# Investment Survivors:  The Reality of Competition

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Read Time: 20 mins

*Twenty-five years ago, a new type of television game show debuted in the U.S., quickly exploding into a pop-culture phenomenon.  Survivor pitted contestants in various forms of competition against each other, periodically eliminating players in a dramatic voting ceremony, all while being (supposedly) marooned on a desolate island.  As the season progressed, the final contestants to exit may have looked like underperformers in the moment, when in reality they outperformed by advancing that far.*

*Investment managers face a similar illusion in their performance rankings.  Comparing past returns for the products available today fails to account for the past offerings whose fires have gone out.  This blind spot is known as "Survivorship Bias," and its importance grows as the time horizon expands.  If one were to compare U.S. equity products dating back to when Survivor first aired, just one-third of the strategies which began that competition remain today.*

## Key Takeaways

1.  **Changes the Game:**  Survivorship Bias can substantially alter performance rankings of managers as well as the "Active vs. Passive" debate, potentially leading to different inclusions and conclusions.

2.  **No Immunity Idol:**  Short-term underperformance is inevitable.  Even the best surviving products experience sizeable 3 and 5-year bouts of underperformance within their long-term track records.

3.  **Voting is Complicated:**  Surviving products have better track records than closures do, on average, but there is overlap in the distributions.  It takes more than just returns to win and retain clients!

## The Backstory

Survivorship Bias is a logical error that can arise in almost any field of study.  Its premise is simple: failures tend to be forgotten.  More specifically, the data available to study may have already gone through some filtering process to reach its current state.  In that case, conclusions drawn from the visible data alone may not be applicable to the true population of interest.

Perhaps the most famous example of Survivorship Bias dates back to World War II.  The mathematician Abraham Wald, when presented with a diagram plotting where Navy bombers had been hit with enemy gunfire, recommended adding reinforcements to the empty regions of the plot, where there were no documented strikes.  Wald reasoned that the Navy had collected data on where planes could survive a
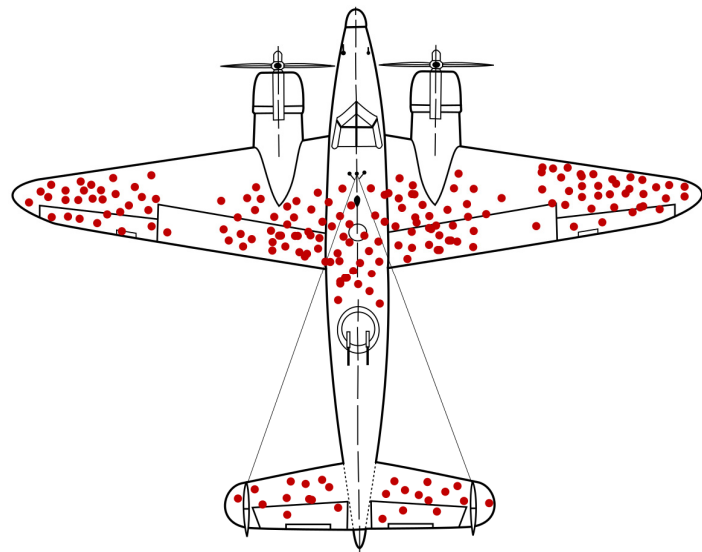
hit, not where they were taking hits.  Planes were also being struck in the empty regions (see Figure 1), but those never returned from battle to make it into the study.

In the competitive landscape of active investment management, Survivorship Bias has a similar interpretation: products that did not survive typically are absent from the databases used to compare manager performance.  The impact of this omission on mutual fund performance is well-documented in academic literature.  Multiple studies indicate a bias on the order of 1% alpha[1] when the time horizon being studied is sufficiently long.

For perspective, imagine how an asset owner's opinion of a particular manager would change if they directly earned 1% more (or less) each year.  That boost could easily tilt the scales in a hire-or-fire decision, or justify most fees charged by active management when compared against passive alternatives.  The mutual fund research on this "Active vs. Passive" debate is often harsh once Survivorship Bias is accounted for[2], although there are competing studies that find brighter results if the comparisons switch from free indices and imaginary, frictionless factors to live index-tracking products[3].

**Figure 1:  Illustrative Aircraft Damage Plot**



Source:  U.S. Air Force, McGeddon (2016) and Grandjean (2021).

Note:  Hypothetical damage pattern meant to illustrate the undocumented analysis by Abraham Wald in 1943, similar to a more recent U.S. Air Force plot on F-4 hits (1991). New version created by McGeddon based on a Lockheed PV-1 Ventura (2016), vector file by Martin Grandjean (2021). Accessed at Wikipedia: https://en.wikipedia.org/wiki/Survivorship_bias.

Instead of mutual funds, this paper focuses on institutional equity products, which are typically invested as separate accounts and have shown stronger levels of outperformance in academic studies[4].  Whereas mutual funds can be bought or sold by most anyone at any time, institutional assets are typically won or lost through a deliberate search process, which often include ranking the past returns of products under consideration against those of other managers.  Thus, in such a world where managers care deeply about which percentile they fall into, the issue of Survivorship Bias becomes even more crucial.

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[1] See Elton, Gruber, and Blake (1996), Carhart, Carpenter, Lynch, and Musto (2002), and Schlanger and Phillips (2013).

[2] Carhart (1997) and Fama and French (2010) are perhaps the most famous examples.

[3] See Blitz and Huij (2012) and Berk. and van Binsbergen (2015) for such counterarguments.

[4] See Cremers and Pareek (2016) and Gerakos, Linnainmaa, and Morse (2016).

## The Rules:  Data and Time Horizon

The products and returns studied come from the eVestment manager database, with a specific focus on U.S. equity products available for investment during Q2 2000.  Starting the clock there creates a maximum potential track record of 100 quarters.  While many new products were launched within that timeframe, they did not have to survive as long, or through as many economic shocks, to reach the finish line.  For that reason, new product launches are excluded from the analysis.  The starting products are themselves divided into six groups based on their specified Russell benchmark indices[5], and filtered out for any hedge fund or fixed income-phrased product names[6].

A quarter-century time horizon may seem impractical, as personnel changes and shifting investment philosophies can occur over times of that length.  However, an earlier whitepaper[7] revealed that the time horizon needed for statistical evidence of outperformance requires a long series of returns – roughly around this length – based on Information Ratios reported for surviving firms.

Even with such a long horizon, the specific sample of Q2 2000 to Q1 2025 still contains some powerful market forces which do not balance out neatly.  The early 2000s include the aftermath of the Dot-Com Bubble but none of its build-up.  That clean split helps many Value managers get off to a strong start in this sample, when their live experiences at the time was one of relief for finally turning the corner on the "Irrational Exuberance" of the late 1990s.  At the other bookend, the dominance of Mega-Cap Technology stocks such as the "FANG" or "Magnificent 7" monikers made it incredibly difficult for Large Core and Growth managers to outperform during the later years of the horizon.

## The Players:  Survivors and Drop-Outs

There were 1,234 distinct products in the eVestment database at Q2 2000 using the above filters, with over 100 in each of the six groups.  Figure 2 plots the decay of each group's live product count over time.  Each one sees a steady and substantial degradation:  the best survival rate was only 50% (Small Cap Value), while in aggregate only 33% of the starting products made it to the finish line of Q1 2025.

Surprisingly, the rate of decay is fairly steady over time.  There are no visible "mass extinction events" following economic shocks like the Financial Crisis or Covid-19 pandemic, nor is there a visible acceleration after the Financial Crisis, when asset flows towards passive investment products increased.

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[5] Russell 1000 and 2000 Value, Core, and Growth indices, although for Large Cap Core, products using the S&P 500 as their preferred benchmark are also included, as that S&P benchmark is unusually prominent in that style domain.

[6] For example, product names containing phrases like "market neutral," "130/30," or "dividend income" are excluded.

[7] See Lewis (2022) "How Confident is the Information Ratio?"

**Figure 2:  Number of Q2 2000 Products Still Reporting Returns**

Quarterly count of U.S. equity products from Q2 2000 still reporting returns to the eVestment database.  All six plots run from Q2 2000 to Q1 2025.
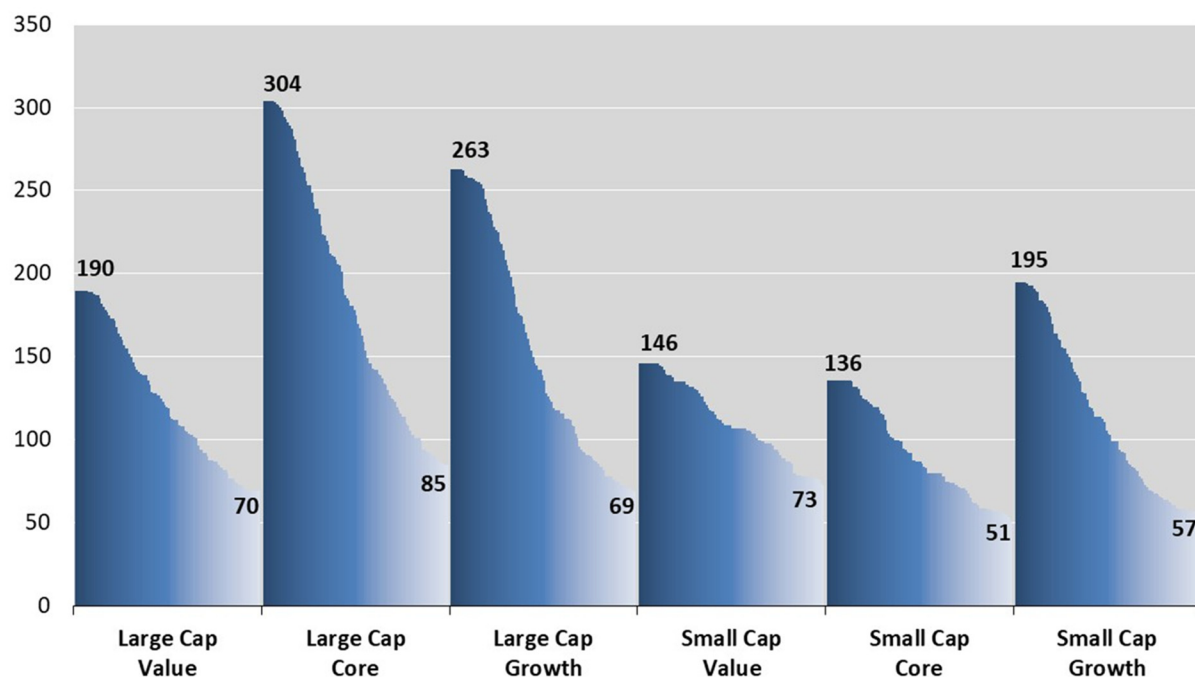


Source:  eVestment, FTSE Russell, and WEDGE Capital Management.

Note:  Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and product name.

Figure 2 illustrates the magnitude of Survivorship Bias, as two-thirds of the relevant competitors' data typically does not appear in performance rankings.  But what causes the non-survivors, or "Drop-Outs" to leave?  Surely some of them were weak performers who closed due to frustrating performance, but others may have been strong performers that attracted a buyout offer from a larger firm.  If those situations balance out, there wouldn't be much "bias" in looking only at the performance data of surviving products.

Table I shows the trailing 3 and 5-year relative returns of Drop-Out products prior to their leaving the database[8].  Within each style group, products are ranked into percentiles, with relative returns calculated against each group's specific Russell benchmark, up to each product's unique point of disappearance.

Both types of exits posited earlier seem to appear, but they are not in balance.  The very top decile of Drop-Out firms saw attractive levels of outperformance before they vanished – certainly enough to cover any fees.  However, the median product underperformed in all cases prior to their departure, and many of the top quartile Drop-Outs would have been struggling to cover their fees.

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[8] "Leaving the database" means the quarter where they cease to report new returns in the database.

**Table I:  Drop-Out Performance before Disappearance**

Percentile breakpoints of trailing, annualized relative returns (in gross %s) prior to each product's disappearance from eVestment.

"Drop-Out" products report gross returns for Q2 2000, but cease reporting returns by Q1 2025.

| Breakpoint | Large Cap | | | Small Cap | | |
|---|---|---|---|---|---|---|
| | **Value** | **Core** | **Growth** | **Value** | **Core** | **Growth** |
| **Panel A:  Preceding 3Y Relative** | | | | | | |
| Top Decile | 1.90 | 1.91 | 1.78 | 2.88 | 3.29 | 3.72 |
| Top Quartile | 0.12 | -0.17 | -0.15 | 0.58 | 0.49 | 0.64 |
| Median | -1.60 | -1.21 | -1.79 | -1.32 | -1.31 | -2.09 |
| Bottom Quartile | -3.10 | -2.76 | -3.55 | -3.58 | -3.62 | -4.60 |
| Bottom Decile | -5.69 | -4.40 | -5.62 | -5.32 | -5.31 | -7.45 |
| **Panel B:  Preceding 5Y Relative** | | | | | | |
| Top Decile | 1.34 | 1.31 | 2.24 | 2.01 | 2.59 | 3.47 |
| Top Quartile | 0.23 | 0.26 | 0.53 | 0.58 | 1.18 | 0.32 |
| Median | -0.74 | -0.88 | -1.08 | -0.77 | -0.39 | -2.20 |
| Bottom Quartile | -2.01 | -1.95 | -2.39 | -2.29 | -2.64 | -3.76 |
| Bottom Decile | -4.02 | -3.31 | -4.05 | -4.18 | -4.01 | -5.51 |

Source:  eVestment, FTSE Russell, and WEDGE Capital Management.

Note:  Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and product name.  Relative returns are calculated with respect to the appropriate Russell benchmark index for each style box.  Return series that did not last for a full 3 or 5-year horizon are excluded from the rankings.

The full histories of Drop-Outs are not quite as gloomy though.  Figure 3 graphs their complete track records (Q2 2000 up until disappearance), as well as the 25-year returns of surviving products ("Survivors").  Only the average outperformance within each group is shown; the complete distributions around those averages are quite wide, and overlap between Survivors and Drop-Outs in all cases.

Aggregated across the six styles, Survivors outperformed the Drop-Outs by 0.86% per year, on average.  Within the style buckets, all but one shows a significant difference in average alphas[9], with Large Cap Core being the one case indistinguishable from zero.  Large Growth also stands out in that its difference has the "wrong" sign:  Drop-Outs there had better track records than Survivors!  That divergent finding is caused by the sustained outperformance of "Magnificent 7" stocks and their large weights in the Russell 1000 Growth Index.  Surviving Large Growth managers made it to the later years of the data sample only to face a tidal wave of headwinds from those stocks, whereas Drop-Outs may have left the sample early enough to be spared that fate.

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[9] Technically it is annualized relative returns being averaged across products, not a CAPM or factor regression alpha.  Style-appropriate benchmarks are used for the relative returns, which in practice is often enough to use "alpha" interchangeably.

**Figure 3:  Long-Term Performance of Survivors and Drop-Outs**

U.S. equity products reporting quarterly, gross returns to the eVestment database for the Q2 2000 quarter, separated by style benchmarks.

Units shown are annualized, gross relative returns (in %s) across products, from Q2 2000 until either Q1 2025 or disappearance.

"Survivors" are products reporting returns from Q2 2000 through Q1 2025.  "Drop-Outs" also report Q2 2000 but cease reporting returns by Q1 2025.
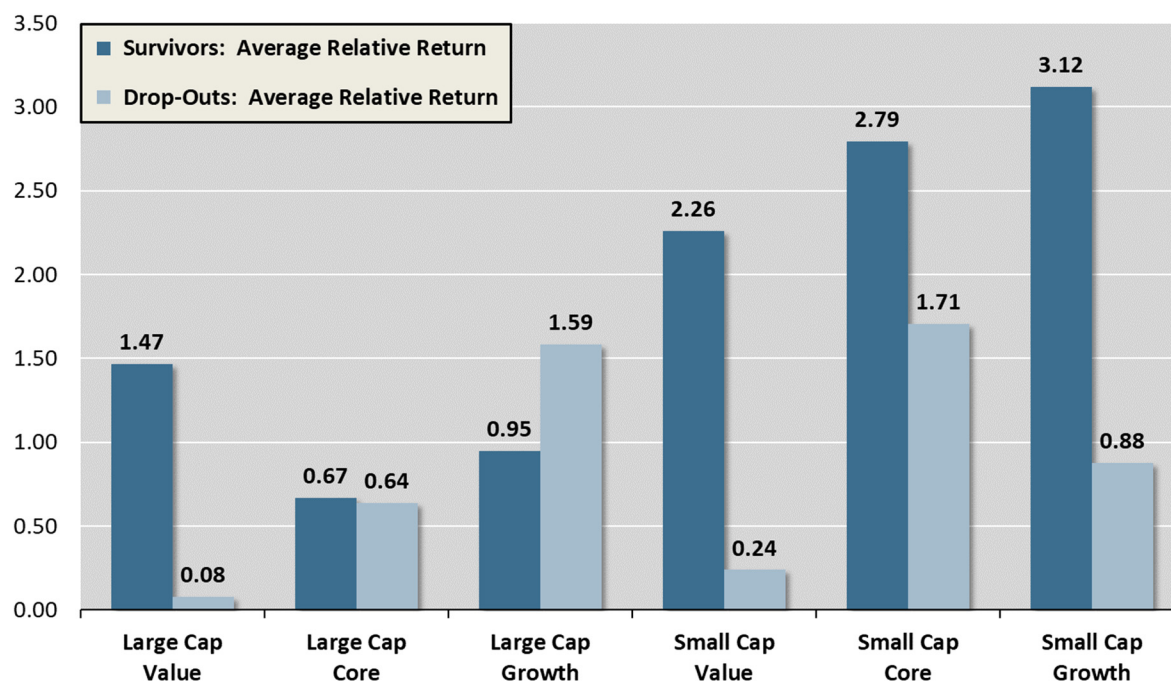


Source:  eVestment, FTSE Russell, and WEDGE Capital Management.

Note:  Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and strategy name.  Relative returns are calculated with respect to the appropriate Russell benchmark index for each style box.

## The Scorecard:  Product Return Rankings

The average product alphas shown in Figure 3 can be expanded into percentile rankings, which is a common analysis by asset owners looking to compare managers and their product offerings.  Table II contains three layers showing how that classic analysis can be corrected for Survivorship Bias.  Panel A presents the breakpoints of relative performance for only the Survivors, which is the naïve result that typically appears in manager databases.  Panel B merges the annualized relative returns of Drop-Outs – for as much history as each posted – directly with the Panel A data, as a "Raw Union" of the two groups.  Panel C takes an intermediary step first, by filling in all missing returns for Drop-Outs with their benchmark's return, and then merging those results with the Survivors (a "Passive Union").

While Panel B provides the most direct approach to account for Drop-Out returns, the varying time horizons across products introduces a comparability problem.  Particularly at the extremes, it is unlikely the Drop-Out managers would have been able to sustain that pace of performance across a full 25 years.  Top-performing Drop-Outs may have caught some favorable breaks, and the worst performers may have gotten specific bets, exposures, or timing calls wrong, but never made it through to see a less punishing

environment.  A 2013 paper (Linnainmaa) makes this point explicitly:  placing too much emphasis on Drop-Outs' limited track records can create a "Reverse Survivorship Bias" problem.  In theory, a manager who persistently picks underperforming stocks should be a valuable resource, if only to apply their picks backwards at a hedge fund, so it seems unrealistic to assume persistence of such (negative) skill in those bottom-tier Drop-Out cases.

Panel C's approach ranks every product on 25 years of returns, with the Drop-Out cases implicitly assuming their clients switched to a free, passive benchmark after the product closed.  Alternatively, filling in index returns could be viewed as a Null Hypothesis where no manager is thought to have skill.

**Table II:  Long-Term Performance Percentiles**

Percentile breakpoints for annualized, gross relative returns (in %s) from Q2 2000 through either Q1 2025 or point of disappearance.
"Survivors" are products reporting returns from Q2 2000 through Q1 2025.  "Drop-Outs" also report Q2 2000 but cease reporting returns by Q1 2025.
For each Drop-Out, post-disappearance quarters are either ignored ("Raw Union") or filled in with zero-alpha benchmark returns ("Passive Union").
Breakpoints may not reflect specific products.  Panels B and C assume hypothetical extensions of performance.  Please see disclaimer section for details.

| Breakpoint | Large Cap | | | Small Cap | | |
|---|---|---|---|---|---|---|
| | Value | Core | Growth | Value | Core | Growth |
| **Panel A:  Survivors Only** | | | | | | |
| Top Decile | 2.52 | 2.13 | 2.36 | 3.98 | 4.63 | 5.47 |
| Top Quartile | 2.18 | 1.32 | 1.71 | 2.97 | 3.65 | 4.52 |
| Median | 1.44 | 0.65 | 0.93 | 2.00 | 2.70 | 3.10 |
| Bottom Quartile | 0.72 | 0.14 | 0.49 | 1.53 | 1.98 | 1.62 |
| Bottom Decile | 0.05 | -0.98 | -0.23 | 0.88 | 1.27 | 1.11 |
| | | | | | | |
| **Panel B:  Raw Union** | | | | | | |
| Top Decile | 2.35 | 3.06 | 4.38 | 3.85 | 4.84 | 5.81 |
| Top Quartile | 1.73 | 1.81 | 2.52 | 2.50 | 3.49 | 3.80 |
| Median | 0.78 | 0.63 | 1.16 | 1.60 | 2.11 | 1.65 |
| Bottom Quartile | -0.28 | -0.51 | 0.12 | 0.48 | 0.96 | -0.49 |
| Bottom Decile | -1.32 | -1.60 | -1.38 | -1.19 | -0.43 | -3.31 |
| | | | | | | |
| **Panel C:  Passive Union** | | | | | | |
| Top Decile | 2.22 | 1.71 | 2.03 | 3.32 | 3.89 | 4.11 |
| Top Quartile | 1.39 | 1.07 | 1.42 | 2.18 | 2.55 | 2.62 |
| Median | 0.44 | 0.38 | 0.72 | 1.31 | 1.56 | 0.96 |
| Bottom Quartile | -0.09 | -0.21 | 0.06 | 0.32 | 0.48 | -0.29 |
| Bottom Decile | -0.64 | -0.76 | -0.52 | -0.34 | -0.18 | -1.24 |

Source:  eVestment, FTSE Russell, and WEDGE Capital Management.

Note:  Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and product name.  Relative returns are calculated with respect to the appropriate Russell benchmark index for each style box.

The median performer in Table II outperforms their benchmark in every case, although in Large Cap the they may have difficulty justifying high fees. The top quartiles and deciles are stronger than the bottom ones are weak, which is how the average returns in Figure 3 are noticeably higher than the medians in Table II.

## The Twist: Stumbles are Inevitable

Reality game shows typically have some surprises in their progression, and this analysis is no different. Based on the underwhelming Drop-Out performance in Table I, it might seem reasonable to assume asset owners have mechanical rules against short-term underperformance, like a "Stop Loss" protection managers themselves might put on individual stocks.

Table III undercuts that assumption: Survivors experienced bouts of underperformance within their 25 years that were much worse than what the Drop-Outs had before disappearing. Even the top decile Survivors suffered annualized underperformance of around 2% or more during a three-year period.

**Table III: Survivors' Worst Stretches of Performance**

Percentile breakpoints of Survivors' worst annualized relative return outcome (in gross %s) within the 25 years from Q2 2000 – Q1 2025.
"Survivors" are products reporting returns from Q2 2000 through Q1 2025.

| Breakpoint | Large Cap | | | Small Cap | | |
|---|---|---|---|---|---|---|
| | **Value** | **Core** | **Growth** | **Value** | **Core** | **Growth** |
| **Panel A: Worst 3Y Relative** | | | | | | |
| Top Decile | -1.97 | -2.05 | -3.75 | -2.18 | -2.50 | -3.16 |
| Top Quartile | -3.24 | -3.10 | -4.50 | -3.11 | -3.07 | -4.40 |
| Median | -4.13 | -4.48 | -5.50 | -5.13 | -4.34 | -6.55 |
| Bottom Quartile | -6.01 | -6.29 | -7.72 | -7.04 | -6.14 | -8.49 |
| Bottom Decile | -8.53 | -8.40 | -9.55 | -10.28 | -7.78 | -10.38 |
| **Panel B: Worst 5Y Relative** | | | | | | |
| Top Decile | -1.03 | -1.28 | -2.36 | -0.50 | -0.81 | -1.03 |
| Top Quartile | -1.42 | -2.03 | -2.99 | -1.32 | -1.51 | -2.09 |
| Median | -2.56 | -2.95 | -3.91 | -2.84 | -2.38 | -3.01 |
| Bottom Quartile | -3.97 | -4.51 | -5.55 | -4.27 | -4.05 | -4.72 |
| Bottom Decile | -5.17 | -5.55 | -6.90 | -6.32 | -4.75 | -7.58 |

Source: eVestment, FTSE Russell, and WEDGE Capital Management.

Note: Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and product name. Relative returns are calculated with respect to the appropriate Russell benchmark index for each style box.

The depths of underperformance in Table III offer a good litmus test for asset owners considering whether to stick with active management or switch to passive.  If the client or their board, trustees, etc. could never live with short-term underperformance like that, then passive might be a better option, since any "Stop Loss" rule at those levels would have fired all the Survivors!  Given the performance gap between Survivors and Drop-Outs, any formula that moves away from Survivors is not a helpful one.

Of course, there are other data points and metrics available beyond just recent returns.  A likely explanation for Table III is that short-term underperformance triggers more detailed reviews and in-depth meetings with the investment manager.  Performance on those metrics[10], and in those meetings, then, is what ultimately informs who gets voted out and who stays in the game.

## Concluding Remarks

Survivorship Bias is the tendency to omit failures from analysis.  In practice, many investors are aware of the concept but ignore it, not unlike the public's attention span for *Survivor* after 48 seasons on the air. However, in both television and investing, credit should be given for sustaining the same product through a highly competitive environment over a long time horizon.

Across a 25-year study, twice as many investment products dropped out as survived through it.  The Survivors outperformed Drop-Outs by 0.86% per year, on average, so accounting for Survivorship Bias can easily shift manager performance rankings, change the subset of "finalists" invited for meetings, and influence the final voting process as well.  Similarly, the timeless "Active vs. Passive" debate can be heavily swayed by whether (and how) Drop-Out performance is counted.

Among the Survivors, nearly every product endured 3 and 5-year stretches of underperformance along the way – worse in fact than what Drop-Outs had before they closed.  An important lesson, then, is that underperformance at those horizons is not conclusive evidence on its own that a strategy is doomed. Negative returns tend to bring negative emotions, so when those cases arise, it is important to broaden the scope of analysis to longer-term return histories and other data metrics.

Ultimately, the ability to withstand difficult stretches of performance may be the key to long-term success.  In that perspective higher returns are earned, as a form of compensation, for not panicking during the tough times.  Reality television fans know this lesson already:  no participant can win every little contest en route to the grand prize, sooner or later they will find themselves on the hot seat. When that moment comes, enduring through the pressure is what makes a true "Survivor."

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[10] Two alternatives that could be measured in a time series alongside returns are valuation spreads and holdings-level batting averages, both of which have been written about previously (see Lewis 2020 and 2022).

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*The performance data presented in this white paper is based manager universe data sourced from eVestment as of May 2025. Subsets of the performance data presented in Table II are based on hypothetical extensions of this performance data. The methodology used to filter or manipulate this data is for illustrative purposes only and does not reflect the results of an actual portfolio, product, or service currently offered. Hypothetical performance is inherently limited and does not reflect the impact of actual trading or market conditions. The inclusion of manager fees would reduce the performance presented in all cases. Past performance, whether actual or hypothetical, is not indicative of future results. A fee was paid to eVestment for the use of this data.*

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## Appendix

Table A1 presents calculations for Difference of Means tests on the average relative returns plotted in Figure 3.  For each style group the test is whether average, annualized relative returns for the true population of Survivors are different than those of the true population of Drop-Outs, with the complete track record of each product serving as one sample data point[11].

The far-right column combines all six styles into a single test of Survivor vs. Drop-Out average relative returns.  In that case, raising the sample sizes shrinks the standard errors, which is how the aggregate significance (t-statistic) exceeds that of any individual style box.

**Table A1:  Difference of Means Tests**

U.S. equity products reporting quarterly, gross returns to the eVestment database for the Q2 2000 quarter, separated by style benchmark.
"Survivors" are products reporting returns from Q2 2000 through Q1 2025.  "Drop-Outs" also report Q2 2000 but cease reporting returns by Q1 2025.

| Cross-Sectional Metric | Large Cap | | | Small Cap | | | Grand |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | Value | Core | Growth | Value | Core | Growth | Total |
| Survivors:  Mean Relative Return | 1.47 | 0.67 | 0.95 | 2.26 | 2.79 | 3.12 | 1.75 |
| Drop-Outs:  Mean Relative Return | 0.08 | 0.64 | 1.59 | 0.24 | 1.71 | 0.88 | 0.89 |
| Difference:  Survivors − Drops | 1.39 | 0.03 | -0.64 | 2.02 | 1.09 | 2.24 | 0.86 |
| Survivors:  Number of Products | 70 | 85 | 69 | 73 | 51 | 57 | 405 |
| Drop-Outs:  Number of Products | 120 | 219 | 194 | 73 | 85 | 138 | 829 |
| Survivors:  Standard Deviation | 1.09 | 1.16 | 1.13 | 1.25 | 1.40 | 1.84 | 1.58 |
| Drop-Outs:  Standard Deviation | 2.35 | 2.55 | 3.24 | 3.08 | 3.18 | 5.36 | 3.45 |
| Standard Error | 0.25 | 0.21 | 0.27 | 0.39 | 0.40 | 0.52 | 0.14 |
| t-statistic | [5.52] | [0.14] | [-2.36] | [5.18] | [2.73] | [4.33] | [6.00] |

Source:  eVestment, FTSE Russell, and WEDGE Capital Management.

Note:  Standard deviation is cross-sectional across products, of each product's annualized relative return for the complete time horizon where they report returns, starting in Q2 2000 and ending at either Q1 2025 or product's disappearance.  Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and product name.  Relative returns are calculated with respect to the appropriate Russell benchmark index for each style box.

Table A2 expands on the relative drawdown data in Table III by considering every possible quarterly time horizon for surviving products, rather than 3 and 5-year periods specifically.  A 25-year data sample allows for 5,050 distinct quarterly time horizons; Table A2 finds the worst *cumulative* relative return among those possibilities for each product (the "Maximum Relative Drawdown"), and then ranks

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[11] Counting each product as a single, independent observation is not ideal, as Survivors have more data available to build their sample means than Drop-Outs do, and there may also be contemporaneous correlation effects across products.  For the former, cross-sectional standard deviations are already lower for Survivors than for Drop-Outs, despite there being fewer Survivors, so that concern seems mild.  The latter is an issue of standard error precision, and could impact the t-statistics.

products into percentiles by that metric.  Cumulative returns are preferrable to annualized returns in this case because the length of each product's Maximum Relative Drawdown will not be the same (e.g. losing 1% annually over twenty years is worse than losing 5% annually over three years).

Panel B sorts products by the length of time their Maximum Relative Drawdown took place, measured from the previous high-water mark to the nadir of underperformance.

**Table A2:  Survivors' Maximum Relative Drawdowns**

Percentile breakpoints of Survivors' worst cumulative relative return possible (in gross %s) within the 25 years from Q2 2000 – Q1 2025.
"Survivors" are products reporting returns from Q2 2000 through Q1 2025.

| Breakpoint | Large Cap | | | Small Cap | | |
|---|---|---|---|---|---|---|
| | Value | Core | Growth | Value | Core | Growth |
| **Panel A:  Maximum Relative Drawdown** | | | | | | |
| Top Decile | -10.96 | -17.05 | -69.71 | -12.09 | -11.80 | -17.83 |
| Top Quartile | -16.83 | -38.17 | -138.82 | -19.53 | -19.64 | -23.72 |
| Median | -31.84 | -102.37 | -207.12 | -32.52 | -29.86 | -35.10 |
| Bottom Quartile | -56.77 | -196.61 | -315.90 | -49.51 | -49.64 | -54.82 |
| Bottom Decile | -101.84 | -325.25 | -437.34 | -78.73 | -79.73 | -96.46 |
| | | | | | | |
| **Panel B:  Length of Max R.D.D. (Years)** | | | | | | |
| Top Decile | 3.00 | 4.95 | 13.75 | 1.00 | 1.25 | 2.15 |
| Top Quartile | 5.31 | 11.50 | 15.75 | 2.50 | 2.75 | 4.50 |
| Median | 10.25 | 15.75 | 16.00 | 5.75 | 6.00 | 5.75 |
| Bottom Quartile | 14.25 | 19.25 | 20.25 | 12.00 | 12.25 | 9.00 |
| Bottom Decile | 18.75 | 22.25 | 22.25 | 14.05 | 16.00 | 17.95 |

Source:  eVestment, FTSE Russell, and WEDGE Capital Management.

Note:  Starting products are filtered for homogeneity within each style box, according to returns reporting method (gross of fees only), preferred benchmark index, and product name.  Relative returns are calculated with respect to the appropriate Russell benchmark index for each style box.

The results of Table A2 are striking, especially since Survivorship Bias would suggest this pool of surviving products might look better than the true, complete population.  Even the best Survivors can see double-digit drawdowns to relative performance that extends for many years.  The recent devastation in Large Growth (and its partial impact on Large Core) also stands out for both the magnitude and duration of underperformance.

Value managers exhibited smaller relative drawdowns than their Growth counterparts do at every breakpoint, which is not uniquely tied to the Large Growth headwinds mentioned above – the same effect also appears for Small Cap products.