

## CONTRIBUTOR

### Aye M. Soe, CFA

Senior Director

Global Research & Design

[aye.soe@spglobal.com](mailto:aye.soe@spglobal.com)

### Ryan Poirier

Senior Analyst

Global Research & Design

[ryan.poirier@spglobal.com](mailto:ryan.poirier@spglobal.com)

# SPIVA<sup>®</sup> U.S. Scorecard

## SUMMARY

- The first half of 2016 saw global markets end in the red, largely in part due to Brexit and market uncertainty. The U.S. equity market posted modest gains across all cap ranges, with the [S&P 500<sup>®</sup>](#) posting 3.84% YTD and 3.99% year-over-year as of June 30, 2016.
- During the one-year period, 84.62% of large-cap managers, 87.89% of mid-cap managers, and 88.77% of small-cap managers underperformed the S&P 500, the [S&P MidCap 400<sup>®</sup>](#), and the [S&P SmallCap 600<sup>®</sup>](#), respectively.
- The figures are equally unfavorable when viewed over longer-term investment horizons. Over the five-year period, 91.91% of large-cap managers, 87.87% of mid-cap managers, and 97.58% of small-cap managers lagged their respective benchmarks.
- Similarly, over the 10-year investment horizon, 85.36% of large-cap managers, 91.27% of mid-cap managers, and 90.75% of small-cap managers failed to outperform on a relative basis.
- Over the 12-month period ending June 30, 2016, value managers across all three market cap ranges fared better than their core and growth counterparts. Data shows that only 1 out of 10 large-cap, mid-cap, and small-cap growth managers outperformed their respective benchmarks.
- Across nine U.S. style categories, large-cap value managers performed the best over the 10-year horizon, with 32% of managers outperforming the benchmark, the [S&P 500 Value](#).
- The headline international equity and emerging market equity indices rebounded sharply during the first half of 2016. The gains, however, were not sufficient to erase the losses sustained in 2015. Over the one-year period ending June 30, 2016, the headline international and emerging market indices posted negative returns.
- During the same one-year period, with the exception of actively managed emerging markets funds, the majority of managers investing in global equities, international, and international small-cap equities underperformed their respective benchmarks.

- Over the 10-year investment horizon, managers across all international equity categories underperformed their benchmarks.
- The hunt for yield has become increasingly challenging for fixed income managers. During the one-year period studied, the majority of managers investing in government and corporate credit bond categories underperformed their benchmarks, with the exception of those managing intermediate-term corporate credit funds.
- The high-yield bond market recovered during the first half of 2016. Rebounds in the commodity sectors contributed to the rally, with spreads tightening considerably. During the one-year period, three-quarters of actively managed high-yield bonds failed to deliver higher returns than the benchmark. This marks a sharp reversal of fortune for high-yield funds from results seen at year-end 2015, when the majority of the funds beat the benchmark.
- Strength in the high-yield bond market also extended to the leverage loan sector. The [S&P/LSTA U.S. Leveraged Loan 100 Index](#) posted a gain of 5.36% YTD and 0.69% year-over-year as of June 30, 2016. Actively managed senior loan funds fared favorably over the one-year period, with nearly 60% of the funds outperforming the benchmark.
- Funds disappear at a meaningful rate. Over the five-year period, nearly 21% of domestic equity funds, 21% of global/international equity funds, and 14% of fixed income funds were merged or liquidated. This finding highlights the importance of addressing survivorship bias in mutual fund analysis.

## 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 14 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.

## REPORTS

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

FUND CATEGORY	COMPARISON INDEX	ONE-YEAR (%)	THREE-YEAR (%)	FIVE-YEAR (%)	TEN-YEAR (%)
All Domestic Equity Funds	S&P Composite 1500	90.20	87.41	94.58	87.47
All Large-Cap Funds	S&P 500	84.62	81.31	91.91	85.36
All Mid-Cap Funds	S&P MidCap 400	87.89	83.81	87.87	91.27
All Small-Cap Funds	S&P SmallCap 600	88.77	94.07	97.58	90.75
All Multi-Cap Funds	S&P Composite 1500	91.61	86.13	94.71	90.29
Large-Cap Growth Funds	S&P 500 Growth	95.10	90.32	97.38	98.59
Large-Cap Core Funds	S&P 500	81.25	87.76	92.16	88.21
Large-Cap Value Funds	S&P 500 Value	77.04	82.44	88.78	67.76
Mid-Cap Growth Funds	S&P MidCap 400 Growth	95.56	81.14	88.04	95.21
Mid-Cap Core Funds	S&P MidCap 400	82.48	84.96	87.68	92.31
Mid-Cap Value Funds	S&P MidCap 400 Value	77.78	85.33	81.71	87.21
Small-Cap Growth Funds	S&P SmallCap 600 Growth	90.09	95.26	96.85	94.53
Small-Cap Core Funds	S&P SmallCap 600	90.78	95.56	97.89	89.77
Small-Cap Value Funds	S&P SmallCap 600 Value	83.94	92.06	98.21	90.22
Multi-Cap Growth Funds	S&P Composite 1500 Growth	96.04	92.27	99.06	92.41
Multi-Cap Core Funds	S&P Composite 1500	91.16	93.21	93.37	89.33
Multi-Cap Value Funds	S&P Composite 1500 Value	83.87	77.97	87.50	80.92
Real Estate Funds	S&P US Real Estate Investment Trust	90.53	67.74	89.11	89.16

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

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

FUND CATEGORY	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
<b>ONE-YEAR</b>			
All Domestic Funds	2662	95.34	95.19
All Large-Cap Funds	1009	95.44	90.88
All Mid-Cap Funds	382	95.03	87.17
All Small-Cap Funds	644	94.88	93.79
All Multi-Cap Funds	627	95.85	86.76
Large-Cap Growth Funds	290	95.52	87.93
Large-Cap Blend Funds	337	96.74	89.61
Large-Cap Value Funds	382	94.24	86.39
Mid-Cap Growth Funds	181	95.58	81.77
Mid-Cap Blend Funds	137	93.43	81.75
Mid-Cap Value Funds	64	96.88	79.69
Small-Cap Growth Funds	223	94.17	89.24
Small-Cap Blend Funds	283	96.47	90.11
Small-Cap Value Funds	138	92.75	82.61

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 2: Survivorship and Style Consistency of U.S. Equity Funds (cont.)</b>			
<b>FUND CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>ONE-YEAR</b>			
Multi-Cap Growth Funds	203	95.57	86.21
Multi-Cap Core Funds	300	97.00	81.33
Multi-Cap Value Funds	124	93.55	81.45
Real Estate Funds	96	98.96	97.92
<b>THREE-YEAR</b>			
All Domestic Funds	2692	89.23	86.33
All Large-Cap Funds	1044	88.41	77.78
All Mid-Cap Funds	385	88.31	73.51
All Small-Cap Funds	609	89.98	87.68
All Multi-Cap Funds	654	90.37	65.14
Large-Cap Growth Funds	314	86.62	74.52
Large-Cap Blend Funds	392	87.76	68.11
Large-Cap Value Funds	338	90.83	79.59
Mid-Cap Growth Funds	176	86.93	68.75
Mid-Cap Blend Funds	133	86.47	60.90
Mid-Cap Value Funds	76	94.74	59.21
Small-Cap Growth Funds	212	88.21	82.08
Small-Cap Blend Funds	271	91.51	76.75
Small-Cap Value Funds	126	89.68	69.05
Multi-Cap Growth Funds	208	89.42	62.50
Multi-Cap Core Funds	326	91.72	54.91
Multi-Cap Value Funds	120	88.33	61.67
Real Estate Funds	94	93.62	91.49
<b>FIVE-YEAR</b>			
All Domestic Funds	2826	78.95	75.02
All Large-Cap Funds	1069	78.11	64.64
All Mid-Cap Funds	408	79.17	57.84
All Small-Cap Funds	622	81.83	77.65
All Multi-Cap Funds	727	77.58	46.49
Large-Cap Growth Funds	346	76.59	61.85
Large-Cap Blend Funds	408	77.70	53.92
Large-Cap Value Funds	315	80.32	62.86
Mid-Cap Growth Funds	186	77.96	56.99
Mid-Cap Blend Funds	139	76.98	44.60
Mid-Cap Value Funds	83	85.54	34.94
Small-Cap Growth Funds	223	76.23	67.26
Small-Cap Blend Funds	286	83.92	60.84
Small-Cap Value Funds	113	87.61	59.29

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 2: Survivorship and Style Consistency of U.S. Equity Funds (cont.)</b>			
<b>FUND CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>FIVE-YEAR</b>			
Multi-Cap Growth Funds	214	73.83	41.12
Multi-Cap Core Funds	383	80.68	34.20
Multi-Cap Value Funds	130	74.62	35.38
Real Estate Funds	101	94.06	79.21
<b>TEN-YEAR</b>			
All Domestic Funds	2195	57.04	53.30
All Large-Cap Funds	690	54.35	43.33
All Mid-Cap Funds	378	57.67	37.30
All Small-Cap Funds	508	60.83	56.30
All Multi-Cap Funds	619	56.54	28.43
Large-Cap Growth Funds	213	46.95	34.74
Large-Cap Core Funds	263	54.75	36.12
Large-Cap Value Funds	214	61.21	43.46
Mid-Cap Growth Funds	188	47.34	30.32
Mid-Cap Core Funds	104	61.54	26.92
Mid-Cap Value Funds	86	75.58	22.09
Small-Cap Growth Funds	201	52.24	42.79
Small-Cap Core Funds	215	65.12	41.86
Small-Cap Value Funds	92	69.57	33.70
Multi-Cap Growth Funds	146	53.42	24.66
Multi-Cap Core Funds	300	55.67	18.00
Multi-Cap Value Funds	173	60.69	22.54
Real Estate Funds	83	72.29	53.01

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 3: Average U.S. Equity Fund Performance (Equal-Weighted)</b>				
<b>CATEGORY</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>	<b>TEN-YEAR (ANNUALIZED %)</b>
S&P Composite 1500	3.64	11.52	11.94	7.53
All Domestic Funds	-3.34	8.35	8.69	5.96
S&P 500	3.99	11.66	12.10	7.42
All Large-Cap Funds	-0.38	9.37	9.64	6.06
S&P MidCap 400	1.33	10.53	10.55	8.55
All Mid-Cap Funds	-5.17	8.12	8.07	6.46
S&P SmallCap 600	-0.03	10.23	11.20	7.86
All Small-Cap Funds	-7.21	6.36	7.29	5.58
S&P Composite 1500	3.64	11.52	11.94	7.53
All Multi-Cap Funds	-3.39	8.48	8.59	5.66

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 3: Average U.S. Equity Fund Performance (Equal-Weighted) (cont.)</b>					
<b>CATEGORY</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>	<b>TEN-YEAR (ANNUALIZED %)</b>	
<b>LARGE-CAP</b>					
S&P 500 Growth	4.24	13.41	12.92	8.97	
Large-Cap Growth Funds	-1.93	11.08	10.06	6.93	
S&P 500	3.99	11.66	12.10	7.42	
Large-Cap Core Funds	0.37	9.43	9.89	5.95	
S&P 500 Value	3.38	9.66	11.18	5.77	
Large-Cap Value Funds	0.08	7.85	9.03	5.30	
<b>MID-CAP</b>					
S&P MidCap 400 Growth	1.17	10.77	10.07	9.29	
Mid-Cap Growth Funds	-7.12	8.08	7.45	6.39	
S&P MidCap 400	1.33	10.53	10.55	8.55	
Mid-Cap Core Funds	-4.32	7.76	8.06	6.35	
S&P MidCap 400 Value	1.28	10.13	10.96	7.75	
Mid-Cap Value Funds	-2.08	8.50	9.22	6.61	
<b>SMALL-CAP</b>					
S&P SmallCap 600 Growth	-0.63	11.00	11.05	8.63	
Small-Cap Growth Funds	-10.62	6.43	6.83	5.73	
S&P SmallCap 600	-0.03	10.23	11.20	7.86	
Small-Cap Core Funds	-5.79	6.39	7.46	5.44	
S&P SmallCap 600 Value	0.72	9.43	11.36	7.08	
Small-Cap Value Funds	-4.28	5.99	7.71	5.42	
<b>MULTI-CAP</b>					
S&P Composite 1500 Growth	3.84	13.14	12.63	9.01	
Multi-Cap Growth Funds	-4.28	9.88	8.95	6.40	
S&P Composite 1500	3.64	11.52	11.94	7.53	
Multi-Cap Core Funds	-3.10	7.92	8.35	5.52	
S&P Composite 1500 Value	3.10	9.68	11.16	5.98	
Multi-Cap Value Funds	-2.21	7.56	8.56	4.89	
<b>REAL ESTATE</b>					
S&P BMI U.S. REIT	23.71	13.34	12.45	7.27	
Real Estate Funds	18.83	11.83	10.74	6.04	

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 4: Average U.S. Equity Fund Performance (Asset-Weighted)</b>					
<b>CATEGORY</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>	<b>TEN-YEAR ANNUALIZED (%)</b>	
S&P Composite 1500	3.64	11.52	11.94	7.53	
All Domestic Funds	-1.11	9.65	9.92	6.61	
S&P 500	3.99	11.66	12.10	7.42	
All Large-Cap Funds	0.73	10.23	10.53	6.38	
S&P MidCap 400	1.33	10.53	10.55	8.55	
All Mid-Cap Funds	-3.83	8.85	8.93	7.22	
S&P SmallCap 600	-0.03	10.23	11.20	7.86	
All Small-Cap Funds	-5.69	6.95	7.97	6.38	
S&P Composite 1500	3.64	11.52	11.94	7.53	
All Multi-Cap Funds	-2.72	9.56	9.60	6.50	
<b>LARGE-CAP</b>					
S&P 500 Growth	4.24	13.41	12.92	8.97	
Large-Cap Growth Funds	-1.13	11.61	10.94	7.21	
S&P 500	3.99	11.66	12.10	7.42	
Large-Cap Core Funds	1.94	10.21	10.62	6.09	
S&P 500 Value	3.38	9.66	11.18	5.77	
Large-Cap Value Funds	1.32	8.71	9.88	5.85	
<b>MID-CAP</b>					
S&P MidCap 400 Growth	1.17	10.77	10.07	9.29	
Mid-Cap Growth Funds	-4.97	8.94	8.43	7.42	
S&P MidCap 400	1.33	10.53	10.55	8.55	
Mid-Cap Core Funds	-3.76	8.40	8.98	7.21	
S&P MidCap 400 Value	1.28	10.13	10.96	7.75	
Mid-Cap Value Funds	-0.37	8.93	9.73	7.06	
<b>SMALL-CAP</b>					
S&P SmallCap 600 Growth	-0.63	11.00	11.05	8.63	
Small-Cap Growth Funds	-7.90	7.44	8.08	6.96	
S&P SmallCap 600	-0.03	10.23	11.20	7.86	
Small-Cap Core Funds	-4.46	6.79	7.86	6.13	
S&P SmallCap 600 Value	0.72	9.43	11.36	7.08	
Small-Cap Value Funds	-4.45	6.27	7.79	5.87	
<b>MULTI-CAP</b>					
S&P Composite 1500 Growth	3.84	13.14	12.63	9.01	
Multi-Cap Growth Funds	-4.43	10.90	10.27	7.43	
S&P Composite 1500	3.64	11.52	11.94	7.53	
Multi-Cap Core Funds	-1.76	8.92	9.07	6.30	
S&P Composite 1500 Value	3.10	9.68	11.16	5.98	
Multi-Cap Value Funds	-1.37	8.16	9.46	5.10	
<b>REAL ESTATE</b>					
S&P BMI U.S. REIT	23.71	13.34	12.45	7.27	
Real Estate Funds	19.79	12.74	11.38	6.95	

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. All index returns used are total returns. Table is provided for illustrative purposes. Past performance is no guarantee of future results.



<b>Report 5: Quartile Breakpoints of U.S. Equity Funds</b>			
<b>FUND CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>ONE-YEAR</b>			
All Domestic Funds	-6.72	-2.74	0.64
All Large-Cap Funds	-3.04	-0.43	2.20
All Mid-Cap Funds	-9.40	-5.13	-1.15
All Small-Cap Funds	-10.04	-6.31	-2.80
All Multi-Cap Funds	-6.05	-2.68	0.07
Large-Cap Growth Funds	-3.95	-1.70	0.84
Large-Cap Core Funds	-2.06	0.57	3.06
Large-Cap Value Funds	-3.38	-0.15	3.24
Mid-Cap Growth Funds	-10.79	-7.10	-3.65
Mid-Cap Core Funds	-8.25	-4.46	0.27
Mid-Cap Value Funds	-5.06	-2.70	0.54
Small-Cap Growth Funds	-14.10	-9.85	-6.22
Small-Cap Core Funds	-8.23	-5.32	-2.74
Small-Cap Value Funds	-6.26	-4.07	-0.92
Multi-Cap Growth Funds	-6.67	-3.06	-0.61
Multi-Cap Core Funds	-5.70	-2.69	-0.07
Multi-Cap Value Funds	-6.04	-2.16	1.41
Real Estate Funds	17.99	21.07	22.52
<b>THREE-YEAR</b>			
All Domestic Funds	6.67	8.52	10.41
All Large-Cap Funds	7.96	9.61	11.31
All Mid-Cap Funds	6.60	8.28	9.76
All Small-Cap Funds	5.01	6.88	8.28
All Multi-Cap Funds	6.73	8.61	10.57
Large-Cap Growth Funds	10.35	11.59	12.61
Large-Cap Core Funds	8.35	9.59	10.87
Large-Cap Value Funds	6.61	8.17	9.30
Mid-Cap Growth Funds	6.84	8.47	10.06
Mid-Cap Core Funds	6.07	7.85	9.75
Mid-Cap Value Funds	6.63	8.45	9.52
Small-Cap Growth Funds	4.77	6.87	8.70
Small-Cap Core Funds	5.40	7.23	8.30
Small-Cap Value Funds	4.62	6.38	7.94
Multi-Cap Growth Funds	8.09	10.04	11.91
Multi-Cap Core Funds	6.37	8.16	9.71
Multi-Cap Value Funds	6.66	8.24	9.68
Real Estate Funds	11.62	12.86	13.50

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. All index returns used are total returns. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 5: Quartile Breakpoints of U.S. Equity Funds (cont.)</b>			
<b>FUND CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>FIVE-YEAR</b>			
All Domestic Funds	7.39	9.08	10.50
All Large-Cap Funds	8.86	10.00	11.11
All Mid-Cap Funds	6.79	8.28	9.80
All Small-Cap Funds	6.41	7.86	9.20
All Multi-Cap Funds	7.08	8.97	10.49
Large-Cap Growth Funds	9.41	10.62	11.55
Large-Cap Core Funds	8.86	10.06	11.11
Large-Cap Value Funds	8.45	9.53	10.54
Mid-Cap Growth Funds	6.32	7.58	9.43
Mid-Cap Core Funds	7.27	8.37	9.80
Mid-Cap Value Funds	7.55	9.15	10.74
Small-Cap Growth Funds	5.87	7.20	8.64
Small-Cap Core Funds	7.07	8.23	9.32
Small-Cap Value Funds	6.63	8.13	9.23
Multi-Cap Growth Funds	7.37	9.19	10.49
Multi-Cap Core Funds	6.59	8.66	10.47
Multi-Cap Value Funds	7.98	9.18	10.53
Real Estate Funds	8.98	11.53	11.95
<b>TEN-YEAR</b>			
All Domestic Funds	5.17	6.27	7.36
All Large-Cap Funds	5.53	6.47	7.51
All Mid-Cap Funds	5.67	6.78	7.77
All Small-Cap Funds	5.17	6.09	7.24
All Multi-Cap Funds	4.63	5.72	7.02
Large-Cap Growth Funds	6.38	7.27	8.15
Large-Cap Core Funds	5.63	6.41	7.25
Large-Cap Value Funds	4.86	5.91	7.10
Mid-Cap Growth Funds	5.83	7.00	7.99
Mid-Cap Core Funds	6.04	6.72	7.75
Mid-Cap Value Funds	5.29	6.35	7.32
Small-Cap Growth Funds	5.36	6.44	7.44
Small-Cap Core Funds	5.05	6.03	7.23
Small-Cap Value Funds	5.16	5.86	6.59
Multi-Cap Growth Funds	5.36	6.69	7.66
Multi-Cap Core Funds	4.38	5.67	7.18
Multi-Cap Value Funds	4.31	5.30	6.27
Real Estate Funds	3.86	6.24	7.08

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. All index returns used are total returns. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Report 6: Percentage of International Equity Funds Outperformed by Benchmarks**

FUND CATEGORY	COMPARISON INDEX	ONE-YEAR (%)	THREE-YEAR (%)	FIVE-YEAR (%)	TEN-YEAR (%)
Global Funds	S&P Global 1200	75.35	76.96	82.45	81.19
International Funds	S&P 700	54.92	54.55	60.45	80.21
International Small Cap Funds	S&P Developed Ex-U.S. SmallCap	74.75	74.67	55.00	62.26
Emerging Market Funds	S&P/IFCI Composite	42.22	77.42	67.63	81.94

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Outperformance is based upon equal weighted fund counts. All index returns used are total returns. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Report 7: Survivorship and Style Consistency of International Equity Funds**

FUND CATEGORY	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
<b>ONE-YEAR</b>			
Global Funds	284	94.37	89.79
International Funds	461	97.40	96.75
International Small-Cap Funds	99	93.94	92.93
Emerging Market Funds	270	96.30	97.04
<b>THREE-YEAR</b>			
Global Funds	217	82.95	70.51
International Funds	344	89.83	88.37
International Small-Cap Funds	75	93.33	89.33
Emerging Market Funds	217	87.56	87.10
<b>FIVE-YEAR</b>			
Global Funds	188	70.74	53.72
International Funds	356	78.93	75.28
International Small-Cap Funds	60	91.67	86.67
Emerging Market Funds	174	83.91	82.18
<b>TEN-YEAR</b>			
Global Funds	101	59.41	45.54
International Funds	289	60.90	58.48
International Small-Cap Funds	53	77.36	64.15
Emerging Market Funds	72	79.17	75.00

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

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

CATEGORY	ONE-YEAR (%)	THREE-YEAR (ANNUALIZED %)	FIVE-YEAR (ANNUALIZED %)	TEN-YEAR (ANNUALIZED %)
S&P Global 1200	-2.07	7.35	6.98	5.08
Global Funds	-4.86	5.64	5.09	3.94
S&P 700	-9.58	2.15	1.38	2.46
International Funds	-9.76	1.85	1.07	1.37
S&P Developed Ex-U.S. SmallCap	-3.80	7.14	4.20	4.15
International Small Cap Funds	-6.34	4.65	3.85	3.83
S&P/IFCI Composite	-10.63	-0.06	-2.66	4.44
Emerging Market Funds	-10.06	-1.51	-3.43	2.63

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. All index returns used are total returns. Funds are equal-weighted, but indices are not. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

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

CATEGORY	ONE-YEAR (%)	THREE-YEAR (ANNUALIZED %)	FIVE-YEAR (ANNUALIZED %)	TEN-YEAR (ANNUALIZED %)
S&P Global 1200	-2.07	7.35	6.98	5.08
Global Funds	-4.37	6.25	6.24	5.01
S&P 700	-9.58	2.15	1.38	2.46
International Funds	-9.85	2.47	1.84	2.41
S&P Developed Ex-U.S. SmallCap	-3.80	7.14	4.20	4.15
International Small Cap Funds	-5.88	5.56	4.41	4.68
S&P/IFCI Composite	-10.63	-0.06	-2.66	4.44
Emerging Market Funds	-8.32	-0.70	-2.36	3.93

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

**Report 10: Quartile Breakpoints of International Equity Funds**

FUND CATEGORY	THIRD QUARTILE	SECOND QUARTILE	FIRST QUARTILE
<b>ONE-YEAR</b>			
Global Funds	-7.92	-4.84	-1.78
International Funds	-12.15	-10.01	-7.09
International Small Cap Funds	-8.59	-5.65	-3.56
Emerging Market Funds	-12.25	-9.59	-6.72
<b>THREE-YEAR</b>			
Global Funds	4.31	6.11	7.64
International Funds	0.75	2.19	3.50
International Small Cap Funds	2.89	5.64	7.24
Emerging Market Funds	-2.73	-1.44	0.01
<b>FIVE-YEAR</b>			
Global Funds	3.94	5.73	6.95
International Funds	0.26	1.38	2.57
International Small Cap Funds	2.75	4.09	5.79
Emerging Market Funds	-4.60	-3.12	-1.72
<b>TEN-YEAR</b>			
Global Funds	3.39	4.51	5.32
International Funds	0.89	1.77	2.79
International Small Cap Funds	2.95	4.15	5.13
Emerging Market Funds	1.84	2.86	4.00

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 11: Percentage of Fixed Income Funds Outperformed by Benchmarks</b>					
<b>FUND CATEGORY</b>	<b>COMPARISON INDEX</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (%)</b>	<b>FIVE-YEAR (%)</b>	<b>TEN-YEAR (%)</b>
Government Long Funds	Barclays Long Government	93.10	96.83	97.56	95.74
Government Intermediate Funds	Barclays Intermediate Government	64.29	58.62	71.05	79.66
Government Short Funds	Barclays 1-3 Year Government	69.23	67.50	68.42	79.07
Investment-Grade Long Funds	Barclays Long Government/Credit	94.39	97.32	98.41	98.21
Investment-Grade Intermediate Funds	Barclays Intermediate Government/Credit	40.00	37.33	39.35	59.81
Investment-Grade Short Funds	Barclays 1-3 Year Government/Credit	60.19	46.67	27.40	63.75
High Yield Funds	Barclays High Yield	75.00	80.47	88.78	96.62
Mortgage-Backed Securities Funds	Barclays Mortgage-Backed Securities	78.69	75.00	66.67	80.36
Global Income Funds	Barclays Global Aggregate	86.15	70.77	59.13	65.57
Emerging Markets Debt Funds	Barclays Emerging Markets	74.65	88.89	92.31	81.82
Loan Participation Funds <sup>1</sup>	S&P/LSTA U.S Leveraged Loan 100 Index	40.74	31.82	60.00	N/A
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond Index	47.73	33.73	33.77	74.44
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond Index	27.78	30.56	21.21	83.33
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond Index	29.63	50.00	48.28	91.67

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Outperformance is based upon equal-weighted fund counts. All index returns used are total returns. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 12: Survivorship and Style Consistency of Fixed Income Funds</b>			
<b>FUND CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>ONE-YEAR</b>			
Government Long Funds	59	94.92	96.61
Government Intermediate Funds	28	85.71	89.29
Government Short Funds	39	92.31	92.31
Investment-Grade Long Funds	110	100.00	96.36
Investment-Grade Intermediate Funds	242	96.28	92.56
Investment-Grade Short Funds	110	96.36	92.73
High Yield Funds	237	96.20	96.20
Mortgage-Backed Securities Funds	62	100.00	93.55
Global Income Funds	130	96.92	96.15
Emerging Market Debt Funds	71	100.00	100.00
Loan Participation Funds	54	100.00	100.00
General Municipal Debt Funds	88	100.00	96.59
California Municipal Debt Funds	36	100.00	100.00
New York Municipal Debt Funds	27	100.00	100.00

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<sup>1</sup> Due to the limited sample size of loan participation funds 10 years ago, we have not calculated the outperformance and the related figures.

<b>Report 12: Survivorship and Style Consistency of Fixed Income Funds (cont.)</b>			
<b>FUND CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>THREE-YEAR</b>			
Government Long Funds	64	90.63	87.50
Government Intermediate Funds	29	82.76	82.76
Government Short Funds	40	80.00	75.00
Investment-Grade Long Funds	116	97.41	79.31
Investment-Grade Intermediate Funds	294	90.14	62.24
Investment-Grade Short Funds	76	94.74	86.84
High Yield Funds	217	93.55	92.63
Mortgage-Backed Securities Funds	65	87.69	76.92
Global Income Funds	130	86.92	80.77
Emerging Market Debt Funds	54	94.44	90.74
Loan Participation Funds	44	100.00	97.73
General Municipal Debt Funds	83	96.39	90.36
California Municipal Debt Funds	36	100.00	100.00
New York Municipal Debt Funds	28	96.43	96.43
<b>FIVE-YEAR</b>			
Government Long Funds	83	84.34	65.06
Government Intermediate Funds	38	68.42	60.53
Government Short Funds	38	71.05	63.16
Investment-Grade Long Funds	130	90.77	61.54
Investment-Grade Intermediate Funds	278	82.73	53.60
Investment-Grade Short Funds	74	86.49	77.03
High Yield Funds	207	88.41	84.54
Mortgage-Backed Securities Funds	64	85.94	73.44
Global Income Funds	116	85.34	69.83
Emerging Market Debt Funds	52	90.38	61.54
Loan Participation Funds	35	97.14	88.57
General Municipal Debt Funds	77	92.21	83.12
California Municipal Debt Funds	33	96.97	96.97
New York Municipal Debt Funds	29	86.21	86.21
<b>TEN-YEAR</b>			
Government Long Funds	48	60.42	52.08
Government Intermediate Funds	59	55.93	38.98
Government Short Funds	43	58.14	48.84
Investment-Grade Long Funds	112	58.04	32.14
Investment-Grade Intermediate Funds	214	58.88	43.46
Investment-Grade Short Funds	80	62.50	57.50
High Yield Funds	148	67.57	62.16
Mortgage-Backed Securities Funds	56	71.43	62.50
Global Income Funds	61	63.93	52.46
Emerging Market Debt Funds	22	77.27	72.73
Loan Participation Funds	N/A	N/A	N/A
General Municipal Debt Funds	90	63.33	58.89
California Municipal Debt Funds	42	73.81	71.43
New York Municipal Debt Funds	36	66.67	66.67

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 13: Average Fixed Income Fund Performance (Equal-Weighted)</b>				
<b>CATEGORY</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>	<b>TEN-YEAR (ANNUALIZED %)</b>
Barclays Long Government	18.98	10.38	10.17	8.69
Government Long Funds	5.15	3.14	3.01	4.19
Barclays Intermediate Government	3.93	2.41	2.31	4.07
Government Intermediate Funds	3.22	2.08	1.94	3.43
Barclays 1-3 Year Government	1.31	1.00	0.84	2.54
Government Short Funds	0.78	0.60	0.48	2.00
Barclays Long Government/Credit	15.72	9.33	9.18	8.42
Investment-Grade Long Funds	6.33	4.74	4.64	5.36
Barclays Intermediate Government/Credit	4.33	2.95	2.90	4.48
Investment-Grade Intermediate Funds	4.17	3.07	3.16	4.13
Barclays 1-3 Year Government/Credit	1.59	1.22	1.10	2.80
Investment-Grade Short Funds	1.19	1.13	1.31	1.96
Barclays High Yield	1.62	4.18	5.84	7.56
High Yield Funds	-0.17	2.88	4.48	5.46
Barclays Mortgage-Backed Securities	4.34	3.76	3.01	4.96
Mortgage-Backed Securities Funds	3.25	3.06	2.71	4.14
Barclays Global Aggregate	8.87	2.80	1.77	4.40
Global Income Funds	4.35	1.91	1.67	4.07
Barclays Emerging Markets	7.83	5.99	5.99	7.74
Emerging Market Debt Funds	4.94	2.88	2.68	5.49
S&P/LSTA U.S. Leveraged Loan 100 Index	0.69	2.15	3.46	N/A
Loan Participation Funds	0.22	2.11	3.31	N/A
S&P National AMT-Free Municipal Bond Index	7.79	5.31	5.10	4.92
General Municipal Debt Funds	7.63	5.52	5.48	4.42
S&P California AMT-Free Municipal Bond Index	7.99	6.35	6.02	5.37
California Municipal Debt Funds	9.00	6.74	6.72	4.83
S&P New York AMT-Free Municipal Bond Index	7.78	5.76	5.20	5.05
New York Municipal Debt Funds	8.08	5.52	5.19	4.43

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. All index returns used are total returns. Funds are equal weighted, but indices are not. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 14: Average Fixed Income Fund Performance (Asset-Weighted)</b>				
<b>CATEGORY</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>	<b>TEN-YEAR (ANNUALIZED %)</b>
Barclays Long Government	18.98	10.38	10.17	8.69
Government Long Funds	6.46	3.88	3.68	4.92
Barclays Intermediate Government	3.93	2.41	2.31	4.07
Government Intermediate Funds	4.11	2.71	2.83	4.12
Barclays 1-3 Year Government	1.31	1.00	0.84	2.54
Government Short Funds	1.30	1.03	0.93	2.49
Barclays Long Government/Credit	15.72	9.33	9.18	8.42
Investment-Grade Long Funds	7.62	5.51	5.41	5.73
Barclays Intermediate Government/Credit	4.33	2.95	2.90	4.48
Investment-Grade Intermediate Funds	4.94	3.59	3.65	5.25
Barclays 1-3 Year Government/Credit	1.59	1.22	1.10	2.80
Investment-Grade Short Funds	1.99	1.81	1.95	2.98
Barclays High Yield	1.62	4.18	5.84	7.56
High Yield Funds	-0.04	3.34	4.87	5.98
Barclays Mortgage-Backed Securities	4.34	3.76	3.01	4.96
Mortgage-Backed Securities Funds	4.03	3.74	3.44	4.95
Barclays Global Aggregate	8.87	2.80	1.77	4.40
Global Income Funds	1.37	1.78	1.98	4.92
Barclays Emerging Markets	7.83	5.99	5.99	7.74
Emerging Market Debt Funds	7.71	4.33	3.67	6.41
S&P/LSTA Leveraged Loan 100 Total Return Index	0.69	2.15	3.46	N/A
Loan Participation Funds	0.60	2.24	3.29	N/A
S&P National AMT-Free Municipal Bond Index	7.79	5.31	5.10	4.92
General Municipal Debt Funds	8.02	6.06	6.03	4.86
S&P California AMT-Free Municipal Bond Index	7.99	6.35	6.02	5.37
California Municipal Debt Funds	9.67	7.13	7.07	5.23
S&P New York AMT-Free Municipal Bond Index	7.78	5.76	5.20	5.05
New York Municipal Debt Funds	8.41	5.29	5.44	4.48

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. All index returns used are total returns. Funds are equal weighted, but indices are not. Table is provided for illustrative purposes. Past performance is no guarantee of future results.



<b>Report 15: Quartile Breakpoints of Fixed Income Funds</b>			
<b>FUND CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>ONE-YEAR</b>			
Government Long Funds	3.39	4.77	5.24
Government Intermediate Funds	2.08	3.41	4.49
Government Short Funds	0.70	1.00	1.42
Investment-Grade Long Funds	4.78	5.82	6.88
Investment-Grade Intermediate Funds	3.16	4.88	5.55
Investment-Grade Short Funds	1.00	1.45	1.79
High Yield Funds	-1.16	0.30	1.70
Mortgage-Backed Securities Funds	3.28	3.81	4.28
Global Income Funds	1.76	4.84	7.38
Emerging Market Debt Funds	3.00	5.44	7.91
Loan Participation Funds	0.06	0.94	1.61
General Municipal Debt Funds	6.71	7.83	8.88
California Municipal Debt Funds	7.79	8.75	10.35
New York Municipal Debt Funds	7.76	8.11	8.76
<b>THREE-YEAR</b>			
Government Long Funds	2.16	3.00	3.43
Government Intermediate Funds	1.48	2.40	2.94
Government Short Funds	0.55	0.86	1.13
Investment-Grade Long Funds	3.61	4.08	4.92
Investment-Grade Intermediate Funds	2.69	3.65	4.11
Investment-Grade Short Funds	1.00	1.31	1.56
High Yield Funds	2.59	3.35	4.03
Mortgage-Backed Securities Funds	2.95	3.38	3.80
Global Income Funds	1.04	2.10	3.38
Emerging Market Debt Funds	1.18	3.59	5.22
Loan Participation Funds	1.95	2.37	2.76
General Municipal Debt Funds	4.96	5.79	6.51
California Municipal Debt Funds	6.28	6.93	7.49
New York Municipal Debt Funds	5.10	5.84	6.23

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

<b>Report 15: Quartile Breakpoints of Fixed Income Funds (cont.)</b>			
<b>FUND CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>FIVE-YEAR</b>			
Government Long Funds	2.02	2.54	3.17
Government Intermediate Funds	1.23	2.14	2.68
Government Short Funds	0.50	0.75	1.13
Investment-Grade Long Funds	3.65	4.08	4.88
Investment-Grade Intermediate Funds	2.77	3.66	4.17
Investment-Grade Short Funds	1.22	1.44	1.83
High Yield Funds	4.26	4.92	5.52
Mortgage-Backed Securities Funds	2.45	2.84	3.17
Global Income Funds	0.59	1.70	3.42
Emerging Market Debt Funds	-2.18	2.52	4.74
Loan Participation Funds	3.01	3.37	3.73
General Municipal Debt Funds	4.83	5.75	6.31
California Municipal Debt Funds	6.19	6.90	7.18
New York Municipal Debt Funds	4.95	5.38	5.90
<b>TEN-YEAR</b>			
Government Long Funds	3.97	4.46	5.50
Government Intermediate Funds	3.27	4.00	4.38
Government Short Funds	1.81	2.12	2.80
Investment-Grade Long Funds	4.22	5.29	5.92
Investment-Grade Intermediate Funds	4.28	4.94	5.49
Investment-Grade Short Funds	2.50	2.88	3.16
High Yield Funds	5.65	6.08	6.71
Mortgage-Backed Securities Funds	4.16	4.39	5.00
Global Income Funds	3.49	4.50	5.44
Emerging Market Debt Funds	6.26	7.33	7.70
Loan Participation Funds	N/A	N/A	N/A
General Municipal Debt Funds	4.40	4.75	5.10
California Municipal Debt Funds	4.90	5.07	5.32
New York Municipal Debt Funds	4.49	4.66	4.94

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

## 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.

<b>SPIVA CATEGORY</b>	<b>LIPPER FUND CLASSIFICATION</b>
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.

<b>Exhibit 3: Global Equity Category Mappings</b>	
<b>SPIVA CATEGORY</b>	<b>LIPPER FUND CLASSIFICATION</b>
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).

<b>Exhibit 4: Fixed Income Category Mappings</b>	
<b>SPIVA CATEGORY</b>	<b>LIPPER FUND CLASSIFICATION</b>
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
Loan Participation Funds	Loan Participation 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

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  $p^{\text{th}}$  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 75<sup>th</sup> percentile, the value separating the elements of a population into the lower 75% and the upper 25%. The second quartile is the 50<sup>th</sup> percentile and the third quartile is the 25<sup>th</sup> 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.

## Indices<sup>2</sup>

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.

<sup>2</sup> For more information on S&P Dow Jones Indices, please visit [www.spindices.com](http://www.spindices.com).

## 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.

## 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 INDEX

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 WORLD EX-U.S. SMALL CAP

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 INDEX

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 Income<sup>3</sup>**

### BARCLAYS CAPITAL LONG GOVERNMENT BOND INDEX

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

### BARCLAYS CAPITAL INTERMEDIATE GOVERNMENT BOND INDEX

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

### BARCLAYS CAPITAL 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.

### BARCLAYS CAPITAL 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.

### BARCLAYS CAPITAL 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.

### BARCLAYS CAPITAL 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.

### BARCLAYS CAPITAL 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.

<sup>3</sup> Barclays Capital Fixed Income Indices were formerly the Lehman Brothers Indices.



**BARCLAYS CAPITAL 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)

**BARCLAYS CAPITAL 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.

**BARCLAYS CAPITAL EMERGING MARKETS INDEX**

This index includes fixed- and floating-rate USD-denominated debt from emerging markets.

**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.

**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.

**GLOBAL RESEARCH & DESIGN CONTACT INFORMATION****Global Head**


---

Charles Mounts	charles.mounts@spglobal.com
----------------	-----------------------------

**New York**


---

Phillip Brzenk	phillip.brzenk@spglobal.com
Smita Chirputkar	smita.chirputkar@spglobal.com
Qing Li	qing.li@spglobal.com
Berlinda Liu	berlinda.liu@spglobal.com
Ryan Poirier	ryan.poirier@spglobal.com
Aye Soe	aye.soe@spglobal.com
Peter Tsui	peter.tsui@spglobal.com
Hong Xie	hong.xie@spglobal.com
Kelly Tang	kelly.tang@spglobal.com

**Beijing**


---

Liyu Zeng	liyu.zeng@spglobal.com
-----------	------------------------

**Hong Kong**


---

Priscilla Luk	priscilla.luk@spglobal.com
---------------	----------------------------

**London**


---

Sunjiv Mainie	sunjiv.mainie@spglobal.com
Daniel Ung	daniel.ung@spglobal.com

**Mexico City**


---

Maria Sanchez	maria.sanchez@spglobal.com
---------------	----------------------------

**Mumbai**


---

Utkarsh Agrawal	utkarsh.agrawal@spglobal.com
-----------------	------------------------------

## GENERAL DISCLAIMER

Copyright © 2016 by S&P Dow Jones Indices LLC, a part of S&P Global. All rights reserved. Standard & Poor's®, S&P 500® and S&P® are registered trademarks of Standard & Poor's Financial Services LLC ("S&P"), a subsidiary of S&P Global. Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"). Trademarks have been licensed to S&P Dow Jones Indices LLC. Redistribution, reproduction and/or photocopying in whole or in part are prohibited without written permission. This document does not constitute an offer of services in jurisdictions where S&P Dow Jones Indices LLC, Dow Jones, S&P or their respective affiliates (collectively "S&P Dow Jones Indices") do not have the necessary licenses. All information provided by S&P Dow Jones Indices is impersonal and not tailored to the needs of any person, entity or group of persons. S&P Dow Jones Indices receives compensation in connection with licensing its indices to third parties. Past performance of an index is not a guarantee of future results.

It is not possible to invest directly in an index. Exposure to an asset class represented by an index is available through investable instruments based on that index. S&P Dow Jones Indices does not sponsor, endorse, sell, promote or manage any investment fund or other investment vehicle that is offered by third parties and that seeks to provide an investment return based on the performance of any index. S&P Dow Jones Indices makes no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. S&P Dow Jones Indices LLC is not an investment advisor, and S&P Dow Jones Indices makes no representation regarding the advisability of investing in any such investment fund or other investment vehicle. A decision to invest in any such investment fund or other investment vehicle should not be made in reliance on any of the statements set forth in this document. Prospective investors are advised to make an investment in any such fund or other vehicle only after carefully considering the risks associated with investing in such funds, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer of the investment fund or other vehicle. Inclusion of a security within an index is not a recommendation by S&P Dow Jones Indices to buy, sell, or hold such security, nor is it considered to be investment advice.

These materials have been prepared solely for informational purposes based upon information generally available to the public and from sources believed to be reliable. No content contained in these materials (including index data, ratings, credit-related analyses and data, research, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse-engineered, reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of S&P Dow Jones Indices. The Content shall not be used for any unlawful or unauthorized purposes. S&P Dow Jones Indices and its third-party data providers and licensors (collectively "S&P Dow Jones Indices Parties") do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Dow Jones Indices Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN "AS IS" BASIS. S&P DOW JONES INDICES PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Dow Jones Indices Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

S&P Dow Jones Indices keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P Dow Jones Indices may have information that is not available to other business units. S&P Dow Jones Indices has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

In addition, S&P Dow Jones Indices provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate or otherwise address.