

Does Past Performance Matter? The Persistence Scorecard

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SUMMARY OF RESULTS

- When it comes to the active versus passive debate, one of the key measurements of successful active management lies in the ability of a manager or a strategy to deliver above-average returns consistently over multiple periods. Demonstrating the ability to outperform repeatedly is the only proven way to differentiate a manager's luck from skill.
- According to the S&P Persistence Scorecard, relatively few funds consistently stay at the top. Out of the 682 domestic equity funds that were in the top quartile as of March 2013, come the end of March 2015, only 5.28% had managed to stay in that top quartile. Further, 3.95% of the large-cap funds, 5.26% of the mid-cap funds, and 4.67% of the small-cap funds remained in the top quartile.
- For the three-year period that ended in March 2015, persistence figures for funds in the top half were equally unfavorable. Over these three consecutive 12-month periods, 16.63% of large-cap funds, 17.37% of mid-cap funds, and 22.67% of small-cap funds maintained a ranking position in the top half. Random expectations would suggest a result of 25%.
- An inverse relationship generally exists between the measurement time horizon and the ability of top-performing funds to maintain their status. It is worth noting that no large-cap, mid-cap, or small-cap funds remained in the top quartile at the end of the five-year measurement period. This figure paints a negative picture regarding the lack of long-term persistence in mutual fund returns.
- Similarly, only 4.82% of large-cap funds, 3.45% of mid-cap funds, and 7.77% of small-cap funds maintained top-half performance over five consecutive 12-month periods. Random expectations would suggest a repeat of the 6.25% result from the previous period.
- The transition matrices are designed to track the performance of top- and bottom-quintile performers over subsequent time periods. The data show a stronger likelihood for the best-performing funds to become the worst-performing funds than vice versa. Out of the 427 funds that were in the bottom quartile, 15.93% moved to the top quartile over the five-year horizon, while out of the 427 funds that were in the top quartile, 21.78% moved into the bottom quartile during the same period.
- Our research also suggests consistency in the death rate of bottom-quartile funds. Across all market cap categories and all periods studied, fourth-quartile funds had a much higher rate of being merged or liquidated. The five-year transition matrix illustrates that 33.33% of large-cap funds, 38.71% of mid-cap funds, and 38.38% of small-cap funds in the fourth quartile disappeared.

- While much has been written about the persistence of equity funds, there is little research on the persistence of fixed income funds. We aim to fill that void by initiating a fixed income persistence section starting with the current publication.
- Performance persistence levels have tended to be higher among the top-quartile fixed income funds over the past three years ending March 2015. Long-term and intermediate-term government bond funds, together with New York municipal debt funds, were the only exceptions in which the results showed no performance persistence.
- Over the longer-term five-year measurement horizon, the results showed a lack of persistence among nearly all the top-quartile fixed income categories. Funds investing in short-term investment-grade bonds were the only group in which a noticeable level of persistence was observed.

ABOUT THE PERSISTENCE SCORECARD

The phrase “past performance is not an indicator of future outcomes” (or some variation thereof) can be found in the fine print of most mutual fund literature. Yet due to either force of habit or conviction, investors and advisors consider past performance and related metrics to be important factors in fund selection. So does past performance really matter?

To answer this question on a continuous basis, the Persistence Scorecard, released twice per year, tracks the consistency of top performers over yearly consecutive periods and measures performance persistence through transition matrices. As in our widely followed SPIVA® Scorecards, the University of Chicago’s Center for Research in Security Prices (CRSP) Survivorship Bias Free Mutual Fund Database serves as our underlying data source.

S&P Dow Jones Indices is one of the world’s leading index providers, maintaining a wide variety of investable and benchmark indices to meet an array of investor needs. Our Global Research & Design team is dedicated to conducting unbiased, in-depth analysis on a broad range of topics and issues facing investors in today’s marketplace. This scorecard highlights performance persistence over three- and five-year consecutive 12-month periods and two non-overlapping three- and five-year periods.

Key features of the Persistence Scorecard include:

- Historical rankings without survivorship bias: For anyone making an investment decision, all funds available at the time of that decision are part of the initial opportunity set. Nevertheless, in their persistence calculations, analysts often limit their sample to funds that continue to exist over the complete time period examined, ranking only the survivors. If that happens, funds that liquidate or merge during a period of study are disregarded, biasing measurements of persistence. Using the University of Chicago’s CRSP Survivorship Bias Free Mutual Fund Database, the Persistence Scorecard ranks all funds available at each point in time and tracks the top-quartile and top-half performers throughout the time period. This approach accounts for all initially available funds.
- Clean universe: The mutual fund universe used in these reports comprises actively managed domestic U.S. equity funds. Index funds, sector funds, and index-based dynamic (bull/bear) funds are excluded from the sample. To avoid double-counting multiple share classes, only the largest share class of a fund is used.
- Transition matrices: Transition matrices are designed to show the movements between quartiles and halves over two non-overlapping three- and five-year periods. They are also designed to track the percentage of funds that have merged or liquidated. In addition, we monitor movements between capitalization levels. This helps us capture, for example, the conversion of some large-cap funds to mid-cap and small-cap funds.
- Tracking reports of top performers: The tracking reports are designed to show the percentages of funds that remain in the top-quartile or top-half rankings over consecutive three- and five-year periods.

EXHIBITS

Exhibit 1: Performance Persistence of Domestic Equity Funds Over Three Consecutive 12-Month Periods			
Mutual Fund Category	Fund Count at Start (March 2013)	Percentage Remaining in Top Quartile	
		March 2014	March 2015
Top Quartile			
All Domestic Funds	682	21.26	5.28
Large-Cap Funds	253	18.58	3.95
Mid-Cap Funds	95	18.95	5.26
Small-Cap Funds	150	22.67	4.67
Multi-Cap Funds	184	25.00	7.61
Mutual Fund Category	Fund Count at Start (March 2013)	Percentage Remaining in Top Half	
		March 2014	March 2015
Top Half			
All Domestic Funds	1363	45.34	21.13
Large-Cap Funds	505	43.17	16.63
Mid-Cap Funds	190	43.68	17.37
Small-Cap Funds	300	46.00	22.67
Multi-Cap Funds	368	48.64	27.99

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 2: Performance Persistence of Domestic Equity Funds Over Five Consecutive 12-Month Periods					
Mutual Fund Category	Fund Count at Start (March 2011)	Percentage Remaining in Top Quartile			
		March 2012	March 2013	March 2014	March 2015
Top Quartile					
All Domestic Funds	703	30.87	4.69	1.00	0.28
Large-Cap Funds	269	30.86	3.72	0.00	0.00
Mid-Cap Funds	101	28.71	0.00	0.00	0.00
Small-Cap Funds	148	30.41	6.08	1.35	0.00
Multi-Cap Funds	185	32.43	7.57	2.70	1.08
Mutual Fund Category	Fund Count at Start (March 2011)	Percentage Remaining in Top Half			
		March 2012	March 2013	March 2014	March 2015
Top Half					
All Domestic Funds	1407	49.89	18.27	8.81	5.97
Large-Cap Funds	539	51.95	16.14	6.49	4.82
Mid-Cap Funds	203	49.75	14.29	7.88	3.45
Small-Cap Funds	296	51.69	22.97	11.82	7.77
Multi-Cap Funds	369	45.53	19.78	10.30	7.59

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 3: Three-Year Transition Matrix—Performance Over Two Non-Overlapping Three-Year Periods (Based on Quartiles)								
	No. of Funds at Start (March 2012)	Three-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
All Domestic Funds								
1st Quartile	635	33.54	19.84	20.31	18.27	8.03	0.00	100
2nd Quartile	635	26.61	22.52	23.46	15.12	12.28	0.00	100
3rd Quartile	635	17.48	28.35	22.83	17.01	14.33	0.00	100
4th Quartile	635	8.66	15.59	19.69	35.91	20.16	0.00	100
Large-Cap Funds								
1st Quartile	244	26.64	18.03	15.57	14.75	11.48	13.52	100
2nd Quartile	245	20.82	17.96	19.18	14.69	15.92	11.43	100
3rd Quartile	244	13.93	22.95	19.26	17.21	14.75	11.89	100
4th Quartile	244	10.25	12.70	17.62	25.00	21.72	12.71	100
Mid-Cap Funds								
1st Quartile	89	21.35	10.11	16.85	24.72	10.11	16.86	100
2nd Quartile	89	20.22	19.10	22.47	12.36	6.74	19.10	100
3rd Quartile	88	13.64	22.73	15.91	13.64	13.64	20.45	100
4th Quartile	89	13.48	16.85	12.36	17.98	21.35	17.98	100
Small-Cap Funds								
1st Quartile	135	25.93	20.00	20.74	24.44	5.93	2.96	100
2nd Quartile	136	27.94	24.26	24.26	13.24	5.88	4.41	100
3rd Quartile	135	16.30	24.44	22.22	23.70	8.89	4.44	100
4th Quartile	135	16.30	17.04	19.26	24.44	22.22	0.74	100
Multi-Cap Funds								
1st Quartile	167	28.74	22.16	11.38	2.99	11.38	23.35	100
2nd Quartile	167	23.95	22.16	14.97	6.59	7.78	24.56	100
3rd Quartile	166	9.64	18.07	25.30	16.27	16.27	14.45	100
4th Quartile	167	5.99	5.99	16.17	42.51	17.37	11.97	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 4: Three-Year Transition Matrix—Performance Over Two Non-Overlapping Three-Year Periods (Based on Halves)						
	No. of funds at Start (March 2012)	Three-Year Percentages at End				Total (%)
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	
All Domestic Funds						
Top Half	1270	51.26	38.58	10.16	0.00	100
Bottom Half	1270	35.04	47.72	17.24	0.00	100
Large-Cap Funds						
Top Half	489	41.72	32.11	13.70	12.48	100
Bottom Half	488	29.92	39.55	18.24	12.29	100
Mid-Cap Funds						
Top Half	178	35.39	38.20	8.43	17.97	100
Bottom Half	177	33.33	29.94	17.51	19.21	100
Small-Cap Funds						
Top Half	271	49.08	41.33	5.90	3.69	100
Bottom Half	270	37.04	44.81	15.56	2.59	100
Multi-Cap Funds						
Top Half	334	48.50	17.96	9.58	23.95	100
Bottom Half	333	19.82	50.15	16.82	13.21	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 5: Five-Year Transition Matrix—Performance Over Two Non-Overlapping Five-Year Periods (Based on Quartiles)								
	No. of Funds at Start (March 2010)	Five-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
All Domestic Funds								
1st Quartile	427	24.82	22.01	21.08	21.78	10.30	0.00	100
2nd Quartile	427	22.01	21.08	22.25	18.74	15.93	0.00	100
3rd Quartile	426	15.49	19.25	19.48	20.89	24.88	0.00	100
4th Quartile	427	15.93	15.93	15.22	16.86	36.07	0.00	100
Large-Cap Funds								
1st Quartile	156	21.15	18.59	14.10	17.95	12.82	15.39	100
2nd Quartile	156	14.10	19.23	13.46	12.82	25.00	15.38	100
3rd Quartile	155	12.90	11.61	12.90	16.13	30.97	15.48	100
4th Quartile	156	10.26	8.97	17.95	11.54	33.33	17.95	100
Mid-Cap Funds								
1st Quartile	63	14.29	17.46	9.52	12.70	12.70	33.33	100
2nd Quartile	62	4.84	9.68	16.13	17.74	16.13	35.48	100
3rd Quartile	63	17.46	12.70	9.52	11.11	20.63	28.58	100
4th Quartile	62	11.29	8.06	12.90	6.45	38.71	22.58	100
Small-Cap Funds								
1st Quartile	100	11.00	12.00	28.00	31.00	6.00	12.00	100
2nd Quartile	99	26.26	22.22	20.20	22.22	5.05	4.04	100
3rd Quartile	100	18.00	26.00	17.00	11.00	21.00	7.00	100
4th Quartile	99	20.20	16.16	10.10	11.11	38.38	4.04	100
Multi-Cap Funds								
1st Quartile	109	21.10	15.60	11.93	11.01	12.84	27.53	100
2nd Quartile	109	8.26	14.68	17.43	22.94	12.84	23.86	100
3rd Quartile	109	11.01	10.09	15.60	14.68	21.10	27.52	100
4th Quartile	109	13.76	13.76	9.17	5.50	33.94	23.86	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 6: Five-Year Transition Matrix—Performance Over Two Non-Overlapping Five-Year Periods (Based on Halves)						
	No. of Funds at Start (March 2010)	Five-Year Percentages at End				Total (%)
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	
All Domestic Funds						
Top Half	854	44.96	41.92	13.11	0.00	100
Bottom Half	853	33.29	36.23	30.48	0.00	100
Large-Cap Funds						
Top Half	312	36.54	29.17	18.91	15.38	100
Bottom Half	311	21.86	29.26	32.15	16.72	100
Mid-Cap Funds						
Top Half	125	23.20	28.00	14.40	34.40	100
Bottom Half	125	24.80	20.00	29.60	25.60	100
Small-Cap Funds						
Top Half	199	35.68	50.75	5.53	8.04	100
Bottom Half	199	40.20	24.62	29.65	5.53	100
Multi-Cap Funds						
Top Half	218	29.82	31.65	12.84	25.69	100
Bottom Half	218	24.31	22.48	27.52	25.69	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 7: Performance Persistence of Domestic Fixed Income Funds Over Three Consecutive 12-Month Periods			
Mutual Fund Category	Fund Count at Start (March 2013)	Percentage Remaining in Top Quartile (%)	
		March 2014	March 2015
Top Quartile			
Government Long Funds	22	0.00	0.00
Government Intermediate Funds	8	0.00	0.00
Government Short Funds	11	18.18	9.09
Investment-Grade Long Funds	31	58.06	22.58
Investment-Grade Intermediate Funds	71	49.30	16.90
Investment-Grade Short Funds	22	54.55	31.82
High-Yield Funds	53	54.72	7.55
Mortgage-Backed Securities Funds	16	68.75	25.00
Global Income Funds	30	33.33	20.00
Emerging Markets Debt Funds	15	40.00	13.33
General Municipal Debt Funds	25	16.00	12.00
California Municipal Debt Funds	9	44.44	22.22
New York Municipal Debt Funds	8	12.50	0.00
Mutual Fund Category	Fund Count at Start (March 2013)	Percentage Remaining in Top Half (%)	
		March 2014	March 2015
Top Half			
Government Long Funds	44	18.18	13.64
Government Intermediate Funds	16	31.25	25.00
Government Short Funds	21	61.90	47.62
Investment-Grade Long Funds	63	69.84	39.68
Investment-Grade Intermediate Funds	143	60.84	34.97
Investment-Grade Short Funds	44	70.45	50.00
High-Yield Funds	106	66.04	24.53
Mortgage-Backed Securities Funds	31	58.06	41.94
Global Income Funds	59	59.32	44.07
Emerging Markets Debt Funds	30	66.67	56.67
General Municipal Debt Funds	49	44.90	32.65
California Municipal Debt Funds	18	55.56	44.44
New York Municipal Debt Funds	15	40.00	26.67

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 8: Performance Persistence of Domestic Fixed Income Funds Over Five Consecutive 12-Month Periods					
Mutual Fund Category	Fund Count at Start (March 2011)	Percentage Remaining in Top Quartile (%)			
		March 2012	March 2013	March 2014	March 2015
Top Quartile					
Government Long Funds	22	50.00	36.36	0.00	0.00
Government Intermediate Funds	10	50.00	30.00	0.00	0.00
Government Short Funds	11	63.64	36.36	0.00	0.00
Investment-Grade Long Funds	33	33.33	27.27	6.06	0.00
Investment-Grade Intermediate Funds	69	34.78	26.09	13.04	5.80
Investment-Grade Short Funds	21	52.38	42.86	33.33	28.57
High-Yield Funds	49	16.33	10.20	8.16	0.00
Mortgage-Backed Securities Funds	15	46.67	13.33	6.67	6.67
Global Income Funds	27	33.33	7.41	0.00	0.00
Emerging Markets Debt Funds	8	25.00	12.50	12.50	12.50
General Municipal Debt Funds	23	4.35	0.00	0.00	0.00
California Municipal Debt Funds	10	0.00	0.00	0.00	0.00
New York Municipal Debt Funds	8	0.00	0.00	0.00	0.00
Mutual Fund Category	Fund Count at Start (March 2011)	Percentage Remaining in Top Half (%)			
		March 2012	March 2013	March 2014	March 2015
Top Half					
Government Long Funds	43	67.44	62.79	6.98	4.65
Government Intermediate Funds	20	70.00	50.00	15.00	15.00
Government Short Funds	22	77.27	63.64	36.36	31.82
Investment-Grade Long Funds	65	53.85	46.15	32.31	23.08
Investment-Grade Intermediate Funds	138	60.14	39.13	30.43	23.19
Investment-Grade Short Funds	41	60.98	53.66	41.46	39.02
High-Yield Funds	98	41.84	25.51	17.35	8.16
Mortgage-Backed Securities Funds	30	63.33	43.33	30.00	23.33
Global Income Funds	54	51.85	29.63	18.52	11.11
Emerging Markets Debt Funds	16	50.00	25.00	18.75	12.50
General Municipal Debt Funds	46	26.09	19.57	10.87	4.35
California Municipal Debt Funds	19	21.05	15.79	10.53	10.53
New York Municipal Debt Funds	17	23.53	11.76	11.76	5.88

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 9: Three-Year Transition Matrix Over Two Non-Overlapping Three-Year Periods (Based on Quartiles)								
Mutual Fund Category	No. of Funds at Start (March 2012)	Three-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Government Long Funds								
1st Quartile	19	15.79	5.26	21.05	52.63	5.26	0.00	100
2nd Quartile	19	52.63	5.26	10.53	15.79	15.79	0.00	100
3rd Quartile	18	22.22	55.56	16.67	0.00	5.56	0.00	100
4th Quartile	19	0.00	26.32	36.84	21.05	15.79	0.00	100
Government Intermediate Funds								
1st Quartile	9	33.33	11.11	0.00	22.22	33.33	0.00	100
2nd Quartile	9	44.44	33.33	11.11	0.00	11.11	0.00	100
3rd Quartile	8	0.00	25.00	37.50	12.50	25.00	0.00	100
4th Quartile	9	0.00	0.00	33.33	33.33	33.33	0.00	100
Government Short Funds								
1st Quartile	11	63.64	18.18	0.00	9.09	9.09	0.00	100
2nd Quartile	11	18.18	45.45	9.09	0.00	27.27	0.00	100
3rd Quartile	11	0.00	0.00	45.45	27.27	27.27	0.00	100
4th Quartile	11	0.00	18.18	18.18	45.45	18.18	0.00	100
Investment-Grade Long Funds								
1st Quartile	29	55.17	31.03	3.45	0.00	10.34	0.00	100
2nd Quartile	29	20.69	31.03	31.03	6.90	10.34	0.00	100
3rd Quartile	29	3.45	13.79	20.69	34.48	27.59	0.00	100
4th Quartile	29	0.00	3.45	24.14	37.93	34.48	0.00	100
Investment-Grade Intermediate Funds								
1st Quartile	65	43.08	24.62	15.38	3.08	13.85	0.00	100
2nd Quartile	66	27.27	36.36	18.18	6.06	12.12	0.00	100
3rd Quartile	65	9.23	15.38	35.38	20.00	20.00	0.00	100
4th Quartile	65	0.00	3.08	9.23	50.77	36.92	0.00	100
Investment-Grade Short Funds								
1st Quartile	20	55.00	25.00	5.00	0.00	15.00	0.00	100
2nd Quartile	21	28.57	33.33	28.57	0.00	9.52	0.00	100
3rd Quartile	20	0.00	20.00	40.00	30.00	10.00	0.00	100
4th Quartile	20	0.00	5.00	10.00	55.00	30.00	0.00	100
High-Yield Funds								
1st Quartile	45	40.00	22.22	15.56	17.78	4.44	0.00	100
2nd Quartile	45	26.67	31.11	22.22	13.33	6.67	0.00	100
3rd Quartile	44	13.64	25.00	38.64	9.09	13.64	0.00	100
4th Quartile	45	11.11	13.33	13.33	51.11	11.11	0.00	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 9: Three-Year Transition Matrix Over Two Non-Overlapping Three-Year Periods (Based on Quartiles) (cont.)								
Mutual Fund Category	No. of Funds at Start (March 2012)	Three-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Mortgage-Backed Securities Funds								
1st Quartile	14	71.43	21.43	7.14	0.00	0.00	0.00	100
2nd Quartile	15	13.33	26.67	26.67	26.67	6.67	0.00	100
3rd Quartile	14	0.00	28.57	14.29	42.86	14.29	0.00	100
4th Quartile	14	0.00	7.14	35.71	14.29	42.86	0.00	100
Global Income Funds								
1st Quartile	24	29.17	29.17	29.17	8.33	4.17	0.00	100
2nd Quartile	24	41.67	20.83	20.83	8.33	8.33	0.00	100
3rd Quartile	24	12.50	8.33	16.67	33.33	29.17	0.00	100
4th Quartile	24	4.17	25.00	20.83	33.33	16.67	0.00	100
Emerging Markets Debt Funds								
1st Quartile	8	37.50	25.00	37.50	0.00	0.00	0.00	100
2nd Quartile	7	14.29	28.57	28.57	28.57	0.00	0.00	100
3rd Quartile	8	37.50	25.00	0.00	25.00	12.50	0.00	100
4th Quartile	7	0.00	28.57	28.57	42.86	0.00	0.00	100
General Municipal Debt Funds								
1st Quartile	20	70.00	20.00	0.00	0.00	10.00	0.00	100
2nd Quartile	20	15.00	50.00	20.00	15.00	0.00	0.00	100
3rd Quartile	19	10.53	21.05	47.37	10.53	10.53	0.00	100
4th Quartile	20	0.00	0.00	30.00	65.00	5.00	0.00	100
California Municipal Debt Funds								
1st Quartile	9	77.78	11.11	11.11	0.00	0.00	0.00	100
2nd Quartile	9	0.00	33.33	44.44	11.11	11.11	0.00	100
3rd Quartile	8	25.00	37.50	25.00	12.50	0.00	0.00	100
4th Quartile	9	0.00	11.11	22.22	66.67	0.00	0.00	100
New York Municipal Debt Funds								
1st Quartile	8	50.00	50.00	0.00	0.00	0.00	0.00	100
2nd Quartile	7	14.29	14.29	57.14	0.00	14.29	0.00	100
3rd Quartile	8	25.00	25.00	25.00	25.00	0.00	0.00	100
4th Quartile	7	0.00	0.00	0.00	71.43	28.57	0.00	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 10: Three-Year Transition Matrix Over Two Non-Overlapping Three-Year Periods (Based on Halves)						
Mutual Fund Category	No. of Funds at Start (March 2012)	Three-Year Percentages at End				
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Government Long Funds						
Top Half	38	39.47	50.00	10.53	0.00	100
Bottom Half	37	51.35	37.84	10.81	0.00	100
Government Intermediate Funds						
Top Half	18	61.11	16.67	22.22	0.00	100
Bottom Half	17	11.76	58.82	29.41	0.00	100
Government Short Funds						
Top Half	22	72.73	9.09	18.18	0.00	100
Bottom Half	22	9.09	68.18	22.73	0.00	100
Investment-Grade Long Funds						
Top Half	58	68.97	20.69	10.34	0.00	100
Bottom Half	58	10.34	58.62	31.03	0.00	100
Investment-Grade Intermediate Funds						
Top Half	131	65.65	21.37	12.98	0.00	100
Bottom Half	130	13.85	57.69	28.46	0.00	100
Investment-Grade Short Funds						
Top Half	41	70.73	17.07	12.20	0.00	100
Bottom Half	40	12.50	67.50	20.00	0.00	100
High-Yield Funds						
Top Half	90	60.00	34.44	5.56	0.00	100
Bottom Half	89	31.46	56.18	12.36	0.00	100
Mortgage-Backed Securities Funds						
Top Half	29	65.52	31.03	3.45	0.00	100
Bottom Half	28	17.86	53.57	28.57	0.00	100
Global Income Funds						
Top Half	48	60.42	33.33	6.25	0.00	100
Bottom Half	48	25.00	52.08	22.92	0.00	100
Emerging Markets Debt Funds						
Top Half	15	53.33	46.67	0.00	0.00	100
Bottom Half	15	46.67	46.67	6.67	0.00	100
General Municipal Debt Funds						
Top Half	40	77.50	17.50	5.00	0.00	100
Bottom Half	39	15.38	76.92	7.69	0.00	100
California Municipal Debt Funds						
Top Half	18	61.11	33.33	5.56	0.00	100
Bottom Half	17	35.29	64.71	0.00	0.00	100
New York Municipal Debt Funds						
Top Half	15	66.67	26.67	6.67	0.00	100
Bottom Half	15	26.67	60.00	13.33	0.00	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 11: Five-Year Transition Matrix Over Two Non-Overlapping Five-Year Periods (Based on Quartiles)								
Mutual Fund Category	No. of Funds at Start (March 2010)	Five-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Government Long Funds								
1st Quartile	11	27.27	18.18	27.27	18.18	9.09	0.00	100
2nd Quartile	11	27.27	27.27	0.00	9.09	36.36	0.00	100
3rd Quartile	11	0.00	18.18	18.18	36.36	27.27	0.00	100
4th Quartile	11	18.18	9.09	18.18	9.09	45.45	0.00	100
Government Intermediate Funds								
1st Quartile	10	30.00	20.00	20.00	0.00	30.00	0.00	100
2nd Quartile	11	9.09	36.36	9.09	18.18	27.27	0.00	100
3rd Quartile	10	20.00	0.00	40.00	10.00	30.00	0.00	100
4th Quartile	10	10.00	0.00	0.00	30.00	60.00	0.00	100
Government Short Funds								
1st Quartile	11	45.45	36.36	9.09	0.00	9.09	0.00	100
2nd Quartile	11	9.09	18.18	9.09	27.27	36.36	0.00	100
3rd Quartile	11	0.00	9.09	27.27	27.27	36.36	0.00	100
4th Quartile	11	18.18	9.09	18.18	18.18	36.36	0.00	100
Investment-Grade Long Funds								
1st Quartile	20	40.00	30.00	5.00	5.00	20.00	0.00	100
2nd Quartile	20	5.00	20.00	25.00	25.00	25.00	0.00	100
3rd Quartile	19	15.79	15.79	31.58	15.79	21.05	0.00	100
4th Quartile	20	10.00	10.00	10.00	25.00	45.00	0.00	100
Investment-Grade Intermediate Funds								
1st Quartile	47	23.40	23.40	29.79	4.26	19.15	0.00	100
2nd Quartile	47	17.02	17.02	23.40	21.28	21.28	0.00	100
3rd Quartile	46	8.70	26.09	13.04	32.61	19.57	0.00	100
4th Quartile	47	27.66	8.51	10.64	17.02	36.17	0.00	100
Investment-Grade Short Funds								
1st Quartile	18	33.33	27.78	11.11	16.67	11.11	0.00	100
2nd Quartile	18	5.56	22.22	44.44	16.67	11.11	0.00	100
3rd Quartile	17	17.65	17.65	11.76	29.41	23.53	0.00	100
4th Quartile	18	27.78	11.11	16.67	16.67	27.78	0.00	100
High-Yield Funds								
1st Quartile	29	41.38	20.69	24.14	13.79	0.00	0.00	100
2nd Quartile	29	20.69	31.03	20.69	27.59	0.00	0.00	100
3rd Quartile	29	17.24	13.79	17.24	27.59	24.14	0.00	100
4th Quartile	29	10.34	24.14	24.14	20.69	20.69	0.00	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 11: Five-Year Transition Matrix Over Two Non-Overlapping Five-Year Periods (Based on Quartiles) (cont.)								
Mutual Fund Category	No. of Funds at Start (March 2010)	Five-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Mortgage-Backed Securities Funds								
1st Quartile	12	33.33	41.67	8.33	16.67	0.00	0.00	100
2nd Quartile	13	0.00	7.69	30.77	23.08	38.46	0.00	100
3rd Quartile	12	25.00	8.33	25.00	33.33	8.33	0.00	100
4th Quartile	12	25.00	25.00	8.33	8.33	33.33	0.00	100
Global Income Funds								
1st Quartile	12	25.00	25.00	16.67	8.33	25.00	0.00	100
2nd Quartile	13	15.38	30.77	30.77	7.69	15.38	0.00	100
3rd Quartile	12	8.33	0.00	33.33	41.67	16.67	0.00	100
4th Quartile	12	33.33	16.67	0.00	16.67	33.33	0.00	100
Emerging Markets Debt Funds								
1st Quartile	5	40.00	20.00	20.00	20.00	0.00	0.00	100
2nd Quartile	4	25.00	25.00	50.00	0.00	0.00	0.00	100
3rd Quartile	5	0.00	60.00	20.00	20.00	0.00	0.00	100
4th Quartile	4	25.00	0.00	0.00	50.00	25.00	0.00	100
General Municipal Debt Funds								
1st Quartile	19	26.32	31.58	31.58	10.53	0.00	0.00	100
2nd Quartile	19	10.53	15.79	26.32	15.79	31.58	0.00	100
3rd Quartile	18	22.22	27.78	16.67	22.22	11.11	0.00	100
4th Quartile	19	31.58	15.79	10.53	42.11	0.00	0.00	100
California Municipal Debt Funds								
1st Quartile	9	22.22	22.22	22.22	22.22	11.11	0.00	100
2nd Quartile	9	0.00	22.22	22.22	44.44	11.11	0.00	100
3rd Quartile	9	22.22	11.11	33.33	11.11	22.22	0.00	100
4th Quartile	9	44.44	33.33	11.11	11.11	0.00	0.00	100
New York Municipal Debt Funds								
1st Quartile	8	0.00	37.50	25.00	25.00	12.50	0.00	100
2nd Quartile	8	12.50	25.00	12.50	37.50	12.50	0.00	100
3rd Quartile	8	37.50	0.00	37.50	0.00	25.00	0.00	100
4th Quartile	8	37.50	12.50	12.50	12.50	25.00	0.00	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 12: Five-Year Transition Matrix Over Two Non-Overlapping Five-Year Periods (Based on Halves)						
Mutual Fund Category	No. of Funds at Start (March 2010)	Five-Year Percentages at End				
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Government Long Funds						
Top Half	22	50.00	27.27	22.73	0.00	100
Bottom Half	22	22.73	40.91	36.36	0.00	100
Government Intermediate Funds						
Top Half	21	47.62	23.81	28.57	0.00	100
Bottom Half	20	15.00	40.00	45.00	0.00	100
Government Short Funds						
Top Half	22	54.55	22.73	22.73	0.00	100
Bottom Half	22	18.18	45.45	36.36	0.00	100
Investment-Grade Long Funds						
Top Half	40	47.50	30.00	22.50	0.00	100
Bottom Half	39	25.64	41.03	33.33	0.00	100
Investment-Grade Intermediate Funds						
Top Half	94	40.43	39.36	20.21	0.00	100
Bottom Half	93	35.48	36.56	27.96	0.00	100
Investment-Grade Short Funds						
Top Half	36	44.44	44.44	11.11	0.00	100
Bottom Half	35	37.14	37.14	25.71	0.00	100
High-Yield Funds						
Top Half	58	56.90	43.10	0.00	0.00	100
Bottom Half	58	32.76	44.83	22.41	0.00	100
Mortgage-Backed Securities Funds						
Top Half	25	40.00	40.00	20.00	0.00	100
Bottom Half	24	41.67	37.5	20.83	0.00	100
Global Income Funds						
Top Half	25	48.00	32.00	20.00	0.00	100
Bottom Half	24	29.17	45.83	25.00	0.00	100
Emerging Markets Debt Funds						
Top Half	9	55.56	44.44	0.00	0.00	100
Bottom Half	9	44.44	44.44	11.11	0.00	100
General Municipal Debt Funds						
Top Half	38	42.11	42.11	15.79	0.00	100
Bottom Half	37	48.65	45.95	5.41	0.00	100
California Municipal Debt Funds						
Top Half	18	33.33	55.56	11.11	0.00	100
Bottom Half	18	55.56	33.33	11.11	0.00	100
New York Municipal Debt Funds						
Top Half	16	37.50	50.00	12.50	0.00	100
Bottom Half	16	43.75	31.25	25.00	0.00	100

Source: S&P Dow Jones Indices LLC. For periods ending March 31, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

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