

U.S. Persistence Scorecard

SUMMARY

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Should investment results be attributed to skill or luck? Genuine skill is likely to persist, while luck is random and fleeting. Thus, one measure of skill is the consistency of a fund's performance relative to its peers or to its benchmark. The Persistence Scorecard shows that **regardless of asset class or style focus, active management outperformance is typically short-lived**, with few funds consistently outranking their peers or benchmarks.

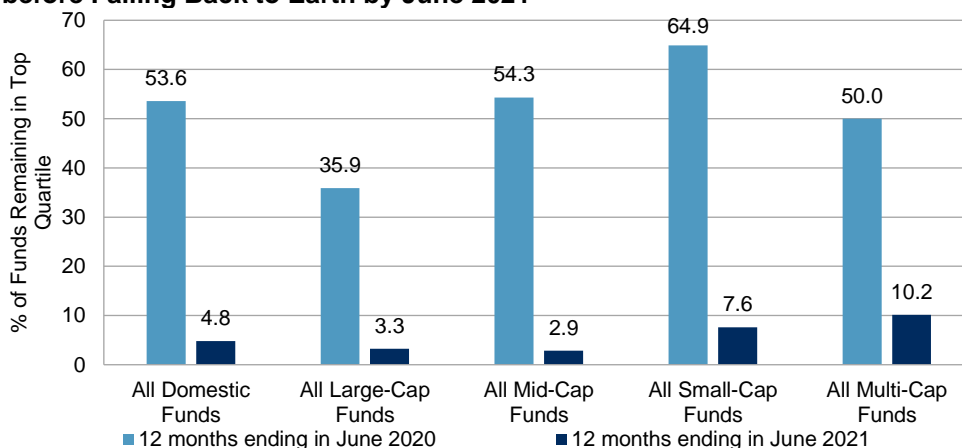
Recent years have blessed (or cursed) financial markets with plenty of volatility and narrative regimes. From a slow interest-rate-hiking cycle through the chaotic drawdown of the initial COVID-19 pandemic lockdowns, to a market powered by large technology companies and later extending to other sectors as the world re-emerged, this environment provided an excellent test of true fund management skills and adaptivity.

Sadly, **what worked in one period was unlikely to persist in the next.**

Exhibit 1 shows that the top quartile funds in the 12-month period ending in June 2019 continued to succeed over the next year—perhaps because many of the winners of the late pre-pandemic expansion were often the same companies that benefited the most immediately following the lockdown. However, as the economy continued to recover, the rest of the market caught up, and those superstar funds quickly reverted to the mean.

Within two years, a mere 4.8% of these June 2019 domestic equity winners remained in the top quartile (see Report 1a).

Exhibit 1: Top Quartile Funds in June 2019 Remained in Orbit for a While before Falling Back to Earth by June 2021



Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Chart is provided for illustrative purposes. Past performance is no guarantee of future results.

Even expanding the definition of success to simply beating the median fund’s return, fewer than 27% of any equity category’s top-half funds in June 2019 managed to stay in the top half through June 2021 (see Report 1a).

Widen the time horizon to five years, and the picture looks even more bleak. Even in the best category for persistence, just 3.2% of multi-cap funds managed to stay in the top quartile for each year. Mid-cap funds were especially disappointing, with no funds accomplishing that feat (see Report 2).

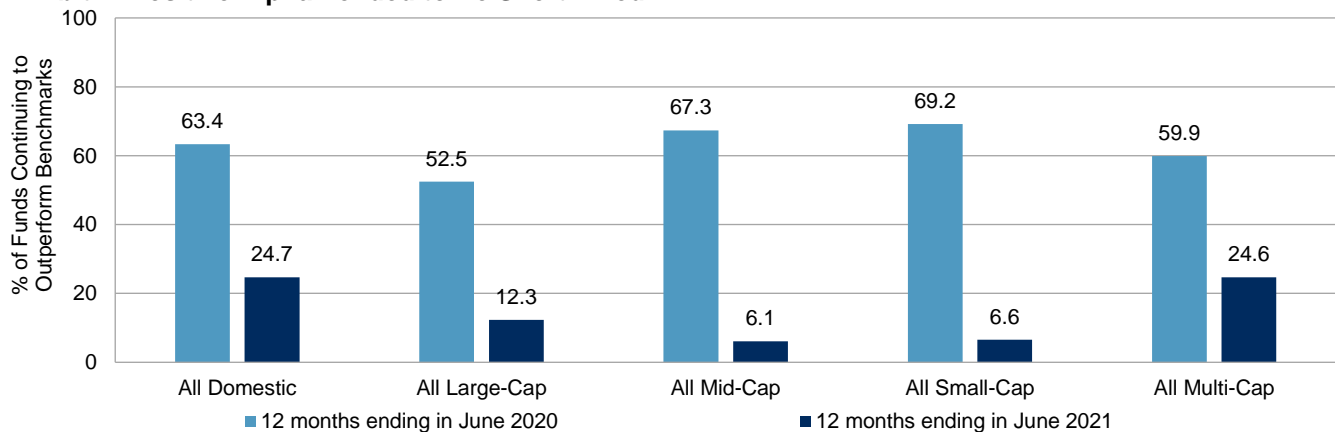
Some statistically minded readers might note that these numbers are occasionally better than what would be expected if fund performance was randomly distributed. For example, the odds that a top-quartile fund in one year could remain in the top quartile for the next four consecutive years might be calculated as $(25\%)^4 = 0.39\%$, and the 3.2% referenced above is substantially better than that. **While the persistence report does not prove that fund performance is completely random, from a practical or decision-making perspective, it reinforces the notion that choosing between active funds on the basis of previous outperformance is a misguided strategy.** After all, there remains a 96.8% chance that a top-quartile fund will not stay in the top quartile for the next four years.

Another way of evaluating performance persistence is by comparing fund performance against their benchmarks. We first identify funds that beat their benchmarks in the one-year period ending in June 2019, net-of-fees. We then examine whether these funds continue to outperform during each of the next two one-year periods. Our result shows that past outperformance did not typically help identify superior performing managers in the future.

For example, out of 819 large-cap funds, 244 (or 29.8%) managed to beat the [S&P 500®](#) in the 12-month period ending in June 2019. However, only 128 of those 244 (52.5%) were able to keep their positive alpha in the next 12 months. By the end of June 2021, only 30 (12.3%) succeeded in repeating their outperformance relative to the benchmark (see Report 1b).

Previous SPIVA U.S. Scorecards showed that 36.8% and 41.8% of all large-cap funds outperformed in the 12-month periods ending in [June 2020](#) and [June 2021](#), respectively. An investor choosing funds randomly might thus expect a $36.8\% * 41.8\% = 15.4\%$ chance of picking a fund that would outperform for two consecutive years, higher than the 12.3% realized—reinforcing the notion that fund alpha is likely fleeting.

Exhibit 2: Positive Alpha Tended to Be Short-Lived



Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Chart is provided for illustrative purposes. Past performance is no guarantee of future results.

Unsurprisingly, **the one pattern that did hold across equity funds was the tendency of the poorest-performing funds to close.** Fourth-quartile funds were almost always the most likely to merge or liquidate over the subsequent three- and five-year windows, with 52% of the bottom-quartile mid-cap funds from the June 2011–June 2016 period disappearing by June 2021. In fact, closing their doors was the most likely outcome in four out of five equity categories for fourth-quartile funds in that period (see Report 5).

Style changes did not appear to be particularly correlated with fund performance. Top, middle, and bottom performers within a category all generally had similar chances of style drift over three- or five-year periods. Multi-cap funds had the highest percentage of style change, with 28% making a change over three years and 41% over five years (see Reports 3 and 5).

Fixed income funds showed similar results to equities, with pockets of one-year persistence decaying over longer periods. **In 8 of the 13 categories considered, no top-quartile funds from June 2017 maintained that status annually through June 2021** (see Report 8).

Transition matrices showed slightly more evidence of fixed income fund persistence. Over the five-year horizon, in 6 of the 13 categories, 50% or more of top-quartile funds remained in the top quartile. However, there were only two categories with greater than 20 funds that qualified within each quartile, perhaps leading to small sample size effects (see Report 11).

ABOUT THE PERSISTENCE SCORECARD

The phrase “past performance is no guarantee of future results” (or some variation thereof) can be found in the fine print of most mutual fund literature. Yet many 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, the semiannual S&P Persistence Scorecard tracks the degree to which historical relative performance predicts future relative performance. 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 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. Ignoring funds that liquidate or merge during a period of study biases measurements of persistence. Using the CRSP 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.
- **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 share class with the highest previous period return of each fund is used.
- **Transition matrices:** Transition matrices show the movements between quartiles and halves over non-overlapping three- and five-year periods. They also track the percentage of funds that have merged or liquidated. In addition, we monitor movements across capitalization levels. This helps us capture, for example, the conversion of some large-cap funds to mid- and small-cap funds.
 - Starting with the Persistence Scorecard Year-End 2019, the style change calculation includes funds that changed fund categories at any point between the relevant start and end dates. Previously, this calculation only checked if the fund category remained identical at the endpoints.
- **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.

REPORTS

Report 1a: Performance Persistence of Domestic Equity Funds over Three Consecutive 12-Month Periods

| FUND CATEGORY | FUND COUNT AT START (JUNE 2019) | PERCENTAGE REMAINING IN TOP QUARTILE | |
|---------------------|------------------------------------|--------------------------------------|-----------|
| | | JUNE 2020 | JUNE 2021 |
| TOP QUARTILE | | | |
| All Domestic Funds | 521 | 53.55 | 4.80 |
| All Large-Cap Funds | 184 | 35.87 | 3.26 |
| All Mid-Cap Funds | 70 | 54.29 | 2.86 |
| All Small-Cap Funds | 131 | 64.89 | 7.63 |
| All Multi-Cap Funds | 118 | 50.00 | 10.17 |
| FUND CATEGORY | FUND COUNT AT START (JUNE 2019) | PERCENTAGE REMAINING IN TOP HALF | |
| | | JUNE 2020 | JUNE 2021 |
| TOP HALF | | | |
| All Domestic Funds | 1,041 | 71.76 | 19.02 |
| All Large-Cap Funds | 373 | 61.13 | 25.47 |
| All Mid-Cap Funds | 140 | 73.57 | 14.29 |
| All Small-Cap Funds | 261 | 69.35 | 16.48 |
| All Multi-Cap Funds | 227 | 67.40 | 26.87 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 1b: Alpha Persistence of Domestic Equity Funds over Three Consecutive 12-Month Periods

| FUND CATEGORY | BENCHMARK | TOTAL NUMBER OF FUNDS | NUMBER OF FUNDS OUTPERFORMING THE BENCHMARK | PERCENTAGE OF FUNDS OUTPERFORMING THE BENCHMARK | PERCENTAGE OUTPERFORMING THE BENCHMARK | |
|---------------------|------------------------|-----------------------------|---|--|--|-----------|
| | | | | | JUNE 2020 | JUNE 2021 |
| All Domestic Funds | S&P Composite 1500® | 2,194 | 628 | 28.62 | 63.38 | 24.68 |
| All Large-Cap Funds | S&P 500 | 819 | 244 | 29.79 | 52.46 | 12.30 |
| All Mid-Cap Funds | S&P MidCap 400® | 306 | 196 | 64.05 | 67.35 | 6.12 |
| All Small-Cap Funds | S&P SmallCap 600® | 550 | 351 | 63.82 | 69.23 | 6.55 |
| All Multi-Cap Funds | S&P Composite 1500 | 529 | 142 | 26.84 | 59.86 | 24.65 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 2: Performance Persistence of Domestic Equity Funds over Five Consecutive 12-Month Periods | | | | | | |
|--|--|---|------------------|------------------|------------------|--|
| FUND CATEGORY | FUND COUNT AT START (JUNE 2017) | PERCENTAGE REMAINING IN TOP QUARTILE | | | | |
| | | JUNE 2018 | JUNE 2019 | JUNE 2020 | JUNE 2021 | |
| TOP QUARTILE | | | | | | |
| All Domestic Funds | 549 | 46.45 | 17.12 | 14.94 | 2.37 | |
| All Large-Cap Funds | 195 | 54.87 | 14.36 | 14.36 | 3.08 | |
| All Mid-Cap Funds | 70 | 47.14 | 14.29 | 12.86 | 0.00 | |
| All Small-Cap Funds | 136 | 45.59 | 30.88 | 28.68 | 2.94 | |
| All Multi-Cap Funds | 124 | 41.94 | 16.94 | 12.90 | 3.23 | |
| FUND CATEGORY | FUND COUNT AT START (JUNE 2017) | PERCENTAGE REMAINING IN TOP HALF | | | | |
| | | JUNE 2018 | JUNE 2019 | JUNE 2020 | JUNE 2021 | |
| TOP HALF | | | | | | |
| All Domestic Funds | 1,098 | 63.84 | 35.06 | 32.42 | 11.02 | |
| All Large-Cap Funds | 398 | 67.84 | 42.46 | 39.70 | 17.84 | |
| All Mid-Cap Funds | 138 | 59.42 | 41.30 | 36.96 | 9.42 | |
| All Small-Cap Funds | 271 | 59.41 | 41.33 | 34.69 | 8.12 | |
| All Multi-Cap Funds | 245 | 61.63 | 38.78 | 35.10 | 15.10 | |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 3: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Quartile) | | | | | | | |
|--|---------------------------------|-------------------------------|------------------|------------------|------------------|-----------------------|-------------------|
| QUARTILE | FUND COUNT AT START (JUNE 2018) | THREE-YEAR PERCENTAGES AT END | | | | | |
| | | 1ST QUARTILE (%) | 2ND QUARTILE (%) | 3RD QUARTILE (%) | 4TH QUARTILE (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| ALL DOMESTIC FUNDS | | | | | | | |
| 1st Quartile | 506 | 43.28 | 18.38 | 7.11 | 4.35 | 8.10 | 18.77 |
| 2nd Quartile | 505 | 13.66 | 24.55 | 17.23 | 16.24 | 10.30 | 18.02 |
| 3rd Quartile | 506 | 7.11 | 13.04 | 18.38 | 23.12 | 17.98 | 20.36 |
| 4th Quartile | 506 | 4.74 | 8.70 | 18.58 | 18.77 | 21.54 | 27.67 |
| ALL LARGE-CAP FUNDS | | | | | | | |
| 1st Quartile | 192 | 64.58 | 11.46 | 4.17 | 1.04 | 6.25 | 12.50 |
| 2nd Quartile | 192 | 7.81 | 34.90 | 18.23 | 8.33 | 10.42 | 20.31 |
| 3rd Quartile | 192 | 3.65 | 15.10 | 19.79 | 24.48 | 13.54 | 23.44 |
| 4th Quartile | 192 | 1.04 | 5.73 | 18.23 | 29.17 | 20.83 | 25.00 |
| ALL MID-CAP FUNDS | | | | | | | |
| 1st Quartile | 70 | 32.86 | 32.86 | 5.71 | 2.86 | 5.71 | 20.00 |
| 2nd Quartile | 70 | 21.43 | 11.43 | 18.57 | 10.00 | 12.86 | 25.71 |
| 3rd Quartile | 70 | 10.00 | 10.00 | 14.29 | 18.57 | 22.86 | 24.29 |
| 4th Quartile | 70 | 4.29 | 10.00 | 21.43 | 18.57 | 21.43 | 24.29 |
| ALL SMALL-CAP FUNDS | | | | | | | |
| 1st Quartile | 124 | 36.29 | 20.97 | 12.90 | 6.45 | 8.06 | 15.32 |
| 2nd Quartile | 123 | 15.45 | 23.58 | 18.70 | 21.95 | 8.94 | 11.38 |
| 3rd Quartile | 123 | 10.57 | 14.63 | 19.51 | 28.46 | 16.26 | 10.57 |
| 4th Quartile | 124 | 8.87 | 10.48 | 16.13 | 15.32 | 27.42 | 21.77 |
| ALL MULTI-CAP FUNDS | | | | | | | |
| 1st Quartile | 122 | 32.79 | 19.67 | 7.38 | 1.64 | 10.66 | 27.87 |
| 2nd Quartile | 122 | 8.20 | 21.31 | 20.49 | 13.11 | 13.93 | 22.95 |
| 3rd Quartile | 122 | 9.84 | 6.56 | 17.21 | 22.13 | 20.49 | 23.77 |
| 4th Quartile | 123 | 4.07 | 6.50 | 17.07 | 17.89 | 18.70 | 35.77 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 4: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Halves) | | | | | | |
|--|---------------------------------|-------------------------------|-----------------|-----------------------|-------------------|--|
| HALF | FUND COUNT AT START (JUNE 2018) | THREE-YEAR PERCENTAGES AT END | | | | |
| | | TOP HALF (%) | BOTTOM HALF (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) | |
| ALL DOMESTIC FUNDS | | | | | | |
| Top Half | 1,011 | 49.95 | 22.45 | 9.20 | 18.40 | |
| Bottom Half | 1,012 | 16.80 | 39.43 | 19.76 | 24.01 | |
| ALL LARGE-CAP FUNDS | | | | | | |
| Top Half | 384 | 59.38 | 15.89 | 8.33 | 16.41 | |
| Bottom Half | 384 | 12.76 | 45.83 | 17.19 | 24.22 | |
| ALL MID-CAP FUNDS | | | | | | |
| Top Half | 140 | 49.29 | 18.57 | 9.29 | 22.86 | |
| Bottom Half | 140 | 17.14 | 36.43 | 22.14 | 24.29 | |
| ALL SMALL-CAP FUNDS | | | | | | |
| Top Half | 247 | 48.18 | 29.96 | 8.50 | 13.36 | |
| Bottom Half | 247 | 22.27 | 39.68 | 21.86 | 16.19 | |
| ALL MULTI-CAP FUNDS | | | | | | |
| Top Half | 244 | 40.98 | 21.31 | 12.30 | 25.41 | |
| Bottom Half | 245 | 13.47 | 37.14 | 19.59 | 29.80 | |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 5: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Quartile) | | | | | | | | |
|--|---------------------------------|------------------------------|------------------|------------------|------------------|-----------------------|-------------------|--|
| QUARTILE | FUND COUNT AT START (JUNE 2016) | FIVE-YEAR PERCENTAGES AT END | | | | | | |
| | | 1ST QUARTILE (%) | 2ND QUARTILE (%) | 3RD QUARTILE (%) | 4TH QUARTILE (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) | |
| ALL DOMESTIC FUNDS | | | | | | | | |
| 1st Quartile | 490 | 21.22 | 20.00 | 10.41 | 9.39 | 8.78 | 30.20 | |
| 2nd Quartile | 489 | 14.11 | 11.86 | 14.11 | 12.68 | 17.38 | 29.86 | |
| 3rd Quartile | 489 | 9.41 | 10.43 | 14.11 | 15.95 | 20.86 | 29.24 | |
| 4th Quartile | 490 | 12.86 | 8.37 | 8.57 | 8.57 | 35.71 | 25.92 | |
| ALL LARGE-CAP FUNDS | | | | | | | | |
| 1st Quartile | 188 | 34.04 | 18.62 | 11.70 | 10.11 | 4.79 | 20.74 | |
| 2nd Quartile | 188 | 18.62 | 13.30 | 15.96 | 7.45 | 15.43 | 29.26 | |
| 3rd Quartile | 188 | 14.89 | 11.17 | 11.17 | 17.02 | 22.87 | 22.87 | |
| 4th Quartile | 188 | 3.19 | 9.04 | 10.11 | 14.36 | 32.98 | 30.32 | |
| ALL MID-CAP FUNDS | | | | | | | | |
| 1st Quartile | 70 | 15.71 | 24.29 | 7.14 | 12.86 | 8.57 | 31.43 | |
| 2nd Quartile | 70 | 14.29 | 8.57 | 10.00 | 15.71 | 15.71 | 35.71 | |
| 3rd Quartile | 70 | 15.71 | 7.14 | 12.86 | 10.00 | 24.29 | 30.00 | |
| 4th Quartile | 71 | 8.45 | 7.04 | 4.23 | 4.23 | 52.11 | 23.94 | |
| ALL SMALL-CAP FUNDS | | | | | | | | |
| 1st Quartile | 113 | 11.50 | 20.35 | 17.70 | 15.93 | 9.73 | 24.78 | |
| 2nd Quartile | 113 | 8.85 | 14.16 | 24.78 | 22.12 | 15.93 | 14.16 | |
| 3rd Quartile | 113 | 25.66 | 15.93 | 8.85 | 16.81 | 12.39 | 20.35 | |
| 4th Quartile | 113 | 21.24 | 7.08 | 7.08 | 3.54 | 39.82 | 21.24 | |
| ALL MULTI-CAP FUNDS | | | | | | | | |
| 1st Quartile | 120 | 9.17 | 15.00 | 11.67 | 8.33 | 10.83 | 45.00 | |
| 2nd Quartile | 120 | 11.67 | 11.67 | 9.17 | 7.50 | 17.50 | 42.50 | |
| 3rd Quartile | 120 | 4.17 | 9.17 | 11.67 | 8.33 | 26.67 | 40.00 | |
| 4th Quartile | 120 | 7.50 | 5.00 | 10.00 | 9.17 | 32.50 | 35.83 | |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 6: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Halves) | | | | | |
|--|---------------------------------|------------------------------|-----------------|-----------------------|-------------------|
| HALF | FUND COUNT AT START (JUNE 2016) | FIVE-YEAR PERCENTAGES AT END | | | |
| | | TOP HALF (%) | BOTTOM HALF (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| ALL DOMESTIC FUNDS | | | | | |
| Top Half | 979 | 33.61 | 23.29 | 13.07 | 30.03 |
| Bottom Half | 979 | 20.53 | 23.60 | 28.29 | 27.58 |
| ALL LARGE-CAP FUNDS | | | | | |
| Top Half | 376 | 42.29 | 22.61 | 10.11 | 25.00 |
| Bottom Half | 376 | 19.15 | 26.33 | 27.93 | 26.60 |
| ALL MID-CAP FUNDS | | | | | |
| Top Half | 140 | 31.43 | 22.86 | 12.14 | 33.57 |
| Bottom Half | 141 | 19.15 | 15.60 | 38.30 | 26.95 |
| ALL SMALL-CAP FUNDS | | | | | |
| Top Half | 226 | 27.43 | 40.27 | 12.83 | 19.47 |
| Bottom Half | 226 | 34.96 | 18.14 | 26.11 | 20.80 |
| ALL MULTI-CAP FUNDS | | | | | |
| Top Half | 240 | 23.75 | 18.33 | 14.17 | 43.75 |
| Bottom Half | 240 | 12.92 | 19.58 | 29.58 | 37.92 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 7: Performance Persistence of Domestic Fixed Income Funds over Three Consecutive 12-Month Periods | | | |
|---|--|---|------------------|
| FUND CATEGORY | FUND COUNT AT START (JUNE 2019) | PERCENTAGE REMAINING IN TOP QUARTILE | |
| | | JUNE 2020 | JUNE 2021 |
| TOP QUARTILE | | | |
| Government Long Funds | 9 | 77.78 | 0.00 |
| Government Intermediate Funds | 2 | 50.00 | 0.00 |
| Government Short Funds | 6 | 66.67 | 16.67 |
| Investment-Grade Long Funds | 20 | 55.00 | 10.00 |
| Investment-Grade Intermediate Funds | 47 | 48.94 | 8.51 |
| Investment-Grade Short Funds | 22 | 27.27 | 0.00 |
| High Yield Funds | 38 | 47.37 | 7.89 |
| Mortgage-Backed Securities Funds | 11 | 36.36 | 0.00 |
| Global Income Funds | 23 | 39.13 | 4.35 |
| Emerging Markets Debt Funds | 12 | 25.00 | 8.33 |
| General Municipal Debt Funds | 16 | 37.50 | 6.25 |
| California Municipal Debt Funds | 8 | 50.00 | 12.50 |
| New York Municipal Debt Funds | 7 | 42.86 | 14.29 |
| FUND CATEGORY | FUND COUNT AT START (JUNE 2019) | PERCENTAGE REMAINING IN TOP HALF | |
| | | JUNE 2020 | JUNE 2021 |
| TOP HALF | | | |
| Government Long Funds | 17 | 76.47 | 23.53 |
| Government Intermediate Funds | 4 | 100.00 | 25.00 |
| Government Short Funds | 12 | 66.67 | 33.33 |
| Investment-Grade Long Funds | 40 | 72.50 | 32.50 |
| Investment-Grade Intermediate Funds | 95 | 76.84 | 31.58 |
| Investment-Grade Short Funds | 43 | 51.16 | 13.95 |
| High Yield Funds | 75 | 69.33 | 24.00 |
| Mortgage-Backed Securities Funds | 23 | 52.17 | 17.39 |
| Global Income Funds | 45 | 71.11 | 26.67 |
| Emerging Markets Debt Funds | 24 | 50.00 | 20.83 |
| General Municipal Debt Funds | 34 | 67.65 | 26.47 |
| California Municipal Debt Funds | 16 | 62.50 | 25.00 |
| New York Municipal Debt Funds | 13 | 46.15 | 15.38 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 8: Performance Persistence of Domestic Fixed Income Funds over Five Consecutive 12-Month Periods | | | | | | |
|--|--|---|------------------|------------------|------------------|--|
| FUND CATEGORY | FUND COUNT AT START (JUNE 2017) | PERCENTAGE REMAINING IN TOP QUARTILE | | | | |
| | | JUNE 2018 | JUNE 2019 | JUNE 2020 | JUNE 2021 | |
| TOP QUARTILE | | | | | | |
| Government Long Funds | 13 | 61.54 | 0.00 | 0.00 | 0.00 | |
| Government Intermediate Funds | 5 | 40.00 | 0.00 | 0.00 | 0.00 | |
| Government Short Funds | 6 | 66.67 | 0.00 | 0.00 | 0.00 | |
| Investment-Grade Long Funds | 21 | 28.57 | 0.00 | 0.00 | 0.00 | |
| Investment-Grade Intermediate Funds | 50 | 64.00 | 12.00 | 6.00 | 4.00 | |
| Investment-Grade Short Funds | 22 | 63.64 | 13.64 | 0.00 | 0.00 | |
| High Yield Funds | 52 | 50.00 | 7.69 | 3.85 | 3.85 | |
| Mortgage-Backed Securities Funds | 13 | 76.92 | 30.77 | 0.00 | 0.00 | |
| Global Income Funds | 25 | 8.00 | 0.00 | 0.00 | 0.00 | |
| Emerging Markets Debt Funds | 15 | 33.33 | 6.67 | 0.00 | 0.00 | |
| General Municipal Debt Funds | 19 | 52.63 | 15.79 | 5.26 | 5.26 | |
| California Municipal Debt Funds | 8 | 37.50 | 25.00 | 12.50 | 12.50 | |
| New York Municipal Debt Funds | 6 | 66.67 | 33.33 | 16.67 | 16.67 | |
| FUND CATEGORY | FUND COUNT AT START (JUNE 2017) | PERCENTAGE REMAINING IN TOP HALF | | | | |
| | | JUNE 2018 | JUNE 2019 | JUNE 2020 | JUNE 2021 | |
| TOP HALF | | | | | | |
| Government Long Funds | 26 | 57.69 | 23.08 | 19.23 | 15.38 | |
| Government Intermediate Funds | 9 | 66.67 | 0.00 | 0.00 | 0.00 | |
| Government Short Funds | 12 | 75.00 | 25.00 | 8.33 | 8.33 | |
| Investment-Grade Long Funds | 42 | 57.14 | 23.81 | 11.90 | 9.52 | |
| Investment-Grade Intermediate Funds | 99 | 70.71 | 30.30 | 19.19 | 14.14 | |
| Investment-Grade Short Funds | 44 | 65.91 | 27.27 | 6.82 | 0.00 | |
| High Yield Funds | 104 | 58.65 | 28.85 | 18.27 | 10.58 | |
| Mortgage-Backed Securities Funds | 26 | 80.77 | 50.00 | 19.23 | 7.69 | |
| Global Income Funds | 51 | 39.22 | 21.57 | 13.73 | 11.76 | |
| Emerging Markets Debt Funds | 29 | 48.28 | 24.14 | 17.24 | 13.79 | |
| General Municipal Debt Funds | 38 | 63.16 | 34.21 | 18.42 | 10.53 | |
| California Municipal Debt Funds | 16 | 56.25 | 43.75 | 31.25 | 18.75 | |
| New York Municipal Debt Funds | 12 | 66.67 | 33.33 | 16.67 | 8.33 | |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 9: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Quartile) | | | | | | | |
|--|---------------------------------|-------------------------------|------------------|------------------|------------------|-----------------------|-------------------|
| QUARTILE | FUND COUNT AT START (JUNE 2018) | THREE-YEAR PERCENTAGES AT END | | | | | |
| | | 1ST QUARTILE (%) | 2ND QUARTILE (%) | 3RD QUARTILE (%) | 4TH QUARTILE (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| GOVERNMENT LONG FUNDS | | | | | | | |
| 1st Quartile | 13 | 38.46 | 23.08 | 0.00 | 7.69 | 7.69 | 23.08 |
| 2nd Quartile | 12 | 16.67 | 16.67 | 16.67 | 16.67 | 0.00 | 33.33 |
| 3rd Quartile | 12 | 8.33 | 16.67 | 33.33 | 0.00 | 8.33 | 33.33 |
| 4th Quartile | 13 | 0.00 | 0.00 | 15.38 | 46.15 | 30.77 | 7.69 |
| GOVERNMENT INTERMEDIATE FUNDS | | | | | | | |
| 1st Quartile | 4 | 50.00 | 0.00 | 25.00 | 0.00 | 0.00 | 25.00 |
| 2nd Quartile | 4 | 50.00 | 25.00 | 0.00 | 25.00 | 0.00 | 0.00 |
| 3rd Quartile | 4 | 0.00 | 25.00 | 25.00 | 50.00 | 0.00 | 0.00 |
| 4th Quartile | 5 | 0.00 | 40.00 | 40.00 | 20.00 | 0.00 | 0.00 |
| GOVERNMENT SHORT FUNDS | | | | | | | |
| 1st Quartile | 6 | 16.67 | 0.00 | 16.67 | 16.67 | 16.67 | 33.33 |
| 2nd Quartile | 6 | 0.00 | 50.00 | 16.67 | 16.67 | 16.67 | 0.00 |
| 3rd Quartile | 6 | 16.67 | 33.33 | 33.33 | 0.00 | 0.00 | 16.67 |
| 4th Quartile | 6 | 16.67 | 0.00 | 16.67 | 33.33 | 33.33 | 0.00 |
| INVESTMENT-GRADE LONG FUNDS | | | | | | | |
| 1st Quartile | 20 | 30.00 | 40.00 | 15.00 | 0.00 | 15.00 | 0.00 |
| 2nd Quartile | 19 | 42.11 | 26.32 | 21.05 | 10.53 | 0.00 | 0.00 |
| 3rd Quartile | 19 | 21.05 | 10.53 | 26.32 | 21.05 | 5.26 | 15.79 |
| 4th Quartile | 20 | 0.00 | 15.00 | 15.00 | 40.00 | 10.00 | 20.00 |
| INVESTMENT-GRADE INTERMEDIATE FUNDS | | | | | | | |
| 1st Quartile | 48 | 39.58 | 18.75 | 18.75 | 8.33 | 10.42 | 4.17 |
| 2nd Quartile | 47 | 25.53 | 36.17 | 21.28 | 6.38 | 6.38 | 4.26 |
| 3rd Quartile | 47 | 12.77 | 29.79 | 21.28 | 21.28 | 10.64 | 4.26 |
| 4th Quartile | 48 | 4.17 | 0.00 | 22.92 | 45.83 | 22.92 | 4.17 |
| INVESTMENT-GRADE SHORT FUNDS | | | | | | | |
| 1st Quartile | 23 | 34.78 | 17.39 | 17.39 | 26.09 | 0.00 | 4.35 |
| 2nd Quartile | 22 | 22.73 | 36.36 | 22.73 | 0.00 | 13.64 | 4.55 |
| 3rd Quartile | 22 | 22.73 | 18.18 | 31.82 | 18.18 | 9.09 | 0.00 |
| 4th Quartile | 23 | 13.04 | 17.39 | 13.04 | 26.09 | 13.04 | 17.39 |
| HIGH YIELD FUNDS | | | | | | | |
| 1st Quartile | 47 | 31.91 | 21.28 | 17.02 | 8.51 | 0.00 | 21.28 |
| 2nd Quartile | 46 | 21.74 | 26.09 | 19.57 | 15.22 | 0.00 | 17.39 |
| 3rd Quartile | 47 | 17.02 | 17.02 | 21.28 | 12.77 | 12.77 | 19.15 |
| 4th Quartile | 47 | 10.64 | 2.13 | 19.15 | 14.89 | 19.15 | 34.04 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 9: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Quartile) (cont.)

| QUARTILE | FUND COUNT AT START (JUNE 2018) | THREE-YEAR PERCENTAGES AT END | | | | | |
|---|---------------------------------|-------------------------------|------------------|--------------------|------------------|------------------------|-------------------|
| | | 1ST QUARTILE (%) | 2ND QUARTILE (%) | 3RDTH QUARTILE (%) | 4TH QUARTILE (%) | MERGED/ LIQUIDATED (%) | STYLE CHANGED (%) |
| MORTGAGE-BACKED SECURITIES FUNDS | | | | | | | |
| 1st Quartile | 12 | 41.67 | 33.33 | 16.67 | 0.00 | 8.33 | 0.00 |
| 2nd Quartile | 12 | 33.33 | 25.00 | 8.33 | 16.67 | 8.33 | 8.33 |
| 3rd Quartile | 12 | 8.33 | 16.67 | 41.67 | 33.33 | 0.00 | 0.00 |
| 4th Quartile | 13 | 0.00 | 7.69 | 23.08 | 38.46 | 30.77 | 0.00 |
| GLOBAL INCOME FUNDS | | | | | | | |
| 1st Quartile | 22 | 31.82 | 4.55 | 27.27 | 13.64 | 4.55 | 18.18 |
| 2nd Quartile | 22 | 18.18 | 45.45 | 22.73 | 4.55 | 0.00 | 9.09 |
| 3rd Quartile | 22 | 18.18 | 18.18 | 13.64 | 27.27 | 18.18 | 4.55 |
| 4th Quartile | 23 | 0.00 | 17.39 | 21.74 | 34.78 | 17.39 | 8.70 |
| EMERGING MARKETS DEBT FUNDS | | | | | | | |
| 1st Quartile | 12 | 16.67 | 16.67 | 25.00 | 33.33 | 8.33 | 0.00 |
| 2nd Quartile | 12 | 33.33 | 25.00 | 33.33 | 0.00 | 0.00 | 8.33 |
| 3rd Quartile | 12 | 8.33 | 33.33 | 16.67 | 8.33 | 25.00 | 8.33 |
| 4th Quartile | 12 | 25.00 | 8.33 | 8.33 | 25.00 | 33.33 | 0.00 |
| GENERAL MUNICIPAL DEBT FUNDS | | | | | | | |
| 1st Quartile | 18 | 50.00 | 27.78 | 5.56 | 11.11 | 5.56 | 0.00 |
| 2nd Quartile | 18 | 33.33 | 27.78 | 27.78 | 11.11 | 0.00 | 0.00 |
| 3rd Quartile | 18 | 5.56 | 22.22 | 38.89 | 16.67 | 0.00 | 16.67 |
| 4th Quartile | 19 | 0.00 | 5.26 | 10.53 | 47.37 | 31.58 | 5.26 |
| CALIFORNIA MUNICIPAL DEBT FUNDS | | | | | | | |
| 1st Quartile | 8 | 75.00 | 12.50 | 12.50 | 0.00 | 0.00 | 0.00 |
| 2nd Quartile | 8 | 12.50 | 50.00 | 25.00 | 0.00 | 12.50 | 0.00 |
| 3rd Quartile | 8 | 0.00 | 25.00 | 37.50 | 25.00 | 0.00 | 12.50 |
| 4th Quartile | 8 | 0.00 | 0.00 | 12.50 | 62.50 | 25.00 | 0.00 |
| NEW YORK MUNICIPAL DEBT FUNDS | | | | | | | |
| 1st Quartile | 6 | 66.67 | 16.67 | 16.67 | 0.00 | 0.00 | 0.00 |
| 2nd Quartile | 6 | 33.33 | 0.00 | 0.00 | 50.00 | 16.67 | 0.00 |
| 3rd Quartile | 6 | 0.00 | 50.00 | 16.67 | 33.33 | 0.00 | 0.00 |
| 4th Quartile | 6 | 0.00 | 16.67 | 50.00 | 16.67 | 16.67 | 0.00 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 10: Three-Year Transition Matrix – Performance over Two Non-Overlapping Three-Year Periods (Based on Halves) | | | | | |
|---|---------------------------------|-------------------------------|-----------------|-----------------------|-------------------|
| HALF | FUND COUNT AT START (JUNE 2018) | THREE-YEAR PERCENTAGES AT END | | | |
| | | TOP HALF (%) | BOTTOM HALF (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| GOVERNMENT LONG FUNDS | | | | | |
| Top Half | 25 | 48.00 | 20.00 | 4.00 | 28.00 |
| Bottom Half | 25 | 12.00 | 48.00 | 20.00 | 20.00 |
| GOVERNMENT INTERMEDIATE FUNDS | | | | | |
| Top Half | 8 | 62.50 | 25.00 | 0.00 | 12.50 |
| Bottom Half | 9 | 33.33 | 66.67 | 0.00 | 0.00 |
| GOVERNMENT SHORT FUNDS | | | | | |
| Top Half | 12 | 33.33 | 33.33 | 16.67 | 16.67 |
| Bottom Half | 12 | 33.33 | 41.67 | 16.67 | 8.33 |
| INVESTMENT-GRADE LONG FUNDS | | | | | |
| Top Half | 39 | 69.23 | 23.08 | 7.69 | 0.00 |
| Bottom Half | 39 | 23.08 | 51.28 | 7.69 | 17.95 |
| INVESTMENT-GRADE INTERMEDIATE FUNDS | | | | | |
| Top Half | 95 | 60.00 | 27.37 | 8.42 | 4.21 |
| Bottom Half | 95 | 23.16 | 55.79 | 16.84 | 4.21 |
| INVESTMENT-GRADE SHORT FUNDS | | | | | |
| Top Half | 45 | 55.56 | 33.33 | 6.67 | 4.44 |
| Bottom Half | 45 | 35.56 | 44.44 | 11.11 | 8.89 |
| HIGH YIELD FUNDS | | | | | |
| Top Half | 93 | 50.54 | 30.11 | 0.00 | 19.35 |
| Bottom Half | 94 | 23.40 | 34.04 | 15.96 | 26.60 |
| MORTGAGE-BACKED SECURITIES FUNDS | | | | | |
| Top Half | 24 | 66.67 | 20.83 | 8.33 | 4.17 |
| Bottom Half | 25 | 16.00 | 68.00 | 16.00 | 0.00 |
| GLOBAL INCOME FUNDS | | | | | |
| Top Half | 44 | 50.00 | 34.09 | 2.27 | 13.64 |
| Bottom Half | 45 | 26.67 | 48.89 | 17.78 | 6.67 |
| EMERGING MARKETS DEBT FUNDS | | | | | |
| Top Half | 24 | 45.83 | 45.83 | 4.17 | 4.17 |
| Bottom Half | 24 | 37.50 | 29.17 | 29.17 | 4.17 |
| GENERAL MUNICIPAL DEBT FUNDS | | | | | |
| Top Half | 36 | 69.44 | 27.78 | 2.78 | 0.00 |
| Bottom Half | 37 | 16.22 | 56.76 | 16.22 | 10.81 |
| CALIFORNIA MUNICIPAL DEBT FUNDS | | | | | |
| Top Half | 16 | 75.00 | 18.75 | 6.25 | 0.00 |
| Bottom Half | 16 | 12.50 | 68.75 | 12.50 | 6.25 |
| NEW YORK MUNICIPAL DEBT FUNDS | | | | | |
| Top Half | 12 | 58.33 | 33.33 | 8.33 | 0.00 |
| Bottom Half | 12 | 33.33 | 58.33 | 8.33 | 0.00 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Report 11: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Quartile)

| QUARTILE | FUND COUNT AT START (JUNE 2016) | FIVE-YEAR PERCENTAGES AT END | | | | | |
|--|---------------------------------|------------------------------|------------------|------------------|------------------|-----------------------|-------------------|
| | | 1ST QUARTILE (%) | 2ND QUARTILE (%) | 3RD QUARTILE (%) | 4TH QUARTILE (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| GOVERNMENT LONG FUNDS | | | | | | | |
| 1st Quartile | 13 | 53.85 | 7.69 | 0.00 | 7.69 | 15.38 | 15.38 |
| 2nd Quartile | 13 | 0.00 | 30.77 | 30.77 | 15.38 | 7.69 | 15.38 |
| 3rd Quartile | 13 | 0.00 | 0.00 | 23.08 | 23.08 | 7.69 | 46.15 |
| 4th Quartile | 13 | 0.00 | 7.69 | 7.69 | 38.46 | 38.46 | 7.69 |
| GOVERNMENT INTERMEDIATE FUNDS | | | | | | | |
| 1st Quartile | 5 | 60.00 | 0.00 | 0.00 | 20.00 | 0.00 | 20.00 |
| 2nd Quartile | 4 | 25.00 | 50.00 | 0.00 | 0.00 | 25.00 | 0.00 |
| 3rd Quartile | 5 | 0.00 | 20.00 | 60.00 | 0.00 | 20.00 | 0.00 |
| 4th Quartile | 5 | 0.00 | 20.00 | 20.00 | 60.00 | 0.00 | 0.00 |
| GOVERNMENT SHORT FUNDS | | | | | | | |
| 1st Quartile | 6 | 33.33 | 16.67 | 16.67 | 0.00 | 33.33 | 0.00 |
| 2nd Quartile | 6 | 33.33 | 16.67 | 16.67 | 0.00 | 0.00 | 33.33 |
| 3rd Quartile | 6 | 0.00 | 33.33 | 16.67 | 16.67 | 33.33 | 0.00 |
| 4th Quartile | 6 | 0.00 | 0.00 | 0.00 | 66.67 | 33.33 | 0.00 |
| INVESTMENT-GRADE LONG FUNDS | | | | | | | |
| 1st Quartile | 20 | 55.00 | 25.00 | 0.00 | 0.00 | 10.00 | 10.00 |
| 2nd Quartile | 20 | 25.00 | 30.00 | 15.00 | 15.00 | 10.00 | 5.00 |
| 3rd Quartile | 20 | 0.00 | 15.00 | 35.00 | 20.00 | 5.00 | 25.00 |
| 4th Quartile | 20 | 5.00 | 10.00 | 15.00 | 30.00 | 30.00 | 10.00 |
| INVESTMENT-GRADE INTERMEDIATE FUNDS | | | | | | | |
| 1st Quartile | 43 | 32.56 | 34.88 | 9.30 | 9.30 | 11.63 | 2.33 |
| 2nd Quartile | 43 | 32.56 | 18.60 | 32.56 | 2.33 | 11.63 | 2.33 |
| 3rd Quartile | 43 | 13.95 | 18.60 | 27.91 | 11.63 | 20.93 | 6.98 |
| 4th Quartile | 43 | 2.33 | 4.65 | 11.63 | 53.49 | 23.26 | 4.65 |
| INVESTMENT-GRADE SHORT FUNDS | | | | | | | |
| 1st Quartile | 18 | 38.89 | 11.11 | 27.78 | 0.00 | 22.22 | 0.00 |
| 2nd Quartile | 17 | 29.41 | 11.76 | 29.41 | 17.65 | 11.76 | 0.00 |
| 3rd Quartile | 18 | 11.11 | 55.56 | 16.67 | 16.67 | 0.00 | 0.00 |
| 4th Quartile | 18 | 5.56 | 5.56 | 11.11 | 33.33 | 22.22 | 22.22 |
| HIGH YIELD FUNDS | | | | | | | |
| 1st Quartile | 40 | 20.00 | 25.00 | 17.50 | 15.00 | 2.50 | 20.00 |
| 2nd Quartile | 39 | 23.08 | 20.51 | 20.51 | 20.51 | 7.69 | 7.69 |
| 3rd Quartile | 40 | 15.00 | 10.00 | 22.50 | 12.50 | 22.50 | 17.50 |
| 4th Quartile | 40 | 20.00 | 7.50 | 10.00 | 20.00 | 20.00 | 22.50 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 11: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Quartile) (cont.) | | | | | | | |
|---|---------------------------------|------------------------------|------------------|------------------|------------------|-----------------------|-------------------|
| QUARTILE | FUND COUNT AT START (JUNE 2016) | FIVE-YEAR PERCENTAGES AT END | | | | | |
| | | 1ST QUARTILE (%) | 2ND QUARTILE (%) | 3RD QUARTILE (%) | 4TH QUARTILE (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| MORTGAGE-BACKED SECURITIES FUNDS | | | | | | | |
| 1st Quartile | 12 | 50.00 | 33.33 | 8.33 | 0.00 | 8.33 | 0.00 |
| 2nd Quartile | 11 | 18.18 | 9.09 | 36.36 | 18.18 | 18.18 | 0.00 |
| 3rd Quartile | 12 | 0.00 | 16.67 | 33.33 | 16.67 | 16.67 | 16.67 |
| 4th Quartile | 12 | 8.33 | 0.00 | 8.33 | 50.00 | 25.00 | 8.33 |
| GLOBAL INCOME FUNDS | | | | | | | |
| 1st Quartile | 19 | 26.32 | 31.58 | 10.53 | 5.26 | 5.26 | 21.05 |
| 2nd Quartile | 18 | 22.22 | 11.11 | 33.33 | 16.67 | 11.11 | 5.56 |
| 3rd Quartile | 19 | 0.00 | 26.32 | 26.32 | 26.32 | 10.53 | 10.53 |
| 4th Quartile | 19 | 10.53 | 0.00 | 15.79 | 31.58 | 26.32 | 15.79 |
| EMERGING MARKETS DEBT FUNDS | | | | | | | |
| 1st Quartile | 6 | 16.67 | 16.67 | 0.00 | 33.33 | 33.33 | 0.00 |
| 2nd Quartile | 6 | 16.67 | 0.00 | 50.00 | 16.67 | 16.67 | 0.00 |
| 3rd Quartile | 6 | 50.00 | 33.33 | 0.00 | 16.67 | 0.00 | 0.00 |
| 4th Quartile | 6 | 0.00 | 16.67 | 33.33 | 16.67 | 33.33 | 0.00 |
| GENERAL MUNICIPAL DEBT FUNDS | | | | | | | |
| 1st Quartile | 17 | 47.06 | 35.29 | 11.76 | 0.00 | 5.88 | 0.00 |
| 2nd Quartile | 17 | 23.53 | 35.29 | 29.41 | 5.88 | 5.88 | 0.00 |
| 3rd Quartile | 17 | 0.00 | 5.88 | 41.18 | 17.65 | 23.53 | 11.76 |
| 4th Quartile | 18 | 5.56 | 0.00 | 0.00 | 44.44 | 38.89 | 11.11 |
| CALIFORNIA MUNICIPAL DEBT FUNDS | | | | | | | |
| 1st Quartile | 9 | 55.56 | 22.22 | 11.11 | 0.00 | 11.11 | 0.00 |
| 2nd Quartile | 8 | 12.50 | 37.50 | 0.00 | 37.50 | 12.50 | 0.00 |
| 3rd Quartile | 8 | 12.50 | 12.50 | 62.50 | 0.00 | 0.00 | 12.50 |
| 4th Quartile | 9 | 0.00 | 0.00 | 11.11 | 44.44 | 33.33 | 11.11 |
| NEW YORK MUNICIPAL DEBT FUNDS | | | | | | | |
| 1st Quartile | 7 | 57.14 | 14.29 | 0.00 | 0.00 | 14.29 | 14.29 |
| 2nd Quartile | 6 | 33.33 | 16.67 | 50.00 | 0.00 | 0.00 | 0.00 |
| 3rd Quartile | 6 | 0.00 | 33.33 | 33.33 | 33.33 | 0.00 | 0.00 |
| 4th Quartile | 7 | 0.00 | 0.00 | 14.29 | 57.14 | 28.57 | 0.00 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

| Report 12: Five-Year Transition Matrix – Performance over Two Non-Overlapping Five-Year Periods (Based on Halves) | | | | | |
|---|---------------------------------|------------------------------|-----------------|-----------------------|-------------------|
| HALF | FUND COUNT AT START (JUNE 2016) | FIVE-YEAR PERCENTAGES AT END | | | |
| | | TOP HALF (%) | BOTTOM HALF (%) | MERGED/LIQUIDATED (%) | STYLE CHANGED (%) |
| GOVERNMENT LONG FUNDS | | | | | |
| Top Half | 26 | 46.15 | 26.92 | 11.54 | 15.38 |
| Bottom Half | 26 | 3.85 | 46.15 | 23.08 | 26.92 |
| GOVERNMENT INTERMEDIATE FUNDS | | | | | |
| Top Half | 9 | 66.67 | 11.11 | 11.11 | 11.11 |
| Bottom Half | 10 | 20.00 | 70.00 | 10.00 | 0.00 |
| GOVERNMENT SHORT FUNDS | | | | | |
| Top Half | 12 | 50.00 | 16.67 | 16.67 | 16.67 |
| Bottom Half | 12 | 16.67 | 50.00 | 33.33 | 0.00 |
| INVESTMENT-GRADE LONG FUNDS | | | | | |
| Top Half | 40 | 67.50 | 15.00 | 10.00 | 7.50 |
| Bottom Half | 40 | 15.00 | 50.00 | 17.50 | 17.50 |
| INVESTMENT-GRADE INTERMEDIATE FUNDS | | | | | |
| Top Half | 86 | 59.30 | 26.74 | 11.63 | 2.33 |
| Bottom Half | 86 | 19.77 | 52.33 | 22.09 | 5.81 |
| INVESTMENT-GRADE SHORT FUNDS | | | | | |
| Top Half | 35 | 45.71 | 37.14 | 17.14 | 0.00 |
| Bottom Half | 36 | 38.89 | 38.89 | 11.11 | 11.11 |
| HIGH YIELD FUNDS | | | | | |
| Top Half | 79 | 44.30 | 36.71 | 5.06 | 13.92 |
| Bottom Half | 80 | 26.25 | 32.50 | 21.25 | 20.00 |
| MORTGAGE-BACKED SECURITIES FUNDS | | | | | |
| Top Half | 23 | 56.52 | 30.43 | 13.04 | 0.00 |
| Bottom Half | 24 | 12.50 | 54.17 | 20.83 | 12.50 |
| GLOBAL INCOME FUNDS | | | | | |
| Top Half | 37 | 45.95 | 32.43 | 8.11 | 13.51 |
| Bottom Half | 38 | 18.42 | 50.00 | 18.42 | 13.16 |
| EMERGING MARKETS DEBT FUNDS | | | | | |
| Top Half | 12 | 25.00 | 50.00 | 25.00 | 0.00 |
| Bottom Half | 12 | 50.00 | 33.33 | 16.67 | 0.00 |
| GENERAL MUNICIPAL DEBT FUNDS | | | | | |
| Top Half | 34 | 70.59 | 23.53 | 5.88 | 0.00 |
| Bottom Half | 35 | 5.71 | 51.43 | 31.43 | 11.43 |
| CALIFORNIA MUNICIPAL DEBT FUNDS | | | | | |
| Top Half | 17 | 64.71 | 23.53 | 11.76 | 0.00 |
| Bottom Half | 17 | 11.76 | 58.82 | 17.65 | 11.76 |
| NEW YORK MUNICIPAL DEBT FUNDS | | | | | |
| Top Half | 13 | 61.54 | 23.08 | 7.69 | 7.69 |
| Bottom Half | 13 | 15.38 | 69.23 | 15.38 | 0.00 |

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2021. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

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