

Question 4: Flows analysis

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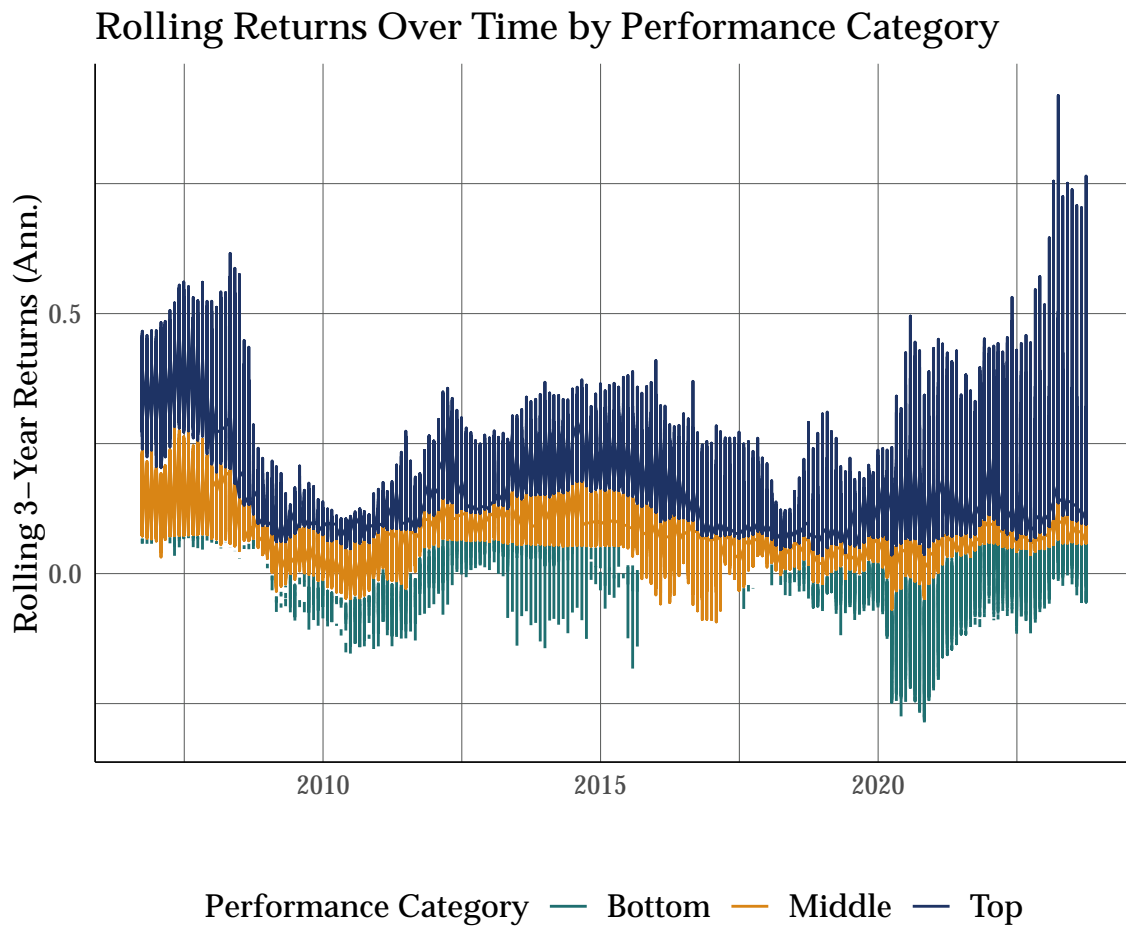
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Abstract

This report investigates the relationship between the past performance of actively managed funds and their future fund flows. Utilizing a dataset excluding Funds of Funds (FoF) and index funds, I calculate 3-year rolling returns to gauge past performance and then analyze how these returns correlate with future fund flows across different time lags.

1. Rolling Returns Analysis

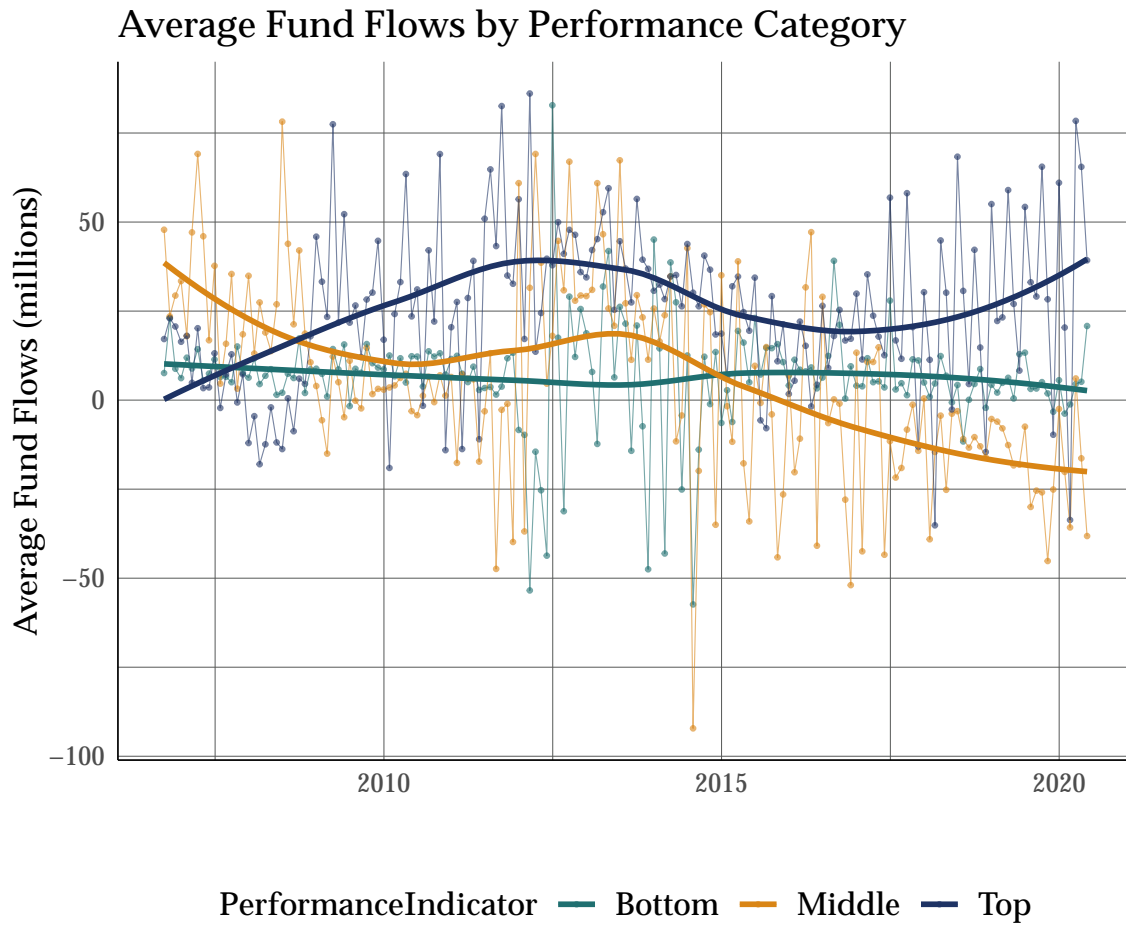
I categorize funds based on their rolling returns into three performance indicators: Top, Middle, and Bottom. This categorization allows us to analyze patterns in fund flows relative to past fund performance. The plot of 3-year rolling returns shows that top-performing funds (blue) have the highest peaks and volatility, indicating potential higher risk and return. Middle (orange) and bottom (green) categories exhibit less variation and often overlap, suggesting more consistent but lower performance. Periods of convergence among all categories hint at market-wide impacts. Overall, the top funds show greater fluctuation and, at times, distinct outperformance relative to others.



2. Fund Flows Analysis

Next, I compute future fund flows at various time lags (1 month, 6 months, 1 year, 2 years, and 3 years) to understand the lagged effect of performance on investor behavior. I aggregate these flows by performance category and observe the distribution of fund flows over time.

The plot below shows average fund flows by performance category over time. The top-performing funds (blue) generally see positive inflows, while the middle (orange) and bottom (green) categories exhibit more variability with instances of both inflows and outflows. Notably, there are periods where average flows for all categories decline, potentially reflecting market downturns or investor sentiment shifts. The trend lines suggest that top performers have a more consistent attraction of funds, whereas middle and bottom performers experience more fluctuation in investor contributions and withdrawals.



3. Correlation Analysis

To quantify the relationship between past performance and future flows, I calculate correlation coefficients for each time lag. The results are displayed in the table below, providing a clear presentation of the correlation statistics, including confidence intervals and p-values.

Correlation Between Rolling Returns and Future Fund Flows

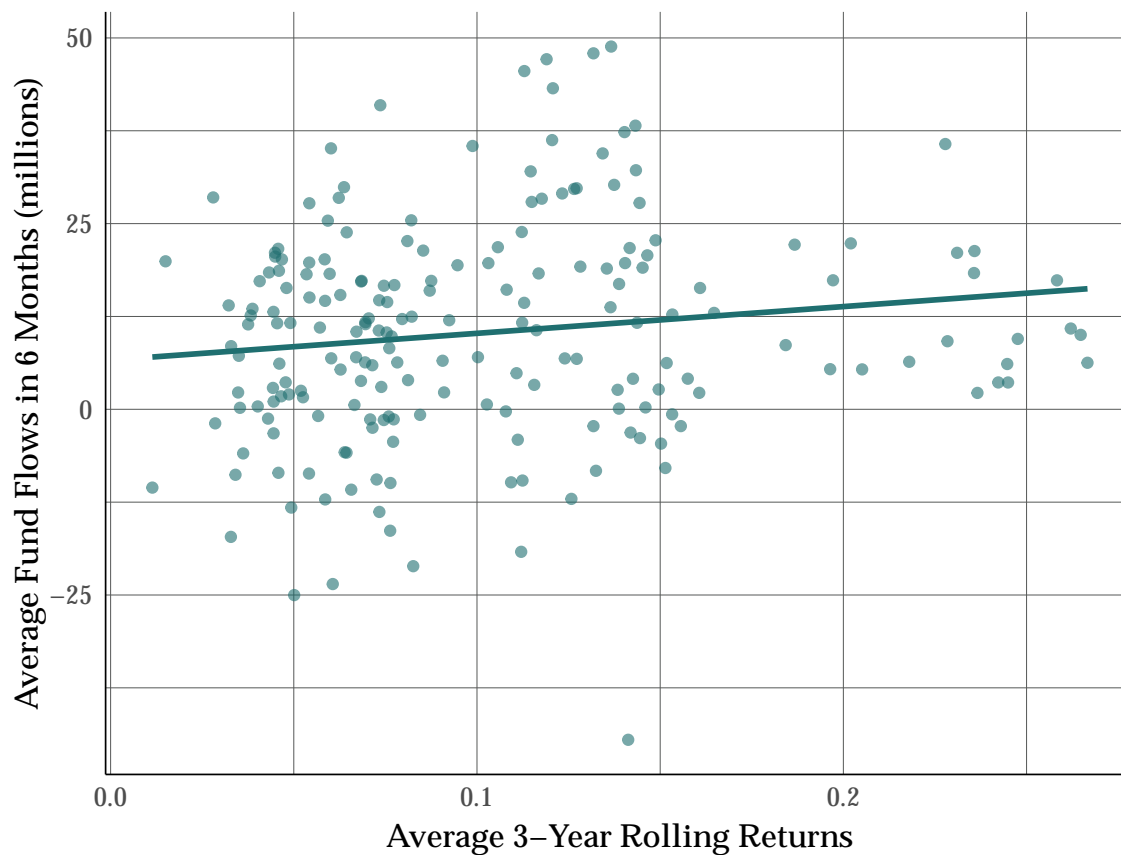
Time Lag	Correlation	p-value	95% CI Lower	95% CI Upper
Next Month	0.038	0.000	0.031	0.045
In 6 Months	0.030	0.000	0.023	0.037
Next Year	0.021	0.000	0.014	0.029
In 2 Years	0.015	0.000	0.007	0.022
In 3 Years	0.003	0.460	-0.005	0.012

The table presents the correlation between 3-year rolling returns and future fund flows at various time lags. The correlations are positive for the first four time lags (Next Month to In 2 Years), indicating a small but statistically significant relationship between past performance and future inflows. The strength of this correlation decreases over time. For the 3-year time lag, the correlation is close to zero and not statistically significant, suggesting that the influence of past performance on future flows diminishes and becomes negligible at this point.

The core of my findings is presented visually through the scatter plot below that compares average rolling returns with average fund flows. The plots incorporates a linear trend line, highlighting the correlation between performance and flows.

The correlation coefficient of 0.142 indicates a positive but weak relationship; as the average returns increase, there's a slight tendency for the average fund flows to increase as well. However, the spread of the points suggests a lot of variability that isn't explained by the 3-year rolling returns alone. The trend line shows a general direction of this relationship, but the weak correlation signifies that other factors may also significantly influence fund flows.

Average 3–Year Rolling Returns vs. Average Flows in 6 Months – Correlation: 0.142



4. Conclusion

Based on the results presented, it appears that there is a positive relationship between the past performance of funds, as measured by 3-year rolling returns, and future fund inflows, albeit this relationship is relatively weak. While top-performing funds tend to attract more inflows, the influence of past performance on future flows diminishes over time, becoming negligible at the 3-year mark. The variability in fund flows suggests that factors beyond past returns play a significant role in investment decisions. Overall, while past performance may offer some indication of future fund attractiveness, it should not be solely relied upon for investment decisions. Investors and fund managers should consider a wider range of factors when evaluating fund performance and investor behavior.