

TECHNIQUES OF QUANTITATIVE INVESTING

INTRODUCTION

For an investor searching for the best investments, the most familiar options are Actively Managed strategies and Index strategies.

An Actively Managed fund has an active manager who picks individual stocks, trade regularly, and typically lacks any significant diversification. Index funds have passive managers who diversify by mirroring an index such as the S&P 500. Both methods realize returns from a market-only perspective.

Outside of these widely publicized options, there is a very different strategy that has rewarded Mercer Advisors' Asset Optimization® investors for many years: Quantitative Investing strategies.

Quantitative managers utilize sophisticated scientific methods to select stocks. They also implement multi-dimensional strategies to generate returns both in and beyond the market. Together these investing techniques are designed to provide investors with higher returns than Active or Index strategies.

Another key differentiator in Mercer Advisors Asset Optimization strategy is the predominant use of Institutional funds. Retail funds are available to the general market and Institutional funds are generally reserved only for large institutional investors. Unless there is a considerable advantage of a particular Retail fund, all funds used in Asset Optimization portfolios are Institutional only funds.

While there are other methods of investing, this research report will focus on the advantages of Quantitative Investing and Institutional funds used in Mercer Advisors' Asset Optimization portfolios over the widely used and most recognized methods of Actively Managed or Index funds available to retail investors.

POSITION

The foundation, objectives, techniques, and results of Quantitative Investing and Institutional funds found in Mercer Advisors' Asset Optimization portfolios are superior to both Actively Managed and Index funds available to retail investors.

DISCUSSION

Multi-Dimensional Returns

Set on outperforming the market, active managers focus on investing

in companies which in their opinion will beat a general market index, such as the S&P 500. The managers of these funds use research that covers both the company and its market to identify emerging companies, but in the end, they rely heavily on their personal experience and speculation to continually buy and sell the "right" stocks. While a good active manager can significantly outperform an index in the short term — which is the allure — years of data have shown that it is historically impossible to repeat a strong performance year after year.

Conversely, Index fund managers avoid risks and instead solely aim to match the returns of an index. By selecting stocks listed in their chosen index, the managers are generally capable of delivering equivalent returns to the index, but by definition never outperform the index.

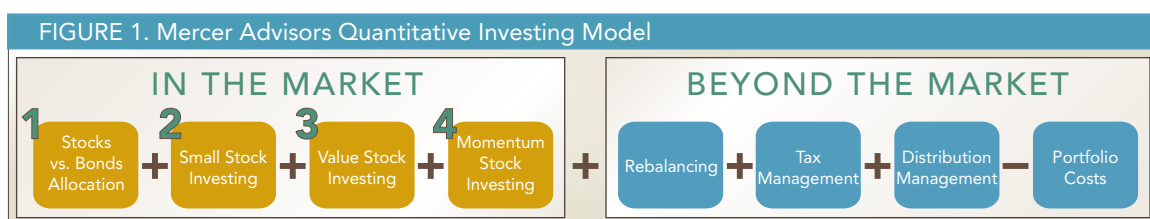
Quantitative strategies differ significantly from both active managed and Index funds. Quantitative managers take a multi-dimensional approach to generating returns that brings a new level of sophistication to investing. They rely not only on the individual investments they purchase in the market, but also on other operational factors both outside of and beyond the market.

In the market, Quantitative strategies use academic studies of risk and return along with complex trading algorithms to increase returns while minimizing risk. In essence, they use a scientific selection method to identify the parts of the market that systematically pay incremental return to the market. Outside of the market, they focus on efficient operations, minimizing costs, reducing tax exposure, and even generating revenue.

The Four-Factor Model and Beyond

In the market, Mercer Advisors' Quantitative Investing strategy is grounded in the academic research of the Three-Factor Model developed by Eugene Fama and Kenneth French, and a fourth factor, Momentum Investing pioneered by Toby Moskowitz, Mark Carhart, and Cliff Asness. The Three-Factor Model established that the expected return on a portfolio is determined by three factors: sensitivity to the stock market, sensitivity to the size of the stock (small

stocks outperform large stocks), and sensitivity to the value of a stock (value stocks outperform growth stocks). More recent research identified a fourth factor, Momentum Investing, which Mercer Advisors added to



Factor 1: Professors Markowitz and Sharp, 1952–1964, 1990 Nobel Prize. Factors 2 & 3: Professors. Fama and French, Multi-Factor Model, 1992. Factor 4: Professors Kahneman, 2004 Nobel Prize; and Professors. Jagadeesh, Titman, Moskowitz, et al., 1993–2004. Source: Mercer Advisors, January 2011

its Asset Optimization portfolios in 2010. Momentum Investing captures returns on the natural energy of the market's strongest stocks across asset classes.

Collectively, the Four-Factor Model is designed to maximize return for a given level of risk. To accomplish this, Mercer Advisors' uses complex quantitative algorithms to determine the ideal asset allocation based on the Four-Factor Model to match a client's objectives. These algorithms involve not only academic theory and research but also incorporate extensive historical data. Once the allocation is set, Mercer Advisors executes the portfolios using elite Quantitative Institutional funds characteristically unavailable to the average investor. The funds themselves are managed with sophisticated scientific algorithms and carry all of the advantage of Quantitative Institutional funds outlined in this report.

In addition to The Four-Factor Model, Mercer Advisors implements a Beyond-the-Market strategy that couples rebalancing, tax management, distribution management, and the reduction of operating and trading costs to enhance the returns generated in the market. These beyond-market returns add incremental returns for compounding investing success.

Specifically, rebalancing creates opportunities to sell high and buy low to capture returns while maintaining your preferred risk profile. Tax management includes sophisticated proactive tax planning, asset allocation strategies, tax loss harvesting, as well as tax management within an investment fund. Distribution management, often overlooked, ensures that while taking distributions, taxes are minimized and asset allocation strategies for growth are preserved.

The last Beyond-the-Market component, portfolio cost, is often the hardest to grasp. When evaluating costs, most investors only consider the transaction costs and management fees they see in their portfolios. Yet there are costs hidden within the funds used in a portfolio to consider. These include a fund's operational costs and management fees, costs associated with the timing of transactions within a fund, and even the positive effect of lending revenue on a fund's costs.

The remainder of this research report explains the Beyond-the-Market factors hidden within investment funds including tax expenses, operational costs, management fees, transition timing, and lending revenue.

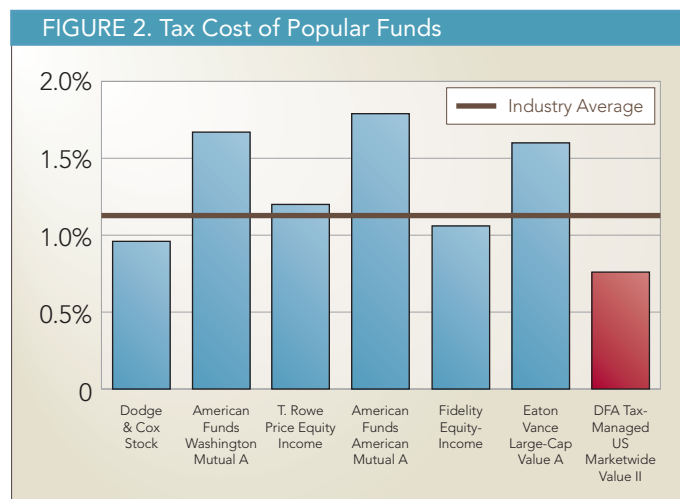
Tax Expenses

Generally, the higher turnover — the buying and selling of stocks — within a fund's portfolio produces greater tax exposure. Managed funds continually turnover stocks in their efforts to time the market for big returns. By doing so, they accumulate high levels of tax exposure.

Executing on academically researched strategies rather than market timing, Quantitative funds are able to accomplish the big wins without a heavy tax burden. The Quantitative funds found in

Mercer Advisors' portfolios are founded on remaining fully invested throughout market cycles. Staying fully invested creates less turnover, reducing the amount paid in taxes which translates into higher returns.

FIGURE 2 shows the tax exposure of several popular funds in comparison to the Quantitative Institutional fund, DFA Tax-Managed US Marketwide Value II. Many funds have significantly higher annual tax cost that the tax-managed Quantitative Institutional funds in our portfolios.



Source: Morningstar, Inc., December 31, 2010

To help maximize investable assets beyond the market by lowering tax payments, Mercer Advisors uses proactive tax planning and asset allocation strategies. In taxable accounts, we use tax-managed or tax-deferred funds where stocks are bought and sold with a high consideration for taxes to help minimize taxable distributions. As shown, the DFA fund illustrated in FIGURE 4 is specifically a tax-managed fund.

By considering and reducing tax liability, tax-managed Quantitative Institutional funds can provide higher returns for investors in taxable accounts.

Operational Cost and Maintenance Fees

Other factors that are often underappreciated and unconsidered when investors select an investment are operating costs and management fees. Although these are sometimes difficult to find line item, they can add up quickly and substantially reduce a fund's returns.

A fund's operating costs include license, record keeping, reporting and SEC audit, filing, and Director/Trustee fees. A fund's management fees include administrative and research costs.

Institutional funds have fixed operating costs so the fee they charge is not varied on the amount invested. Therefore, as Institutional funds grow, their already low costs remain the same, driving down the impact of fees on the funds' return. Their management fees tend

to stay low as institutional investors rely on independently funded academic research, do not advertise, and do not have to support teams of analysts that examine companies and write stock reports.

Money invested in Institutional funds is more stable — money does not constantly move in and out as it typically does in Retail funds. With less buying and selling to support money movement, Institutional funds require smaller cash reserves. This adds up to lower operational overhead and reduced management fees which in turn increases the fund's returns to investors.

In TABLE 1, we show the expense difference of some of the Quantitative Institutional funds used in many Mercer Advisors' portfolios compared to the expense ratio of all Retail funds with the same investment targets reported by Morningstar. You can see that even the 10% of investors who pay the least for Retail funds are paying significantly more than the Institutional fund equivalent.

When operational costs and management fees are combined with different fund management types, we can see the full impact of these expenses. For Index funds, the manager is trying to match the performance of their index. If they successfully match the index, the manager needs to apply their expenses which reduce the fund's returns below the index.

Actively Managed funds are looking for big wins and can have stretches of outperforming an index. Because of the extensive involvement of the manager and their research staff, they charge high fees for their time, effort, and expertise. Additionally, these managers are constantly turning over stocks and incurring transaction fees within the fund. While the opportunity to significantly outperform an index exists, the fees associated with Actively Managed funds have a significant impact on returns — most significantly in the years when the funds do not beat the index.

In all cases, the impact of operational costs and management fees on an investment fund's return can be significant. The right combination of investment strategy and fund type is critical in the buying decision when looking for the highest level of returns.

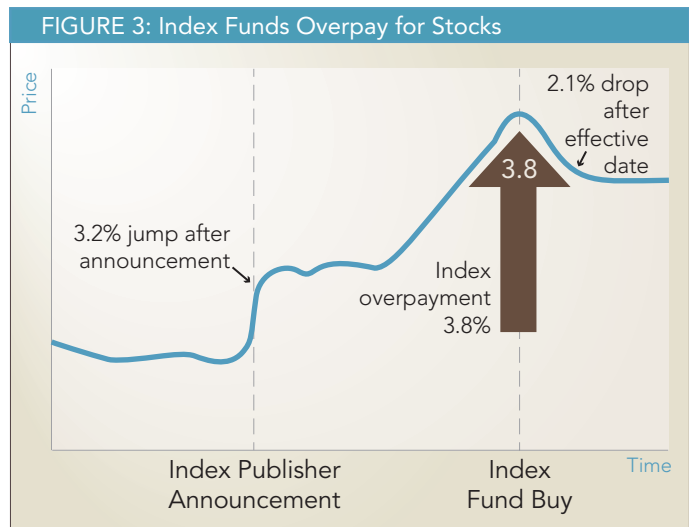
TABLE 1. Institutional vs. Retail Fund Expense Ratios

Fund	Institutional Funds Expense Ratio	Equivalent Retail Funds Expense Ratio		
		Lowest 10%	Average	Highest 10%
US Large	15	54	122	205
US Large Value	16	70	120	196
US Small	40	73	135	222
US Small Value	41	91	142	217
Int'l Large	52	77	142	225
Int'l Large Value	28	74	134	220
Int'l Small	57	94	156	235
Int'l Small Value	71	75	143	220

Source: Morningstar, Inc., December 31, 2010

Transaction Timing in Index Funds

Index funds have gained popularity due to their simplicity and the low risk of under-performing the market. However, many investors are unaware that these benefits carry hidden costs not found in Quantitative strategies.



Source: &P 500 data source: "New Evidence on Stock Price Effects Associated with Changes in the S&P 500 Index," Journal of Business (July 1997)

Over time, fortunes change, and indexes must be adjusted to keep a representative view of the market. Companies that have drifted out of the mandate (for example, US Large Stocks) must be sold while new entrants must be bought. This event is called reconstitution. About once a year, they announce which existing stocks will be sold, which new stocks will be added, and the date they will make the exchange. This notice provides Index fund managers time to prepare to buy and sell the securities at precisely the same reconstitution dates as the index they are mirroring.

The advantage notice also gives the rest of the market the opportunity to prepare and take action. Between the date of the announcement and the reconstitution date, trading volume for named stocks increases. As investors buy up the stocks soon to be added to the index, the stock prices increase. As a result, newly indexed stock prices rise and Index fund managers who are required to wait until the reconstitution date overpay, as shown in FIGURE 3. Conversely as investors sell stocks soon to be removed from the index, the stocks' prices fall, their selling prices are deflated, and Index fund managers realize less value for their exchange.

Lending Revenue

Institutional funds commonly enter into agreements to lend securities from their portfolios to other institutional investors willing to pay fees for the lending opportunity. The lower turnover of assets within Institutional funds allows

