PensionConsultantsInc.

*Reporting Year 2018*

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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. Of the 6,536 plans included in the original data sample, 40 plans were excluded from the analysis due to missing values in returns of the funds and/or their associated benchmarks. The final sample size for the analysis was 6,496.

- Table 1 reports the number of the total population and the sample of each fund size category in 2018.

- 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 41.87%. In general, the average of plans with outperforming funds in a plan was higher in larger market value plans. The only exception was plans with market value of $500 million or more, where only 36.83% of the funds in a plan outperformed their corresponding benchmark, the lowest of all four size categories. Meanwhile, 43.50% of funds in the $100-500 million category outperformed their benchmark, the highest among all four categories.

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*Plan Performance at the Plan Level*

*Table 3 reports the percentage of plans that outperformed their corresponding benchmark plan in 2018 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 27.86%. Generally, the percentage of plans that outperformed their benchmark plan as measured by expected return was higher for plans with a larger market value. The only exception was the largest plans with a market value of $500 million or more. An average of 32.22% of these plans outperformed their benchmark, slightly lower than the 33.30% of the $100-500 million size category.

# Table 1

*Number of Defined Contribution Plans and Sample Weights in 2018*

| Plan Size | 2018 |
|---|---|
| **$1m-$10m** | |
| Population | 36,945 |
| Sample | 1,393 |
| weights | 0.479711 |
| **$10m-$100m** | |
| Population | 36,100 |
| Sample | 1,768 |
| weights | 0.369420 |
| **$100m-$500m** | |
| Population | 9,043 |
| Sample | 1,942 |
| weights | 0.084225 |
| **$500m+** | |
| Population | 5,280 |
| Sample | 1,433 |
| weights | 0.066644 |
| **Total** | |
| Population | 87,378 |
| Sample | 6,536 |

# Table 2

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

| Plan Size | 2018 |
|---|:---:|
| | **Panel A: Higher Expected Returns** |
| **Overall** | 41.87 |
| $1-10m | 41.49 |
| $10-100m | 42.58 |
| $100-500m | 43.50 |
| $500m+ | 36.83 |
| | **Panel B: Lower Risk (Standard Deviation)** |
| **Overall** | 57.02 |
| $1-10m | 58.17 |
| $10-100m | 57.62 |
| $100-500m | 55.39 |
| $500m+ | 47.50 |
| | **Panel C: Higher Sharpe Ratio** |
| **Overall** | 39.01 |
| $1-10m | 38.50 |
| $10-100m | 38.75 |
| $100-500m | 39.01 |
| $500m+ | 44.54 |
| | **Panel D: Lower Downside Risk** |
| **Overall** | 53.18 |
| $1-10m | 53.41 |
| $10-100m | 54.24 |
| $100-500m | 52.97 |
| $500m+ | 44.56 |
| | **Panel E: Higher Sortino Ratio** |
| **Overall** | 35.78 |
| $1-10m | 35.73 |
| $10-100m | 35.28 |
| $100-500m | 35.10 |
| $500m+ | 40.78 |

Note. n=6,496, numbers in percentages.

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# Table 3

*Percentages of Plans that Outperformed Their Benchmark*

| Plan Size | 2018 |
|---|---|
| | **Panel A: Higher Expected Returns** |
| **Overall** | 27.86 |
| $1-10m | 26.19 |
| $10-100m | 27.58 |
| $100-500m | 33.30 |
| $500m+ | 32.22 |
| | **Panel B: Lower Risk (Standard Deviation)** |
| **Overall** | 57.66 |
| $1-10m | 56.83 |
| $10-100m | 60.42 |
| $100-500m | 57.92 |
| $500m+ | 43.91 |
| | **Panel C: Higher Sharpe Ratio** |
| **Overall** | 24.08 |
| $1-10m | 22.16 |
| $10-100m | 21.97 |
| $100-500m | 30.20 |
| $500m+ | 41.77 |
| | **Panel D: Lower Downside Risk** |
| **Overall** | 75.30 |
| $1-10m | 72.66 |
| $10-100m | 79.22 |
| $100-500m | 78.47 |
| $500m+ | 61.30 |
| | **Panel E: Higher Sortino Ratio** |
| **Overall** | 12.12 |
| $1-10m | 11.65 |
| $10-100m | 9.97 |
| $100-500m | 14.15 |
| $500m+ | 26.94 |

Note. n=6,496, numbers in percentages.