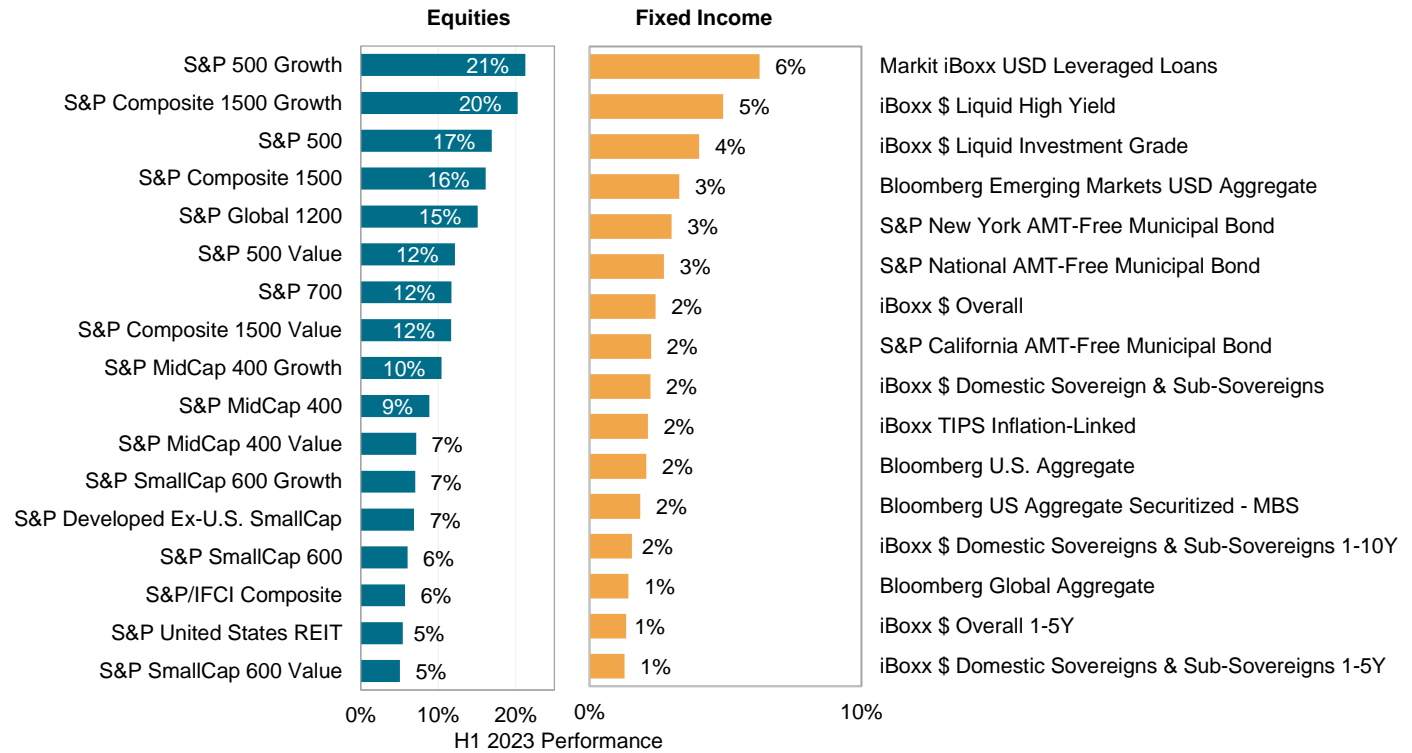
Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. See Reports 1a, 6a, and 11a. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

² See also Lazzara, Craig, [“Shooting Hoops with Michael Jordan: An Allegory,”](#) S&P Dow Jones Indices, September 29, 2022.

Market Context

In sharp contrast with last year’s results, Exhibit 3 shows that all of our 39 category benchmarks delivered a positive total return in the first half of 2023, in some cases by a comfortable double-digit margin.

Exhibit 3: H1 2023 Performance of U.S. Scorecard Comparison Indices

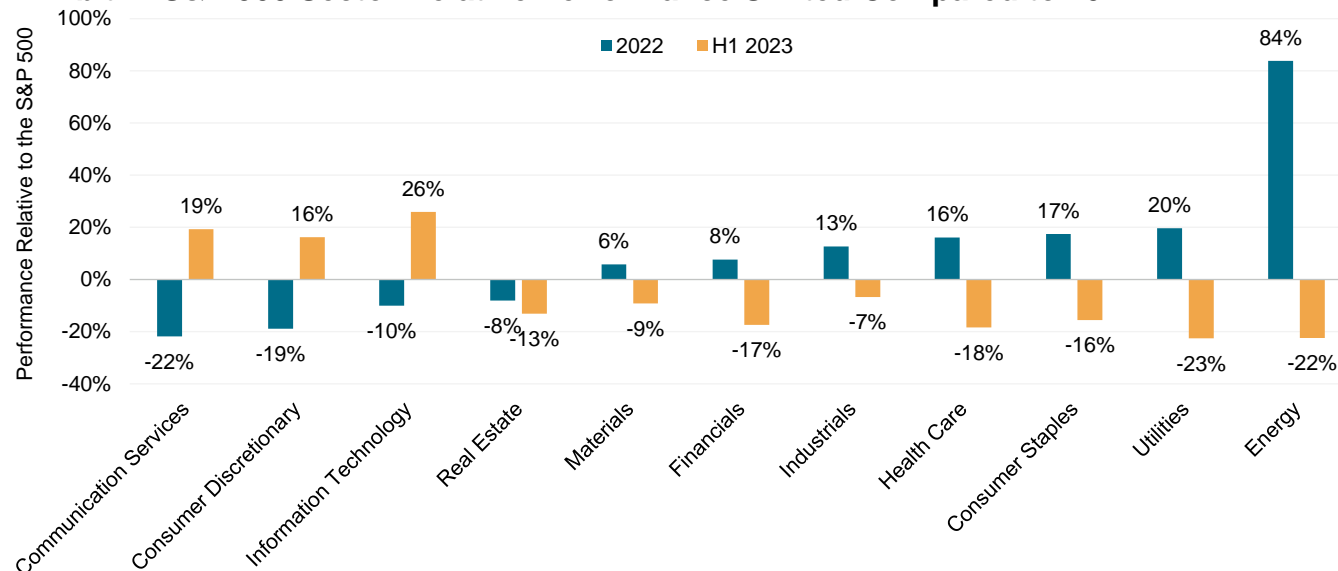


Source: S&P Dow Jones Indices LLC, Bloomberg LLC. Data as of June 30, 2023. Index performance based on total returns in USD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

There was also a notable reversal of performance among the sectors of the S&P 500, as shown in Exhibit 4. The worst-performing sector last year was Communication Services, which lagged the S&P 500 by 22%; the best performer was Energy, which led by 84%.³ In the first half of 2023, Communication Services was one of only three sectors to outperform the S&P 500, while Energy was one of the two biggest underperformers. **2022’s three worst sectors were the only sectors to outperform the S&P 500 in the first half of 2023.**

³ In 2022, the S&P 500 declined 18.1%. The Communication Services sector declined 39.9%, and Energy rose 65.7%.

Exhibit 4: S&P 500 Sector Relative Performance Shifted Compared to 2022



Source: S&P Dow Jones Indices LLC. Data as of June 30, 2023. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Changes in sectoral fortunes are not uncommon,⁴ but the shift between 2022 and 2023 was particularly notable because of the characteristics of the sectors driving the change. The three biggest losers of 2022, which became the only three winners of the first half of 2023, together accounted for 43% of the S&P 500’s capitalization at the turn of the year. These three sectors also boasted the index’s three largest weighted average capitalizations. **The turn in the fortunes of these sectors meant a recovery in the performance of the largest stocks in the index.** Exhibit 5 illustrates this—the average return of the stocks in the S&P 500’s largest capitalization decile was more than double the average return of the next-best-performing decile.⁵

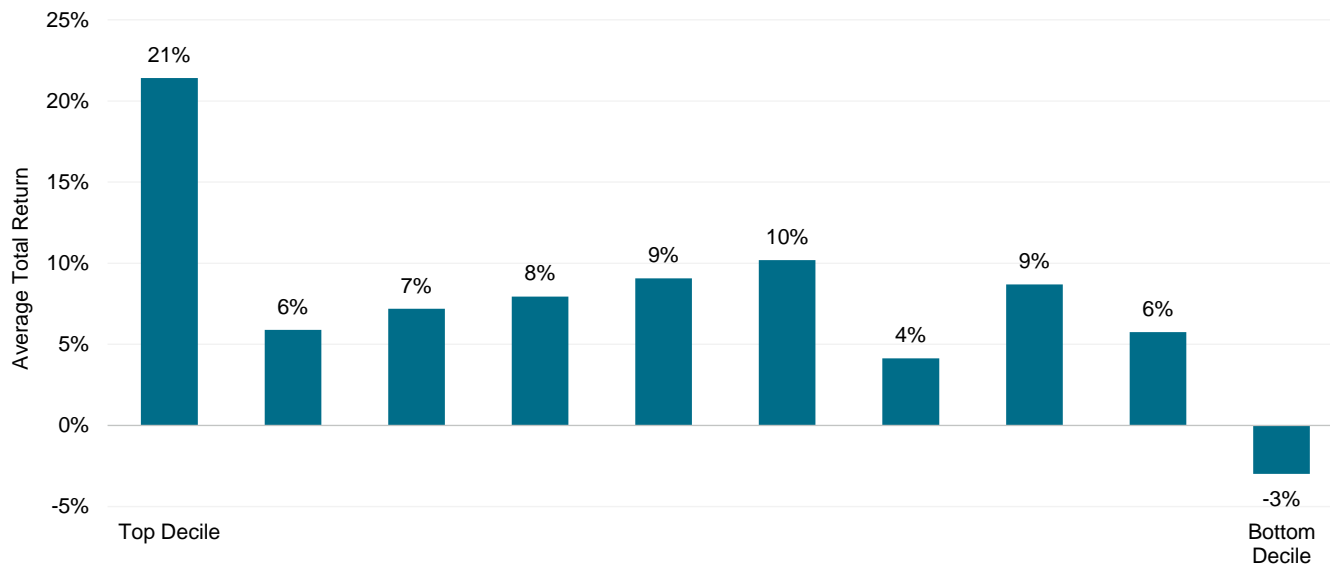
We can observe this effect in the relative performance of the [S&P 500 Equal Weight Index](#). Given (among other things) its tilt toward smaller capitalizations, over time this index has outperformed the S&P 500 substantially. For the first six months of 2023, however, the S&P 500 Equal Weight Index’s relative performance was at **the 2nd percentile** of its more than 30-year history—a remarkable display of the strength of the index’s larger names.⁶

⁴ S&P Dow Jones Indices, “[Sector Performance Matrix 2022](#).”

⁵ Indeed, the popular financial press has labeled the largest contributors to the S&P 500’s total return the “Magnificent Seven,” an homage to the [1960 film](#). These stocks produced roughly 70% of the index’s total return in the first six months of 2023.

⁶ Lazzara, Craig, “[Mean Reversion](#),” S&P Dow Jones Indices, July 27, 2023. The shift in sector performance also helps explain why the S&P 500 Momentum Index was [one of the worst-performing factors](#) in the first half of 2023.

Exhibit 5: The Largest Capitalization Decile Dominated Performance YTD 2023



Source: S&P Dow Jones Indices LLC, FactSet. Data from Dec. 30, 2022, through June 30, 2023. The distribution shows the unweighted average total return of stocks in each S&P 500 capitalization decile as of Dec. 30, 2022. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

When an index's largest constituents are among its best performers, active management becomes especially difficult, since the larger a stock's index weight is, the less likely it is that active managers will overweight it.⁷ The relatively weak performance of the largest stocks helped to explain the comparatively good performance of active managers in 2022,⁸ just as their relatively strong performance in early 2023 served as a headwind.

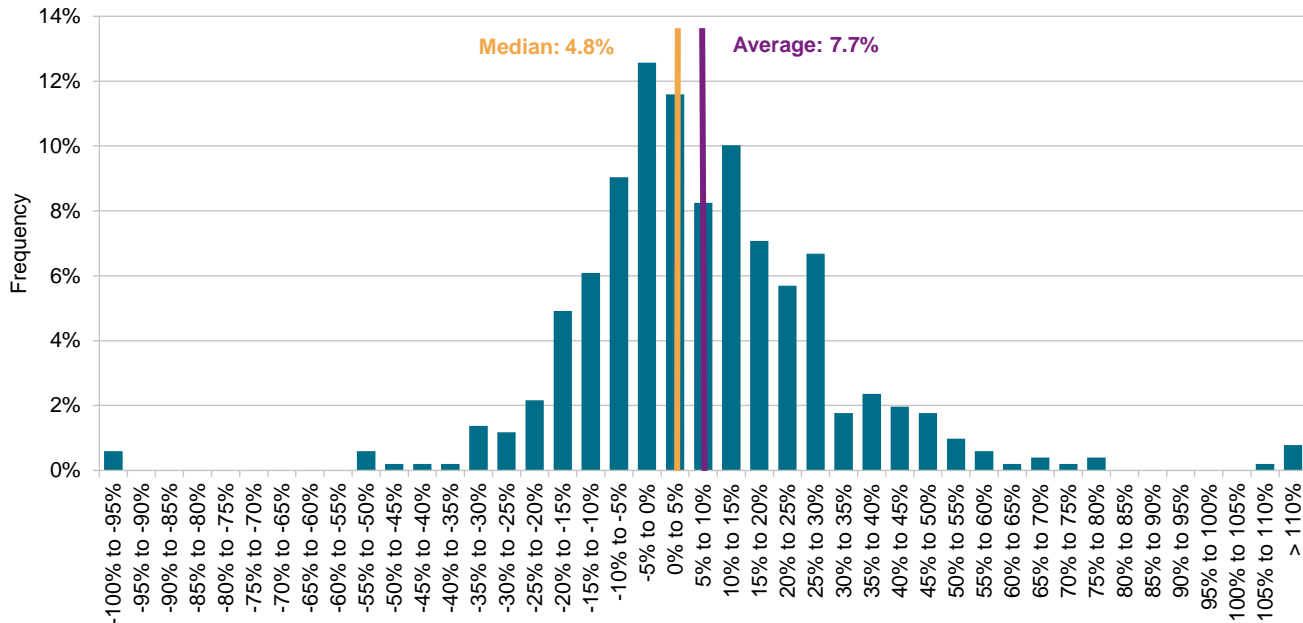
That headwind blows with particular strength in Exhibit 6, which shows the distribution of the performance of the members of the S&P 500 for the first six months of 2023. The median stock in the index rose by 4.8%, while the simple average of all returns was 7.7%.⁹ The obvious reason for the difference is the striking performance at the top of the league table—the [S&P 500 Top 50](#) index returned 27.6%, and five stocks rose by more than 100% in six months. Because the largest stocks in the index were among the best performers, the index's 16.9% cap-weighted return was well above the simple average.

⁷ Chan, Fei Mei and Craig J. Lazzara, "[Degrees of Difficulty: Indications of Active Success](#)," S&P Dow Jones Indices, January 2022. See also Ganti, Anu, "[Mutual Fund Portfolios: Equal Weight or Cap Weight?](#)," S&P Dow Jones Indices, July 27, 2017.

⁸ Edwards, Tim, et al., "[SPIVA U.S. Year-End 2022 Scorecard](#)," S&P Dow Jones Indices.

⁹ This is not an uncommon outcome and becomes even more important as we lengthen the observation period. See Lazzara, Craig, "[Equity: Diversity and Inclusion](#)," S&P Dow Jones Indices, May 12, 2021 and Wigglesworth, Robin, "[Meet the academic who has fired up moonshot investing](#)," *Financial Times*, May 10, 2021.

Exhibit 6: Returns Were Positively Skewed in the First Half of 2023



Source: S&P Dow Jones Indices LLC, FactSet. Data from Dec. 30, 2022, through June 30, 2023. The frequency distribution shows the total returns of S&P 500 constituents during the period of their index membership. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

The upshot of the skewed distribution of returns, and the presence of so many large names on the right tail of the distribution, is that **only 28% of the stocks in the S&P 500 outperformed the index during the first six months.**¹⁰ Twenty-three years of SPIVA data have taught us that successful active management is difficult, and the remarkable performance of the S&P 500’s largest stocks made it particularly difficult in the first half of 2023.

¹⁰ In the first six months of 2023, 45% of the stocks outperformed the simple average return of 7.7%.

Style Performance: Surprising and Otherwise

One of the *potential* means by which an active manager can add value is by opportunistic style tilts. For example, if mid caps do better than large caps, a large-cap manager might benefit from tilting down the capitalization scale, and vice-versa. This has been an occasional, if not always reliable, source of historical outperformance.¹¹

We see an immediate application of this principle in the relative performance of large-, mid- and small-cap U.S. managers. The S&P 500's 16.9% return in the first six months of 2023 dwarfed those of the S&P MidCap 400 (8.8%) and S&P SmallCap 600 (6.0%). On that basis, one might suspect that some managers benchmarked against either the S&P 400® or S&P 600® might have benefited by letting their portfolio's average capitalization drift up the cap scale. One's suspicions, in this case, would be correct: while 60% of large-cap U.S. managers underperformed, 48% of mid-cap managers fell short of the S&P 400, and only 28% of small-cap managers underperformed the S&P 600.

This logic, however, breaks down when we come to growth and value. The S&P 500 Growth index posted its best first-half performance since 1998 (up 21.2%), far ahead of S&P 500 Value's 12.2% return. Logically, value managers should have benefited from being able to tilt toward growth stocks, but the actual results went against intuition: 90% of large-cap value managers underperformed, while only 13% of large-cap growth managers lagged the S&P 500 Growth index.

This discrepancy could be rooted in the impact of 2022's market dynamics on the December 2022 rebalancing of the S&P U.S. Style Indices.¹² As we saw in Exhibit 4, the Communication Services, Consumer Discretionary and Information Technology sectors came under particular pressure last year. Since price momentum is one of the three variables that drive our stock-level growth scores, these sectors (which include the "Magnificent Seven" that contributed the bulk of the S&P 500's performance in the first half of 2023) became more value oriented. For example, S&P 500 Growth decreased its exposure to these three sectors by a total of 17.0%, while the S&P 500 Value index increased its exposure to the same sectors by 12.9%. (Likewise, the growth index added to sectors that had outperformed in 2022, most notably Energy and Health Care, while the value index reduced its exposure to those sectors.)

The remarkable reversal in sector returns between 2022 and the first six months of 2023 meant that last December's annual style rebalance had the effect of reducing the 2023 performance of the S&P 500 Growth index and increasing the 2023 performance of the S&P 500 Value index. On the (reasonable) assumption that most active style managers did not make similar adjustments to their sector exposures, the rebalance made growth outperformance more likely and value outperformance less likely. Whether this effect

¹¹ Ganti, Anu and Craig J. Lazzara, "[Style Bias and Active Performance](#)," S&P Dow Jones Indices, March 2021.

¹² Preston, Hamish, "[Contextualizing Style Shifts](#)," S&P Dow Jones Indices, January 16, 2023.

continues will obviously depend on future shifts in sector weights from both these indices and the active management community.

A Unique Scorecard for the Active Versus Passive Debate

Since its first publication in 2002, the SPIVA Scorecard has served as the de facto scorekeeper of the long-standing active versus passive debate. 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	74.79	72.44	73.41	89.08	90.19	93.51	93.12
All Large-Cap Funds	S&P 500	59.69	60.90	79.80	86.58	85.61	92.19	93.58
All Mid-Cap Funds	S&P MidCap 400	48.38	72.43	72.63	59.47	75.50	90.41	94.90
All Small-Cap Funds	S&P SmallCap 600	28.40	26.56	67.20	56.26	86.01	89.28	93.67
All Multi-Cap Funds	S&P Composite 1500	73.51	70.13	76.78	88.31	88.85	92.32	93.83
Large-Cap Growth Funds	S&P 500 Growth	12.79	10.96	77.67	77.64	85.37	96.97	95.58
Large-Cap Core Funds	S&P 500	74.87	73.77	81.64	87.04	95.87	95.80	95.10
Large-Cap Value Funds	S&P 500 Value	89.79	95.00	85.61	90.34	91.91	88.00	90.91
Mid-Cap Growth Funds	S&P MidCap 400 Growth	12.40	55.56	84.85	38.10	57.86	83.84	91.09
Mid-Cap Core Funds	S&P MidCap 400	76.47	89.53	66.67	72.13	86.78	95.73	98.23
Mid-Cap Value Funds	S&P MidCap 400 Value	72.22	88.41	90.20	77.36	92.54	94.12	96.91
Small-Cap Growth Funds	S&P SmallCap 600 Growth	9.76	18.81	88.30	43.72	77.66	85.50	95.63
Small-Cap Core Funds	S&P SmallCap 600	39.26	31.78	58.20	59.78	93.99	93.48	94.64
Small-Cap Value Funds	S&P SmallCap 600 Value	54.72	35.59	60.29	64.95	88.89	90.09	92.52
Multi-Cap Growth Funds	S&P Composite 1500 Growth	43.65	23.70	80.79	85.88	90.67	96.61	94.52
Multi-Cap Core Funds	S&P Composite 1500	81.11	75.66	81.03	91.03	96.33	93.31	93.06
Multi-Cap Value Funds	S&P Composite 1500 Value	89.29	93.33	80.25	97.46	96.30	93.29	91.39
Real Estate Funds	S&P United States REIT	71.83	91.67	93.33	61.73	65.82	84.85	88.89

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	75.15	91.33	94.66	96.99	97.43
All Large-Cap Funds	S&P 500	69.84	90.81	93.53	96.90	97.21
All Mid-Cap Funds	S&P MidCap 400	69.82	57.14	74.93	88.01	92.72
All Small-Cap Funds	S&P SmallCap 600	63.20	57.71	83.18	88.35	91.92
All Multi-Cap Funds	S&P Composite 1500	76.40	90.61	94.68	95.36	96.17
Large-Cap Growth Funds	S&P 500 Growth	74.88	79.32	91.99	98.70	99.20
Large-Cap Core Funds	S&P 500	72.46	85.43	96.14	98.09	98.64
Large-Cap Value Funds	S&P 500 Value	93.73	89.72	90.61	85.60	88.04
Mid-Cap Growth Funds	S&P MidCap 400 Growth	84.09	40.48	65.41	85.86	92.08
Mid-Cap Core Funds	S&P MidCap 400	56.86	66.39	83.47	90.60	94.69
Mid-Cap Value Funds	S&P MidCap 400 Value	76.47	64.15	77.61	85.29	86.60
Small-Cap Growth Funds	S&P SmallCap 600 Growth	86.17	49.73	80.85	88.50	96.17
Small-Cap Core Funds	S&P SmallCap 600	53.28	60.15	86.70	90.43	90.48
Small-Cap Value Funds	S&P SmallCap 600 Value	55.88	61.86	83.33	87.39	83.18
Multi-Cap Growth Funds	S&P Composite 1500 Growth	72.88	84.12	91.19	97.74	96.58
Multi-Cap Core Funds	S&P Composite 1500	79.49	90.17	96.67	94.98	95.10
Multi-Cap Value Funds	S&P Composite 1500 Value	93.21	97.46	93.52	92.62	91.87
Real Estate Funds	S&P United States REIT	90.67	56.79	59.49	81.82	81.94

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	1930	97.72	91.76
All Large-Cap Funds	642	98.44	94.08
All Mid-Cap Funds	272	97.06	85.66
All Small-Cap Funds	497	96.98	93.76
All Multi-Cap Funds	519	97.88	90.17
Large-Cap Growth Funds	219	98.63	94.06
Large-Cap Core Funds	183	98.91	94.54
Large-Cap Value Funds	240	97.92	93.75
Mid-Cap Growth Funds	117	97.44	94.02
Mid-Cap Core Funds	86	97.67	89.53
Mid-Cap Value Funds	69	95.65	66.67
Small-Cap Growth Funds	202	96.53	94.55
Small-Cap Core Funds	236	97.03	97.46
Small-Cap Value Funds	59	98.31	76.27
Multi-Cap Growth Funds	135	97.78	87.41
Multi-Cap Core Funds	189	97.35	88.89
Multi-Cap Value Funds	195	98.46	93.33
Real Estate Funds	72	95.83	100.00
3-Year			
All Domestic Funds	2012	90.81	76.74
All Large-Cap Funds	693	92.50	78.93
All Mid-Cap Funds	285	89.82	69.82
All Small-Cap Funds	500	91.00	85.80
All Multi-Cap Funds	534	88.95	69.10
Large-Cap Growth Funds	215	93.49	88.37
Large-Cap Core Funds	207	91.30	75.36
Large-Cap Value Funds	271	92.62	74.17
Mid-Cap Growth Funds	132	90.15	74.24
Mid-Cap Core Funds	102	89.22	66.67
Mid-Cap Value Funds	51	90.20	64.71
Small-Cap Growth Funds	188	92.02	94.15
Small-Cap Core Funds	244	89.75	87.30
Small-Cap Value Funds	68	92.65	57.35
Multi-Cap Growth Funds	177	91.53	59.32
Multi-Cap Core Funds	195	89.74	69.74
Multi-Cap Value Funds	162	85.19	79.01
Real Estate Funds	75	89.33	100.00

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	2179	80.86	66.96
All Large-Cap Funds	805	83.98	68.70
All Mid-Cap Funds	301	77.74	60.80
All Small-Cap Funds	551	78.77	77.68
All Multi-Cap Funds	522	80.08	56.51
Large-Cap Growth Funds	237	85.65	79.32
Large-Cap Core Funds	247	85.83	61.54
Large-Cap Value Funds	321	81.31	66.36
Mid-Cap Growth Funds	126	80.95	73.02
Mid-Cap Core Funds	122	75.41	50.00
Mid-Cap Value Funds	53	75.47	56.60
Small-Cap Growth Funds	183	83.61	89.62
Small-Cap Core Funds	271	76.75	79.34
Small-Cap Value Funds	97	75.26	50.52
Multi-Cap Growth Funds	170	86.47	49.41
Multi-Cap Core Funds	234	78.63	54.27
Multi-Cap Value Funds	118	73.73	71.19
Real Estate Funds	81	80.25	97.53
10-Year			
All Domestic Funds	2436	66.42	52.46
All Large-Cap Funds	959	66.11	59.12
All Mid-Cap Funds	347	61.38	46.97
All Small-Cap Funds	529	68.43	65.03
All Multi-Cap Funds	601	68.05	33.94
Large-Cap Growth Funds	287	64.81	71.08
Large-Cap Core Funds	363	65.29	49.86
Large-Cap Value Funds	309	68.28	58.90
Mid-Cap Growth Funds	159	64.15	56.60
Mid-Cap Core Funds	121	52.89	42.98
Mid-Cap Value Funds	67	70.15	31.34
Small-Cap Growth Funds	188	66.49	83.51
Small-Cap Core Funds	233	67.81	64.81
Small-Cap Value Funds	108	73.15	33.33
Multi-Cap Growth Funds	193	70.98	34.72
Multi-Cap Core Funds	300	69.00	30.00
Multi-Cap Value Funds	108	60.19	43.52
Real Estate Funds	79	73.42	96.20

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	2295	32.77	46.01
All Large-Cap Funds	825	28.61	56.12
All Mid-Cap Funds	412	34.22	38.11
All Small-Cap Funds	458	38.21	51.31
All Multi-Cap Funds	600	33.33	33.50
Large-Cap Growth Funds	249	22.89	61.45
Large-Cap Core Funds	367	26.70	56.40
Large-Cap Value Funds	209	38.76	49.28
Mid-Cap Growth Funds	202	27.72	50.00
Mid-Cap Core Funds	113	35.40	30.97
Mid-Cap Value Funds	97	46.39	21.65
Small-Cap Growth Funds	183	34.43	72.68
Small-Cap Core Funds	168	39.88	48.21
Small-Cap Value Funds	107	42.06	19.63
Multi-Cap Growth Funds	146	28.77	41.10
Multi-Cap Core Funds	245	33.47	33.06
Multi-Cap Value Funds	209	36.36	28.71
Real Estate Funds	72	41.67	79.17

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

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

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	20-Year (%)
S&P Composite 1500	16.15	19.24	14.67	11.83	12.61	10.13
All Domestic Funds	11.99	15.67	11.98	8.05	9.55	8.31
S&P 500	16.89	19.59	14.60	12.31	12.86	10.04
All Large-Cap Funds	15.14	16.94	12.14	9.57	10.35	8.27
S&P MidCap 400	8.84	17.61	15.44	7.79	10.21	10.48
All Mid-Cap Funds	10.04	16.57	11.82	7.53	9.30	8.73
S&P SmallCap 600	6.03	9.75	15.19	5.22	9.81	10.29
All Small-Cap Funds	8.54	12.96	12.12	5.38	8.15	8.46
S&P Composite 1500	16.15	19.24	14.67	11.83	12.61	10.13
All Multi-Cap Funds	12.29	15.89	11.46	8.59	9.57	7.92
Large-Cap						
S&P 500 Growth	21.25	18.25	11.80	13.01	14.49	10.77
Large-Cap Growth Funds	27.41	23.58	8.84	11.03	12.56	9.12
S&P 500	16.89	19.59	14.60	12.31	12.86	10.04
Large-Cap Core Funds	14.31	16.49	12.84	10.14	10.33	8.46
S&P 500 Value	12.15	19.99	16.79	10.58	10.51	8.92
Large-Cap Value Funds	5.16	11.08	13.82	7.80	8.47	7.37
Mid-Cap						
S&P MidCap 400 Growth	10.44	19.22	11.29	7.16	10.11	10.35
Mid-Cap Growth Funds	14.65	22.75	8.00	8.28	10.48	9.08
S&P MidCap 400	8.84	17.61	15.44	7.79	10.21	10.48
Mid-Cap Core Funds	7.03	12.17	13.80	6.82	8.54	8.62
S&P MidCap 400 Value	7.16	15.97	19.59	8.00	9.96	10.39
Mid-Cap Value Funds	5.41	11.58	17.37	6.60	8.03	8.40

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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.)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	20-Year (%)
Small-Cap						
S&P SmallCap 600 Growth	7.02	10.62	11.88	5.22	10.26	10.69
Small-Cap Growth Funds	11.40	14.10	6.13	6.42	9.44	8.57
S&P SmallCap 600	6.03	9.75	15.19	5.22	9.81	10.29
Small-Cap Core Funds	6.93	12.17	14.90	4.81	7.53	8.52
S&P SmallCap 600 Value	5.06	8.88	18.43	4.96	9.19	9.79
Small-Cap Value Funds	5.07	11.91	18.39	4.62	7.27	8.22
Multi-Cap						
S&P Composite 1500 Growth	20.28	18.16	11.81	12.48	14.11	10.73
Multi-Cap Growth Funds	22.26	21.53	7.20	9.50	11.41	8.63
S&P Composite 1500	16.15	19.24	14.67	11.83	12.61	10.13
Multi-Cap Core Funds	12.83	15.91	11.90	8.32	8.83	7.65
S&P Composite 1500 Value	11.67	19.45	17.04	10.24	10.45	9.18
Multi-Cap Value Funds	5.57	11.76	15.44	7.47	8.18	7.59
Real Estate						
S&P United States REIT	5.45	-0.06	8.91	4.50	6.27	8.52
Real Estate Funds	4.56	-3.21	6.12	3.73	5.51	6.88

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	20-Year (%)
S&P Composite 1500	16.15	19.24	14.67	11.83	12.61	10.13
All Domestic Funds	15.00	17.98	11.67	9.56	10.94	8.92
S&P 500	16.89	19.59	14.60	12.31	12.86	10.04
All Large-Cap Funds	16.46	18.86	12.18	10.28	11.42	8.76
S&P MidCap 400	8.84	17.61	15.44	7.79	10.21	10.48
All Mid-Cap Funds	9.48	14.74	9.80	7.94	9.59	9.20
S&P SmallCap 600	6.03	9.75	15.19	5.22	9.81	10.29
All Small-Cap Funds	9.42	13.87	10.70	5.82	8.97	8.93
S&P Composite 1500	16.15	19.24	14.67	11.83	12.61	10.13
All Multi-Cap Funds	14.63	17.86	10.91	9.31	10.89	9.08
Large-Cap						
S&P 500 Growth	21.25	18.25	11.80	13.01	14.49	10.77
Large-Cap Growth Funds	27.11	24.99	9.33	11.21	13.33	9.81
S&P 500	16.89	19.59	14.60	12.31	12.86	10.04
Large-Cap Core Funds	14.74	18.81	13.35	10.19	11.16	8.77
S&P 500 Value	12.15	19.99	16.79	10.58	10.51	8.92
Large-Cap Value Funds	5.55	11.75	15.05	9.24	9.75	8.14
Mid-Cap						
S&P MidCap 400 Growth	10.44	19.22	11.29	7.16	10.11	10.35
Mid-Cap Growth Funds	13.98	18.52	6.24	8.68	10.68	9.89
S&P MidCap 400	8.84	17.61	15.44	7.79	10.21	10.48
Mid-Cap Core Funds	7.04	13.96	13.94	7.24	8.75	8.62
S&P MidCap 400 Value	7.16	15.97	19.59	8.00	9.96	10.39
Mid-Cap Value Funds	5.66	11.01	17.18	6.80	8.26	8.77

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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.)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	20-Year (%)
Small-Cap						
S&P SmallCap 600 Growth	7.02	10.62	11.88	5.22	10.26	10.69
Small-Cap Growth Funds	11.47	15.33	6.90	6.50	10.42	9.01
S&P SmallCap 600	6.03	9.75	15.19	5.22	9.81	10.29
Small-Cap Core Funds	7.35	12.16	15.18	5.87	8.12	9.22
S&P SmallCap 600 Value	5.06	8.88	18.43	4.96	9.19	9.79
Small-Cap Value Funds	5.16	11.80	16.64	4.47	7.59	8.17
Multi-Cap						
S&P Composite 1500 Growth	20.28	18.16	11.81	12.48	14.11	10.73
Multi-Cap Growth Funds	24.06	24.02	8.35	10.66	13.24	10.51
S&P Composite 1500	16.15	19.24	14.67	11.83	12.61	10.13
Multi-Cap Core Funds	13.78	16.58	11.16	8.59	9.40	8.57
S&P Composite 1500 Value	11.67	19.45	17.04	10.24	10.45	9.18
Multi-Cap Value Funds	7.07	12.77	16.16	7.61	8.94	8.25
Real-Estate						
S&P United States REIT	5.45	-0.06	8.91	4.50	6.27	8.52
Real Estate Funds	4.86	-3.30	6.18	3.77	5.79	7.41

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	5.57	10.66	16.27
All Large-Cap Funds	6.22	14.92	24.65
All Mid-Cap Funds	5.23	9.45	14.76
All Small-Cap Funds	5.57	8.51	11.70
All Multi-Cap Funds	5.30	12.12	16.51
Large-Cap Growth Funds	24.44	27.86	31.78
Large-Cap Core Funds	12.44	14.88	16.91
Large-Cap Value Funds	2.10	4.15	7.88
Mid-Cap Growth Funds	12.85	14.93	17.29
Mid-Cap Core Funds	4.83	6.44	8.60
Mid-Cap Value Funds	3.15	4.26	7.26
Small-Cap Growth Funds	9.00	11.23	13.39
Small-Cap Core Funds	4.69	6.71	9.18
Small-Cap Value Funds	2.40	4.59	6.75
Multi-Cap Growth Funds	15.57	22.25	26.93
Multi-Cap Core Funds	10.66	13.18	15.50
Multi-Cap Value Funds	2.74	4.85	7.48
Real Estate Funds	3.39	4.44	5.57
1-Year			
All Domestic Funds	11.01	15.17	19.89
All Large-Cap Funds	11.84	17.66	22.67
All Mid-Cap Funds	11.52	14.96	18.46
All Small-Cap Funds	10.01	13.38	16.74
All Multi-Cap Funds	11.17	15.26	20.21
Large-Cap Growth Funds	21.97	25.02	27.06
Large-Cap Core Funds	15.34	17.78	19.70
Large-Cap Value Funds	8.26	11.01	13.96
Mid-Cap Growth Funds	15.79	18.61	21.41
Mid-Cap Core Funds	9.51	12.31	15.24
Mid-Cap Value Funds	9.18	12.78	14.22
Small-Cap Growth Funds	12.30	14.73	18.00
Small-Cap Core Funds	9.28	12.26	15.52
Small-Cap Value Funds	7.24	10.97	15.97
Multi-Cap Growth Funds	18.97	21.45	25.29
Multi-Cap Core Funds	13.06	16.95	19.19
Multi-Cap Value Funds	9.61	11.79	13.99
Real Estate Funds	-4.97	-2.67	-1.26

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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 (%)
3-Year			
All Domestic Funds	8.91	12.61	15.18
All Large-Cap Funds	10.24	12.65	14.38
All Mid-Cap Funds	7.68	12.30	16.34
All Small-Cap Funds	7.76	13.08	16.85
All Multi-Cap Funds	8.68	12.36	14.70
Large-Cap Growth Funds	7.45	9.65	11.67
Large-Cap Core Funds	11.86	13.28	14.42
Large-Cap Value Funds	12.34	14.08	15.75
Mid-Cap Growth Funds	4.58	7.41	9.87
Mid-Cap Core Funds	12.07	14.28	16.59
Mid-Cap Value Funds	16.34	17.06	18.89
Small-Cap Growth Funds	3.05	6.88	9.42
Small-Cap Core Funds	12.52	14.77	17.61
Small-Cap Value Funds	15.54	17.32	20.35
Multi-Cap Growth Funds	5.08	8.54	11.41
Multi-Cap Core Funds	10.22	12.52	14.36
Multi-Cap Value Funds	13.04	14.80	16.69
Real Estate Funds	5.08	6.69	7.85
5-Year			
All Domestic Funds	6.06	8.31	10.60
All Large-Cap Funds	8.11	9.98	11.74
All Mid-Cap Funds	6.16	7.94	9.47
All Small-Cap Funds	4.00	5.46	7.01
All Multi-Cap Funds	6.82	8.87	10.79
Large-Cap Growth Funds	10.06	11.68	13.05
Large-Cap Core Funds	9.28	10.77	11.93
Large-Cap Value Funds	6.82	8.17	9.37
Mid-Cap Growth Funds	7.34	9.12	10.14
Mid-Cap Core Funds	5.91	7.00	8.43
Mid-Cap Value Funds	5.32	6.98	8.46
Small-Cap Growth Funds	4.41	6.31	7.87
Small-Cap Core Funds	3.79	5.32	6.66
Small-Cap Value Funds	3.63	4.89	6.19
Multi-Cap Growth Funds	7.96	10.13	12.03
Multi-Cap Core Funds	6.77	9.06	10.80
Multi-Cap Value Funds	6.28	7.33	8.25
Real Estate Funds	3.12	4.40	5.27

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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 (%)
10-Year			
All Domestic Funds	8.21	9.61	11.63
All Large-Cap Funds	9.09	10.88	12.60
All Mid-Cap Funds	8.25	9.49	10.92
All Small-Cap Funds	7.34	8.53	9.60
All Multi-Cap Funds	7.96	9.66	11.85
Large-Cap Growth Funds	12.35	13.60	14.42
Large-Cap Core Funds	9.54	11.24	11.92
Large-Cap Value Funds	8.03	8.98	9.63
Mid-Cap Growth Funds	9.42	10.70	11.59
Mid-Cap Core Funds	7.95	8.82	10.15
Mid-Cap Value Funds	7.43	8.36	9.26
Small-Cap Growth Funds	8.60	9.55	10.71
Small-Cap Core Funds	7.17	8.14	9.12
Small-Cap Value Funds	6.61	7.49	8.39
Multi-Cap Growth Funds	10.06	12.15	13.46
Multi-Cap Core Funds	7.65	8.83	10.95
Multi-Cap Value Funds	7.65	8.57	9.50
Real Estate Funds	4.96	6.05	6.77
20-Year			
All Domestic Funds	8.01	8.97	9.93
All Large-Cap Funds	8.00	8.93	9.84
All Mid-Cap Funds	8.23	9.27	10.07
All Small-Cap Funds	8.44	9.09	9.93
All Multi-Cap Funds	7.48	8.60	9.91
Large-Cap Growth Funds	9.19	10.13	10.73
Large-Cap Core Funds	8.50	9.10	9.82
Large-Cap Value Funds	7.47	8.14	8.89
Mid-Cap Growth Funds	8.76	9.67	10.61
Mid-Cap Core Funds	8.10	9.09	9.86
Mid-Cap Value Funds	7.61	8.97	9.64
Small-Cap Growth Funds	8.84	9.60	10.28
Small-Cap Core Funds	8.38	8.95	9.74
Small-Cap Value Funds	8.23	8.72	9.47
Multi-Cap Growth Funds	8.93	10.07	10.49
Multi-Cap Core Funds	7.61	8.43	9.94
Multi-Cap Value Funds	6.87	8.00	9.07
Real Estate Funds	6.78	7.86	8.49

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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 (Based on Absolute Return)

Fund Category	Comparison Index	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)	20-Year (%)
Global Funds	S&P Global 1200	65.75	67.42	85.59	88.41	88.70	88.49	88.39
International Funds	S&P 700	49.32	52.16	74.93	81.84	84.78	85.33	92.50
International Small-Cap Funds	S&P Developed Ex-U.S. SmallCap	51.95	46.05	66.23	62.65	74.58	65.38	79.41
Emerging Markets Funds	S&P/IFCI Composite	28.57	42.71	69.74	70.70	87.56	89.58	92.42

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	87.39	90.13	95.48	92.81	89.29
International Funds	S&P 700	77.31	84.82	88.04	86.33	94.64
International Small-Cap Funds	S&P Developed Ex-U.S. SmallCap	64.94	61.45	74.58	63.46	79.41
Emerging Markets Funds	S&P/IFCI Composite	73.85	73.49	91.19	90.63	95.45

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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	221	96.38	88.69
International Funds	370	96.76	86.22
International Small-Cap Funds	76	94.74	92.11
Emerging Markets Funds	192	94.79	100.00
3-Year			
Global Funds	222	87.39	67.12
International Funds	379	88.39	64.64
International Small-Cap Funds	77	85.71	79.22
Emerging Markets Funds	195	83.59	99.49
5-Year			
Global Funds	233	77.25	53.65
International Funds	369	82.93	49.32
International Small-Cap Funds	83	68.67	72.29
Emerging Markets Funds	215	72.09	93.02
10-Year			
Global Funds	177	59.32	32.77
International Funds	276	63.04	36.96
International Small-Cap Funds	59	62.71	66.10
Emerging Markets Funds	193	59.59	92.75
20-Year			
Global Funds	112	35.71	14.29
International Funds	280	34.64	13.21
International Small-Cap Funds	34	44.12	8.82
Emerging Markets Funds	66	50.00	95.45

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	20-Year (%)
S&P Global 1200	15.08	18.60	12.65	9.55	10.03	8.96
Global Funds	13.90	16.77	9.21	6.91	7.58	7.18
S&P 700	11.73	16.67	9.27	5.19	6.05	7.42
International Funds	11.68	16.15	7.25	3.60	5.16	6.10
S&P Developed Ex-U.S. SmallCap	6.90	11.10	6.34	1.76	6.18	8.46
International Small-Cap Funds	7.45	11.38	5.40	1.43	5.15	7.91
S&P/IFCI Composite	5.71	3.61	3.88	1.71	3.90	9.14
Emerging Markets Funds	7.85	5.69	2.23	0.88	2.21	7.28

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	20-Year (%)
S&P Global 1200	15.08	18.60	12.65	9.55	10.03	8.96
Global Funds	14.71	17.98	9.42	7.18	8.50	8.27
S&P 700	11.73	16.67	9.27	5.19	6.05	7.42
International Funds	12.33	16.39	7.43	4.13	5.48	6.85
S&P Developed Ex-U.S. SmallCap	6.90	11.10	6.34	1.76	6.18	8.46
International Small-Cap Funds	8.41	11.73	4.64	1.82	5.97	8.66
S&P/IFCI Composite	5.71	3.61	3.88	1.71	3.90	9.14
Emerging Markets Funds	9.48	8.22	2.53	2.16	3.54	8.40

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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 Funds

Fund Category	Third Quartile (%)	Second Quartile (%)	First Quartile (%)
YTD			
Global Funds	10.91	13.50	16.68
International Funds	9.86	11.87	13.25
International Small-Cap Funds	5.57	6.91	9.66
Emerging Markets Funds	5.57	7.41	9.32
1-Year			
Global Funds	14.06	16.65	19.76
International Funds	13.95	16.63	18.91
International Small-Cap Funds	8.28	11.51	14.03
Emerging Markets Funds	1.66	5.03	9.08
3-Year			
Global Funds	7.78	9.53	11.46
International Funds	5.43	7.28	9.67
International Small-Cap Funds	2.44	5.10	8.84
Emerging Markets Funds	-0.56	1.96	5.26
5-Year			
Global Funds	5.82	7.07	8.95
International Funds	2.59	3.68	4.94
International Small-Cap Funds	0.49	2.29	3.40
Emerging Markets Funds	-0.25	1.15	2.70
10-Year			
Global Funds	6.31	7.81	9.57
International Funds	4.36	5.13	5.97
International Small-Cap Funds	4.81	5.86	6.90
Emerging Markets Funds	1.78	2.59	3.63
20-Year			
Global Funds	6.70	7.67	9.05
International Funds	5.64	6.49	7.31
International Small-Cap Funds	7.92	8.30	9.93
Emerging Markets Funds	6.95	7.66	8.61

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. 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 (Based on Absolute Return)

Fund Category	Comparison Index	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)
General Government Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns	84.85	96.97	91.43	96.00	94.83	81.63
Government Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	55.56	94.74	95.00	88.89	86.67	83.33
Government Short & Short-Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	84.00	84.00	60.71	90.91	95.00	98.08
General Investment-Grade Funds	iBoxx \$ Liquid Investment Grade	89.19	77.63	31.33	84.52	89.52	93.62
Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate	36.76	50.00	38.13	65.33	63.02	60.65
Investment-Grade Short & Intermediate Funds	iBoxx \$ Overall 1-5Y	21.17	16.43	22.54	58.00	66.15	74.56
General Bond Funds	iBoxx \$ Overall	37.04	43.24	32.35	50.00	67.19	73.91
High Yield Funds	iBoxx \$ Liquid High Yield	56.77	67.74	44.59	65.50	75.63	80.60
Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized - MBS	60.78	67.31	39.58	76.00	79.31	80.85
Core Plus Bond Funds	iBoxx \$ Liquid Investment Grade	100.00	92.05	15.38	92.11	-	-
Inflation-Linked Funds	iBoxx TIPS Inflation-Linked	81.40	60.47	42.22	86.54	95.83	100.00
Global Income Funds	Bloomberg Global Aggregate	39.81	25.00	35.05	44.23	58.93	58.06
Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate	40.00	35.71	44.07	76.79	97.67	95.83
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond	28.77	77.78	69.33	89.04	63.75	69.62
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond	18.75	56.25	50.00	84.85	54.29	76.19
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond	15.38	74.07	81.48	88.00	77.78	85.29
Loan Participation Funds	Markit iBoxx USD Leveraged Loans	76.47	66.67	89.29	92.45	92.86	100.00

Source: S&P Dow Jones Indices LLC, CRSP, Bloomberg LLC. Data as of June 30, 2023. Results not shown for the Core Plus Bond Funds 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	-	94.00	96.55	95.92
Government Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	-	88.89	93.33	100.00
Government Short & Short-Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	-	90.91	92.50	90.38
General Investment-Grade Funds	iBoxx \$ Liquid Investment Grade	-	77.38	74.29	71.28
Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate	-	70.67	70.83	81.94
Investment-Grade Short & Intermediate Funds	iBoxx \$ Overall 1-5Y	-	64.00	70.00	89.47
General Bond Funds	iBoxx \$ Overall	-	55.00	65.63	78.26
High Yield Funds	iBoxx \$ Liquid High Yield	40.13	61.50	63.96	68.66
Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized - MBS	-	76.00	81.03	76.60
Core Plus Bond Funds	iBoxx \$ Liquid Investment Grade	-	82.89	-	-
Inflation-Linked Funds	iBoxx TIPS Inflation-Linked	-	80.77	91.67	100.00
Global Income Funds	Bloomberg Global Aggregate	-	-	58.93	64.52
Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate	-	76.79	97.67	95.83
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond	-	95.89	85.00	93.67
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond	-	96.97	94.29	100.00
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond	-	100.00	100.00	100.00
Loan Participation Funds	Markit iBoxx USD Leveraged Loans	94.64	79.25	88.10	77.27

Source: S&P Dow Jones Indices LLC, CRSP, Bloomberg LLC. Data as of June 30, 2023. Results not shown for the Core Plus Bond Funds 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	33	93.94	100.00
Government Intermediate Funds	18	100.00	100.00
Government Short & Short-Intermediate Funds	25	92.00	100.00
General Investment-Grade Funds	74	97.30	95.95
Investment-Grade Intermediate Funds	136	97.79	100.00
Investment-Grade Short & Intermediate Funds	137	99.27	99.27
General Bond Funds	27	100.00	96.30
High Yield Funds	155	98.71	98.06
Mortgage-Backed Securities Funds	51	98.04	100.00
Core Plus Bond Funds	87	100.00	98.85
Inflation-Linked Funds	43	100.00	100.00
Global Income Funds	103	98.06	99.03
Emerging Market Debt Funds	55	89.09	100.00
General Municipal Debt Funds	73	100.00	100.00
California Municipal Debt Funds	32	100.00	100.00
New York Municipal Debt Funds	26	100.00	100.00
Loan Participation Funds	51	100.00	100.00
1-Year			
General Government Funds	33	93.94	100.00
Government Intermediate Funds	19	100.00	94.74
Government Short & Short-Intermediate Funds	25	92.00	100.00
General Investment-Grade Funds	76	96.05	94.74
Investment-Grade Intermediate Funds	136	96.32	100.00
Investment-Grade Short & Intermediate Funds	140	97.14	99.29
General Bond Funds	37	97.30	70.27
High Yield Funds	155	98.71	98.06
Mortgage-Backed Securities Funds	52	94.23	100.00
Core Plus Bond Funds	88	100.00	97.73
Inflation-Linked Funds	43	100.00	100.00
Global Income Funds	92	96.74	100.00
Emerging Market Debt Funds	56	87.50	100.00
General Municipal Debt Funds	72	98.61	100.00
California Municipal Debt Funds	32	100.00	100.00
New York Municipal Debt Funds	27	96.30	100.00
Loan Participation Funds	51	100.00	100.00

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Results not shown for the Core Plus Bond Funds 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	35	82.86	100.00
Government Intermediate Funds	20	95.00	95.00
Government Short & Short-Intermediate Funds	28	89.29	92.86
General Investment-Grade Funds	83	84.34	93.98
Investment-Grade Intermediate Funds	139	89.93	98.56
Investment-Grade Short & Intermediate Funds	142	88.73	98.59
General Bond Funds	34	88.24	67.65
High Yield Funds	157	93.63	98.09
Mortgage-Backed Securities Funds	48	95.83	97.92
Core Plus Bond Funds	78	96.15	94.87
Inflation-Linked Funds	45	93.33	97.78
Global Income Funds	97	84.54	98.97
Emerging Market Debt Funds	59	79.66	100.00
General Municipal Debt Funds	75	92.00	98.67
California Municipal Debt Funds	34	97.06	97.06
New York Municipal Debt Funds	27	92.59	100.00
Loan Participation Funds	56	89.29	98.21
5-Year			
General Government Funds	50	78.00	72.00
Government Intermediate Funds	9	100.00	77.78
Government Short & Short-Intermediate Funds	33	78.79	87.88
General Investment-Grade Funds	84	86.90	85.71
Investment-Grade Intermediate Funds	150	79.33	95.33
Investment-Grade Short & Intermediate Funds	150	82.67	94.00
General Bond Funds	40	72.50	62.50
High Yield Funds	200	86.50	74.50
Mortgage-Backed Securities Funds	50	84.00	98.00
Core Plus Bond Funds	76	92.11	89.47
Inflation-Linked Funds	52	78.85	96.15
Global Income Funds	104	83.65	88.46
Emerging Market Debt Funds	56	69.64	96.43
General Municipal Debt Funds	73	87.67	94.52
California Municipal Debt Funds	33	90.91	96.97
New York Municipal Debt Funds	25	92.00	100.00
Loan Participation Funds	53	92.45	100.00

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Results not shown for the Core Plus Bond Funds 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	58	62.07	75.86
Government Intermediate Funds	15	60.00	80.00
Government Short & Short-Intermediate Funds	40	62.50	85.00
General Investment-Grade Funds	105	79.05	63.81
Investment-Grade Intermediate Funds	192	68.23	65.63
Investment-Grade Short & Intermediate Funds	130	74.62	76.92
General Bond Funds	64	48.44	37.50
High Yield Funds	197	74.11	81.22
Mortgage-Backed Securities Funds	58	72.41	84.48
Inflation-Linked Funds	48	70.83	95.83
Global Income Funds	112	65.18	80.36
Emerging Market Debt Funds	43	51.16	90.70
General Municipal Debt Funds	80	78.75	86.25
California Municipal Debt Funds	35	85.71	94.29
New York Municipal Debt Funds	27	85.19	96.30
Loan Participation Funds	42	95.24	95.24
15-Year			
General Government Funds	49	46.94	75.51
Government Intermediate Funds	24	45.83	75.00
Government Short & Short-Intermediate Funds	52	48.08	73.08
General Investment-Grade Funds	94	55.32	58.51
Investment-Grade Intermediate Funds	155	51.61	72.26
Investment-Grade Short & Intermediate Funds	114	49.12	83.33
General Bond Funds	23	34.78	56.52
High Yield Funds	134	58.21	84.33
Mortgage-Backed Securities Funds	47	63.83	87.23
Inflation-Linked Funds	29	48.28	89.66
Global Income Funds	62	58.06	72.58
Emerging Market Debt Funds	24	70.83	66.67
General Municipal Debt Funds	79	64.56	87.34
California Municipal Debt Funds	42	66.67	92.86
New York Municipal Debt Funds	34	64.71	94.12
Loan Participation Funds	22	81.82	95.45

Source: S&P Dow Jones Indices LLC, CRSP, Bloomberg LLC. Data as of June 30, 2023. Results not shown for the Core Plus Bond Funds 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)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)
iBoxx \$ Domestic Sovereign & Sub-Sovereigns	2.24	0.66	-2.68	1.04	1.51	2.38
General Government Funds	1.47	-3.64	-5.48	-0.31	0.47	1.97
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	1.56	0.00	-2.05	1.04	1.25	2.11
Government Intermediate Funds	1.33	-2.10	-3.81	0.12	0.49	1.45
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	1.28	0.10	-1.49	1.07	1.07	1.77
Government Short & Short-Intermediate Funds	0.93	-0.87	-1.84	0.36	0.42	1.02
iBoxx \$ Liquid Investment Grade	4.03	1.95	-4.09	2.01	2.93	4.52
General Investment-Grade Funds	2.81	7.72	-1.32	2.47	2.44	3.29
Bloomberg U.S. Aggregate	2.09	-0.94	-3.96	0.77	1.52	2.73
Investment-Grade Intermediate Funds	2.11	-0.96	-3.75	0.55	1.46	2.61
iBoxx \$ Overall 1-5Y	1.35	0.36	-1.48	1.20	1.19	1.87
Investment-Grade Short & Intermediate Funds	1.80	1.60	-0.47	1.12	1.09	1.71
iBoxx \$ Overall	2.43	-0.59	-4.15	0.99	1.61	2.70
General Bond Funds	2.29	0.41	-2.14	0.67	1.46	2.85
iBoxx \$ Liquid High Yield	4.91	8.68	2.60	2.88	3.81	5.51
High Yield Funds	4.57	7.62	2.67	2.43	3.17	4.70
Bloomberg US Aggregate Securitized - MBS	1.87	-1.52	-3.73	0.03	1.13	2.35
Mortgage-Backed Securities Funds	1.83	-2.42	-3.53	-0.22	0.87	2.08
iBoxx \$ Liquid Investment Grade	4.03	1.95	-4.09	2.01	2.93	4.52
Core Plus Bond Funds	2.36	-0.26	-3.04	0.95	-	-
iBoxx TIPS Inflation-Linked	2.15	-1.39	-0.31	2.48	2.15	2.89
Inflation-Linked Funds	1.50	-1.72	-0.17	1.85	1.48	1.94
Bloomberg Global Aggregate	1.43	-1.32	-4.96	-1.09	0.20	1.35
Global Income Funds	1.89	0.69	-3.32	-0.29	0.61	1.92
Bloomberg Emerging Markets USD Aggregate	3.30	5.64	-2.71	1.02	2.73	4.72
Emerging Market Debt Funds	3.82	7.60	-2.23	-0.14	1.11	2.41
S&P National AMT-Free Municipal Bond	2.74	3.24	-0.44	1.85	2.58	3.42
General Municipal Debt Funds	2.84	2.32	-1.01	1.09	2.15	2.83
S&P California AMT-Free Municipal Bond	2.27	3.29	-0.81	1.66	2.77	3.64
California Municipal Debt Funds	2.48	2.79	-1.05	0.97	2.46	3.27
S&P New York AMT-Free Municipal Bond	3.02	3.69	-0.25	1.76	2.61	3.40
New York Municipal Debt Funds	3.40	3.09	-0.75	1.10	2.17	2.89
Markit iBoxx USD Leveraged Loans	6.25	10.20	6.09	3.63	3.66	4.49
Loan Participation Funds	5.53	8.97	4.54	2.46	2.76	3.39

Source: S&P Dow Jones Indices LLC, CRSP, Bloomberg LLC. Data as of June 30, 2023. Returns shown are annualized for periods greater than one year. Results not shown for the Core Plus Bond Funds 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)

Index/Fund Category	YTD (%)	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)
iBoxx \$ Domestic Sovereign & Sub-Sovereigns	2.24	0.66	-2.68	1.04	1.51	2.38
General Government Funds	1.71	-3.18	-5.36	0.23	0.83	2.18
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	1.56	0.00	-2.05	1.04	1.25	2.11
Government Intermediate Funds	1.26	-2.55	-4.02	-0.12	0.97	2.23
iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	1.28	0.10	-1.49	1.07	1.07	1.77
Government Short & Short-Intermediate Funds	0.66	-0.77	-1.42	0.77	0.75	1.26
iBoxx \$ Liquid Investment Grade	4.03	1.95	-4.09	2.01	2.93	4.52
General Investment-Grade Funds	3.16	1.63	-4.16	1.50	2.10	3.04
Bloomberg U.S. Aggregate	2.09	-0.94	-3.96	0.77	1.52	2.73
Investment-Grade Intermediate Funds	2.57	0.21	-2.97	1.28	1.90	3.31
iBoxx \$ Overall 1-5Y	1.35	0.36	-1.48	1.20	1.19	1.87
Investment-Grade Short & Intermediate Funds	1.61	1.18	-0.76	1.17	1.29	2.00
iBoxx \$ Overall	2.43	-0.59	-4.15	0.99	1.61	2.70
General Bond Funds	3.26	3.82	-0.21	1.70	1.71	3.01
iBoxx \$ Liquid High Yield	4.91	8.68	2.60	2.88	3.81	5.51
High Yield Funds	4.76	8.34	3.54	3.05	3.84	5.22
Bloomberg US Aggregate Securitized - MBS	1.87	-1.52	-3.73	0.03	1.13	2.35
Mortgage-Backed Securities Funds	1.92	-1.86	-3.63	-0.10	1.06	2.36
iBoxx \$ Liquid Investment Grade	4.03	1.95	-4.09	2.01	2.93	4.52
Core Plus Bond Funds	2.26	-0.71	-3.71	0.68	-	-
iBoxx TIPS Inflation-Linked	2.15	-1.39	-0.31	2.48	2.15	2.89
Inflation-Linked Funds	1.63	-1.67	-0.11	2.05	1.80	2.48
Bloomberg Global Aggregate	1.43	-1.32	-4.96	-1.09	0.20	1.35
Global Income Funds	2.03	0.68	-4.30	-1.17	0.23	2.09
Bloomberg Emerging Markets USD Aggregate	3.30	5.64	-2.71	1.02	2.73	4.72
Emerging Market Debt Funds	4.23	8.09	-1.92	-0.33	1.71	3.65
S&P National AMT-Free Municipal Bond	2.74	3.24	-0.44	1.85	2.58	3.42
General Municipal Debt Funds	3.26	3.06	-0.55	1.52	2.68	3.41
S&P California AMT-Free Municipal Bond	2.27	3.29	-0.81	1.66	2.77	3.64
California Municipal Debt Funds	2.56	3.08	-0.95	1.45	2.86	3.64
S&P New York AMT-Free Municipal Bond	3.02	3.69	-0.25	1.76	2.61	3.40
New York Municipal Debt Funds	3.97	3.84	-0.41	1.68	2.59	3.25
Markit iBoxx USD Leveraged Loans	6.25	10.20	6.09	3.63	3.66	4.49
Loan Participation Funds	6.01	10.18	5.74	2.77	3.05	3.52

Source: S&P Dow Jones Indices LLC, CRSP, Bloomberg LLC. Data as of June 30, 2023. Returns shown are annualized for periods greater than one year. Results not shown for the Core Plus Bond Funds 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	0.97	1.41	1.87
Government Intermediate Funds	1.19	1.39	1.65
Government Short & Short-Intermediate Funds	0.76	0.93	1.24
General Investment-Grade Funds	2.34	2.88	3.47
Investment-Grade Intermediate Funds	1.85	2.26	2.60
Investment-Grade Short & Intermediate Funds	1.41	1.71	2.20
General Bond Funds	1.93	2.69	3.34
High Yield Funds	4.24	4.83	5.26
Mortgage-Backed Securities Funds	1.48	1.78	2.26
Core Plus Bond Funds	2.08	2.53	2.88
Inflation-Linked Funds	1.22	1.69	2.00
Global Income Funds	0.84	1.87	3.18
Emerging Market Debt Funds	3.14	3.76	4.86
General Municipal Debt Funds	2.66	3.03	3.39
California Municipal Debt Funds	2.41	2.59	3.04
New York Municipal Debt Funds	3.23	3.53	3.84
Loan Participation Funds	5.29	5.85	6.19
1-Year			
General Government Funds	-3.64	-2.42	-2.01
Government Intermediate Funds	-2.62	-2.11	-1.19
Government Short & Short-Intermediate Funds	-1.18	-0.84	-0.18
General Investment-Grade Funds	-1.00	0.64	1.71
Investment-Grade Intermediate Funds	-1.46	-0.89	-0.30
Investment-Grade Short & Intermediate Funds	0.91	1.59	2.47
General Bond Funds	-1.03	0.35	1.65
High Yield Funds	7.20	8.30	8.99
Mortgage-Backed Securities Funds	-2.43	-1.93	-1.27
Core Plus Bond Funds	-0.91	-0.15	0.44
Inflation-Linked Funds	-2.35	-1.72	-1.09
Global Income Funds	-0.96	0.67	2.14
Emerging Market Debt Funds	5.62	7.32	9.56
General Municipal Debt Funds	2.22	2.62	3.20
California Municipal Debt Funds	2.56	3.19	3.66
New York Municipal Debt Funds	2.91	3.29	3.75
Loan Participation Funds	9.01	9.62	10.43

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Returns shown are annualized for periods greater than one year. Results not shown for the Core Plus Bond Funds 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	-5.56	-4.76	-3.82
Government Intermediate Funds	-4.35	-3.62	-3.28
Government Short & Short-Intermediate Funds	-2.14	-1.73	-1.24
General Investment-Grade Funds	-3.92	-3.51	-2.72
Investment-Grade Intermediate Funds	-4.08	-3.67	-3.14
Investment-Grade Short & Intermediate Funds	-0.86	-0.40	0.25
General Bond Funds	-3.07	-1.99	-0.09
High Yield Funds	2.03	2.78	3.64
Mortgage-Backed Securities Funds	-3.99	-3.50	-2.91
Core Plus Bond Funds	-3.69	-3.21	-2.82
Inflation-Linked Funds	-0.69	-0.14	0.54
Global Income Funds	-4.86	-3.28	-1.73
Emerging Market Debt Funds	-3.05	-2.23	-0.92
General Municipal Debt Funds	-1.13	-0.68	-0.32
California Municipal Debt Funds	-1.10	-0.78	-0.50
New York Municipal Debt Funds	-0.81	-0.63	-0.42
Loan Participation Funds	4.38	4.84	5.69
5-Year			
General Government Funds	-0.46	0.06	0.43
Government Intermediate Funds	-0.10	0.08	0.41
Government Short & Short-Intermediate Funds	0.22	0.41	0.68
General Investment-Grade Funds	0.64	1.20	1.73
Investment-Grade Intermediate Funds	0.39	0.68	0.96
Investment-Grade Short & Intermediate Funds	0.95	1.22	1.42
General Bond Funds	0.64	1.30	1.99
High Yield Funds	2.10	2.60	3.19
Mortgage-Backed Securities Funds	-0.34	-0.12	0.05
Core Plus Bond Funds	0.56	0.89	1.25
Inflation-Linked Funds	1.83	2.18	2.36
Global Income Funds	-1.63	-0.06	0.92
Emerging Market Debt Funds	-0.56	0.58	1.54
General Municipal Debt Funds	1.04	1.36	1.56
California Municipal Debt Funds	0.96	1.30	1.54
New York Municipal Debt Funds	1.06	1.26	1.47
Loan Participation Funds	2.33	2.78	3.26

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Returns shown are annualized for periods greater than one year. Results not shown for the Core Plus Bond Funds 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	0.47	0.78	1.05
Government Intermediate Funds	0.43	0.68	1.16
Government Short & Short-Intermediate Funds	0.30	0.56	0.72
General Investment-Grade Funds	1.49	1.90	2.57
Investment-Grade Intermediate Funds	1.28	1.57	1.81
Investment-Grade Short & Intermediate Funds	0.93	1.15	1.46
General Bond Funds	1.48	1.95	2.59
High Yield Funds	3.10	3.53	3.94
Mortgage-Backed Securities Funds	0.63	0.84	1.19
Inflation-Linked Funds	1.51	1.64	1.90
Global Income Funds	-0.10	0.68	1.73
Emerging Market Debt Funds	1.14	1.59	2.10
General Municipal Debt Funds	2.29	2.53	2.79
California Municipal Debt Funds	2.45	2.81	2.99
New York Municipal Debt Funds	2.19	2.40	2.61
Loan Participation Funds	2.80	3.11	3.36
15-Year			
General Government Funds	1.75	2.04	2.61
Government Intermediate Funds	1.51	1.68	2.12
Government Short & Short-Intermediate Funds	1.08	1.25	1.41
General Investment-Grade Funds	2.51	3.30	4.09
Investment-Grade Intermediate Funds	2.73	2.94	3.35
Investment-Grade Short & Intermediate Funds	1.53	1.91	2.19
General Bond Funds	2.52	3.99	4.67
High Yield Funds	4.81	5.26	5.58
Mortgage-Backed Securities Funds	1.90	2.17	2.42
Inflation-Linked Funds	1.98	2.31	2.52
Global Income Funds	1.25	1.88	2.93
Emerging Market Debt Funds	2.18	3.66	4.26
General Municipal Debt Funds	3.09	3.37	3.57
California Municipal Debt Funds	3.33	3.58	3.79
New York Municipal Debt Funds	2.94	3.26	3.30
Loan Participation Funds	2.99	3.67	3.85

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2023. Returns shown are annualized for periods greater than one year. Results not shown for the Core Plus Bond Funds 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 Fund Classifications

The SPIVA Scorecard covers domestic equity, global equity and global fixed income categories. Fund returns are sourced from the CRSP Survivor-Bias-Free US Mutual Fund Database, a complete database of both active and liquidated or merged mutual funds created in 1995 and containing fund data from December 1961. Institutional-only funds as identified by CRSP are excluded. Fund classifications are based upon the Lipper fund classification system.

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 relies on 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).

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 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, 2 global and 3 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	Emerging Markets Debt Funds
General Municipal 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

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.

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.

Indices

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 companies and covers approximately 3% of the U.S. equities market.

S&P Composite 1500

This is a broad, market-capitalization-weighted index of 1500 companies formed by combining the S&P 500, S&P MidCap 400 and S&P SmallCap 600. The index represents approximately 90% of U.S. equities.

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 USD-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 USD-denominated sovereign and sub-sovereign bonds that have an investment grade rating and are SEC registered. Eligible bonds must have maturities greater than 1 year and less than 10 years.

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

This index comprises USD-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 USD-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 USD-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 and less than five 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 US Aggregate Bond Index

This is a broad-based index covering investment grade, USD-denominated bonds, including treasuries, government-related and corporate securities, mortgage-backed securities (MBS) and asset-backed securities (ABS).

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 Emerging Markets USD Aggregate Index

This index includes fixed- and floating-rate USD-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 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 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 investment grade New York bonds that are exempt from the alternative minimum tax.

Appendix C: Change of Categories and Benchmarks in Fixed Income

Since the inaugural SPIVA U.S. 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, until 2022, the SPIVA Scorecards largely retained the original assignments of categories and benchmarks—primarily in order to facilitate year-over-year comparisons. In the mid-year 2022 edition, we made 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. Accordingly, scorecards published since 2022 incorporate 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; and
- 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 mid-year 2022 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 Short-Intermediate U.S. Government Funds	Government Intermediate Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns 1-10Y
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 Short-Intermediate Investment Grade Debt Funds	Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate
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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