

DALBAR'S 23rd Annual Quantitative Analysis of Investor Behavior



For period ended: 12/30/2016

Compliments of:



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TABLE OF CONTENTS

<i>ABOUT THIS REPORT: QAIB 2017</i>	3
<i>KEY FINDINGS FROM 2016</i>	5
<i>2016 RESULTS</i>	10
<i>THE LONG TERM CONSEQUENCES OF POOR DECISION MAKING</i>	11
<i>CONSISTENT UNDERPERFORMANCE</i>	11
<i>BEHIND THE NUMBERS</i>	12
<i>INVESTOR PSYCHOLOGY</i>	12
<i>GLOSSARY</i>	13
<i>RIGHTS OF USAGE AND SOURCING INFORMATION</i>	16

ABOUT THIS REPORT: QAIB 2017

Since 1994, DALBAR's **Quantitative Analysis of Investor Behavior** (QAIB) has measured the effects of investor decisions to buy, sell and switch into and out of mutual funds over short and long-term timeframes. These effects are measured from the perspective of the investor and do not represent the performance of the investments themselves. The results consistently show that the average investor earns less – in many cases, much less – than mutual fund performance reports would suggest.

The goal of QAIB is to improve performance of both independent investors and financial advisors by managing behaviors that cause investors to act imprudently. QAIB offers guidance on how and where investor behaviors can be improved.

QAIB 2017 examines real investor returns in equity, fixed income and asset allocation funds. The analysis covers the 30-year period to December 30, 2016, which encompasses the crash of 1987, the drop at the turn of the millennium, the crash of 2008, plus recovery periods leading up to the most recent bull market. This year's report examines the results of investor behavior during a very eventful 2016.

No matter what the state of the mutual fund industry, boom or bust: ***Investment results are more dependent on investor behavior than on fund performance. Mutual fund investors who hold on to their investments have been more successful than those who try to time the market.***

About DALBAR, Inc.

DALBAR, Inc. is the financial community's leading independent expert for evaluating, auditing and rating business practices, customer performance, product quality and service. Launched in 1976, DALBAR has earned the recognition for consistent and unbiased evaluations of investment companies, registered investment advisers, insurance companies, broker/dealers, retirement plan providers and financial professionals. DALBAR awards are recognized as marks of excellence in the financial community.

Active versus Passive

The growth of passive investments into a major sector of the investment community has been recognized and reported on in a separate Dalbar study, Active versus Passive. This study compares the investor returns in active and passive investments and presents the material differences (Advantages and Disadvantages). A copy of the results of the study is available in [Full](#) and an [Advisor Edition](#) at the QAIB Store on DALBAR.com.

Methodology

QAIB uses data from the Investment Company Institute (ICI), Standard & Poor's, Bloomberg Barclays Indices and proprietary sources to compare mutual fund investor returns to an appropriate set of benchmarks. Covering the period from January 1, 1987 to December 30, 2016, the study utilizes mutual fund sales, redemptions and exchanges each month as the measure of investor behavior. These behaviors reflect the "average investor." Based on this behavior, the analysis calculates the "average investor return" for various periods. These results are then compared to the returns of respective indices.

A glossary of terms and examples of how the calculations are performed can be found in the Appendices section of this report.

The QAIB Benchmark and Rights of Usage

Investor returns, retention and other industry data presented in this report can be used as benchmarks to assess investor performance in specific situations. Among other scenarios, QAIB has been used to compare investor returns in individual mutual funds and variable annuities, as well as for client bases and in retirement plans. Please see the "Rights of Usage" section in the Appendices for more information and appropriate citation language.

Visit the QAIB Store!



Renowned investor behavior research is now at your fingertips! Visit the QAIB Store at www.QAIB.com for images, infographics and data feeds from the 2017 study.

For questions, please contact Cory Clark at cclark@dalbar.com or 617-624-7100 for additional questions.

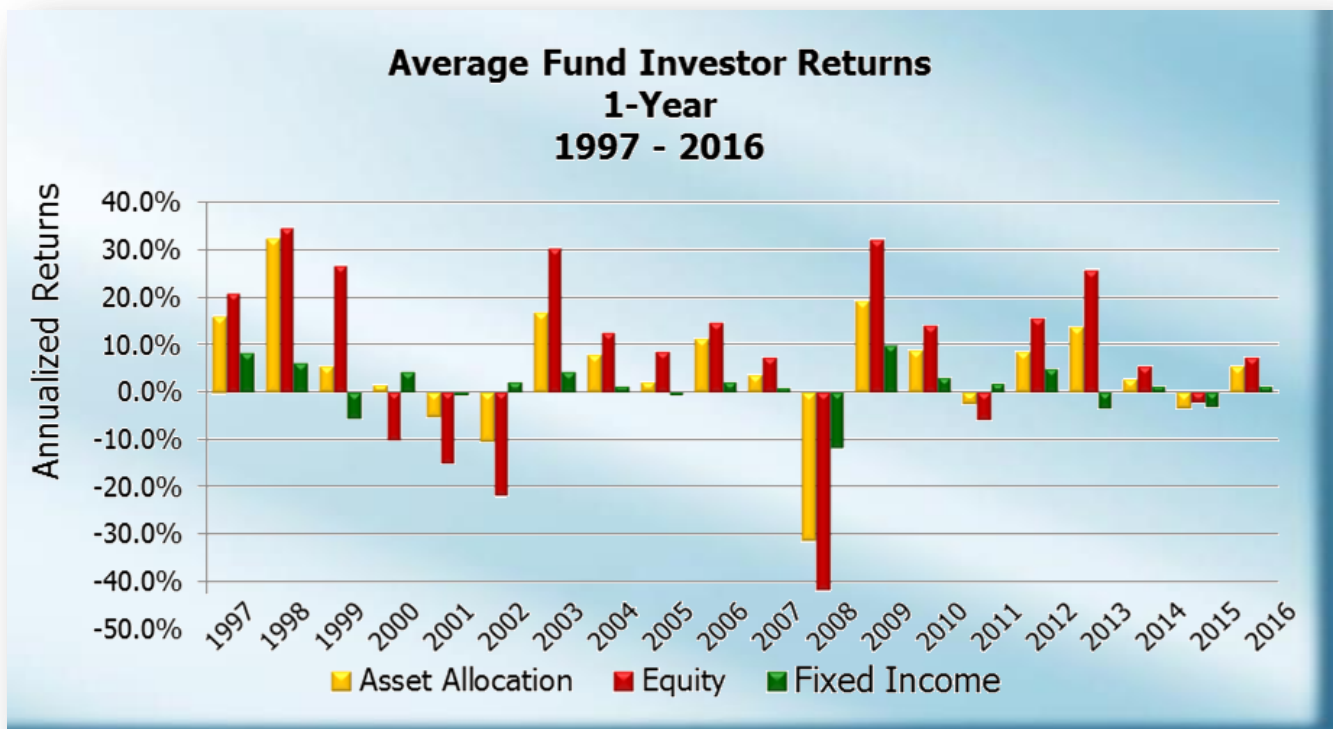
KEY FINDINGS FROM 2016

- In 2016, the average **equity mutual fund investor** underperformed the S&P 500 by a margin of 4.70%. While the broader market made gains of 11.96%, the average equity investor earned only 7.26%.
- In 2016, the average **fixed income mutual fund investor** outperformed the Bloomberg Barclays Aggregate Bond Index by a margin of 0.19%. The broader bond market realized a slight return of 1.04% while the average fixed income fund investor earned 1.23%.
- Equity fund retention rates decreased materially in 2016 from 4.10 years to 3.80 years.
- Fixed Income retention rates increased by almost 2 months in 2016, inching up from 2.93 to 3.09, eclipsing the 3.0 year mark for the first time since 2012.
- Asset allocation funds experienced the a significant decline of retention rates in 2016. The average retention rate shortened by over 5 months, decreasing from 4.53 to 4.09.
- In 2016, the 20-year annualized S&P return was 7.68% while the 20-year annualized return for the Average Equity Fund Investor was only 4.79%, a gap of 2.89% annualized.
- The gap between the 20-year annualized return of the Average Equity Fund Investor and the S&P 500 continued to contract in 2016 (from 3.52% in 2015 to 2.89% in 2016).

	Investor Returns ¹			Inflation	S&P 500	Bloomberg Barclays Aggregate Bond Index
	Equity Funds	Asset Allocation Funds	Fixed Income Funds			
30 Year	3.98	1.85	0.57	2.65	10.16	5.99
20 Year	4.79	2.29	0.48	2.13	7.68	4.96
10 Year	3.64	1.78	0.40	1.83	6.95	3.97
5 Year	9.83	4.85	0.05	1.40	14.66	1.21
3 Year	3.42	1.45	-0.23	1.25	8.87	2.29
12 Months	7.26	5.48	1.23	2.07	11.96	1.04

¹ Returns are for the period ending December 30, 2016. Average equity investor, average bond investor and average asset allocation investor performance results are calculated using data supplied by the Investment Company Institute. Investor returns are represented by the change in total mutual fund assets after excluding sales, redemptions and exchanges. This method of calculation captures realized and unrealized capital gains, dividends, interest, trading costs, sales charges, fees, expenses and any other costs. After calculating investor returns in dollar terms, two percentages are calculated for the period examined: Total investor return rate and annualized investor return rate. Total return rate is determined by calculating the investor return dollars as a percentage of the net of the sales, redemptions and exchanges for each period.

- In 5 out of 12 months, investors guessed right about the market direction the following month. While “guessing right” 42% of the time in 2016, the average mutual fund investor was not able to keep pace with the market, based on the actual volume and timing of fund flows.
- The Average Equity Fund Investor outperformed a hypothetical Systematic Equity Fund Investor on an annualized basis for the period 1997-2016 (4.79% vs. 4.15%).
- For the period 1997-2016, the Systematic Fixed Income Investor outperformed the average fixed income investor by a wide margin (2.29% vs. 0.48% on an annualized basis).



Short-Term Focus and Market Timing

Investors so often cost themselves money because the behaviors elicited by short-term focus are almost always irrational. While many investors set a course of action that is based on a well-planned rationale and considers the full time horizon, those plans can take a back seat when fear or exuberance sets in. The best way to avoid irrational behavior is to employ a strategy that instills confidence in the outcome. This can be achieved by stating goals and analyzing the probability of achieving those goals. The markets can have a bad day, week, or even a bad year, but investors who can see that their probability of success is within an acceptable level are less likely to overreact.

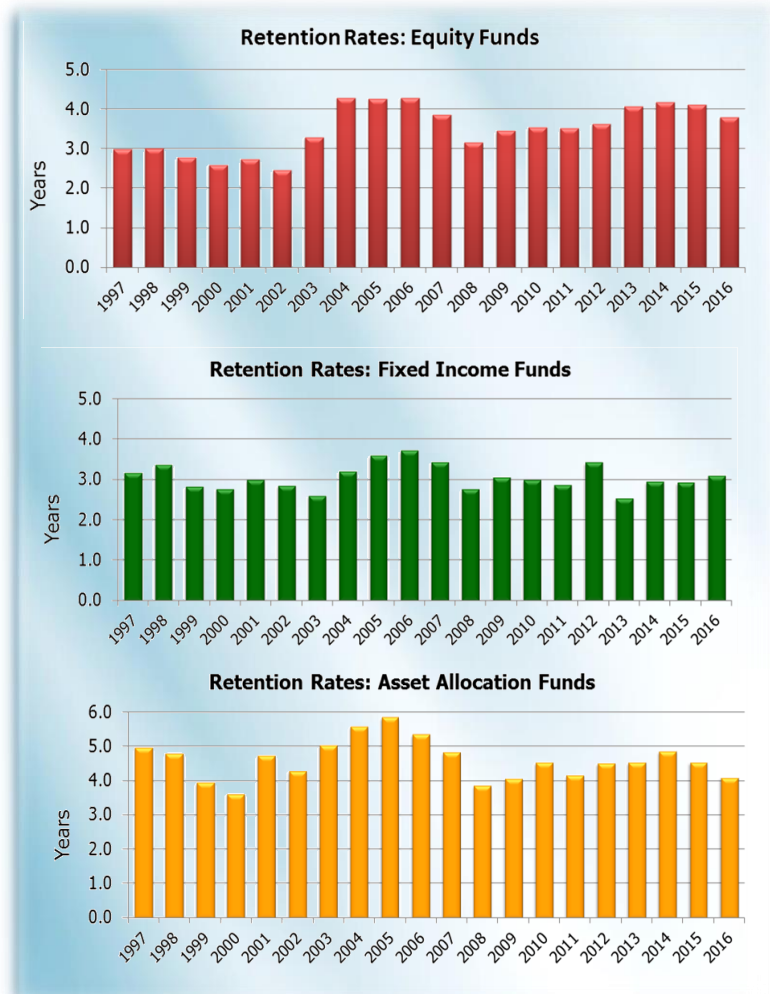
The data shows that the average mutual fund investor has not stayed invested for a long enough period of time to execute a long term strategy. In fact, they typically stay invested for just a fraction of a market cycle.

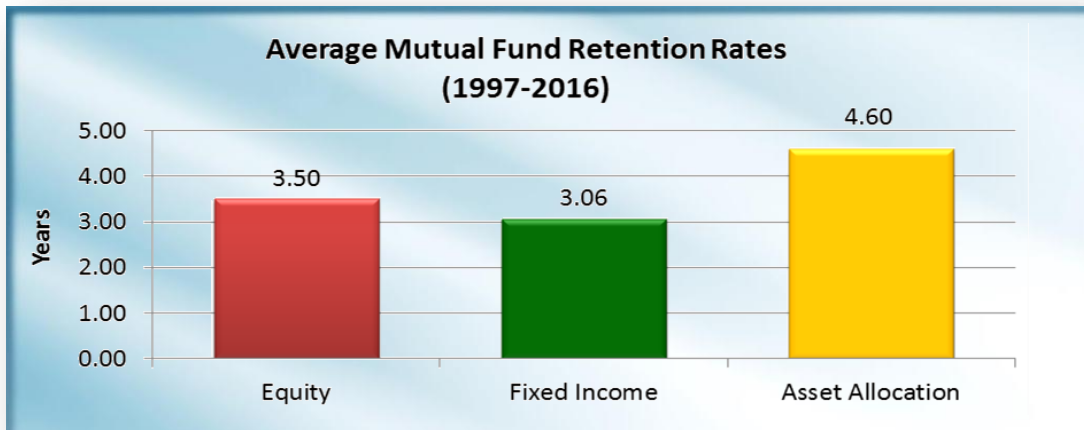
Retention Rates

Over the past 20 years, **equity mutual fund investors** have seldom managed to stay invested in their funds for more than 4 years. When they have done so, it has generally been during periods of bull markets. Equity fund retention rates surpassed the four year mark from 2004-2006 and would have a similar three year streak in 2013-2015. In 2016, equity fund retention rates broke their current streak of exceeding four years, dipping from 4.10 years to 3.80 years.

Fixed income mutual fund investors saw their highest retention rates since 2012 (3.09 years), which surpassed the 3.0 year mark for just the second time since 2009.

Asset allocation mutual fund investors have generally stayed invested longer than their equity and fixed income investor counterparts. Asset allocation fund retention rates have stood above the four year mark for eight straight years. This year, asset allocation fund retention rates decreased to 4.09 years, nearly falling below the 4.0 year mark for the first time since 2008.



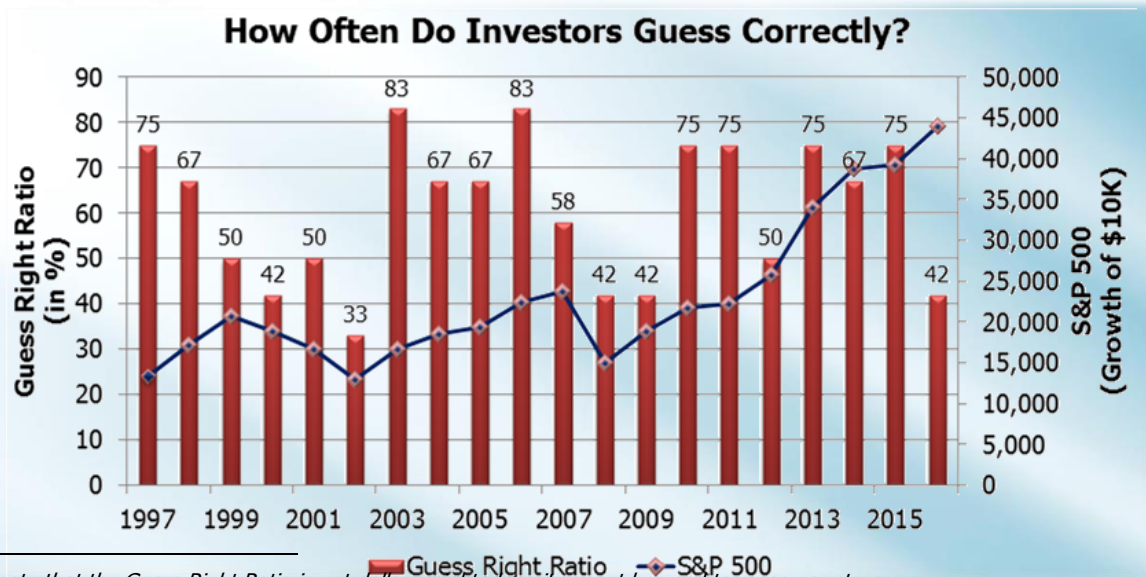


Market Timing

The retention rate data for equity, fixed income and asset allocation mutual funds strongly suggests that investors lack the patience and long-term vision to stay invested in any one fund for much more than four years. Jumping into and out of investments every few years is not a prudent strategy because investors are simply unable to correctly time when to make such moves.

DALBAR continues to analyze the investors' market timing successes and failures through their purchases and sales. This form of analysis, known as the Guess Right Ratio¹, examines fund inflows and outflows to determine how often investors correctly anticipate the direction of the market the following month. Investors guess right when a net inflow is followed by a market gain, or a net outflow is followed by a decline.

DALBAR looks at the data to determine when investors correctly guess the timing of their purchases or sales and what impact those decisions have on their returns. The Guess Right Ratio shows that investors who execute purchases or sales in response to something other than a prudent investment decision reduce the return created by the markets and portfolio managers.



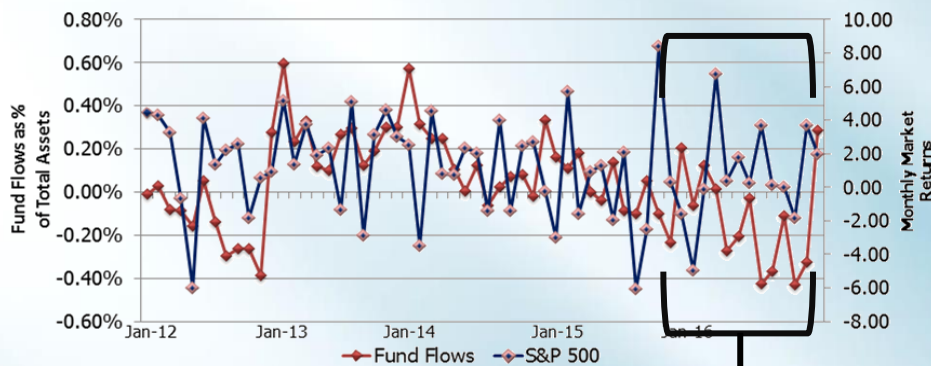
¹ Please note that the Guess Right Ratio is not dollar weighted, so it cannot be used to measure returns.

Investors have been pretty good at “guessing right,” especially in bull markets. In 2016, when the average investor zigged, the market zagged. Investors guessed right only 42% of the time in 2016. They guessed right at least 6 of the 12 months of each year since 2009. The average investor still made money, but made significantly less than the overall equity and bond market respectively. Why is this so?

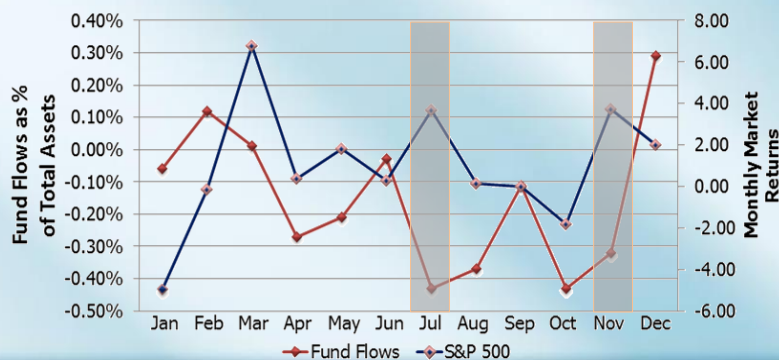
Fund flows may coincide with the market direction the following month, but to what extent? Is it enough to make up for the damage done in the current month? The first quarter of 2016 illustrates this point; investors cashed out modestly with net flows of -0.06% in January while the market suffered its worst month of the year. Investors came back the following month anticipating a recovery (net flows of +0.12%), but the market failed to recover in February, as the S&P 500 lost -0.13%. Investors took a wait-and-see approach in March with no material inflow or outflow, failing to seize the opportunity March provided when the market had its best month of the year.

For the remainder of the year, investors showed they were generally not believers in the market. Fund flows were negative, in some cases sharply negative, every month from April to December. Two months were particularly striking: July and November. Both months coincided with major geopolitical events; Brexit and the presidential election. In July, fund flows were at their lowest level (-0.43%) and the S&P 500 meanwhile gained 3.69%. In November, the presidential election cast doubt on the markets and investors redeemed a net of \$27 Billion. Just as it did in July, the market did not wait for investors to jump aboard and gained 3.70%.

Investor Fund Flows and Market Performance for the 5 Years Ending 12/30/16

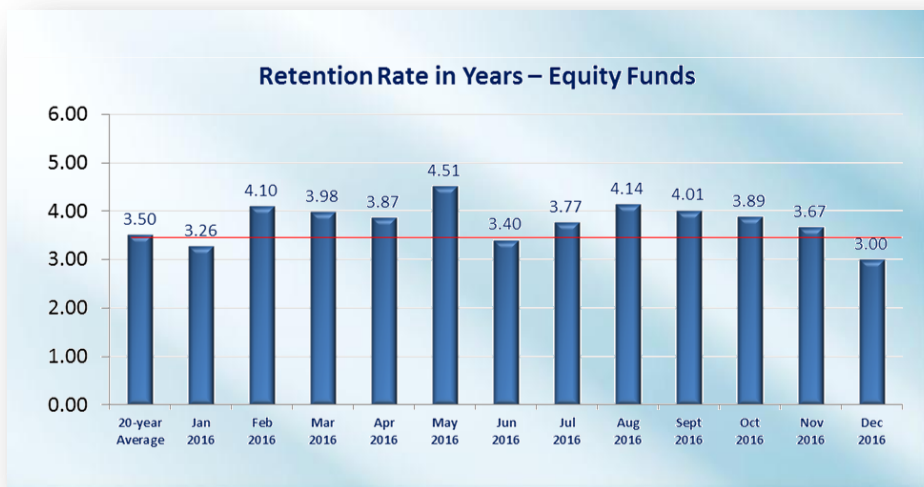
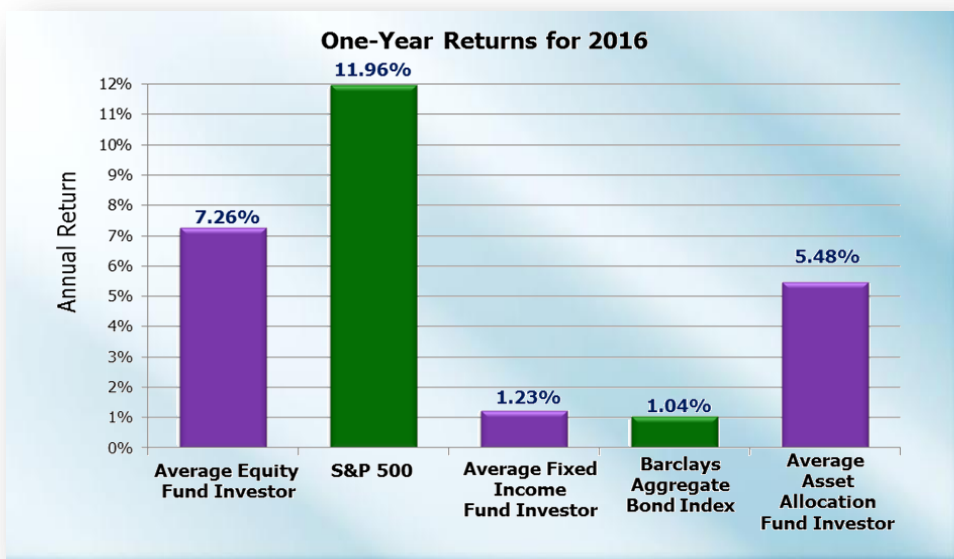


Investor Fund Flows and Market Performance for Calendar Year 2016



2016 RESULTS

The twelve months ending December 31, 2016 served as a wonderful case study for investor behavior. As is most often the case, the markets were wildly unpredictable. There was plenty for investors to fear and plenty to be excited about. Generally, fear won out as evidenced by several months with steep outflows. This study looked at 2016 quarter-by-quarter, but how did this all translate for the year at large? The chart below displays the one-year return for the Average Equity, Fixed Income, and Asset Allocation Investors compared to popular indices. The results are typical of what investors experience year after year with few exceptions: significant underperformance.



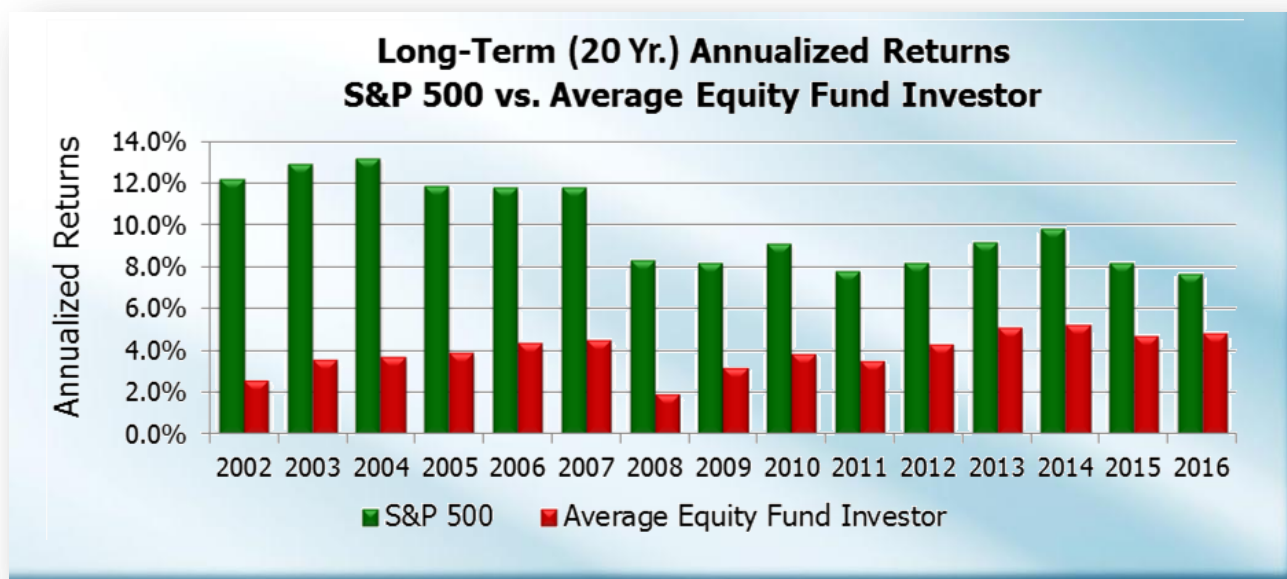
THE LONG TERM CONSEQUENCES OF POOR DECISION MAKING

Consistent Underperformance

We have seen that investors are impatient and move into and out of investments too frequently, typically 36 to 56 months depending on the type of fund. We have also seen that inflows and outflows all too frequently come at the worst possible time. For the most recent evidence of this, one needs to look no further than last year when the three best months of 2016 (March, July, and November) coincided with either neutral or negative cash flows. This behavior has been identified year after year since QAIB began in 1994, but how has this behavior affected the average investor's returns over the long-term?

LONG-TERM RESULTS

When looking at the long-term annualized returns² of the average equity mutual fund investor compared to the S&P 500, we see that the average investor has failed to achieve the same annualized returns as this critical index. While the gap between the average equity mutual fund investor and the S&P 500 has narrowed considerably in the past 15 years, the average investor has earned far less than they may expect when comparing their portfolio to the popular indices.



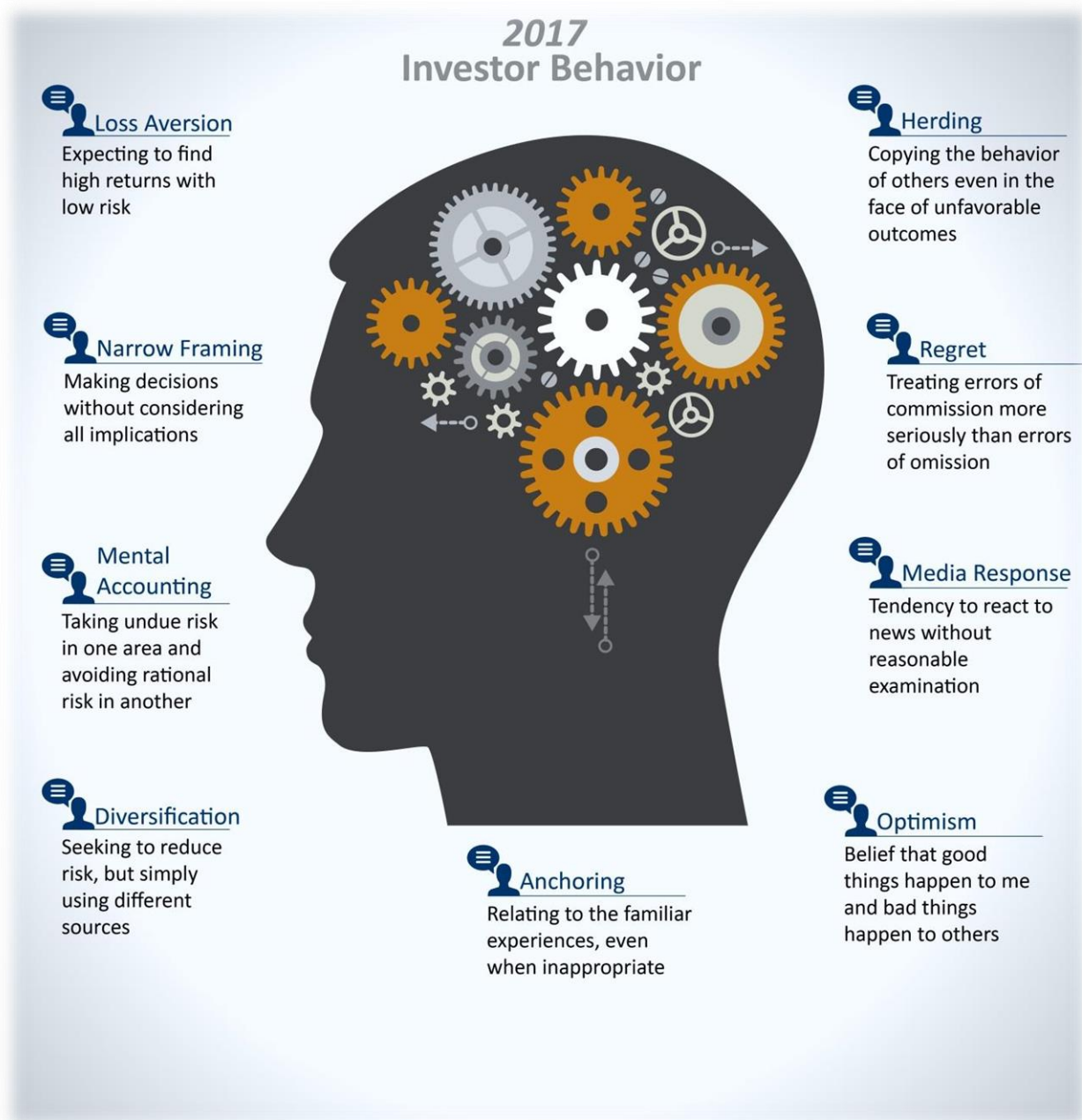
² The original analyses began in 1984, so 2002 represents a 19 year analysis. Starting in 2003, the long-term analysis covers a 20-year timeframe.

BEHIND THE NUMBERS

INVESTOR PSYCHOLOGY

When discussing investor behavior it is helpful to first understand the specific thoughts and actions that lead to poor decision-making. Investor behavior is not simply buying and selling at the wrong time, it is the psychological traps, triggers and misconceptions that cause investors to act irrationally. That irrationality leads to buying and selling at the wrong time, which leads to underperformance.

There are 9 distinct behaviors that tend to plague investors based on their personal experiences and unique personalities.



GLOSSARY

Average Investor

The average investor refers to the universe of all mutual fund investors whose actions and financial results are restated to represent a single investor. This approach allows the entire universe of mutual fund investors to be used as the statistical sample, ensuring ultimate reliability.

[Average] Investor Behavior

QAIB quantitatively measures sales, redemptions and exchanges (provided by the Investment Company Institute) and describes these measures as investor behaviors. The measurement of investor behavior is the net dollar volume of these activities that occur in a single month during the period being analyzed.

[Average] Investor Return (Performance)

QAIB calculates investor returns as the change in assets, after excluding sales, redemptions, and exchanges. This method of calculation captures realized and unrealized capital gains, dividends, interest, trading costs, sales charges, fees, expenses and any other costs. After calculating investor returns in dollar terms (above) two percentages are calculated:

- Total investor return rate for the period
- Annualized investor return rate

Total return rate is determined by calculating the investor return dollars as a percentage of the net assets, sales, redemptions and exchanges for the period.

Annualized return rate is calculated as the uniform rate that can be compounded annually for the period under consideration to produce the investor return dollars.

Dollar Cost Averaging

Dollar cost averaging results are based on the equal monthly investments into a fund where performance is identical to the appropriate benchmark (either the S&P 500 or the Barclays Aggregate Bond Index). Investments total \$10,000 over 20 years. Dollar values represent the total amount accumulated after the period under consideration. The percentage is the uniform annualized return rate required to produce the dollar returns.

Guess Right Ratio

The Guess Right Ratio is the frequency that the average investor makes a short-term gain. One point is scored each month when the average investor has net inflows and the market (S&P 500) rises in

the next month. A point is also scored when the average investor has net outflows and the market declines in the next month. The ratio is the number of points scored as a percentage of the total number of months under consideration.

Holding Period

Holding period (retention rate) reflects the length of time the average investor holds a fund if the current redemption rate persists. It is the time required to fully redeem the account. Retention rates are expressed in years and fractions of years.

Hypothetical Average Investor

A \$10,000 investment is made in a pattern identical to the average investor behavior for the period and asset class under consideration. Rates of return are applied each month that are identical to the investor return for each month. The resulting dollar value represents what a \$10,000 investment would be worth to the average investor. The dollar amount of the return is then converted to an annualized rate.

Hypothetical Systematic Investor

A \$10,000 investment is evenly distributed across each month for the period under consideration. The appropriate benchmark (either the S&P 500 or the Barclays Aggregate Bond Index) is used as an assumed return rate and applied each month.

The resulting dollar value represents what \$10,000 would be worth to the systematic investor. The dollar amount of the return is then converted to an annualized rate.

Inflation Rate

The monthly value of the consumer price index is converted to a monthly rate. The monthly rates are used to compound a “return” for the period under consideration. This result is then annualized to produce the inflation rate for the period.

QAIB Keeps It Simple

The calculation of investor returns has been questioned from time to time. There have been two primary reasons for the misunderstanding:

1. Investor returns are confused with dollar or time weighted returns.

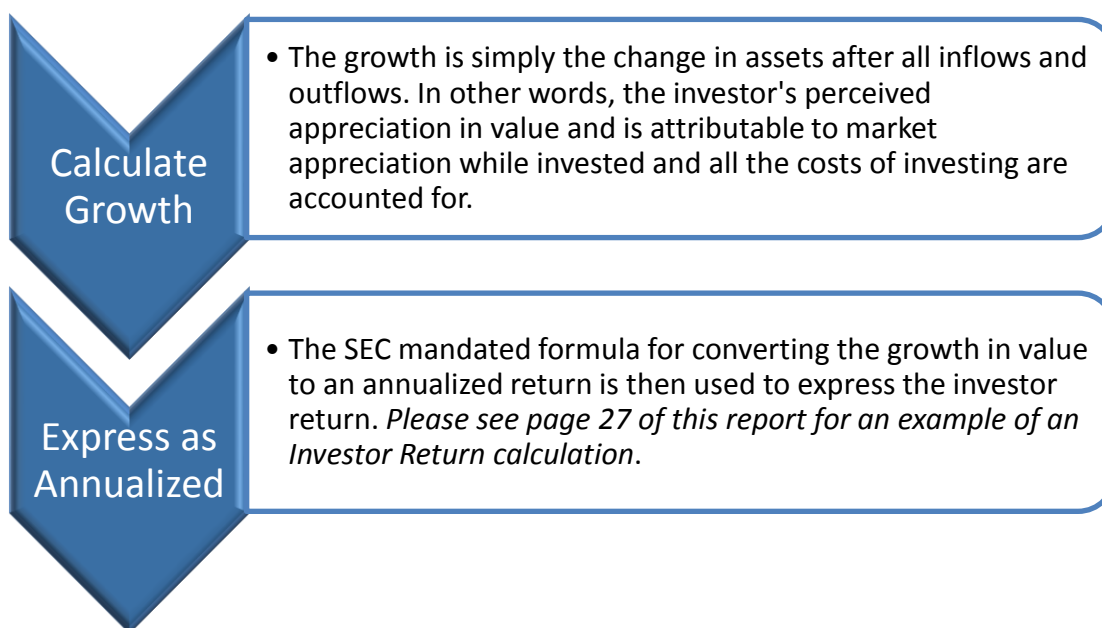
Truth: *Investor Return is neither of these.*

2. Investor underperformance is exclusively due to investor behavior.

Truth: *A portion of underperformance is attributable to investor behavior.*

Investor Return Calculation

This is a two-step process:



Investor Underperformance

The attention of investor returns has been on factors over which the investor has direct control. This is not to suggest that these are the only reasons for differences between investor returns and an index to which the returns are compared. Other factors include:

- Differences in fund performance and index performance.
- Defensive strategies (such as asset allocation) that limit fund performance.
- Cash on hand from inflows and to meet outflows.
- Portfolio trading costs.
- Operating expenses.

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For more information on creating a custom analysis or presentation using the QAIB data and methodology, contact Cory Clark at cclark@dalbar.com or 617-624-7156.

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