

2022
QAIB Report:
Variable
Annuities



Quantitative Analysis of Investor Behavior



For the period ending: **December 31, 2021**

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Contents

Introduction.....	3
Executive Summary	5
Retention Rates of Subaccount Investors	7
Average VA Subaccount Investor Returns.....	9
APPENDICES.....	11
Year-by-Year Investor Returns	12
Monthly Investor Returns	13
Cash Flow Analysis.....	21
Retention Rates	29
Glossary	37
Investor Return Calculation... ..	39
Rights of Usage.....	41

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 investments 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 report examines the behavior of investors in variable annuity subaccounts by utilizing the same analysis that has been conducted on mutual funds since 1994. By examining the effects of buy, sell, and exchange decisions with respect to variable annuity subaccounts, we can compare the investor behavior of a VA subaccount owner to that of a similarly situated mutual fund investor.

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 and proprietary sources to compare the average equity subaccount investor ("Average Subaccount Investor") returns to the average mutual fund investor ("Average Mutual Fund Investor") and an appropriate benchmark. Covering the period from January 1, 2000 to December 31, 2021, the study utilizes **variable annuity equity and fixed income subaccount** 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.

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.

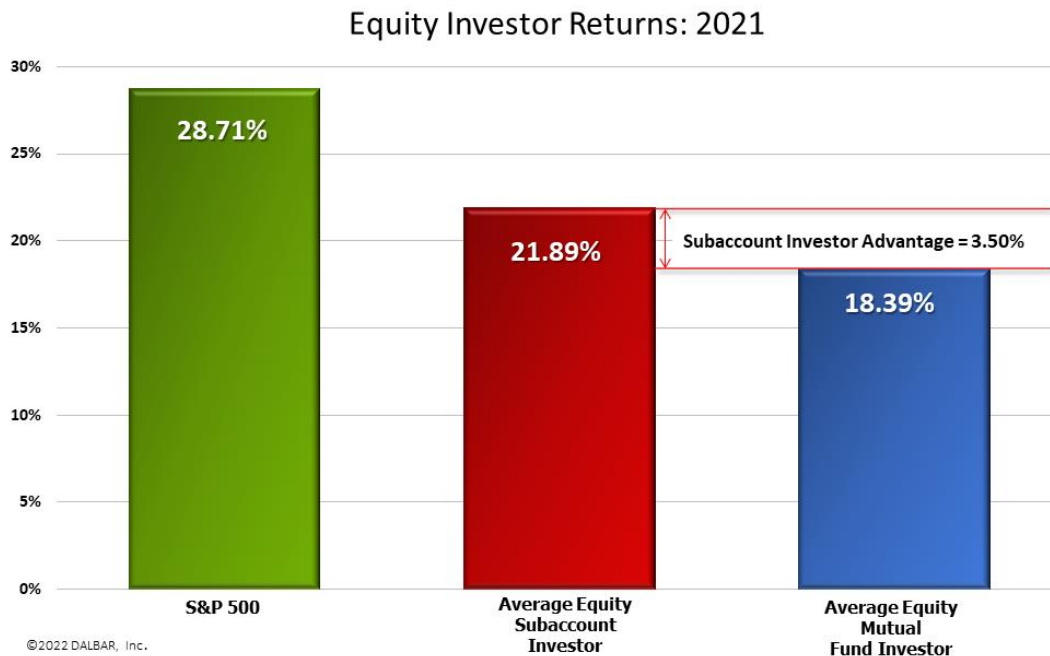
QAIB Advisor Studio!

Renowned investor behavior research is now at your fingertips! Visit the QAIB Advisor Studio at www.advisorstudio.dalbar.com for images, infographics and data feeds from the 2022 Quantitative Analysis of Investor Behavior study.

For questions, please see our FAQ page in the QAIB Store (www.QAIB.com) or contact us at qaib@dalbar.com or 617-624-7100.

Executive Summary

- Retention Rates for the Average **Equity** Subaccount Investor increased from 4.55 years in 2020 to 4.94 years in 2021; an increase of almost 5 months. This level still falls short of where retention rates were since 2014; a 6 year period from 2014-2019 in which retention rates remained over 5 years.
- The gap between the Retention Rate of the Average **Equity** Subaccount Investor and Average Equity Mutual Fund Investor narrowed from 1.04 years (4.55 years vs. 3.51 years) in 2020 to 0.58 years (4.94 years vs. 4.36 years) in 2021.
- The gap between the 20-year average Retention Rate of the Average **Equity** Subaccount and Mutual Fund Investor remained 0.79 years in 2021, or 288 days.
- The Average **Equity** Subaccount Investor drew down from their equity portfolio at a rate of 10.08% of assets in 2021.
- The Average **Equity** Subaccount Investor outperformed the Average Equity Mutual Fund Investor by 350 bps in 2021. The Average Equity Subaccount Investor earned 21.89% in 2021 versus an average return of 18.39% for the Average Equity Mutual Fund Investor.



- The Average **Equity** Subaccount Investor experienced a smaller investor gap in 2021 compared to the Average Equity Mutual Fund Investor. In 2021, the Average Mutual Fund Investor experienced a gap of 1,032 bps compared to the S&P 500, while the Average Equity Subaccount Investor experienced only a 682 bps gap.
- The Average **Equity** Subaccount Investor has outperformed the Average Equity Mutual Fund Investor on a 5-year basis by 547 bps (14.80% 5-year annualized return for Average Equity Mutual Fund Investor versus 20.27% 5-year annualized return for Average Equity Subaccount Investor).
- The Average **Fixed Income** Subaccount Investor underperformed the Average Fixed Income Mutual Fund Investor by 18 bps in 2021. The Average Fixed Income Subaccount Investor lost -1.73% in 2021 versus an average return of -1.55% for the Average Fixed Income Mutual Fund Investor.
- Fixed income investors in variable annuity subaccounts displayed far more patience than fixed income investors in mutual funds. The difference in Retention Rates between the Average Fixed Income Subaccount Investor and Average Fixed Income Mutual Fund Investor widened to 2.10 years in 2021 (5.54 years for subaccount investors vs. 3.44 years for mutual fund investors).

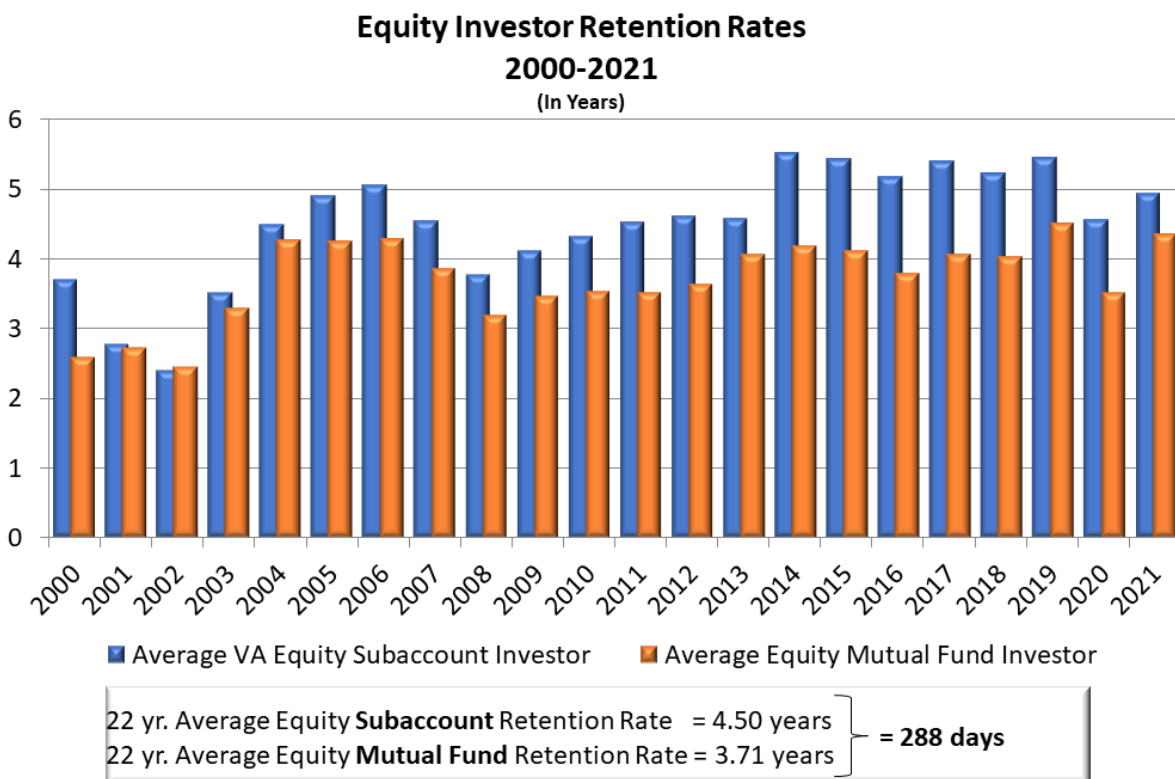
Retention Rates of Subaccount Investors

Retention Rates reflect the length of time the average investor holds a subaccount or mutual fund if the current redemption rate persists. It is the time required to fully redeem the account. Research conducted by DALBAR over the past 28 years has shown that the average investor seldom stays invested in an investment for a sufficient amount of time to realize the benefits of a long-term strategy.

For the Average Mutual Fund Investor, an investment is typically retained for 3-4 years. During periods of market turmoil, retention rates compress and become significantly lower, while during strong market periods retention rates will increase to exceed 4 years.

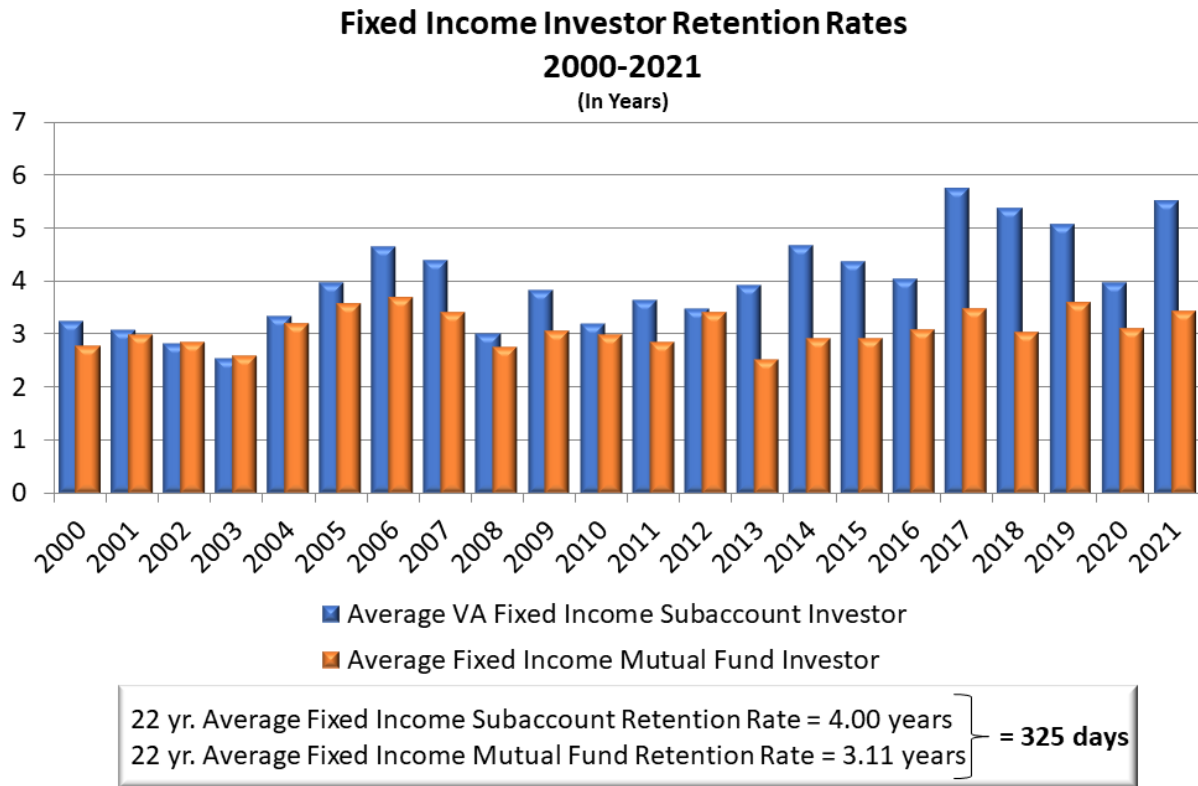
Variable annuity subaccount investors have exhibited longer retention rates than mutual fund investors over the past two decades. Retention rates of the Average Subaccount Investor have exceeded the Average Equity Mutual Fund Investor by more than a full year in recent years, but the gap narrowed in 2021.

The graph below displays the Retention Rates of the Average Equity Subaccount Investor alongside the Retention Rates for the Average Equity Mutual Fund Investor over the past 22 years. The average Retention Rates for the Average Equity Subaccount Investor since the turn of the century was 4.50 years compared to 3.71 years for the Average Equity Mutual Fund Investor. This amounts to a difference of nearly 9.5 months or 288 days.



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Retention Rates for fixed income investors show a similar pattern of subaccount investors staying invested longer than mutual fund investors. The Average Fixed Income Subaccount Investor has an average retention rate of 4.0 years since 2020 while the Average Fixed Income Mutual Fund Investor has an average retention rate during that time of 3.11 years.



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Average VA Subaccount Investor Returns

The most dramatic difference between the behavior of a mutual fund investor and a variable annuity subaccount investor is that the Average Subaccount Investor is less prone to trading. The Average Subaccount Investor displayed far more patience than the Average Mutual Fund Investor when examining the retention rates among the two investors.

The following sections look at investor returns for the Average Subaccount Investor versus the S&P 500 and against the Average Mutual Fund Investor. This analysis will quantify how the Average Subaccount Investors' collective decisions translated into money earned compared to other investors.

Annual Returns

Annual returns produce a clear pattern in which the Average Subaccount has outperformed the Average Mutual Fund Investor. The table on the following page compares the gap in returns of the Average Equity Subaccount Investor to against the Average Equity Mutual Fund Investor and the S&P 500 since 2000. The most recent year of 2021 marked the largest gap between the performance of the Average Equity Subaccount Investor and Average Equity Mutual Fund Investor (3.50%) that has been observed since the beginning of the analysis in 2000.

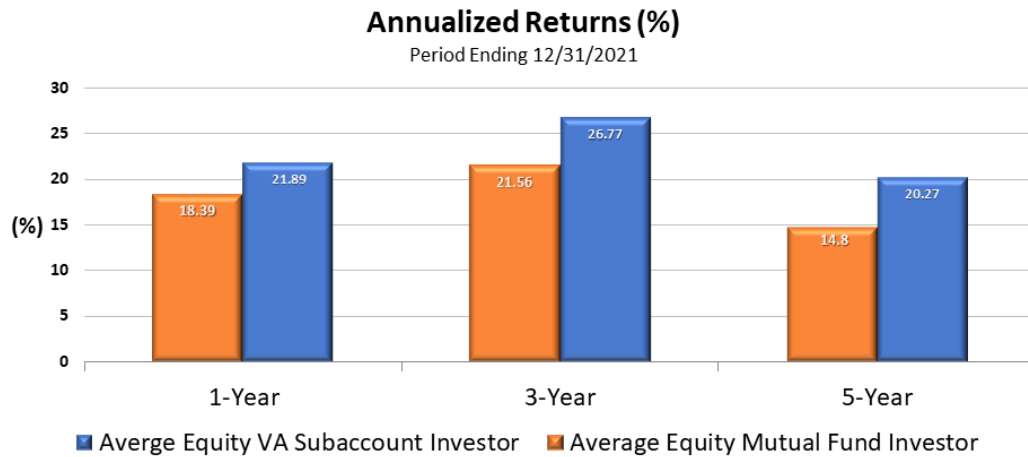
Year	Avg. Subaccount Investor Return	Avg. Mutual Fund Investor Return	Subaccount Investor Performance vs. Mutual Fund Investor	S&P 500	Subaccount Investor Performance vs. S&P 500
2000	-9.48% ¹	-10.19%	0.71%	-9.10%	-0.38%
2001	-15.35%	-14.91%	-0.44%	-11.89%	-3.46%
2002	-20.07%	-21.85%	1.78%	-22.10%	2.03%
2003	29.92%	30.08%	-0.16%	28.68%	1.23%
2004	12.52%	12.60%	-0.09%	10.88%	1.63%
2005	8.71%	8.45%	0.26%	4.91%	3.80%
2006	15.15%	14.65%	0.50%	15.79%	-0.64%
2007	6.80%	7.33%	-0.53%	5.49%	1.31%
2008	-42.00%	-41.62%	-0.38%	-37.00%	-5.00%
2009	31.36%	31.32%	0.05%	26.46%	4.90%
2010	14.62%	14.13%	0.49%	15.06%	-0.45%
2011	-5.47%	-5.72%	0.25%	2.11%	-7.58%
2012	16.21%	15.62%	0.59%	16.00%	0.21%
2013	27.74%	25.68%	2.05%	32.39%	-4.65%
2014	6.50%	5.48%	1.02%	13.69%	-7.19%
2015	-1.53%	-2.27%	0.75%	1.38%	-2.91%
2016	8.13%	7.23%	0.91%	11.96%	-3.83%
2017	22.06%	20.71%	1.34%	21.83%	0.23%
2018	-7.20%	-9.42%	2.23%	-4.38%	-2.81%
2019	28.69%	26.14%	2.55%	31.49%	-2.80%
2020	18.57%	17.09%	1.48%	18.40%	0.17%
2021	21.89%	18.39%	3.50%	28.71%	6.82%

¹. Beginning assets are not available for January of 2000, therefore making the gain/loss for that month unavailable. Annual return for the Average Subaccount Investor in 2000 assumes an "average investor return" in the month of January, 2000 equal to that of the Average Mutual Fund Investor (-4.11%).

Annualized Returns

The Average Subaccount Investor's high retention rates and stellar earnings over the years has led to returns on an annualized basis that are significantly higher than the Average Mutual Fund Investor.

The Average Subaccount Investor outperformed the Average Mutual Fund Investor on an annual basis over 1, 3, and 5-year time periods.



APPENDICES

1. Annual Returns
2. Monthly Returns
3. Fund Flows
4. Retention Rates

Year-by-Year Investor Returns

The following table shows the one-year investor from 2000 to 2021. These calculations assume that investors start investing on January 1 of each year and withdraw their investments on December 31. The effect of compounding across years is therefore lost. Additionally, because of the year-by-year nature of the calculation, returns cannot be asset weighted.

Month	Average Equity <u>Subaccount</u> Investor	Average Equity <u>Mutual</u> <u>Fund</u> Investor	S&P 500
2000	-9.48%	-10.19%	-9.10%
2001	-15.35%	-14.91%	-11.89%
2002	-20.07%	-21.85%	-22.10%
2003	29.92%	30.08%	28.68%
2004	12.52%	12.60%	10.88%
2005	8.71%	8.45%	4.91%
2006	15.15%	14.65%	15.79%
2007	6.80%	7.33%	5.49%
2008	-42.00%	-41.62%	-37.00%
2009	31.36%	31.32%	26.46%
2010	14.62%	14.13%	15.06%
2011	-5.47%	-5.72%	2.11%
2012	16.21%	15.62%	16.00%
2013	27.74%	25.68%	32.39%
2014	6.50%	5.48%	13.69%
2015	-1.53%	-2.27%	1.38%
2016	8.13%	7.23%	11.96%
2017	22.06%	20.71%	21.83%
2018	-7.20%	-9.42%	-4.38%
2019	28.69%	26.14%	31.49%
2020	18.57%	17.09%	18.40%
2021	21.89%	18.39%	28.71%

Monthly Investor Returns

Month	Average Equity Subaccount Investor	Average Equity <u>Mutual</u> Fund Investor	S&P 500
Jan-2000	<i>Not Available</i>	-4.11%	-5.02%
Feb-2000	4.77%	5.68%	-1.89%
Mar-2000	5.23%	3.89%	9.78%
Apr-2000	-5.08%	-5.16%	-3.01%
May-2000	-3.66%	-3.75%	-2.05%
Jun-2000	4.11%	4.62%	2.47%
Jul-2000	-2.02%	-2.13%	-1.56%
Aug-2000	5.23%	7.06%	6.21%
Sep-2000	-3.17%	-4.44%	-5.28%
Oct-2000	-2.60%	-2.86%	-0.42%
Nov-2000	-9.83%	-10.17%	-7.88%
Dec-2000	2.48%	2.17%	0.49%
Jan-2001	2.94%	2.69%	3.55%
Feb-2001	-9.95%	-9.87%	-9.12%
Mar-2001	-7.63%	-7.32%	-6.34%
Apr-2001	8.80%	8.61%	7.77%
May-2001	-0.04%	0.27%	0.67%
Jun-2001	-2.73%	-2.17%	-2.43%
Jul-2001	-2.28%	-2.38%	-0.98%
Aug-2001	-6.07%	-5.66%	-6.26%
Sep-2001	-9.95%	-10.05%	-8.08%
Oct-2001	3.05%	3.03%	1.91%
Nov-2001	7.19%	7.13%	7.67%
Dec-2001	2.14%	1.71%	0.88%
Jan-2002	-0.54%	-1.88%	-1.46%
Feb-2002	-2.09%	-2.00%	-1.93%
Mar-2002	4.68%	4.59%	3.76%
Apr-2002	-4.60%	-4.06%	-6.06%
May-2002	-0.99%	-0.94%	-0.74%
Jun-2002	-7.55%	-7.15%	-7.12%
Jul-2002	-8.67%	-8.79%	-7.80%
Aug-2002	0.62%	0.49%	0.66%
Sep-2002	-9.29%	-9.49%	-10.87%
Oct-2002	7.32%	6.50%	8.80%
Nov-2002	6.79%	5.67%	5.89%
Dec-2002	-5.59%	-5.37%	-5.87%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity Subaccount Investor	Average Equity <u>Mutual</u> Fund Investor	S&P 500
Jan-2003	-2.44%	-2.63%	-2.62%
Feb-2003	-1.65%	-1.89%	-1.50%
Mar-2003	0.78%	0.45%	0.97%
Apr-2003	7.83%	7.92%	8.24%
May-2003	6.11%	6.31%	5.27%
Jun-2003	1.44%	1.70%	1.28%
Jul-2003	2.36%	2.43%	1.76%
Aug-2003	2.73%	2.84%	1.95%
Sep-2003	-0.72%	-0.91%	-1.06%
Oct-2003	5.94%	5.83%	5.66%
Nov-2003	1.44%	1.78%	0.88%
Dec-2003	4.37%	4.12%	5.24%
Jan-2004	2.11%	2.08%	1.84%
Feb-2004	1.63%	1.67%	1.39%
Mar-2004	-0.77%	-0.69%	-1.51%
Apr-2004	-2.65%	-2.48%	-1.57%
May-2004	1.15%	1.15%	1.37%
Jun-2004	2.19%	2.08%	1.94%
Jul-2004	-4.25%	-4.12%	-3.31%
Aug-2004	0.12%	0.14%	0.40%
Sep-2004	2.90%	2.61%	1.08%
Oct-2004	1.71%	1.76%	1.53%
Nov-2004	5.14%	5.16%	4.05%
Dec-2004	3.10%	3.08%	3.40%
Jan-2005	-2.50%	-2.41%	-2.44%
Feb-2005	2.28%	2.44%	2.10%
Mar-2005	-2.07%	-1.92%	-1.77%
Apr-2005	-2.55%	-2.59%	-1.90%
May-2005	4.13%	3.52%	3.18%
Jun-2005	1.20%	1.21%	0.14%
Jul-2005	4.18%	4.21%	3.72%
Aug-2005	-0.22%	0.03%	-0.91%
Sep-2005	1.46%	1.49%	0.81%
Oct-2005	-2.00%	-2.15%	-1.67%
Nov-2005	3.88%	3.83%	3.78%
Dec-2005	0.94%	0.88%	0.03%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity <u>Subaccount</u> Investor	Average Equity <u>Mutual</u> <u>Fund</u> Investor	S&P 500
Jan-2006	4.43%	4.55%	2.65%
Feb-2006	-0.65%	-0.54%	0.27%
Mar-2006	1.88%	2.05%	1.24%
Apr-2006	1.74%	1.94%	1.34%
May-2006	-3.80%	-3.90%	-2.88%
Jun-2006	-0.19%	-0.12%	0.14%
Jul-2006	-0.54%	-0.42%	0.62%
Aug-2006	2.26%	2.27%	2.38%
Sep-2006	2.30%	1.65%	2.58%
Oct-2006	3.74%	3.58%	3.26%
Nov-2006	2.62%	2.72%	1.90%
Dec-2006	0.88%	0.51%	1.40%
Jan-2007	1.48%	1.72%	1.51%
Feb-2007	-1.22%	-1.05%	-1.96%
Mar-2007	1.15%	1.34%	1.12%
Apr-2007	3.75%	4.00%	4.43%
May-2007	3.39%	3.57%	3.49%
Jun-2007	-1.09%	-0.92%	-1.66%
Jul-2007	-2.73%	-2.51%	-3.10%
Aug-2007	1.07%	0.59%	1.50%
Sep-2007	4.59%	4.44%	3.74%
Oct-2007	2.96%	3.20%	1.59%
Nov-2007	-4.91%	-4.80%	-4.18%
Dec-2007	-1.32%	-1.91%	-0.69%
Jan-2008	-7.16%	-6.84%	-6.00%
Feb-2008	-1.81%	-1.33%	-3.25%
Mar-2008	-1.57%	-1.59%	-0.43%
Apr-2008	5.03%	5.18%	4.87%
May-2008	2.05%	2.30%	1.30%
Jun-2008	-8.05%	-7.95%	-8.43%
Jul-2008	-2.11%	-2.29%	-0.84%
Aug-2008	-0.25%	-0.30%	1.45%
Sep-2008	-11.30%	-11.32%	-8.91%
Oct-2008	-19.58%	-19.50%	-16.79%
Nov-2008	-8.39%	-8.07%	-7.18%
Dec-2008	2.49%	2.34%	1.06%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity Subaccount Investor	Average Equity <u>Mutual</u> Fund Investor	S&P 500
Jan-2009	-8.00%	-7.58%	-8.43%
Feb-2009	-9.27%	-9.18%	-10.65%
Mar-2009	8.21%	7.90%	8.76%
Apr-2009	10.98%	11.09%	9.57%
May-2009	6.93%	7.47%	5.59%
Jun-2009	-0.38%	-0.44%	0.20%
Jul-2009	8.28%	8.05%	7.56%
Aug-2009	3.31%	3.33%	3.61%
Sep-2009	4.90%	4.84%	3.73%
Oct-2009	-2.75%	-2.64%	-1.86%
Nov-2009	5.16%	5.07%	6.00%
Dec-2009	2.47%	2.19%	1.93%
Jan-2010	-4.05%	-3.99%	-3.60%
Feb-2010	2.63%	2.42%	3.10%
Mar-2010	6.07%	6.17%	6.03%
Apr-2010	1.43%	1.32%	1.58%
May-2010	-8.54%	-8.39%	-7.99%
Jun-2010	-4.91%	-4.47%	-5.23%
Jul-2010	7.46%	7.27%	7.01%
Aug-2010	-4.29%	-3.95%	-4.51%
Sep-2010	9.67%	9.48%	8.92%
Oct-2010	3.92%	3.74%	3.80%
Nov-2010	-0.11%	-0.32%	0.01%
Dec-2010	6.19%	5.76%	6.68%
Jan-2011	2.27%	1.57%	2.37%
Feb-2011	2.97%	3.01%	3.43%
Mar-2011	0.47%	0.55%	0.04%
Apr-2011	3.25%	3.41%	2.96%
May-2011	-1.50%	-1.59%	-1.13%
Jun-2011	-2.17%	-1.95%	-1.67%
Jul-2011	-2.19%	-1.94%	-2.03%
Aug-2011	-7.35%	-6.91%	-5.43%
Sep-2011	-9.17%	-9.19%	-7.03%
Oct-2011	11.34%	11.22%	10.93%
Nov-2011	-1.24%	-1.15%	-0.22%
Dec-2011	-1.01%	-1.44%	1.02%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity Subaccount Investor	Average Equity <u>Mutual</u> Fund Investor	S&P 500
Jan-2012	6.03%	6.51%	4.48%
Feb-2012	4.55%	4.47%	4.32%
Mar-2012	2.09%	1.73%	3.29%
Apr-2012	-0.96%	-0.84%	-0.63%
May-2012	-7.72%	-7.54%	-6.01%
Jun-2012	3.66%	3.64%	4.12%
Jul-2012	0.86%	0.90%	1.39%
Aug-2012	2.65%	2.59%	2.25%
Sep-2012	2.64%	2.57%	2.58%
Oct-2012	-1.27%	-1.19%	-1.85%
Nov-2012	1.19%	1.19%	0.58%
Dec-2012	1.47%	1.10%	0.91%
Jan-2013	4.16%	4.55%	5.18%
Feb-2013	1.33%	0.61%	1.36%
Mar-2013	2.94%	2.80%	3.75%
Apr-2013	0.92%	1.70%	1.93%
May-2013	1.53%	1.37%	2.34%
Jun-2013	-1.96%	-2.09%	-1.34%
Jul-2013	5.41%	5.05%	5.09%
Aug-2013	-2.44%	-2.32%	-2.90%
Sep-2013	4.73%	4.74%	3.14%
Oct-2013	3.68%	3.63%	4.60%
Nov-2013	2.15%	2.15%	3.05%
Dec-2013	1.97%	1.61%	2.53%
Jan-2014	-3.31%	-3.12%	-3.46%
Feb-2014	5.09%	4.91%	4.57%
Mar-2014	-0.27%	-0.18%	0.84%
Apr-2014	-0.52%	-0.36%	0.74%
May-2014	2.14%	2.17%	2.35%
Jun-2014	2.49%	2.29%	2.07%
Jul-2014	-2.14%	-2.07%	-1.38%
Aug-2014	3.40%	3.41%	4.00%
Sep-2014	-2.97%	-3.08%	-1.40%
Oct-2014	1.96%	1.87%	2.44%
Nov-2014	1.81%	1.75%	2.69%
Dec-2014	-1.11%	-1.82%	-0.25%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity Subaccount Investor	Average Equity <u>Mutual</u> Fund Investor	S&P 500
Jan-2015	-1.91%	-1.70%	-3.00%
Feb-2015	5.67%	5.45%	5.75%
Mar-2015	-0.80%	-0.92%	-1.58%
Apr-2015	1.02%	1.16%	0.96%
May-2015	1.18%	0.97%	1.29%
Jun-2015	-1.91%	-1.92%	-1.94%
Jul-2015	1.15%	0.96%	2.10%
Aug-2015	-6.56%	-6.26%	-6.03%
Sep-2015	-3.56%	-3.65%	-2.47%
Oct-2015	7.46%	7.23%	8.44%
Nov-2015	0.23%	0.17%	0.30%
Dec-2015	-2.78%	-3.01%	-1.58%
Jan-2016	-6.32%	-6.28%	-4.96%
Feb-2016	-0.73%	-0.60%	-0.13%
Mar-2016	7.02%	6.82%	6.78%
Apr-2016	0.92%	1.13%	0.39%
May-2016	1.32%	1.15%	1.80%
Jun-2016	-0.66%	-0.69%	0.26%
Jul-2016	4.23%	4.22%	3.69%
Aug-2016	0.37%	0.41%	0.14%
Sep-2016	0.41%	0.41%	0.02%
Oct-2016	-2.46%	-2.33%	-1.82%
Nov-2016	3.06%	2.62%	3.70%
Dec-2016	1.18%	0.66%	1.98%
Jan-2017	2.50%	2.74%	1.90%
Feb-2017	2.93%	2.88%	3.97%
Mar-2017	0.68%	0.67%	0.12%
Apr-2017	1.48%	1.50%	1.03%
May-2017	1.42%	1.53%	1.41%
Jun-2017	0.68%	0.59%	0.62%
Jul-2017	2.20%	2.26%	2.06%
Aug-2017	0.03%	0.13%	0.31%
Sep-2017	2.33%	2.20%	2.06%
Oct-2017	1.99%	1.97%	2.33%
Nov-2017	2.39%	2.16%	3.07%
Dec-2017	0.75%	0.34%	1.11%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity Subaccount Investor	Average Equity <u>Mutual</u> Fund Investor	S&P 500
Jan-2018	5.64%	5.47%	5.73%
Feb-2018	-3.96%	-3.90%	-3.69%
Mar-2018	-1.63%	-1.58%	-2.54%
Apr-2018	0.59%	0.47%	0.38%
May-2018	1.91%	1.66%	2.41%
Jun-2018	0.74%	-0.19%	0.62%
Jul-2018	3.23%	2.81%	3.72%
Aug-2018	2.17%	1.81%	3.26%
Sep-2018	-0.11%	-0.08%	0.57%
Oct-2018	-8.26%	-7.98%	-6.84%
Nov-2018	1.96%	1.78%	2.04%
Dec-2018	-8.87%	-9.09%	-9.03%
Jan-2019	8.78%	8.58%	8.01%
Feb-2019	3.27%	3.15%	3.21%
Mar-2019	1.10%	0.93%	1.94%
Apr-2019	3.71%	3.55%	4.05%
May-2019	-6.28%	-6.02%	-6.35%
Jun-2019	6.52%	6.28%	7.05%
Jul-2019	0.73%	0.62%	1.44%
Aug-2019	-2.21%	-2.17%	-1.58%
Sep-2019	1.34%	1.28%	1.87%
Oct-2019	2.06%	2.25%	2.17%
Nov-2019	3.45%	3.23%	3.63%
Dec-2019	2.60%	2.17%	3.02%
Jan-2020	-1.17%	-0.97%	-0.04%
Feb-2020	-7.62%	-7.42%	-8.23%
Mar-2020	-14.46%	-14.76%	-12.35%
Apr-2020	12.10%	12.04%	12.82%
May-2020	5.72%	5.59%	4.76%
Jun-2020	2.61%	2.82%	1.99%
Jul-2020	5.38%	5.30%	5.64%
Aug-2020	6.29%	6.05%	7.19%
Sep-2020	-3.30%	-3.17%	-3.80%
Oct-2020	-1.92%	-1.85%	-2.66%
Nov-2020	12.41%	11.70%	10.95%
Dec-2020	4.58%	4.12%	3.84%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Month	Average Equity <u>Subaccount</u> Investor	Average Equity <u>Mutual</u> <u>Fund</u> Investor	S&P 500
Jan-2021	-0.43%	-0.40%	-1.01%
Feb-2021	3.39%	3.24%	2.76%
Mar-2021	2.48%	2.24%	4.38%
Apr-2021	5.65%	4.78%	5.34%
May-2021	0.68%	0.87%	0.70%
Jun-2021	1.83%	1.67%	2.33%
Jul-2021	1.12%	0.91%	2.38%
Aug-2021	2.61%	2.61%	3.04%
Sep-2021	-4.37%	-4.34%	-4.65%
Oct-2021	5.69%	5.50%	7.01%
Nov-2021	-2.50%	-2.61%	-0.69%
Dec-2021	3.32%	2.80%	4.48%

**These calculations assume that investors start investing on the first day of each month and withdraw their investments on the last day of the month. The effect of compounding across months is therefore lost. Additionally, because of the month-by-month nature of the calculation, returns cannot be asset weighted.*

Cash Flow Analysis

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2000	639,680	1.25%
Feb-2000	679,336	1.37%
Mar-2000	722,945	1.13%
Apr-2000	692,681	0.94%
May-2000	672,063	0.71%
Jun-2000	704,696	0.72%
Jul-2000	693,692	0.47%
Aug-2000	735,173	0.71%
Sep-2000	715,725	0.54%
Oct-2000	701,107	0.57%
Nov-2000	632,022	-0.02%
Dec-2000	652,388	0.72%
Jan-2001	675,688	0.61%
Feb-2001	607,249	-0.20%
Mar-2001	555,760	-0.92%
Apr-2001	608,299	0.60%
May-2001	611,896	0.63%
Jun-2001	598,314	0.53%
Jul-2001	583,822	-0.14%
Aug-2001	547,046	-0.25%
Sep-2001	488,103	-0.92%
Oct-2001	503,439	0.09%
Nov-2001	544,183	0.84%
Dec-2001	558,512	0.49%
Jan-2002	558,086	0.46%
Feb-2002	546,157	-0.05%
Mar-2002	577,193	0.96%
Apr-2002	552,618	0.36%
May-2002	547,731	0.11%
Jun-2002	503,036	-0.66%
Jul-2002	447,506	-2.59%
Aug-2002	449,492	-0.17%
Sep-2002	404,305	-0.84%
Oct-2002	432,537	-0.31%
Nov-2002	464,050	0.46%
Dec-2002	438,598	0.11%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2003	426,443	-0.34%
Feb-2003	417,212	-0.52%
Mar-2003	420,327	-0.03%
Apr-2003	457,386	0.92%
May-2003	487,592	0.47%
Jun-2003	498,750	0.84%
Jul-2003	514,428	0.77%
Aug-2003	534,841	1.20%
Sep-2003	535,862	0.92%
Oct-2003	574,299	1.16%
Nov-2003	587,202	0.79%
Dec-2003	619,012	1.00%
Jan-2004	637,646	0.88%
Feb-2004	652,628	0.71%
Mar-2004	650,091	0.38%
Apr-2004	637,881	0.79%
May-2004	645,748	0.09%
Jun-2004	663,832	0.59%
Jul-2004	636,487	0.14%
Aug-2004	637,819	0.09%
Sep-2004	659,107	0.43%
Oct-2004	672,516	0.32%
Nov-2004	711,390	0.61%
Dec-2004	738,444	0.68%
Jan-2005	720,138	0.02%
Feb-2005	740,025	0.47%
Mar-2005	726,720	0.27%
Apr-2005	708,254	0.01%
May-2005	741,574	0.55%
Jun-2005	753,027	0.34%
Jul-2005	785,646	0.15%
Aug-2005	784,256	0.04%
Sep-2005	795,722	0.00%
Oct-2005	776,091	-0.48%
Nov-2005	810,892	0.59%
Dec-2005	822,105	0.44%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2006	860,001	0.17%
Feb-2006	857,077	0.31%
Mar-2006	877,162	0.46%
Apr-2006	895,751	0.38%
May-2006	862,605	0.10%
Jun-2006	860,757	-0.02%
Jul-2006	856,491	0.05%
Aug-2006	877,574	0.20%
Sep-2006	899,038	0.14%
Oct-2006	934,945	0.25%
Nov-2006	960,992	0.16%
Dec-2006	975,363	0.61%
Jan-2007	989,989	0.02%
Feb-2007	978,191	0.03%
Mar-2007	988,427	-0.10%
Apr-2007	1,031,612	0.60%
May-2007	1,064,120	-0.23%
Jun-2007	1,052,383	-0.02%
Jul-2007	1,023,960	0.03%
Aug-2007	1,030,945	-0.39%
Sep-2007	1,081,036	0.26%
Oct-2007	1,115,000	0.17%
Nov-2007	1,059,872	-0.04%
Dec-2007	1,052,793	0.66%
Jan-2008	966,031	-1.16%
Feb-2008	948,451	-0.01%
Mar-2008	932,425	-0.12%
Apr-2008	984,134	0.50%
May-2008	1,005,408	0.11%
Jun-2008	923,196	-0.14%
Jul-2008	899,676	-0.45%
Aug-2008	896,987	-0.05%
Sep-2008	788,680	-0.88%
Oct-2008	627,654	-1.05%
Nov-2008	576,173	0.20%
Dec-2008	598,560	1.36%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2009	551,524	0.15%
Feb-2009	498,028	-0.47%
Mar-2009	538,174	-0.14%
Apr-2009	601,202	0.65%
May-2009	646,800	0.61%
Jun-2009	644,906	0.09%
Jul-2009	699,253	0.14%
Aug-2009	722,475	0.01%
Sep-2009	757,201	-0.09%
Oct-2009	733,318	-0.42%
Nov-2009	769,913	-0.16%
Dec-2009	791,759	0.36%
Jan-2010	758,552	-0.16%
Feb-2010	775,442	-0.40%
Mar-2010	824,339	0.23%
Apr-2010	832,828	-0.40%
May-2010	755,769	-0.78%
Jun-2010	719,540	0.12%
Jul-2010	772,072	-0.15%
Aug-2010	736,151	-0.38%
Sep-2010	806,065	-0.16%
Oct-2010	836,541	-0.13%
Nov-2010	833,034	-0.30%
Dec-2010	886,358	0.20%
Jan-2011	903,957	-0.28%
Feb-2011	928,699	-0.23%
Mar-2011	929,809	-0.35%
Apr-2011	957,640	-0.25%
May-2011	938,964	-0.46%
Jun-2011	913,361	-0.57%
Jul-2011	887,002	-0.71%
Aug-2011	813,187	-1.05%
Sep-2011	736,493	-0.28%
Oct-2011	822,303	0.28%
Nov-2011	805,182	-0.85%
Dec-2011	799,921	0.36%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2012	848,030	-0.01%
Feb-2012	885,188	-0.16%
Mar-2012	899,482	-0.46%
Apr-2012	885,827	-0.57%
May-2012	810,764	-0.81%
Jun-2012	839,344	-0.13%
Jul-2012	843,197	-0.40%
Aug-2012	860,961	-0.53%
Sep-2012	878,042	-0.64%
Oct-2012	859,520	-0.85%
Nov-2012	863,875	-0.68%
Dec-2012	875,005	-0.18%
Jan-2013	909,250	-0.23%
Feb-2013	915,458	-0.63%
Mar-2013	938,007	-0.46%
Apr-2013	938,234	-0.89%
May-2013	948,378	-0.45%
Jun-2013	924,467	-0.57%
Jul-2013	969,938	-0.47%
Aug-2013	941,859	-0.47%
Sep-2013	981,349	-0.51%
Oct-2013	1,014,278	-0.31%
Nov-2013	1,031,805	-0.42%
Dec-2013	1,050,470	-0.16%
Jan-2014	1,010,219	-0.54%
Feb-2014	1,057,606	-0.38%
Mar-2014	1,050,414	-0.41%
Apr-2014	1,041,164	-0.37%
May-2014	1,058,348	-0.48%
Jun-2014	1,078,766	-0.55%
Jul-2014	1,049,232	-0.61%
Aug-2014	1,080,500	-0.41%
Sep-2014	1,044,537	-0.37%
Oct-2014	1,061,361	-0.34%
Nov-2014	1,078,546	-0.19%
Dec-2014	1,065,126	-0.14%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2015	1,040,540	-0.40%
Feb-2015	1,096,175	-0.30%
Mar-2015	1,083,055	-0.40%
Apr-2015	1,087,643	-0.59%
May-2015	1,095,555	-0.44%
Jun-2015	1,070,686	-0.37%
Jul-2015	1,078,626	-0.41%
Aug-2015	1,003,367	-0.45%
Sep-2015	964,723	-0.30%
Oct-2015	1,035,908	-0.07%
Nov-2015	1,035,796	-0.24%
Dec-2015	1,006,454	-0.06%
Jan-2016	935,126	-0.81%
Feb-2016	925,117	-0.34%
Mar-2016	988,420	-0.17%
Apr-2016	992,602	-0.49%
May-2016	1,000,816	-0.49%
Jun-2016	990,511	-0.37%
Jul-2016	1,028,340	-0.39%
Aug-2016	1,025,766	-0.62%
Sep-2016	1,025,657	-0.42%
Oct-2016	994,624	-0.58%
Nov-2016	1,018,364	-0.65%
Dec-2016	1,027,850	-0.24%
Jan-2017	1,047,144	-0.61%
Feb-2017	1,071,327	-0.60%
Mar-2017	1,068,653	-0.92%
Apr-2017	1,078,445	-0.56%
May-2017	1,087,512	-0.57%
Jun-2017	1,089,375	-0.50%
Jul-2017	1,107,125	-0.56%
Aug-2017	1,100,486	-0.63%
Sep-2017	1,120,174	-0.53%
Oct-2017	1,134,318	-0.71%
Nov-2017	1,153,094	-0.72%
Dec-2017	1,156,265	-0.47%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2018	1,210,587	-0.89%
Feb-2018	1,153,280	-0.81%
Mar-2018	1,127,876	-0.58%
Apr-2018	1,129,031	-0.49%
May-2018	1,143,447	-0.62%
Jun-2018	1,146,587	-0.47%
Jul-2018	1,176,561	-0.60%
Aug-2018	1,195,626	-0.54%
Sep-2018	1,187,978	-0.53%
Oct-2018	1,083,362	-0.94%
Nov-2018	1,099,017	-0.51%
Dec-2018	1,001,327	-0.05%
Jan-2019	1,083,897	-0.49%
Feb-2019	1,114,129	-0.47%
Mar-2019	1,119,443	-0.62%
Apr-2019	1,151,584	-0.81%
May-2019	1,071,049	-0.76%
Jun-2019	1,135,024	-0.51%
Jul-2019	1,135,337	-0.69%
Aug-2019	1,103,343	-0.62%
Sep-2019	1,111,546	-0.58%
Oct-2019	1,123,541	-0.96%
Nov-2019	1,153,834	-0.73%
Dec-2019	1,178,764	-0.43%
Jan-2020	1,152,219	-1.06%
Feb-2020	1,054,499	-0.93%
Mar-2020	894,902	-0.79%
Apr-2020	1,003,915	0.07%
May-2020	1,060,401	-0.09%
Jun-2020	1,080,604	-0.68%
Jul-2020	1,126,585	-1.07%
Aug-2020	1,187,284	-0.85%
Sep-2020	1,138,678	-0.82%
Oct-2020	1,105,162	-1.05%
Nov-2020	1,234,773	-0.60%
Dec-2020	1,284,453	-0.53%

Month	Total Equity Subaccount Assets at End of Month (in millions of dollars)	Average Subaccount Investor Net Inflow/Outflow as % of Assets
Jan-2021	1,265,084	-1.10%
Feb-2021	1,297,740	-0.78%
Mar-2021	1,320,679	-0.70%
Apr-2021	1,375,978	-1.38%
May-2021	1,375,930	-0.68%
Jun-2021	1,376,074	-1.79%
Jul-2021	1,383,924	-0.54%
Aug-2021	1,411,856	-0.58%
Sep-2021	1,344,157	-0.44%
Oct-2021	1,420,251	-0.02%
Nov-2021	1,373,651	-0.80%
Dec-2021	1,408,123	-0.78%

Retention Rates

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2000	3.96	2.08
Feb-2000	3.92	2.23
Mar-2000	3.08	1.83
Apr-2000	3.87	2.46
May-2000	3.88	2.53
Jun-2000	3.59	2.70
Jul-2000	3.98	2.83
Aug-2000	4.31	2.94
Sep-2000	3.97	3.10
Oct-2000	3.49	2.87
Nov-2000	3.14	2.84
Dec-2000	3.21	2.59
Jan-2001	2.93	2.45
Feb-2001	2.93	2.63
Mar-2001	2.10	2.03
Apr-2001	3.17	3.14
May-2001	2.79	2.97
Jun-2001	3.29	3.25
Jul-2001	2.74	2.90
Aug-2001	2.53	2.68
Sep-2001	2.66	2.60
Oct-2001	2.22	2.44
Nov-2001	3.07	3.07
Dec-2001	2.87	2.60
Jan-2002	2.76	2.70
Feb-2002	2.61	2.91
Mar-2002	3.08	3.04
Apr-2002	2.64	2.63
May-2002	2.56	2.65
Jun-2002	2.21	2.37
Jul-2002	1.35	1.52
Aug-2002	2.16	2.36
Sep-2002	2.05	2.28
Oct-2002	1.77	1.93
Nov-2002	2.80	2.72
Dec-2002	2.82	2.34

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2003	2.06	2.26
Feb-2003	2.70	2.68
Mar-2003	2.60	2.59
Apr-2003	3.42	3.25
May-2003	2.84	3.23
Jun-2003	3.16	3.13
Jul-2003	3.25	3.32
Aug-2003	4.36	4.07
Sep-2003	3.77	3.51
Oct-2003	4.44	3.86
Nov-2003	5.12	4.13
Dec-2003	4.42	3.51
Jan-2004	4.57	3.82
Feb-2004	5.41	4.66
Mar-2004	3.84	3.65
Apr-2004	3.92	3.91
May-2004	3.53	4.10
Jun-2004	4.52	4.43
Jul-2004	4.15	4.40
Aug-2004	4.22	4.47
Sep-2004	5.80	5.02
Oct-2004	5.37	4.64
Nov-2004	4.68	4.55
Dec-2004	3.83	3.63
Jan-2005	4.43	3.70
Feb-2005	5.82	4.67
Mar-2005	4.76	3.73
Apr-2005	4.08	3.96
May-2005	3.57	4.52
Jun-2005	5.72	4.46
Jul-2005	5.90	4.83
Aug-2005	5.07	4.14
Sep-2005	5.00	4.61
Oct-2005	3.74	3.87
Nov-2005	5.81	4.73
Dec-2005	4.93	3.88

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2006	4.74	3.69
Feb-2006	5.85	4.71
Mar-2006	4.94	4.08
Apr-2006	4.82	4.49
May-2006	2.54	3.16
Jun-2006	4.14	3.85
Jul-2006	4.68	4.63
Aug-2006	5.68	4.46
Sep-2006	6.62	5.03
Oct-2006	5.54	4.29
Nov-2006	5.66	4.85
Dec-2006	5.52	4.22
Jan-2007	4.79	3.68
Feb-2007	5.45	4.33
Mar-2007	4.42	3.84
Apr-2007	4.98	4.06
May-2007	3.01	3.69
Jun-2007	4.54	4.02
Jul-2007	3.72	3.68
Aug-2007	3.66	3.44
Sep-2007	5.78	4.62
Oct-2007	4.76	3.68
Nov-2007	4.41	3.76
Dec-2007	4.94	3.47
Jan-2008	2.61	2.27
Feb-2008	5.14	4.20
Mar-2008	4.58	3.76
Apr-2008	3.46	3.86
May-2008	3.92	4.62
Jun-2008	4.35	3.88
Jul-2008	3.30	3.20
Aug-2008	5.38	4.17
Sep-2008	2.68	2.24
Oct-2008	1.84	1.52
Nov-2008	3.80	2.52
Dec-2008	4.25	2.12

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2009	4.75	3.40
Feb-2009	3.45	2.62
Mar-2009	2.41	2.14
Apr-2009	3.88	3.79
May-2009	3.70	3.87
Jun-2009	4.35	3.57
Jul-2009	4.41	3.94
Aug-2009	4.72	3.79
Sep-2009	3.03	3.61
Oct-2009	3.14	3.04
Nov-2009	5.59	4.06
Dec-2009	5.91	3.67
Jan-2010	5.43	3.53
Feb-2010	4.82	4.25
Mar-2010	5.16	3.72
Apr-2010	3.70	3.73
May-2010	1.99	2.70
Jun-2010	3.35	3.30
Jul-2010	4.51	3.70
Aug-2010	4.64	3.38
Sep-2010	4.33	3.69
Oct-2010	5.31	3.43
Nov-2010	4.62	4.00
Dec-2010	3.83	2.94
Jan-2011	4.58	3.52
Feb-2011	5.60	4.09
Mar-2011	4.63	3.65
Apr-2011	3.94	4.14
May-2011	5.42	4.22
Jun-2011	3.95	3.36
Jul-2011	4.57	3.35
Aug-2011	2.61	2.54
Sep-2011	4.02	3.24
Oct-2011	5.27	3.46
Nov-2011	4.19	3.79
Dec-2011	5.40	2.81

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2012	5.96	3.36
Feb-2012	4.67	3.71
Mar-2012	5.42	3.25
Apr-2012	2.98	3.50
May-2012	3.45	3.52
Jun-2012	5.45	3.55
Jul-2012	5.31	4.12
Aug-2012	4.93	4.01
Sep-2012	4.39	4.00
Oct-2012	4.02	3.99
Nov-2012	4.08	3.67
Dec-2012	4.68	2.85
Jan-2013	5.78	3.90
Feb-2013	4.77	4.37
Mar-2013	5.44	4.35
Apr-2013	3.29	3.78
May-2013	3.17	3.79
Jun-2013	3.73	3.76
Jul-2013	3.66	4.07
Aug-2013	5.26	4.44
Sep-2013	5.11	4.22
Oct-2013	5.11	4.49
Nov-2013	5.11	3.87
Dec-2013	4.55	3.69
Jan-2014	5.06	3.44
Feb-2014	6.54	5.12
Mar-2014	5.69	4.42
Apr-2014	3.65	4.29
May-2014	5.35	4.39
Jun-2014	5.18	4.56
Jul-2014	5.28	3.80
Aug-2014	6.53	4.45
Sep-2014	5.60	4.03
Oct-2014	5.12	3.74
Nov-2014	6.97	5.06
Dec-2014	5.25	2.93

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2015	5.49	3.75
Feb-2015	6.61	4.99
Mar-2015	4.96	3.85
Apr-2015	4.09	4.04
May-2015	5.57	4.83
Jun-2015	4.80	4.27
Jul-2015	5.79	3.97
Aug-2015	4.34	3.58
Sep-2015	5.06	4.17
Oct-2015	6.50	4.58
Nov-2015	6.78	4.43
Dec-2015	5.28	2.92
Jan-2016	4.77	3.26
Feb-2016	4.89	4.08
Mar-2016	6.06	3.96
Apr-2016	5.17	3.86
May-2016	5.24	4.50
Jun-2016	4.50	3.39
Jul-2016	5.70	3.77
Aug-2016	5.50	4.13
Sep-2016	5.70	4.02
Oct-2016	4.32	3.88
Nov-2016	5.25	3.66
Dec-2016	4.93	3.00
Jan-2017	5.55	3.41
Feb-2017	5.43	4.53
Mar-2017	4.08	3.04
Apr-2017	5.22	4.05
May-2017	4.79	4.07
Jun-2017	5.64	3.94
Jul-2017	6.26	4.26
Aug-2017	5.87	4.11
Sep-2017	4.76	4.38
Oct-2017	5.67	4.36
Nov-2017	6.07	4.78
Dec-2017	5.37	3.77

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2018	5.05	3.38
Feb-2018	4.26	3.87
Mar-2018	4.74	4.33
Apr-2018	5.59	4.01
May-2018	5.06	4.99
Jun-2018	5.96	4.15
Jul-2018	5.79	4.59
Aug-2018	5.19	4.26
Sep-2018	6.52	4.66
Oct-2018	3.72	3.57
Nov-2018	6.20	4.31
Dec-2018	4.54	2.23
Jan-2019	5.96	4.03
Feb-2019	5.10	4.82
Mar-2019	4.99	4.31
Apr-2019	5.38	4.15
May-2019	5.59	4.74
Jun-2019	5.76	4.84
Jul-2019	5.81	4.53
Aug-2019	5.65	4.45
Sep-2019	6.04	4.87
Oct-2019	4.64	4.22
Nov-2019	5.85	5.06
Dec-2019	4.68	3.99
Jan-2020	4.19	3.64
Feb-2020	4.43	3.84
Mar-2020	2.24	1.72
Apr-2020	4.22	3.06
May-2020	5.63	3.85
Jun-2020	3.91	3.21
Jul-2020	4.37	4.09
Aug-2020	5.28	4.03
Sep-2020	5.40	3.89
Oct-2020	4.30	3.36
Nov-2020	6.02	4.19
Dec-2020	4.60	3.28

Month	Average Equity <u>Subaccount</u> Investor Retention Rate (in years)	Average Equity <u>Mutual Fund</u> Investor Retention Rate (in years)
Jan-2021	4.05	3.29
Feb-2021	4.36	3.79
Mar-2021	4.17	3.60
Apr-2021	3.63	3.63
May-2021	5.32	4.71
Jun-2021	2.83	4.01
Jul-2021	6.64	4.79
Aug-2021	6.65	4.96
Sep-2021	6.51	5.27
Oct-2021	5.71	5.57
Nov-2021	4.89	5.09
Dec-2021	4.49	3.65

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 Subaccount Investor

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

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.

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.

Contribution Variance

Contribution Variance is the difference between the net inflow/outflow as a percentage of assets in a particular month and the trailing 12-month average.

INVESTOR RETURN CALCULATION...

AN EXAMPLE

Investor return is calculated by measuring the actual gains that investors realize. The following example is hypothetical:

Step 1: Compute Monthly Net Change

The equity assets at the end of 1/31 are subtracted from the assets at 12/31 to determine the change for the month. The change is the net of investor actions [new investments (which includes the reinvestment of dividends and capital gain distributions), withdrawals (redemptions), exchanges in and out], changes in market value, net of loads, fees, expenses, commissions, etc.

1/31 Assets - 12/31 Assets =
Change

5196 – 4940

= 256

(In \$ Billions)

Monthly Change	256
Minus New Investments	-123
Plus Withdrawals	+105
Minus Exchanges in	-25
Plus Exchanges out	+12
Equal Net Change in Market Value	225
	(In \$ Billions)

Step 2: Compute Change in Market Value

The change in assets due to investor actions are deducted from monthly net change, resulting in the market value change that is net of loads, fees, expenses, commissions, etc. The net change in market value is the return earned by the investor for the month, after all fees and expenses are paid. This could

be either a gain or loss.

Step 3: Calculate Total for Period

The calculation is repeated for each month to develop the total for the periods for which the investor return is being measured – (1, 3, 5, 10 and 20 years.)

The example illustrates a one-year period. Note that the average investor suffered losses in February, May, June and July, but these were more than offset by the gains in the other months.

January	225
February	-28
March	+106
April	+106
May	-213
June	-5
July	-20
August	+119
September	+88
October	+195
November	+154
December	+30
Total for period	757

Step 4: Determine Cost Basis

The cost basis is the opening balance for the period adjusted by the investor actions (new investments, withdrawals, exchanges in and out).

Opening Assets	4940
Plus New Investments	+1288
Minus Withdrawals	-1150
Plus Exchanges in	+206
Minus Exchanges out	<u>-128</u>
Equal Cost Basis	5156
	(In \$ Billions)

Investor Return \$ / Cost Basis =
% Return

757 / 5156 = 15%

(In \$ Billions)

Step 5: Calculate Investor Return Percentage

Dividing the investor return dollars calculated in Step 3 by the cost basis in Step 4 gives the total investor return percentage.

Step 6: Find Annualized Rate of Return

Annualized return is then calculated. This is the single rate that can be compounded for each year to produce the same effect as the varying monthly rates.

Since the period in our example is only one year, the annualized investor return is the same as the total investor return.

The formula used to calculate annualized return is:

$$\text{Annualized Return} = [\% \text{ Return}^{(1/\# \text{ of years})}] - 1$$

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