Active Investment Management Tends to Outperform Passive When U.S. Equity Markets Turn Turbulent

Although index funds have developed a reputation for outperforming actively-managed funds during sustained bull markets, the Thrivent Mutual Funds Active vs. Passive Management Study determined that when U.S. equity markets have turned turbulent, actively-managed, no-load mutual funds—both domestic large cap core and small cap core stock funds—have significantly outperformed their corresponding indexes.

Key topics covered in the report include:

- Dot-Com Crash Performance
- Global Financial Crisis Performance
- Small Stocks Performance
- Other Benefits of Active Management
- Research & Results
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Introduction

Index funds came of age in the roaring 1990s, an era when, as pundits put it, a monkey could throw a dart at a stock table and double his money. It was the perfect breeding ground for an unmanaged investment vehicle, such as index funds, that thrived on the high octane performance of a sustained bull market.

The early success of index funds brought an extra swagger to “passive” investment proponents, who made the claim that they could outperform 90% of actively-managed funds simply by buying an index fund that essentially mirrored the performance of the market.1

But in the nearly two decades since the tech stock run-up, the comparative performance of actively-managed funds during several waves of market turbulence has seriously undermined the validity of that hypothesis. Actively-managed no-load mutual funds within the categories we studied, on average, performed measurably better than the category’s primary index (Lipper Large Cap Core4 vs. the S&P 500 Index3 and Lipper Small Cap Core4 vs. the Russell 2000 Index5) during the Dot-Com Crash of 2000–2003, as well as during the Global Financial Crisis of 2007–2009, based on performance during a series of rolling 12-month periods.

In fact, as the Thrivent Mutual Fund Active vs. Passive Study reveals, those indexes, on average, trailed their corresponding groups of actively-managed, no-load funds during the entire decade of 2000–2009. Moreover, the Russell 2000, on average, has trailed its corresponding universe of no-load actively-managed small cap core funds over the past quarter of a century, in spite of the fact that this time period included the two longest bull market runs in U.S. history.

In other words, despite earlier claims of passive investment proponents, index funds offer no assurance of outperforming actively-managed funds during either short or extended periods of the market.

Our study, we found that, as a group, actively-managed no-load funds did do a better job of preserving investor assets during the bear markets and volatile market periods of this century.

Next we highlight some of the key findings of the study comparing performance between no-load managed funds and the two indexes during the two recent bear markets and the volatile decade of January 1, 2000, through December 31, 2009.

Later in this article, you can find additional performance tables and charts, as well as further details on our research and ratings methodology.

Large Cap Core Stocks

As discussed previously, the S&P 500 Index generally lagged most of the actively-managed, no-load funds in the Lipper Large Cap Core category during the two most recent extended periods of market turmoil.

As the graph below shows, the S&P 500 would have ranked in the bottom half of the no-load large cap core fund universe during 100% of the 31 rolling 12-month periods from September 30, 2000 through March 31, 2003.

Dot-Com Crash S&P 500 Index Performance

Frequency that the S&P 500 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Large Cap category. Rolling 12 month periods, Sept. 30, 2000 – March 31, 2003

One of the covenants of active fund management is to attempt to preserve investors’ assets in difficult times. In
As the following graph shows, the S&P 500 Index would have ranked in the bottom half of the no-load large cap core fund universe during 93% of the 29 rolling 12-month periods from July 2007 through July 2009.

Global Financial Crisis S&P 500 Index Performance
Frequency that the S&P 500 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Large Cap category. Aug. 31, 2007 – Dec. 31, 2009

As the next graph illustrates, the Russell 2000 Index would have ranked in the bottom (4th) quartile of the small cap category during 90.3% of the 31 rolling 12-month periods from September 30, 2000 through March 31, 2003, and would have ranked in the bottom half 100% of the time.

Global Financial Crisis Russell 2000 Index Performance
Frequency that the Russell 2000 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Small Cap category. Rolling 12 month periods, Aug. 31, 2007 – Dec. 31, 2009

In sharp contrast to the previous decade when index funds excelled, the S&P 500 Index would have ranked in the first quartile of the no-load large cap core fund universe during fewer than 1% of the 109 rolling 12-month periods from January 2000 through December 31, 2009. It would have ranked in the bottom half of that universe 66% of the time, as the graph below demonstrates.

Decade of 2000–2009 S&P 500 Index Performance
Frequency that the S&P 500 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Large Cap category. Rolling 12 month periods, Jan. 1, 2000 – Dec. 31, 2009

During the Global Financial Crisis, the Russell 2000 did better than the S&P 500 on a relative basis. Although the Russell 2000 would not have ranked in the top quartile during any of the 29 rolling 12-month periods from July 2007 through July 2009, it would have ranked in the 2nd quartile 41.4% of the time, as the next graph demonstrates. (By comparison, as was shown earlier, the S&P 500 Index would have ranked in the 2nd quartile of its large cap core universe only 6.9% of the time—and the 1st quartile 0%—during the same period.)

Small Cap Core Stocks
We also noted a similar trend when examining the average performance of the universe of no-load funds of the Lipper Small Cap Core Category versus the Russell 2000 Index of small cap core stocks, although actively-managed no-load small cap core funds shined the brightest relative to the Russell 2000 Index during the Dot-Com Crash.

Dot-Com Crash Russell 2000 Index Performance
Frequency that the Russell 2000 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Small Cap category. Rolling 12 month periods, Sept. 30, 2000 – March 31, 2003

Global Financial Crisis Russell 2000 Index Performance
Frequency that the Russell 2000 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Small Cap category. Rolling 12 month periods, Aug. 31, 2007 – Dec. 31, 2009

Source: Lipper, Thrivent Mutual Funds®
The next graph shows that during the decade of 2000–2009, the Russell 2000 Index would have ranked in the bottom half of the no-load small cap core fund universe during 65.2% of the 109 rolling 12-month periods from January 2000 through December 31, 2009. It would have ranked in the top quartile only 7.3% of the time.

Decade of 2000–2009 Russell 2000 Index Performance
Frequency that the Russell 2000 Index would have ranked in each quartile of actively-managed, no-load funds in the Lipper Small Cap category. Rolling 12 month periods, Jan. 1, 2000 – Dec. 31, 2009

While these trends may not apply to every specific index and category, we feel they are generally representative of the broader domestic equity markets.

A Closer Look at Other Benefits of Actively-Managed Fund Traits

While passive investing in index funds generally come with lower fees and the potential for better performance during bull markets, here are some of the key benefits of actively-managed funds.

• **Flexibility.** Some managed funds have done better than index funds during down markets due, in part, to the fact that fund managers have had the ability to make some adjustments in their portfolios to reduce the stocks or sectors that appear the most problematic. Investment managers can also use risk management techniques and diversification that seek to provide similar returns to the market with lower risk and volatility.

• **Help when needed most.** A rising tide lifts all boats. Ever since the Federal Reserve launched quantitative easing activities intended to stabilize the economy and lower interest rates, all of that extra capital in the system has flowed to equities across the board, boosting market returns while greatly increasing correlations among stocks. That means that all equities, even stocks that many active managers think are unattractive, have generally gone up together, with higher risk companies that carry more debt on their books actually leading the way as the low interest rates have distorted the risks inherent in holding too much debt. That’s been an advantage for index funds, since they own all equities, even those presumably “higher risk” stocks that active managers are avoiding. But while an index fund may (or may not) offer better returns in a bull market, active managers tend to provide their greatest value during bear markets when investors need their help the most. Normally, and particularly so in bear markets, stocks experience a wide variety of rates of return, meaning that index funds will be exposed to both the good performers and the bad, while active managers have a better opportunity to avoid those bad performers.

• **A chance to beat the market.** The fact is index funds perpetually trail the market by a small margin. Their costs, while minimal, create a small differential between the market performance and their own returns. As the study demonstrates, in any given year, actively-managed funds can, and have, outperformed the market.

• **Active funds have responded by lowering fees.** Actively-managed mutual funds have responded to the low fees of index funds by lowering their own fees over the past 20 years. According to the Investment Company Institute, the average equity mutual fund expense ratio was 1.08% in 1994 and dropped to just 0.68% in 2015. The lower fees would add, on average, about 0.40% per year to the returns of actively-managed funds. With all other expenses remaining the same, in general, lowering fees results in an increase to the total returns of equity mutual funds.

• **Limiting market losses can speed up your recovery.** Actively-managed funds may not always cut your losses, but if you are successful in reducing your losses in a down market through an actively-managed fund, the road to recovery becomes much easier. In fact, the bigger the loss, the more difficult it becomes to recover from that loss. For instance, for a 5% loss, you would need a gain of 5.26% to
restore your portfolio to its previous level. But with a 20% loss, you would need a gain of 25% to get back to even; a 30% loss would require a gain of 42.9% to fully recover; and a 50% loss would require a 100% gain to bring the portfolio back to its previous level.

In terms of pure long-term performance, index funds may (or may not) have a slight edge. But when the chips are down and the markets are reeling, the Thrivent Mutual Funds study suggests that you may be better served to have an active manager in your corner making the crucial decisions.

Background

Indexes, such as the S&P 500 and Russell 2000, were originally created to serve as a benchmark to determine performance averages and to provide an indication of the direction of the segment of the market it represents. They were not created to serve as an investment vehicle or as a resource to identify attractive companies for investment. In fact, an index, by definition, is merely an average of all of the stocks of the companies it represents. You cannot invest directly in an index.

Index mutual funds and exchange-traded funds (ETFs) came into vogue in the early 1990s when investors began to realize that most actively-managed stock mutual funds were trailing their respective indexes most years (see “S&P 500 Index Percentile Frequency in Lipper Large Cap Core Universe” graph on page 10). Index funds mirror the composition of an index, such as the S&P 500, and are not actively-managed. Since they are not actively-managed, index funds are considered “passive” investments.

Mutual funds that are managed by a portfolio manager or team of managers who regularly buy, sell and adjust the holdings of the fund are considered “actively-managed.” At first blush, you might believe that active management would be the better option because it means that an investment manager is actively monitoring and adjusting the portfolio as the market and economy go through their ongoing cycles of change.

However, passive investment proponents contend that investors might be better served to simply buy index funds and forgo active management. Among their contentions is that index funds cost less—typically with annual fees that range between 0.1% to 0.25% per year versus managed funds that average about 0.70% and may reach as high as 1.5% per year (and sometimes even higher). The lower fees would give index fund investors an edge in real returns—assuming all other factors are equal. But passive investment proponents have gone a step further, contending that index funds may also outperform most managed funds in a rising market even without the edge in fees.

That contention is based partly on the fact that index funds remain 100% invested in stocks at all times. Many large cap core funds may hold 1% to 10% of assets (or more) in money market funds which currently have rates up to about 0.1% (one-tenth of one percent), so they are getting almost no return from those holdings. That means that a fund with 5% cash or short-term bonds is only getting about 95% of the available growth in an up market.

And, indeed, through the bull market years of the 1990s—as well as during the bull market run from mid-2009 through 2016—the S&P 500 index funds generally outperformed the corresponding universe of actively-managed funds that came with higher fees and a small percentage of investments other than stocks.

But our reexamination of the performances of the S&P 500 Index and the Russell 2000 Index versus the universe of corresponding actively-managed domestic funds during rocky periods of the market—particularly during the decade from 2000–2010—makes a strong case that there are periods when investing in actively-managed funds offers some tangible advantages over index funds.

Research Method

The Thrivent Mutual Funds Active vs. Passive Study focused first on the most commonly traded index fund universe—those that mirror the S&P 500 Index. As of July 31, 2016, almost $340 billion in ETF assets were tracking the S&P 500, more than five times larger than the next highest index, according to Morningstar. With a growing number of fund companies eliminating or de-emphasizing funds with sales loads, we decided to focus on no-load funds, removing loaded funds from the study group. In order to focus solely on actively-managed funds, we also removed all mutual funds and ETFs that tracked an index, forming a customized version of the Lipper Large Cap Core Category that could represent no-load actively-managed funds. We then compared the S&P 500 Index to that actively-managed, no-load peer group.
To expand the study and gain further insight, we also examined the performance of the Russell 2000 Index of small stocks versus the universe of actively-managed no-load funds in the Lipper Small Cap Core Category—again removing all ETFs and mutual funds that tracked an index.

While we also considered including comparative performance from other time periods, such as the volatile 1970s and the relatively bullish 1980s, we ultimately determined that a lack of reliable performance information on the full universe of funds on the market during those periods would have skewed and, thus, invalidated the results. Many funds have discontinued operation since the 1970s and 1980s, and standard fund performance data typically does not include the performance of discontinued funds. The peer groups include only funds that exist today, 463 Large Cap Core and 489 Small Cap Core funds for the most recent time period. A total of 120 of those Large Cap Core funds existed at the beginning of 2000, while 101 of the Small Cap Core funds did, but only 38 of the Large Cap Core and 15 of the Small Cap Core funds had a full 25 years of history.

So going back even further would have reduced the peer group to a sample size far too small to provide a reliable comparison.

Measuring Index Performance

To compare performance between the indexes and the corresponding groups of actively-managed no-load funds, we selected several key periods in the market and broke those time periods into a series of rolling 12-month segments. Performance of the indexes was compared to the performance of the corresponding groups of actively-managed no-load funds during each one of the rolling 12-month periods throughout the course of each relevant time period.

Results are broken down by quartiles, wherein a ranking within the 1st or “highest” quartile represents performance among the top 25% of all funds in the category, while a ranking in the 4th or “lowest” quartile represents a performance level in the bottom 25% of all funds. The results in the accompanying charts and tables below are represented by the percent of 12-month periods the index fund would have ranked in each quartile over the full course of the featured time period.

For example, during the decade of January 1, 2000, through December 31, 2009, there were a total of 109 rolling 12-month periods, and the S&P 500 Index would have ranked in the highest quartile during only 10 of those 109 12-month periods—which equals 9.1% of the total.

Time Periods

The time periods we examined, which are detailed in a series of tables in the following section, included:

- A total of 31 rolling 12-month periods covering the lead-up to and aftermath of the Dot-Com Crash, from October 1, 1999, through March 31, 2003 (which means the first data point covers October 1, 1999, through September 30, 2000);
- A total of 29 rolling 12-month periods covering the lead-up to and aftermath of the Global Financial Crisis, from September 1, 2006, through December 31, 2009 (which means that the first data point covers September 1, 2006, through August 31, 2007);
- A total of 109 rolling 12-month periods from January 1, 2000, through December 31, 2009.
- We also calculated 21st century results from January 1, 2000, through June 30, 2016, as well as 25-year results from June 30, 1992, through June 30, 2016. Those results are included among the tables and charts in the next section.

Results

The two tables below show how the indexes performed relative to the universe of no-load managed funds during the two most recent bear markets—the Dot-Com Bust of 2000–2003 and the Global Financial Crisis of 2007–2009. The numbers demonstrate that the indexes significantly underperformed managed no-load funds during those two bear markets. Also note that you can’t invest directly in an index—only in index funds which mirror the performance of the index. Index funds carry small management fees, so they would have rated slightly lower than the indexes themselves because of the fees.

The table headings include:
1. Lipper category (“large cap core” or “small cap core”)
2. Index (S&P 500 or Russell 2000)
3. the four performance quartiles, and
4. the Average Percentile Ranking, which bears further explanation:
The **Average Percentile Ranking** is *not* tied to the quartile rankings, and provides a different vantage point on the comparative performance. It measures the average percentile of how they ranked over the given period of time. As with the quartile rankings, a lower percentage indicates better performance, while a higher percentage indicates worse performance. For example, in the Dot-Com Crash table below, the **Average Percentile Ranking** of the S&P 500 was 70.6%, which put it in the bottom 30% among all funds in that category. The Russell 2000 Index fared even worse with an 81.9% average percentage—which means it would have ranked in the bottom 18.1% of funds in the small cap category.

**Dot-Com Crash (Sept. 31, 2000 – March 31, 2003)**

<table>
<thead>
<tr>
<th>Index</th>
<th>Lipper Category</th>
<th>1st Quartile</th>
<th>2nd Quartile</th>
<th>3rd Quartile</th>
<th>4th Quartile</th>
<th>Avg. Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500</td>
<td>Large Cap Core*</td>
<td>0.0%</td>
<td>0.0%</td>
<td>87.1%</td>
<td>12.9%</td>
<td>70.6%</td>
</tr>
<tr>
<td>Russell 2000</td>
<td>Small Cap Core*</td>
<td>0.0%</td>
<td>0.0%</td>
<td>9.7%</td>
<td>90.3%</td>
<td>81.9%</td>
</tr>
</tbody>
</table>

*Source: Lipper, Thrivent Mutual Funds*

The preceding table shows that the S&P 500 Index would have ranked in the bottom half of the no-load large cap core fund universe during 100% of the 31 rolling 12-month periods from the lead-up through the aftermath of the Dot-Com Crash, with 0% in the first two quartiles, 87.1% in the 3rd quartile and 12.9% in the lowest (4th) quartile. The S&P 500 would have had an average percentile ranking of 70.6% throughout the period, which means it would have outperformed 29.4% of the custom peer group.

The Russell 2000 would also have ranked in the bottom half of the no-load small cap core universe during 100% of the 31 rolling 12-month periods, with 0% the first two quartiles, 9.7% in the 3rd quartile, and 90.3% in the lowest (4th) quartile. The Russell 2000 would have had an average percentile ranking of 81.9% throughout the period, which means it would have outperformed 18.1% of the custom peer group.


<table>
<thead>
<tr>
<th>Index</th>
<th>Lipper Category</th>
<th>1st Quartile</th>
<th>2nd Quartile</th>
<th>3rd Quartile</th>
<th>4th Quartile</th>
<th>Avg. Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500</td>
<td>Large Cap Core*</td>
<td>0.0%</td>
<td>6.9%</td>
<td>93.1%</td>
<td>0.0%</td>
<td>58.7%</td>
</tr>
<tr>
<td>Russell 2000</td>
<td>Small Cap Core*</td>
<td>0.0%</td>
<td>41.4%</td>
<td>51.7%</td>
<td>6.9%</td>
<td>53.7%</td>
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*Source: Lipper, Thrivent Mutual Funds*

The table above shows that the S&P 500 Index would have ranked in the bottom half of the no-load large cap core fund universe during 93.1% of the 29 rolling 12-month periods from the lead-up to through the aftermath of Global Financial Crisis, with 0% in the highest (1st) quartile, 6.9% in the 2nd quartile, 93.1% in the 3rd quartile and 0% in the lowest (4th) quartile. The S&P 500 would have had an average percentile ranking of 58.7% throughout the period, which means it would have outperformed 41.3% of the custom peer group.

The Russell 2000 would also have ranked in the bottom half of the no-load small cap core universe during 58.6% of the 29 rolling 12-month periods, with 0% in the highest (1st) quartile, 41.4% in the 2nd quartile, 51.7% in the 3rd quartile, and 6.9% in the lowest (4th) quartile. The Russell 2000 would have had an average percentile ranking of 53.7% throughout the period, which means it would have outperformed 46.3% of the custom peer group.


<table>
<thead>
<tr>
<th>Index</th>
<th>Lipper Category</th>
<th>1st Quartile</th>
<th>2nd Quartile</th>
<th>3rd Quartile</th>
<th>4th Quartile</th>
<th>Avg. Percentile Rank</th>
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</thead>
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<tr>
<td>S&amp;P 500</td>
<td>Large Cap Core*</td>
<td>0.9%</td>
<td>33.0%</td>
<td>64.2%</td>
<td>1.8%</td>
<td>55.2%</td>
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<tr>
<td>Russell 2000</td>
<td>Small Cap Core*</td>
<td>7.3%</td>
<td>27.5%</td>
<td>36.7%</td>
<td>28.4%</td>
<td>58.9%</td>
</tr>
</tbody>
</table>

*Source: Lipper, Thrivent Mutual Funds*

The table above shows that the S&P 500 Index would have ranked in the bottom half of the no-load large cap core fund universe during 66% of the 109 rolling 12-month periods from January 1, 2000, through December 31, 2009, with 0.9% in the highest (1st) quartile, 33.0% in the highest (1st) quartile.
the 2nd quartile, 64.2% in the 3rd quartile and 1.8% in the lowest (4th) quartile. The S&P 500 would have had an average percentile ranking of 55.2% throughout the period, which means it would have outperformed 44.8% of the custom peer group.

The Russell 2000 would also have ranked in the bottom half of the no-load small cap core universe during 65.1% of the decade, with 7.3% in the highest (1st) quartile, 27.5% in the 2nd quartile, 36.7% in the 3rd quartile, and 28.4% in the lowest (4th) quartile. The Russell 2000 would have had an average percentile ranking of 58.9% throughout the period, which means it would have outperformed 41.1% of the custom peer group.

Selected Indexes vs. Actively-Managed, No-Load Funds

<table>
<thead>
<tr>
<th>Index Lipper Category</th>
<th>1st Quartile</th>
<th>2nd Quartile</th>
<th>3rd Quartile</th>
<th>4th Quartile</th>
<th>Avg. Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500 Large Cap Core*</td>
<td>8.0%</td>
<td>49.7%</td>
<td>41.2%</td>
<td>1.1%</td>
<td>46.0%</td>
</tr>
<tr>
<td>Russell 2000 Small Cap Core*</td>
<td>4.8%</td>
<td>37.4%</td>
<td>39.0%</td>
<td>18.7%</td>
<td>54.7%</td>
</tr>
</tbody>
</table>

Source: Lipper, Thrivent Mutual Funds
*No-load mutual funds only

The table above shows that over the past 25 years, through two of the longest sustained bull markets in history, the S&P 500 would have been in the highest (1st) quartile 12.8% of the time, the 2nd quartile 49.5% of the time, the 3rd quartile 36.3% of the time, and the lowest (4th) quartile 1.4% of the time. The S&P 500 would have had an average percentile ranking of 44.0% throughout the period, which means it would have outperformed 56.0% of the custom peer group.

The Russell 2000—even during this 25-year period that included two of the longest bull markets in history—still would have been in the bottom half of no-load small cap core funds more than half the time. It would have been in the highest (1st) quartile 4.5% of the time, the 2nd quartile 38.8% of the time, the 3rd quartile 38.1% of the time, and the lowest (4th) quartile 18.7% of the time. The Russell 2000 would have had an average percentile ranking of 55.0% throughout the period, which means it would have outperformed 45.0% of the custom peer group.

The two graphs on the next page show how the S&P 500 and Russell 2000 would have done over the past 25 years. As you can see, they did their best during the 1990s and in the years following the Global Financial Crisis, although you can see that even during the bull market run from 2009 to 2016—the second-longest sustained bull market in history—both indexes experienced brief periods when their performance dropped into the bottom half.

What this tells us is that, while index funds may outperform most managed funds during strong market periods, during struggling markets, investors may have been better served holding actively-managed funds, which may be able to outperform the indexes during those difficult periods.
What’s Ahead?

While past performance is no guarantee of future returns, the trends we identified in this study suggest that actively-managed, no-load, domestic equity mutual funds may have an advantage over index funds during volatile times and bear markets. Although the U.S. market is currently in the second longest bull market in U.S. history, every bull market of the past has yielded to a bear market.

However, we can point out that economic signs indicate the possibility of a bear market—or a slowing bull market—in the months or years ahead.

So the question for investors is this: Given the tenuous state of the economy, where would you feel most comfortable investing your money? Would it be in index funds that move in lockstep with the market or would it be in a mutual fund with an active manager with the flexibility to adjust the portfolio to adapt to the volatility of the market?

Thrivent Mutual Funds offers a family of 21 mutual funds actively-managed by our more than 100 investment professionals. Investors can choose to build their own diversified portfolio with a combination of Equity Funds and Fixed Income Funds, or let us do it for them with one of our diversified Asset Allocation Funds or Income Plus Funds.
References

1 ‘Index funds beat active 90% of the time.’ Really?
   Published: Aug. 1, 2015, MarketWatch.

2 The Lipper Large Cap Core Category, which is defined by Thomson
   Reuters Lipper as “funds that, by portfolio practice, invest at least
   75% of their equity assets in companies with market capitalizations
   (on a three-year weighted basis) above Lipper’s USDE large-cap floor.
   These funds typically have average characteristics compared to the S&P
   500 Index.”

3 Standard & Poor’s. The S&P 500® Index is a market-
   cap weighted index that represents the average
   performance of a group of 500 large-capitalization
   stocks.

4 The Lipper Small Cap Core Category is defined
   by Thomson Reuters Lipper as “funds that, by
   portfolio practice, invest at least 75% of their equity
   assets in companies with market capitalizations (on
   a three-year weighted basis) below Lipper’s USDE
   small-cap ceiling. These funds typically have average
   characteristics compared to the S&P Small Cap 600
   Index.”

5 The Russell 2000 index is described by FTSE
   Russell as the 2,000 stocks that rank in size (market
   capitalization) from the 1,001st largest U.S. stock
   through the 3000th largest U.S. stock.

6 Refer to this table for the number of funds at the
   beginning and at the end of each time period
   referenced in the study.

<table>
<thead>
<tr>
<th></th>
<th>Starting number of funds</th>
<th>Ending number of funds</th>
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<tbody>
<tr>
<td></td>
<td>Large Cap</td>
<td>Small Cap</td>
</tr>
<tr>
<td>Dot-Com Crash</td>
<td>113</td>
<td>95</td>
</tr>
<tr>
<td>Global Financial Crisis</td>
<td>283</td>
<td>238</td>
</tr>
<tr>
<td>Decade of 2000–2010</td>
<td>120</td>
<td>101</td>
</tr>
<tr>
<td>Since 2000</td>
<td>120</td>
<td>101</td>
</tr>
<tr>
<td>Past 25 Years</td>
<td>38</td>
<td>15</td>
</tr>
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</table>

7 Source: Deutsche Bank, “Active and Passive, Happily

8 Fee rate study conducted by Investment Company
   Institute; released March 2016.

Disclosures

Past performance does not guarantee future results. Any indexes shown are unmanaged and do not reflect the typical costs of investing. Investors cannot invest directly in an index.

Investing in a mutual fund involves risks, including the possible loss of principal. The prospectus contains more complete information on the investment objectives, risks, charges and expenses of the fund, which investors should read and consider carefully before investing.

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About the Authors

Gene Walden

Gene Walden is the Thrivent Mutual Funds Senior Finance Editor and the best-selling author of more than two dozen books on investing and personal finance. He has more than 25 years of experience in the investment industry.

Jeffrey Branstad, CFA

Jeff Branstad is a Senior Investment Product Strategist for Thrivent Mutual Funds. He is a CFA charterholder and has been in the investment industry since 2004.