

SPIVA[®] U.S. Scorecard

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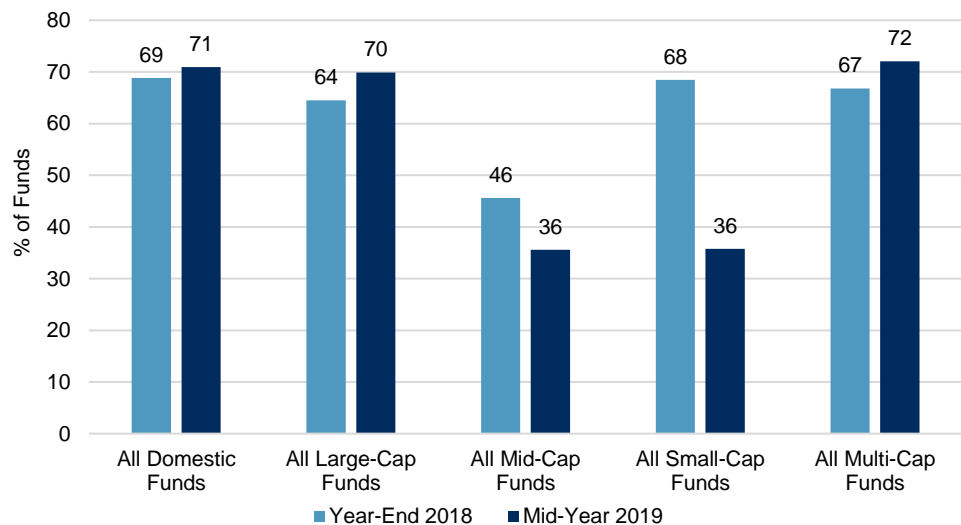
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SUMMARY

After a tumultuous fourth quarter in 2018, the [S&P 500[®]](#) rebounded in the first half of 2019 to return 18.5%—the best performance for the first half of a year since 1997. The [S&P MidCap 400[®]](#) (18.0%) and the [S&P SmallCap 600[®]](#) (13.7%) also posted double-digit gains. For the 12-month period ending in June, the S&P 500 and the [S&P Composite 1500[®]](#) were up 10.4% and 9.3%, respectively. Over the same period, the S&P MidCap 400 gained a modest 1.4% while the S&P SmallCap 600 fell 4.9%. This performance divergence highlights the dominance of large-cap securities in driving the recent market performance. Cyclical sectors such as Information Technology (27.1%) and Consumer Discretionary (21.8%) led the charge in the first half of 2019, while Health Care (8.1%) and Energy (13.1%) lagged.

For the one-year period ending in June 2019, 71% of domestic equity funds underperformed the S&P Composite 1500, slightly more than the previous report's 69%. Additionally, the majority of large-cap (70%) and multi-cap (72%) funds lagged their benchmarks. In contrast, mid-cap and small-cap active funds performed relatively better; approximately 64% of active managers in both categories beat their benchmarks for the one-year period.

Exhibit 1: Percentage of Domestic Equity Funds Underperforming Benchmarks in One Year



Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Growth-style investing led the recovery in the first half of 2019, which led to growth outpacing value for the last 12 months. **However, most domestic large-cap growth managers were unable to keep up with the performance of the [S&P 500 Growth](#) (12%) for the one-year period ending in June.** In fact, compared with results from six months prior, a higher percentage of large-cap growth funds underperformed (going from 60% to 70%) by an equal-weighted average of 1.5%.

Unlike their large-cap counterparts, most mid- and small-cap growth managers found success; 88% of mid-cap growth managers beat the [S&P MidCap 400 Growth](#) (up 1.9%) and 85% of small-cap growth managers beat the [S&P SmallCap 600 Growth](#) (down 2.3%) for the one-year period ending in June 2019. The magnitude of outperformance was significant, as the equal-weighted average one-year returns of the mid- and small-cap growth categories were 11.5% and 5.3%, respectively—an excess of 9.6% and 7.6% relative to their respective category benchmarks. Fund size was not a factor, as results were similar using asset-weighted returns for each category. **The outsized success of growth managers in the two smaller-cap categories and the divergence in returns observed across the size segments for the last year point to potential “size creep” into large-cap securities by those managers in order to boost returns.**

Over longer-term horizons (10 and 15 years), at least 80% of active managers underperformed their respective benchmarks across all domestic equity categories.

The [S&P 700](#), a barometer for international equities, rose over 14% in the first six months of 2019, despite continued trade tensions involving major world economies (U.S. and China, Brexit). **The strong market returns did not translate to success for international equity managers, as the majority of international and emerging market funds in all categories underperformed their benchmarks for the one-year period ending in June 2019**—72% of international funds lagged the S&P 700 and 55% of emerging market managers failed to beat the S&P/IFCI Composite.

For the first time since 2007, the U.S. yield curve inverted in March, as measured by the relative yields of the 3-month Treasury bill and 10-year Treasury bond. While the Fed refrained from cutting its target rate in the first half of 2019, the June meeting minutes showed increased concern for the U.S. economic outlook. Unsurprisingly, the minutes bolstered expectations for rate cuts in the second half of the year. **The majority of fixed income active funds underperformed their benchmarks, with global income funds (at 44%) the lone exception.** Of particular note, all government long funds and loan participation funds underperformed their respective benchmarks over the one-year horizon. This is in stark contrast to results from the report six months prior, when just 17% of government long funds and 57% of loan participation funds underperformed.

In the government and investment-grade fund categories, short- and intermediate-term funds did relatively better than those focused on the long end of the curve. **The longer-term, 15-year figures show that most active fixed income managers underperformed their benchmarks.**

Survival rates of funds remained low across all categories; 57% of domestic equity funds, 49% of international equity funds, and 52% of all fixed income funds were merged or liquidated over the 15-year horizon.

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 few strong believers on both sides, with the vast majority of market participants falling somewhere in between. Since its first publication 17 years ago, the SPIVA Scorecard has served as the de facto scorekeeper of the active versus passive debate. For more than a decade, we have heard passionate arguments from believers in both camps when headline numbers have deviated from their beliefs.

Beyond the SPIVA Scorecard's widely cited headline numbers is a rich data set that addresses issues related to measurement techniques, universe composition, and fund survivorship that are far less frequently discussed, but are often far more fascinating. 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. An accurate representation of how market participants fared in a particular period can be ascertained 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, index funds, leveraged and inverse funds, and other index-linked products are excluded.
- **Minimum Fund Count:** For results to be reported for each fund category in performance-related reports (Percentage of Funds Outperformed by the Index, Equal-Weighted Fund Performance, Asset-Weighted Fund Performance, Quartiles Breakpoints), there is a minimum of 10 funds within each respective fund category at the start of the relevant time horizon.

REPORTS

Report 1: Percentage of U.S. Equity Funds Outperformed by Benchmarks

FUND CATEGORY	COMPARISON INDEX	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
All Domestic Funds	S&P Composite 1500	70.97	69.46	81.66	87.88	87.76
All Large-Cap Funds	S&P 500	69.86	70.74	78.52	88.05	89.83
All Mid-Cap Funds	S&P MidCap 400	35.55	51.41	63.56	85.32	90.33
All Small-Cap Funds	S&P SmallCap 600	35.77	60.59	75.09	87.82	90.25
All Multi-Cap Funds	S&P Composite 1500	72.05	68.42	82.79	89.86	90.15
Large-Cap Growth Funds	S&P 500 Growth	69.49	49.80	65.80	86.47	91.98
Large-Cap Core Funds	S&P 500	70.73	81.29	91.74	96.57	91.81
Large-Cap Value Funds	S&P 500 Value	70.72	67.28	84.74	88.85	79.89
Mid-Cap Growth Funds	S&P MidCap 400 Growth	12.00	20.86	45.45	79.81	86.93
Mid-Cap Core Funds	S&P MidCap 400	43.90	66.94	83.19	91.61	95.15
Mid-Cap Value Funds	S&P MidCap 400 Value	66.04	89.29	92.31	92.98	92.00
Small-Cap Growth Funds	S&P SmallCap 600 Growth	15.25	30.43	59.16	83.77	92.50
Small-Cap Core Funds	S&P SmallCap 600	40.15	76.13	92.27	96.77	93.90
Small-Cap Value Funds	S&P SmallCap 600 Value	60.22	81.98	90.57	97.14	86.84
Multi-Cap Growth Funds	S&P Composite 1500 Growth	54.49	63.18	79.78	90.43	90.44
Multi-Cap Core Funds	S&P Composite 1500	82.17	84.52	96.00	94.26	92.08
Multi-Cap Value Funds	S&P Composite 1500 Value	90.99	72.97	91.35	91.33	85.19
Real Estate Funds	S&P United States REIT	60.00	54.12	66.67	84.78	83.33

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. 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	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
1-YEAR			
All Domestic Funds	2161	96.02	96.16
All Large-Cap Funds	808	96.53	92.57
All Mid-Cap Funds	303	94.39	91.75
All Small-Cap Funds	539	96.29	95.92
All Multi-Cap Funds	511	95.89	89.04
Large-Cap Growth Funds	236	96.19	91.95
Large-Cap Core Funds	248	97.18	84.27
Large-Cap Value Funds	324	96.30	93.52
Mid-Cap Growth Funds	126	97.62	95.24
Mid-Cap Core Funds	124	93.55	74.19
Mid-Cap Value Funds	53	88.68	81.13
Small-Cap Growth Funds	179	97.77	95.53
Small-Cap Core Funds	267	94.38	88.76
Small-Cap Value Funds	93	98.92	90.32
Multi-Cap Growth Funds	167	96.41	85.03
Multi-Cap Core Funds	232	95.69	81.90
Multi-Cap Value Funds	112	95.54	85.71
Real Estate Funds	80	92.50	91.25
3-YEAR			
All Domestic Funds	2293	86.83	86.22
All Large-Cap Funds	875	87.09	76.80
All Mid-Cap Funds	320	84.06	72.81
All Small-Cap Funds	543	89.50	87.29
All Multi-Cap Funds	555	85.41	67.03
Large-Cap Growth Funds	247	86.23	76.92
Large-Cap Core Funds	297	86.87	60.61
Large-Cap Value Funds	331	87.92	77.95
Mid-Cap Growth Funds	140	86.43	72.14
Mid-Cap Core Funds	124	82.26	52.42
Mid-Cap Value Funds	56	82.14	62.50
Small-Cap Growth Funds	186	88.71	81.72
Small-Cap Core Funds	246	88.62	79.27
Small-Cap Value Funds	111	92.79	63.96
Multi-Cap Growth Funds	201	86.07	58.21
Multi-Cap Core Funds	242	85.95	56.20
Multi-Cap Value Funds	112	83.04	59.82
Real Estate Funds	85	85.88	84.71

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. 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	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
5-YEAR			
All Domestic Funds	2398	79.86	76.77
All Large-Cap Funds	924	79.87	66.56
All Mid-Cap Funds	345	75.94	60.29
All Small-Cap Funds	535	81.50	79.07
All Multi-Cap Funds	594	80.64	50.34
Large-Cap Growth Funds	269	79.55	65.80
Large-Cap Core Funds	330	78.79	49.70
Large-Cap Value Funds	325	81.23	67.08
Mid-Cap Growth Funds	166	76.51	58.43
Mid-Cap Core Funds	113	68.14	34.51
Mid-Cap Value Funds	66	87.88	48.48
Small-Cap Growth Funds	193	80.31	73.58
Small-Cap Core Funds	236	82.20	68.22
Small-Cap Value Funds	106	82.08	51.89
Multi-Cap Growth Funds	183	80.33	48.09
Multi-Cap Core Funds	306	82.68	37.58
Multi-Cap Value Funds	105	75.24	46.67
Real Estate Funds	81	86.42	83.95
10-YEAR			
All Domestic Funds	2798	59.61	55.79
All Large-Cap Funds	1009	59.07	45.09
All Mid-Cap Funds	472	57.42	38.35
All Small-Cap Funds	620	62.74	57.74
All Multi-Cap Funds	697	59.11	27.26
Large-Cap Growth Funds	340	56.47	41.18
Large-Cap Core Funds	351	58.12	32.48
Large-Cap Value Funds	318	62.89	47.17
Mid-Cap Growth Funds	214	53.27	36.92
Mid-Cap Core Funds	144	56.94	22.22
Mid-Cap Value Funds	114	65.79	22.81
Small-Cap Growth Funds	230	59.57	48.26
Small-Cap Core Funds	250	63.60	43.20
Small-Cap Value Funds	140	66.43	25.00
Multi-Cap Growth Funds	209	56.46	22.97
Multi-Cap Core Funds	338	59.47	16.86
Multi-Cap Value Funds	150	62.00	22.67
Real Estate Funds	92	79.35	59.78

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. 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	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
15-YEAR			
All Domestic Funds	1929	44.53	41.01
All Large-Cap Funds	660	40.30	30.45
All Mid-Cap Funds	331	48.64	27.19
All Small-Cap Funds	400	47.50	43.75
All Multi-Cap Funds	538	44.98	19.52
Large-Cap Growth Funds	187	33.16	24.60
Large-Cap Core Funds	293	37.88	18.09
Large-Cap Value Funds	180	51.67	38.33
Mid-Cap Growth Funds	153	38.56	25.49
Mid-Cap Core Funds	103	54.37	14.56
Mid-Cap Value Funds	75	61.33	21.33
Small-Cap Growth Funds	160	39.38	29.38
Small-Cap Core Funds	164	47.56	28.66
Small-Cap Value Funds	76	64.47	22.37
Multi-Cap Growth Funds	136	34.56	16.18
Multi-Cap Core Funds	240	47.92	12.50
Multi-Cap Value Funds	162	49.38	12.96
Real Estate Funds	60	60.00	45.00

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. 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	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
S&P Composite 1500	9.32	13.91	10.45	14.73	8.87
All Domestic Funds	4.84	12.41	7.71	12.63	7.46
S&P 500	10.42	14.19	10.71	14.70	8.75
All Large-Cap Funds	7.88	12.73	8.54	12.60	7.28
S&P MidCap 400	1.36	10.90	8.02	14.64	9.67
All Mid-Cap Funds	5.78	12.34	7.35	13.14	8.07
S&P SmallCap 600	-4.88	11.97	8.41	14.99	9.43
All Small-Cap Funds	-1.63	11.79	6.30	12.58	7.37
S&P Composite 1500	9.32	13.91	10.45	14.73	8.87
All Multi-Cap Funds	6.01	12.52	7.72	12.27	7.25
LARGE-CAP					
S&P 500 Growth	12.02	17.26	13.09	16.10	9.78
Large-Cap Growth Funds	10.57	17.60	11.92	14.44	8.46
S&P 500	10.42	14.19	10.71	14.70	8.75
Large-Cap Core Funds	8.14	12.37	8.44	12.45	7.05
S&P 500 Value	8.67	10.64	7.92	13.10	7.53
Large-Cap Value Funds	5.82	9.65	6.18	11.32	6.60
MID-CAP					
S&P MidCap 400 Growth	1.94	11.62	8.93	15.06	10.07
Mid-Cap Growth Funds	11.52	16.44	9.82	14.22	8.68
S&P MidCap 400	1.36	10.90	8.02	14.64	9.67
Mid-Cap Core Funds	3.16	10.08	5.83	12.26	7.54
S&P MidCap 400 Value	0.79	9.90	6.84	14.10	9.14
Mid-Cap Value Funds	-2.08	7.47	4.58	12.14	7.47
SMALL-CAP					
S&P SmallCap 600 Growth	-2.33	13.71	9.87	15.94	10.20
Small-Cap Growth Funds	5.27	17.15	9.58	14.19	8.21
S&P SmallCap 600	-4.88	11.97	8.41	14.99	9.43
Small-Cap Core Funds	-3.93	9.54	4.89	11.83	7.00
S&P SmallCap 600 Value	-7.16	10.23	6.95	14.07	8.65
Small-Cap Value Funds	-8.63	7.56	3.59	11.29	6.65
MULTI-CAP					
S&P Composite 1500 Growth	10.96	16.80	12.72	16.06	9.75
Multi-Cap Growth Funds	9.85	16.51	10.52	13.83	8.37
S&P Composite 1500	9.32	13.91	10.45	14.73	8.87
Multi-Cap Core Funds	5.00	11.17	6.72	11.66	6.80
S&P Composite 1500 Value	7.53	10.58	7.80	13.22	7.83
Multi-Cap Value Funds	2.09	8.91	5.30	11.10	6.29
REAL ESTATE					
S&P United States REIT	10.80	3.92	7.62	15.43	8.92
Real Estate Funds	9.29	3.79	6.93	13.81	7.90

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. 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	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
S&P Composite 1500	9.32	13.91	10.45	14.73	8.87
All Domestic Funds	6.69	13.79	9.10	13.43	8.13
S&P 500	10.42	14.19	10.71	14.70	8.75
All Large-Cap Funds	7.70	14.04	9.68	13.51	7.85
S&P MidCap 400	1.36	10.90	8.02	14.64	9.67
All Mid-Cap Funds	7.70	13.76	8.66	13.88	8.89
S&P SmallCap 600	-4.88	11.97	8.41	14.99	9.43
All Small-Cap Funds	0.96	12.88	7.22	13.21	8.21
S&P Composite 1500	9.32	13.91	10.45	14.73	8.87
All Multi-Cap Funds	5.66	13.46	8.45	12.92	8.07
LARGE-CAP					
S&P 500 Growth	12.02	17.26	13.09	16.10	9.78
Large-Cap Growth Funds	8.60	18.19	12.53	15.20	8.86
S&P 500	10.42	14.19	10.71	14.70	8.75
Large-Cap Core Funds	7.12	12.96	9.17	13.07	7.34
S&P 500 Value	8.67	10.64	7.92	13.10	7.53
Large-Cap Value Funds	7.72	11.16	7.45	12.36	7.28
MID-CAP					
S&P MidCap 400 Growth	1.94	11.62	8.93	15.06	10.07
Mid-Cap Growth Funds	13.93	17.73	11.16	15.08	9.83
S&P MidCap 400	1.36	10.90	8.02	14.64	9.67
Mid-Cap Core Funds	2.52	10.52	6.43	12.85	8.15
S&P MidCap 400 Value	0.79	9.90	6.84	14.10	9.14
Mid-Cap Value Funds	-1.29	8.18	5.32	12.27	7.80
SMALL-CAP					
S&P SmallCap 600 Growth	-2.33	13.71	9.87	15.94	10.20
Small-Cap Growth Funds	6.47	17.42	10.32	15.19	9.30
S&P SmallCap 600	-4.88	11.97	8.41	14.99	9.43
Small-Cap Core Funds	-1.94	10.22	5.44	12.10	7.61
S&P SmallCap 600 Value	-7.16	10.23	6.95	14.07	8.65
Small-Cap Value Funds	-8.07	7.86	3.68	11.20	6.94
MULTI-CAP					
S&P Composite 1500 Growth	10.96	16.80	12.72	16.06	9.75
Multi-Cap Growth Funds	8.30	17.57	11.39	15.02	9.66
S&P Composite 1500	9.32	13.91	10.45	14.73	8.87
Multi-Cap Core Funds	5.14	11.59	7.23	12.11	7.45
S&P Composite 1500 Value	7.53	10.58	7.80	13.22	7.83
Multi-Cap Value Funds	0.59	8.02	4.55	10.52	6.00
REAL ESTATE					
S&P United States REIT	10.80	3.92	7.62	15.43	8.92
Real Estate Funds	9.97	4.42	7.44	14.03	8.30

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. 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 QUANTILE (%)	SECOND QUANTILE (%)	FIRST QUANTILE (%)
1-YEAR			
All Domestic Funds	0.41	5.85	10.28
All Large-Cap Funds	5.41	8.46	11.16
All Mid-Cap Funds	0.62	6.28	12.61
All Small-Cap Funds	-6.53	-2.14	3.58
All Multi-Cap Funds	2.21	5.79	10.45
Large-Cap Growth Funds	8.56	10.52	13.22
Large-Cap Core Funds	5.89	8.34	11.15
Large-Cap Value Funds	3.31	6.03	9.31
Mid-Cap Growth Funds	8.97	12.86	15.53
Mid-Cap Core Funds	-0.35	3.55	6.72
Mid-Cap Value Funds	-4.43	-0.98	2.91
Small-Cap Growth Funds	0.74	5.46	9.57
Small-Cap Core Funds	-6.53	-3.36	-0.53
Small-Cap Value Funds	-11.06	-8.34	-4.76
Multi-Cap Growth Funds	5.84	10.55	15.15
Multi-Cap Core Funds	1.69	5.43	8.48
Multi-Cap Value Funds	0.87	2.58	4.47
Real Estate Funds	8.85	10.39	12.16
3-YEAR			
All Domestic Funds	9.34	12.08	15.55
All Large-Cap Funds	10.11	12.31	15.66
All Mid-Cap Funds	8.98	12.02	15.74
All Small-Cap Funds	8.32	11.15	15.27
All Multi-Cap Funds	9.48	12.48	15.51
Large-Cap Growth Funds	16.19	17.90	19.75
Large-Cap Core Funds	11.18	12.95	13.94
Large-Cap Value Funds	8.66	10.11	11.13
Mid-Cap Growth Funds	14.25	16.03	17.96
Mid-Cap Core Funds	8.47	9.86	11.87
Mid-Cap Value Funds	6.53	7.98	9.22
Small-Cap Growth Funds	14.11	17.24	20.49
Small-Cap Core Funds	8.25	9.85	12.25
Small-Cap Value Funds	6.30	7.78	9.83
Multi-Cap Growth Funds	14.42	16.21	19.00
Multi-Cap Core Funds	9.23	11.33	13.32
Multi-Cap Value Funds	8.35	9.70	11.08
Real Estate Funds	2.90	4.02	5.74

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. 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	5.72	7.75	10.20
All Large-Cap Funds	6.65	8.54	10.99
All Mid-Cap Funds	5.27	7.77	10.22
All Small-Cap Funds	4.42	6.66	9.03
All Multi-Cap Funds	5.53	7.42	9.82
Large-Cap Growth Funds	11.13	12.50	13.94
Large-Cap Core Funds	7.54	8.74	9.94
Large-Cap Value Funds	5.65	6.50	7.68
Mid-Cap Growth Funds	8.73	10.09	11.93
Mid-Cap Core Funds	4.73	5.90	7.78
Mid-Cap Value Funds	4.23	5.13	6.13
Small-Cap Growth Funds	8.20	10.01	11.47
Small-Cap Core Funds	4.22	5.74	7.26
Small-Cap Value Funds	2.28	4.11	5.02
Multi-Cap Growth Funds	8.93	11.16	12.73
Multi-Cap Core Funds	4.97	6.56	8.51
Multi-Cap Value Funds	4.91	6.32	7.22
Real Estate Funds	6.28	7.05	8.21
10-YEAR			
All Domestic Funds	11.70	13.04	14.41
All Large-Cap Funds	11.77	13.00	14.33
All Mid-Cap Funds	12.21	13.43	14.66
All Small-Cap Funds	12.11	13.30	14.54
All Multi-Cap Funds	10.73	12.53	14.13
Large-Cap Growth Funds	13.93	14.81	16.01
Large-Cap Core Funds	11.80	12.95	13.75
Large-Cap Value Funds	11.27	11.94	12.80
Mid-Cap Growth Funds	13.63	14.62	15.95
Mid-Cap Core Funds	11.85	12.80	13.58
Mid-Cap Value Funds	11.50	12.52	13.50
Small-Cap Growth Funds	13.72	14.99	16.15
Small-Cap Core Funds	11.61	12.78	13.81
Small-Cap Value Funds	11.49	12.49	13.15
Multi-Cap Growth Funds	12.60	14.41	15.44
Multi-Cap Core Funds	10.35	12.35	13.46
Multi-Cap Value Funds	10.28	11.66	12.57
Real Estate Funds	11.82	14.21	15.14

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. 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 (%)
15-YEAR			
All Domestic Funds	6.86	7.97	8.99
All Large-Cap Funds	6.99	7.90	8.77
All Mid-Cap Funds	7.10	8.37	9.43
All Small-Cap Funds	7.14	8.12	9.25
All Multi-Cap Funds	6.55	7.49	8.68
Large-Cap Growth Funds	7.97	8.84	9.59
Large-Cap Core Funds	7.13	8.07	8.59
Large-Cap Value Funds	6.44	7.22	8.07
Mid-Cap Growth Funds	8.34	9.44	10.34
Mid-Cap Core Funds	6.84	8.07	8.84
Mid-Cap Value Funds	6.44	7.73	8.56
Small-Cap Growth Funds	8.38	9.29	9.90
Small-Cap Core Funds	7.06	7.89	8.66
Small-Cap Value Funds	6.78	7.27	8.40
Multi-Cap Growth Funds	8.14	9.30	9.92
Multi-Cap Core Funds	6.47	7.33	8.33
Multi-Cap Value Funds	6.09	6.84	8.09
Real Estate Funds	6.63	7.88	9.00

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 6: Percentage of International Equity Funds Outperformed by Benchmarks

FUND CATEGORY	COMPARISON INDEX	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
Global Funds	S&P Global 1200	67.98	69.26	77.13	79.71	81.91
International Funds	S&P 700	71.75	83.78	74.23	81.56	90.21
International Small-Cap Funds	S&P Developed Ex-U.S. SmallCap	63.86	60.26	62.71	66.67	73.33
Emerging Markets Funds	S&P/IFCI Composite	54.98	79.06	83.10	77.87	94.34

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 7: Survivorship and Style Consistency of International Equity Funds			
FUND CATEGORY	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
1-YEAR			
Global Funds	228	95.18	93.86
International Funds	355	96.90	96.06
International Small-Cap Funds	83	93.98	91.57
Emerging Markets Funds	211	95.73	89.10
3-YEAR			
Global Funds	244	84.02	76.64
International Funds	377	87.80	85.68
International Small-Cap Funds	78	88.46	83.33
Emerging Markets Funds	234	83.76	76.50
5-YEAR			
Global Funds	188	75.00	59.04
International Funds	260	77.31	74.23
International Small-Cap Funds	59	77.97	76.27
Emerging Markets Funds	213	76.53	69.95
10-YEAR			
Global Funds	138	57.97	43.48
International Funds	282	60.28	56.74
International Small-Cap Funds	51	70.59	62.75
Emerging Markets Funds	122	69.67	63.93
15-YEAR			
Global Funds	94	52.13	34.04
International Funds	235	47.23	44.26
International Small-Cap Funds	30	66.67	60.00
Emerging Markets Funds	53	67.92	64.15

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 8: Average International Equity Fund Performance (Equal-Weighted)					
CATEGORY	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
S&P Global 1200	6.96	12.55	7.26	11.29	7.71
Global Funds	4.44	10.95	5.56	9.49	6.39
S&P 700	2.13	10.22	2.89	7.43	6.41
International Funds	-0.73	7.98	1.88	6.24	4.68
S&P Developed Ex-U.S. SmallCap	-5.74	8.57	3.91	9.54	7.69
International Small-Cap Funds	-6.19	7.82	2.69	8.95	6.99
S&P/IFCI Composite	1.17	10.92	3.27	6.65	9.60
Emerging Markets Funds	0.92	8.55	1.30	4.97	7.26

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

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

CATEGORY	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
S&P Global 1200	6.96	12.55	7.26	11.29	7.71
Global Funds	3.75	11.28	5.88	10.09	7.35
S&P 700	2.13	10.22	2.89	7.43	6.41
International Funds	-0.57	8.84	2.18	7.07	5.73
S&P Developed Ex-U.S. SmallCap	-5.74	8.57	3.91	9.54	7.69
International Small-Cap Funds	-5.48	8.95	3.74	9.40	7.88
S&P/IFCI Composite	1.17	10.92	3.27	6.65	9.60
Emerging Markets Funds	3.48	10.28	2.67	6.54	8.51

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. 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 (%)
1-YEAR			
Global Funds	1.50	4.52	8.49
International Funds	-3.18	-0.65	2.47
International Small-Cap Funds	-9.52	-6.96	-3.63
Emerging Markets Funds	-1.90	0.80	3.65
3-YEAR			
Global Funds	8.22	10.92	13.77
International Funds	6.61	8.08	9.58
International Small-Cap Funds	6.97	8.24	9.73
Emerging Markets Funds	6.81	8.96	10.92
5-YEAR			
Global Funds	3.77	5.59	7.67
International Funds	0.98	2.16	3.20
International Small-Cap Funds	2.24	3.69	5.40
Emerging Markets Funds	0.77	1.88	3.08
10-YEAR			
Global Funds	8.84	10.18	11.80
International Funds	5.73	6.61	7.78
International Small-Cap Funds	8.10	9.12	10.82
Emerging Markets Funds	4.91	5.69	6.97
15-YEAR			
Global Funds	5.56	6.76	8.25
International Funds	4.38	5.41	6.25
International Small-Cap Funds	6.36	7.07	8.62
Emerging Markets Funds	6.80	8.09	8.92

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2019. Returns shown are annualized. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 11: Percentage of Fixed Income Funds Outperformed by Benchmarks

FUND CATEGORY	COMPARISON INDEX	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
Government Long Funds	Bloomberg Barclays US Government Long	100.00	76.79	98.31	98.73	98.00
Government Intermediate Funds	Bloomberg Barclays US Government Intermediate	94.12	89.47	85.71	85.29	91.07
Government Short Funds	Bloomberg Barclays US Government (1-3 Year)	91.67	84.00	82.14	69.70	82.86
Investment-Grade Long Funds	Bloomberg Barclays US Government/Credit Long	97.65	72.04	98.91	95.97	97.50
Investment-Grade Intermediate Funds	Bloomberg Barclays US Government/Credit Intermediate	50.50	39.90	55.50	51.65	72.68
Investment-Grade Short Funds	Bloomberg Barclays US Government/Credit (1-3 Year)	83.87	37.50	62.12	41.27	68.00
High Yield Funds	Bloomberg Barclays US Corporate High Yield	82.91	91.94	95.59	95.98	99.15
Mortgage-Backed Securities Funds	Bloomberg Barclays US Aggregate Securitized - MBS	84.31	71.70	81.13	66.07	95.74
Global Income Funds	Bloomberg Barclays Global Aggregate	44.12	33.64	59.48	51.85	61.11
Emerging Markets Debt Funds	Bloomberg Barclays Emerging Markets	79.63	66.67	96.15	100.00	85.71
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond	82.67	69.14	58.75	50.65	86.67
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond	66.67	61.11	33.33	45.95	82.61
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond	80.00	74.07	53.57	56.25	86.84
Loan Participation Funds	S&P/LSTA U.S. Leveraged Loan 100	100.00	85.71	68.09	78.95	

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Returns shown are annualized. 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	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
1-YEAR			
Government Long Funds	52	96.15	71.15
Government Intermediate Funds	17	100.00	94.12
Government Short Funds	24	95.83	91.67
Investment-Grade Long Funds	88	98.86	95.45
Investment-Grade Intermediate Funds	203	95.07	94.58
Investment-Grade Short Funds	94	98.94	93.62
High-Yield Funds	200	97.50	75.50
Mortgage-Backed Securities Funds	51	94.12	94.12
Global Income Funds	102	98.04	86.27
Emerging Markets Debt Funds	54	96.30	92.59
General Municipal Debt Funds	75	96.00	92.00
California Municipal Debt Funds	33	96.97	96.97
New York Municipal Debt Funds	25	100.00	100.00
Loan Participation Funds	51	98.04	98.04

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. 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	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
3-YEAR			
Government Long Funds	56	89.29	66.07
Government Intermediate Funds	19	89.47	84.21
Government Short Funds	25	92.00	88.00
Investment-Grade Long Funds	98	89.80	80.61
Investment-Grade Intermediate Funds	204	89.71	87.25
Investment-Grade Short Funds	89	94.38	89.89
High-Yield Funds	212	88.68	68.40
Mortgage-Backed Securities Funds	53	88.68	86.79
Global Income Funds	112	83.93	71.43
Emerging Markets Debt Funds	60	76.67	73.33
General Municipal Debt Funds	81	88.89	83.95
California Municipal Debt Funds	36	91.67	91.67
New York Municipal Debt Funds	27	96.30	96.30
Loan Participation Funds	49	95.92	93.88
5-YEAR			
Government Long Funds	59	77.97	59.32
Government Intermediate Funds	21	76.19	71.43
Government Short Funds	28	82.14	75.00
Investment-Grade Long Funds	97	88.66	77.32
Investment-Grade Intermediate Funds	219	84.93	70.32
Investment-Grade Short Funds	68	86.76	82.35
High-Yield Funds	206	84.47	65.53
Mortgage-Backed Securities Funds	53	86.79	77.36
Global Income Funds	118	74.58	60.17
Emerging Markets Debt Funds	52	73.08	67.31
General Municipal Debt Funds	80	87.50	77.50
California Municipal Debt Funds	36	91.67	91.67
New York Municipal Debt Funds	28	92.86	92.86
Loan Participation Funds	47	97.87	95.74

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. 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	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
10-YEAR			
Government Long Funds	79	67.09	37.97
Government Intermediate Funds	34	55.88	41.18
Government Short Funds	33	60.61	45.45
Investment-Grade Long Funds	130	77.69	47.69
Investment-Grade Intermediate Funds	244	65.57	42.62
Investment-Grade Short Funds	65	69.23	58.46
High-Yield Funds	175	73.71	62.29
Mortgage-Backed Securities Funds	56	69.64	60.71
Global Income Funds	82	76.83	58.54
Emerging Markets Debt Funds	22	72.73	59.09
General Municipal Debt Funds	77	74.03	67.53
California Municipal Debt Funds	37	78.38	78.38
New York Municipal Debt Funds	32	71.88	71.88
Loan Participation Funds	19	94.74	89.47
15-YEAR			
Government Long Funds	50	40.00	28.00
Government Intermediate Funds	56	39.29	25.00
Government Short Funds	35	45.71	34.29
Investment-Grade Long Funds	121	44.63	21.49
Investment-Grade Intermediate Funds	183	43.72	33.33
Investment-Grade Short Funds	51	56.86	50.98
High-Yield Funds	117	58.97	47.86
Mortgage-Backed Securities Funds	47	48.94	42.55
Global Income Funds	37	64.86	54.05
Emerging Markets Debt Funds	14	64.29	57.14
General Municipal Debt Funds	105	47.62	42.86
California Municipal Debt Funds	46	60.87	58.70
New York Municipal Debt Funds	38	63.16	60.53
Loan Participation Funds	5	100.00	100.00

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 13: Average Fixed Income Fund Performance (Equal-Weighted)					
CATEGORY	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
Bloomberg Barclays US Government Long	12.28	1.42	5.68	6.54	6.67
Government Long Funds	6.25	0.99	1.93	2.84	3.21
Bloomberg Barclays US Government Intermediate	6.15	1.34	1.94	2.38	3.25
Government Intermediate Funds	4.82	0.83	1.29	1.89	2.51
Bloomberg Barclays US Government (1-3 Year)	4.02	1.31	1.23	1.23	2.22
Government Short Funds	2.99	1.01	0.81	0.98	1.70
Bloomberg Barclays US Government/Credit Long	13.82	3.76	5.68	7.62	6.95
Investment-Grade Long Funds	8.35	3.06	3.12	5.05	4.31
Bloomberg Barclays US Government/Credit Intermediate	6.93	1.99	2.39	3.24	3.68
Investment-Grade Intermediate Funds	6.23	2.04	2.19	3.63	3.29
Bloomberg Barclays US Government/Credit (1-3 Year)	4.27	1.59	1.46	1.59	2.46
Investment-Grade Short Funds	3.35	1.73	1.28	2.00	1.84
Bloomberg Barclays US Corporate High Yield	7.48	7.52	4.70	9.24	7.58
High Yield Funds	5.59	5.88	3.15	7.48	5.57
Bloomberg Barclays US Aggregate Securitized - MBS	6.22	2.06	2.56	3.23	4.14
Mortgage-Backed Securities Funds	5.34	1.75	2.04	3.16	3.38
Bloomberg Barclays Global Aggregate	5.85	1.62	1.20	2.89	3.76
Global Income Funds	5.80	2.47	1.20	3.29	3.69
Bloomberg Barclays Emerging Markets	10.95	5.05	4.61	7.67	7.85
Emerging Markets Debt Funds	9.05	4.48	2.53	5.52	6.13
S&P National AMT-Free Municipal Bond	6.55	2.40	3.53	4.54	4.40
General Municipal Debt Funds	5.53	2.04	3.28	4.56	3.81
S&P California AMT-Free Municipal Bond	6.06	2.20	3.55	5.20	4.72
California Municipal Debt Funds	5.42	1.93	3.63	5.27	4.14
S&P New York AMT-Free Municipal Bond	6.28	2.14	3.43	4.46	4.41
New York Municipal Debt Funds	5.50	1.93	3.40	4.44	3.82
S&P/LSTA U.S. Leveraged Loan 100	4.20	4.89	3.10	5.74	4.54
Loan Participation Funds	2.29	4.04	2.63	5.07	

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Returns shown are annualized. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Report 14: Average Fixed Income Fund Performance (Asset-Weighted)					
CATEGORY	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
Bloomberg Barclays US Government Long	12.28	1.42	5.68	6.54	6.67
Government Long Funds	7.83	1.35	2.49	3.40	3.78
Bloomberg Barclays US Government Intermediate	6.15	1.34	1.94	2.38	3.25
Government Intermediate Funds	5.37	1.21	1.64	2.52	3.11
Bloomberg Barclays US Government (1-3 Year)	4.02	1.31	1.23	1.23	2.22
Government Short Funds	3.57	1.15	1.18	1.37	2.19
Bloomberg Barclays US Government/Credit Long	13.82	3.76	5.68	7.62	6.95
Investment-Grade Long Funds	9.92	3.45	3.71	5.55	4.65
Bloomberg Barclays US Government/Credit Intermediate	6.93	1.99	2.39	3.24	3.68
Investment-Grade Intermediate Funds	7.15	2.67	2.80	4.29	4.09
Bloomberg Barclays US Government/Credit (1-3 Year)	4.27	1.59	1.46	1.59	2.46
Investment-Grade Short Funds	4.25	2.02	1.76	2.66	2.74
Bloomberg Barclays US Corporate High Yield	7.48	7.52	4.70	9.24	7.58
High Yield Funds	6.08	6.49	3.63	8.02	6.07
Bloomberg Barclays US Aggregate Securitized - MBS	6.22	2.06	2.56	3.23	4.14
Mortgage-Backed Securities Funds	5.52	1.88	2.35	3.48	4.00
Bloomberg Barclays Global Aggregate	5.85	1.62	1.20	2.89	3.76
Global Income Funds	6.06	2.66	1.35	3.87	4.65
Bloomberg Barclays Emerging Markets	10.95	5.05	4.61	7.67	7.85
Emerging Markets Debt Funds	9.11	4.80	3.71	6.66	7.20
S&P National AMT-Free Municipal Bond	6.55	2.40	3.53	4.54	4.40
General Municipal Debt Funds	6.02	2.45	3.76	5.11	4.31
S&P California AMT-Free Municipal Bond	6.06	2.20	3.55	5.20	4.72
California Municipal Debt Funds	6.44	2.33	4.12	5.69	4.61
S&P New York AMT-Free Municipal Bond	6.28	2.14	3.43	4.46	4.41
New York Municipal Debt Funds	6.76	3.03	4.18	5.23	4.27
S&P/LSTA U.S. Leveraged Loan 100	4.20	4.89	3.10	5.74	4.54
Loan Participation Funds	2.21	4.39	2.84	5.09	

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Returns shown are annualized. 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
1-YEAR			
Government Long Funds	5.60	6.24	6.82
Government Intermediate Funds	3.75	4.70	5.47
Government Short Funds	2.31	3.01	3.49
Investment-Grade Long Funds	7.30	8.43	9.92
Investment-Grade Intermediate Funds	5.27	7.03	7.63
Investment-Grade Short Funds	3.19	3.69	4.13
High-Yield Funds	4.84	5.89	7.07
Mortgage-Backed Securities Funds	5.11	5.44	5.83
Global Income Funds	4.58	6.27	7.59
Emerging Markets Debt Funds	8.22	9.79	10.81
General Municipal Debt Funds	5.25	5.71	6.26
California Municipal Debt Funds	5.11	5.76	6.12
New York Municipal Debt Funds	5.10	5.48	6.11
Loan Participation Funds	2.04	2.47	2.81
3-YEAR			
Government Long Funds	0.97	1.18	1.46
Government Intermediate Funds	0.75	0.93	1.10
Government Short Funds	0.81	1.06	1.21
Investment-Grade Long Funds	2.52	3.30	3.93
Investment-Grade Intermediate Funds	1.80	2.26	2.59
Investment-Grade Short Funds	1.48	1.75	2.19
High-Yield Funds	5.44	6.27	6.81
Mortgage-Backed Securities Funds	1.45	1.73	2.26
Global Income Funds	1.78	2.68	4.02
Emerging Markets Debt Funds	4.05	4.76	5.65
General Municipal Debt Funds	1.88	2.13	2.61
California Municipal Debt Funds	1.81	2.07	2.40
New York Municipal Debt Funds	1.78	1.94	2.14
Loan Participation Funds	3.65	4.19	4.59

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Returns shown are annualized. 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
5-YEAR			
Government Long Funds	1.71	1.99	2.30
Government Intermediate Funds	1.09	1.41	1.76
Government Short Funds	0.71	0.99	1.15
Investment-Grade Long Funds	2.83	3.26	3.65
Investment-Grade Intermediate Funds	1.85	2.43	2.86
Investment-Grade Short Funds	1.08	1.41	1.73
High-Yield Funds	2.97	3.54	4.12
Mortgage-Backed Securities Funds	1.84	2.10	2.48
Global Income Funds	0.57	1.41	2.45
Emerging Markets Debt Funds	2.35	3.29	3.89
General Municipal Debt Funds	3.11	3.49	3.91
California Municipal Debt Funds	3.36	3.69	4.27
New York Municipal Debt Funds	3.24	3.48	3.73
Loan Participation Funds	2.50	2.83	3.23
10-YEAR			
Government Long Funds	2.50	2.97	3.72
Government Intermediate Funds	1.40	1.97	2.42
Government Short Funds	0.85	1.20	1.56
Investment-Grade Long Funds	4.03	4.80	6.23
Investment-Grade Intermediate Funds	3.11	4.22	4.83
Investment-Grade Short Funds	1.94	2.27	2.74
High-Yield Funds	7.52	8.04	8.49
Mortgage-Backed Securities Funds	2.77	3.14	3.53
Global Income Funds	2.48	3.36	4.44
Emerging Markets Debt Funds	4.41	6.61	7.18
General Municipal Debt Funds	4.34	4.93	5.39
California Municipal Debt Funds	5.08	5.53	5.73
New York Municipal Debt Funds	4.21	4.79	5.01
Loan Participation Funds	4.82	5.16	5.62

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Returns shown are annualized. 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
15-YEAR			
Government Long Funds	3.06	3.44	4.81
Government Intermediate Funds	2.47	2.82	3.19
Government Short Funds	1.83	2.08	2.30
Investment-Grade Long Funds	3.67	4.16	4.96
Investment-Grade Intermediate Funds	3.25	3.87	4.33
Investment-Grade Short Funds	2.22	2.56	2.78
High-Yield Funds	5.79	6.15	6.52
Mortgage-Backed Securities Funds	3.33	3.65	4.03
Global Income Funds	3.22	4.23	5.06
Emerging Markets Debt Funds	7.39	7.75	7.82
General Municipal Debt Funds	3.91	4.24	4.46
California Municipal Debt Funds	4.28	4.50	4.74
New York Municipal Debt Funds	3.90	4.14	4.36
Loan Participation Funds	-	-	-

Source: S&P Dow Jones Indices LLC, Bloomberg. Data as of June 30, 2019. Returns shown are annualized. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

APPENDIX A

SPIVA Styles and Lipper Fund Classifications

The CRSP Survivor-Bias-Free US Mutual Fund Database is the only complete database of both active and liquidated or merged mutual funds. It was created in 1995 and contains fund data from December 1961. Current and historical data from August 1998 has been supplied by Lipper and Thomson Reuters. The fund classifications are based upon the Lipper fund classification system. The SPIVA Scorecard covers domestic equity, global equity, and global fixed income categories.

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, confirming 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 2 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 Funds	Large-Cap Growth Funds
Large-Cap Core Funds	Large-Cap Core Funds
Large-Cap Value Funds	Large-Cap Value Funds
	Equity Income Funds
Mid-Cap Growth Funds	Mid-Cap Growth Funds
Mid-Cap Core Funds	Mid-Cap Core Funds
Mid-Cap Value Funds	Mid-Cap Value Funds
Small-Cap Growth Funds	Small-Cap Growth Funds
Small-Cap Core Funds	Small-Cap Core Funds
Small-Cap Value Funds	Small-Cap Value Funds
Multi-Cap Growth Funds	Multi-Cap Growth Funds
Multi-Cap Core Funds	Multi-Cap Core Funds
Multi-Cap Value Funds	Multi-Cap Value Funds
Real Estate Funds	Real Estate 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 Funds) of interest to global asset allocators. These categories also include multiple Lipper capitalization and style classifications.

Exhibit A2: Global Equity Category Mappings	
SPIVA CATEGORY	LIPPER FUND 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 nine 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 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 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 FUND CLASSIFICATION
Government Long Funds	General U.S. Government Funds
	General U.S. Treasury Funds
Government Intermediate Funds	Intermediate U.S. Government
	Short-Intermediate U.S. Government
Government Short Funds	Short U.S. Government Funds
	Short U.S. Treasury
Investment-Grade Long Funds	Corporate Debt Funds A-Rated
	Corporate Debt Funds BBB-Rated
Investment-Grade Intermediate Funds	Intermediate Investment-Grade Debt Funds
	Short-Intermediate Investment-Grade Debt Funds
Investment-Grade Short Funds	Short Investment-Grade Debt Funds
High-Yield Funds	High Current Yield Funds
Mortgage-Backed Securities Funds	U.S. Mortgage Funds
	GNMA Funds
Global Income Funds	Global Income Funds
	International Income Funds
Emerging Market Debt Funds	Emerging Market Debt Funds
General Municipal Debt Funds	General 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 Outperformed by 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 funds 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 Fund Performance

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

Asset-Weighted Fund 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.

Quartiles 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. For fund category quartiles in a particular time horizon, the data used is the return of the largest share class of the fund net of fees, excluding loads.

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.

INDICES¹

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. This index is comprised of three size-based indices: the S&P 500, S&P MidCap 400, and S&P SmallCap 600, which measure the performance of large-, mid-, and small-cap stocks, respectively. This index represents 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.

¹ For more information on S&P Dow Jones Indices, please visit www.spindices.com.

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, 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 700

This index measures 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 measures the returns of stocks that are legally and practically available to foreign market participants.

Fixed Income²

BLOOMBERG BARCLAYS LONG GOVERNMENT BOND INDEX

This index consists of U.S. Treasury and U.S. Government agency bonds with maturities greater than 10 years.

BLOOMBERG BARCLAYS INTERMEDIATE GOVERNMENT BOND INDEX

This index consists of U.S. Treasury and U.S. Government agency bonds with maturities from 1 to 10 years.

² Bloomberg Barclays Fixed Income Indices were formerly Barclays Capital Fixed Income Indices, which were formerly the Lehman Brothers Indices.

BLOOMBERG BARCLAYS 1-3 YEAR GOVERNMENT BOND INDEX

This index consists of U.S. Treasury and U.S. Government agency bonds with maturities from one to three years.

BLOOMBERG BARCLAYS LONG GOVERNMENT/CREDIT BOND INDEX

This index covers corporate and non-corporate fixed income securities that are rated investment grade and have maturities greater than 10 years.

BLOOMBERG BARCLAYS INTERMEDIATE GOVERNMENT/CREDIT BOND INDEX

This index covers corporate and non-corporate fixed income securities that are rated investment grade with maturities from 1 to 10 years.

BLOOMBERG BARCLAYS 1-3 YEAR GOVERNMENT/CREDIT BOND INDEX

This index covers corporate and non-corporate fixed income securities that are rated investment grade and have one to three years until their final maturity.

BLOOMBERG BARCLAYS HIGH YIELD BOND INDEX

This index includes all fixed income securities with a maximum quality rating of Ba1/BB+ (including defaulted issues), a minimum amount outstanding of USD 100 million, and at least one year to maturity.

BLOOMBERG BARCLAYS BROTHERS 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 BARCLAYS 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 BARCLAYS EMERGING MARKETS 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 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.

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