



*Quantitative Analysis
of Investor Behavior*

Advisor Edition



For the period ending: **December 31, 2018**

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Contents

Contents	2
Introduction.....	3
Importance of QAIB.....	3
About DALBAR, Inc.	3
Methodology	4
The QAIB Benchmark and Rights of Usage.....	4
Executive Summary	5
BEHIND THE NUMBERS.....	7
Short-Term Focus and Market Timing.....	8
Market Timing	8
Retention Rates	9
.....	10
RIGHTS OF USAGE AND SOURCING INFORMATION	11

Introduction

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 time frames. 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.

The 25th Annual QAIB examines real investor returns in nearly 30 different categories of investors. The analysis covers the 30-year period to December 31, 2018, which encompasses the aftermath of 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.

Importance of QAIB

The best financial professionals double as behavioral finance coaches of their clients. When markets are down or even volatile, questions will arise from concerned clients and perspective will be needed. The QAIB report and materials give advisors the tools to tell a story, put things into perspective, and deliver the calming messages that are needed to mitigate return-destroying behavior. Such messages include:

- The prudence of a long-term, buy and hold approach
- The folly of measuring investment success against statistical benchmarks
- Awareness of common behavioral influences
- Lessons from past markets
- The importance of investing assets as early as possible

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.

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, 1989 to December 31, 2018, 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.

Executive Summary

- In 2018, the **Average Equity Fund Investor** underperformed the S&P 500 by 504 bps (-4.38% for S&P 500 vs. -9.42% for Average Equity Fund Investor).
- The Average Equity Fund Investor withdrew funds every month in which the S&P 500 had a material gain.
- The only month the Average Equity Fund Investor made a significant contribution was a month where the S&P lost approximately 2.5%.
- The two worst months for the average investor versus the S&P were August and October.
- August was a great month in which the S&P 500 experienced a 3.26% gain, but the Average Equity Fund Investor managed to gain only 1.80% (146 bps underperformance).
- In October, the Average Equity Fund Investor would again trail the S&P 500 by over 100 basis points. The S&P 500 lost 6.84% while the Average Equity Fund Investor lost 7.97% (113 bps underperformance).
- The **Average Equity Index Fund Investor** underperformed the S&P 500 by 284 bps (-4.38% for S&P 500 vs. -7.22% for Average Equity Index Fund Investor).
- In 2018, the **Average Fixed Income Fund Investor** underperformed the Bloomberg Barclays Aggregate Bond Index by 285 bps (+0.01% for Bloomberg Barclays Aggregate Bond Index vs. -2.84%).
- The **Average Asset Allocation Fund Investor** lost 6.97% in 2018, outperforming the Average Equity Fund Investor for the first time since 2011.
- Equity fund Retention Rates stayed static in 2018, holding at 4.03 years.
- Fixed income fund Retention Rates dropped by almost 6 months, from an average of 3.45 years in 2017, to an average of 3.04 years in 2018.
- Asset allocation fund Retention Rates dropped by more two months from 4.65 years in 2017 to 4.52 years in 2018.

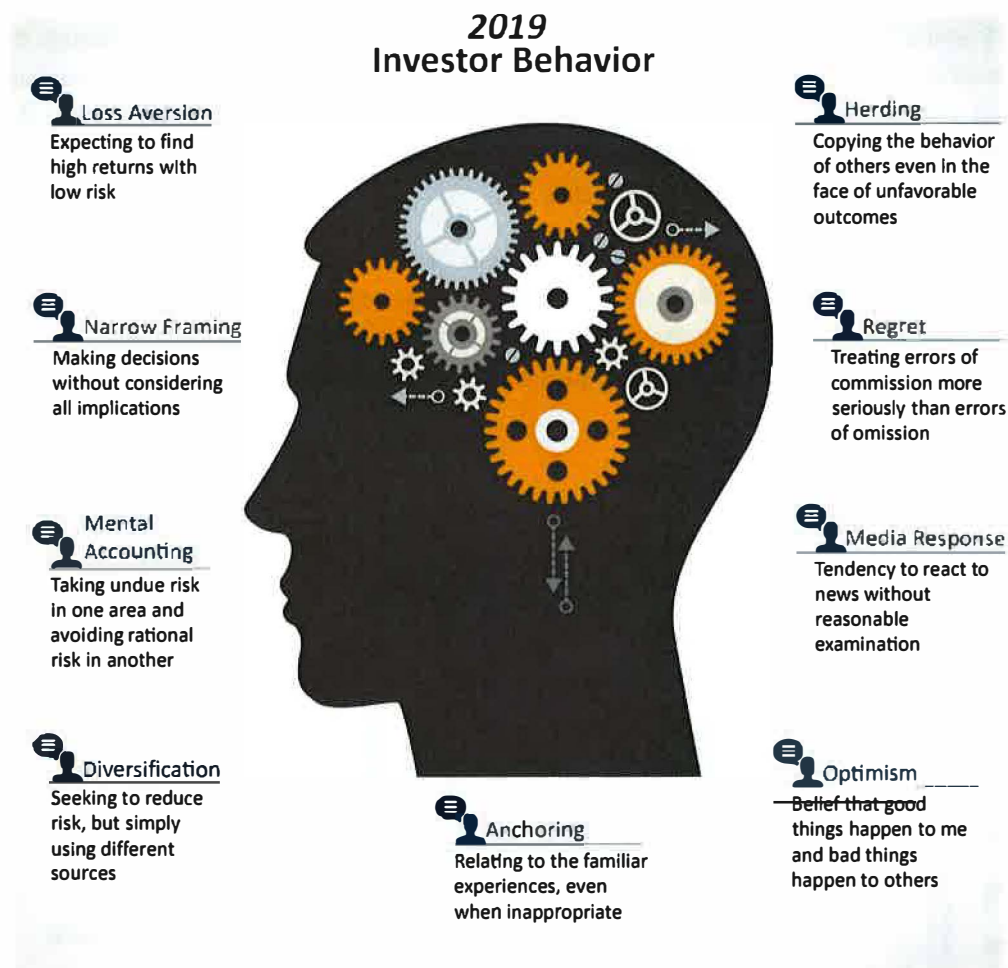
	Average Equity Fund Investor (%)	Average Fixed Income Fund Investor (%)	Average Asset Allocation Fund Investor (%)	S&P 500 (%)	Bloomberg-Barclays Aggregate Bond Index (%)	Inflation (%)
20 Year	3.88%	0.22%	1.87%	5.62%	4.55%	2.17%
10 Year	9.66%	0.70%	4.53%	13.12%	3.48%	1.82%
5 Year	3.96%	-0.40%	1.50%	8.49%	2.52%	1.56%
3 Year	5.58%	-0.11%	1.84%	9.26%	2.06%	2.04%
12 Month	-9.42%	-2.84%	-6.97%	-4.38%	0.01%	1.93%

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.



Short-Term Focus and Market Timing

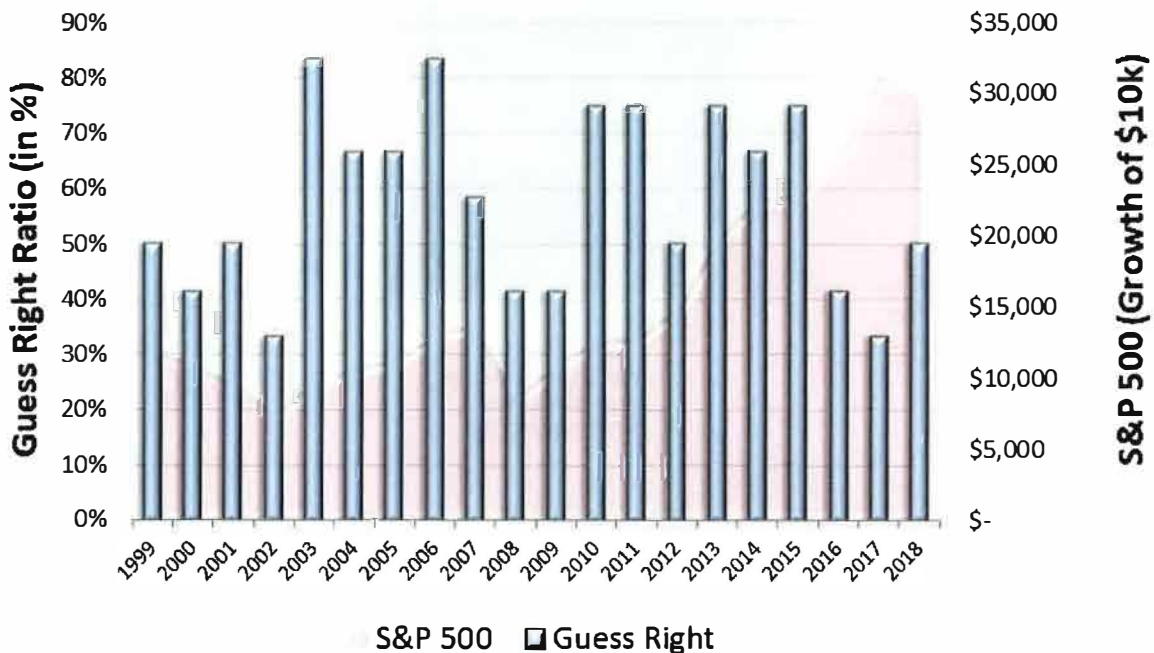
QAIB has typically looked at investor's money movement decisions in two ways. One way is based off the net inflow or outflow of cash as a percentage of total assets. This looks at the Average Investor's net contributions or withdrawals to their account, giving us clues into their willingness to invest. Short-term focus and market timing can lead the Average Investor to increase contributions, decrease contributions, or take money completely off the table.

A second way that QAIB looks at money movement is through **retention rates**. Retention rates look beyond the monthly contributions to the Average Investor's account and looks more specifically at the velocity of money movement into and out of different investment options.

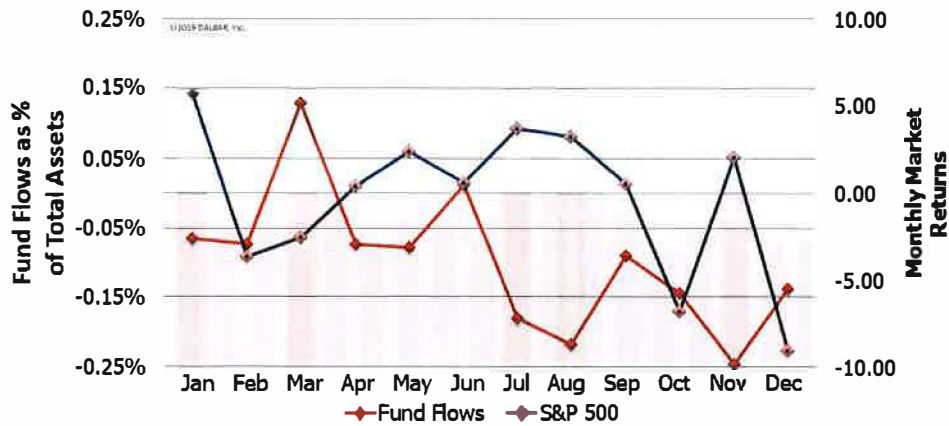
Market Timing

For 25 years, DALBAR has analyzed investors' market timing successes and failures through their net purchases and sales. This form of analysis, known as the Guess Right Ratio, 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.

Investors have guessed right at least half the time in 13 out of the last 20 years, guessing right exactly half the months of 2018. Unfortunately for the Average Investor, guessing right does not produce superior gains because the dollar volume of bad guesses exceeds the dollar volume of right guesses. Even one month of wrong guesses can wipe out several months of right ones.



Investor Fund Flows and Market Performance for Calendar Year 2018



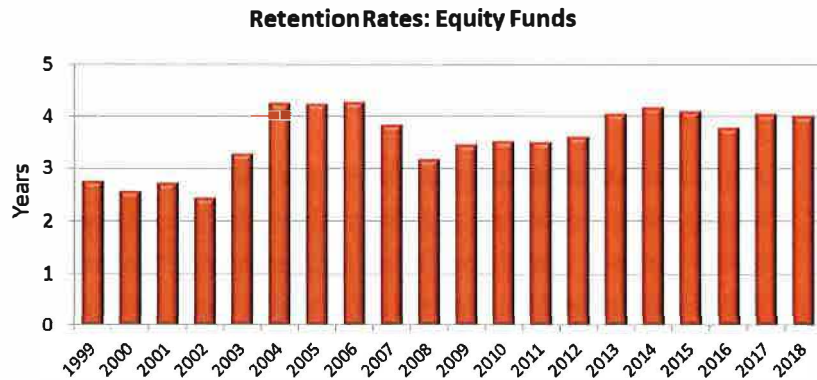
When taking a deeper look into the cash flows of the Average Equity Fund Investor, we can see the gap between net inflows/outflows and the direction in the market. The fund flows are very often on the opposite side of the horizontal axis than the S&P 500, and by a wide margin. The Average Equity Fund Investor withdrew funds every month in which the S&P 500 had a material gain and the only month the Average Investor made a significant contribution was a month where the S&P lost approximately 2.5%.

Retention Rates

Have you ever seen that driver on a congested highway, cutting in and out of each lane trying to catch the lane that is moving fastest at that exact moment? Or maybe you've once been that driver yourself, so you know from experience that as soon as you switch to that lane, it slows right down and the one you just left starts to move forward. This can be like investing.

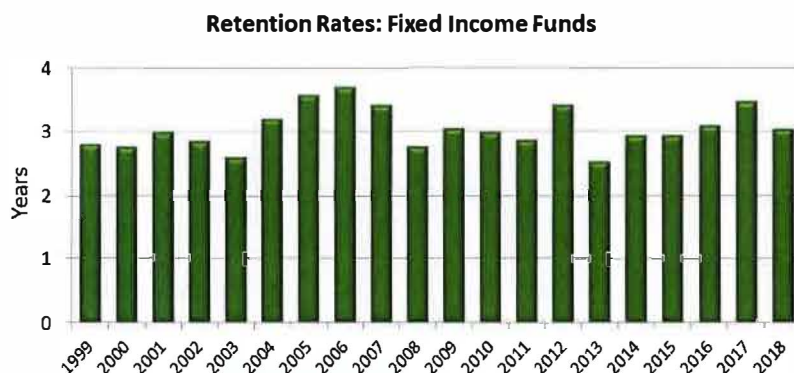
How long should one stay invested in a particular asset? When an investment slows down, we may be tempted to change lanes for one that is moving forward at a faster rate. But just as that strategy can leave you 2 exits behind on the highway, the same strategy can leave an investor behind on the road to their financial goals.

Over the past 20 years, equity mutual fund investors have held on to their investments for a period of between 2 and 4 years. When the markets are positive, retention rates trend

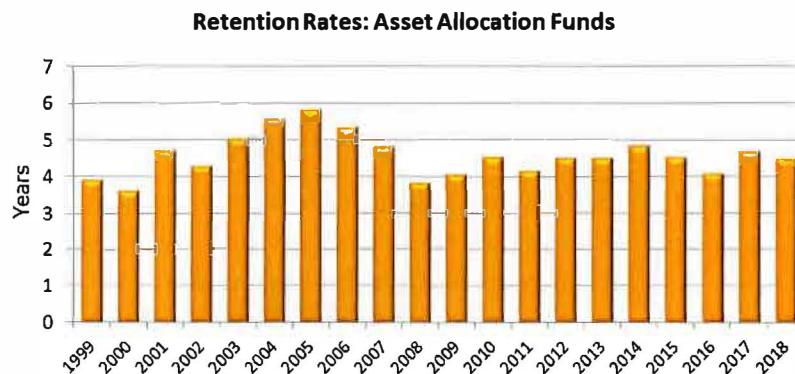


closer to 4 years, while they can dip close to 2 years in times of market turmoil. Equity fund

retention rates surpassed the four year mark from 2004-2006 and would do so again in 2013-2015. In 2016, equity fund retention rates dipped below 4 years to 3.80 years but in 2017 rebounded back over the 4-year mark and remained at the same level in 2018.



After exhibiting retention rates below the 3-year mark 2013-2015, the **Average Fixed Income Fund Investor** surpassed the 3.0 year mark in 2016 (3.09 yrs.) and continued to forge higher in 2017 to its highest retention rate (3.45 yrs.) since 2006. However, the Average Fixed Income Investor got skittish in 2018 and retention rates dipped back down to 3 years.



Asset allocation mutual fund investors have generally stayed invested longer than equity and fixed income investors. Asset allocation fund retention rates have stood above the four year mark for the ten years since the financial crisis of 2008. In 2009 and 2016, asset allocation fund retention rates were just about exactly at 4 years. However, in 2017, the Average Asset Allocation Investor stayed more patient, exhibiting retention rates close to 5 years before dropping a bit in 2018 to 4.5 years.

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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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