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# Retirement Plan Performance Measures

The data consisted of four categories of retirement plans of various sizes based on their market values, $1 million to $10 million, $10-100 million, $100-500 million, and over $500 million. The final sample size for the analysis was 4,712. This sample is representative of its underlying plan population, which are audited plans with at least one million dollars in plan assets and have at least three mutual funds that are not a money market fund.

- Table 1 reports the number of the total population and the sample of each fund size category in 2020.

- Table 2 reports the mean ratio of funds in plans that outperformed their benchmark.

- Table 3 reports the percentage of plans in each size category that outperformed their benchmark.

This report employs a fund-level approach and a plan-level approach to evaluate the plan's performance. The performance measures used in the analysis at both the fund level and the plan level included expected return, standard deviation, Sharpe ratio, downside risk, and Sortino ratio.

# Summary of Results

### Plan Performance at the Fund Level
*Table 2 reports the mean (average) ratio of funds in plans that outperformed their benchmark.*

The average of funds in plans that outperformed their benchmark was calculated by dividing the number of outperforming funds by the total number of funds in the lineup for each plan and taking an average of these ratios for all plans and for plans in each size category.

Evaluated by the expected return, the overall average percent of funds in a plan that outperformed its benchmark was 60.47%. The average of outperforming funds was 59.96% for plans with a market value of $1-10 million. Plans with a market value of $100-500 million performed better than other plans with an average of outperforming funds of 62.37%. Only 58.18% of plans with a market value of $500 million or higher outperformed their corresponding benchmark at the fund level, the lowest of all four size categories.

## *Plan Performance at the Plan Level*

*Table 3 reports the percentage of plans that outperformed their corresponding benchmark plan in 2020 at the plan level.*

To calculate at the plan level, an equal weight is assigned to each fund offered in its retirement plan. The benchmark for each retirement plan consists of the benchmark of each fund in that plan. Funds in each benchmark plan received their weight in the same manner. Performance measures are then calculated for both the retirement plan portfolio and its benchmark plan portfolio.

On average, the percentage of plans that achieved a higher expected return than their benchmark was 75.51%. Generally, the percentage of plans that outperformed their benchmark plan as measured by expected return was higher for plans with a larger market value. However, the largest plans with a market value of $500 million or more were an exception. An average of 72.46% of these plans outperformed their benchmark at the plan level, the lowest among all size categories.

# Table 1

*Number of Defined Contribution Plans in 2020*

| Plan Size | 2020 |
|---|---|
| **$1m-$10m** | |
| Population | 20,110 |
| Sample | 1,755 |
| **$10m-$100m** | |
| Population | 27,027 |
| Sample | 2,347 |
| **$100m-$500m** | |
| Population | 5,051 |
| Sample | 443 |
| **$500m+** | |
| Population | 1,804 |
| Sample | 167 |
| **Total** | |
| Population | 53,992 |
| Sample | 4,712 |

*Note. Data supplied by BrightScope. Stratified random sampling was applied to the population for a total sample size of 4,999. After removing plans with missing values, the final sample size was 4,712.*

# Table 2

*Mean Ratio of Funds in Plans that Outperformed Their Benchmark*

| Plan Size | 2020 |
|---|:---:|
| | **Panel A: Higher Expected Returns** |
| **Overall** | 60.47 |
| $1-10m | 59.96 |
| $10-100m | 60.66 |
| $100-500m | 62.37 |
| $500m+ | 58.18 |
| | **Panel B: Lower Risk (Standard Deviation)** |
| **Overall** | 54.98 |
| $1-10m | 56.47 |
| $10-100m | 55.16 |
| $100-500m | 51.72 |
| $500m+ | 45.27 |
| | **Panel C: Higher Sharpe Ratio** |
| **Overall** | 59.37 |
| $1-10m | 58.60 |
| $10-100m | 59.85 |
| $100-500m | 61.01 |
| $500m+ | 56.26 |
| | **Panel D: Lower Downside Risk** |
| **Overall** | 53.60 |
| $1-10m | 55.20 |
| $10-100m | 53.62 |
| $100-500m | 50.79 |
| $500m+ | 43.92 |
| | **Panel E: Higher Sortino Ratio** |
| **Overall** | 59.47 |
| $1-10m | 58.95 |
| $10-100m | 59.87 |
| $100-500m | 60.88 |
| $500m+ | 55.46 |

Note. n=4,712, numbers in percentages.

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# Table 3

*Percentages of Plans that Outperformed Their Benchmark*

| Plan Size | 2020 |
|---|---|
| | **Panel A: Higher Expected Returns** |
| **Overall** | 75.51 |
| $1-10m | 74.25 |
| $10-100m | 76.44 |
| $100-500m | 76.75 |
| $500m+ | 72.46 |
| | **Panel B: Lower Risk (Standard Deviation)** |
| **Overall** | 52.59 |
| $1-10m | 55.50 |
| $10-100m | 52.92 |
| $100-500m | 47.40 |
| $500m+ | 31.14 |
| | **Panel C: Higher Sharpe Ratio** |
| **Overall** | 74.51 |
| $1-10m | 73.79 |
| $10-100m | 75.29 |
| $100-500m | 76.30 |
| $500m+ | 66.47 |
| | **Panel D: Lower Downside Risk** |
| **Overall** | 46.41 |
| $1-10m | 44.27 |
| $10-100m | 47.12 |
| $100-500m | 49.21 |
| $500m+ | 52.50 |
| | **Panel E: Higher Sortino Ratio** |
| **Overall** | 51.55 |
| $1-10m | 48.89 |
| $10-100m | 52.49 |
| $100-500m | 55.30 |
| $500m+ | 56.29 |

Note. n=4,712, numbers in percentages.