
Does Past Performance Matter?

The Persistence Scorecard

CONTRIBUTOR

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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 peers 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 678 domestic equity funds that were in the top quartile as of September 2013, only 4.28% managed to stay in the top quartile by the end of September 2015. Furthermore, 1.19% of the large-cap funds, 6.32% of the mid-cap funds, and 5.41% of the small-cap funds remained in the top quartile.
- For the three-year period that ended in September 2015, persistence figures for funds in the top half were equally unfavorable. Over these three consecutive 12-month periods, 19.68% of large-cap funds, 19.47% of mid-cap funds, and 25.34% of small-cap funds maintained a top-half ranking.
- 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 or mid-cap funds managed to remain 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 7.48% of large-cap funds, 3.06% of mid-cap funds, and 7.43% of small-cap funds maintained top-half performance over five consecutive 12-month periods.

- 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 433 funds that were in the bottom quartile, 18.01% moved to the top quartile over the five-year horizon, while out of the 434 funds that were in the top quartile, 26.73% 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 36.13% of large-cap funds, 29.51% of mid-cap funds, and 32.32% 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. In March 2015, we initiated a fixed income persistence section.
- Compared with domestic equity funds, performance persistence levels were higher among the top-quartile fixed income funds over the past three years ending September 2015. Intermediate-term government funds were the only category in which the results showed no performance persistence.
- Over the five-year measurement horizon, the results showed a lack of persistence among nearly all the top-quartile fixed income categories. Funds investing in the short-term, investment-grade bonds and the California municipal debt funds were the only two groups 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 S&P 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 S&P 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 S&P 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 or 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 show the movements between quartiles and halves over two non-overlapping, three- and five-year periods. They also 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- and small-cap funds.
- Tracking reports of top performers: The tracking reports 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 (September 2013)	Percentage Remaining in Top Quartile	
		September 2014	September 2015
Top Quartile			
All Domestic Funds	678	28.91	4.28
Large-Cap Funds	252	29.37	1.19
Mid-Cap Funds	95	33.68	6.32
Small-Cap Funds	148	26.35	5.41
Multi-Cap Funds	183	27.87	6.56
Mutual Fund Category	Fund Count at Start (September 2013)	Percentage Remaining in Top Half	
		September 2014	September 2015
Top Half			
All Domestic Funds	1354	53.25	23.19
Large-Cap Funds	503	51.49	19.68
Mid-Cap Funds	190	52.63	19.47
Small-Cap Funds	296	49.66	25.34
Multi-Cap Funds	365	58.90	28.22

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 2011)	Percentage Remaining in Top Quartile			
		September 2012	September 2013	September 2014	September 2015
Top Quartile					
All Domestic Funds	703	20.77	6.97	1.85	0.28
Large-Cap Funds	268	16.04	5.22	0.75	0
Mid-Cap Funds	98	19.39	10.2	2.04	0
Small-Cap Funds	148	21.62	8.11	1.35	0.68
Multi-Cap Funds	189	27.51	6.88	3.7	0.53
Mutual Fund Category	Fund Count at Start (September 2011)	Percentage Remaining in Top Half			
		September 2012	September 2013	September 2014	September 2015
Top Half					
All Domestic Funds	1406	43.53	22.48	12.94	7.82
Large-Cap Funds	535	39.81	19.63	12.34	7.48
Mid-Cap Funds	196	36.22	19.39	8.67	3.06
Small-Cap Funds	296	48.31	26.69	11.49	7.43
Multi-Cap Funds	379	48.81	24.8	17.15	11.08

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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)								
All Domestic Funds	No. of Funds at Start (September 2012)	Three-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
1st Quartile	633	30.49	22.91	24.49	14.06	8.06	0.00	100
2nd Quartile	632	28.01	27.06	22.15	14.08	8.70	0.00	100
3rd Quartile	633	18.48	24.64	22.91	20.70	13.27	0.00	100
4th Quartile	632	9.97	12.34	17.25	38.13	22.31	0.00	100
Large-Cap Funds								
1st Quartile	235	35.32	13.19	16.60	19.57	7.66	7.66	100
2nd Quartile	235	20.43	21.70	22.98	15.74	9.79	9.36	100
3rd Quartile	234	11.54	29.91	17.95	18.80	14.53	7.26	100
4th Quartile	235	8.94	11.49	18.72	22.13	25.11	13.61	100
Mid-Cap Funds								
1st Quartile	90	20.00	20.00	22.22	18.89	6.67	12.22	100
2nd Quartile	89	19.10	20.22	22.47	16.85	10.11	11.24	100
3rd Quartile	90	20.00	16.67	11.11	16.67	20.00	15.56	100
4th Quartile	89	13.48	15.73	16.85	20.22	17.98	15.73	100
Small-Cap Funds								
1st Quartile	138	26.81	25.36	24.64	19.57	2.90	0.72	100
2nd Quartile	137	27.01	22.63	24.82	13.14	11.68	0.73	100
3rd Quartile	138	21.01	23.19	21.01	21.01	8.70	5.07	100
4th Quartile	137	10.95	14.60	15.33	32.12	22.63	4.38	100
Multi-Cap Funds								
1st Quartile	171	35.09	22.81	17.54	2.34	8.19	14.03	100
2nd Quartile	171	24.56	26.90	18.13	4.09	6.43	19.89	100
3rd Quartile	170	5.88	14.71	24.71	28.24	16.47	10.00	100
4th Quartile	171	7.60	8.77	12.87	38.60	18.71	13.45	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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)						
All Domestic Funds	No. of funds at Start (September 2012)	Three-Year Percentages at End				
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Top Half	1265	54.23	37.39	8.38	0.00	100
Bottom Half	1265	32.73	49.49	17.79	0.00	100
Large-Cap Funds						
Top Half	470	45.32	37.45	8.72	8.51	100
Bottom Half	469	30.92	38.81	19.83	10.45	100
Mid-Cap Funds						
Top Half	179	39.66	40.22	8.38	11.73	100
Bottom Half	179	32.96	32.40	18.99	15.65	100
Small-Cap Funds						
Top Half	275	50.91	41.09	7.27	0.73	100
Bottom Half	275	34.91	44.73	15.64	4.72	100
Multi-Cap Funds						
Top Half	342	54.68	21.05	7.31	16.96	100
Bottom Half	341	18.48	52.20	17.60	11.73	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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)								
All Domestic Funds	No. of Funds at Start (September 2010)	Five-Year Percentages at End						
		1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
1st Quartile	434	23.04	18.66	21.89	26.73	9.68	0	100
2nd Quartile	433	20.55	22.40	20.32	21.71	15.01	0	100
3rd Quartile	434	17.74	21.43	18.43	17.74	24.65	0	100
4th Quartile	433	18.01	16.86	18.48	13.16	33.49	0	100
Large-Cap Funds								
1st Quartile	155	21.94	14.84	12.90	23.23	10.97	16.13	100
2nd Quartile	155	18.06	16.13	14.84	14.84	21.94	14.19	100
3rd Quartile	154	9.09	18.18	12.99	14.94	28.57	16.24	100
4th Quartile	155	9.68	9.03	18.06	5.81	36.13	21.29	100
Mid-Cap Funds								
1st Quartile	61	14.75	9.84	14.75	16.39	13.11	31.15	100
2nd Quartile	61	8.20	19.67	13.11	11.48	19.67	27.87	100
3rd Quartile	61	14.75	11.48	11.48	8.20	22.95	31.15	100
4th Quartile	61	14.75	9.84	13.11	14.75	29.51	18.03	100
Small-Cap Funds								
1st Quartile	99	12.12	16.16	27.27	28.28	9.09	7.07	100
2nd Quartile	100	18.00	21.00	24.00	22.00	9.00	6.00	100
3rd Quartile	99	22.22	21.21	13.13	17.17	20.2	6.06	100
4th Quartile	99	25.25	18.18	13.13	9.09	32.32	2.02	100
Multi-Cap Funds								
1st Quartile	119	17.65	15.13	16.81	15.97	8.4	26.05	100
2nd Quartile	118	11.02	10.17	20.34	17.80	14.41	26.27	100
3rd Quartile	119	13.45	18.49	12.61	14.29	18.49	22.69	100
4th Quartile	118	13.56	11.02	5.93	6.78	31.36	31.35	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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)						
All Domestic Funds	No. of Funds at Start (September 2010)	Five-Year Percentages at End				
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Top Half	867	42.33	45.33	12.34	0	100
Bottom Half	867	37.02	33.91	29.07	0	100
Large-Cap Funds						
Top Half	310	35.48	32.9	16.45	15.16	100
Bottom Half	309	22.98	25.89	32.36	18.77	100
Mid-Cap Funds						
Top Half	122	26.23	27.87	16.39	29.51	100
Bottom Half	122	25.41	23.77	26.23	24.59	100
Small-Cap Funds						
Top Half	199	33.67	50.75	9.05	6.53	100
Bottom Half	198	43.43	26.26	26.26	4.04	100
Multi-Cap Funds						
Top Half	237	27.00	35.44	11.39	26.16	100
Bottom Half	237	28.27	19.83	24.89	27.01	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 2013)	Percentage Remaining in Top Quartile (%)	
		September 2014	September 2015
Top Quartile			
Government Long Funds	21	14.29	4.76
Government Intermediate Funds	8	0.00	0.00
Government Short Funds	11	18.18	9.09
Investment-Grade Long Funds	30	30.00	13.33
Investment-Grade Intermediate Funds	73	27.40	6.85
Investment-Grade Short Funds	22	68.18	18.18
High-Yield Funds	52	46.15	7.69
Mortgage-Backed Securities Funds	16	50.00	12.50
Global Income Funds	36	41.67	16.67
Emerging Markets Debt Funds	17	41.18	23.53
General Municipal Debt Funds	25	16.00	12.00
California Municipal Debt Funds	9	11.11	11.11
New York Municipal Debt Funds	8	12.50	12.50
Mutual Fund Category	Fund Count at Start (September 2013)	Percentage Remaining in Top Half (%)	
		September 2014	September 2015
Top Half			
Government Long Funds	44.00	51.16	41.86
Government Intermediate Funds	16.00	25.00	25.00
Government Short Funds	21.00	42.86	23.81
Investment-Grade Long Funds	63.00	58.33	23.33
Investment-Grade Intermediate Funds	143.00	42.47	19.86
Investment-Grade Short Funds	44.00	62.79	39.53
High-Yield Funds	106.00	70.87	27.18
Mortgage-Backed Securities Funds	31.00	50.00	40.63
Global Income Funds	59.00	68.49	42.47
Emerging Markets Debt Funds	30.00	69.70	54.55
General Municipal Debt Funds	49.00	37.25	27.45
California Municipal Debt Funds	18.00	36.84	26.32
New York Municipal Debt Funds	15.00	43.75	31.25

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 2011)	Percentage Remaining in Top Quartile (%)				
		September 2012	September 2013	September 2014	September 2015	
Top Quartile						
Government Long Funds	21	61.90	0.00	0.00	0.00	
Government Intermediate Funds	10	60.00	0.00	0.00	0.00	
Government Short Funds	10	30.00	10.00	10.00	10.00	
Investment-Grade Long Funds	33	21.21	0.00	0.00	0.00	
Investment-Grade Intermediate Funds	69	14.49	5.80	5.80	0.00	
Investment-Grade Short Funds	21	33.33	33.33	23.81	9.52	
High-Yield Funds	50	16.00	10.00	8.00	0.00	
Mortgage-Backed Securities Funds	15	40.00	20.00	13.33	6.67	
Global Income Funds	29	24.14	0.00	0.00	0.00	
Emerging Markets Debt Funds	9	44.44	0.00	0.00	0.00	
General Municipal Debt Funds	22	18.18	9.09	4.55	4.55	
California Municipal Debt Funds	9	33.33	11.11	11.11	11.11	
New York Municipal Debt Funds	8	25.00	0.00	0.00	0.00	
Mutual Fund Category	Fund Count at Start (September 2011)	Percentage Remaining in Top Half (%)				
		September 2012	September 2013	September 2014	September 2015	
Top Half						
Government Long Funds	42	69.05	9.52	9.52	7.14	
Government Intermediate Funds	21	66.67	9.52	9.52	9.52	
Government Short Funds	20	70.00	40.00	30.00	20.00	
Investment-Grade Long Funds	65	41.54	23.08	16.92	7.69	
Investment-Grade Intermediate Funds	138	55.07	22.46	21.01	10.14	
Investment-Grade Short Funds	42	50.00	42.86	33.33	23.81	
High-Yield Funds	100	35.00	20.00	18.00	10.00	
Mortgage-Backed Securities Funds	30	56.67	36.67	30.00	30.00	
Global Income Funds	58	41.38	20.69	17.24	13.79	
Emerging Markets Debt Funds	18	72.22	33.33	33.33	27.78	
General Municipal Debt Funds	44	45.45	20.45	18.18	11.36	
California Municipal Debt Funds	18	38.89	16.67	16.67	16.67	
New York Municipal Debt Funds	15	46.67	20.00	20.00	13.33	

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 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	36.84	0.00	5.26	57.89	0.00	0.00	100
2nd Quartile	19	36.84	26.32	0.00	15.79	21.05	0.00	100
3rd Quartile	19	15.79	42.11	26.32	5.26	10.53	0.00	100
4th Quartile	19	0.00	21.05	52.63	10.53	15.79	0.00	100
Government Intermediate Funds								
1st Quartile	9	33.33	0.00	11.11	22.22	33.33	0.00	100
2nd Quartile	9	22.22	44.44	22.22	0.00	11.11	0.00	100
3rd Quartile	8	12.50	0.00	37.50	12.50	37.50	0.00	100
4th Quartile	9	11.11	22.22	11.11	33.33	22.22	0.00	100
Government Short Funds								
1st Quartile	11	54.55	9.09	9.09	18.18	9.09	0.00	100
2nd Quartile	10	20.00	50.00	20.00	0.00	10.00	0.00	100
3rd Quartile	11	9.09	9.09	18.18	27.27	36.36	0.00	100
4th Quartile	10	0.00	20.00	30.00	40.00	10.00	0.00	100
Investment-Grade Long Funds								
1st Quartile	29	48.28	34.48	6.90	3.45	6.90	0.00	100
2nd Quartile	28	25.00	35.71	25.00	7.14	7.14	0.00	100
3rd Quartile	29	3.45	6.90	34.48	31.03	24.14	0.00	100
4th Quartile	28	7.14	3.57	17.86	39.29	32.14	0.00	100
Investment-Grade Intermediate Funds								
1st Quartile	66	43.94	19.70	22.73	4.55	9.09	0.00	100
2nd Quartile	65	23.08	32.31	20.00	13.85	10.77	0.00	100
3rd Quartile	66	10.61	21.21	25.76	22.73	19.70	0.00	100
4th Quartile	65	3.08	7.69	10.77	40.00	38.46	0.00	100
Investment-Grade Short Funds								
1st Quartile	19	47.37	26.32	10.53	5.26	10.53	0.00	100
2nd Quartile	20	40.00	35.00	20.00	5.00	0.00	0.00	100
3rd Quartile	19	0.00	26.32	47.37	21.05	5.26	0.00	100
4th Quartile	19	0.00	0.00	5.26	57.89	36.84	0.00	100
High-Yield Funds								
1st Quartile	47	44.68	17.02	19.15	12.77	6.38	0.00	100
2nd Quartile	46	26.09	19.57	32.61	17.39	4.35	0.00	100
3rd Quartile	47	12.77	34.04	21.28	25.53	6.38	0.00	100
4th Quartile	46	8.70	21.74	19.57	36.96	13.04	0.00	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 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	57.14	7.14	14.29	14.29	7.14	0.00	100
2nd Quartile	15	20.00	40.00	13.33	20.00	6.67	0.00	100
3rd Quartile	14	0.00	28.57	14.29	28.57	28.57	0.00	100
4th Quartile	14	0.00	7.14	35.71	14.29	42.86	0.00	100
Global Income Funds								
1st Quartile	26	30.77	30.77	30.77	3.85	3.85	0.00	100
2nd Quartile	26	30.77	15.38	23.08	23.08	7.69	0.00	100
3rd Quartile	25	20.00	12.00	12.00	28.00	28.00	0.00	100
4th Quartile	26	3.85	30.77	19.23	30.77	15.38	0.00	100
Emerging Markets Debt Funds								
1st Quartile	8	50.00	37.50	12.50	0.00	0.00	0.00	100
2nd Quartile	7	28.57	28.57	28.57	14.29	0.00	0.00	100
3rd Quartile	8	12.50	25.00	25.00	37.50	0.00	0.00	100
4th Quartile	7	0.00	14.29	28.57	42.86	14.29	0.00	100
General Municipal Debt Funds								
1st Quartile	21	61.90	23.81	14.29	0.00	0.00	0.00	100
2nd Quartile	21	28.57	33.33	23.81	9.52	4.76	0.00	100
3rd Quartile	21	9.52	33.33	33.33	23.81	0.00	0.00	100
4th Quartile	21	0.00	4.76	28.57	61.90	4.76	0.00	100
California Municipal Debt Funds								
1st Quartile	9	55.56	22.22	11.11	11.11	0.00	0.00	100
2nd Quartile	9	33.33	44.44	11.11	11.11	0.00	0.00	100
3rd Quartile	9	11.11	33.33	33.33	22.22	0.00	0.00	100
4th Quartile	9	0.00	0.00	44.44	55.56	0.00	0.00	100
New York Municipal Debt Funds								
1st Quartile	8	37.50	50.00	0.00	12.50	0.00	0.00	100
2nd Quartile	7	14.29	28.57	42.86	0.00	14.29	0.00	100
3rd Quartile	8	25.00	12.50	37.50	25.00	0.00	0.00	100
4th Quartile	7	14.29	0.00	14.29	57.14	14.29	0.00	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 2012)	Three-Year Percentages at End				
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Government Long Funds						
Top Half	38	50	39.47	10.53	0.00	100
Bottom Half	38	39.47	47.37	13.16	0.00	100
Government Intermediate Funds						
Top Half	18	50	27.78	22.22	0.00	100
Bottom Half	17	23.53	47.06	29.41	0.00	100
Government Short Funds						
Top Half	21	66.67	23.81	9.52	0.00	100
Bottom Half	21	19.05	57.14	23.81	0.00	100
Investment-Grade Long Funds						
Top Half	57	71.93	21.05	7.020	0.00	100
Bottom Half	57	10.53	61.40	28.07	0.00	100
Investment-Grade Intermediate Funds						
Top Half	131	59.54	30.53	9.92	0.00	100
Bottom Half	131	21.37	49.62	29.01	0.00	100
Investment-Grade Short Funds						
Top Half	39	74.36	20.51	5.13	0.00	100
Bottom Half	38	13.16	65.79	21.05	0.00	100
High-Yield Funds						
Top Half	93	53.76	40.86	5.38	0.00	100
Bottom Half	93	38.71	51.61	9.68	0.00	100
Mortgage-Backed Securities Funds						
Top Half	29	62.07	31.03	6.90	0.00	100
Bottom Half	28	17.86	46.43	35.71	0.00	100
Global Income Funds						
Top Half	52	53.85	40.38	5.77	0.00	100
Bottom Half	51	33.33	45.10	21.57	0.00	100
Emerging Markets Debt Funds						
Top Half	15	73.33	26.67	0.00	0.00	100
Bottom Half	15	26.67	66.67	6.67	0.00	100
General Municipal Debt Funds						
Top Half	42	73.81	23.81	2.38	0.00	100
Bottom Half	42	23.81	73.81	2.38	0.00	100
California Municipal Debt Funds						
Top Half	18	77.78	22.22	0.00	0.00	100
Bottom Half	18	22.22	77.78	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	66.67	6.67	0.00	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 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	54.55	9.09	9.09	18.18	9.09	0	100
2nd Quartile	11	0.00	36.36	18.18	9.09	36.36	0	100
3rd Quartile	10	0.00	10.00	30.00	20.00	40.00	0	100
4th Quartile	11	18.18	18.18	9.09	27.27	27.27	0	100
Government Intermediate Funds								
1st Quartile	10	40.00	20.00	10.00	10.00	20.00	0	100
2nd Quartile	11	27.27	27.27	9.09	0.00	36.36	0	100
3rd Quartile	10	0.00	10.00	30.00	30.00	30.00	0	100
4th Quartile	10	0.00	0.00	20.00	20.00	60.00	0	100
Government Short Funds								
1st Quartile	11	63.64	27.27	0.00	0.00	9.09	0	100
2nd Quartile	11	0.00	27.27	18.18	18.18	36.36	0	100
3rd Quartile	10	10.00	0.00	20.00	30.00	40.00	0	100
4th Quartile	11	0.00	18.18	27.27	27.27	27.27	0	100
Investment-Grade Long Funds								
1st Quartile	19	42.11	26.32	15.79	0.00	15.79	0	100
2nd Quartile	20	10.00	40.00	15.00	20.00	15.00	0	100
3rd Quartile	19	15.79	10.53	21.05	26.32	26.32	0	100
4th Quartile	19	10.53	0.00	21.05	31.58	36.84	0	100
Investment-Grade Intermediate Funds								
1st Quartile	47	23.40	25.53	23.40	8.51	19.15	0	100
2nd Quartile	46	13.04	23.91	23.91	15.22	23.91	0	100
3rd Quartile	47	14.89	14.89	17.02	31.91	21.28	0	100
4th Quartile	46	26.09	13.04	10.87	21.74	28.26	0	100
Investment-Grade Short Funds								
1st Quartile	18	27.78	27.78	22.22	5.56	16.67	0	100
2nd Quartile	18	5.56	38.89	27.78	22.22	5.56	0	100
3rd Quartile	17	29.41	5.88	11.76	23.53	29.41	0	100
4th Quartile	18	16.67	11.11	16.67	27.78	27.78	0	100
High-Yield Funds								
1st Quartile	29	37.93	34.48	17.24	6.90	3.45	0	100
2nd Quartile	30	13.33	20.00	23.33	33.33	10.00	0	100
3rd Quartile	29	20.69	13.79	24.14	24.14	17.24	0	100
4th Quartile	29	17.24	20.69	24.14	24.14	13.79	0	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 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	13	23.08	53.85	15.38	0.00	7.69	0	100
2nd Quartile	12	0.00	0.00	33.33	25.00	41.67	0	100
3rd Quartile	13	23.08	7.69	15.38	46.15	7.69	0	100
4th Quartile	12	33.33	8.33	16.67	0.00	41.67	0	100
Global Income Funds								
1st Quartile	13	15.38	30.77	15.38	15.38	23.08	0	100
2nd Quartile	13	15.38	7.69	30.77	38.46	7.69	0	100
3rd Quartile	12	8.33	25.00	16.67	16.67	33.33	0	100
4th Quartile	13	38.46	15.38	15.38	7.69	23.08	0	100
Emerging Markets Debt Funds								
1st Quartile	5	60.00	0.00	20.00	20.00	0.00	0	100
2nd Quartile	5	20.00	40.00	40.00	0.00	0.00	0	100
3rd Quartile	4	0.00	50.00	25.00	0.00	25.00	0	100
4th Quartile	5	0.00	20.00	0.00	60.00	20.00	0	100
General Municipal Debt Funds								
1st Quartile	19	26.32	26.32	26.32	10.53	10.53	0	100
2nd Quartile	19	21.05	21.05	31.58	5.26	21.05	0	100
3rd Quartile	19	10.53	31.58	21.05	31.58	5.26	0	100
4th Quartile	19	31.58	15.79	10.53	42.11	0.00	0	100
California Municipal Debt Funds								
1st Quartile	9	22.22	11.11	33.33	11.11	22.22	0	100
2nd Quartile	10	10.00	20.00	30.00	40.00	0.00	0	100
3rd Quartile	9	11.11	33.33	22.22	11.11	22.22	0	100
4th Quartile	9	44.44	33.33	0.00	22.22	0.00	0	100
New York Municipal Debt Funds								
1st Quartile	8	12.50	50.00	12.50	12.50	12.50	0	100
2nd Quartile	9	22.22	11.11	22.22	33.33	11.11	0	100
3rd Quartile	8	12.50	12.50	25.00	25.00	25.00	0	100
4th Quartile	8	37.50	12.50	12.50	12.50	25.00	0	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 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 (September 2010)	Five-Year Percentages at End				
		Top Half (%)	Bottom Half (%)	Merged/Liquidated (%)	Style Changed (%)	Total (%)
Government Long Funds						
Top Half	22.00	50.00	27.27	22.73	0.00	100
Bottom Half	21.00	23.81	42.86	33.33	0.00	100
Government Intermediate Funds						
Top Half	21.00	57.14	14.29	28.57	0.00	100
Bottom Half	20.00	5.00	50.00	45.00	0.00	100
Government Short Funds						
Top Half	22.00	59.09	18.18	22.73	0.00	100
Bottom Half	21.00	14.29	52.38	33.33	0.00	100
Investment-Grade Long Funds						
Top Half	39.00	58.97	25.64	15.38	0.00	100
Bottom Half	38.00	18.42	50.00	31.58	0.00	100
Investment-Grade Intermediate Funds						
Top Half	93.00	43.01	35.48	21.51	0.00	100
Bottom Half	93.00	34.41	40.86	24.73	0.00	100
Investment-Grade Short Funds						
Top Half	36.00	50.00	38.89	11.11	0.00	100
Bottom Half	35.00	31.43	40.00	28.57	0.00	100
High-Yield Funds						
Top Half	59.00	52.54	40.68	6.78	0.00	100
Bottom Half	58.00	36.21	48.28	15.52	0.00	100
Mortgage-Backed Securities Funds						
Top Half	25.00	40.00	36.00	24.00	0.00	100
Bottom Half	25.00	36.00	40.00	24.00	0.00	100
Global Income Funds						
Top Half	26.00	34.62	50.00	15.38	0.00	100
Bottom Half	25.00	44.00	28.00	28.00	0.00	100
Emerging Markets Debt Funds						
Top Half	10.00	60.00	40.00	0.00	0.00	100
Bottom Half	9.00	33.33	44.44	22.22	0.00	100
General Municipal Debt Funds						
Top Half	38.00	47.37	36.84	15.79	0.00	100
Bottom Half	38.00	44.74	52.63	2.63	0.00	100
California Municipal Debt Funds						
Top Half	19.00	31.58	57.89	10.53	0.00	100
Bottom Half	18.00	61.11	27.78	11.11	0.00	100
New York Municipal Debt Funds						
Top Half	17.00	47.06	41.18	11.76	0.00	100
Bottom Half	16.00	37.50	37.50	25.00	0.00	100

Source: S&P Dow Jones Indices LLC. Data for periods ending Sept. 30, 2015. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

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