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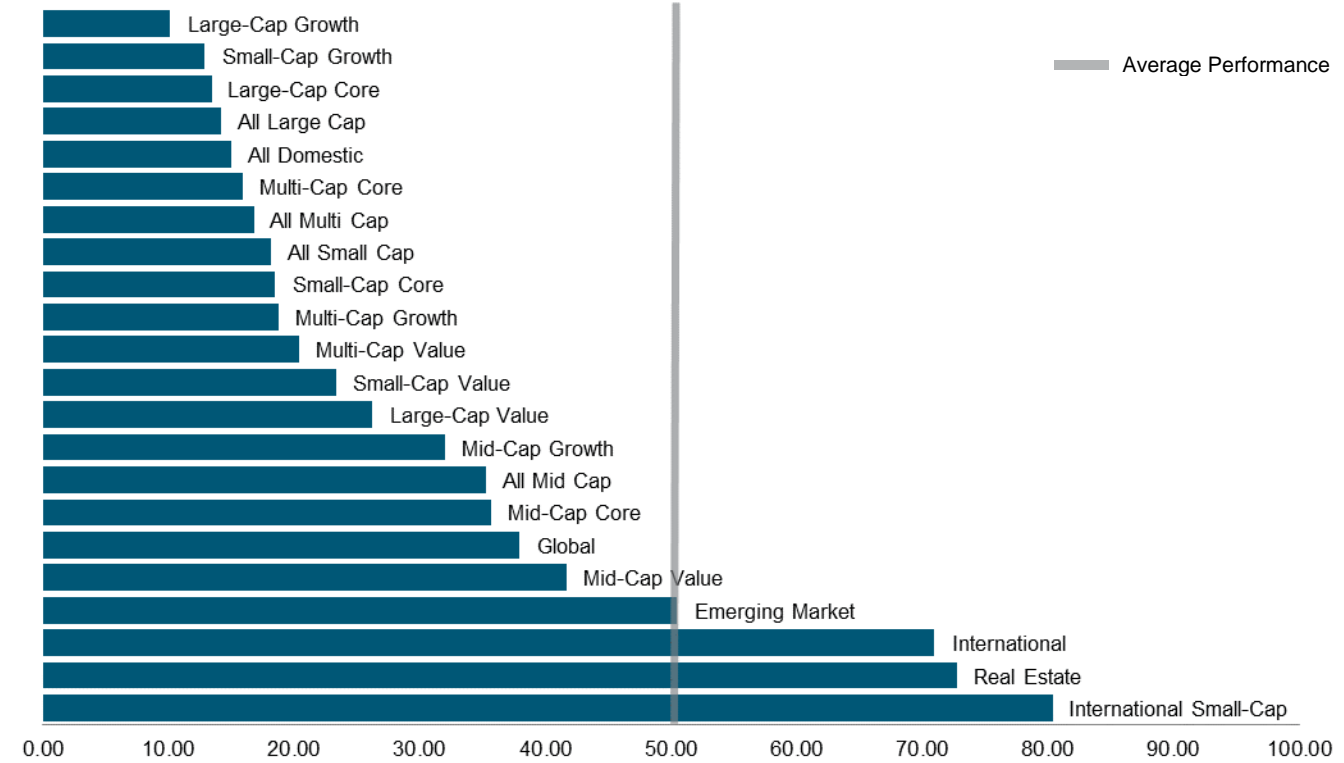
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# SPIVA<sup>®</sup> Institutional Scorecard— How Much Do Fees Affect the Active Versus Passive Debate?

## EXECUTIVE SUMMARY

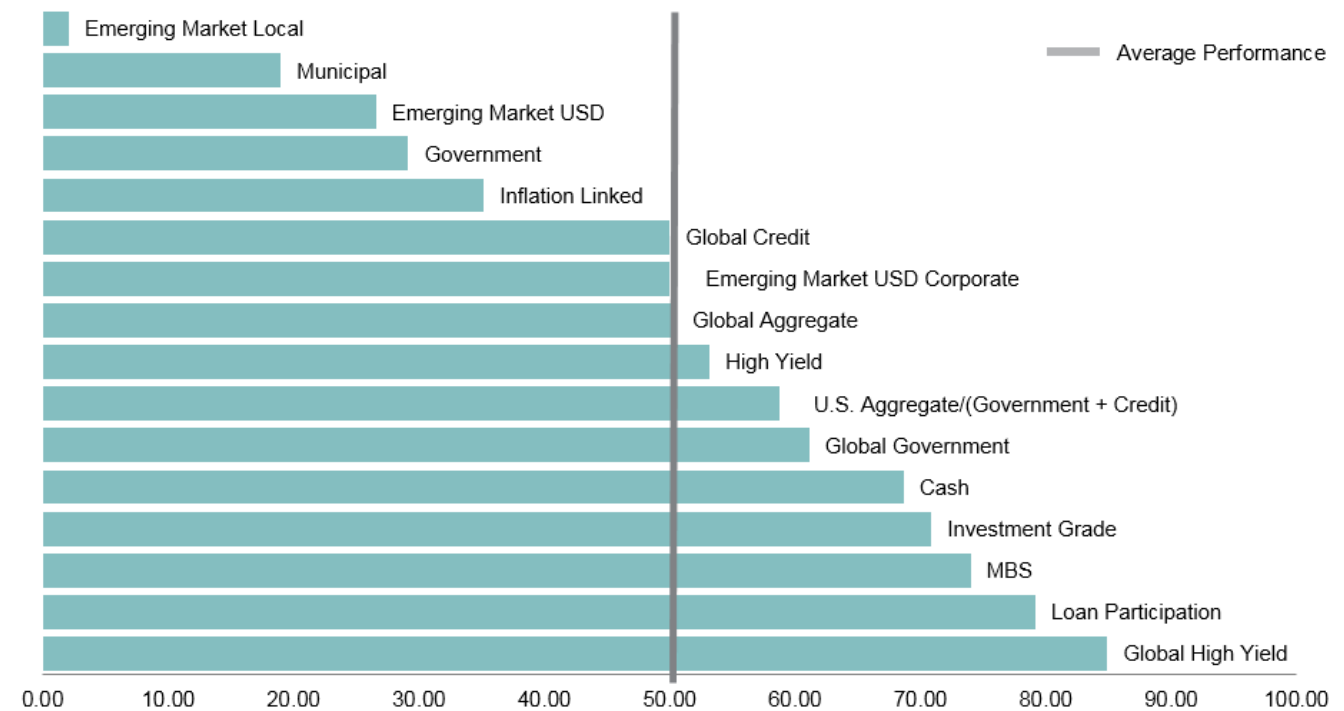
- In this report, we examine the impact of fees on performance for both retail mutual funds and institutional managed accounts, using gross-of-fees returns.
- Our findings show that within domestic equity, the majority of managers in nearly every category underperformed their respective benchmarks over the five-year horizon, for both retail funds and institutional accounts.
- Over 76.23% of mutual fund managers and 85.81% of institutional accounts in the large-cap equity space underperformed the [S&P 500<sup>®</sup>](#).
- Similarly, in the mid-cap space, 65.81% of mutual funds and 64.71% of institutional accounts underperformed the [S&P MidCap 400<sup>®</sup>](#).
- In the small-cap space, over 80% of managers on both fronts underperformed the [S&P SmallCap 600<sup>®</sup>](#). The findings in the small-cap space dispel the myth that small-cap equity is an inefficient asset class that is best accessed via active management.
- Managers investing in international equities and international small-cap equities fared better than their benchmarks when measured using gross-of-fees returns. The findings are consistent for mutual funds and institutional accounts.
- In fixed income, the findings were mixed depending on the market segment. Institutional managers showed strength in U.S. spread products such as mortgage-backed securities (MBSs), investment-grade corporate bonds, and leveraged loans, outperforming their respective benchmarks.
- The municipal bond market was the only space in which we saw a significant performance divergence between institutional accounts and mutual funds directionally.

**Exhibit 1a: Percent of Institutional Equity Managers Outperforming the Benchmark**



Source: S&P Dow Jones Indices LLC, eVestment Alliance, CRSP. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

**Exhibit 1b: Percent of Institutional Fixed Income Managers Outperforming the Benchmark**



Source: S&P Dow Jones Indices LLC, eVestment Alliance, CRSP. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Undeniably, fees play a major role in the active versus passive debate. After subtracting fees, returns from active management tend to be less than those from passive management, as the latter costs less.<sup>1</sup> Within active management, it is widely understood and has been documented that fees can vary meaningfully depending on the type of investor.<sup>2</sup> In general, retail investors tend to pay higher advisory and management fees than institutional investors.<sup>3</sup> Institutional investors have the option to negotiate fees directly with asset managers based on the size of a mandate and how many strategies may already exist with one manager. Retail investors, on the other hand, lack such bargaining power.

Since 2002, S&P Dow Jones Indices has been publishing the S&P Indices Versus Active (SPIVA) U.S. Scorecard. The scorecard measures the performance of actively managed equity funds, investing in domestic and international equity, as well as fixed income funds against their respective benchmarks. The University of Chicago's Center for Research in Security Prices (CRSP) Survivor-Bias-Free US Mutual Fund Database serves as the underlying data source for the scorecard. As the CRSP database consists of publicly traded open-ended mutual funds, the fee structure primarily reflects retail products rather than institutional accounts.

This report attempts to answer three questions that are pertinent to the active versus passive debate.

1. When measured on a gross-of-fees basis, do institutional asset managers deliver relative outperformance over their respective benchmarks?
2. Similarly, do mutual funds, when measured on a gross-of-fees basis, outperform their respective benchmarks?
3. For particular asset classes and sub-asset classes, do institutional managers fare better than their retail fund counterparts when measured on a gross-of-fees basis?

To answer these questions, we report the relative performance of U.S. equity and fixed income asset managers for institutional accounts<sup>4</sup> using composite returns from eVestment Alliance,<sup>5</sup> a provider of investment data and analytics for the institutional asset management industry. It should be noted that unlike the publicly traded mutual fund performance data, the data from eVestment relies on self-reporting by managers. Relative performance for retail funds on a gross-of-fees basis is computed by adding back the annual expense ratio to the net-of-fees returns. Appendix A contains detailed mapping of various investment strategies to their groups.

In addition, we compare the relative performance of open-ended mutual funds—using both net-of-fees and gross-of-fees returns—against institutional accounts using gross-of-fees returns. We report the figures for domestic equity, international equity, as well as fixed income categories.

<sup>1</sup> Sharpe, William F., "The Arithmetic of Active Management" *Financial Analysts Journal*, January/February 1991, Volume 47 Issue 1. "Properly measured, the average actively managed dollar must underperform the average passively managed dollar, net of costs."

<sup>2</sup> For example, research by the Investment Company Institute in "Mutual Funds and Institutional Accounts: A Comparison" (2006) showed that the average mutual fund advisory fee for large-cap domestic equity funds is around 70 bps, whereas the same category for a separate institutional account averages at 53 bps. Similarly, average mutual fund advisory fee for a domestic fixed income fund ranges around 48 bps, while that for a separate institutional account is 30 bps.

<sup>3</sup> Fee differentials between mutual funds and separate accounts may stem from a number of factors. It is beyond the scope of our paper to cover those factors. For a more detailed write up on the key differences between the two structures, please refer to "Mutual Funds and Institutional Accounts: A Comparison" (2006).

<sup>4</sup> Institutional accounts include institutional separately managed accounts and commingled trusts.

<sup>5</sup> Composite returns can be measured as the equal-weighted or asset-weighted averages of the returns of all individual constituent portfolios, depending on the manager's discretion.

By producing this report, we aim to provide the institutional community with the ability to judge managers' true skills without the possible distortions that fees may create on performance. Including mutual funds—on both a net and gross performance basis—with institutional accounts also allows readers to see if fees make any meaningful difference in a particular asset class for a certain type of market participant.

This report also aims to address the notion that benchmarks are not directly investable and do not incur costs, thereby making any performance comparison of active funds against their benchmarks not “apples-to-apples.” By comparing retail mutual funds and institutional accounts on a gross-of-fee basis against their respective benchmarks, we eliminate any possibility that fees are the sole contributor to a given manager's underperformance.

This report is organized as follows. In Section I, we highlight the relative performance of retail funds and institutional accounts against their respective benchmarks for equity and fixed income categories. Section II replicates the headline SPIVA U.S. Scorecard using only institutional accounts, detailing related metrics such as survivorship, style consistency, asset-weighted versus equal-weighted performance figures, and quartile breakpoints.

## **SECTION I: PERCENTAGE OF RETAIL FUNDS AND INSTITUTIONAL ACCOUNTS UNDERPERFORMING THEIR BENCHMARKS**

### **Domestic Equity**

Across various categories within the domestic equity space, the overwhelming majority of active managers, both retail and institutional, lagged their respective benchmarks. Overall findings suggest that on a gross- or net-of-fees basis, the U.S. equity space poses meaningful challenges for active managers to overcome.

Real estate investment trusts (REITs) is the only category in which active management outperformed the benchmark, on both retail and institutional fronts.

**Exhibit 2: Domestic Equity—Percentage of Managers Underperforming Over Five Years**

CATEGORY	BENCHMARK	MUTUAL FUNDS (%) NET OF FEES	MUTUAL FUNDS (%) GROSS OF FEES	INSTITUTIONAL ACCOUNTS (%)
All Domestic	S&P Composite 1500	88.43	79.85	85.00
All Large Cap	S&P 500	84.15	76.23	85.81
All Mid Cap	S&P MidCap 400	76.69	65.81	64.71
All Small Cap	S&P SmallCap 600	90.13	81.11	81.82
All Multi Cap	S&P Composite 1500	88.56	79.67	83.20
Large-Cap Growth	S&P 500 Growth	86.54	78.30	89.89
Large-Cap Core	S&P 500	88.26	80.00	86.54
Large-Cap Value	S&P 500 Value	82.17	68.08	73.79
Mid-Cap Growth	S&P MidCap 400 Growth	81.48	69.59	68.00
Mid-Cap Core	S&P MidCap 400	76.51	69.09	64.29
Mid-Cap Value	S&P MidCap 400 Value	70.27	57.75	58.33
Small-Cap Growth	S&P SmallCap 600 Growth	91.89	85.00	87.10
Small-Cap Core	S&P SmallCap 600	91.44	81.91	81.48
Small-Cap Value	S&P SmallCap 600 Value	92.31	79.21	76.67
Multi-Cap Growth	S&P Composite 1500 Growth	90.57	82.94	81.25
Multi-Cap Core	S&P Composite 1500	91.16	83.33	84.09
Multi-Cap Value	S&P Composite 1500 Value	76.87	62.50	79.59
Real Estate	S&P United States REIT	82.64	52.38	27.27

Source: S&P Dow Jones Indices LLC, eVestment Alliance, CRSP. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## International Equity

In the non-U.S. equity space, we find managers investing in large and small international equities delivered higher returns than their respective benchmarks. This finding is quite pronounced in the international small-cap space. Observations from previous SPIVA U.S. Scorecards also show that international small-cap equity is one area of international equity investing where active management has fared quite well historically.

Managers investing in emerging markets equities, which have traditionally been thought to be one area where active management can add value, draw parity with passive indices. Nearly one-half of these managers delivered higher excess returns than the broad-based benchmark.

**Exhibit 3: International Equity—Percentage of Managers Underperforming Over Five Years**

CATEGORY	BENCHMARK	MUTUAL FUNDS (%) NET OF FEES	MUTUAL FUNDS (%) GROSS OF FEES	INSTITUTIONAL ACCOUNTS (%)
Emerging Market	S&P Emerging BMI	69.94	55.28	49.51
Global	S&P Global 1200	78.97	62.98	62.04
International	S&P 700	55.37	41.64	29.05
International Small-Cap	S&P Developed Ex-U.S. SmallCap Index	47.37	28.07	19.61

Source: S&P Dow Jones Indices LLC, eVestment Alliance, CRSP. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## Fixed Income

For fixed income, we present the performance of retail funds separate from institutional accounts due to classification nuances. The CRSP US Survivor-Bias-Free Mutual Funds Database adopted style and objective codes from the Lipper objective codes after 1998. Lipper objective codes classify funds by sector, maturity, and credit quality, whereas the eVestment Universe groups fixed income strategies mostly by sector and maturity. While it is reasonably straightforward to map sector funds between CRSP and eVestment, a good amount of subjectivity is required in mapping them for composites and composites with various maturity slices.

The results show that institutional managers performed better in the global high-yield (hedged) category as well as in U.S. spread products such as MBSs, investment grade, and leveraged loans. However, the data indicates that managers cannot beat the benchmark when it comes to U.S. government bonds.

In emerging market debt, managers showed better performance in the U.S.-denominated corporate debt space. However, few managers were able to beat the benchmark in the local currency space, possibly indicating the challenge of actively managing emerging market currency exposure.

**Exhibit 4: Fixed Income—Percentage of Managers Underperforming Over Five Years**

CATEGORY	BENCHMARK	MUTUAL FUNDS (%) NET OF FEES	MUTUAL FUNDS (%) GROSS OF FEES
Government Long	Barclays Long Government	98.89	96.51
Government Intermediate	Barclays Intermediate Government	68.29	48.72
Government Short	Barclays 1-3 Year Government	63.64	41.46
Investment-Grade Long	Barclays Long Government/Credit	96.27	94.03
Investment-Grade Intermediate	Barclays Intermediate Government/Credit	42.11	34.98
Investment-Grade Short	Barclays 1-3 Year Government/Credit	29.63	20.00
High Yield	Barclays US Corporate High Yield	79.23	53.20
Mortgage-Backed Securities	Barclays Mortgage-Backed Securities	64.52	35.94
Global Income	Barclays Global Aggregate	51.24	40.54
Emerging Markets Debt	Barclays Emerging Markets	94.29	82.86
Loan Participation	S&P/LSTA U.S Leveraged Loan 100 Index	41.67	22.78
General Municipal Debt	S&P National AMT-Free Municipal Bond Index	43.48	13.89
California Municipal Debt	S&P California AMT-Free Municipal Bond Index	42.11	28.13
New York Municipal Debt	S&P New York AMT-Free Municipal Bond Index	61.76	14.81

Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

**Exhibit 5: Fixed Income—Percentage of Managers Underperforming Over Five Years**

CATEGORY	BENCHMARK	INSTITUTIONAL ACCOUNTS (%)
U.S. Aggregate/(Government + Credit)	Barclays U.S. Aggregate	41.27
Cash	Barclays Short Treasury	31.33
Government	Barclays U.S. Government	70.83
Inflation Linked	Barclays U.S. Treasury: U.S. TIPS	64.81
MBS	Barclays US Aggregate Securitized - MBS	26.00
Investment Grade	Barclays U.S. Credit	29.11
High Yield	Barclays US Corporate High Yield	46.81
Municipal	S&P National AMT-Free Municipal Bond Index	81.00
Loan Participation	S&P/LSTA U.S. Leveraged Loan 100 Index	20.83
Emerging Market USD	Barclays EM USD Aggregate	73.42
Emerging Market USD Corporate	Barcap EM USD Corporate	50.00
Emerging Market Local	Barclays EM Local Currency Government	97.92
Global Aggregate	Barclays Global Aggregate	49.46
Global Government	Barclays Global Treasuries	38.89
Global Credit	Barclays Global Aggregate - Corporate	50.00
Global High Yield	Barclays Global Aggregate (Hedged)	15.09

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

**SECTION II: INSTITUTIONAL ACCOUNTS—SPIVA U.S. SCORECARD****Report 1: Percentage of U.S. Equity Managers Outperformed by Benchmarks**

CATEGORY	COMPARISON INDEX	ONE-YEAR (%)	THREE-YEAR (%)	FIVE-YEAR (%)
All Domestic	S&P Composite 1500	67.89	73.62	85.00
All Large Cap	S&P 500	61.31	73.05	85.81
All Mid Cap	S&P MidCap 400	45.76	58.33	64.71
All Small Cap	S&P SmallCap 600	62.11	74.03	81.82
All Multi Cap	S&P Composite 1500	79.26	73.33	83.20
Large-Cap Growth	S&P 500 Growth	62.31	83.33	89.89
Large-Cap Core	S&P 500	66.91	72.90	86.54
Large-Cap Value	S&P 500 Value	48.97	59.22	73.79
Mid-Cap Growth	S&P MidCap 400 Growth	69.23	52.38	68.00
Mid-Cap Core	S&P MidCap 400	58.82	61.54	64.29
Mid-Cap Value	S&P MidCap 400 Value	12.50	71.43	58.33
Small-Cap Growth	S&P SmallCap 600 Growth	80.85	68.18	87.10
Small-Cap Core	S&P SmallCap 600	57.45	82.14	81.48
Small-Cap Value	S&P SmallCap 600 Value	43.28	59.26	76.67
Multi-Cap Growth	S&P Composite 1500 Growth	81.25	72.50	81.25
Multi-Cap Core	S&P Composite 1500	78.05	74.42	84.09
Multi-Cap Value	S&P Composite 1500 Value	70.97	75.00	79.59
Real Estate	S&P United States REIT	18.87	32.14	27.27

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 2: Survivorship and Style Consistency of U.S. Equity Managers</b>			
<b>CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>ONE-YEAR</b>			
All Domestic	802	96.76	99.88
All Large Cap	435	97.24	99.77
All Mid Cap	61	95.08	100.00
All Small Cap	167	95.81	100.00
All Multi Cap	139	97.12	100.00
Large-Cap Growth	141	97.87	97.87
Large-Cap Core	143	96.50	100.00
Large-Cap Value	151	97.35	98.01
Mid-Cap Growth	26	92.31	100.00
Mid-Cap Core	18	94.44	88.89
Mid-Cap Value	17	100.00	100.00
Small-Cap Growth	49	95.92	100.00
Small-Cap Core	50	96.00	100.00
Small-Cap Value	68	95.59	100.00
Multi-Cap Growth	34	100.00	100.00
Multi-Cap Core	42	97.62	97.62
Multi-Cap Value	63	95.24	98.41
Real Estate	55	100.00	100.00

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.



<b>Report 2: Survivorship and Style Consistency of U.S. Equity Managers (cont.)</b>			
<b>CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>THREE-YEAR</b>			
All Domestic	568	83.27	99.65
All Large Cap	300	81.67	99.33
All Mid Cap	49	75.51	100.00
All Small Cap	80	87.50	100.00
All Multi Cap	139	87.05	100.00
Large-Cap Growth	80	78.75	96.25
Large-Cap Core	112	76.79	93.75
Large-Cap Value	108	88.89	97.22
Mid-Cap Growth	21	76.19	95.24
Mid-Cap Core	13	61.54	92.31
Mid-Cap Value	15	86.67	93.33
Small-Cap Growth	23	82.61	95.65
Small-Cap Core	29	79.31	89.66
Small-Cap Value	28	100.00	100.00
Multi-Cap Growth	42	90.48	100.00
Multi-Cap Core	44	86.36	95.45
Multi-Cap Value	53	84.91	98.11
Real Estate	58	93.10	100.00
<b>FIVE-YEAR</b>			
All Domestic	586	63.48	100.00
All Large Cap	314	58.60	100.00
All Mid Cap	52	59.62	100.00
All Small Cap	91	70.33	100.00
All Multi Cap	129	72.09	100.00
Large-Cap Growth	97	58.76	95.88
Large-Cap Core	109	53.21	95.41
Large-Cap Value	108	63.89	99.07
Mid-Cap Growth	25	60.00	92.00
Mid-Cap Core	14	50.00	92.86
Mid-Cap Value	13	69.23	92.31
Small-Cap Growth	32	65.63	96.88
Small-Cap Core	28	64.29	96.43
Small-Cap Value	31	80.65	93.55
Multi-Cap Growth	34	79.41	97.06
Multi-Cap Core	45	68.89	95.56
Multi-Cap Value	50	70.00	100.00
Real Estate	56	89.29	100.00

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 3: Average U.S. Equity Manager Performance (Equal-Weighted)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
S&P Composite 1500	1.01	14.90	12.39
All Domestic	-1.00	13.55	10.75
S&P 500	1.38	15.13	12.57
All Large Cap	0.49	14.55	11.55
S&P MidCap 400	-2.18	12.76	10.68
All Mid Cap	-1.60	13.38	10.32
S&P SmallCap 600	-1.97	13.57	11.48
All Small Cap	-3.19	12.41	9.77
S&P Composite1500	1.01	14.90	12.39
All Multi Cap	-1.40	13.19	10.58
<b>LARGE-CAP</b>			
S&P 500 Growth	5.52	17.19	14.06
Large-Cap Growth	4.60	16.29	12.29
S&P 500	1.38	15.13	12.57
Large-Cap Core	0.46	14.53	11.67
S&P 500 Value	-3.13	12.83	10.96
Large-Cap Value	-3.04	13.01	10.76
<b>MID-CAP</b>			
S&P MidCap 400 Growth	2.02	13.37	11.10
Mid-Cap Growth	-0.05	13.63	10.16
S&P MidCap 400	-2.18	12.76	10.68
Mid-Cap Core	-0.99	13.16	10.30
S&P MidCap 400 Value	-6.65	12.00	10.19
Mid-Cap Value	-3.81	13.25	10.52
<b>SMALL-CAP</b>			
S&P SmallCap 600 Growth	2.78	15.06	12.58
Small-Cap Growth	-0.93	13.92	10.39
S&P SmallCap 600	-1.97	13.57	11.48
Small-Cap Core	-2.82	12.59	10.02
S&P SmallCap 600 Value	-6.67	12.00	10.37
Small-Cap Value	-5.27	11.00	9.05
<b>MULTI-CAP</b>			
S&P Composite 1500 Growth	5.21	16.85	13.80
Multi-Cap Growth	2.37	15.28	11.91
S&P Composite 1500	1.01	14.90	12.39
Multi-Cap Core	-0.75	13.58	10.86
S&P Composite 1500 Value	-3.53	12.74	10.88
Multi-Cap Value	-4.78	11.25	9.30
<b>REAL ESTATE</b>			
S&P United States REIT	2.54	11.00	11.85
Real Estate	4.05	11.92	12.74

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 4: Average U.S. Equity Manager Performance (Asset-Weighted)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
S&P Composite 1500	1.01	14.90	12.39
All Domestic	0.46	14.00	11.13
S&P 500	1.38	15.13	12.57
All Large Cap	1.76	14.94	11.80
S&P MidCap 400	-2.18	12.76	10.68
All Mid Cap	-1.96	13.38	10.18
S&P SmallCap 600	-1.97	13.57	11.48
All Small Cap	-2.62	12.20	9.64
S&P Composite 1500	1.01	14.90	12.39
All Multi Cap	0.57	13.59	10.97
<b>LARGE-CAP</b>			
S&P 500 Growth	5.52	17.19	14.06
Large-Cap Growth	6.95	17.46	13.21
S&P 500	1.38	15.13	12.57
Large-Cap Core	1.42	14.63	11.55
S&P 500 Value	-3.13	12.83	10.96
Large-Cap Value	-2.55	12.79	10.67
<b>MID-CAP</b>			
S&P MidCap 400 Growth	2.02	13.37	11.10
Mid-Cap Growth	1.61	14.05	10.41
S&P MidCap 400	-2.18	12.76	10.68
Mid-Cap Core	-1.20	14.89	11.16
S&P MidCap 400 Value	-6.65	12.00	10.19
Mid-Cap Value	-4.13	13.21	10.28
<b>SMALL-CAP</b>			
S&P SmallCap 600 Growth	2.78	15.06	12.58
Small-Cap Growth	-0.10	14.33	11.25
S&P SmallCap 600	-1.97	13.57	11.48
Small-Cap Core	-2.24	12.33	9.85
S&P SmallCap 600 Value	-6.67	12.00	10.37
Small-Cap Value	-4.78	10.11	7.88
<b>MULTI-CAP</b>			
S&P Composite 1500 Growth	5.21	16.85	13.80
Multi-Cap Growth	3.49	16.06	12.23
S&P Composite 1500	1.01	14.90	12.39
Multi-Cap Core	-0.59	13.14	10.06
S&P Composite 1500 Value	-3.53	12.74	10.88
Multi-Cap Value	-1.11	12.00	10.33
<b>REAL ESTATE</b>			
S&P BMI U.S. REITs	2.54	11.00	11.85
Real Estate	3.55	11.61	12.26

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 5: Quartile Breakpoints of U.S. Equity Managers</b>			
<b>CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>ONE-YEAR</b>			
All Domestic	-4.68	-1.15	2.31
All Large Cap	-3.19	0.32	3.46
All Mid Cap	-4.87	-1.61	1.32
All Small Cap	-6.63	-3.28	0.33
All Multi Cap	-5.84	-3.04	0.66
Large-Cap Growth	1.44	4.07	7.18
Large-Cap Core	-2.33	0.56	2.57
Large-Cap Value	-5.82	-2.90	-0.22
Mid-Cap Growth	-2.21	0.21	3.46
Mid-Cap Core	-5.79	-2.81	0.67
Mid-Cap Value	-4.94	-2.72	-1.65
Small-Cap Growth	-5.01	-0.54	2.01
Small-Cap Core	-5.51	-2.52	0.32
Small-Cap Value	-11.24	-4.90	-2.19
Multi-Cap Growth	-3.25	1.42	3.70
Multi-Cap Core	-3.75	-0.86	0.66
Multi-Cap Value	-9.07	-4.85	-2.96
Real Estate	2.68	4.13	5.23
<b>THREE-YEAR</b>			
All Domestic	11.23	13.40	15.57
All Large Cap	11.90	13.87	15.99
All Mid Cap	10.40	13.44	14.50
All Small Cap	9.56	12.03	14.18
All Multi Cap	10.92	12.85	15.44
Large-Cap Growth	13.81	15.80	16.95
Large-Cap Core	12.70	14.11	15.98
Large-Cap Value	10.85	12.32	14.20
Mid-Cap Growth	11.72	13.97	16.74
Mid-Cap Core	10.44	13.63	14.13
Mid-Cap Value	8.95	10.84	13.58
Small-Cap Growth	11.54	13.64	16.30
Small-Cap Core	11.21	12.03	13.13
Small-Cap Value	7.86	11.25	13.10
Multi-Cap Growth	12.43	15.28	18.08
Multi-Cap Core	10.96	13.34	15.44
Multi-Cap Value	9.82	11.87	13.26
Real Estate	10.93	11.86	12.41

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 5: Quartile Breakpoints of U.S. Equity Managers (cont.)</b>			
<b>CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>FIVE-YEAR</b>			
All Domestic	9.06	10.93	12.33
All Large Cap	10.02	11.41	12.58
All Mid Cap	9.35	11.08	12.70
All Small Cap	7.88	9.40	11.59
All Multi Cap	8.46	10.69	12.22
Large-Cap Growth	10.54	12.12	13.29
Large-Cap Core	10.51	11.52	12.63
Large-Cap Value	8.36	10.59	12.11
Mid-Cap Growth	9.20	11.17	13.16
Mid-Cap Core	10.15	11.12	12.51
Mid-Cap Value	9.32	10.68	12.12
Small-Cap Growth	8.25	9.82	11.92
Small-Cap Core	8.13	9.36	11.59
Small-Cap Value	7.29	9.22	10.61
Multi-Cap Growth	9.49	12.13	13.76
Multi-Cap Core	8.52	11.17	12.24
Multi-Cap Value	7.71	9.93	11.01
Real Estate	12.21	12.65	13.24

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 6: Percentage of International Equity Managers Outperformed by Benchmarks</b>				
<b>CATEGORY</b>	<b>COMPARISON INDEX</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (%)</b>	<b>FIVE-YEAR (%)</b>
Emerging Market	S&P Emerging BMI	55.74	52.97	49.51
Global	S&P Global 1200	49.57	58.26	62.04
International	S&P 700	15.86	20.81	29.05
International Small-Cap	S&P Developed Ex-U.S. SmallCap Index	14.29	17.86	19.61

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 7: Survivorship and Style Consistency of International Equity Managers</b>			
<b>CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>ONE-YEAR</b>			
Emerging Market	247	95.95	100.00
Global	236	94.07	100.00
International	149	97.32	100.00
International Small-Cap	56	98.21	100.00
<b>THREE-YEAR</b>			
Emerging Market	239	87.87	100.00
Global	236	85.17	100.00
International	154	90.26	100.00
International Small-Cap	56	92.86	100.00
<b>FIVE-YEAR</b>			
Emerging Market	208	81.25	100.00
Global	222	73.42	100.00
International	153	79.74	100.00
International Small-Cap	51	86.27	100.00

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 8: Average International Equity Manager Performance (Equal-Weighted)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
S&P Emerging BMI	-12.38	-4.85	-3.68
Emerging Market	-12.35	-3.94	-2.55
S&P Global 1200	-0.86	9.56	7.83
Global	-0.14	9.56	7.65
S&P 700	-3.75	3.34	2.76
International	0.26	5.78	4.45
S&P Developed Ex-U.S. Small Cap Index	5.92	8.85	5.51
International Small-Cap	10.64	11.94	8.34

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 9: Average International Equity Manager Performance (Asset-Weighted)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
S&P Emerging BMI	-12.38	-4.85	-3.68
Emerging Market	-13.76	-5.18	-3.23
S&P Global 1200	-0.86	9.56	7.83
Global	-0.43	10.05	7.97
S&P 700	-3.75	3.34	2.76
International	-0.50	5.53	4.21
S&P Developed Ex-U.S. Small Cap Index	5.92	8.85	5.51
International Small-Cap	7.85	9.98	6.76

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 10: Quartile Breakpoints of International Equity Manager</b>				
<b>CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>	
<b>ONE-YEAR</b>				
Emerging Market	-15.59	-12.88	-9.95	
Global	-3.02	-0.27	2.62	
International	-1.92	0.49	2.15	
International Small-Cap	7.98	10.51	12.40	
<b>THREE-YEAR</b>				
Emerging Market	-6.51	-4.65	-1.87	
Global	7.88	9.55	11.57	
International	4.11	5.67	7.22	
International Small-Cap	10.30	12.21	13.81	
<b>FIVE-YEAR</b>				
Emerging Market	-4.27	-2.84	-0.98	
Global	6.45	7.93	9.62	
International	3.50	4.69	5.80	
International Small-Cap	7.27	8.27	9.56	

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 11: Percentage of Fixed Income Managers Outperformed by Benchmarks</b>				
<b>CATEGORY</b>	<b>COMPARISON INDEX</b>	<b>ONE-YEAR (%)</b>	<b>THREE-YEAR (%)</b>	<b>FIVE-YEAR (%)</b>
U.S. Aggregate/(Government + Credit)	Barclays U.S. Aggregate	51.19	22.00	41.27
Cash	Barclays Short Treasury	5.71	18.99	31.33
Government	Barclays U.S. Government	44.74	55.81	70.83
Inflation Linked	Barclays U.S. Treasury: U.S. TIPS	52.17	52.00	64.81
MBS	Barclays U.S. Aggregate Securitized - MBS	21.74	32.65	26.00
Investment Grade	Barclays U.S. Credit	32.89	19.48	29.11
High Yield	Barclays U.S. Corporate High Yield	24.82	34.51	46.81
Municipal	S&P National AMT-Free Municipal Bond Index	76.67	70.41	81.00
Loan Participation	S&P/LSTA U.S. Leveraged Loan 100 Index	10.26	15.58	20.83
Emerging Market USD	Barclays EM USD Aggregate	81.72	77.01	73.42
Emerging Market USD Corporate	Barcap EM USD Corporate	41.46	27.27	50.00
Emerging Market Local	Barclays EM Local Currency Government	97.01	98.31	97.92
Global Aggregate	Barclays Global Aggregate	54.44	50.00	49.46
Global Government	Barclays Global Treasuries	54.55	36.00	38.89
Global Credit	Barclays Global Aggregate - Corporate	36.07	45.00	50.00
Global High Yield	Barclays Global Aggregate (Hedged)	35.82	16.39	15.09

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 12: Survivorship and Style Consistency of Fixed Income Managers</b>			
<b>CATEGORY</b>	<b>NO. OF FUNDS AT START</b>	<b>SURVIVORSHIP (%)</b>	<b>STYLE CONSISTENCY (%)</b>
<b>ONE-YEAR</b>			
U.S. Aggregate/(Government + Credit)	302	96.03	100.00
Cash	73	98.63	100.00
Government	38	97.37	100.00
Inflation Linked	46	91.30	100.00
MBS	48	100.00	100.00
Investment Grade	76	100.00	100.00
High Yield	141	97.87	100.00
Municipal	92	96.74	100.00
Loan Participation	80	100.00	100.00
Emerging Market USD	93	95.70	100.00
Emerging Market USD Corporate	42	97.62	100.00
Emerging Market Local	67	97.01	100.00
Global Aggregate	91	91.21	100.00
Global Government	46	95.65	100.00
Global Credit	61	96.72	100.00
Global High Yield	69	94.20	100.00
<b>THREE-YEAR</b>			
U.S. Aggregate/(Government + Credit)	309	89.97	100.00
Cash	81	81.48	100.00
Government	43	83.72	100.00
Inflation Linked	50	84.00	100.00
MBS	51	90.20	100.00
Investment Grade	78	96.15	100.00
High Yield	143	93.01	100.00
Municipal	100	87.00	100.00
Loan Participation	80	90.00	100.00
Emerging Market USD	87	89.66	100.00
Emerging Market USD Corporate	35	94.29	100.00
Emerging Market Local	60	93.33	100.00
Global Aggregate	98	81.63	100.00
Global Government	52	82.69	100.00
Global Credit	61	91.80	100.00
Global High Yield	63	93.65	100.00

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.



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

CATEGORY	NO. OF FUNDS AT START	SURVIVORSHIP (%)	STYLE CONSISTENCY (%)
<b>FIVE-YEAR</b>			
U.S. Aggregate/(Government + Credit)	324	79.94	100.00
Cash	86	73.26	100.00
Government	48	72.92	100.00
Inflation Linked	55	72.73	100.00
MBS	52	86.54	100.00
Investment Grade	80	88.75	100.00
High Yield	143	86.71	100.00
Municipal	103	81.55	100.00
Loan Participation	75	82.67	100.00
Emerging Market USD	79	84.81	100.00
Emerging Market USD Corporate	16	81.25	100.00
Emerging Market Local	50	88.00	100.00
Global Aggregate	96	75.00	100.00
Global Government	56	71.43	100.00
Global Credit	48	87.50	100.00
Global High Yield	55	89.09	100.00

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

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

CATEGORY	ONE-YEAR (ANNUALIZED %)	THREE-YEAR (ANNUALIZED %)	FIVE-YEAR (ANNUALIZED %)
Barclays U.S. Aggregate	0.86	1.01	2.77
U.S. Aggregate/(Government + Credit)	0.22	1.71	3.83
Barclays Short Treasury	0.13	0.12	0.15
Cash	0.83	0.87	1.05
Barclays U.S. Government	0.86	1.01	2.77
Government	0.83	1.24	2.90
Barclays U.S. Treasury: U.S. TIPS	-1.44	-2.27	2.55
Inflation Linked	-1.58	-2.17	2.35
Barclays U.S. Aggregate Securitized—MBS	1.47	1.97	3.02
MBS	2.15	3.43	4.95
Barclays U.S. Credit	-0.77	1.49	4.38
Investment Grade	-0.16	2.21	4.99
Barclays U.S. Corporate High Yield	-4.47	1.69	5.04
High Yield	-2.98	2.27	5.11
S&P National AMT-Free Municipal Bond Index	3.26	2.84	5.20
Municipal	2.75	2.67	4.13
S&P/LSTA U.S. Leveraged Loan 100 Index	-2.75	1.04	2.78

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 13: Average Fixed Income Manager Performance (Equal-Weighted) (cont.)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
Loan Participation	-0.01	2.62	4.22
Barclays EM USD Aggregate	1.29	0.57	5.12
Emerging Market USD	-2.21	-1.40	3.59
Barcap EM USD Corporate	-0.32	0.56	3.95
Emerging Market USD Corporate	-0.29	0.98	4.55
Barclays EM Local Currency Government	-3.62	-1.52	1.31
Emerging Market Local	-13.66	-8.98	-2.92
Barclays Global Aggregate	-3.15	-1.74	0.90
Global Aggregate	-3.84	-1.10	1.74
Barclays Global Treasuries	-3.29	-2.81	-0.12
Global Government	-4.06	-2.08	0.96
Barclays Global Aggregate—Corporate	-3.28	0.59	3.66
Global Credit	-3.21	0.46	3.83
Barclays Global Aggregate (Hedged)	-6.02	-4.07	-0.83
Global High Yield	-3.68	1.12	4.58

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 14: Average Fixed Income Manager Performance (Asset-Weighted)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
Barclays U.S. Aggregate	0.86	1.01	2.77
U.S. Aggregate/(Government + Credit)	-0.08	2.10	4.64
Barclays Short Treasury	0.13	0.12	0.15
Cash	0.64	0.64	0.78
Barclays U.S. Government	0.86	1.01	2.77
Government	0.64	1.51	3.99
Barclays U.S. Treasury: U.S. TIPS	-1.44	-2.27	2.55
Inflation Linked	-1.67	-2.42	2.49
Barclays U.S. Aggregate Securitized - MBS	1.47	1.97	3.02
MBS	2.02	2.75	4.18
Barclays U.S. Credit	-0.77	1.49	4.38
Investment Grade	-0.08	2.32	5.16
Barclays U.S. Corporate High Yield	-4.47	1.69	5.04
High Yield	-2.80	2.44	5.34
S&P National AMT-Free Municipal Bond Index	3.26	2.84	5.20
Municipal	3.03	2.85	4.41
S&P/LSTA U.S. Leveraged Loan 100 Index	-2.75	1.04	2.78
Loan Participation	0.05	2.75	4.23
Barclays EM USD Aggregate	1.29	0.57	5.12

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 14: Average Fixed Income Manager Performance (Asset-Weighted) (cont.)</b>			
<b>CATEGORY</b>	<b>ONE-YEAR (ANNUALIZED %)</b>	<b>THREE-YEAR (ANNUALIZED %)</b>	<b>FIVE-YEAR (ANNUALIZED %)</b>
Emerging Market USD	-1.67	-1.37	3.96
Barcap EM USD Corporate	-0.32	0.56	3.95
Emerging Market USD Corporate	-0.04	0.79	4.53
Barclays EM Local Currency Government	-3.62	-1.52	1.31
Emerging Market Local	-15.10	-10.05	-3.52
Barclays Global Aggregate	-3.15	-1.74	0.90
Global Aggregate	-2.38	-0.11	2.50
Barclays Global Treasuries	-3.29	-2.81	-0.12
Global Government	-2.88	-0.20	2.27
Barclays Global Aggregate - Corporate	-3.28	0.59	3.66
Global Credit	1.08	2.62	5.46
Barclays Global Aggregate (Hedged)	-6.02	-4.07	-0.83
Global High Yield	-3.31	1.83	5.22

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 15: Quartile Breakpoints of Fixed Income Managers</b>			
<b>CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>ONE-YEAR</b>			
U.S. Aggregate/(Government + Credit)	0.41	0.88	1.30
Cash	0.38	0.64	1.16
Government	0.58	1.05	1.45
Inflation Linked	-1.66	-1.40	-1.05
MBS	1.48	1.77	2.50
Investment Grade	-0.97	-0.18	0.72
High Yield	-4.23	-2.95	-1.05
Municipal	1.96	2.51	3.22
Loan Participation	-0.47	0.66	1.76
Emerging Market USD	-4.78	-1.49	0.27
Emerging Market USD Corporate	-1.40	0.06	0.98
Emerging Market Local	-15.50	-14.70	-13.65
Global Aggregate	-6.14	-3.19	0.23
Global Government	-5.79	-3.31	-2.70
Global Credit	-4.45	-2.02	0.43
Global High Yield	-7.57	-3.18	-0.91

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

<b>Report 15: Quartile Breakpoints of Fixed Income Managers (cont.)</b>			
<b>CATEGORY</b>	<b>THIRD QUARTILE</b>	<b>SECOND QUARTILE</b>	<b>FIRST QUARTILE</b>
<b>THREE-YEAR</b>			
U.S. Aggregate/(Government + Credit)	1.26	1.68	2.10
Cash	0.35	0.68	1.36
Government	0.62	1.11	1.45
Inflation Linked	-2.43	-2.13	-1.83
MBS	1.97	2.47	3.79
Investment Grade	1.79	2.16	2.53
High Yield	1.57	2.41	3.04
Municipal	1.90	2.27	3.04
Loan Participation	2.29	2.93	3.30
Emerging Market USD	-2.27	-0.41	0.62
Emerging Market USD Corporate	0.85	1.67	2.14
Emerging Market Local	-10.44	-9.73	-8.65
Global Aggregate	-2.22	-1.23	1.78
Global Government	-2.77	-2.15	-1.13
Global Credit	-0.76	0.93	2.92
Global High Yield	-1.58	1.52	2.97
<b>FIVE-YEAR</b>			
U.S. Aggregate/(Government + Credit)	2.76	3.51	4.10
Cash	0.43	0.94	1.63
Government	1.29	2.35	3.11
Inflation Linked	2.05	2.55	2.74
MBS	3.26	3.80	5.53
Investment Grade	4.52	5.14	5.59
High Yield	4.62	5.30	5.81
Municipal	2.76	3.67	5.11
Loan Participation	3.68	4.16	4.81
Emerging Market USD	2.87	4.41	5.35
Emerging Market USD Corporate	3.50	4.35	5.21
Emerging Market Local	-3.78	-3.36	-2.61
Global Aggregate	0.69	1.76	3.71
Global Government	0.22	0.65	2.14
Global Credit	1.65	3.89	5.01
Global High Yield	2.36	4.86	5.78

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Data as of Dec. 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

## APPENDIX A: MAPPING

### U.S. Equity

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

<b>Exhibit A1: U.S. Equity Category Mappings</b>	
<b>SPIVA INSTITUTIONAL CATEGORY</b>	<b>EVESTMENT ALLIANCE CLASSIFICATION</b>
Large Cap Growth Equity	eA U.S. Large Cap Growth Equity
Large Cap Core Equity	eA U.S. Large Cap Core Equity
Large Cap Value Equity	eA U.S. Large Cap Value Equity
Mid Cap Growth Equity	eA U.S. Mid Cap Growth Equity
Mid Cap Core Equity	eA U.S. Mid Cap Core Equity
Mid Cap Value Equity	eA U.S. Mid Cap Value Equity
Small Cap Growth Equity	eA U.S. Small Cap Growth Equity
Small Cap Core Equity	eA U.S. Small Cap Core Equity
Small Cap Value Equity	eA U.S. Small Cap Value Equity
Multi Cap Growth Equity	eA U.S. All Cap Growth Equity
Multi Cap Core Equity	eA U.S. All Cap Core Equity
Multi Cap Value Equity	eA U.S. All Cap Value Equity
U.S. REIT	eA U.S. REIT

Source: S&P Dow Jones Indices LLC, eVestment Alliance. As of Dec. 31, 2015. 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 eVestment capitalization and style classifications.

Exhibit A2: International Equity Category Mappings	
SPIVA INSTITUTIONAL CATEGORY	ESTMENT ALLIANCE CLASSIFICATION
Global Equity	eA Global Large Cap Core Equity
	eA Global Large Cap Growth Equity
	eA Global Large Cap Value Equity
International Equity	eA EAFE Large Cap Core Equity
	eA EAFE Large Cap Growth Equity
	eA EAFE Large Cap Value Equity
International Small-Cap Equity	eA EAFE Small Cap Core Equity
	eA EAFE Small Cap Growth Equity
	eA EAFE Small Cap Value Equity
Emerging Market Equity	eA Emerging Mkts All Cap Core Equity
	eA Emerging Mkts All Cap Equity
	eA Emerging Mkts All Cap Growth Equity
	eA Emerging Mkts All Cap Value Equity
	eA Emerging Mkts Equity
	eA Emerging Mkts Large Cap Core Equity
	eA Emerging Mkts Large Cap Growth Equity
	eA Emerging Mkts Large Cap Value Equity
	eA Emerging Mkts Small Cap Equity

Source: S&P Dow Jones Indices LLC, eVestment Alliance. As of Dec. 31, 2015. Table is provided for illustrative purposes.

## Fixed Income

SPIVA reports include nine domestic and seven global fixed income classifications. For maturity buckets, short duration is one to three years, intermediate duration is three to seven years, and long duration is seven years or more. Cash funds are those with a duration similar to cash deposits. For the U.S. market, credit quality is separated into U.S. government, investment-grade corporate ('BBB' rated or higher), high yield ('BB' rated or lower), and loan participation. eVestment also includes a municipals and U.S. mortgage category.

Global fixed income funds are split into emerging and global markets, including hedged/unhedged funds and local/blended/hard currency. Maturity and credit quality is similar to that of the U.S. market.

<b>Exhibit A3: U.S. Fixed Income Category Mappings</b>	
<b>SPIVA INSTITUTIONAL CATEGORY</b>	<b>EVESTMENT ALLIANCE CLASSIFICATION</b>
<b>DOMESTIC FIXED INCOME</b>	
U.S. Aggregate/(Government + Credit)	eA U.S. Core Fixed Income
	eA U.S. Core Plus Fixed Income
	eA U.S. Short Duration Fixed Income
	eA U.S. Interm Duration Fixed Income
	eA U.S. Long Duration Fixed Income
Cash	eA U.S. Cash Management
	eA U.S. Stable Value Fixed Income
	eA U.S. Enhanced Cash Management
Government	eA U.S. Government Fixed Income
Inflation Linked	eA U.S. TIPS / Inflation Fixed Income
MBS	eA U.S. Mortgage Fixed Income
Investment Grade	eA U.S. Corporate Fixed Income
High Yield	eA U.S. High Yield Fixed Income
Municipal	eA U.S. Municipal Fixed Income
Loan Participation	eA U.S. Floating-Rate Bank Loan Fixed Income
<b>GLOBAL/EMERGING FIXED INCOME</b>	
Emerging Market USD	eA Emerging Mkts Fixed Income - Hedged
	eA Emerging Mkts Fixed Income - Unhedged
	eA Emerging Mkts Fixed Income - Hard Currency
	eA Emerging Mkts Fixed Income - Blended Currency
Emerging Market USD Corporate	eA Emerging Mkts Fixed Income - Corporate Debt
Emerging Market Local	eA Emerging Mkts Fixed Income - Local Currency
Global Aggregate	eA Global Fixed Income - Hedged
	eA Global Fixed Income - Unhedged
	eA Global Agg Fixed Income
	eA Global Fixed Income - Short Duration
	eA Global Fixed Income - Intermediate Duration
	eA Global Fixed Income - Long Duration
Global Government	eA Global Government Fixed Income
Global Credit	eA Global Credit Fixed Income
Global High Yield	eA Global High Yield Fixed Income

Source: S&P Dow Jones Indices LLC. As of Dec. 31, 2015. Table is provided for illustrative purposes.

## **APPENDIX B: GLOSSARY**

### **Percentage of Managers 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 products that have survived and beat the index. We then report the index outperformance percentage.

### **Survivorship (%)**

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

### **Style Consistency (%)**

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

### **Equal-Weighted Performance**

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

### **Asset-Weighted Performance**

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

### **Quartile Breakpoints**

The pth 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.

### **Indices**

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

### **U.S. Equity**

#### **S&P 500**

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



### S&P MIDCAP 400

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

### S&P SMALLCAP 600

This index consists of 600 small-cap 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 investors.

## Fixed Income

### 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.

**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.

**BARCLAYS CAPITAL EMERGING MARKETS LOCAL CURRENCY GOVERNMENT INDEX**

This index includes all emerging markets government debt in the local currency.

**BARCLAYS CAPITAL EMERGING MARKETS USD AGGREGATE - CORPORATE INDEX**

This index covers only the corporate sector of the Barclays Emerging Markets Aggregate Index.

**BARCLAYS CAPITAL GLOBAL AGGREGATE CORPORATE INDEX**

This index covers only the corporate sector of the Barclays Global Aggregate Index.

**BARCLAYS GLOBAL TREASURY INDEX**

This index covers fixed rate, government debt of investment grade rated countries.

**BARCLAYS U.S. SHORT TREASURY INDEX**

This index covers fixed-rate, USD denominated Treasury bills issued by the U.S. Treasury.

**BARCLAYS U.S. AGGREGATE INDEX**

This index covers investment grade, USD denominated, fixed-rate taxable bonds.

**BARCLAYS U.S. AGGREGATE CREDIT INDEX**

This index includes all investment grade, USD denominated, fixed-rate, taxable corporate and government-related bonds.

**BARCLAYS U.S. AGGREGATE GOVERNMENT INDEX**

This index covers U.S. Treasury and U.S. Government agency bonds with all maturities.

**BARCLAYS U.S. TIPS INDEX**

This index includes all maturities of U.S. Treasury Inflation Protected Securities.

**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.

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