

**The Fiduciary Personal Financial Advisor:
Due Diligence In Mutual Fund Selection –
A Primer on Understanding
Stock Mutual Fund Fees and Costs**

by Ron A. Rhoades, JD, CFP®

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“Most [mutual fund] investors are unaware of even the basics of their funds, do not take costs (especially ongoing costs) into account when they invest, and chase past fund performance, despite little evidence that past returns predict future returns. **Fund investors who use financial advisers do no better.**”

- Professors Alan R. Palmiter and Ahmed E. Taha, “Mutual Fund Investors: Divergent Profiles” SSRN Research Paper No. 1098991 (Feb. 2008) [Emphasis added.]

Introduction – The Fiduciary Duty of Personal Financial Advisors: Mutual Fund Due Diligence. In the quotation above, Professors Palmiter and Taha paint a harsh picture of “financial advisers” – which term they utilize broadly to include registered representatives, registered investment advisers, and/or financial planners. They further observe, “Fund investors also pay little attention to fund fees and expenses, particularly the regular costs that funds incur, such as management fees and trading costs ... [a] survey indicates that financial advisers may make investors even less sensitive to loads, fees, and expenses than investors would be on their own ... There is little evidence that financial advisers provide tangible benefits to fund investors or help them provide market discipline over mutual funds.”

Why this harsh assessment? There are several reasons, but one that stands out is that many financial advisers are unaware of how to undertake due diligence on the mutual funds and other investment products they recommend. Yet personal financial advisers are fiduciaries (as they are, by application of the Investment Advisers Act of 1940, similar state legislation, and/or state common law). Hence, a due diligence process for the selection of investment products is an important aspect of adherence to the fiduciary personal financial advisor’s duty of care. And one important part of this due diligence process is the assessment of the “total fees and costs” of any stock mutual fund. It is this aspect of the due diligence process that is the focus of this article.

Investors Often Don’t Understand Fees. The Rand Report (Jan. 2008 draft) reported that 75 out of 299 respondents to a survey (as to those who answered the question posed), or nearly 25%, reported that they paid ZERO fees to their broker or investment adviser. Interestingly enough, 70% of those investors surveyed indicated that they were very satisfied with their financial services advisor. This begs the question – if the 25% who thought they were paying nothing found out the truth, would they still be very satisfied? And if the other 75% who believed they were paying some fees (but who likely were

unaware of the total actual fees and costs they paid) found out the true fees and costs paid, would they be satisfied with their advisor?

In this author's experience, I have never met an individual investor who fully understands all of the fees and costs associated with the investments he or she presently owns. Sadly, I have also run across many a "financial advisor" who failed to adequately understand these fees and costs, as well. This brief article and associated white paper is part of a greater educational effort, by many in the industry, to provide further education to financial planners, as a means of enhancing the ability of personal financial advisors to provide high-quality advice to individual investors.

Fees and Costs Matter. It is well known that, on average, mutual fund returns are negatively related to fund expense ratios. Moreover, the presence of other fund costs – transaction and opportunity costs within the fund – also can lead to underperformance by stock mutual funds. While different academic studies debate the actual net impact of fees and costs, a substantial majority of the academic studies reveals that fees and costs, whatever form they take, negatively impact investors' returns.

This does not mean that personal financial advisors must always choose the lowest cost stock mutual fund for their clients. Rather, as fiduciaries, personal financial advisors must weigh the expected benefits which may result from a higher-cost investment product. For example, two mutual funds may hold very similar assets, but a higher-cost tax-managed version of the fund may result in a greater net return for the client when taxes are considered. Or a higher-cost fund may provide an investor's exposure to a different asset class (such as emerging markets) where the cost of mutual funds is generally greater.

However, tougher questions exist in weighing fees versus benefits. For example, substantial academic evidence concludes that "passive" or "index" stock mutual funds outperform, on average, actively traded stock mutual funds. Moreover, the average outperformance of the average of passive investment strategies occurs by a substantial margin over long periods of time, even adjusted for management styles (using the Fama-French 3-Factor Model, now incorporated into the familiar nine Morningstar style boxes). This academic data presents a quandary for the personal financial advisor – are the higher fees and costs associated with active fund investment management justified?

For example, it may be asked whether higher fees are justified when past returns (adjusting for style differences) of a selected fund are superior. However, much academic evidence reveals that past performance is seldom, alone, a predictor of future long-term results for stock mutual funds. As one recent academic paper asserts, "more than half of the best funds are simply lucky ... [and] only a tiny fraction of 2.1% of all funds yield truly positive alphas." L. Barras, O. Scaillet, and R. Wermers, "False Discoveries in Mutual Fund Performance: Measuring Luck in Estimated Alphas" (2006).

Hence, past performance, while one of several criteria a personal financial advisor should consider in mutual fund due diligence, should not be the only attribute which is examined. It may be an important factor, but focusing merely on past performance alone may result in the advisor making the mistake of so many individual investors – always "chasing returns."

We must ask, then, what other attributes of a stock mutual fund are worthy of paying higher total fees and costs? Although this is an important question, it is not one that this paper will seek to answer. Much academic research has explored, and continues to analyze, this question. Rather, we merely note

that fees and costs do matter in mutual fund investing. Armed with this observation, the following white paper simply sets forth a methodology for discerning, or at least estimating, the total fees and costs of certain pooled investment vehicles.

Materials Offered for Review. The white paper, “Estimating the Total Costs of U.S. Stock Mutual Funds” (2006), follows this page. Also included on the FiduciaryNow.com web site, for further reading in this area, are the following white papers:

Roger M. Edelen, Richard Evans, and Gregory B. Kadlec, “Scale effects in mutual fund performance: The role of trading costs” (2007). This white paper provides important insights into trading costs within mutual funds, and finds: “Mutual funds’ annual trading costs are larger in magnitude than the expense ratio.”

Alex Frino, David R. Gallagher, and Teddy N. Oetomo, “Further Analysis of the Liquidity and Informational Components of Institutional Orders: Active versus Passive Funds” (2006). This paper finds that “the total price impact of index funds’ trades is higher than that of active funds’.”

Professors Alan R. Palmiter and Ahmed E. Taha, “Mutual Fund Investors: Divergent Profiles,” SSRN Research Paper No. 1098991 (Draft, Feb. 2008), which is included along with the comment letter they provided to the SEC regarding Summary Prospectus disclosures.

Jason Karceski, Miles Livingston, and Edward S. O’Neal, “Portfolio Transactions Costs at U.S. Equity Mutual Funds” (2004), an important paper funded by the Zero Alpha Group, which discusses many (but not all) of the “hidden” transaction costs of mutual funds in a very readable discussion.

John A. Haslem, “Normative Transparency of Mutual Fund Disclosure” (2008), which discusses the inadequacy of the SEC disclosure regime as to mutual fund fees and costs, including transaction costs.

Also not to be overlooked is a book by Robert Kissell and Morton Glantz, *Optimal Trading Strategies: Quantitative Approaches for Managing Market Impact and Trading Risk* (AMACON, 2003), which presents methodologies for managing and reducing costs throughout all stages of the investment cycle. The book includes quantitative techniques for estimating, analyzing, and managing transaction costs; a framework for forecasting market impact and risk; and methodologies to develop optimal trading strategies.

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April 8, 2008

Estimating The Total Costs of U.S. Stock Mutual Funds

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Executive Summary:

- ✓ The "annual expense ratio" of stock mutual funds does not reflect other major expenses incurred by mutual funds arising from trading of stocks and other securities within the fund. These additional expenses include commissions paid by the fund's investment adviser to broker-dealer firms, bid-ask spreads, market impact costs, opportunity costs relating to delayed and canceled trades, and opportunity costs due to cash holdings.
- ✓ The average total costs of U.S. stock mutual funds are estimated at 2.5% to 3% annually. U.S. large cap blend funds tend to have lower total annual expenses, while small cap and growth funds tend to possess higher total annual expenses.
- ✓ While commercial index funds and certain exchange-traded funds usually possess relatively low turnover and low disclosed expenses, their market impact costs are often quite high.
- ✓ Wealth managers should seek out mutual funds in the desired asset classes which not only possess low "disclosed" costs but which also have adopted trading rules and methodologies designed to substantially reduce transaction and opportunity costs, given the substantial impact of total mutual fund costs upon the returns of the capital markets actually secured by individual investors.

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Table of Contents

Why Is Discerning the Total Costs of Mutual Funds So Important	2
Total Costs - “Disclosed Costs,” Hidden Costs,” and “Tax Drag”	4
What Are the “Disclosed Costs” of Mutual Funds	4
The Annual Expense Ratio	4
Management and Administrative Fees.....	5
12b-1 Fees.....	5
Sales Loads	5
Deferred Contingent Sales Charges.....	6
No-Load Funds	6
The Two Major Components of The “Hidden Costs of Mutual Funds”	7
Portfolio Transaction Costs - “Direct Costs” and “Indirect Costs”	7
What Are “Direct Costs”	7
What Are “Indirect Costs”	9
Bid-Ask Spreads.....	10
Market Impact.....	11
Costs of Delayed or Canceled Trades	12
Taxes and Exchange Costs.....	12
Opportunity Costs Due To Cash Holdings.	12
How Can Mutual Funds Reduce Transaction Costs?	13
The Market Impact Costs of Commercial Index Funds	15
ETFs: A Slight Improvement Over Index Funds.....	18
Consider A Broad Market Index Fund	18
A Solution - Funds Which Track “Silent Indices”	18
An Even Better Solution? - “Personal Index Funds”	19
Why Are Transaction Costs Not Included In A Mutual Fund’s Expense Ratio?.....	19
What Are the Average Total Costs of U.S. Stock Funds?	20
<i>Table: Estimated Average Total Costs of Mutual Fund By Style Category</i>	21
How Can Transaction Costs Be Ascertained By Investors or Their Advisors?	22
<i>Table for Computation of Estimated Total U.S. Stock Mutual Fund Costs</i>	24
Summary and Conclusion	26

Estimating The Total Costs of U.S. Stock Mutual Funds

Why Is Discerning the Total Costs of Mutual Funds So Important?

Striking. That's the only word which might convey the size and impact of the total costs of the vast majority of mutual funds today. Yet most individual investors we meet, even though many have dealt for years with registered representatives of broker-dealer firms, have no idea of the high costs of the mutual funds in their investment portfolios.

Alternatively, take the "do-it-yourself" investor reviewing the prospectus of a stock mutual fund. The investor reads that the fund's annual "expense ratio" is only 0.70% annually. Knowing that this annual expense ratio is below the average of similar stock mutual funds, the investor believes that this fund may be a good choice. Unknown to the investor, however, the high "hidden costs" of this mutual fund balloon the total annual expenses of this fund to well over 3%. In addition, if the fund were held in a non-qualified account (i.e., "personal" or "joint" or "trust" account, not an IRA or qualified retirement plan) of the investor, the "tax drag" upon the individual investor's investment returns would subtract another 1.5% or more annually from his or her net returns.

This is not to say that all mutual funds are poor choices for investors. Mutual funds offer individual investors and smaller pension fund managers and other fiduciaries the ability to achieve broad diversification among individual securities¹ - an important part of risk reduction in investing. Mutual funds may also offer a liquidity, tax management, and bookkeeping services. Hence, for the vast majority of individual investors, stock mutual funds can and should form an important part of their investment portfolio.

¹ The costs of purchasing 3,000 individual stocks in selected asset classes (the number of U.S. stocks we believe is sufficient to minimize "specific company" risk while providing exposure to multiple asset classes) are too great for most individual investors. By our estimate only investors with \$10 million or more to commit to individual stocks can achieve full diversification benefits while realistically keeping costs related to the deployment of cash into the capital markets and management fees associated with portfolio management low. The benefits of such broad diversification relate not just to standard deviation (a measure of the volatility of an investment portfolio, which is one measure of risk), but also relate to terminal wealth dispersion (TWD). Stated differently, a more broadly diversified basket of securities, consisting of several hundred stocks, has a statistical probability (by a 3-to-1 margin) of outperforming a basket of 15 stocks in the same asset class over any 10-year period of time. Well-diversified stock mutual funds therefore permit the vast majority of individual investors to reduce the risks inherent in the probable underperformance of a concentrated portfolio of individual stocks over long periods of time.

However, of the thousands and thousands of stock mutual funds available today, only a few funds successfully keep their “total costs” to very low levels. Why are total costs so important? The higher the costs of a mutual fund, the lower its likely returns when compared to other similar mutual funds.² This is because large portfolio transaction costs in a mutual fund can consume a large portion of the mutual fund’s potential gross returns.³

In this *Joseph Capital Management, LLC Working Paper* we survey and summarize much of the recent academic research which explores mutual fund costs and their impact upon the individual investors. We then set forth a proposed methodology for ascertaining the estimated total costs of stock mutual funds. This methodology is utilized in our firm during our initial screening of stock mutual funds and ETFs. This screening process is in turn part of our due diligence process in evaluating investment alternatives for our clients. In our view, part of an investment adviser’s due diligence⁴ and ability to add value⁵ during the

² Mark Carhart finds that net returns are negatively correlated with expense levels, which are generally much higher for actively managed funds. Worse, Carhart finds that the more actively a mutual fund manager trades, the lower the fund’s benchmark-adjusted net return to investors. Carhart, Mark, “On persistence in mutual fund performance,” *Journal of Finance* 52, 57–82 (1997). A more recent paper also highlights the important of keeping costs low. “The more rigorous academic studies find that annual expense ratios generally detract from fund performance (see, for example, Elton, Gruber, Das and Hlavka (1993), Gruber (1996), and Carhart (1997)). On average, fund managers are unable to recoup the expenses that funds pay via better performance. Wermers (2000) finds that the underlying equity holdings of equity mutual funds do outperform the market, but that cash drag, annual expenses and transaction costs more than offset this outperformance. These findings suggest that basing fund investment decisions at least partially on fees is wise. Lower cost funds have a smaller drag on performance that active managers must overcome. Taken to their logical conclusion, these results may suggest that index funds, accompanied by the lowest expense ratios in the mutual fund industry, are a more logical long-run investment choice than more expensive actively-managed funds.” Karceski, Livingston, and O’Neal, “Portfolio Transaction Costs at U.S. Equity Mutual Funds” (2004), available at http://www.zeroalphagroup.com/news/Execution_CostsPaper_Nov_15_2004.pdf.

³ Professor Ian Domowitz considered the impact of mutual fund transaction costs and provided a hypothetical example of their impact. “Consider, for example, an equally weighted global portfolio of stocks. Over 1996:3 through 1998:3, one-way total trading costs for this portfolio average 71 basis points (bps). If the portfolio turns over twice a year, 285 bps in total costs are incurred. Average annual portfolio return over the period is 1228 bps. On this basis, trading costs alone account for 23 percent of returns.” Domowitz, Ian, “Liquidity, Transaction Costs, and Reintermediation in Electronic Markets” (2001), available at http://www.smeal.psu.edu/ebr/publications/res_papers/2001_04.pdf.

⁴ We hope that distribution of this working paper within the investment advisory profession may positively impact upon the due diligence process utilized by other wealth managers to individual clients and assist them in their evaluation of mutual fund and similar products. As noted by Professor Mercer Bullard, President of *Fund Democracy, Inc.* and Barbara Roper, Director of Investor Protection, *Consumer Federation of America*, in a recent letter to SEC Chairman Christopher Cox, “advisers have not consistently been held accountable for considering products’ costs when determining whether they are in their clients’ best interests. While we certainly do not consider cost to be the only important consideration, it does have a significant long-term impact on investors’ returns. For that reason, CFA and Fund Democracy have urged the Commission to make clear that advisers have an explicit fiduciary duty to consider costs when determining what products to recommend.” *Letter to Chairman Cox*, September 30, 2005, available at www.funddemocracy.org. Wealth managers, together with other investment fiduciaries such as pension plan trustees and mutual fund directors, should demand more detailed and timely information from mutual fund’s investment advisors as to transactions costs. Increased disclosure of transaction costs should lead to lower overall costs relating to investing. Much of the historical success of companies in our capital markets is derived from delivering products at lower costs or providing better quality

investment selection process involves the necessity to ascertain the estimated “total costs” of mutual funds which may be recommended.

Total Costs - “Disclosed Costs,” “Hidden Costs,” and “Tax Drag.” Mutual funds and other collective investment vehicles (such as exchange-traded funds, unit investment trusts, collective funds, and hedge funds) often possess extremely high *total costs*. The “disclosed costs” of mutual funds, which is reflected in the annual expense ratio, is only one part of the total cost of the mutual fund. Other costs - including “hidden costs” and “tax impact” (or “tax drag”)⁶ can often be much higher than the “disclosed costs” of the mutual fund.

What Are The “Disclosed Costs” of Mutual Funds?

The Annual Expense Ratio. The annual expense ratio of a mutual fund is the total percentage of fund assets used for management and administrative fees as well as distribution fees (12b-1 fees). An annual expense ratio of 1.50% per annum means that each year 1.50% of the fund's total assets will be taken to cover these expenses. The annual expense ratio does not include sales costs or brokerage commissions (such as front-end loads charged for Class A shares, nor deferred contingent sales charges which may be imposed upon Class B shares, as discussed below). Nor does the annual expense ratio reflect the many transaction and opportunity costs a mutual fund incurs, as discussed in this working paper.

Management And Administrative Fees. Management fees are fees that are paid out of fund assets to the fund’s investment adviser for investment portfolio management. Administrative fees include custodial expenses, legal expenses, accounting expenses, transfer agent expenses, printing costs and other administrative expenses a mutual fund incurs each year.

A portion of a mutual fund’s management fee may be paid to broker-dealers in a practice known as “payment for shelf space.” By eating into the fund manager’s bottom line, such payments may reduce the likelihood that the management fee will be reduced in response to growth in fund assets.⁷ For this and

products at the same cost. Knowledgeable wealth managers can play an important role in fueling the success of lower-cost mutual fund complexes and, in the process, providing individual investors with a greater share of the returns which the capital markets have to offer.

⁵ “A significant portion of the value added by the wealth manager may be attributed to his or her management of ... commissions, bid/ask spreads, market impact ... [and] tax drag.” Harold Evensky, CFP®, “Changing Equity Premium Implications for Wealth Management Portfolio Design and Implementation,” *Journal of Financial Planning*, June 2002.

⁶ We will address the high costs of “tax drag” upon an investment portfolio, and tax-efficient portfolio management, in a later working paper.

⁷ Testimony of Travis Plunkett, Legislative Director, Consumer Federation of America, before the Senate Governmental Affairs Subcommittee On Financial Management, the Budget, and International Security, regarding “Mutual Funds: Hidden Fees, Misgovernance and Other Practices that Harm Investors.” This testimony can be found at

other reasons, revenue sharing arrangements including payment for shelf space have been criticized by consumer protection groups.⁸

12b-1 Fees. Rule 12b-1 was adopted by the SEC in 1980 after a lengthy period in the 1970's in which funds had been losing assets. The rule permitted funds to use shareholder assets, rather than fund company assets, for certain marketing expenses. Under the rule, fees of up to 100 basis points, or one percent, can be charged as part of the fund's annual operating expenses.⁹ Class C shares, often referred to as "level load" shares, charge neither a front-end nor a back-end load and instead deduct 12b-1 fees over the life of the investment.

Sales Loads. The traditional load mutual fund (A Shares) sold by stock brokerage firms imposes a commission up front, with the balance invested. The SEC does not limit the size of sales load a fund may charge, but the NASD does not permit mutual fund sales loads to exceed 8.5%. As the dollar amount invested rises to fixed points, called "break points," the applied commission rates may fall.¹⁰ Here is a typical A Share pricing schedule:

http://www.consumerfed.org/pdfs/mf_fee_testimony.pdf.

⁸ “[R]evenue sharing payments are often little more than a form of legalized payola ... the price brokers exact from fund companies to ensure access to their customers. Investors receive no benefit. Fund companies that can't or won't make the payments are discriminated against. Only brokers benefit by using their position as gatekeeper to exact additional pay.” Comment Letter, dated April 5, 2005, to SEC, from Mercer Bullard, Founder and President, Fund Democracy, Inc.; Barbara Roper, Director of Investor Protection, Consumer Federation of America; Kenneth McEldowney, Executive Director, Consumer Action; and Sally Greenberg, Senior Counsel, Consumers Union, regarding on mutual fund point-of-sale document proposal, available at www.funddemocracy.org.

⁹ NASD rules limit the amount of the fee that can be paid to broker-dealers to no more than 0.75 percent of the fund's average net assets for the year. However, an additional 0.25 percent service fee can go to the broker for providing ongoing services to investors or for maintaining their accounts. Hence, it is possible that the entire maximum 1.00 percent 12b-1 fee could be paid to the broker-dealer firm by the mutual fund company.

¹⁰ Some mutual funds that charge front-end sales loads will charge lower sales loads for larger investments. For example, a fund might charge a 5% front-end sales load for investments up to \$25,000, but charge a load of 4% for investments between \$25,000 and \$50,000 and 3% for investments exceeding \$50,000. The investment levels required to obtain a reduced sales load are commonly referred to as "breakpoints." In the foregoing example the breakpoints were \$25,000 and \$50,000. Funds that offer breakpoints can set them at their discretion. The SEC does not require a fund to offer breakpoints in the fund's sales load. If breakpoints exist, however, the fund must disclose them. In addition, a brokerage firm that is a member of the NASD should not sell an individual investor shares of a fund in an amount that is "just below" the fund's sales load breakpoint simply to earn a higher commission. An individual investor may also be entitled to combine previous fund purchase amounts to obtain a breakpoint discount upon a purchase made today, or to obtain a breakpoint discount for an investment today if the investor agrees to make additional purchases in the future. In the latter case the individual investor would sign a "letter of intent" to make additional purchases in the future. Some mutual fund companies also aggregate fund purchases by related family members for purposes of breakpoints.

<u>Amount of Purchase</u>	Sales Charge as Percentage of:	
	<u>Offering Price</u>	<u>Net Amount Invested</u>
Less than \$50,000	5.75%	6.10%
\$50,000 but less than \$100,000	4.75%	4.99
\$100,000 but less than \$250,000	4.00%	4.17
\$250,000 but less than \$500,000	2.95%	3.04
\$500,000 but less than \$1 M	2.20%	2.25
\$1,000,000 or more	None	None

Note that fee-only registered investment advisers often get sales loads waived for their clients, regardless of the amount of cash invested into the fund.

Deferred Contingent Sales Charges. Class B shares generally charge a "back-end" load for exiting a fund within 5 to 7 years of purchase. This fee is sometimes referred to as a contingent deferred sales charge (CDSC) or a "surrender charge." The back-end charge typically starts at 5% to 7% of the redeemed assets during the first year of purchase and declines by one percentage point each year until it reaches zero. However, since the broker must be compensated for selling the fund whether or not the investor redeems the mutual fund shares in the first several years, Class B shares often have higher annual expenses, including paying an ongoing 12b-1 fee.¹¹ After the back-end load expires (5 to 7 years), the 12b-1 fee is no longer deducted from fund assets and the B shares convert to A shares. Brokerage sales practices involving Class B shares received substantial criticism in recent years and were the subject of substantial regulatory fines.¹²

No-Load Funds. Mutual funds that do not charge a sales commission are called "no-load funds." Under NASD rules a mutual fund is permitted to pay its annual operating expenses and still call itself "no-load," unless the combined amount of the fund's 12b-1 fees or separate shareholder service fees exceeds 0.25% of the mutual fund's average annual net assets.

¹¹ We find that is often in the individual investor's interest to redeem a stock mutual fund which still possesses a contingent deferred sales charge, rather than keeping the fund until surrender charges disappear, for several reasons. First, the ongoing annual costs of the fund may be quite high relative to the costs of surrender and reinvestment in lower-cost securities. Second, the investment in the fund may not have been done tax-efficiently. Third, the fund may invest in securities in an undesirable asset class. Fourth, the fund may be subject to various risks to which the individual investor's portfolio should not be subjected (such as lack of adequate diversification, manager risk, and institutional risk). In essence, an investor should regard the contingent deferred sales charge as already having been paid (which, in most cases, it has - at least as to the brokerage firm which sold the fund), even though such charge is slowly and painfully extracted from the investor in the form of higher fees for the term of the surrender period. Each fund subject to a surrender fee requires an individual analysis, by the fee-only wealth manager, as to the appropriateness and timing of any surrender.

¹² In 2005, the NASD fined six major firms -- Citigroup Global Markets, American Express Financial Advisors (now known as Ameriprise Financial Services), Chase Investment Services, Merrill Lynch, Wells Fargo and Linsco/Private Ledger -- a total of more than \$40 million for unsuitable B share and C share sales. NASD ordered the firms to offer customer remediation on more than 400,000 mutual fund transactions made by more than 79,000 households, at a cost potentially greater than the amount of the fines. "NASD: 2005 in Review," PR Newswire, December 27, 2005.

The Two Major Components of the “Hidden Costs” of Mutual Funds: “Transaction Costs” and “Opportunity Costs.” We use the term “hidden costs” to refer to all of the costs associated with holding a mutual fund other than sales loads, CDSCs, and the annual expense ratio. We use the description “hidden” given the lack of disclosure of these additional costs in the beginning portion of the vast majority of funds’ prospectuses (the part of the prospectus *some* investors might read) and given their complete non-disclosure in mutual fund fact sheets.

The “hidden costs” of mutual funds include several types of costs called “transaction costs,” as well as “opportunity costs” an investor may incur due to cash holdings by the mutual fund. Transaction cost management has received increased scrutiny in recent years in connection with a mutual fund investment adviser’s duty to achieve best execution. Despite this effort, the “hidden costs” of stock mutual funds can often be quite high.

Portfolio Transaction Costs - “Direct Costs” and “Indirect Costs.” Mutual fund portfolio “transaction costs” are the hidden costs which result from trading of securities (stocks, bonds, or futures contracts) by the mutual fund. They include “direct costs” (commissions, commission equivalents, mark-ups and markdowns, and taxes) and “indirect costs” (spreads, market impact costs, and opportunity costs due to delayed or canceled trades). How much trading of securities with stock mutual funds occurs? While some recent estimates place portfolio turnover in domestic stock mutual funds at 100% or greater,¹³ a study by the Investment Company Institute (a mutual fund trade organization) reports asset-weighted average annual turnover rate for U.S. stock mutual funds as only 51% in 2004 (which is a decline from a 73% turnover in 2001).¹⁴

What Are “Direct Costs”? Whenever an individual investor buys or sells stocks, he or she pays a commission to a broker. This is also true for institutional investors, such as mutual funds, as they often have to have a commission too (although it is usually less than what an individual pays). Commissions are fees directly paid by a mutual fund to a broker-dealer for executing a trade, including the processes of accepting and routing the order and clearing the trade. Other direct costs could be indirectly paid for executing a transaction, such as markups, markdowns, commission equivalents or other fees. Markups and markdowns which occur when a broker-dealer sells a stock or other security to a mutual fund out of its

¹³ “[B]etween 1950 and 1965, it was a rare year when fund portfolio turnover much exceeded 16%, meaning that the average fund held its average stock for an average of about six years. But turnover then rose steadily and surely and fund managers now turn their portfolios over at an astonishing average annual rate of 110%” John Bogle, “The Mutual Fund Industry in 2003: Back to the Future,” Remarks by John C. Bogle, Founder and Former Chairman, The Vanguard Group, before the Harvard Club of Boston, January 14, 2003.

¹⁴ Investment Company Institute® *Research Commentary*, “Mutual Funds and Portfolio Turnover,” November 17, 2004, available at www.ici.org.

inventory, or when a broker-dealer purchases a stock or other security from a mutual fund to add to its inventory.¹⁵ While commissions and commission equivalents should be discernable by a stock mutual fund and inclusively reported, at times a mutual fund may be unaware of whether a transaction was executed on a principal basis (in which case the cost is disclosed by the broker-dealer to the fund) or a riskless principal basis (in which case the true cost of the trade may not be known to the fund).¹⁶ Nevertheless, the commissions disclosed in the mutual fund's Statement of Additional Information can be utilized as an indication of a mutual fund's commission costs for brokerage services.

The level of commissions paid for the same trades can vary widely from one mutual fund to another. This is because many mutual funds shift certain operational costs from the disclosed management fees to the hidden transaction fees.¹⁷ This occurs under a practice known as "soft dollars," under which a mutual fund permits higher commissions to be paid in return for research services. The use of client commissions to pay for research services presents the mutual fund's manager with a significant conflict of interest, and may give incentives for mutual funds to disregard their best execution obligations when directing orders to different brokers. However, in 1975 the U.S. Congress enacted Section 28(e) of the Securities Exchange Act of 1934 ("Exchange Act") to provide a safe harbor that protects mutual fund managers from liability for a breach of fiduciary duty solely on the basis that they paid more than the lowest commission rate in order to receive "brokerage and research services" provided by a broker-dealer if the managers determined in good faith that the amount of the commission was reasonable in relation to the value of the brokerage and research services received. While the SEC recently narrowed the types of services eligible for soft

¹⁵ For some regulatory purposes, such as soft dollar disclosures, the SEC has interpreted the term "commission" to include commission equivalents and other forms of remuneration in certain types of "riskless principal" trades. A "riskless principal" transaction is a "transaction in which a member [broker-dealer], after having received an order to buy a security, purchases the security as principal at the same price to satisfy the order to buy or, after having received an order to sell, sells the security as principal at the same price to satisfy the order to sell." NASD Rule 4632(d)(3)(B). "Traditional" riskless principal transactions can include an undisclosed fee (reflecting a dealer's profit on the difference in price between the first and second legs of the transaction) and are not subject to the disclosure requirements of NASD Rules 4632, 4642 or 6420. With the decimalization of stock prices, broker-dealers are trading on a riskless principal basis more frequently than when stock prices were fractionalized. As a result, commission equivalents are an increasingly large component of mutual fund transaction costs. *Report of the Mutual Fund Task Force Soft Dollars and Portfolio Transaction Costs*, NASD, November 11, 2004. Although riskless principal trades might appear to be relatively easy to quantify, the true cost of these trades (excluding commissions) reflects the extent to which closing prices might move due to the executing broker's actions. Measuring what might have occurred in the absence of a trade is subject to varying estimates.

¹⁶ *Report of the Mutual Fund Task Force Soft Dollars and Portfolio Transaction Costs*, NASD, November 11, 2004.

¹⁷ A mutual fund company that pays for its own research (either through internal staff or by payments to third party research firms) "must bear the cost from its own capital and charge a management fee that makes the cost explicit to investors. Consequently, a fund has an incentive to outsource services in a manner that keeps the cost unobservable to investors. This is accomplished through the trading process. Institutions can legally fund the most basic aspects of their operations out of client assets by paying higher trading commissions, and receiving non-trade related services from the intermediary as a form of 'rebate.'" Robert A. Schwartz and Benn Steil, "Controlling Institutional Trading Costs," *Journal of Portfolio Management* (Spring 2002).

dollar payments,¹⁸ higher commissions for trades are still paid by many mutual funds. A recent positive development, from the standpoint of mutual fund investors, has been a trend toward the “unbundling” of trade execution and research purchases.¹⁹

Commission rates also vary by market (i.e., by country). For example, agency commissions on equity trades in the UK and Japan average a relatively modest 13 basis points, but agency costs skyrocket in emerging markets such as Korea (33 basis points) and Poland (50 basis points).²⁰

What Are “Indirect Costs”? While total direct costs are relatively easy to quantify, indirect portfolio transaction costs, including bid-ask spreads, market impact costs, and opportunity costs (due to delayed or canceled trades), are far more difficult to measure.²¹ In fact, industry participants who are responsible for

¹⁸ SEC Release No. 34-52635, *Commission Guidance Regarding Client Commission Practices Under Section 28(e) of the Securities Exchange Act of 1934* (October 18, 2005).

¹⁹ ITG “Investor Overview” presentation, December 2005. Some firms may be foregoing soft dollars in the future. “Fidelity Investments struck a deal with Lehman Brothers recently to pay for Lehman’s research with its own hard-earned cash rather than that of its millions of small investors. It is pursuing similar deals with other brokers. As part of its campaign, Fidelity has also publicly egged on its many competitors to do the same and use commissions strictly for executions. Fidelity’s move to decouple its payments for research from those for executions was not a complete surprise to those in the trading industry. The buy-side gorilla had declared its willingness to unbundle in a letter to the SEC just last year ... ‘I think there is a very good chance that the rest of the industry will follow Fidelity’s lead,’ said Ken Worthington, a securities industry analyst with CIBC World Markets.” Gregory Bresiger, “Unbundling Looms,” *Traders Magazine* (January 2006).

²⁰ Proszek, Stan, “Transition Management: Simple - But Not Easy,” *Benefits and Pensions Monitor* (October 2002).

²¹ “The disclosure [of transaction costs] must not only ... measure the cost of conventional limit and market orders, but also of volume-weighted-average-price (VWAP) orders, market-on-close (MOC) orders, basket trading, stop-loss orders and other modern methods of portfolio management, including orders that are hedged in the options or futures markets and orders that arbitrage between equities and derivatives markets ... For many securities (notably many international equities and both US and foreign debt securities), there simply is no continuous two-sided firm-quote data available about the relevant securities. Most if not all of the proposed methods of quantifying spread costs, market impact costs, and opportunity costs are useless if there is no continuous quotation data (or if the available quote data consists merely of non-firm ‘invitations to deal’ that are often far from actual transaction prices). For many order types, such as VWAP or market-on-close trades (or stop orders), the concepts of trade decision time and trade execution time at best are difficult to apply. Even in the US equities markets, there is rarely reliable, firm depth-of-book quote data available beyond a thin National Best Bid or Offer (NBBO) which is virtually irrelevant to institutional-sized orders ... In short, there is no ‘silver bullet’ that will allow an easy quantification of transaction costs in a way that would be comparable among all the different types mutual funds. If the Commission were going to go down that path, it would have to develop and constantly modify specific rules for every possible asset class (Argentine high-yield corporate debt, Slovakian sovereign debt, Turkish equities, Chinese/Hong Kong dual-listed securities, etc.) and, within each market, for each order type. ... Even where the data is most available (for example, the market for US large-cap equities), different experts will assess differently the costs of an order ... In sum, transaction cost measurement is an art, not a science - and pretending that it is a quantifiable science would mislead investors, not enlighten them. A whole industry exists in the US to assist institutional investors in measuring transaction costs, and no two players in this industry come up with the same answers ... Just because transaction costs are difficult to measure does not mean they do not have a real and important impact on investors - they do” Comments of W. Hardy Callcott, former Assistant General Counsel for Market Regulation, dated January 30, 2004, to the SEC’s “Request for Comments on Measures to

analyzing these costs for their firms disagree about which measure is most accurate for the various costs.²² Spread, impact and opportunity costs, sometimes collectively called “implicit costs,” can often greatly exceed the explicit commission costs resulting from trading securities.

Bid-ask spreads. Bid-ask spreads are the difference between the bid and the ask for a security at a given time, where the ask is the highest price anyone wants to pay for the security at a given time, and the bid is the lowest price anyone wants to sell the security for at a given time. The simplest way to convince yourself that this spread is a cost is to consider the following scenario: you buy a stock, then turn around and sell it immediately. Since these transactions are simultaneous, the actual price of the stock is presumed constant, but you still lose the spread on the transaction.

The bid-ask spread is, in theory, designed to cover three types of costs or risks. The first is the risk and the cost of holding inventory; the second is the cost of processing orders; and the final cost is the cost of trading with more informed investors. The spread has to be large enough to cover these costs and yield a reasonable profit to the market maker on his or her investment in the profession.

Bid-ask spreads are greater for companies with smaller market capitalization than for firms with larger market capitalizations, as demonstrated in this table:

Market Cap Range (\$Millions)	Names	Daily Trading Volume		Bid/Ask Spread
		Shares (mm)	Value (\$mm)	
18,157 - 282,290	100	7.45	277.71	0.07
2,826 - 18,157	400	1.88	49.58	0.08
1,118 - 2,826	500	0.63	11.79	0.15
353 - 1,118	1,000	0.30	3.59	0.28
138 - 353	1,000	0.08	0.69	0.56
0 - 138	2,387	0.04	0.12	3.24

Source: www.ifa.com, quoting Dimensional Funds Advisors presentation, utilizing data from Bridge Trading Systems, April 16, 2003.

Improve Disclosure of Mutual Fund Transaction Costs,” available at <http://www.sec.gov/rules/concept/s72903/whcallcott013004.htm>.

²² “[T]here is no generally agreed-upon method to calculate securities transaction costs.” SEC Rel. No. IC-26313 (Dec. 18, 2003), 68 Fed. Reg. 74819 (Dec. 24, 2003). Moreover, mutual fund transaction costs vary from one mutual fund company to another. The Plexus Group reports many of the best mutual fund companies have pursued trade cost-reduction programs to the benefit of the investors, often reducing total transaction costs by up to 40% over a two-year period. Testimony of Wayne H. Wagner, Chairman, Plexus Group, before the House Committee on Financial Services, Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises (March 12, 2003), available at <http://financialservices.house.gov/media/pdf/031203ww.pdf>.

Bid-ask spreads for mutual funds and other institutional investors appear to have declined since the adoption of decimalization and 1-cent ticks. The General Accounting Office found that total trading costs declined by about 53 percent for NYSE stocks, falling from about 33 cents per share in early 2001 to about 15.5 cents in 2004. For NASDAQ stocks, the decline was about 44 percent, from about 25.7 cents to about 14.4 cents.²³ However, other factors may have contributed to the decline in bid-ask spreads, such as increased attention to transaction costs by mutual funds and the reduction of momentum trading in stocks following the bursting of the tech stock market bubble in 2000-2002. Also, there is some evidence that while bid-ask spreads have declined other implicit costs for mutual fund investors have increased.²⁴

Market Impact. Market impact costs result from the effect of a large trade triggering a move in the price of the stock to the moment of trading from the price that would have prevailed had the trade not occurred. When a mutual fund buys a large quantity of shares, the mutual fund has to pay a price higher than the market price at the time of the purchase. Thus, the mutual fund is said to "move the market," as its trade has an impact on the market prices. Obviously "large" is a relative term. For a stock on the Nasdaq exchange that does not trade very often, an order to buy a few thousand shares is "large," while for a stock like General Electric an order to buy a million shares is "large." Due to the adverse effect of market impact, institutional investors tend to spread their orders over a few days or even weeks, breaking their trades up into smaller packets. Nevertheless, market impact costs still result.²⁵

²³ GAO Report #05-535, "Securities Markets: Decimal Pricing Has Contributed to Lower Trading Costs and a More Challenging Trading Environment" (July 1, 2005). The GAO report stated that 15 of 23 institutional investors interviewed reported lower trading costs, while 5 reported that they stayed about the same. However, the report also noted that after decimal pricing and the 1-cent tick were implemented in 2001, the volume of shares shown as available for sale—or displayed depth—on U.S. stock markets declined significantly. "[T]he reduction in tick size reduced incentives to large-order investors to display their trading interest. Since the implementation of penny ticks, market participants said that displaying large orders is less advantageous than before because other traders could now submit orders priced one penny better and execute these orders ahead of the larger orders. This trading strategy, called 'penny jumping' or 'stepping ahead,' harms institutional investors that display large orders and can increase their trading costs." GAO Report at pp. 34-35.

²⁴ "We find that trading costs of index funds were unchanged following the two reductions in tick size. In contrast, we find that trading costs of actively managed funds increased both times. Over the five months following the switch to sixteenths, actively managed funds experienced an increase in trading costs equal to 0.157 percent of fund assets. Over the five months following the switch to decimals, the increase was 0.502 percent. Rather than help the small individual investor, as decimalization's proponents envisioned, decimalization appears to have levied an indirect but important cost in the form of lower mutual fund returns." Bollen, Buse, *Tick Size, Trading Costs, and Mutual Fund Performance*, p. 6 (2004).

²⁵ "Large institutional orders are sensitive to market depth for at least two reasons. First, filling a large order may take several days and multiple transactions; hence a large order likely suffers price concessions as market depth is consumed. Second, information leakage may move prices adversely as the institutional investor attempts to fill the order." Bollen, Busse, *Tick Size, Trading Costs, and Mutual Fund Performance*, fn. 8 (2004).

Why is there “market” or “price” impact? As stated by Professor Aswath Damodaran:

“There are two reasons for the price impact, when investors trade. The first is that markets are not completely liquid. A large trade can create an imbalance between buy and sell orders, and the only way in which this imbalance can be resolved is with a price change. This price change that arises from lack of liquidity, will generally be temporary and will be reversed as liquidity returns to the market. The second reason for the price impact is informational. A large trade attracts the attention of other investors in that market because it might be motivated by new information that the trader possesses. Notwithstanding claims to the contrary, investors usually assume, with good reason, that an investor buying a large block is buying in advance of good news and that an investor selling a large block has come into possession of some bad news about the company. This price effect will generally not be temporary, especially when we look at a large number of stocks where such large trades are made.”²⁶

Costs of Delayed or Canceled Trades. Opportunity costs due to delayed or canceled trades refers to the effect of “not owning what you want to own.” In trading terms, this type of opportunity cost is the net result (positive or negative) of price movements that occur when execution is delayed. The longer a portfolio transition (i.e., the sale of one security, and the purchase of another) takes, the higher the cost. As time passes, at some point the rising opportunity cost more than offsets the benefits from reduced market impact.

Taxes and Exchange Costs. Taxes and exchange fees can mean extra non-negotiable costs, depending on the market. For example, stamp duties add another 50 basis points to United Kingdom share purchases. We do not address these costs in this working paper, as we concentrate on U.S. stock mutual funds.

Opportunity Costs Due to Cash Holdings. Equity mutual funds hold cash for several purposes. First, funds hold cash to meet shareholders’ redemption needs. One of the defining features of open-ended mutual funds is that they are required by law to redeem shares on a daily basis. If investors redeem their fund shares in droves, funds without enough cash on hand have to sell stocks (or borrow cash) to meet these redemptions. Therefore, the primary benefit of holding cash in a mutual fund is to reduce trading costs.

Cash may also be accumulated to pay management fees and other expenses and to make dividend and capital gain distributions. In addition, cash may be accumulated as a result of market timing activities (i.e., an expected drop in prices) or due to fund management delay in identifying appropriate opportunities for investment. Unit investment trusts are not permitted to reinvest stock dividends received during a quarter, as unit trusts accrue cash dividends for the stocks in the trust and pay dividends (less trust expenses) on a calendar quarter basis; this can lead to another means of cash accumulation in certain types of stock mutual funds and certain forms of exchange-traded funds.

²⁶ Aswath Damodaran, *Investment Philosophies* (Chapter 5, p. 10) (2002).

In addition, cash holdings to an investor result from dividend and capital gain distributions. Mutual funds go “x-dividend” on a certain date, but the cash is not actually paid to the investor until a later time - days or weeks later. The extend time for payment of dividend and capital gain distributions can even cross calendar years, as occurred during 2005-6 with Vanguard’s VIPERS, Barclay’s iShares and other exchange-traded funds.

The primary cost of either a mutual fund holding cash (or a dividend or capital gain distribution being undertaken but not yet available for reinvestment) is the opportunity cost inherent in not being invested in stocks or bonds, as the mutual fund’s strategy dictates. Wermers (2000) estimated that cash and bond holdings lower the performance of an average equity fund by 70 basis points per year over the period from 1975 to 1994.

How Can Mutual Funds Reduce Transaction Costs? Mutual funds can reduce transaction costs in a variety of ways.

Extremely Low Turnover. Mutual funds which adopt a portfolio design and trading rules permitting extremely low trading within the fund can most effectively reduce transaction costs. It is self-evident that the lowest cost of trading results from “no trade” occurring at all.

Minimizing Fund Inflows and Outflows. Fund policies which discourage cash inflows and outflows can minimize the need to either acquire additional securities or dispose of existing securities, other than needs driven by portfolio management decision-making. Some mutual funds impose redemption fees for a period of time, such as for several months or a year, to discourage short-term investors from entering and leaving the fund. Other mutual funds permit access to their funds only for institutions or through wealth managers who have been granted access²⁷ and who have tacitly agreed to forego portfolio management strategies such as market timing (including but not limited to certain tactical asset allocation strategies) in order to minimize mutual fund cash inflows and outflows.

Crossing Opportunities. Mutual funds can also seek to lessen trading costs by taking advantage of crossing opportunities, which arise when two different mutual funds desire to purchase or sale the same security, either within the same mutual fund complex or externally (using crossing networks²⁸). In

²⁷ For example, Dimensional Funds Advisors’ mutual funds are available to retail investors in two ways - through fee-only investment advisers (www.dfaus.com/find_advisor) or through several major 401(k) plans. Paul Herbert of Morningstar stated that such limited access “is an advantage for fund shareholders because DFA does not ‘have to deal with finicky flows’ into and out of its funds, which can hurt liquidity and returns.” Isentain, Howard, “Reading the Index To Beat the Index,” The New York Times (Jan. 11, 2004).

²⁸ For example, ITG’s POSIT crossing systems give buyers and sellers opportunities to match equity orders with

particular, transferring securities “in-kind” from one fund to another within the same complex can save a mutual fund both commissions (plus any taxes or stamp duties, in some markets) and bid-ask spreads on both sales and repurchases.

Trading Desk Expertise. Investments in technology and the utilization of consulting services can secure for many mutual funds an improvement in trading costs. In addition, trading desk managers or broker-dealer firms may be provided incentives to execute orders within the bid or ask prices.

Patient Trading. Market impact costs decline rapidly from their maximum level as a trade is worked over longer periods of time. Hence, for many mutual funds it is often advantageous to be patient when working a large trade. In most instances agency trading (as opposed to principal trades) is preferable, taking advantage of natural liquidity in the market. Furthermore, extending the trading horizon by parceling trades into smaller orders can significantly reduce the adverse price effects of market impact.²⁹ However, as the time to completion of an order increases the transaction costs associated with delayed trades can increase. In some instances hedging, if permitted by a mutual fund’s prospectus, can afford a degree of protection to the portfolio against risks in price fluctuations while a position is being unwound or accumulated.

Use of Futures Contracts. Futures and currency forwards may be used to convert cash balances into more continuous equity exposure in a given asset class, in order to provide for a reduction in the opportunity costs due to cash holdings.

Block Discount Purchases. Some mutual funds may seek to undertake block purchases of needed securities at a discount to the exchange’s market price of the security.³⁰ This can lead to negative

confidentiality, access to diverse liquidity pools, zero market impact, and the cost savings of midpoint pricing. Instinet, Liquidnet, Harborside, POSIT, and Jefferies are among many extensively used crossing systems. The use of these systems, which provide anonymity as to the number of shares desired to be sold or purchased, can reduce market impact costs.

²⁹ This is especially true after the adoption of decimalization and penny ticks in the exchanges. “One of the ways that institutional investors have adapted their trading strategies to continue trading large orders is to break up these orders into a number of smaller lots. These smaller orders can more easily be executed against the smaller number of shares displayed at the best prices. In addition, not displaying their larger orders all at once prevents other traders from stepping ahead.” GAO Report #05-535, “Securities Markets: Decimal Pricing Has Contributed to Lower Trading Costs and a More Challenging Trading Environment” (July 1, 2005), at p. 37.

³⁰ Such trades often occur in the “third market” or, more recently, also in the “fourth market.” The “third market” in securities refers to OTC transactions in a security that is also traded on an organized exchange. Institutional investors often trade large blocks of stock in this market. Negotiated fees are typical in this market. The “fourth market” in securities refers to transactions that occur directly between a buyer and a seller of a large block of securities. In the fourth market, brokers and dealers are eliminated. A wire network provides current information subscribers are willing to buy or sell at specified prices.

transaction costs for some purchases, which in turn can substantially reduce the trading costs of a mutual fund (even to the point of contributing to the fund's performance).³¹

Once mutual funds have been screened by wealth managers to narrow down the potential funds for utilization in clients' portfolios, the wealth manager should question each mutual fund's investment adviser as to the methods employed by the fund to minimize trading costs. Additionally, the investment adviser should ascertain whether assessments of transaction costs have been undertaken by the fund's investment adviser or its Board of Directors.³²

The Market Impact Costs of Commercial Index Funds. Index funds and exchange-traded funds (ETFs) are attractive at first blush to investors given their relatively low disclosed costs (in most instances) and their consistent long-term average performance advantage over the average performance of actively managed stock funds.³³

³¹ Block purchasing at discounted prices works most effectively in markets in which liquidity is not present relative to the size of the desired trades, such as that existing for U.S. micro cap stocks. Professor Donald Keim described Dimensional Funds Adviser's ability to garner negative trading costs as follows in a 1998 paper: "The trading strategy is best described as a patient one and is well suited to the illiquid small-cap market. Trade programs are worked patiently by brokers, and are often broken up over several days with instructions to trade inside the spread, buying close to the bid price or selling close to the ask. DFA also participates in the upstairs market for large-bloc trades, effectively playing the role of market maker by standing ready to take the opposite side of seller-initiated blocks that are on DFA's buy list. Thus, DFA is effectively operating as a supplier of liquidity and, as such, should enjoy reduced trading costs. The evidence confirms this: trading contributes 5 basis points per month, gross of fees, to the performance differential [of the DFA9-10 Fund, now called the DFA U.S. Micro Cap Portfolio] during the 1982-95 period. This positive contribution is attributable to the latter portion of the Fund's history: After 1986, a period when at least half of the trading volume in each year was completed using lower-cost block trades, the trading contribution was a significant 17 basis points per month ($T = 2.30$). Seventeen basis points per month is economically large; it is remarkable when compared to the average *reduction* in value of 1.92% associated with the one-way trade costs of comparable NYSE and AMEX small-stock trades for a sample of institutional money managers in Keim and Madhavan (1997)." Keim, Donald B., "An Analysis of Mutual Fund Design: The Case of Investing in Small-Cap Stocks" (Feb. 1998), available at <http://knowledge.wharton.upenn.edu/PDFs/136.pdf>.

³² Funds can seek to measure the amount of transaction costs, either internally or through the use of consultants. Of the many yardsticks to measure trading efficacy at the security-level, VWAP (volume-weighted average price) is the most widely accepted. Grounded in basic statistics, VWAP has the merit of simplicity. Add up the dollars traded for each transaction (price times shares traded) and then divide by the total shares traded for the day. Generally, a purchase below VWAP is 'good,' whereas one above VWAP may not be. Other common transaction benchmarks include previous-day-close and averages of high-low or open-close prices. Historically, transaction cost analysis (TCA) was the providence of specialist firms such as Abel Noser, Elkins McSherry (now State Street), the Plexus Group (acquired from JP Morgan Chase by ITG), the Quantitative Services Group and GSCS Information Services. Today, many brokers and their (algorithmic) trading strategies typically incorporate their own TCA services, and many fund managers have been utilizing these systems or developing their own TCA systems. A 2004 survey conducted by The Tabb Group, a financial markets' consulting firm, of more than 50 head and senior traders at institutional investor firms reported that over 60 percent of these firms were using algorithmic trading vehicles. The Tabb Group, "Institutional Equity Trading in America: A Buy-Side Perspective" (Westborough, Mass.: April 2004), 32. Additional information on algorithmic trading strategies appears in Madhavan A., "The Trading Revolution: navigating the brave new world of algorithmic execution," *Barclays Global Investors Investment* ineInsights (July 2005).

³³ "SPIVA shows that longer-term results are consistent with past results. Over the past three years, the S&P 500 has outperformed 61.9% of large-cap funds, the S&P MidCap 400 has outperformed 70.4% of mid-cap funds, and the S&P

The S&P 500 Index provides the basis for the largest class of mutual funds. With over \$100 billion invested in S&P 500 Index funds, many institutions' and individuals' portfolios are grounded and diversified by these funds. Index fund managers' stated goals are to replicate the S&P 500 (minimizing tracking error), limit expenses and alleviate tax responsibilities. However, high costs from bid-ask spreads and market impact can result during the "reconstitution" of the underlying S&P 500 index. For other funds tracking different commercial indices, reconstitution can force even higher costs.

Index reconstitution, which occurs periodically (sometimes once a year, sometimes more often) on pre-announced dates, is necessary because underlying stocks cease to meet the index's criteria for inclusion, or because of major corporate events such as mergers, liquidations, bankruptcy, or delistings from an exchange.

As a result of index reconstitution, a "forced turnover" of stocks within the fund occurs. This is reflected in index fund average turnover rates, estimated as follows for the period of 1998-2003:

S&P 500 index	4.6%
S&P 500 / Barra Value:	26.1%
Russell 2000:	47.6%
Russell 2000 Value:	41.7%

The consequences of multiple mutual funds tracking the same index and being forced to buy and sell certain publicly identified stocks, all within a short period of time, can be quite dramatic. This is because of the vast amounts of monies now tied to specific indices. It was estimated in 2002 that more than 10% of the market cap of the S&P 500 companies was held by S&P 500 index funds, while 6% of the market cap of the companies in the Russell 2000 index was held by funds tied to that index.

Not all indexes are the same, however, in how they are constructed and reconstituted. In contrast to the closed door approach adopted by S&P in adding companies to an index, the Russell indexes are passively formulated. The Russell web site states that "we don't pick the stocks in the Russell indexes — the market does." Such an approach arguably leads to greater arbitrage opportunities as the date for reconstitution approaches. Various indices are reconstituted at different times (such as monthly, quarterly, semi-

SmallCap 600 has outperformed 71.4% of small-cap funds. Similarly, over the past five years, the same indices have outperformed 65.4% of large-cap funds, 81.3% of mid-cap funds and 72.4% of small-cap funds ... Srikant Dash, Index Strategist at Standard & Poor's [recently stated] ... "[T]here is consistency in the longer time horizons, with indices persistently outperforming a majority of active funds over horizons such as three or five years." Press Release, "S&P Releases Year End Index Versus Active Fund Scorecard," January 2006. While there is substantial debate regarding active versus passive management strategies, and substantial academic evidence supporting the average outperformance of passive funds over actively managed funds, a review of the literature on this subject is beyond the scope of this working paper.

annually, or annually). Additionally some indices are not currently tracked by a large number of mutual funds and ETFs (one of the reasons behind the switch of many of Vanguard's stock index funds to the MSCI index, as a means of reducing transaction costs during reconstitution).

Various academic studies have estimated the adverse impact to investors from reconstitution of indexes for funds tied to the S&P 500 index (an index of U.S. large company stocks) and for funds tied to the Russell 2000 index (an index of U.S. small company stocks), as seen in the following table:

Study	Annual Loss to Investors from Index Reconstitution	
	S&P 500 Index	Russell 2000 Index
Chen, Noranhu, and Singal, "Index Changes and Unexpected Losses to Investors in S&P 500 and Russell 2000 Index Funds" (2004, 2005)	0.03% to 0.12%	1.30% to 1.84%
Gastineau, "Equity Index Funds Have Lost Their Way," <i>The Journal of Portfolio Management</i> , Winter 2002, p. 59 ³⁴	0.50% to 1.00%	2.00% to 3.00%

Various measures have been undertaken to attempt to minimize these costs of reconstitution. Some index funds now employ a multi-day trading strategy and avoid trading on the rebalance day.³⁵ As noted by Gary L. Gastineau, "The evidence is strong that trading at most times other than the official moment of index adjustment should improve investors' results with most popular indexes. Many ETF managers are simply reluctant to depart from slavish replication of index changes."³⁶ For index fund and ETF managers

³⁴ "In the case of the benchmarks, the 50 to 100 basis point estimate for the S&P 500 and the 200 to 300 basis point estimate for the Russell 2000 are rough estimates for recent annual transition/transaction costs for funds based on these indexes. Trading costs to modify and rebalance S&P 500 portfolios probably exceeded 100 basis points in 1999 and ran closer to or even below a 50 basis point annual rate for the first nine months of 2001. The actual transaction costs may average higher than the estimates if index managers underestimate the importance of market impact on both sides of an index fund internal reconstitution transaction." Gastineau, "Equity Index Funds Have Lost Their Way," *The Journal of Portfolio Management*, Winter 2002, p. 59, available at www.etfconsultants.com.

³⁵ The adoption of such a trading strategy partially explains the performance of the DFA U.S. Large Company Portfolio during 2005. For the year the fund returned 4.85% to investors, just 0.06% less than the 4.91% performance of the S&P 500 Index during the same period. This is despite the fact that the fund has a 0.15% annual expense ratio. Similarly, since 1998 Vanguard appears to have been willing to accept tracking error in order to enhance returns of its 500 Index Fund. See Blume, Edelen, "On Replicating the S&P 500 Index" (2002). The Vanguard 500 Index Fund (Investor Shares), with an annual expense ratio of 0.18%, had a 5-year return of 2.24% for the period ending 2/28/06, versus the S&P 500 Index return of 2.36%.

³⁶ Gastineau, "The Benchmark Index ETF Performance Problem," *The Journal of Portfolio Management*, Winter 2004, p. 101, , available at www.etfconsultants.com. The reluctance of index fund managers to trade at other dates relates to their desire to minimize tracking error. "[T]he alternative of trading at the open following the announcement of a change, rather than when the change occurs, results in 25.9 basis points more return per year with virtually no incremental variance. If investment principals knew in advance of these additional returns, they may nonetheless have rationally chosen to forgo such added returns to better monitor their agents. The early-trading strategy has much higher tracking errors than the 2.7 basis-point average of the largest indexer." Blume, Edelen, "On Replicating the S&P 500 Index" (2002).

willing to seek reduction in expenses relating to reconstitution, there are several consultants in the field now known as “transition management,” such as “Mellon Transition Management Services.”

ETFs As A Slight Improvement Over Index Funds. Note that ETFs may improve on the index fund concept, but only slightly. One advantage that ETFs possess over open-ended stock mutual funds relates to cash holdings. Almost all index funds have cash holdings, although they are generally small - less than 1% of the value of the portfolio’s assets. By contrast, ETFs normally hold almost no cash since they aren’t faced with redemption calls by investors. Cash earns a money market return, which is less than the expected return on the benchmark. When the actual return on the benchmark exceeds (or falls short of) the money market return, the replicating portfolio will earn less (or more) than the benchmark – and there will be tracking error. Another advantage of ETFs (which relates somewhat to the issue of low cash holdings) arises from the manner in which ETFs are created and redeemed. In essence, a conventional mutual fund must accommodate entering and departing shareholders (which can lead to additional transaction costs), while ETFs do not. Additionally, ETFs should be more tax-efficient than open-ended stock mutual funds, as the unrealized gains (or losses) on assets exchanged for redeemed ETF shares disappear from the fund’s tax accounting. Nevertheless, ETFs still suffer from transaction costs incurred during index reconstitution.

Consider A Broad Market Index Fund. A broad market index fund, such as a fund that tracks the Wilshire 5000 Index or Russell 3000 Index, should possess less trading due to reconstitution and hence less transaction costs. In essence, the fund would not need to undertake changes in the underlying stock portfolio due to changes in either the stock’s market capitalization or the stock’s value/growth characteristics. However, portfolio managers seeking exposure to select asset classes will need to venture into other funds, as U.S. market-wide index funds closely track the U.S. large company blend asset class.

A Solution - Funds Which Track “Silent Indices.” Most indices were designed to serve as benchmarks against which active managers’ performance could be judged, not serve as investment vehicles. Future years may see the development of mutual funds and ETFs which track “silent indices.”³⁷ While

³⁷ “The greatest weakness of the current generation of index funds is that the benchmark indexes they use as templates are created and published for other purposes. Consequently, anyone can buy stocks added to the index or sell stocks removed from the index in competition with the index fund. No active fund manager would accept an investment process that would tell the world what trades her fund would make and approximately when it would make them. With Silent Indexes, index funds can achieve the same kind of trading confidentiality that actively-managed funds enjoy ... The Silent Index fund is superior to an index fund based on a benchmark index because benchmark index funds incur unnecessary transaction costs. The multiple licensees of benchmark indexes, together with speculators and other investors who acquire knowledge of benchmark index changes, impose a transaction cost penalty on funds using benchmark indexes. These funds are forced to make portfolio changes amid a flurry of market activity caused by the announcement of changes to an index – and are often forced to buy high and sell low during the blizzard of rebalancing and related speculation. Transaction costs associated with index changes are increasingly embedded in the benchmark index’s performance.” Gastineau, “Silence is Golden: The Importance of Stealth in Pursuit of the Perfect Fund Index,” *Journal of Indexes* (2002).

development of such “silent index funds” may be thwarted by SEC policies which promote separation of ETF providers and the index manager,³⁸ already some no-load, no 12b-1 fee passively managed funds exist in many of the stock asset classes which may be desirable for use in clients’ investment portfolios. These low-cost mutual funds utilize, in essence, their own “private index” and are designed and engineered to minimize portfolio turnover and hence, transaction costs.³⁹

An Even Better Solution? - “Personal Index Funds.” Wealth managers can avoid the need to construct portfolios with funds from distinct asset classes, while still gaining exposure to the Fama-French “small cap” and “value” factors,⁴⁰ by seeking out funds which are constructed to provide a relatively consistent degree of exposure to such styles. Since the funds would be broad-based (but tilted in their holdings toward small-cap and value stocks), trading should be minimized within the fund.⁴¹

Why Are Transaction Costs Not Included In A Mutual Fund’s Expense Ratio? Transaction costs are not included in a fund’s expense ratio because accounting principles dictate that they are either included as part of the cost basis of securities purchased or subtracted from the net proceeds of securities sold. Despite calls by various industry and consumer groups, the SEC does not currently require adequate disclosure of mutual fund transaction costs.⁴² In our view consumers are misled about mutual fund costs currently;

³⁸ Lazarra, Craig, “Index Construction Issues for Exchange-Traded Funds,” presentation at Hofstra University, May 5, 2003.

³⁹ Dimensional Funds Advisors (DFA), highly regarded in polls of independent investment advisers for its close attention to minimizing transaction costs and other attributes, is an example of a fund company which runs its own “private indices.” An indication of their trading strategies can be discerned from this statement, taken from the public portion of their web site (www.dfaus.com): “Dimensional uses its capacity, reputation, and trading expertise to take advantage of the lower liquidity of the small company marketplace. Whenever possible, we provide a fair price to sellers who are willing to accept a discount for faster execution on large blocks of stocks. Historically, our average block purchase price is 3% below the next day’s closing price, which directly results in higher investment returns for clients. For large companies, we also exercise patience. Because Dimensional does not index, we can pick the best trading opportunities. Our hold range further reduces portfolio turnover and trade costs for all strategies.”

⁴⁰ The utilization of the Fama-French factors in portfolio construction is beyond the scope of this article. The reader is directed to Professor Jim Davis’ paper, “Explaining Stock Returns: A Literature Survey” (2000), as a starting point. The paper is available at http://library.dfaus.com/articles/explaining_stock_returns/.

⁴¹ DFA’s relatively new “Core Equity” and “Vector Equity” strategies are designed to further reduce trading costs, as the “Fact Sheet” for one such fund notes: “Owning a core portfolio reduces reliance upon asset class strategies and provides targeted factor exposure that can result in lower overall operating expenses and rebalancing costs. A smoother and broader exposure also reduces trading costs and capital gains caused by style drift or the reconstitution of indexes.”

⁴² The NASD’s Mutual Fund Task Force reported its concern “that many investors may not appreciate the impact of portfolio transaction costs on fund performance. In many cases, this impact may be significant.” *Report of the Mutual Fund Task Force Soft Dollars and Portfolio Transaction Costs*, NASD, November 11, 2004. In late 2003 the SEC issued a Concept Release entitled “Request for Comments on Measures to Improve Disclosure of Mutual Fund Transaction Costs,” Release Nos. 33-8349, 34-48952, and IC-26313. However, the SEC has yet to incorporate additional disclosure of transaction costs into its Proposed or Final Rules.

even an admittedly imperfect estimate of total mutual fund costs is better than non-disclosure of same. In the interim, the wealth manager possesses the opportunity, through due diligence, to add value through careful analysis of mutual funds and their disclosed and hidden costs.

What Are the Average Total Costs of U.S. Stock Mutual Funds? Combining data from various sources, we provide the following table of the estimated average total costs of U.S. stock mutual funds, categorized by style category. As expected the total annual expense ratios for small-cap funds are generally higher than those of mid-cap funds, which are in turn substantially higher than large-cap funds. The following estimates of total mutual fund costs compare favorably to other industry estimates. For example, John Bogle stated that “it’s fair to estimate that the all-in annual costs of mutual fund ownership now runs in the range of 2½% to 3% of assets.”⁴³ The Plexus Group estimates average trading costs for U.S. stocks as follows: commissions - (17 bp; market impact costs - 34 bp; delays in trading - 77 bp, and missed trades - 29 bp, for total transaction costs of 157 bp, or 1.57%. Such a level of transaction costs, when added to our estimate of average expense ratios for mutual funds of 0.77% to 1.38% (depending upon style), would also yield approximate mutual fund total annual costs of 2.5% to 3%.⁴⁴

⁴³ Statement of John C. Bogle, Founder and Former Chief Executive of the Vanguard Group and President of the Bogle Financial Markets Research Center, Before the United States Senate Committee on Banking, Housing, and Urban Affairs, February 26, 2004, available at http://banking.senate.gov/_files/bogle.pdf.

⁴⁴ The Plexus Group reported a substantial drop in overall transaction costs for U.S. large cap stocks between 2001 and 2004, noting the following costs for the "large cap" U.S. stock category in 2004: commissions: 0.14%; market impact: 0.17%; delayed and canceled trades: 0.30%; canceled or missed trades: 0.14%. This 2004 revised total transaction cost amount of 0.77% compares favorably to the total transaction costs shown in the table above for LCG (1.05%), LCB (0.61%), and LCV (0.64%). “Trading Costs-International,” a presentation by Wayne H. Wagner, Chairman, Plexus Group, Inc., a business division of JPMorganChase, at the BankReFlow Symposium, Squaw Valley, February 6-8, 2005.

ESTIMATED AVERAGE TOTAL COSTS OF MUTUAL FUND BY STYLE CATEGORY								
Morningstar Style Category	Annual Expense Ratio, Mean Weighted by Net Assets ¹	Brokerage Commissions, Mean Weighted by Net Assets ¹	Bid-Ask Spreads, Mean Weighted by Net Assets ¹	Market Impact Costs ²	Costs of Delayed and Canceled Trades ³	Opportunity Costs Due to Cash Holdings ⁴	Total Estimated Costs	Estimated Mean Portfolio Turn-over ⁵
U.S. Large Cap Growth	1.17%	0.24%	0.24%	0.16%	0.41%	0.40%	2.62%	101.3%
U.S. Large Cap Blend	0.77%	0.10%	0.10%	0.11%	0.30%	0.45%	1.83%	72.3%
U.S. Large Cap Value	0.87%	0.13%	0.11%	0.11%	0.29%	0.44%	1.95%	69.6%
U.S. Mid Cap Growth	1.38%	0.40%	0.67%	0.27%	0.68%	0.40%	3.80%	136.4%
U.S. Mid Cap Blend	1.14%	0.22%	0.31%	0.18%	0.45%	0.48%	2.78%	90.9%
U.S. Mid Cap Value	1.12%	0.23%	0.28%	0.17%	0.44%	0.45%	2.69%	87.7%
U.S. Small Cap Growth	1.28%	0.37%	1.13%	0.29%	1.09%	0.12%	4.28%	120.4%
U.S. Small Cap Blend	1.00%	0.20%	0.67%	0.21%	0.80%	0.55%	3.43%	88.2%
U.S. Small Cap Value	1.17%	0.23%	0.51%	0.16%	0.61%	0.64%	3.32%	67.5%

¹ Data on annual expense ratios, brokerage commissions, and bid-ask spreads is derived from Karceski, Livingston, and O’Neal, “Portfolio Transaction Costs at U.S. Equity Mutual Funds” (2004), in a study sponsored by the Zero Alpha Group, and is generally based upon an analysis of over 4,000 U.S. equity funds and 2002 data. Bid-ask spreads are “conservatively” estimated by multiplying bid-ask spreads for each market cap category (25 basis points for large cap stock funds, 65 basis points for mid-cap stock funds, and 132 basis points for small cap stock funds) by the turnover ratio in the style category. Note that the Plexus Group does not report any significant increase or decrease in commissions between the 1st Quarter of 2002 and the 1st Quarter of 2005, as reported by *Segal Advisory* (Nov. 2005). The data presented is very close to the average commission rate of 0.272% found in another 2004 study commissioned by the Zero Alpha Group, Karceski, Livingston, and O’Neal, “Mutual Fund Brokerage Commissions” (2004) (available at http://www.zeroalphagroup.com/news/ZAG_mutual_fund_true_cost_study.pdf).

² Market impact costs are estimated based upon Plexus Group 1st Quarter 2005 estimates of 0.16% costs for U.S. large cap stocks and 0.24% costs for U.S. small cap stocks, per trade, as reported in *Segal Advisory* (Nov. 2005). Similar costs for mid-cap stocks are estimated by us at 0.20% per trade. Cost per category is then derived by applying the portfolio turnover rate for the category, determined as set forth below.

³ Costs of delayed and canceled trades are estimated based upon Plexus Group 1st Quarter 2005 estimates of 0.41% costs for U.S. large cap stocks and 0.91% costs for U.S. small cap stocks, per trade, as reported in *Segal Advisory* (Nov. 2005). Similar costs for mid-cap stocks are conservatively estimated by us at 0.50% per trade. Cost per category is then derived by applying the portfolio turnover rate for the category, determined as set forth below.

⁴ Mean cash holdings for all style classes are estimated at 5%. This is below the averages commonly reported by Morningstar, but consistent with academic literature. See Yan, “The Determinants and Implications of Mutual Fund Cash Holdings: Theory and Evidence” (Sept. 2005), available at http://www.fma.org/Chicago/Papers/Yan_FundCash.pdf. We then estimate opportunity costs as the mean cash holding multiplied by the annualized historical returns of asset classes

from 1/1986 to 11/2005 (based upon Fama-French Big Low, Big Medium, Big High, Small Low, Small Medium, and Small High indices and the Russell Mid-Cap indices) less our estimate of the average long-term rate of return for cash (4%). Annualized historical rates of returns are, based upon the foregoing, as follows: LCG: 12.0; LCB: 13.1; LCV: 12.8; MCG: 12.0; MCB: 13.6; MCV: 14.0; SCG: 6.4; SCB: 15.0; SCV: 16.8.

⁵ Estimates of the annual portfolio turnover are derived from Morningstar data, reflecting average turnover from 1997-2003, as reported by Keith C. Brown and W. V. Harlow in “Staying the Course: Performance Persistence and the Role of Investment Style Consistency in Professional Asset Management” (Nov. 13, 2005 draft), available at <http://www.mcombs.utexas.edu/faculty/keith.brown/Research/styleconsistent-wp.pdf>

How Can Transaction Costs Be Ascertained By Investors Or Their Advisers? Today the only data mandated for prospectus disclosure that can be used by investors to evaluate the trading activity of a mutual fund, and thereby shed light on the fund’s portfolio trading costs, is the requirement that the prospectus disclose the portfolio turnover rate in its financial highlights table. The financial highlights table typically contains additional financial information and is presented toward the back section of the prospectus.

Some information on portfolio transaction costs must be disclosed in the “Statement of Additional Information” (SAI), a document not typically used by individual investors. The mutual fund must disclose the aggregate dollar amount of commissions paid during each of its three most recent fiscal years. In addition, the mutual fund must generally disclose the manner in which portfolio transactions are effected, including a general statement about commissions and markups/markdowns on principal trades. We utilize as an example the well-known American Funds Growth Fund of America Class A Shares (AGTHX).⁴⁵ This fund discloses the following in its Statement of Additional Information dated November 1, 2005:

Brokerage commissions paid on portfolio transactions, including investment dealer concessions on underwritings, if applicable, for the fiscal years ended August 31, 2005, 2004 and 2003 amounted to \$52,587,000, \$54,400,000 and \$46,216,000, respectively. With respect to fixed income securities, brokerage commissions include explicit investment dealer concessions and may exclude other transaction costs which may be reflected in the spread between the bid and asked price.

As a percentage of the average fund assets (discerned as set forth below), 2005 commission expense for AGTHX was a relatively low 0.054%. $\{\$52,587,000 / [(\$114,655,201,000 + \$79,198,872,000)/2]\}$. Additional information on the fund’s brokerage policy is discerned from the AGTHX prospectus:

The investment adviser places orders with broker-dealers for the fund’s portfolio transactions. The investment adviser strives to obtain best execution on the fund’s portfolio transactions, taking into

⁴⁵ We do not recommend this fund to our clients, although the fund has a generally good performance history and the fund company has an excellent reputation among financial consultants. We merely utilize this stock mutual fund, which is one of the largest actively managed stock mutual funds in the U.S. (in terms of the dollar value of the fund’s assets) as an example for purposes of illustrating our methodology for estimating true total fund costs.

account a variety of factors to produce the most favorable total price reasonably attainable under the circumstances. These factors include the size and type of transaction, the cost and quality of executions, and the broker-dealer's ability to offer liquidity and anonymity. For example, with respect to equity transactions, the fund does not consider the investment adviser as having an obligation to obtain the lowest available commission rate to the exclusion of price, service and qualitative considerations. Subject to the considerations outlined above, the investment adviser may place orders for the fund's portfolio transactions with broker-dealers who have sold shares of funds managed by the investment adviser, or who have provided investment research, statistical or other related services to the investment adviser. In placing orders for the fund's portfolio transactions, the investment adviser does not commit to any specific amount of business with any particular broker-dealer. Subject to best execution, the investment adviser may consider investment research, statistical or other related services provided to the adviser in placing orders for the fund's portfolio transactions. However, when the investment adviser places orders for the fund's portfolio transactions, it does not give any consideration to whether a broker-dealer has sold shares of the funds managed by the investment adviser.

Portfolio turnover disclosure requirements, as currently reported in the fund's prospectus (and repeated by data services such as Morningstar) are not particularly useful to investors. This is because "turnover rates" are defined currently as the *minimum* of either purchases or sales for the given period.⁴⁶ Such a simplistic measure of turnover, which often ignores the substantial effects of fund inflows or outflows, is inadequate for measuring the true effects of transaction costs. We suggest the following truer method for estimating of portfolio turnover.

To illustrate our method, we utilize the large and well-known American Funds Growth Fund of America Class A Shares (AGTHX) as an example. In the fund's SAI is found the statement: "The fund made purchases and sales of investment securities, excluding short-term securities, of \$32,791,075,000 and \$17,763,268,000, respectively, during the year ended August 31, 2005." Also found in the SAI is the fund's net assets as of August 31, 2005 (\$114,655,201,000), an increase from the prior year (\$79,198,872,000). We utilize the following formula to ascertain a "true turnover ratio" for the fund:

$$[(\text{Purchases of securities} + \text{sales of securities}) / (\text{beginning of fiscal year net assets} + \text{end of fiscal year net assets})] = [(\$32,791,075,000 + \$17,763,268,000) / (\$79,198,872,000 + \$114,655,201,000)] = 26.07\%.$$

For purposes of comparison, the annual turnover rate reported by the fund in its prospectus is 20% for the same period, and this is the same figure reported by Morningstar on its web site (as of 1/26/2005). We believe our method of computation results in a truer annual turnover rate for purposes of estimating transaction costs.

⁴⁶ The theory underlying the historical measure of trading costs as the lesser of purchases or sales is that transaction levels caused by inflows and outflows should not be attributed to the manager. Fund shareholders, however, share the cost of trading to accommodate new entrants and departing shareholders. Hence, any true measure of transaction costs should consider both purchases and sales.

Cash holdings as reported by Morningstar are 10.4% of the Growth Fund of America’s assets. Morningstar classifies the fund as a “U.S. Large Cap Growth” fund. The annual expense ratio for this fund’s share class, as reported by Morningstar, is 0.50% (which includes 12b-1 fees of 0.25%). The maximum front-end sales charge for the fund is 5.75%. Utilizing this information, we apply the following computations (as set forth in the chart below, in which computations are undertaken based upon style category):

Table for Computation of Estimated Total U.S. Stock Mutual Fund Costs								
Morningstar Style Category	Annual Expense Ratio, Mean Weighted by Net Assets	Front-end loads (sales charges) / assumed average holding period of 7 years	Broker-age Commissions	Bid-Ask Spreads (using computed turnover rate)	Market Impact Costs (using computed turnover rate)	Costs of Delayed and Canceled Trades (using computed turnover rate)	Opportunity Costs Due to Cash Holdings	Total Estimated Costs
U.S. Large Cap Growth	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 0.25% x 2	Turnover Rate x 0.16%	Turnover Rate x 0.40%	Actual cash holdings x 8.0	
U.S. Large Cap Blend	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 0.25% x 2	Turnover Rate x 0.16%	Turnover Rate x 0.40%	Actual cash holdings x 9.1	
U.S. Large Cap Value	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 0.25% x 2	Turnover Rate x 0.16%	Turnover Rate x 0.40%	Actual cash holdings x 8.8	
U.S. Mid Cap Growth	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 0.65% x 2	Turnover Rate x 0.20%	Turnover Rate x 0.50%	Actual cash holdings x 8.0	
U.S. Mid Cap Blend	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 0.65% x 2	Turnover Rate x 0.20%	Turnover Rate x 0.50%	Actual cash holdings x 9.6	
U.S. Mid Cap Value	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 0.65% x 2	Turnover Rate x 0.20%	Turnover Rate x 0.50%	Actual cash holdings x 10.0	
U.S. Small Cap Growth	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 1.32% x 2	Turnover Rate x 0.24%	Turnover Rate x 0.91%	Actual cash holdings x 2.4	
U.S. Small Cap Blend	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 1.32% x 2	Turnover Rate x 0.24%	Turnover Rate x 0.91%	Actual cash holdings x 11.0	
U.S. Small Cap Value	Per Morningstar	Front-end sales charges / 7	Per fund’s SAI	Turnover Rate x 1.32% x 2	Turnover Rate x 0.24%	Turnover Rate x 0.91%	Actual cash holdings x 12.8	

In summary, for American Funds' Growth Fund of America, we discern the following estimates:

Annual Expense Ratio:	0.50%
Pro rated maximum front end sales charges:	0.82%
Commissions paid:	0.05%
Bid-ask spreads:	0.13%
Market impact costs:	0.04%
Canceled and delayed trades:	0.10%
Opportunity costs due to cash holdings:	<u>0.83%</u>
Total estimated annual fund fees and costs:	2.47% ⁴⁷

In undertaking this calculation we do not mean to cast any poor light on either American Funds or its Growth Fund of America, for both the fund company and the mutual fund itself enjoy an excellent reputation. Furthermore, we acknowledge that our estimates of stock mutual fund costs, including that set forth above, may be either higher or lower than actual total costs. In addition to our errors in estimation, actual transaction costs of a stock mutual fund could be reduced by a wide variety of techniques employed by the fund's management, including those previously discussed.

For purposes of initial screening of stock mutual funds during the due diligence process we believe the methodology set forth above has value to wealth managers and their clients. Initial screening can narrow down mutual fund choices to a reasonable number. This reduced number of funds can then be subjected to further due diligence analyses by the investment adviser to an individual investor. We would suggest that additional steps in the due diligence process would include, at a minimum: (1) a review of the fund's prospectus, SAI, and annual and semi-annual reports; (2) a search for fines or other regulatory actions affecting the fund's management or investment adviser; and (3) research as to trading strategies utilized by the fund which are employed (or not employed) in an effort to reduce trading costs.

⁴⁷ For comparison purposes the Zero Alpha Group's commissioned study of mutual fund costs found that the American Funds' Growth Fund of America (using 2001 data) had annual total costs of 0.953%. The costs included an annual expense ratio of 0.71% (which included 12b-1 fees of 0.25%), brokerage commissions of 0.1134% annually, and implicit trading costs (due to spreads) of 0.1296%. The study did not include pro-rated maximum front end sales charges, market impact costs, and opportunity costs, which in our analysis totaled 1.69%. If such costs were included in the study (using our data for such costs) the total costs of the fund would have risen to 2.64%, which is higher than our estimate of 2.47%. The difference is explained by a lower annual expense ratio for the fund currently. The ZAG-commissioned study: Karceski, Livingston and O'Neal, "Mutual Fund Brokerage Commissions" (2004), which is available at http://www.zeroalphagroup.com/news/Execution_CostsPaper_Nov_15_2004.pdf.

Summary and Conclusion. The “annual expense ratio” of stock mutual funds does not reflect other major expenses incurred by mutual funds during their stock trading. These additional expenses include commissions paid by the fund’s investment adviser to broker-dealer firms, bid-ask spreads, market impact costs, opportunity costs relating to delayed and canceled trades, and opportunity costs due to cash holdings. The average total costs of U.S. stock mutual funds are estimated at 2.5% to 3% annually. U.S. large cap blend funds tend to have lower total annual expenses, while small cap and growth funds tend to high higher total annual expenses.

While commercial index funds generally have lower turnover and lower expenses, their market impact costs are often quite high. These same high market impact costs can negate the perceived cost advantages of stock index funds and exchange-traded funds which possess no sales charges or 12b-1 fees and which possess relatively low annual expense ratios.

Wealth managers should seek out mutual funds in the desired asset classes which not only possess low “disclosed” costs but which also have adopted trading rules and methodologies designed to substantially reduce trading costs. A screen can be utilized to narrow fund choices as part of the initial due diligence process. Seeking out passive funds which track “private indices” or “personal indices” may lead to reduced transaction costs and taxable capital gain distributions. After the initial screening is undertaken, further inquiry into a fund’s history and management policies can then take place through more intense scrutiny of the fund’s compliance record, prospectus, SAI, annual and other periodic reports, public statements by fund portfolio managers, and inquiries made directly to fund managers.

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