2023 QAIB Report

Quantitative Analysis of Investor Behavior

For the period ending: **December 31, 2022**

Compliments of:

Amir Monsefi, CEPA, CPFA, SE-AWMA®, CPWA®
AIRE Advisors
9350 Wilshire Boulevard, Suite 200

3102772474
amir.monsefi@aireadvisors.com

5 Mount Royal Avenue
Suite 380
Marlborough, MA 01752
617.723.6400
www.dalbar.com

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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.

This 29th Annual QAIB report examines real investor returns from 1985 through the end of 2022, which encompasses the crash of 1987, bull market of the 90's, the drop at the turn of the millennium, the crash of 2008, recovery periods leading up to the most recent bull market, the unprecedented events of 2020, and the recent market struggles of 2022.

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

Past performance is no guarantee of future results.

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, 1985 to December 31, 2022, 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

- Leading into 2022, the Average Equity Fund Investor experienced gains of over 18% in 2021, but trailed the equity markets by over 10% that year.
- The **Average Equity Fund Investor** continued to be a net withdrawer of assets in 2022 for the 7th year in a row.
- The **Average Fixed Income Fund Investor** was a net withdrawer of assets for the first time since 2000. In 2022, the Average Fixed Income Fund Investor withdrew 7.37% of assets. This is the largest fixed income withdrawal in a given year ever recorded by QAIB, going back to 1985.
- The Average Investor has maintained roughly a 70/30 equity to fixed income mix since 2017. In 2022, equity allocations decreased slightly to 71.65%.
- The **Average Equity Fund Investor** finished the year with a loss of -21.17% versus an S&P 500 loss of -18.11%; an investor return gap of 306 bps.
- The gap of 306 basis points was the 3rd smallest annual Investor Gap in the last 10 years.

	Avg. Equity Fund Investor (%)	Avg. Fixed Income Fund Investor (%)	Avg. Asset Allocation Fund Investor (%)	S&P 500 (%)	Bloomberg-Barclays Aggregate Bond Index (%)	Inflation (%)
30 Year	6.81	-0.14	2.53	9.65	4.55	2.50
20 Year	9.00	-0.29	3.10	9.80	3.10	2.52
10 Year	9.33	-1.32	3.95	12.56	1.06	2.63
5 Year	5.17	-2.31	1.67	9.42	0.02	3.79
3 Year	4.05	-5.15	0.38	7.66	-2.71	4.93
12 Month	-21.17	-13.79	-14.79	-18.11	-13.01	6.47

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Executive Summary (continued)

- The **Average Fixed Income Fund Investor** finished the year with a loss of -13.79% versus a BloombergBarclays Aggregate Bond Index loss of -13.01%; an investor return gap of 78 bps.
- Inflation continued to be a significant factor in 2022, registering at 6.47% for the year.
- The **Average Equity Fund Investor** with a $100,000 portfolio at the beginning of 2022 withdrew $2,150 and lost an additional $20,711 throughout the year. This resulted in an ending balance of $77,139.
- A **buy and hold** strategy of $100,000, earning S&P returns, would have lost $18,111 and ended with a balance of $81,889.
- The S&P 500 loss of -18.11% in 2022 is an extremely rare occurrence. Over the past 50 years, only 3 years experienced S&P losses greater than 2022; those were 1973, 2002 and 2008.
- When examining all years in which the S&P 500 lost 10% or more, we find that recoveries tend to occur quickly. There were 5 years (other than 2022) in which the S&P lost double digit percentage points (1973, 1974, 2001, 2002, 2008). Out of those 5 occurrences:
  - Twice, the markets recovered in the next year (1974, 2002)
  - Once, it took 3 years to recover (1973)
  - Twice, it took 4 years to recover (2001, 2008)
- The **Average Equity Fund Investor** retention rates averaged 4.25 years in 2022. This was a decrease from a 2021 spike to 4.36 years.
- Retention rates decreased for the **Average Fixed Income Fund Investor** in 2022. For bond investors, Retention Rates slumped from 3.44 years to 2.12 years. This marked the greatest decline in Retention Rates for the Average Fixed Income Fund Investor since QAIB began tracking such rates in 1985.
- The **Average Asset Allocation Fund Investor** Retention Rates dropped significantly in 2022 as well. Retention rates fell from 5.45 in 2021 to 4.37 years in 2022. This was the largest decrease in Retention Rates for asset allocation investors since 1994.

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.

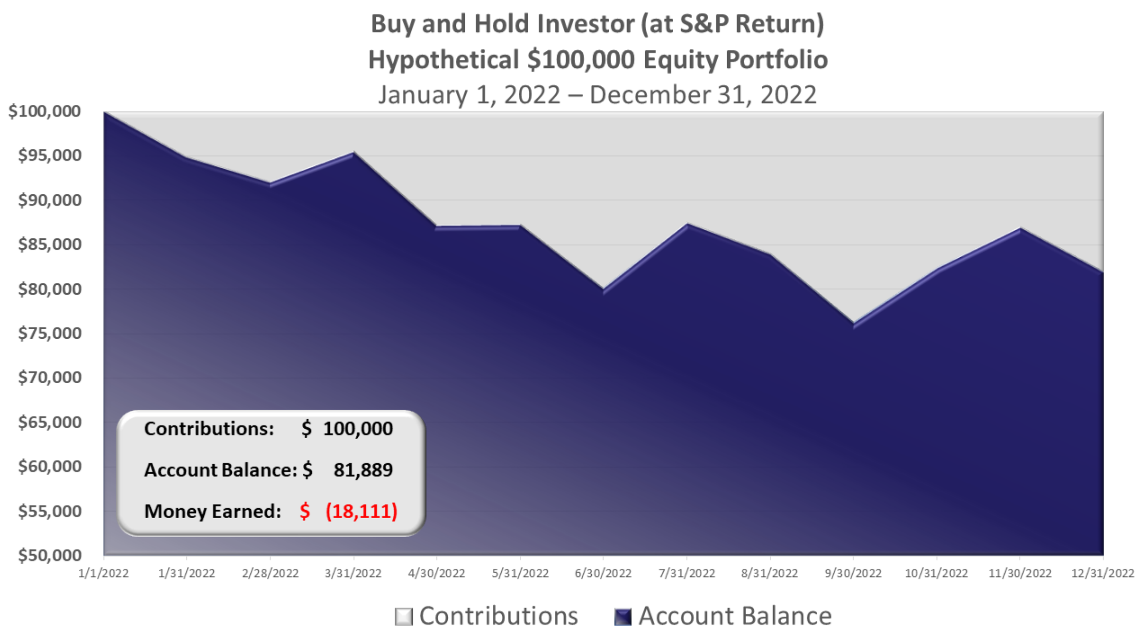
There are 9 distinct behaviors that tend to plague investors based on their personal experiences and unique personalities.

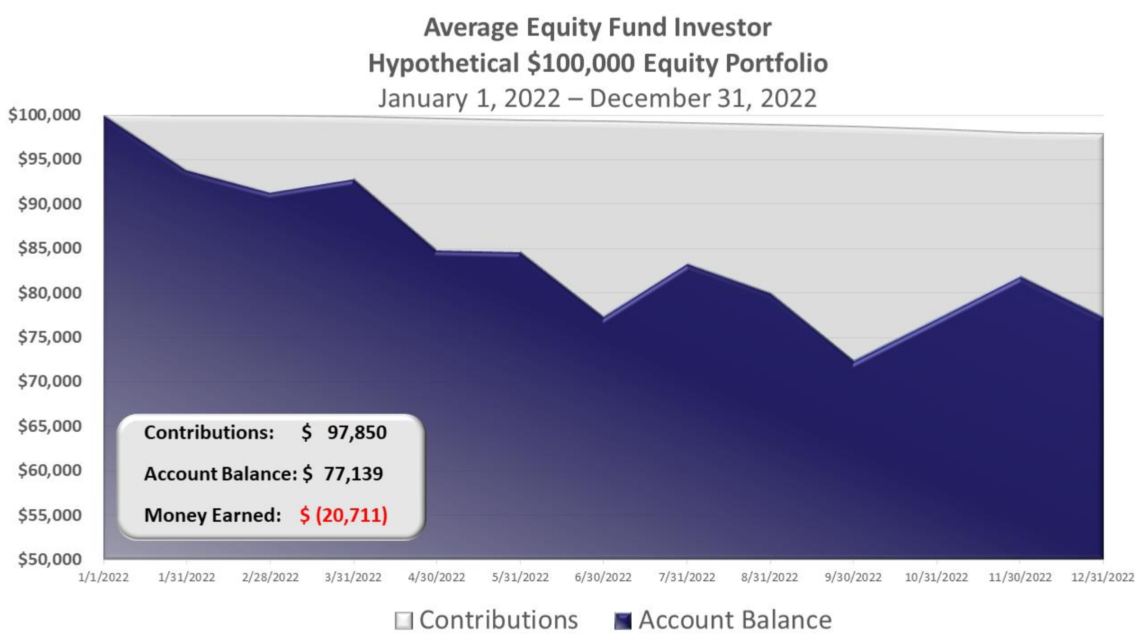
Loss Aversion	Expecting to find high returns with low risk
Narrow Framing	Making decisions without considering all implications
Mental Accounting	Taking undue risk in one area and avoiding rational risk in another
Diversification	Seeking to reduce risk, but simply using different sources
Anchoring	Relating to the familiar experiences, even when inappropriate
Optimism	Belief that good things happen to me and bad things happen to others
Media Response	Tendency to react to news without reasonable examination
Regret	Treating errors of commission more seriously than errors of omission
Herding	Copying the behavior of others even in the face of unfavorable outcomes

Past performance is no guarantee of future results.

Sellers vs. Holders

The graphs below compare two hypothetical investors. The first hypothetical investor has a $100,000 equity portfolio that is held throughout the year of 2022, earning returns equal to the S&P. The second hypothetical investor also starts with a $100,000 equity investment, but cash flows and returns mimic proportionally that of the Average Equity Fund Investor. The graphs provide a visual of both investors' total contributions and account balance throughout the year of 2022.





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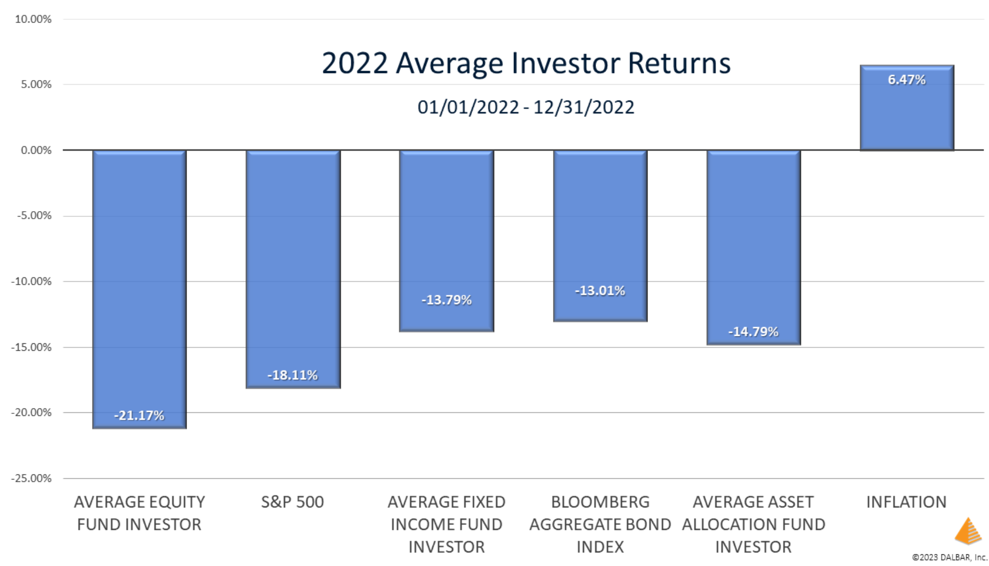
Average Investor Returns in 2022

The investor gap for all types of investors in 2022 was relatively modest. For equities, the Average Investor lost -21.17% compared to a market loss of -18.11%. Investors lost on average about 3% more than the market. While not insignificant, only two years out of the past 10 yielded a smaller investor gap. Those years were 2017 and 2020; but unlike 2022, both of those relatively narrower gaps occurred during strong markets (21.83% S&P return in 2017 and 18.40% S&P return in 2020). The graph on page 8 displays the investor gaps for equity investors since 1985.



The Average Fixed Income Fund Investor exhibited signs of panic selling but managed to lose only 0.78% more than the general bond market. The Average Fixed Income Investor lost -13.79% in 2022 versus the Bloomberg Barclays Aggregate Bond Index loss of -13.01%.

The Average Asset Allocation Investor may have been the biggest winner in 2022. The Average Asset Allocation Fund Investor holds a mix of equity and fixed income securities. These investors typically earn returns somewhere between the Average Equity Fund Investor and the Average Fixed Income Fund Investor. In 2022, the Average Asset Allocation Fund Investor mitigated losses well by experiencing losses much closer to that of the fixed income market than the equity market. The Average Asset Allocation Fund Investor suffered losses exactly 1% greater than the Average Fixed Income Fund Investor and mitigated 6.38% of the losses experienced by the Average Equity Fund Investor.

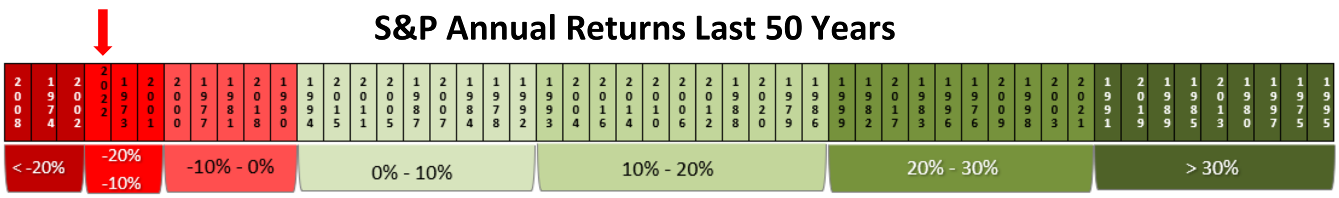
2022 In Perspective

After a year like 2022, it is important to put the events into historical perspective to understand (1) how rare a -18% return is historically speaking and (2) how quickly the markets generally bounce back from large losses.

Small Odds of Large Market Losses

The table below is designed to provide a simple, visual portrayal of the S&P 500 return distributions over the past 50 years. The last 50 years are displayed in ascending order of annual S&P return. The far left displays the worst year in the equity markets over the past 50 years (2008: -37.0%). The far right displays the best year in the equity markets in the last half century (1995: 37.6%).

A year like 2022 is exceedingly rare. As one can see from the graphic below, only 3 years out of the past 50 registered lower S&P returns than 2022. Only 11 years out of the past 50 have resulted in any losses at all. And while there have been only 6 years in which the S&P has lost double digit percentage points, there have been 9 years in which the S&P has advanced more than 30%.



Recovery Times

If we look back at the worst years over the past 50 years, we can gather more perspective on how long it took markets to recover their losses in a given year.

- **In 2008**, the S&P lost -37% and the index was back in the green by the end of 2012.
- **In 1974,** the S&P lost -26.5% and was back in the green by the end of 1975, the very next year thanks to a 37% gain in 1975. This dates back before QAIB calculates Average Investor Returns, but one can image that many investors missed out on some of that 1975 recovery.
- **In 2002**, the S&P 500 lost -22.1% and was back in the green the very next year thanks to a 28% gain in 2003.
- **In 1973**, the S&P lost -14.7% and took a bit longer to get back into positive territory due to an even worse year in 1974 (-26.5%). Nonetheless, the S&P 500 was back above water by the end of 1976, just 3 years later.
- **In 2001**, the S&P 500 lost -11.9% and by the end of 2005 was back above where it started. Like the 2008 collapse, it took 4 years for the index to retrace its steps. This represents the worst case scenario over the past 50 years.

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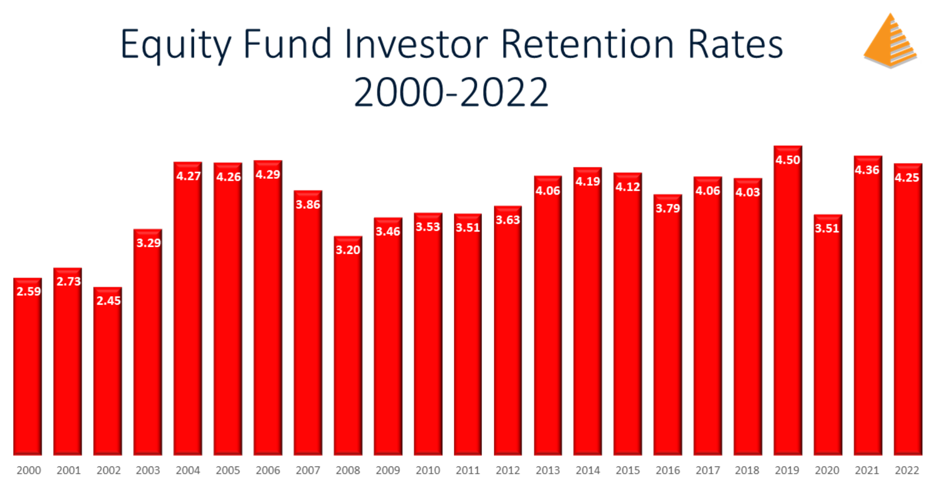
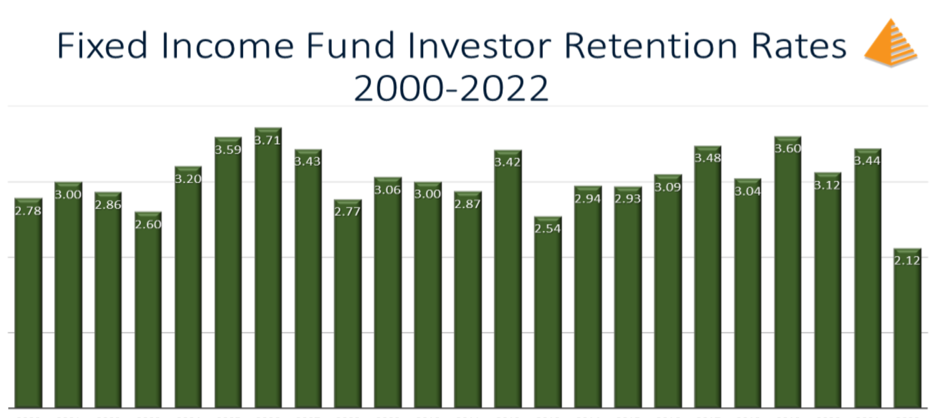
Retention Rates

Historically, the Average Investor has failed to realize the long-term benefits of asset ownership because they do not stay invested in any given investment for a long enough period of time. Retention Rates measure cash outflows in proportion to assets to arrive at the length of time the average investor holds a fund if the current redemption rate persists. Historically, Retention Rates increase when the market is rising and contract during market downturns.

The Average Equity Fund Investor showed little signs of panic during tumultuous year of 2022. Equity investors withdrew 2.15% of assets in 2022, but this was a lower level of withdrawals than any year since 2018. Retention Rates also show that equity investors were somewhat unphased by the market downturn. This may explain why the investor gap was not as absurd as years in the past. While Retention rates contracted by almost a full year during the market turmoil of 2020, Retention Rates dropped by only 0.11 years, or 40 days in 2022.



On the other hand, the Average Fixed Income Investor showed serious signs of panic. Withdrawal rates were at the highest rate (-7.37% of assets) ever recorded by DALBAR (since 1985). Retention Rates contracted from 3.44 years 2.12 years, a 1.32 year drop. This was the largest drop in Retention Rates for the Average Fixed Income Investor ever recorded by DALBAR.



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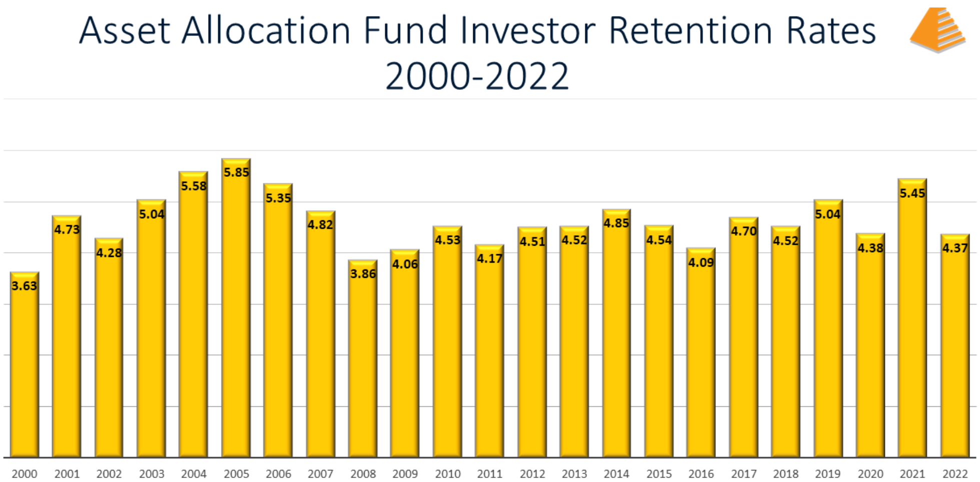
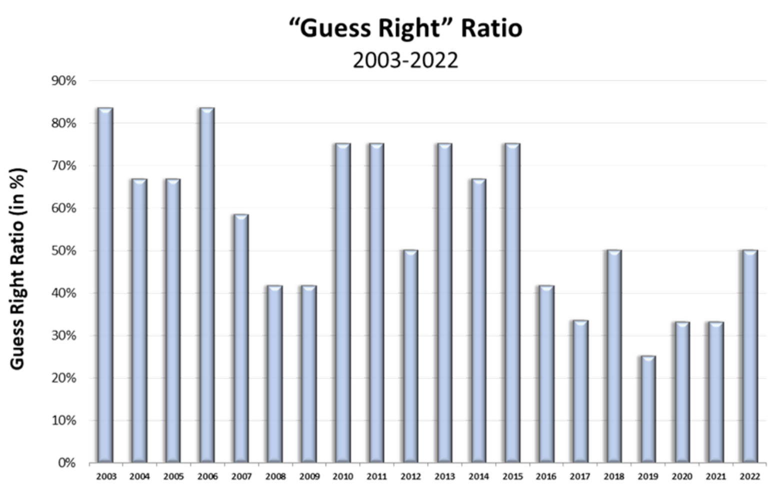
The Average Asset Allocation Fund Investor also had a significant retraction in Retention Rates along with heavy withdrawals throughout the year. In 2021, Retention Rates were nearing an all-time high at 5.45 years before falling to 4.37 years in 2022.



Guess Right Ratio

For 29 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, and guessed correctly exactly half the months of 2022. Unfortunately for the Average Investor, whether they guess right or wrong, it seldom produces superior gains either way 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.

APPENDICES

1. Glossary
2. Rights of Usage and Sourcing Information

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.

Average Equity Fund Investor

The Average Equity Fund Investor is comprised of a universe of both domestic and world equity mutual funds. It includes growth, sector, alternative strategy, value, blend, emerging markets, global equity, international equity, and regional equity funds.

Average Fixed Income Investor

The Average Fixed Income Fund Investor is comprised of a universe of fixed income mutual funds, which includes investment grade, high yield, government, municipal, multi-sector, and global bond funds. It does not include money market funds.

Average Asset Allocation Investor

The Average Asset Allocation Fund Investor is comprised of a universe of funds that invest in a mix of equity and debt securities.

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.

Retention Rate

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.

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.

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