

QAIB 2006

Quantitative Analysis of Investor Behavior

“What investors really do, what is in their best interest and what it costs them.”

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Introduction



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DALBAR's 2006 Quantitative Analysis of Investor Behavior (QAIB) is the thirteenth annual edition of a report that examines the returns that investor actually realize (investor returns⁽¹⁾) and the behaviors that produce those returns. This report includes:

- **Investment Selection** section calculates returns when historical investor behaviors are applied to a good investment choice and compares this to returns when systematic investment practices are applied to a poor investment. This analysis quantifies the importance of investor behavior in relation to investment selection.
- **Industry Standard** comparisons of average investor returns are provided for 1, 3, 5, 10 and 20 years. This facilitates benchmark comparisons to individual mutual funds that report returns for these periods.
- **Investor Return** is included for different fund types, including Equity, Fixed Income, and Asset Allocation Funds compared to appropriate indices and to inflation.
- **Systematic Investor Return** is included for each class of mutual fund that is based on dollar cost averaging.
- A **hypothetical of a \$10,000 investment** made over the last 20 years has been added. Investments are made by replicating the historical behavior of the average investor during the same period. The hypotheticals illustrates how the average investors account balance varied through the up and down markets.
- The "**Guess Right Ratio**" measures how often and when the average investor makes smart market moves, "buying low and selling high". Unlike average investor returns which is volume weighted, the "Guess Right Ratio" shows how often the average investor realizes a short term gain by either buying or selling before a market rise or fall.
- The **Communicating Risk** section uses an illustration to present the most significant influence of investor behavior in a non-threatening way. It communicates risk as a continuum that exists in all investments and savings. It anchors the understanding of risks by ranking familiar assets and activities with the less familiar investments. Past history of losses in each investment class is used as the basis for ranking it.
- The report provides the following Appendices:
 - ✓ Samples of regulatory disclosures that have been made when extracts from the QAIB report are presented to the public.
 - ✓ Average investor returns for each class of mutual fund compared to appropriate indices and to inflation.
 - ✓ Systematic investor returns that is based on dollar cost averaging.
 - ✓ Discussion of how investors acted during the most recent period ending in 2005.
 - ✓ Historical retention rates for each class of mutual funds.

(1) See Methodology Section for a description of "average investor" and "return".

The Story of Quincy & Caroline



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Quincy and his wife Caroline inherited \$20,000 in 1985. Quincy heard that mutual funds were the best way to put money away and he and Caroline decided that they would put their windfall into mutual funds. They decided that they would split the money and each put \$10,000 in their own account. They both selected the same stock mutual fund and put their money in on the first business day in January, 1986.

In the twenty years since that time, Quincy has stayed on top of the market, checking on how his investment was doing every month. Caroline in the meanwhile was more concerned about raising their kids and would listen to Quincy talk about how much he was making and occasionally, how much he had lost.

A year later Quincy was very happy with his decision, the investment was now worth \$12,000 and so was Caroline's.

After two years, at the end of 1987, Quincy was very worried about all the news of the market crash in that happened in October. When he checked on his investment it had fallen from \$12,000 a year earlier to \$9,600. He decided to limit any further loss and withdrew half of his investment and put \$4,800 in his checking account. He wanted Caroline to do the same thing with her \$9,600, but she talked it over with her friend and decided against doing anything. Her friend, who was a financial advisor, assured her that the market would bounce back.

By the August of the next year, Caroline's account was back up to \$12,000 level but Quincy still had \$4,800 in his checking account, that did not increase when the market did. Quincy regained his courage by the end of 1988 and put the money back into his mutual fund. By this time Caroline's account was worth \$15,000 and Quincy's was only worth \$12,300.

In the intervening years Caroline simply let her nest egg grow but Quincy moved money in and out of the market. He would read the stock market reports and talk with friends to find out what they were doing. When he became worried about losing his money he would withdraw some and when his confidence was restored he would invest it again.

By the end of 2005, Quincy had built his initial \$10,000 investment up to a whopping \$21,422. Caroline had not touched her investment so it suffered during times of market declines and recovered when the market did. By the end of 2005 Caroline's account was worth...

- a) \$15,687
- b) \$32,123
- c) \$94,555

What is your guess?

Read this report and then guess again, then check at WWW.QAIB.com for the answer.

Background & History



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DALBAR'S Quantitative Analysis of Investor Behavior (QAIB) has been measuring the effects of investor decisions to buy, sell and switch into and out of mutual funds since 1984. The results have shown to varying degrees, that the average investor earned significantly less than mutual fund performance reports would suggest.

The goal of the QAIB study is to educate investors and the professionals who advise them on the importance of investors' own behaviors and the effects on the real financial outcomes of their investment or savings program. QAIB also offers guidance on how and where investment behaviors can be improved.

QAIB 2006 examines real investor returns for a period of 20 years for equity, fixed income and asset allocation funds – from January 1986 through December 2005. Whether the mutual fund industry is enjoying rapid expansion in times of economic boom, or is being battered by the bears, the key findings uncovered in DALBAR's first study from 1994 remain true: **Investment return is far more dependent on investor behavior than on fund performance. Mutual fund investors who hold their investments are more successful than those that time the market.**

Principles of Behavioral Finance

QAIB applies the principles of behavioral finance to provide measurements and insights into what mutual fund investors really do, what is in their best interest and what it costs them. Central to improving investor behavior is correcting the irrational actions that are driven by the behavioral finance factors of:

Loss aversion... expecting to find high returns with low risk.

Narrow framing... making decisions without considering all implications.

Anchoring... relating to the familiar experiences, even when inappropriate.

Mental accounting... taking undue risk in one area and avoiding rational risk in others.

Diversification... seeking to reduce risk, but simply using different sources.

Herding... copying the behavior of others even in the face of unfavorable outcomes.

Regret... treating errors of commission more seriously than errors of omission.

Media response... tendency to react to news without reasonable examination.

Optimism... belief that good things happen to me and bad things happen to others.

Financial Advisor Role

QAIB shows that investment returns increase when the natural characteristics listed above are replaced by disciplined investment behavior. While many investors can overcome these hurdles, most need the support of a financial advisor to supply the required discipline.

The most important role of the financial advisor is to protect clients from the behaviors that erode their investments and savings.



Market Returns Will Always Remain Elusive

The past twenty years have been, overall, a boon to the mutual fund industry. Major market indices, the S & P 500 and Aggregate Bond Index, have posted impressive returns. Yet the average investor has earned only a fraction of these results.

The two principal reasons for the shortfalls are:

Mutual fund performance reports assume a lump sum investment made once and held for the entire period being reported

Current industry practices are to report a mutual fund's returns based on a lump sum investment at the start of the time period being measured (one, three, five, ten years, etc.). While mathematically useful, there are virtually no investors that exhibit this behavior, making the published returns applicable to no one. Investors are buying and selling and they rarely have the discipline or the cash to make a single lump sum investment without the need to withdraw from, or desire to add to their investment.

Investors are motivated by greed and fear – not by sound investment practices.

Close examination of investor behavior reveals that as markets rise, investors pour cash into mutual funds, and a selling frenzy begins after a decline. Tracking the dollars going into and out of mutual funds over a given month compared to market performance proves the correlation: as markets rise, cash flows swell; as markets decline, cash flows deflate.

Additional factors that influence investor behavior are new funds, funds that surge in popularity and funds that close. While the effects of these cannot be quantified, the allure of new or popular funds do cause investors to switch. The announcement of fund closings cause some withdrawals. These behaviors lower investor returns, depending on when they occur.

QAIB Benchmark

Investor returns, retention and other industry data presented here can be used as benchmarks to assess investor performance in specific situations. QAIB has been used to compare investor returns in individual mutual funds, for client bases and retirement plans.

Contact DALBAR for information on using the QAIB benchmark and making comparable calculations.



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 of the 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 whose performance is identical to the S&P 500 index. Typically \$10,000 over 20 years.

Dollar values represent the return after the period under consideration. The percentage is the uniform annualized return rate required to produce the dollar returns.

Buy & Hold (S&P)

The buy and hold represents the return after compounding the S&P 500 returns for the period under consideration. This dollar return is converted to annualized returns to yield the buy and hold 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.



Hypothetical –Average Investor

A \$10,000 investment is made in a pattern identical to the average investor behavior for the period under consideration. Rates of return are applied each month that is identical to the investor return for each month.

The resulting dollar value represents what a \$10,000 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 S&P 500 is used as an assumed return rate and applied each month.

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

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.

Risk Table

The DALBAR Risk Table is intended to be a standard illustration of the relative risk of various financial alternatives. The alternatives selected for the standard include the extremes of risk and those most familiar to the public in general.

For purposes of the Risk Table, risk is defined as the potential for loss of present value. In developing the Risk Table, all forms of risk are translated to potential for loss.

Retention Rates

Retention 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.



1. Investor Behavior

- Guess Right Ratio
- Retention Rates
 - Equity
 - Fixed Income
 - Asset Allocation

Guess Right Ratio



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What is the Guess Right Ratio

The Guess Right Ratio indicates when the average equity investor correctly “guesses” the direction of the market. Net flows into mutual funds are used to determine if investors made short term gains by correctly anticipating the direction of the market. The average investor guesses right when there is either net inflow followed by a market rise or net outflow followed by a down turn.

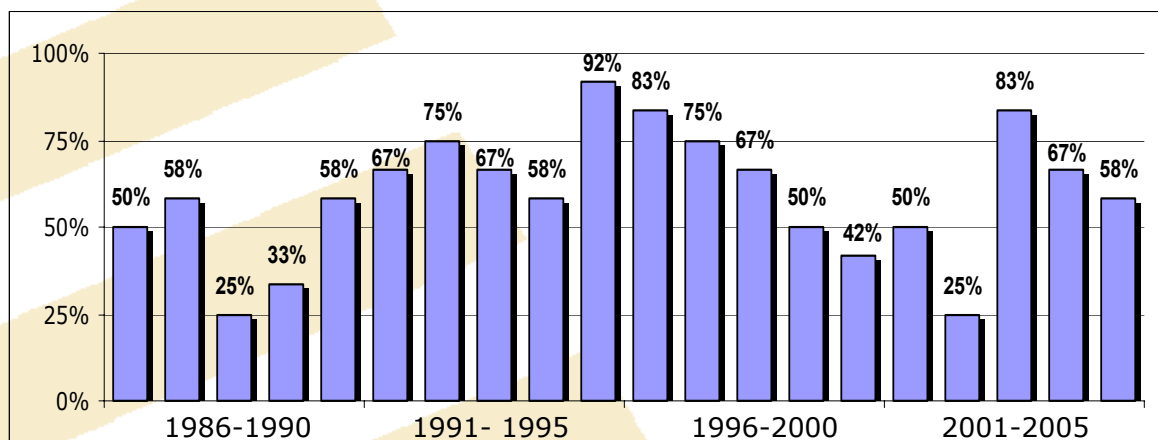
In general, profits are made when the Guess Right Ratio exceeds 50%, indicating that investors must be right at least half the time in order to gain more than is lost.

Note that this statistic is not dollar weighted so it cannot be used to measure returns.

Investors Guess Wrong During Declines

The Guess Right Ratio is strongest during periods of rising markets (1992, 1995, 1996, 1997 and 2003) but investors make most mistakes after the down turns (1988, 1989, 2002). These mistakes occur because investors are driven by the fear that the market will not recover, but as broad indices show, the market does recover.

The overall Guess Right Ratio for the 20 year period is 58%.



Commentary

It is easier to make the right decision when markets are rising and the fear of loss is on the back burner. The really smart decision, that most investors get wrong, is to invest when the market is down.

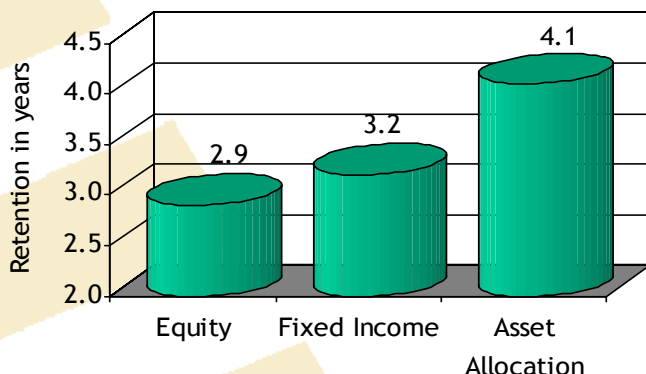
“If you don’t know when to get out, it is better to stay in.”

Retention Rates Equity, Fixed Income and Asset Allocation



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Projected Retention Based on 20 Years



Retention Improved During 2005

Retention based on 2005 fund flows is projected to increase from 3.2 to 3.6 years for fixed income funds and from 5.3 to 5.6 years for asset allocation funds. Estimated retention for equity funds remained steady at 4.3 years.

Retention is projected based on the length of time to fully liquidate the average investor's account at the redemption rate for the period in question.

Asset Allocation Investors Show Discipline

Asset allocation funds promise to handle decisions for investors and this study finds that investors actually hold them for longer.

The 20 year analysis shows that asset allocation funds are held for substantially longer periods than either equity or fixed income funds.

Commentary

Investors are holding on to their mutual funds for longer and this is a very good indication that previous imprudent behavior is being corrected.

If maintained, the effect of this change will undoubtedly be higher investor returns.

"Check your fund every year to avoid a panic."

Projected Retention based on:	1 Year	3 Years	5 Years	10 Years	20 Years
Average Equity Fund Investor	4.3	4.0	3.3	3.2	2.9
Average Fixed Income Investor	3.6	3.1	3.0	3.1	3.2
Average Asset Allocation Investor	5.6	5.3	4.7	4.6	4.1

Equity Investors Retention Rates

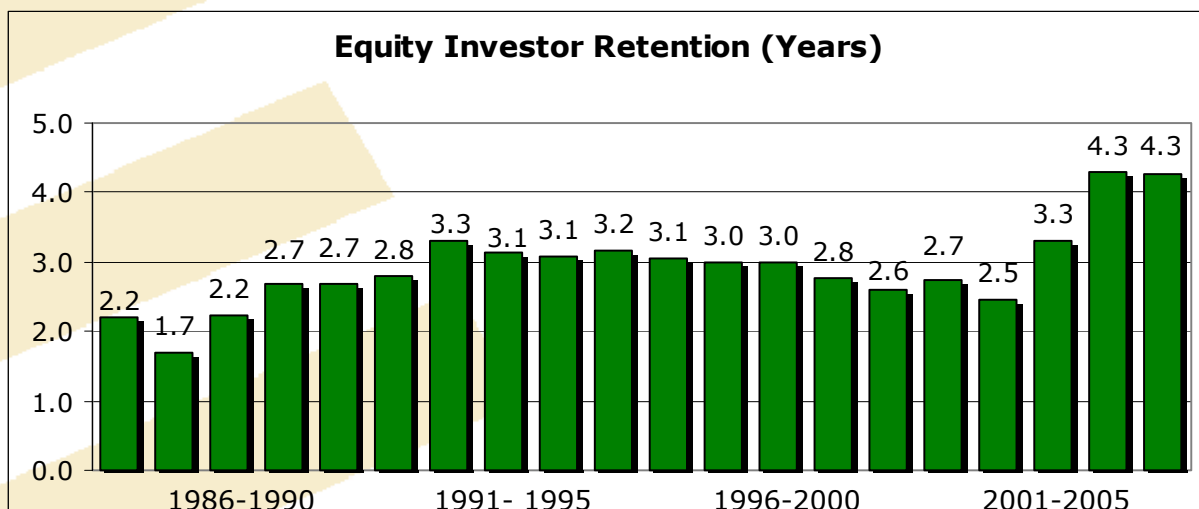


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Increased Retention Pay Big Dividends in 2005

The equity fund retention rates held steady in 2005 at 4.3 years. Retention remained at the highest level since 1984. This contributed greatly to investors actually earning more than the S&P 500. This was not due to outstanding fund performance but to investor behavior. Investors wisely continued to plow money into their funds regardless of the market up turns and down swings

The desirable investment behavior in 2005 marks the third year of increased retention. It is too early to speculate whether this improved behavior will continue, but it is encouraging to compare recent actions to the 1987 crash and 2001 when retention reached record low levels.



Commentary

Retention is critical to investment success for the obvious reason that you cannot benefit from the market if you are not in the market. While it is highly profitable to avoid market down turns, very few investors do this successfully. Unless you can predict when down turns will occur and for how long, the strategy of getting out to avoid a loss does not work. Consider that the market moved up 60% of the time and down only 40% for each month of the last 20 years.

"Remaining invested is betting with the odds."

Fixed Income Investors Retention Rates

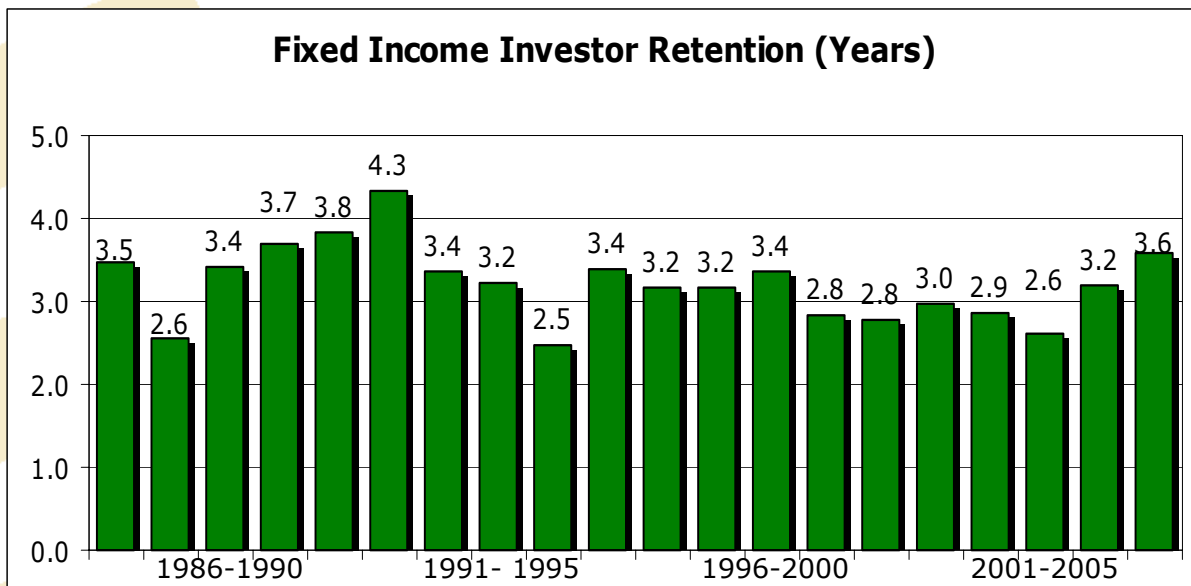


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Bond Investors Held as Long Term Rates Held

The expected increase in long term rates that drove investors out of bond funds in 2003 has been slow in materializing. These fixed income investors decided to hold on to their funds and pushed retention rates back over the three year level.

The persistently low long term interest rates have protected bond investors from significant loss of principal that would occur if there was an increase in rates.



Commentary

Fixed income fund investors have historically made fewer errors than their equity counterparts. This trend was dramatically reversed in 2004 and 2005 when equity investors remained invested, driving retention to record levels.

While long term rates have remained relatively low, this is not sustainable and rates are likely to rise to historical norms.

“Bond funds are the cushion for a bumpy stock market.”

Asset Allocation Investors Retention Rates

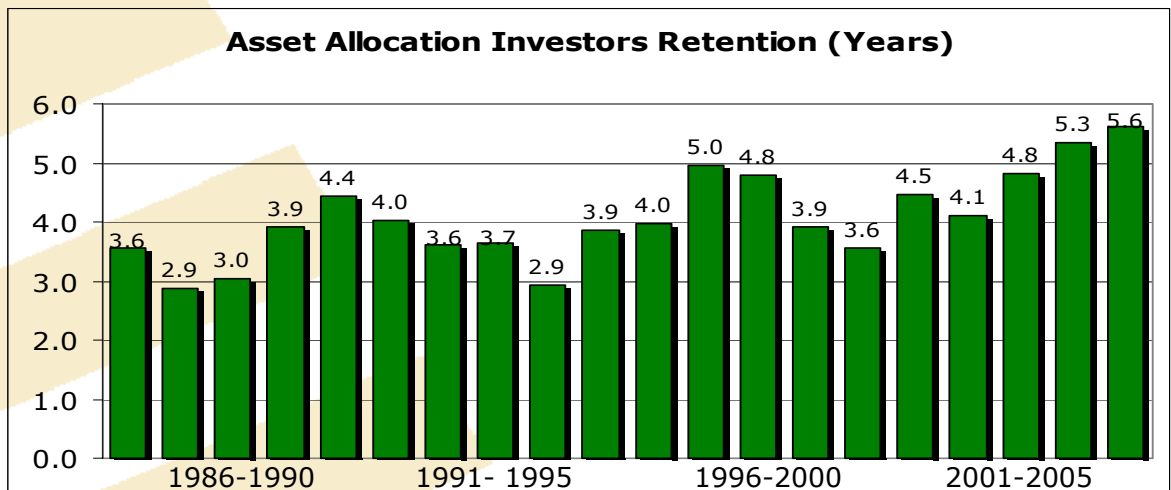


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Asset Allocation Funds Encourage Good Behavior

Longer retention rates are expected since asset allocation funds handle the rebalancing for investors. Retention rates for these funds give evidence that this does work. The retention rates for asset allocation investors are substantially longer than either equity or fixed income counterparts.

At a projected retention rate of 5.6 years, asset allocation are successful in limiting the investor losses that occur because of fear based selling. Even in the face of most severe market declines in history (2000 –2002), retention in these funds remained above 3.6 years. This retention limited investors realized losses and took advantage of the market recovery.



Commentary

Asset allocation funds have created a comfort zone for investors that protects them from their own errors.

While traditional performance measures show asset allocation funds severely underperforming equities, the improved investor behavior that they produce have prevented significant losses for investors.

“Asset allocation funds don’t perform better, they make investors perform better.”



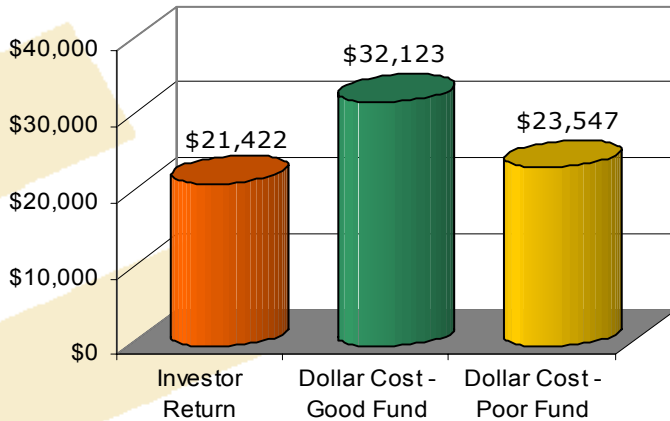
2. Best Practices

- Investment Selection and Investor Behavior
- Retirement Savings Behavior
- Communicating Risk

Investment Selection and Investor Behavior



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Dollar Cost Averaging Beats Average Investor

Using a total investment of \$10,000 over 20 years, dollar cost averaging produced 50% higher returns than the average investor earned with the same investment over the same time period.

With 75% Handicap, Disciplined Behavior Still Beats Average Investor

A fund that performs at 75% of the S&P beats the average equity investor. Since the return of the majority of equity funds exceeds 6.0% (75% of the S&P), it is less likely that such a fund will be selected.

A test was performed to determine if systematic investing through dollar cost averaging can offset the choice of a very poor performing fund. The results of the test was that disciplined investing was superior even when using a theoretical fund with returns that were only 75% of the S&P 500. In other words, using dollar cost averaging, a fund that produced only 6.0% beat the average investor.

Commentary

It is clear from this analysis that behavior drives the returns that investors actually receive. Good investment behaviors compensate for major under performance.

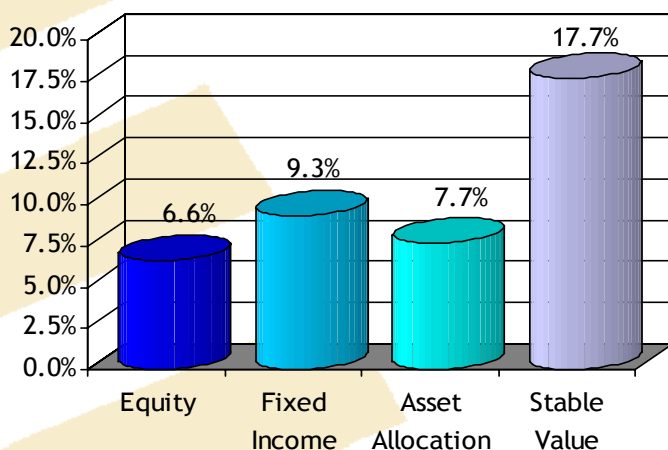
Investors should learn good practices before learning how to pick a fund.

"If you can't predict future results use dollar cost averaging."

Dollar Cost Average (DCA) Results for \$10,000 Investment	Average Investor	DCA at 100% of S&P	DCA at 75% of S&P	DCA at 60% of S&P	DCA at 50% of S&P
Value after 20 Years	\$21,422	\$32,123	\$23,547	\$19,614	\$17,405
Annualized Return	3.9%	6.0%	4.3%	3.4%	2.8%



Required Retirement Saving Rates



Commentary

Retirement savings must be maintained at these levels, unless future investment results are expected to exceed the previous 45 years. It is a very high risk to assume that the future results will exceed the past.

Current practices encourage the equity funds for retirement because the lower required savings rate. While the required rate is lowest, it is also most difficult to achieve good investment practices with equities.

A prudent person, acting in the interest of the investor would encourage the behavior that is most likely to produce adequate retirement income.

“Use 50% of future raises to catch up to required savings rate.”

Retirement Plans Show Poor Investor Behavior

What percentage of working income needs to be saved to have guaranteed income for life? Employees need to know what the required retirement savings rate is.

While employers and providers of defined contribution plans, such as 401(k), have been diligent in providing employees with good investment selections and the education to manage these investments, very few have addressed the investor behavior of inadequate savings. The low national savings rate is evidence of this failure.

Plans with inadequate deferral rates can be expected to fail to achieve the goal of funding the retirement of employees since investor behavior has been shown to have a greater effect on investment outcome than investment selection. (See section on Investment Selection).

The required retirement savings rates shown are adequate to provide the average investor with income for life at the pre-retirement lifestyle. This is based on the recent 45 years of market performance (through 2004).

Required rates are based on each class producing the returns equivalent to the appropriate index. In the case of equity the rate is based on the S&P 500. The Long Term US Treasury rate is used for fixed income and T Bill rate for the stable value. Asset allocation category is based on a 60/40 blend of equity and fixed income.



DALBAR Risk Table

Margin Trading
Slot Machine
Individual Stocks
Junk Bonds
International Funds
Stock Mutual Funds
Gold
US Dollars
High Quality Bonds
Bank Deposits
US Treasuries

Acme Fund

Illustrates how a specific investment can be depicted on the Risk Table.

Application of Risk Table

The DALBAR Risk Table is based on principles of behavioral finance and is designed to educate and not manipulate investors aversion to risk. The understanding of risk then causes more rational behavior.

A common practice has been to assess the aversion to risk and react to the aversion, whether it is in the investors' best interest or not. An alternative practice is to wait for a change in investors aversion to risk.

The Risk Table provides a critical anchor for investors to understand risk in relation to a variety of familiar concepts. This anchoring process puts exposure to loss in a context that reduces the irrational fear of risk.

The behavior based Risk Table uses the history of loss as the basis for ranking each item. This historical perspective gives weight to both frequency of loss occurring and the magnitude of the loss.

Risk: Root Cause of Bad Behavior

Behavioral finance, as well as personal experience has established that no other factor influences investor behavior more than the aversion to loss (risk). There is also general agreement that a good understanding of risk produces more prudent behavior.

The Guess Right Ratio section of this report shows that most investor mistakes are made in attempting to avoid loss. In the 20 year analysis investors were found to correctly guess the direction of the market over 75% during rising markets but less than 50% during falling markets.

The actions driven by aversion to loss are the primary causes of losses among mutual fund investors.

Commentary

Whether it is stated or goes unsaid, concern about risk exists in every investor's mind and is a significant influence of behavior. The imprudent response to risk is very often based on the fear of catastrophic loss.

Concern about risk is greatest when:

- 1) an investment decision is required,
- 2) after a loss and
- 3) after news of loss by others.

These events present the best opportunities for risk education. Risk education must first correct the fear of catastrophic loss by providing anchors to establish risk as being relative and then include explanations of how risk is controlled.

"The biggest risk is getting out before the upturn."



3. Investor Performance

- Hypothetical \$10,000 Investments
- Investor Performance
 - Equity Funds
 - Fixed Income Funds
 - Asset Allocation Funds

Hypothetical \$10,000 Investments

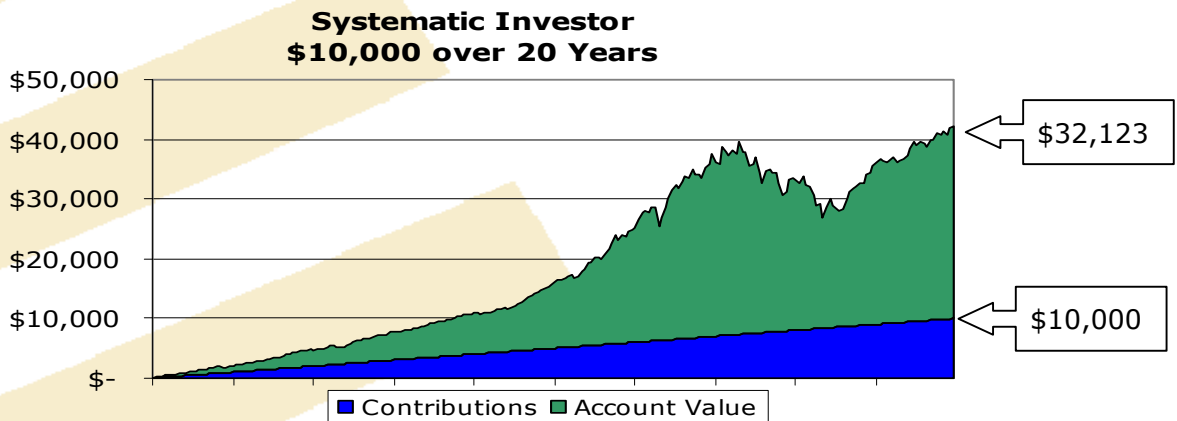
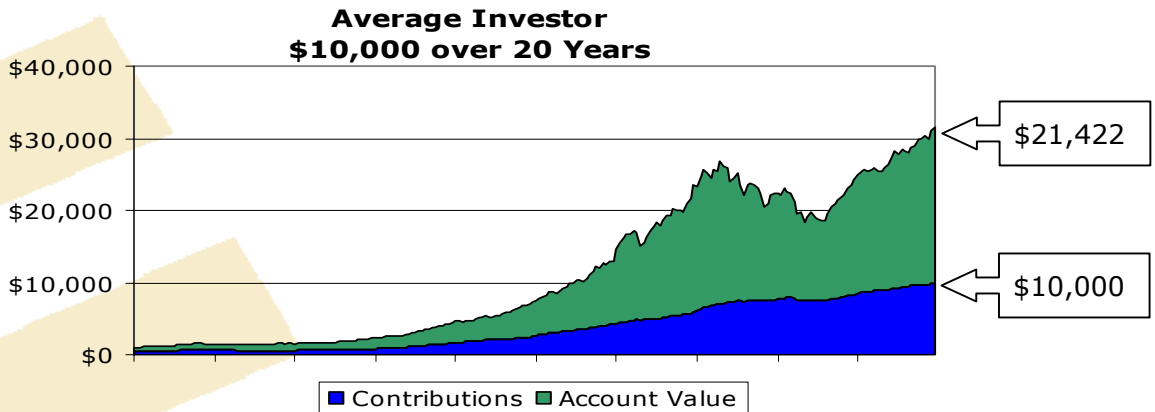


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Comparison of Average Investor Behavior to Systematic Investing

The first illustration depicts the growth of an average equity mutual fund investment when \$10,000 in contributions are made in the same pattern as the average investor. The results are an ending value of \$21,422.

The second illustration depicts the growth of a systematic investor using dollar cost averaging to make \$10,000 in contributions. This systematic investor ending value is \$32,123; representing an advantage of \$10,701 or 50% over the 20 year period.



Commentary

The 50% advantage of systematic investing shows the importance of consistency in wealth building. The benefit of dollar cost averaging illustrated here can be dramatically improved by increasing contributions over time.

"Start early, keep contributing and don't panic."

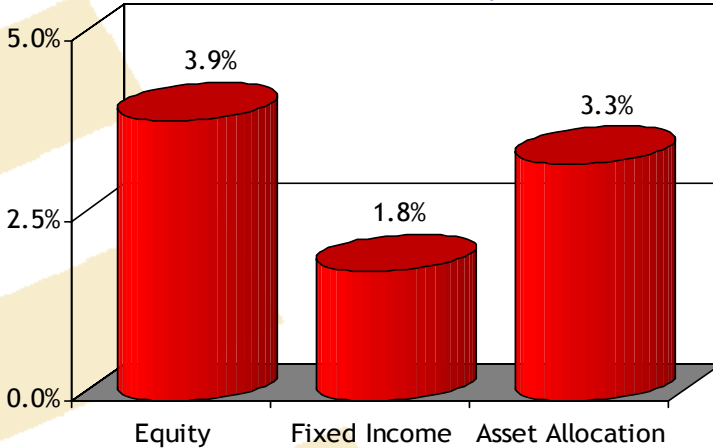
Investor Performance Equity, Fixed Income and Asset Allocation



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Asset Allocation Funds Deliver

Investor returns for the 20 years, 1986-2005



Asset allocation funds promise to make decisions for investors but do investors actually perform better?

Traditional performance measures show asset allocation funds underperforming equity funds, but when investor behavior is coupled with fund performance – average equity and asset allocation investors are similar performance.

Commentary

While 2005 was not a spectacular year for mutual funds, investors remained invested and performed very well. Repeating the 2004 trend investors acted more prudently than they ever did in the past.

The result was that investors made money, beating the S&P 500, even when the funds did not!

“Be smart again, when the market drops again.”

Fixed Income Investors Lose Ground

The average equity fund investor held on and took advantage of the market returns of 2005.

The average fixed income investor suffered a loss in the face of rising short and long term rates. Investor return moved down from 2.0% to 1.8% for the 20 year period.

The average asset allocation investor was dragged down by the fixed income component.

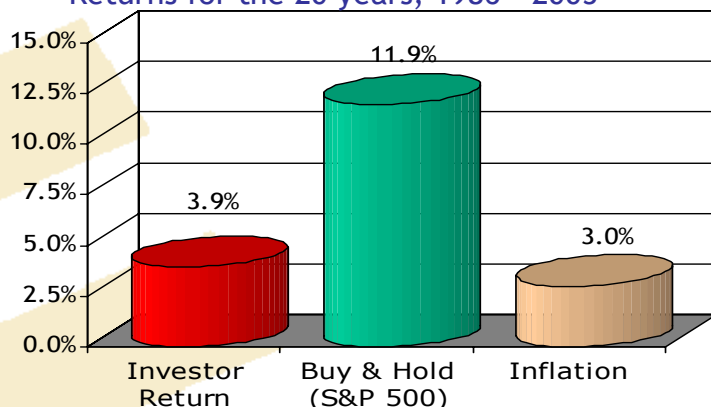
Annualized Returns - for:	1 Year	3 Years	5 Years	10 Years	20 Years
Average Equity Fund Investor	8.3%	15.3%	1.6%	5.8%	3.9%
Average Fixed Income Investor	-0.5%	1.6%	1.3%	1.6%	1.8%
Average Asset Alloc. Investor	2.0%	7.6%	2.0%	4.7%	3.3%

Equity Investors Performance



QAIB 2006

Returns for the 20 years, 1986 - 2005



Equity Investor Behavior Leaves 77% of Possible Return on the Table

The average equity investor actually earned 3.9% instead of a possible 11.9%. This leaves \$73,133 on the table out of a possible \$94,555.

This lost opportunity amounts to 77%.

Long Term Investor Returns Now Beat Inflation

The favorable equity market for the since 2003 has boosted long term equity investor returns past the inflation level.

Unlike recent years, the 20 year equity investor returns remains ahead of inflation.

Commentary

Improving investor's actual returns depends more on correcting behaviors than on the performance of the fund.

While published statistics of mutual fund performance are within a few percentage points of the index, investor behavior erodes the returns on even the best performing fund.

"Buy low and sell high, but if you can't, just hold."

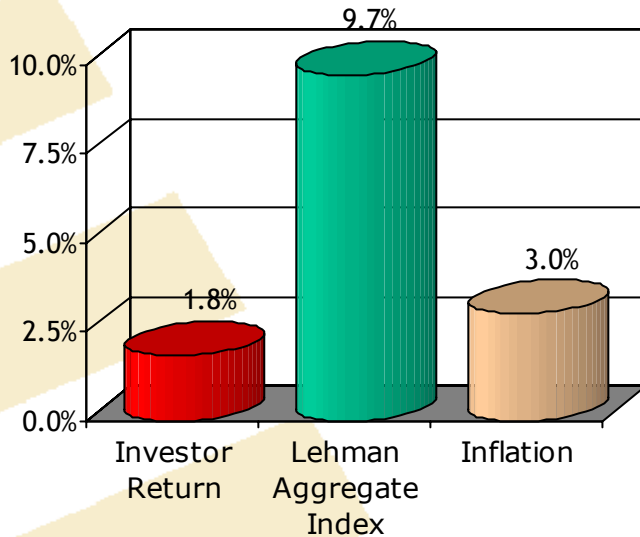
Annualized Returns - for:	1 Year	3 Years	5 Years	10 Years	20 Years
Average Equity Fund Investor	8.3%	15.3%	1.6%	5.8%	3.9%
S&P 500	4.9%	14.4%	0.5%	9.1%	11.9%
Inflation	3.5%	2.9%	2.5%	2.5%	3.0%

Fixed Income Investors Performance



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Returns for the 20 years, 1986 - 2005



Fixed Income Investors Jump Ahead of Yield Curve

Investor returns on fixed income funds reflect the rising interest rate environment.

Fixed income investors consistently lag inflation in all time periods measured.

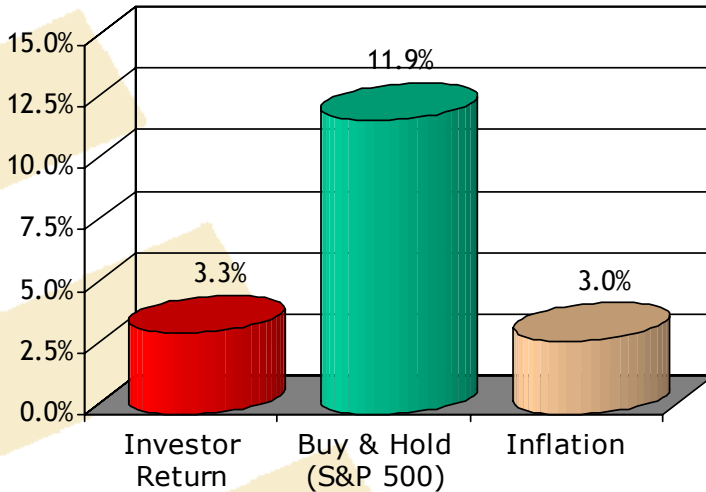
Annualized Returns for:	1 Year	3 Years	5 Years	10 Years	20 Years
Average Fixed Income Investor	-0.5%	1.6%	1.3%	1.6%	1.8%
Lehman Aggregate Index	7.8%	5.9%	7.7%	7.6%	9.7%
Inflation	3.5%	2.9%	2.5%	2.5%	3.0%

Asset Allocation Investors Performance



QAIB 2006

Returns for the 20 years, 1986 - 2005



Do Asset Allocation Funds Really Work?

The 2005 results are unequivocal, yes. When measured by what investors actually earn asset allocation funds deliver.

They deliver longer retention, so investors make more money.

They deliver protection even through the worst markets in history (2000 - 2002).

Asset Allocation Funds

This group includes traditional balanced funds as well as the more recent products that manage the asset allocation for the investor.

These include life style, life cycle and target date funds.

Commentary

Asset allocation funds have been around for several decades but have never enjoyed the spotlight. Perhaps this is because of the way they are measured.

This analysis shows that asset allocation funds deliver what they promise ... lower risk, no switching and real returns for the investor.

"Have you tried an asset allocation fund lately?"

Annualized Returns - for:	1 Year	3 Years	5 Years	10 Years	20 Years
Average Asset Alloc. Investor	2.0%	7.6%	2.0%	4.7%	3.3%
S&P 500	4.9%	14.4%	0.5%	9.1%	11.9%
Inflation	3.5%	2.9%	2.5%	2.5%	3.0%



Appendices

- Example of Investor Return Calculation
- Required Retirement Savings Calculation Method
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Example of Investor Return Calculation



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Investor return is calculated by measuring the actual gains that investors realize. The following example uses the 2005 data for equities to illustrate the process:

Step 1.

Compute Monthly Net Change

The equity assets at 12/31/2004 are subtracted from the assets at 1/31/2005 to determine the change for the month. The change is the net of investor actions (new investments, withdrawals (redemptions), exchanges in and out), changes in market value, net of loads, fees, expenses, commissions, etc.

$$\begin{aligned} 12/31/2004 \text{ Assets} - 1/31/2005 \text{ Assets} &= \text{Change} \\ 4,384 - 4389 &= 95 \\ & \text{(In \$ Billions)} \end{aligned}$$

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, etc. are paid. This could be either a gain or loss.

$$\begin{aligned} \text{Monthly Change} & -95 \\ \text{Minus New Investments} & -92 \\ \text{Plus Withdrawals} & +79 \\ \text{Minus Exchanges in} & -15 \\ \text{Plus Exchanges out} & +17 \\ \text{Equal Net Change in Market Value} & -106 \\ & \text{(In \$ Billions)} \end{aligned}$$

Step 3.

Calculate Total for Period

The calculation is repeated for each month to develop the total for the period for which the investor return is being measured, one, three, five, ten and twenty years.

The example illustrates a one year period (2005). Note that the average investor suffered losses in March, April, and July but these were more than offset by the gains in the other months.

January	-105
February	+105
March	-86
April	-112
May	+148
June	+53
July	+187
August	+1
September	+69
October	-102
November	+178
December	+42
Total for period	379
	(In \$ Billions)

Example of Investor Return Calculation... continued



QAIB 2006

Step 4. Determine Cost Basis

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

Opening Assets	4384
Plus New Investments	+1073
Minus Withdrawals	-882
Plus Exchanges in	+178
Minus Exchanges out	-192
Equal Cost Basis	4561
	(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.

$$\text{Investor Return \$ / Cost Basis} = \% \text{ Return}$$
$$379 / 4561 = 8.3\%$$

(In \$ Billions)

Step 6. Find Annualized Rate of Return

Annualized return is then calculated. This is the single rate which 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 shown.

$$\text{Annualized Return} = (\% \text{ Return}^{**}(1/\text{Years})) - 1$$

Required Retirement Savings Calculation Method



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Income For Life Standard

The calculation model use an income for life retirement distribution instead of a lump sum (lump sum is most frequently used to illustrate a retirement gap). The income for life distribution is a contract that guarantees a monthly income dollar amount.

This method was selected as the most understandable method of presenting the retirement income required to pay for the cost of retirement living. Average employees are able to evaluate this income for life as "salary" and can to evaluate how well it meets their cost of living needs. The use of a lump sum option has proven to be confusing to the average employee.

A retirement age of 65 was selected to determine the income for life. The monthly income for life from major financial institutions varies from \$572 per \$100,000 to \$675 per \$100,000, depending on gender and other factors. The midpoint of \$624 per month per \$100,000 was selected as the standard for the model.

Assumptions

Retirement occurs when income is \$5,000 per month.

Required replacement income is 70% or \$3,500 after taxes.

Retiree begins working at age 20 and works for 45 years to age 65 (Working life).

Dates of retirement occur in recent times (2005) eliminating the need to explain future value calculations, which also confuse the average employee. Additionally, by using the past actual rates of inflation and index based investment returns can be used.

Inflation rates for each period are what they were during the working life.

Equity, fixed income and stable value returns of the appropriate indices for each period are as they were during the working life.

Tax rates during the working life are assumed to be the current structure since it would be irrational to assume that these rates will ever decline to the 1950's levels.

In the case of tax advantaged retirement plans, regulation that exists today is assumed to have been in place for the entire working life.

Retirement income is based on the income for life payout of a single premium annuity purchased at the time of retirement.

Required Retirement Savings Calculation Method... continued



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Unlike retirement models that attempt to project into the future, this model is retrospective for a number of reasons:

Most people are unable to relate to a time 20 or 30 years in the future when inflation has driven costs beyond what is perceived today as being reasonable. By using current dates for retirement, incomes and expenses are more credible.

Future economic changes cannot be forecasted with any degree of reliability so projection models usually assume the status quo, which is unrealistic. Using the retrospective approach, real historical events present a plausible scenario.

Confirmation of the results of this method can be obtained from the actual experience of people that lived through these years of retirement asset accumulation.

In this model gross lifetime income is \$1,044,510 reflecting a reduction by the amount of the 401(k) deferral. Ordinary income taxes paid during the working life \$417,804. At retirement the employee must pay the taxes on the amount withdrawn, the capital gains, dividends and interest received at the ordinary income rate before funds are used to produce income for life. The amount of taxes varies from \$388,892 to \$1,220,672 depending on the investment option selected.

Samples of Disclosure Statements



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Rights to use portions of the content of this report is conditioned of making required regulatory disclosures and identifying DALBAR, Inc. as the source. These rights are conveyed to purchasers for their own use and is limited to their own specific publications.

The following are examples of regulatory disclosure statements that have accompanied extracts from previous editions of the QAIB report.

Source: DALBAR Quantitative Analysis of Investor Behavior 2003. www.dalbarinc.com

Past performance is no guarantee of future results.

Equity performance is represented by the Standard & Poor's 500 Composite Index, an unmanaged index of 500 common stocks generally representative of the U.S. stock market.

Average stock investor and average bond investor performances were used from a DALBAR study, Quantitative Analysis of Investor Behavior (QAIB), 12/2004. 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 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 the period.

Past performance is not a guarantee of future performance. This is especially true of model portfolios, which are not subject to specific economic and market factors.

DALBAR, a Boston based financial research firm that is independent from the Advisors, researched the result of actively trading mutual funds in a report entitled Quantitative Analysis of Investor Behavior (QAIB). The DALBAR report covered the time periods from 1984-2003. The "Average Stock Fund" is represented by the S&P 500 Index. The fact that buy-and-hold has been a successful strategy in the past does not guarantee that it will continue to be successful in the future.

In 2003, The Dalbar Study contrasted the performance of average equity investors versus the general market. Despite one's best intentions, equity investors making their own investment decisions are likely to damage their own performance. The average equity investor realized an annualized return of 2.57%, while the S&P 500 had an annualized return of 12.22%. The time frame for the Quantitative Analysis of Investor Behavior (QAIB) was 19 years ending December 2002.

Comparison to 2005 Results



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Changes in 20 year returns from QAIB 2005 are shown here for reference.

Category	Annualized Return – 1985 -2004	Annualized Return – 1986 - 2005	Change
S&P 500 Index	13.2%	11.9%	-1.3%
Average Equity Fund Investor	3.7%	3.9%	+0.2%
Average Fixed Income Fund Investor	2.0%	1.8%	-0.2%
Average Asset Allocation Investor	3.6%	3.3%	-0.3%
Average Systematic Equity Investor	6.5%	6.0%	-0.5

The Methodology & Glossary section of this report describes how annualized return is calculated for the S&P 500 and the Average Equity Fund Investor. A example is provided in the appendix.

Annualized Return for Systematic Equity Investor is based on the investment of \$10,000 for the 20 year period, made in equal monthly increments. The assumption is that investment returns match the S&P 500 Index. The 20 year return is annualized, using the formula:

$$\text{Annualized Return} = (20 \text{ Year Total Return } \% ** (1/20)) - 1$$

Year by Year Investor Return



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The following table shows the one year investor return for the 20 year period from 1986 to 2005. These calculations assume that investors start investing on January 1 of each year and withdraw their investment 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. This means, for example, that the 17.5% return in 1986 is based on assets of \$146 billion while the 2005 return of 8.3% is based on assets of \$4.5 trillion. Clearly the 2005 return has far greater effect on wealth than the 1986 return.

Year	Equity Investors	Fixed Income Investors	Asset Allocation Investors
1986	17.5	7.9	6.0
1987	0.5	-0.8	6.0
1988	17.9	4.7	-1.8
1989	23.5	6.6	20.8
1990	-5.6	2.2	6.8
1991	29.4	11.9	17.3
1992	7.3	8.6	1.1
1993	15.9	7.9	16.7
1994	0.0	-5.0	-5.5
1995	26.5	14.4	25.4
1996	17.3	7.7	11.5
1997	20.6	8.1	16.0
1998	34.5	5.9	32.4
1999	26.6	-5.7	5.5
2000	-10.0	2.3	-2.9
2001	-14.8	-0.5	-6.2
2002	-21.9	2.7	-10.1
2003	29.8	4.2	17.7
2004	12.6	1.3	7.6
2005	8.3	-0.5	2.0