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# Turing Technology

## The Singular Impact of High Conviction Overweight Positions for Active Managers

By Alexey Panchekha, PhD., CFA.

### Key Topics Addressed:

- **Manager Skill:** How and where active investment managers deliver stock selection skill;
- **Active Manager Paradox:** Structural portfolio design flaw that is contributing to actively managed funds' history of underperformance versus index funds and ETFs;
- **Path Forward:** Fact-based insights into approaches for active managers that can create higher statistical expectations for relative outperformance.

### Scope of the Research:

- **Fund Coverage:** 100+ actively managed US equity funds, 50+ fund families, and \$2 trillion in fund assets.
- **Data analyzed:** Real-time, daily holdings and portfolio weights of all mutual funds.

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# The Singular Impact of High Conviction Overweight Positions for Active Managers

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Is active management's decade-long losing streak to passive management due to high fees, a lack of manager skill, or something else? What's required to answer this question is not rampant speculation but a fact-based assessment of manager decision making, and the facts need to come from analysis of daily stock holdings of mutual funds. As the saying goes, "You cannot manage what you cannot measure."

In a first-of-its-kind study, our research explored how active managers generate stock selection alpha. We conducted a multi-year analysis that covered 114 US equity mutual funds from 57 fund families and evaluated more than 400,000 individual rolling one-year performance periods. Combined, our sample represented about \$2 trillion in assets under management (AUM).

Our key focus? Manager conviction. How committed is the manager to the different sub-groupings of equities within each fund? To find out, we measured the scale of overweight and underweight positions rather than the raw size of the holdings, which tends to be biased by the benchmark weightings.

***The summary findings of the research are simple, and yet profound:***

- The ***only source of stock selection alpha comes from managers' High Conviction Overweight positions.***
  - High Conviction Overweight positions, if treated as a stand-alone portfolio, were able to outperform their respective benchmarks 83.7% of rolling one-year periods gross of fees, and had a 74.2% Success Rate after factoring in a theoretical 85bp fee.
  - The ***contributions from Underweight and Neutral Weight positions were negligible*** from an alpha production level. Collectively, these sub-groupings only delivered market-level returns.
- ***Active fund managers do, in fact, have stock selection skill*** – although it is limited to their High Conviction Overweight positions.
- The average active fund manager ***reduced their sole source of excess return (High Conviction Overweights) by half***, severely diluting their ability to outperform after fees.
  - The High Conviction Overweight positions averaged 33 stocks (26% of total holdings) and represented only 55% of the overall portfolio weight.

## TOPLINE RESEARCH DESIGN AND OBJECTIVE

This study evaluated the source and extent of active managers' stock selection skill by analyzing the rolling returns of discrete sub-components of stocks within actively managed mutual funds. Importantly, the research focused on an active manager's demonstrated level of conviction (e.g., scale of an overweight or underweight position), rather than the raw size of the holdings (which is heavily biased by the benchmark weightings). The research design, which is explained in depth on page 5, evaluated the rolling returns of each fund's three primary sub-groupings of stocks based on the managers' active intent, specifically 1) **High Conviction Overweight** positions, 2) **Underweight** positions, and 3) **Neutral Weight** positions.

The constituents of the three portfolio sub-groupings were determined based on the real-time, daily positions of each mutual fund, and rebalanced every 14 days. The fund holdings data came from Turing Technologies' proprietary Hercules fund replication system and corresponding Hercules Database.

## SUMMARY RESULTS

The results, which are shown in Charts 1A and 1B, feature two sets of data: 1) percent Success Rate of each sub-portfolio category versus the benchmark over rolling one-year periods, and 2) the average annual excess return of the rolling periods.

A critical finding is that the High Conviction Overweights, the sub-portfolio reflective of the managers' best ideas, is the **only sub-grouping that delivers stock selection alpha** (84% Success Rate gross of fees; 74% Success Rate net of a theoretical 85bp fee). The other two sub-portfolios have a gross of fee Success Rate of 50%, or effectively equivalent to a pure beta portfolio, and a materially inferior Success Rate after fees.

This finding, that the High Conviction Overweights are the **only** area through which active managers, as a group, were able to add alpha, is significant, and defies at least some long-held views that managers can improve performance throughout the entire stock selection and portfolio construction process.

## ACTIVE MANAGER PARADOX

While this research validates that an established fund manager can express persistent skill in stock selection through their high conviction best ideas, it simultaneously indicates the existence of a portfolio design paradox. As the sole source of excess return, **High Conviction Overweights need to be the priority**

Chart 1A: Summary Research Findings: [Gross of Fees](#)

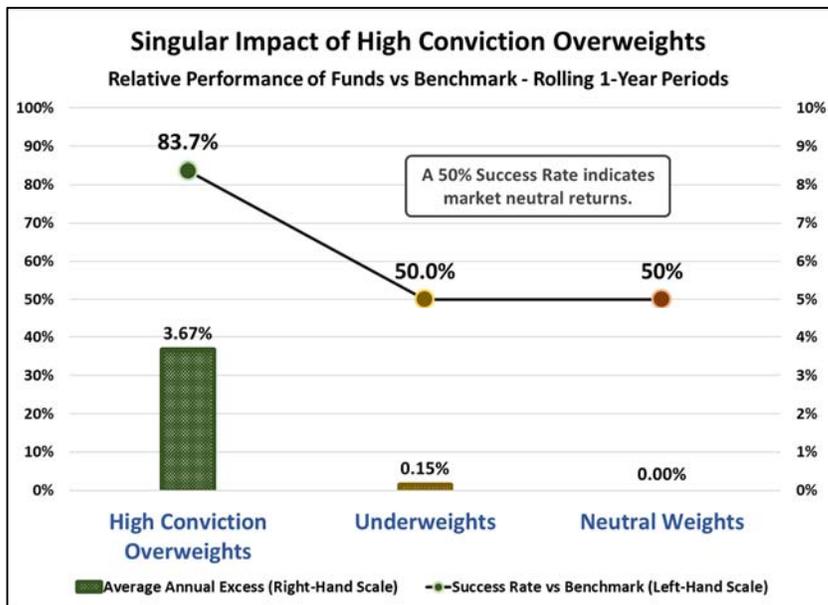
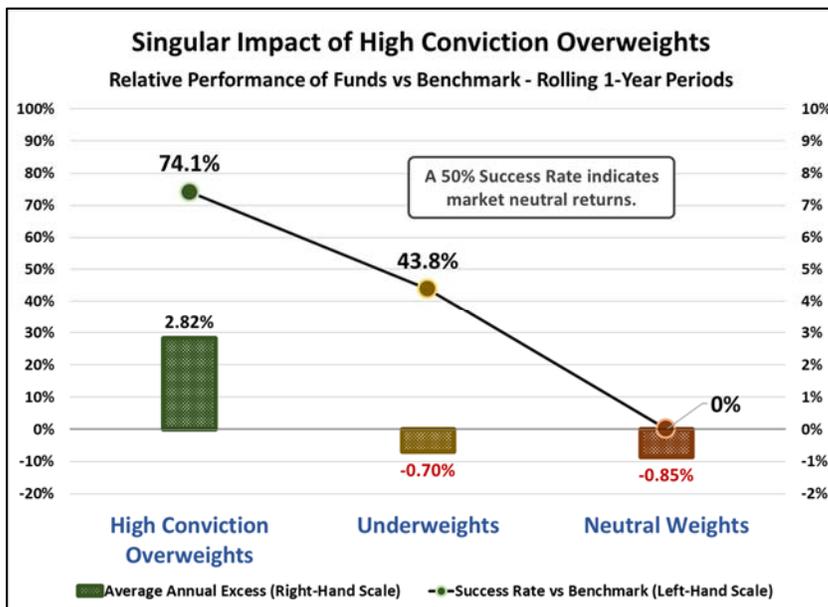


Chart 1B: Summary Research Findings: [Net of 85bp Fees](#)



**emphasis of all actively managed portfolios.** Based on this research, any portfolio allocation to securities other than High Conviction Overweights will mathematically reduce delivered returns.

However, in our analysis, the average manager sabotaged their own returns by shrinking the High Conviction Overweight stocks to an overall portfolio weight of 55%. The corresponding portfolio allocation to Underweight and Neutral Weight securities act as a 'Beta Anchor,' severely diluting the alpha from the High Conviction Overweight positions.

To use a sports analogy, this is the equivalent of an NFL football team voluntarily taking their superstar quarterback out of the game after the first half. It is safe to say, that is not a winning strategy.

There are many potential justifications for managers to build out a sizable 'Beta Anchor'. The most obvious is that the allocation to a market neutral component reduces the portfolio's tracking error versus the benchmark, and statistically reduces the potential of a relative performance failure that might otherwise exist for a highly concentrated portfolio. **However, what this research clearly shows is that any risk management benefit is offset by a significant performance penalty.**

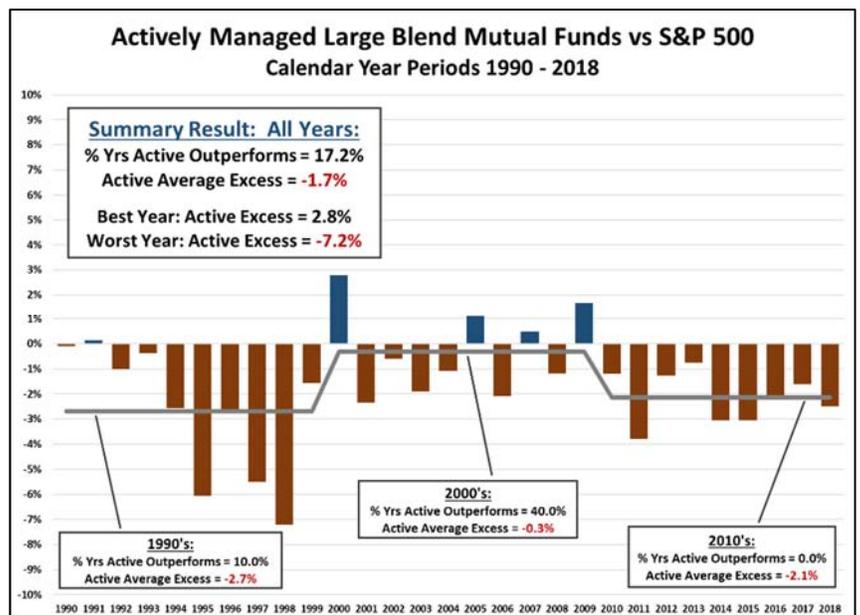
### IMPLICATIONS FOR INVESTORS

This research did not specifically address risk management considerations, and in this paper we held off attempting to offer solutions to this Active Manager Paradox. However, the topic is not trivial. Active investment management is, by definition, a premium service. The fees charged are higher than for passive management, and the formal expectation is that active management will justify the higher costs by delivering higher returns. But this research indicates that the current approach to actively managed portfolio design structurally compromises the manager's ability to outperform.

Outside research supports the cause-and-effect implications of a compromised allocation to High Conviction Overweight stocks. Morningstar currently classifies mutual funds as either active or passive, and provides summary return data for the average actively managed mutual fund by asset class. Chart 2 compares the relative performance of actively managed large blend funds versus the S&P 500 index over rolling calendar years, going back to 1990. The results are bleak.

Since 1990, large blend active managers have only achieved a 17% success rate versus the S&P 500, outperforming in only 5 of the 29 years analyzed. On average, the active managers underperformed by -1.7% (-170bp) per calendar year. The results are even worse for most

**Chart 2: Average Active LCB Funds vs S&P 500 Index**



recent decade. Since 2010 active managers have never outperformed, lagging by -2.1% (-210bp) on average.

While industry convention attempts to attribute the entirety of active funds' relative shortfall to higher fees, this research would suggest that fees are actually a secondary contributor. The impact of diluting the sole source of stock selection alpha in half has a far greater structural impact on delivered returns than higher active management fees.

The decade-long failure of active managers to outperform passive investments has not gone unnoticed. End investors have voted with their feet to the tune of redemptions over the past decade from actively managed mutual funds of more than \$1.3 trillion, while passively managed fund and ETFs have seen a net inflow of more than \$1.3 trillion over the same period (source: Morningstar).

The strategic importance of this research, and generating viable solutions to the Active Manager Paradox, are paramount for both the end investor and the active management industry itself. The good news is real value is being created by active managers. Unfortunately, it is too often being lost before it can get delivered to the end investor.

## **ABOUT THE AUTHOR**

### **Alexey Panchekha**

In a career spanning nearly three decades, Alexey spent ten years in Academia where he focused on nonlinear and dynamic processes, ten years in the technology industry where he specialized in program design and development, and nine years in Financial Services.

In the arena of Financial Services, Alexey specialized in applying mathematical techniques and technology to risk management and alpha generation. For example, Alexey was involved in the Equity Derivative Trading Technology Platform at Goldman Sachs, and led creation of the multi-asset multi-geographies Portfolio Risk Management System at Bloomberg. He also served as the Head of Research at Markov Process International, a leader in portfolio attribution and analytics.

Most recently, he co-founded Turing Technology Associates, Inc. with Vadim Fishman. Turing is a technology and Intellectual Property company that resides at the intersection mathematics, machine learning, and innovation. Its solutions typically service the financial technology (Fintech) industry. Turing's primary areas of focus relate to enabling technology supporting the burgeoning Ensemble Active Management sector, and enabling technology supporting strategies targeting downside volatility management.

Alexey is fluent in multiple computer programming languages, software and database programs. He earned a Ph.D. from Kharkiv Polytechnic University, with fields of study in Physics and Mathematics. He also earned an MS from Kharkiv Polytechnic University, focused on Physics. Alexey is also a Chartered Financial Analyst (CFA®) charter holder.

## RESEARCH DESIGN METHODOLOGY

This analysis is based on a proprietary database of daily fund positions and portfolio weights constructed and maintained by Turing Technology Associates Inc. The specific funds used in the research dataset includes 114 unique US equity mutual funds, from 57 fund families, and represents \$1.996 trillion assets under management.

### Fund Selection Process

The funds selected for use in the research came from the set of mutual funds included within a series of investment portfolios known as Ensemble Active Management (“EAM”) Portfolios. Turing licenses a series of proprietary technologies to clients to support their creation of such EAM Portfolios. Each EAM Portfolio is typically constructed from a set of 10 – 15 underlying mutual funds with a corresponding industry benchmark. As of early August, 2019, Turing had 24 client-designed EAM Portfolios in live production.

All 114 funds used within the study were selected by clients or prospects of Turing related to the design of an EAM Portfolio. Because Turing’s clients selected the underlying funds and corresponding benchmark, the fund selection process maintained independence from the researchers.

Each paired fund and benchmark is a subject of the analysis. Benchmarks included S&P 500, Russell 1000, Russell 2000, Russell 1000 Value and Russell 1000 Growth. The time periods used were either January 2014 through July 2019, or January 2016 through July 2019, depending on available data.

### Source of Daily Fund Positions

To access daily fund holdings, Turing applied its proprietary fund replication technology known as the Hercules System. Hercules is a Machine Learning-based platform processing a multitude of publicly available data, with core concepts behind the approach in use and development for more than a decade. Of note, Hercules is not a regression-based approach. Daily estimated positions are generated by the Hercules System, with the out-of-sample portfolios rebalanced every 14 days.

As reference, the Hercules estimated fund holdings and weights for the funds used in this study typically generated a tracking error of less than 1%, and a correlation to the actual fund returns that was greater than 99.7%.

### Isolating Manager Conviction

The focus of this research was to analyze the impact of **manager conviction** in security selection, and thus we embedded two critical design elements into the study. First, securities were categorized and evaluated based on portfolio weights relative to the benchmark. Rather than focus on actual portfolio weights, which are heavily influenced by benchmark weights, the emphasis was placed on a manager’s overweight and underweight decisions, and the scale of the over or underweight positions. Second, we divided each fund into multiple, non-overlapping sub-portfolios determined by the level of Manager Conviction involved, and evaluated their performance separately. Each sub-portfolio was rebalanced every 14 days, and treated as a distinct Model Portfolio. The three sub-portfolios analyzed were:

- **High Conviction Overweights:** A sub-portfolio consisting of the largest overweight positions for stocks in the fund. The sub-portfolio was selected to cumulatively represent 80% of aggregate portfolio overweights relative to the benchmark.

- **Underweights:** A sub-portfolio consisting of the largest underweight positions for stocks in the fund. The sub-portfolio was selected to cumulatively represent 80% of aggregate portfolio underweights relative to the benchmark.
- **Neutral Weights:** A sub-portfolio consisting of 1) overweight securities that are not included in the Overweight sub-portfolio, and 2) underweight positions that are not included in the Underweight sub-portfolio.

All sub-portfolios capture distinct choices by a fund manager. The dynamic portfolio weights for each sub-portfolio are in proportion to the original fund weights, normalized to 100%. Securities outside of the benchmark were excluded as they cannot be properly evaluated in relation to a benchmark. All performance data was calculated both as 1) gross of any fees and 2) after factoring in a hypothetical 85bp fee. Neither result reflected transaction costs.

The performance data presented represents rolling one-year data (daily step), which was evaluated to capture the percent of rolling periods where each sub-portfolio was able to outperform the corresponding benchmark (Success Rate), and the average excess (or negative) relative return.

A sub-portfolio consisting of securities included in the benchmark but not included in the mutual fund (i.e., Zero Weights) was built and analyzed. This fourth sub-grouping was not included in the research results because the only way to capture any potential alpha would be through a 100% short portfolio, which is not allowed in a traditional mutual fund. For reference, the Zero Weight portfolio underperformed the benchmark by 78bp, on average. Unfortunately, even a frictionless short portfolio of Zero Weight securities would not be able to earn the fees of even a standard long-only mutual fund.