Do mutual fund acquisitions affect shareholder wealth?: empirical evidence

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Abstract

Berk and Green (2004) posit that as expenses increase and funds become less attractive relative to passive alternatives, managers are able to earn equilibrium compensation with a smaller amount of assets under management. Mutual fund acquisitions provide an empirical laboratory with little asymmetric information or moral hazard in which the hypothesis developed by Berk and Green can be tested. For a sample of 3902 mutual fund acquisitions over the period 1993-2002, I find empirical evidence in support of this hypothesis. I show that pre-acquisition expense ratios are statistically lower than the objective average and increase significantly following the change in fund complex ownership, while the investment objective, trading activity, and fund performance undergo little change. This increase in expense ratio allows managers to earn equilibrium compensation with lower amounts of assets under management. My results also show that shareholders are rational investors, monitoring expense ratios as well as fund performance to make asset flow decisions. There is a significant increase in asset outflows following the fund acquisition.

Keywords: mutual fund, acquisition, fund performance

INTRODUCTION

An important question in financial economics is why financial intermediaries are so highly compensated, even with the intense competition between them and the uncertainty about whether they add value to investors. Whether active portfolio managers have skill and can obtain persistent positive abnormal returns has been the focus of debate in the mutual fund literature (Chevalier and Ellison [1997], Carhart [1997], Wermers [2000]). This has led researchers to question whether there is an opportunity for active mutual fund managers to create compensation for themselves despite the competition from other market participants. Thus far compensation received by managers have been attributed to an irrationally sluggish response by investors to mediocre performance, and the opportunistic exploitation of it by fund managers (Elton, Gruber and Busse [2004]). For instance, in the mutual fund industry investors do not withdraw funds in response to poor past performance to the same extent as they invest in response to superior performance. This asymmetry between inflows and fund performance has been documented in the results of Ippolito (1992), Sirri and Tufano (1992), and Chevalier and Ellison (1997). This evidence raises the possibility that fund complexes making acquisitions decisions may target "undervalued assets" -mutual funds with low objective-adjusted expense ratios- with the intent to increase the expense ratio and, hence, the fees the fund complex can extract from the acquisition target. However, an increase in expense ratios without a corresponding increase in returns of the target fund in the post-acquisition period should lead to a reduction in objective-adjusted inflows by rational investors.

Several studies regard mutual fund shareholders as being smart investors (Gruber [1996], Zheng [1999]). For insistence, Barber, Odean, and Zheng (2005) contend that, overtime, investors have become increasingly aware of and averse to mutual fund costs. They find that investors readily avoid high front-end load and commissions costs and tolerate high operating expense costs. This occurs because front-end load fees and commissions are more obvious and salient. Consistent with this, Berk and Green (2004) present an alternative explanation where the ability to extract fees occurs as a natural consequence of learning and compensation goes to managers with investment talents. The implication of this is that if fund complexes acquire "undervalued assets" and subsequently attempt to extract compensation without a corresponding increase in benefits, investors, being smart, will "vote with their feet" by reducing their net flows to these funds in the post-acquisition period.

In their model, Berk and Green present a rational explanation for the lack of persistence in returns and the increasing flow of funds to the mutual fund industry. They postulate that the change in management fees is a function of returns, the precision of these returns and the precision of the market's prior over managerial ability. This suggests that managerial fees can be collected through the flow of funds. Similarly, Gil-Bazoa and Ruiz-Verdu (2008) develop a model of the market for equity mutual funds that postulates that worse performing funds set fees that are greater or equal to those set by better performing funds, thus allowing fund managers to earn short term equilibrium compensations. By analyzing investment company mutual fund acquisitions, I am able to empirically investigate the hypotheses advanced by Berk and Green (2004) and Gil-Bazoa and Ruiz-Verdu (2008). Mutual fund acquisitions provide an empirical laboratory

where I can attribute any alteration in fund characteristics and investors responses to these changes to the modification in fund management.

This study examines the determinants of fund acquisitions and whether the acquisitions of mutual funds by fund complexes affect the performance of the acquired mutual fund. These determinants can provide insights into investment companies (industry experts) selection criteria for mutual funds. In addition, the acquisitions of investment companies can affect the performance of the acquiring fund family in a couple of ways. First, performance is a direct result of the fund manager's ability to generate returns for investors and compensation for the investment company. During the acquisition process the acquiring fund families can elect to hire the acquired fund's incumbent manager or replace the incumbent manager with a new manager, consequently influencing fund performance. Secondly, mutual fund acquisitions can influence the acquiring fund families' management fees, resulting in an impact on investors' wealth. Furthermore, Chen, Hong, Huang and Kubik (2004) postulates that a large fund can afford to hire additional managers to cover more stocks, thereby generating additional good ideas, enhancing fund performance.

The benefits from economies of scale should decrease the expense ratio post-acquisition. Fund complexes also offer a variety of funds to provide benefits to investors that seek to diversify their holdings or investment objectives as their economic circumstances change. Investors in a given fund within a fund complex can usually exchange their shares for an equal dollar amount of another fund within the same complex. Over the past ten years, fund complexes have acquired mutual funds with or without the incumbent fund manager, in a nonexistent or established fund complex objective. In this study, fund complex acquisitions are examined relative to the acquired fund performance to determine whether mutual fund acquisitions enhance investor wealth.

This study sheds light on the question of why fund families choose this means of growth/ business expansion relative to initiations or mergers. Jayaraman, Khorana, and Nelling (2002) suggest that mergers are motivated by the need to hide the performance of failing funds. Clearly, this cannot explain acquisitions given that the target fund continues to operate as a going concern, frequently with existing management in tact even when the fund was underperforming prior to the acquisition.

Secondly, I contribute to the debate as to whether mutual fund investors are smart investors. Gruber (1996) finds evidence that "sophisticated" investors are able to recognize superior management, witnessed by the fact that the flow of new money into and out of mutual funds follow the predictors of future performance. Alternatively, Elton, Gruber and Busse (2004) find that investors buy funds with higher marketing costs than the best-performing funds. Elton et al. conclude that the relationship between cash flows and performance is weaker than rational behavior would lead us to expect. If investors are smart, we should observe that when mutual fund families make fund changes that are detrimental to investor wealth, these funds should experience net cash outflows. Specifically, if fund complexes acquire low expense ratio funds and subsequently increase expense ratios beyond the amount justified by increases in investors' wealth, rational investors should withdraw funds post- acquisition. This should occur even if the acquiring fund complex brings prestige to the target fund and/ or engages in increased marketing tactics to promote the acquired fund.

Finally, I address the issue of how this form of business expansion by fund families affects the wealth of investors. Jayaramen et al. find that shareholders of targets experienced significant improvement in performance after a merger while the shareholders of the acquiring fund experienced a significant decline. However, because of the consolidation of assets following mergers underperformance cannot be clearly attributed to the target or the acquirer funds. In contrast, because I focus on acquisitions, I am able to determine the wealth effects of business expansion by the fund complex on shareholders of target funds. Moreover, since the retention of incumbent target management is not guaranteed, I can also shed light on the effect a change of management instituted by the acquiring fund family has on fund performance.

Investment company acquisitions of mutual funds have been in existence since the early 1920's, the initial years of the mutual fund industry. In this highly competitive industry, investment companies fight for the right to manage investors' assets and subsequently obtain the fees generated from these managed assets. Although the average management fee is only 1.6% of assets managed, this is no trivial amount. The amount of fees generated in 2002 was almost $115 billion. Investment companies utilize marketing tactics, publicized print mediums, and acquisition of competing mutual funds to secure investor asset flows. Thus far the mutual fund literature has examined the relationship between investment company marketing strategies and investor inflows (Gruber [1996], Elton, Gruber and Busse, [2004]). This study is the first attempt at establishing a link between mutual fund performance, shareholder fund flows and fund complex expansion decisions.

In the finance literature, mergers and acquisitions are often analyzed together. This study makes a clear distinction between mergers and acquisitions. Jayaraman, Khorana, and Nelling (2002) examine the determinants of mutual fund mergers and their subsequent wealth effects on shareholders of target and acquiring funds. Jayaraman et al. (2002) define a mutual fund merger as the combination of the assets of two separate funds into a single fund. They study "within-family" mutual fund mergers that involve the combination of two funds within the same fund family and "across-family" mergers where two funds combine from two separate fund families. Jayaraman et al. (2002) report that acquiring fund shareholders experience a significant deterioration in post-merger performance and target fund shareholders experience significant improvements in post-merger performance and a reduction in expense ratios. Jayaraman et al. (2002) conclude that "within-family" mutual fund mergers appear to be motivated by the need to disguise poor fund performance and eliminate funds with high cost structures. However, in a pure acquisition the desire to hide poor performance cannot be the motivation of the fund complex investment decision. Unlike mergers, in mutual fund acquisitions the assets of the target fund are not joined with the assets of another fund. This distinction is necessary due to the uniqueness of the mutual fund industry, the compensation configuration of investment companies and the characteristics of the assets under management.

This study differs from Jayaraman et al. in several ways. First, because in an acquisition the target remains as a separate entity in the post-acquisition period, I am able to evaluate the performance of the acquiring investment company and the target's management team, separately. I can attribute any change in performance, expense ratios, turnover, fund size and other fund characteristics to either the target's management when it is maintained or the acquiring fund complex when it changes the fund's management.

In the Jayaraman et al. paper, attribution is not possible. Thus, a research question that can be examined is "Do fund families invest in managerial talent, where managerial talent is reflected in the previous performance of the target fund?" Secondly, I can test the investors' reaction to the mutual fund acquisition and change in management. Mutual fund shareholders can directly withdraw their funds without the use of a secondary market. By analyzing the total net asset value and asset flows pre- and post- acquisition, implications on investors' reactions to the acquisition and/or change in management can be observed. Finally, this study provides insights into why investment companies are highly rewarded.

Berk and Green (2004) present a theoretical model that establishes a link between the financial intermediary's compensation and investor cash flows. Using a data sample from 1993 through 2002, I find empirical evidence in support of the hypotheses advanced in Berk and Green. Consistent with Berk and Green, the results indicate that as expenses increase and funds become less attractive relative to passive alternatives, managers are able to earn equilibrium compensation with a smaller amount of assets under management by increasing the expense ratio of assets managed. I show that pre-acquisition expense ratios for acquired funds are statistically lower and increase significantly following the change in fund complex ownership, while the investment objective, trading activity and fund performance remain consistent. This suggests that fund families are acquiring undervalued funds; that is, funds in which the previous fund leadership is not capitalizing on the fees these funds can generate. In addition, my results show that shareholders are savvy investors, monitoring expense ratios as well as fund performance to make asset flow decisions. There is a significant increase in asset outflows following the fund acquisition where there is an increase in expense ratio without a concurrent increase in returns.

The remainder of the paper is organized as follows. Section II discusses the hypotheses. Section III describes the data and methodology used for analysis. Section IV provides a sample description and preliminary statistics of the mutual fund acquisitions over a ten year period. The determinant of mutual fund acquisition is presented in Section V. In Section VI, I present the long-term results of this study. I conclude this paper with a summary of my findings and future extensions in Section VII.

MUTUAL FUND INUDSTRY ACQUISITIONS HYPOTHESE DEVELOPMENT

Mutual funds are the primary means by which most individuals in the United States invest, resulting in $7.4 trillion of assets under management in 2003.[1] In return for the diversification benefits, lower transaction costs, convenience and professional management, mutual fund shareholders pay management fees to the investment company. The strategies employed by investment companies to secure investor inflows include marketing tactics, publicized print mediums, new fund start-ups and acquisition of other mutual fund's assets and clientele. Fund complexes may choose to acquire a fund over creating a new fund to avoid the Security and Exchange Commission (SEC) registration cost. Registering as open-ended mutual fund is a very expensive and time-consuming process. The Securities and Exchange Commission reports that it takes substantially more than $250,000 to start a mutual fund. That includes $100,000 in seed capital required by

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[1] Mutual Fund Fact Book, Investment Company Institute, 2004, p55.

the SEC, and hundreds of thousands more for lawyers, accountants, and other filing agents. The cost associated with registering with the Security and Exchange Commission is nonexistent in the acquisition of a mutual fund process.

The natural question that arises is why would a fund family sell a well performing fund and the contractual rights of the manager? This dilemma can occur for a number of reasons. First, a fund family will relinquish a manager when the benefits the manager provides fall short of the cost to retain the well performing manager. These costs are the opportunity cost of the manager's time, overhead and back-office expenses. Fund complex managers will choose to shut down or sell their funds when they cannot cover these fixed costs. Second, fund families may choose to sell the contractual rights of a manager before the manager decides not to renew his/her contract. Berk and Green (2004) state that good managers might be promoted or defect to other firms after superior performance. This implies that in order to receive compensation from the good performance of the manager, the fund family sells the contractual rights of the manager before the manager's decision to defect. In addition, a fund complex may strategically sell a mutual fund to refocus the fund family into a specific type of investment company with specific objectives.

In this section, I review the theoretical and empirical findings of the mergers and acquisitions literature, focusing initially on the benefits to the acquiring firms and secondly on the returns to shareholders. Additionally, I develop testable hypotheses on the acquisition decision and the possible impacts on investor wealth.

Mergers and Acquisitions Literature Hypotheses

The mergers and acquisitions literature hypothesizes that companies merge for a variety of reasons, including the expectation of realizing synergies, achieving growth and diversification benefits, buying undervalued assets and attempting a strategic realignment (Trautwein (1990), Bower (2001)). Even though the rationale may differ from one acquisition to another, Brigham and Ehrhardt (2002, p 970) state, "the primary motivation for most mergers is to increase the value of the combined enterprise." The following section discusses the hypotheses and empirical findings of the mergers and acquisitions literature and the possible impact to mutual fund acquisitions. Hypotheses such as acquisition synergy, inefficient management, and diversification are discussed.

Synergy Hypothesis

Corporate acquisitions may occur in order to reap the benefits of synergy. Jensen and Ruback (1983) define synergies as the reduction in production or distribution costs from bringing organization-specific assets under common ownership. This reduction in costs could occur through the realization of economies of scale, adoption of more efficient production or organizational technology, and vertical integration (Bradley, Desai and Kim (1982) and Williamson (1981)). Synergistic effects can develop from numerous sources including operating economies, financial economies and increased market power.

The synergetic impetus behind mergers and acquisitions has been documented in several empirical studies. Synergies are a central explanation because both a good and a bad performing target prior to the merger event could fulfill the acquirers' objective of

profit maximization. Ravenscraft and Scherer (1989) found that acquired firms are 'extraordinarily profitable' before the merger. Similarly, Matsusaka (1993) finds supporting evidence for target companies as very profitable units prior to the merger. McGuckin and Nguyen (1995) report that plants with above average productivity prior to the acquisitions were the most likely to experience ownership change. In studying corporate acquisitions, Grinblatt and Titman (2002) find operating synergies as the primary motivation for mergers and acquisitions during the 1990's.

The aforementioned empirical evidence suggests that mutual fund acquisitions could be the result of a strategic realignment of investment objectives and that both underperforming and over-performing funds could be acquired. Through acquisitions, fund families are able to realize synergies through economies of scale. Subsequently, investor benefits potentially increase with: 1) lower expense ratios resulting from economies of scale, and 2) increases in asset value from the acquisition of exceptional fund manager ability.

Inefficient Management Hypothesis

Copeland and Weston (1992, p.683) provide a straightforward market efficiency model. According to their model, if the management of firm A is more efficient than the management of firm B, then after firm A acquires firm B, the efficiency of firm B is brought up to the level of efficiency of firm A. Efficiency is increased by the combination of the two firms. This is known as the inefficient management theory. The inefficient management theory asserts that a new management team replaces under-performing incumbent management and manages the acquired assets more efficiently. Research has found that target firms experience negative abnormal returns in the period approximately six months before the acquisition (Asquith (1980),(1983) and Malatesta (1983)). In a similar vein, Palepu (1986) employs a logit analysis and finds that firms with inefficient management, low growth, low leverage and small size have a higher likelihood of becoming take-over targets. Chen, Hong, Huang and Kubik (2004) suggest that the smallest funds may have inferior performance because they are being run at a suboptimally small scale. These results suggest that mutual funds with poor objective adjusted performance, low total net assets and low cash inflow have a higher probability of becoming acquired. However, there is currently no evidence that directly links these negative pre-merger returns to inefficiency.

Alternatively, mutual fund complexes may acquire funds that display superior performance. Grinblatt and Titman (1989,1993), Grinblatt, Titman and Wermers (1995), Gruber (1996), Daniel, Grinblatt, Titman and Wermers (1997), and Wermers (2000) all have found evidence of persistence in fund performance using either conditional methodology, unconditional methodology or stock selection characteristics. Similarly, Busse (1999) suggests that fund managers are able to provide utility to investors by reducing systematic risk when conditional market volatility is high, thus earning higher risk-adjusted returns. Further, Busse (2001) shows that the systematic risk of surviving funds is especially sensitive to market volatility, whereas that of non-survivors are not significantly different from randomly formed portfolios of stocks. These findings imply that replacing poorly performing mutual fund management with managers who have stock picking ability will enhance shareholder wealth.

Diversification Hypothesis

Grinblatt and Titman (2002) assert that purely diversifying takeovers offer both potential advantages and disadvantages. Diversification advocates believe that lowering the risk of a firm's stock increases its attractiveness to investors and thus reduces the firm's cost of capital. Jensen and Ruback (1983) state that diversification may also reduce the probability of bankruptcy, increase organizational effectiveness, enhance a firm's flexibility, avoid information problems inherent in an external capital markets by way of internal allocation of resources, and increase the difficulty of competitors uncovering proprietary information. Alternatively, diversification adversaries suggest that the combination of two firms can destroy value if managers misallocate resources by subsidizing unprofitable lines of business. An additional disadvantage of diversification advanced in the mergers and acquisitions literature is that mergers or acquisitions can reduce the information contained in stock prices.

Fluck and Lynch (1999) extend the literature of diversification disadvantages by examining corporate refocusing. Taking the value reduction associated with diversification as given, the managerial labor market (Fama (1980)), product market competition (Grossman and Hart (1983)), and the market for corporate control (Jensen and Ruback (1983)) have all been used to explain why firms refocus. These explanations suggest that value-increasing reduction diversification is associated with a disciplinary event such as acquisition attempts, managerial changes, or financial distress. In contrast, the Fluck and Lynch model implies that a firm refocuses whenever one of its divisions can be financed as a stand-alone entity. Therefore, refocusing occurs in the Fluck and Lynch model as a response to shift in the profitability of the firm.

Although a common explanation for the change in management for the mergers and acquisition area, there is little empirical evidence in support of the diversification hypothesis. Porter (1987) finds that more than 50% of acquisitions made by 33 firms in unrelated industries were subsequently divested. This evidence suggests that the potential benefits from diversification are not realized half of the time. This study directly tests for diversification benefits in the mutual fund industry. In reference to the mutual fund industry, the diversification hypothesis suggests that investment companies obtain mutual funds in various investment objectives to increase the diversity of their offerings of funds. Portfolio diversity allows investors the opportunity to change funds as their economic circumstances or macroeconomic conditions change. Examining the pre- and post-acquired fund and fund complex characteristics provide insights into the relevance of the diversification hypothesis.

DATA AND METHODOLOGY

For my empirical analysis, I examine data from the CRSP Survivor Bias-Free Mutual Fund database. This database contains a complete history of funds that existed during the sample period until their exit is available. Therefore, the data set is free from survivorship bias. The following information was extracted from the CRSP database: fund name, ICDI fund identifier, ICDI management company identifier, individual portfolio management team or manager name, date individual portfolio management team or manager took control, investment objective, portfolio turnover, inception date

and termination date, monthly returns, net asset value (NAV), expense ratio, and total net assets (TNA). CRSP also provides the name of the fund family or complex for each fund. Using this information, an acquisition is determined to have taken place when the fund complex that a fund belongs to changes. For example, between 1993 and 1994 Kidder Peabody Asset Allocation fund belonged to Kidder Peabody & Co. but in December of 1994 CRSP indicated that it became part of Paine Webber Group Inc. Similarly, prior to the acquisition the Kidder Peabody & Co. (ICDI identifier 215) management company became Paine Webber Group Inc. (ICDI identifier 314). Following the acquisition the fund manager remained Thomas A. Masi indicating that the acquirer kept the previous management in place. I use the aforementioned information to define mutual fund acquisitions and obtain 3902 acquisitions from 1993 to 2002. To ensure the validity of this approach, I randomly checked a sub-sample of fund prospectuses from the Internet, Thomas Financial SDC Platinum and press releases in Lexis-Nexis and found that these sources information was consistent with that obtained from the CRSP data.

Methodology

To investigate the determinants of a fund being acquired, I estimate the following probit model: Let $i=1,2,…..,n$ denote each fund family, $t=1,2,…..,T$ denote each month, $y_{it}=1$ denote that fund i is acquired in month t, and $y_{it}=0$ stand for the fund not changing mutual fund ownership in month t. Fund family acquisitions are made according to the values of two levels of variables: the acquiring fund family and the target funds:[2]

$$\Pr ob(y_{it} = 1) = \frac{\exp(\beta_j x_i)}{1 + \exp(\beta_j' x_i)} \tag{1}$$

$$
\begin{aligned}
\beta_j \chi_i = {} & \alpha_0 + \beta_1 (Target Turnover)_{i,t-1} + \beta_2 (Target Cashflow)_{i,t-1} \\
& + \beta_3 (Target Expense Ratio)_{i,t-1} + \beta_4 (Target Size)_{i,t-1} + \beta_5 (Target Performance)_{i,t-1} \\
& + \beta_6 (Target Net Asset Value)_{i,t-1} + \beta_7 (Target Fund Age)_{i,t-1} \\
& + \beta_8 (Target Family \# of Funds)_{i,t-1} + \beta_9 (Target Family \# of Objectives)_{i,t-1} + \varepsilon_t
\end{aligned} \tag{2}
$$

where *Target Fund Turnover* is the turnover ratio of the target fund; *Target Fund Cash flow* is the surge of monies into and out of the fund; *Target Fund Expense Ratio* is the ratio of management fees to the amount of assets under management for the target fund; *Target Fund Size* is the size of the target fund measured by the total dollar amount of net assets under management; *Target Fund Performance* gives the fund returns of the target fund; *Target Fund Net Asset Value* is the monthly value per share calculate at the end of the month; *Target Fund Age* is the age in years of the target fund; *Target Total Number of Objectives* is the number of mutual fund objectives offered by the target fund family; *Target Total Number of Funds* is the number of individual mutual funds operated by the target fund family.

To complement the probit model, I use objective-adjusted returns (OAR) proposed by Khorana (1996, 2001) to analyze fund performance. The OAR of a portfolio

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[2] The correlations are displayed in Table 2, Part D as a correlation matrix table.

is the 12 month holding period return of a fund in excess of the 12 month holding period return of the appropriate benchmark. OAR is computed for each fund as follows:

$$OAR_{yi} = [\prod_{t=1}^{12}(1+R_{yi,t})-1]-[\prod_{t=1}^{12}(1+R_{o,t})-1] \tag{3}$$

where $R_{yi,t}$ is the return of fund i in month t and $R_{o,t}$ is the average return of all funds in the same investment objective in month t. These OARs measure fund performance before and after the acquisition relative to other funds in their peer group, and are computed for periods –36 months, -24 months, -12 months, +12 months, +24 months and +36 months relative to the month of the acquisition. This procedure adjusts for sector, industry, or style-specific factors that may exogenously affect all funds in the same investment objective.

I employ the same objective-adjusted procedure to evaluate expense ratios and asset flows. Expense ratios are mutual fund management fees expressed as a percentage of the total assets of the fund. I measure the objective-adjusted expense ratio as the monthly expense ratio of the target fund less the corresponding monthly expense ratio of the benchmark portfolio of other funds within the same investment objective.

Using the same procedure advanced in Jayaraman, Khorana and Nelling (2002), I measure the magnitude of asset flows in the pre- and post-acquisition periods using data on funds returns and assets. Using monthly return data and total net assets, I compute flows net of returns (Net Cash Flow $_{i,t}$), as follows:

$$NetCashFlow_{i,t} = [Assets_{i,t} - Assets_{i,t-1}*(1+R_{i,t})]/Assets_{i,t-1} \tag{4}$$

where Assets $_{i,t}$ is the size of the fund i in total assets at the end of the month t and $R_{i,t}$ is the return of fund i during month t. The *Net Cash Flow* variable is a measure of the difference between additional contributions into the fund and redemptions out of the fund after controlling for changes in the value of the asset during period t. Using the *Net Cash Flow* variable I construct an objective-adjusted measure. The *Objective-Adjusted Net Cash Flow* measure is defined as the *Net Cash Flow* of fund i less the average flow into all funds in the same investment objective.

SAMPLE DESCRIPTION

The mutual fund acquisition sample consists of 3902 mutual fund acquisitions by 602 fund complexes. Of these fund acquisitions, 2346 are equity fund purchases, 1126 are bond fund purchases and 430 money market fund acquisitions. I excluded any fund acquisitions that changed investment objectives after the acquisition. Including these funds would have made it difficult to match the pre- and post- expense ratios, asset flow and performance of the target fund with the appropriate benchmark. Table 1 reports the number of fund acquisitions by investment type and year from 1993 through 2002. The acquisitions occur predominantly in the latter part of the sample period, years 1999, 2000, 2001 and 2002. Equity funds are the most represented investment type consisting of 60.12% of the total sample followed by bond funds with 28.86%. The rest of the acquisition sample consists of the money market fund acquisitions which makes-up the

smallest sub-sample. There are 430 fund acquisitions from the money market fund objectives.

Fund complexes may acquire a fund to increase the investment options for its investors. Investors look to change their investment objectives as their personal economic circumstances and macroeconomic conditions change. Figure 1 presents the number of investment objectives affected by the acquiring management companies. The evidence indicates that 16% acquiring complexes only have one investment objective. This evidence suggests that smaller investment companies are looking to provide the benefit of a wide cross section of investment objectives to shareholders and attract investors through their fund acquisitions. A vast majority of fund complexes offer five or more fund objectives (54.54%). Figure 1 also shows that both large investment companies as well as small investment companies acquire mutual funds. This is consistent with Khorana and Servaes (1999) that finds that small fund families mimic the behavior of larger fund families.

Sample Summary Statistics

Table 2 reports the means and standard deviations for the variables of interest for the sample period by investment type. The statistics are parceled out by reference funds (Panel A) and target funds (Panel B). Table 2, Panel C reports the differences in means for the reference funds and target funds and statistical significance of each variable. The reference sample consists of mutual funds that did not participate in a mutual fund acquisition over the ten year sample period. In Panel B, target funds have average monthly returns of 43 basis points with a standard deviation of 34 basis points. The reference funds have slightly lower returns of 26 basis points with a standard deviation of 24 basis points. Panel C reports that the reference funds, on average, statistically underperform target funds by 17 basis points over the sample period. The reference funds are, on average, slightly larger than the target funds. Reference funds have average total net assets (TNA) of approximately $402 million where the target funds have average total net asset of $399 million.[3]

Other variables of interest include fund age, turnover ratio, asset flow, and the expense ratio. The average target funds are younger than the reference funds. The average target fund age is 2.44 years versus 3.05 years of age for the reference funds.. The average turnover ratio for target funds and reference funds is 99.5 percent per year and 91.7 percent per year, respectively[4]. As noted in the methodology section, I calculate the net asset flow using the Jayaramen et al. (2002) measure. The average net asset flows for the reference funds and target funds are -0.30 percent and -0.35 percent, respectively. The expense ratio is the percentage of the total investment that shareholders pay for the mutual fund's operating expenses[5]. The target funds have an average expense ratio of 131.5 basis points and the reference funds have an average expense ratio of 124.5 basis

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[3] The log of a fund's total net assets under management is used for analysis to address scaling issues.
[4] The turnover ratio of the fund is calculated as the minimum of aggregate purchases of securities or aggregate sales of securities, divided by the average total net assets (TNA) of the fund for the calendar year.
[5] The description of the variables of interest are provided by the CRSP- Survivor Bias Free US Mutual Fund Database Guide.

points. Reported in Table 2 Panel C, the 6 basis point difference in mean expense ratio is statistically significant. This finding suggest that target funds are being under utilized by their current management company and can earn higher management fees for an acquiring company.

Annual changes in Expense Ratios

The expense ratio is an important consideration for investors when looking to invest in mutual funds as a low expense ratio allows the investor to keep a larger percentage of the funds return. However, investors are much more tolerant of high mutual fund expenses during periods when funds are producing high returns. Figure 2 presents time-series plots of mutual fund expense ratios during the sample period 1993-2002. Figure 2 shows that expense ratios for the reference equity funds have increased over the ten-year sample period, starting at 119 basis points in 1993 to 152 basis points in 2002. The reference bond fund expense ratios steadily increased to reach a high of 111 basis points in 2000. However the expense ratio for the reference money market funds has remained relatively stable over the sample period, increasing marginally from 64 basis points to 69 basis points. Overall, there has been an upward drift in expense ratios over the sample period. This result is not surprising due to the record growth of the stock market during this study's examination period.

Economies of Scale for Fund Complexes

Expense ratios are stated as a percentage of the fund's net assets. Included in the calculation of the expense ratio are management fees, administrative service fees, custodian and transfer fees, shareholder service fees, directors' fees, legal and audit fees, interest costs and 12b-1 fees. Economies of scale are achieved when the aforementioned fees are distributed across multiple funds lowering each individual fund's expense ratio.

Figure 3 presents the expense ratios of the fund complexes of the CRSP database sorted by size deciles. It shows an inverse relation between expense ratio and fund complex size as measured by total net assets managed. This is consistent for all types of target funds. The average expense ratio for equity target funds decreases from 167 basis points for the smallest decile of fund complexes to 132 basis points for the largest decile of fund complexes. The bond target funds show a similar trend with a decreasing average expense ratio of 133 basis points for the first decile to 117 basis points for the tenth decile. However the target bond fund expense ratio does not experience a linear trend. There is fluctuation from the fifth decile to the tenth decile with the minimum expense ratio of 84 basis points in the eighth decile and the maximum expense ratio in the tenth decile, 117 basis points. The money market target funds also show that the average expense ratio for fund complexes decrease from 93 basis points to a minimum of 44 basis points in the ninth decile. The results in Figure 3 suggest that fund complexes are achieving economies of scale as the average expense ratio for a fund complex decline as the fund complex becomes larger.

LONG-TERM EVENT STUDY RESULTS

Long-Term Expense Ratios of Target Funds

Given the economies of scale associated with mutual funds, it is logical to assume that the expense ratio would decline as the number funds in the fund complex increase. But the conclusion that target funds have a decrease in expense ratios post-acquisition is premature. A mutual fund can be acquired for multiple reasons including a fee generating source for the fund complex or the acquisition of skillful managers both of which may or not may decrease expense ratios. Whether or not target funds increase the value of the shareholders is an empirical question of interest to millions of investors.

I begin the empirical analysis with an examination of the expense ratios of target funds prior to fund acquisitions. Table 3 presents the objective- adjusted expense ratio of the acquisition target funds for six years surrounding the acquisition. I also report the long-term objective-adjusted returns and asset flows in Table 4 and Table 5, respectively. The long-term event study tables are organized with all acquisition target funds presented in Panel A followed by only the target equity funds in Panel B, the target bond funds in Panel C and target money market funds in Panel D.

The results in Table 3 (Panel A) reveal that target funds have statistically significant lower expense ratios than the reference funds. The expense ratios for the target funds are on average -95bp, -134bp and -4.32bp lower than their objective peers for the thirty-six month period prior to the acquisition. This indicates that fund complexes are acquiring funds with low expense ratios. Consistent with the results in panel A, equity funds (panel B) and money market funds (panel D) report abnormally low expense ratios for target funds pre-acquisition. However, investors in bond funds must pay close attention to the expense ratios. Bond funds invests in fixed income securities, thus the primary source of investment income is the bond's fixed interest payments. While there is some potential for capital gains with a bond fund, the probability of significant gains is much lower than with an equity fund. Therefore, an excessive expense ratio can substantially lower the bond fund's somewhat fixed rate of return. Table 3 (panel C) reports no abnormal expense ratio for bond funds over the event period.

The results in Table 3 also indicate that the expense ratios adjust to industry average following the acquisition. Table 3 (Panel B) shows that thirty-six months following the acquisition, equity fund targets has a 628bp higher expense ratio than the industry objective average. The evidence suggests that purchased target funds expense ratios increase to industry average enabling the acquiring fund complex to realize the full fees the target fund can generate.

While no investor likes to incur high investment costs, the importance of the expense ratio is closely tied to a fund's total return. If a fund's portfolio manager delivers a top return and charges a high expense ratio, an investor will still earn more money than if the same dollars were invested in a low-performing fund with a more modest expense ratio. If a portfolio manager delivers a top return and charges a low expense ratio, then a mutual fund investor has probably found the best possible situation.

Long-Term Performance of Target Funds

Mutual fund literature has found that actively traded funds are able to outperform an appropriately weighted average index (Grinblatt and Titman (1989, 1993), Grinblatt, Titman and Wermers (1995), Gruber (1996), Daniel, Grinblatt, Titman and Wermers (1997), and Wermers (2000)). This persistence in fund performance would suggest that investors and investment companies alike should hire management based of previous performance. However, mutual fund studies have documented that investors respond asymmetrically to past fund performance (Ippolito (1992), Sirri and Tufano (1992), and Chevalier and Ellison (1997)). Khorana (1996) documents an inverse relationship between top management turnover and performance. In studying management turnover, Khorana (2001) suggests that incumbent managers are replaced due to the hiring of the competitors' outperforming managers. This literature suggests that fund complexes will acquire managerial stock-picking skill and replace managers with an underperformance history, attempting to increase returns.

In this section, I examine the long-term performance of the purchased funds. The pre-acquisition abnormally low expense ratio presented in the previous section might be a means of improving the fund's total performance and acts as a compensation device to reduce asset outflows. Alternatively, investors are much more tolerant of high mutual fund expenses if the funds are producing high returns. Examining the performance of target funds pre- and post-acquisition, Table 4 shows that the performance of target funds is lower than or at least indistinguishable from that of the reference funds. In panel B of Table 4, target equity funds underperform the reference funds by 133bp twenty-four months prior to the target acquisition. For the rest of the event period, target equity funds do not significantly underperform nor outperform the objective adjusted reference funds. This underperformance or "no abnormal" performance is consistent with the post-acquisition results for target bond and money market funds. The evidence in Table 3 and Table 4 indicates that acquired funds generally experience increases in expense ratios following the acquisition without any concurrent change in return performance.

Investor Asset Flows

The mutual fund industry had a net cash outflow of $43 billion in 2003, the first annual outflow since 1988[6]. The redemption rate for equity funds peaked in 2002 at 77%[7]. The cash outflow combined with the fact that the top 25 mutual fund complexes manage 74% of the industry total assets[8] is fueling the urgency of fund families to obtain investors' funds through acquisition.

There has been extensive research on the appeal of mutual funds to investors. The reasons cited for holding mutual funds include diversification, low transaction costs, professional management (security selection), and customer services. Investors are able to increase risk-adjusted returns by pooling resources and sharing risk. Similarly,

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[6] Mutual Fund Fact Book, Investment Company Institute, 2004, p56.
[7] Mutual Fund Fact Book, Investment Company Institute, 2004, p63. - The redemption rate is calculated as the sum of redemptions and exchange redemptions for the 12 month ending the month plotted, divided by monthly total net assets averaged during the same period.
[8] Mutual Fund Fact Book, Investment Company Institute, 2004, p41.

transaction costs are lower for the group of pooled investors than they would be for each individual trade. Mutual fund managers also provide investors with professional management in the form of security selections, record keeping and the ability to transfer assets amongst funds. These fund complex services are designed to increase the wealth of investors.

Since the performance of actively managed mutual funds on average has been inferior to that of index funds, why have mutual funds and in particular actively managed mutual funds grown? This phenomenon has two possible explanations. The first being that mutual fund investors receive additional benefits other than returns from fund families. Alternatively, the increased inflows into mutual funds are unwarranted and irrational investments. Recently, both of these possible scenarios have been investigated in Gruber (1996) and Elton, Gruber, and Busse (2004), respectively with conflicting results.

Gruber (1996) addresses the puzzle of why do mutual funds grow so fast when their performance on average has been inferior to that of index funds? Gruber concludes that the answer lies in future performance being partly predictable from past performance. This relation occurs because the price at which funds are bought and sold is equal to net asset value and does not change to reflect superior management. Gruber finds evidence that "sophisticated" investors are able to recognize superior management, witnessed by the fact that the flow of new money into and out of mutual funds follow the predictors of future performance. Similarly, when examining changes in equity ownership around forced CEO turnover, Parrino et al. (2003) find that investors "vote with their feet" when dissatisfied with a firm's management.

The alternative explanation to why have mutual funds grown in light of their inferior performance is based on investor irrationality. Elton, Gruber and Busse (2004) find that investors buy funds with higher marketing costs than the best-performing funds. Elton et al. show that even though all the characteristics of the S&P 500 index or index fund that an investor might care about are forecastable, investors' cash flow is not determined by the predictable characteristics. Even though investing based on any of the predictors of future performance results in substantial extra return, Elton et al. conclude that the relationship between cash flows and performance is weaker than rational behavior would lead us to expect.

By analyzing the determinants of fund family acquisitions, this study directly analyzes investor rationale. If it is the case that a significant number of fund families are able to achieve positive abnormal returns from their selection of mutual fund acquisitions, then it should be expected that "sophisticated" investors are able to select mutual funds that achieve high returns. However, suppose that it is the case that fund families are not able to achieve high persistent returns on their investment choices. The implications are that recognizing superior manager ability is difficult (even for the experts) and investors are making the same quality decisions as investment companies. This leads us to conclude that investor decisions are based on the best information available and are rational.

Long-Term Net Asset Flows of Target Funds

Recent research has investigated whether institutional investors "vote with their feet" when dissatisfied with a firm's management. Examining changes in equity ownership around forced CEO turnover, Parrino et al. (2003) find that aggregate institutional ownership and the number of institutional investors decline in the year prior to forced CEO turnover. The results in the previous sections reveal that target funds experience average annual increases in expense ratio of about 4% and no abnormal return performance relative to the reference funds over the sample period. This evidence would suggest that rational investors would have a massive exodus following a fund acquisition.

The overall results in Table 5 indicate a statistically significant change in objective-adjusted asset flows for the acquisition target funds. The results in Table 5 panel A show that target funds are receiving asset inflows in the thirty-six months preceding the acquisition with a statistically significant inflow twenty-four months preceding the acquisition of -605bp. The target equity funds, bond funds, and money market funds experience greater asset inflows or at least no abnormal asset flows over this time frame.

The asset flow changes dramatically following the acquisition of mutual funds. Table 5 (Panel A) report a negative coefficient for asset flows although insignificant for the first twenty-four months post-acquisition. There is a statistically significant outflow of 720bp thirty-six months following the fund acquisition. Target equity funds experience no abnormal asset flows over the event period. However the results in Table 5 panel C and panel D differ from those in panel A. Bond and money market target funds show a positive abnormal asset flow post-acquisition. Money market target funds experience an abnormal increase in expenses the year following the acquisition. This abnormally high expense ratio disappears the latter twenty-four months of the event study. During this time money market funds experience an increase in asset flows. These findings suggest that changes in assets flows are caused partly by the changes in expenses without a significant change in performance.

In sum, the evidence presented suggests that it takes approximately twenty four months for shareholders to respond to the consistent underperformance and increase in expense ratio before they remove their assets from the fund. This delay in response to changes in expense ratios is potentially caused by the contractual agreements and load fees associated with mutual funds. However, this finding is consistent with Berk and Green (2004) that postulates that funds become less attractive relative to passive alternatives as fees increase.

DETERMINENTS OF FUND ACQUISITIONS

In this section, I study the determinants of being a mutual fund acquisition target fund. Specifically, I use a probit model to examine the determinants of a mutual fund acquisition for target variables. Tables 6-9 present the results of the probit regression, in which the dichotomous dependent variable equals one if the fund is a target fund and zero if the fund is not purchased as result of a mutual fund acquisition. Table 6 includes all the acquired funds in the sample, while Table 7 includes only the target equity funds. Tables 8 and Table 9 are similar to Table 7, except that Table 8 only includes the target bond

funds and Table 9 only includes money market target funds. Due to the correlation matrix of the variables in Table 2, I exclude variables with correlations greater than 20% in each regression model.

As discussed earlier, I expect that funds exhibiting significant lower expense ratios would be more likely the target of an acquisition. Even though lower expense ratios do not typically experience significant asset inflows, they are still a means for fund complexes to generate income. Lower expense ratios can accrue in the form of low administrative costs or low management fees from fund managers. To the extent that a fund acquisition can potentially increase the fee generation ability of managed funds by maintaining efficient fund operations and increasing expense ratios, there may exist an inverse relationship between expense ratios and the probability of a fund acquisition.

Similarly, I expect an inverse relation between turnover and the likelihood of being an acquisition target. Turnover, stated as a percentage, is the number of times a manager replaces all of the securities in a mutual fund's portfolio. Turnover cost is considered the trade-related cost and treated as transaction related expense, excluded when calculating a funds expense ratio. The turnover cost varies depending on how frequently the manager buys and sells securities in the fund's portfolio. However, a fund with high turnover suggest a fund manager with superior information, which may led to an increased probability of the fund being acquired.

It is logical that underperforming funds would be more likely the target of an acquisition. Poorly performing funds experience low growth resulting from inefficient managements' inability to attract new assets. Without a sustainable amount of new assets these funds will be unable to compete with the larger more efficient fund complexes. One would therefore expect that underperforming funds as well as smaller funds would be more likely to be acquired.

As noted above, the probability of an acquisition may differ for funds in focused versus diversified fund complexes. To the extent that focused fund complexes are more likely to have multiple funds within a particular investment objective and can manage similar funds without adversely affecting the product offerings of the acquiring fund complex, they maybe more likely to engage in an acquisition. Diversified fund complexes, on the other hand, may be acquired to provide a variety of investment objectives to investors that seek to diversify their assets as economic circumstances change. However, if the acquisition of diversified funds adversely affects the product offerings of the acquiring fund complex, we would expect to find a negative relationship between the number of objectives offered and the likelihood of being acquired.

The results indicate that the target variables have a significant influence on whether or not a fund is a target. Table 6, the entire target sample, shows an inverse relation between expense ratios and the likelihood of being a target. This relationship is robust to equity fund targets (Table 7), bond fund targets (Table 8) and money market fund targets (Table 9) solely. Similarly there is a negative relation between the target funds' turnover and the probability of being a target fund. This is expected since the turnover ratio adversely affects the fund expenses. Thus, acquiring fund complexes are purchasing funds with lower expense ratios and little trading activity. These results are consistent with the "under valued asset acquisitions" hypothesis which states that target funds are acquired to generate fees for the acquiring fund complex.

Target fund performance and target fund size also have an inverse relationship with the probability of a fund being acquired. These negative coefficients for performance and size illustrate that well performing funds are not being sold due to their ability to outperform their peers and indigenously grow. Similarly, the target fund age is negatively related to the likelihood of the target being acquired. The older and mature the fund the more probable that fund is being used to generate management fees. Furthermore, I find evidence of a significantly negative relation between the number of objectives a target fund complex offers and the probability of that complexes funds being acquired. One implication of this finding is that objective focused fund complexes have a higher likelihood of being purchased.

Finally, there is a positive and significant relation between the probability of being acquired and both the net asset value of the target and target cash flow. The larger the fund value and the more cash inflow, the greater the likelihood of being a target fund. This result supports the notion that funds are purchased to provide revenues to the acquiring fund complex. Overall, this empirical evidence suggests that the acquisitions of mutual funds are primarily influenced by the ability of the target fund to generate management fees and earnings to the acquiring investment company.

CONCLUSION

This study analyzes the determinants of fund acquisitions and examines whether the acquisitions of mutual funds by fund complexes affect the performance of the acquired mutual fund. Using a data sample from 1993 through 2002, I construct a data set consisting of 3902 mutual fund acquisitions. This data provides the initial evidence that there is a strong size trend in economies of scale across all fund objective types. On average, the expense ratio of the largest equity decile is 35 basis points lower than the smallest equity decile. I also present evidence that refutes Khorana (1996) that suggests in a competitive market, expense ratios should decline over time where investors become more price-sensitive. I find that shareholders of acquired funds do not receive decreases in expenses resulting from economies of scale but rather increases in fees immediately following the acquisition. I find that pre- acquisition expense ratios of target funds are statistically lower than the object-adjusted expense ratios of all other mutual funds and adjust to the industry objective average post-acquisition. This suggests that the target funds are undervalued and the previous fund family leadership is not capitalizing on the fees these funds can generate. These results are consistent with the argument that assets flow to their most efficient use.

In this study, I show that acquiring fund complexes do not possess the ability to provide superior performance after the acquisition. Over the event period I show no abnormally high returns for target funds. In fact, the target fund show abnormally lower returns at times during the event period. Thus higher expense ratios and lower the fund returns, leads to lower shareholder total wealth. I also find that following the mutual fund acquisition where there are no positive returns there is a statistically significant asset outflow. This indicates that shareholders are monitoring their entire mutual fund investment; performance and management fees. Abnormally low expense ratios stop soon after the mutual fund acquisition and asset outflows, on average, increase within the twenty-four months following the mutual fund acquisition. This increase in outflow,

however, is attributed to the increase in expense ratio without the concurrent increase in fund performance. These results coincide with those presented in Massa (2003) that finds that investors who are planning to reallocate their assets more frequently will tend to invest in funds with lower loads fees and in funds that belong to bigger families. These results also support Berk and Green (2004) that hypothesizes that as fees increase, the fund becomes less attractive relative to passive alternatives and the manager earns his equilibrium compensation with a smaller amount of funds under management, making flows less sensitive to returns. Managers are able to achieve the equilibrium compensation by increasing fees from the clientele of the acquired funds. In summary, the acquisitions of mutual funds appear to be a value-enhancing activity for fund managers and the fund complex but not necessarily for mutual fund shareholders.

This study raises a number of interesting questions for future research. Analyzing the method of payment for mutual fund acquisitions can lead to significant findings. Understanding the method of payment for mutual fund acquisitions can explain whether target and acquiring fund families are sharing the risk of a massive outflow of assets following the increase in expense ratios or is the price of the target fund based on the projected expense ratios following the acquisition. Furthermore, it would be interesting to understand the impact of foreign investment on the mutual fund industry. Are foreign investment companies acquiring U.S. mutual funds to get into the U.S. market and what are the impacts to shareholder wealth of this business expansion decision?

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APPENDIX

Table 1
Distribution of Mutual Fund Acquisitions by Investment Objective and Year from January 1993 to December 2002

This table list the full sample of 1249 mutual fund acquisitions identified by the CRSP mutual fund database over the period of January 1993 to December 2002 by investment type and year. There are 803 equity fund acquisitions, 342 bond fund acquisitions and 104 money market fund acquisitions from 19 mutual fund objectives. Manager Hired (MH) represents the decision to hire the incumbent manager or management team as part of the acquisition. Manager Relinquished (MR) represents the decision to relinquish the incumbent management as part of the acquisition.

	Total MR	Total MH	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Sample Total	% of Total Sample
Equity Funds	144	659	69	179	120	87	298	75	273	580	237	428	2346	60.12
Bond Funds	64	279	34	119	74	98	197	37	114	218	86	149	1126	28.86
Money Market Funds	7	97	9	43	32	33	32	14	33	140	32	62	430	11.02
Sample Total	215	1040	50	64	44	100	61	151	269	121	219	170	3902	100

*ICDI's objective codes are only available the beginning of 1993.

Table 2
Mutual Fund Acquisitions Summary Statistics

The preliminary statistics are computed for the CRSP database reference funds and the acquisition target funds over the ten year sample period, 1993-2002. The number of funds in an investment type are reported in the second column. Panel A reports the preliminary statistics for the CRSP database reference funds. Panel B report the preliminary statistics for the target funds over the 1993-2002 sample period. The sample mean and standard deviation are reported for the reference funds and target funds.

The variable of interest are turnover, total net assets, net asset value, expense ratio, net asset flow and fundage. The turnover ratio of the fund is calculated as the minimum of aggregate purchases of securities or aggregate sales of securities, divided by the average total net assets (TNA) of the fund for the calendar year. The Total Net Assets (TNA) is the closing market value of securities owned plus all assets, minus all liabilities. The fund Net Asset Value (NAV) is the total net assets (TNA) divided by the number of shares outstanding. The expense ratio is the percentage of the total investment that shareholders pay for the mutual fund's operating expenses. The mean return is the monthly return for the fund. The Net Asset Flow variable is a measure of the difference between additional contributions into the fund and redemptions out of the fund. The fund age is the difference in the last month the mutual fund was in existence and the earliest date available for the fund. The description of the variables of interest are provided by the CRSP- Survivor Bias Free US Mutual Fund Database Guide.

Investment Objective	Number of Funds	Mean Turnover	Mean Total Net Assets	Mean Net Assets Value	Mean Expense Ratio	Mean Return	Mean Net Asset Flow	Mean Fund Age
Panel A: Reference Funds Preliminary Statistics								
Total	22007	96.1762	408.9852	11.5225	1.2453	0.2675	-0.3053	3.0539
Standard Deviation		62.6357	304.3938	5.6196	0.3915	0.2480	0.2217	0.2899
Panel B: Target Funds Preliminary Statistics								
Total	3902	99.5552	172.2018	11.6413	1.3147	0.4383	-0.3501	2.4495
Standard Deviation		60.5448	108.6350	5.1735	0.3448	0.3418	0.3904	0.4531
Panel C: Mean Differences								
Mean Difference		-3.3791	236.7834	-0.1188	-0.0694	-0.1707	0.0447	0.6044
t-stat		-1.9151	64.0679	-0.7854	-6.8686	-17.3942	4.0104	46.6026

Table 3

Expense Ratios of Target Funds around Mutual Fund Acquisitions

Table 3 presents the objective-adjusted expense ratios for acquisition target funds from January 1993 to December 2002. Long-term objective-adjusted expense ratios are computed as the difference between a fund's annual expense ratio and the average expense ratio on all funds in that investment objective. Month -12 is the 12 month period prior to the acquisition month etc. Panel A presents the objective-adjusted expense ratios for the six years surrounding the fund acquisition for all target funds. Panel B presents the objective-adjusted expense ratios for the six years surrounding the fund acquisition for equity target funds. Panel C presents the objective-adjusted expense ratios for the six years surrounding the fund acquisition for bond target funds. Panel D presents the objective-adjusted expense ratios for the six years surrounding the fund acquisition for money market target funds.

	Months Relative to Acquisition					
	-36	-24	-12	+12	+24	+36
Panel A: All Target Funds						
Annualized Objective-Adjusted Expense Ratio (in basis points)	-305.34***	-187.09***	-217.18***	-19.24	-15.49*	-2.04**
t-stat	-4.0434	-2.8506	-4.3062	-0.3864	-1.3652	-1.7418
Number of Acquisitions	656	845	1058	1058	843	709
Panel B: Equity Target Funds						
Annualized Objective-Adjusted Expense Ratio (in basis points)	-125.72***	-218.21***	-153.77***	-22.36	-30.94	-24.06
t-stat	-3.6044	-2.4092	-2.5113	-0.5173	-0.8880	-0.9908
Number of Acquisitions	401	519	673	672	521	445
Panel C: Bond Target Funds						
Annualized Objective-Adjusted Expense Ratio (in basis points)	-805.64***	-152.85*	-398.12***	-6.28	8.37	47.99
t-stat	-11.2835	-1.5620	-2.3708	-0.5036	0.1952	0.6792
Number of Acquisitions	401	519	673	672	521	445
Panel D: Money Market Target Funds						
Annualized Objective-Adjusted Expense Ratio (in basis points)	-20.48	-81.28	-139.32***	-39.94	19.43***	48.22***
t-stat	-0.1440	-0.2354	-10.3942	-0.1485	9.3942	6.3179
Number of Acquisitions	67	85	94	95	84	62

Table 4
Performance of Target Funds around Mutual Fund Acquisitions

Table 4 presents the objective-adjusted returns for acquisition target funds from January 1993 to December 2002. Long-term objective-adjusted returns are computed as the difference between a fund's annual return and the average return on all funds in that investment objective. Month -12 is the 12 month period prior to the acquisition month etc. Panel A presents the objective-adjusted returns for the six years surrounding the fund acquisition for all target funds. Panel B presents the objective-adjusted returns for the six years surrounding the fund acquisition for equity target funds. Panel C presents the objective-adjusted returns for the six years surrounding the fund acquisition for bond target funds. Panel D presents the objective-adjusted returns for the six years surrounding the fund acquisition for money market target funds.

	Months Relative to Acquisition					
	-36	-24	-12	+12	+24	+36
Panel A: All Target Funds						
Annualized Objective- Adjusted return (in basis points)	-119.32**	-96.74	-9.67**	-119.08***	-44.20	-157.21***
t-stat	-2.0445	-0.3818	-1.8545	-4.2359	-0.2874	-5.2383
Number of Acquisitions	636	853	1052	1048	832	694
Panel B: Equity Target Funds						
Annualized Objective- Adjusted return (in basis points)	-194.54***	-127.55*	-28.64	-202.10***	-77.31	-205.00***
t-stat	-3.4457	-1.6111	-1.0110	-4.7028	-0.7751	-6.0057
Number of Acquisitions	396	530	669	665	513	433
Panel C: Bond Target Funds						
Annualized Objective- Adjusted return (in basis points)	35.12	-41.23	47.67	41.12	24.65	-95.73***
t-stat	1.1141	-0.2201	1.1733	0.6411	0.5501	-2.9627
Number of Acquisitions	172	233	282	282	229	194
Panel D: Money Market Target Funds						
Annualized Objective- Adjusted return (in basis points)	2.42	-1.59***	14.98	-11.76***	-34.43**	-7.12***
t-stat	1.2225	-2.5824	1.1611	-4.5560	-2.0281	-3.1891
Number of Acquisitions	64	84	95	95	84	62

Table 5
Net Asset Flows of Target Funds around Mutual Fund Acquisitions

Table 5 presents the objective-adjusted asset flows for acquisition target funds from January 1993 to December 2002. Long-term objective-adjusted asset flows are computed as the difference between a fund's annual asset flow and the average asset flow of all funds in that investment objective. Month -12 is the 12 month period prior to the acquisition month etc. Panel A presents the objective-adjusted cash flows for the six years surrounding the fund acquisition for all target funds. Panel B presents the objective-adjusted cash flows for the six years surrounding the fund acquisition for equity target funds. Panel C presents the objective-adjusted cash flows for the six years surrounding the fund acquisition for bond target funds. Panel D presents the objective-adjusted cash flows for the six years surrounding the fund acquisition for money market target funds.

	Month Relative to Acquisition					
	-36	-24	-12	+12	+24	+36
Panel A: All Target Funds						
Annualized Objective-Adjusted cash flow (in basis points)	2202.13***	403.40*	102.61***	49.45***	-605.11***	-720.94***
t-stat	2.5507	1.4284	2.9706	2.7241	-4.5830	-5.1813
Number of Acquisitions	636	853	1052	1048	832	694
Panel B: Equity Target Funds						
Annualized Objective-Adjusted cash flow (in basis points)	2559.31*	522.12*	1674.32***	55.83*	-1033.41*	-1203.43
t-stat	1.5162	1.4450	2.5664	1.4671	-1.6340	-1.1535
Number of Acquisitions	396	530	669	665	513	433
Panel C: Bond Target Funds						
Annualized Objective-Adjusted cash flow (in basis points)	2631.54	3164.22***	109.64	70.34***	90.25**	89.32*
t-stat	0.0887	3.3070	0.4345	5.8706	2.2083	1.6408
Number of Acquisitions	172	233	282	282	229	194
Panel D: Money Market Target Funds						
Annualized Objective-Adjusted cash flow (in basis points)	-1037.03***	-1394.10***	-755.83***	-5.67	61.33**	101.42***
t-stat	-5.4851	-5.5997	-5.2197	0.2457	2.1086	3.2188
Number of Acquisitions	64	84	95	95	84	62

Table 6
Probit Regression Analysis of Factors Affecting Mutual Fund Acquisitions: Total Sample

Model: P(Fund Acquisition) = f(fund type indicator variables, turnover, objectiveflow, expense ratio, size (in total net assets), performance (in returns), net asset value, number of objectives, number of funds). Table 9 contains the results of the cross-sectional time series probit regression models of the probability of a mutual fund acquisition. Total net asset (TNA) is the log of the size of the fund i at the end of the month m. Performance is the return of the fund from month m. Objectiveflows is the average inflows into all other investment management firms with the same investment style as the acquisition fund. Expenses ratio refer to the proportion of a fund's assets that are used to pay for operating expenses, management fees, and 12b-1 fees. The sample consist of 2924 fund acquisitions in 19 different investment objectives over a 10-year period (from 1993 to 2002). The regression p-value for the hypothesis that the coefficients of all the independent variables are zero.

Variables	Model i	Model ii	Model iii	Model iv	Model v	Model vi	Model vii
Intercept	-2.3181***	-2.3930***	-2.2907***	-3.0856***	-2.2017***	-2.4288***	-2.5043***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Expense Ratio	-4.9928**		-7.4635***	-5.9663*	-9.6943***	-6.1248***	-4.5038*
	(0.0397)		(0.0014)	(0.0997)	(<.0001)	(0.0068)	(0.0608)
Turnover	-0.0300**	-0.0325***				-0.0328***	-0.0308***
	(0.0102)	(0.0056)				(0.0060)	(0.0084)
Performance	-2.1608***	-2.0998***	-2.2608***	-3.0178***		-2.1126***	
	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	
Size (log TNA)	-0.0159	-0.0142	-0.0093		-0.0127		-0.0116
	(0.3014)	(0.3518)	(0.3831)		(0.2909)		(0.3011)
Cash Flow	0.0616	0.0620	0.0403		0.0738	0.0623	0.0641
	(0.2407)	(0.2346)	(0.3239)		(0.2811)	(0.2721)	(0.2571)
Net Asset Value	0.0124	0.0118	0.0103		0.0112		
	(0.3565)	(0.3874)	(0.4946)		(0.4257)		
Fund Age	-0.3218***	-3.189***	-0.3481***	-0.3204***			-0.3227***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)			(<.0001)
Number of Family Funds Offered	0.0232***		0.0236***	0.0228***		0.0264***	
	(0.0012)		(0.0009)	(0.0013)		(0.0008)	
Number of Family Fund Objectives offered	-0.0103***	-0.0096***		-0.0091***			-0.0116***
	(<.0001)	(<.0001)		(<.0001)			(<.0001)
# of observations	24098	25314	24943	23849	24835	22641	23193
Likelihood Ratio (p-value)	1446.7943	1436.7044	1481.5283	1290.8226	1184.4795	1158.7793	1429.7522
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Wald Test	1176.4876	1168.6163	1216.4718	1016.6574	934.8205	910.9202	1160.0523
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)

Table 7
Probit Regression Analysis of Factors Affecting Mutual Fund Acquisitions:
Equity Fund Sample

Model: P(Fund Acquisition) = f(fund type indicator variables, turnover, objectiveflow, expense ratio, size (in total net assets), performance (in returns), net asset value, number of objectives, number of funds). Table 9 contains the results of the cross-sectional time series probit regression models of the probability of a mutual fund acquisition. Total net asset (TNA) is the log of the size of the fund i at the end of the month m. Performance is the return of the fund from month m. Objectiveflows is the average inflows into all other investment management firms with the same investment style as the acquisition fund. Expenses ratio refer to the proportion of a fund's assets that are used to pay for operating expenses, management fees, and 12b-1 fees. The sample consist of 2346 fund acquisitions in 10 different investment objectives over a 10-year period (from 1993 to 2002). The regression p-value for the hypothesis that the coefficients of all the independent variables are zero.

Variables	Model i	Model ii	Model iii	Model iv	Model v	Model vi	Model vii
Intercept	-2.2756***	-2.3581***	-2.3238***	-3.0492***	-2.2205***	-2.4164***	-2.2761***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Expense Ratio	-4.8919**		-5.2512*	-4.3923*	-6.8762***		-4.9439**
	(0.0114)		(0.0824)	(0.0853)	(0.0024)		(0.0116)
Turnover	-0.0209**	-0.0222**			-0.0226*		-0.0308*
	(0.0136)	(0.0117)			(0.0992)		(0.0847)
Performance	-2.4517***	-2.4735***	-2.2679***	-3.4832***		-2.4971***	
	(<.0001)	(<.0001)	(<.0001)	(<.0001)		(<.0001)	
Size (log TNA)	-0.0222	-0.0214	-0.0235		-0.0216		-0.0248
	(0.4417)	(0.4624)	(0.4872)		(0.4789)		(0.4324)
Cash Flow	0.1352	0.1348	0.0637		0.0713	0.1365	0.1358
	(0.2955)	(0.2409)	(0.2557)		(0.1941)	(0.2106)	(0.2986)
Net Asset Value	0.0144	0.0163	0.0166		0.0158		
	(0.3419)	(0.2783)	(0.2600)		(0.3189)		
Fund Age	-0.3295***	-3.286***	-0.3301***	-0.3352***			-0.3287***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)			(<.0001)
Number of Family Funds Offered	0.0188***		0.0312***	0.0475***		0.0519***	
	(<.0001)		(0.0002)	(<.0001)		(<.0001)	
Number of Family Fund Objectives offered	-0.0163***	-0.0201***		-0.0197***			-0.0159***
	(<.0001)	(<.0001)		(<.0001)			(<.0001)
# of observations	16353	16284	15942	16223	16185	16351	16265
Likelihood Ratio (p-value)	831.1549	827.5136	826.3871	825.3703	759.4115	728.2025	830.4216
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Wald Test	633.7402	630.9365	684.4846	629.9321	554.1969	553.4965	632.5196
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)

Table 8
Probit Regression Analysis of Factors Affecting Mutual Fund Acquisitions: Bond Fund Sample
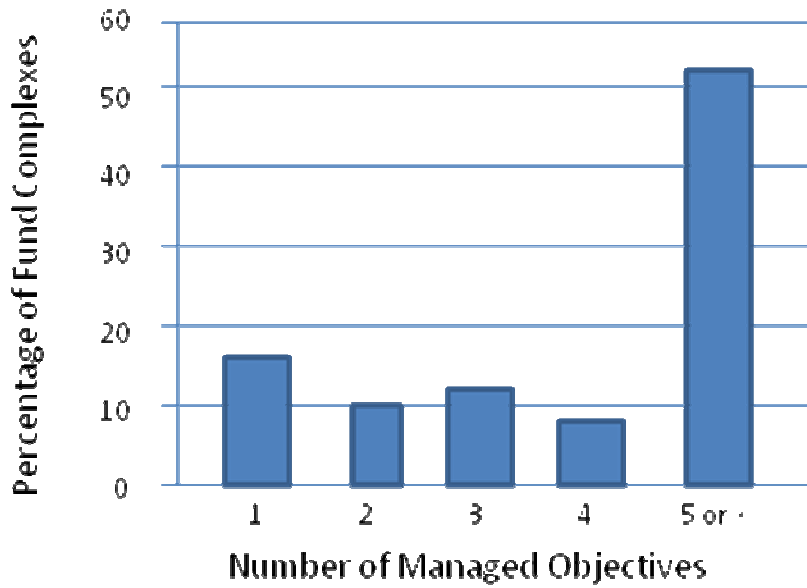
Model: P(Fund Acquisition) = f(fund type indicator variables, turnover, objectiveflow, expense ratio, size (in total net assets), performance (in returns), net asset value, number of objectives, number of funds). Table 9 contains the results of the cross-sectional time series probit regression models of the probability of a mutual fund acquisition. Total net asset (TNA) is the log of the size of the fund i at the end of the month m. Performance is the return of the fund from month m. Objectiveflows is the average inflows into all other investment management firms with the same investment style as the acquisition fund. Expenses ratio refer to the proportion of a fund's assets that are used to pay for operating expenses, management fees, and 12b-1 fees. The sample consist of 1126 fund acquisitions in 6 different investment objectives over a 10-year period (from 1993 to 2002). The regression p-value for the hypothesis that the coefficients of all the independent variables are zero.

Variables	Model i	Model ii	Model iii	Model iv	Model v	Model vi	Model vii
Intercept	-2.0025***	-2.1271***	-2.0744***	-2.9615***	-2.0717***	-2.2632***	-2.0977***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Expense Ratio	-9.8672*	-8.9631*	-10.3248*		-10.6569***	-9.4077*	-8.4347*
	(0.0966)	(0.0867)	(0.0635)		(0.0751)	(0.0792)	(0.0703)
Turnover	-0.0062	-0.0057			-0.0058		-0.0061
	(0.3647)	(0.3076)			(0.4292)		(0.3599)
Performance	-10.8655***	-10.5367***		-10.9118***	-10.7177***	-10.6843***	
	(<.0001)	(<.0001)		(<.0001)	(<.0001)	(<.0001)	
Size (log TNA)	-0.0087	-0.0091		-0.0089		-0.0092	-0.0079
	(0.2478)	(0.3265)		(0.2539)		(0.2245)	(0.2159)
Cash Flow	0.1446	0.1458	0.1755	0.1812		0.1531	0.1784
	(0.2135)	(0.2394)	(0.2069)	(0.2442)		(0.1648)	(0.2102)
Net Asset Value	0.0095	0.0078			0.0057		0.0099
	(0.2722)	(0.3496)			(0.2552)		(0.3174)
Fund Age	-0.3353***	-3.349***		-0.3307***	-0.3398***		-0.3365***
	(<.0001)	(<.0001)		(<.0001)	(<.0001)		(<.0001)
Number of Family Funds Offered	0.0078***		0.0113***	0.0096***		0.0147***	
	(<.0001)		(<.0001)	(<.0001)		(<.0001)	
Number of Family Fund Objectives offered	-0.0020	-0.0021			-0.0026		-0.0032
	(0.1653)	(0.1873)			(0.2107)		(0.2004)
# of observations	6684	6698	6702	6712	6712	6689	6714
Likelihood Ratio (p-value)	443.5458	440.7749	451.9779	431.6855	426.5879	403.6382	424.4537
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Wald Test	371.1924	368.9586	378.2117	380.3261	328.5041	317.0697	350.3705
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)

Table 9
Probit Regression Analysis of Factors Affecting Mutual Fund Acquisitions:
Money Market Fund Sample

Model: P(Fund Acquisition) = f(fund type indicator variables, turnover, objectiveflow, expense ratio, size (in total net assets), performance (in returns), net asset value, number of objectives, number of funds). Table 9 contains the results of the cross-sectional time series probit regression models of the probability of a mutual fund acquisition. Total net asset (TNA) is the log of the size of the fund i at the end of the month m. Performance is the return of the fund from month m. Objectiveflows is the average inflows into all other investment management firms with the same investment style as the acquisition fund. Expenses ratio refer to the proportion of a fund's assets that are used to pay for operating expenses, management fees, and 12b-1 fees. The sample consist of 430 fund acquisitions in 3 different investment objectives over a 10-year period (from 1993 to 2002). The regression p-value for the hypothesis that the coefficients of all the independent variables are zero.

| Variables	Model i	Model ii	Model iii	Model iv	Model v	Model vi	Model vii
Intercept	-2.3181***	-2.3930***	-2.2907***	-3.0856***	-2.2017***	-2.4288***	-2.5043***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Expense Ratio	-16.9513	-25.2016	-37.3578	-32.9629		-27.8905	-21.93
	(0.4185	(0.3833)	(0.4008)	(0.3181)		(0.3398)	(0.2696)
Turnover	0.1391		0.1055			1.0792	0.1601
	(0.8614)		(0.1202)			(0.8358)	(0.14936)
Performance	-14.9864	-10.8808		-11.4451	-19.4883	-18.1038	
	(0.5722)	(0.1983)		(0.5487)	(0.8465)	(0.4570)	
Size (log TNA)	-0.0364	-0.0327		-0.0297		-0.0301	-0.0286
	(0.1803)	(0.1983)		(0.2052)		(0.1576)	(0.1828)
Cash Flow	-0.2352		-0.2456	-0.1859	-0.1138	-0.2177	-0.2259
	(0.3588)		(0.8284)	(0.9389)	(0.9192)	(0.8471)	(0.8427)
Net Asset Value	-0.0614	-0.0692		-0.0555		-0.0643	
	(0.1998)	(0.1506)		(0.1037)		(0.1726)	
Fund Age	-0.2093***	-0.2113***		-0.2045***	-0.2065***		-0.2111***
	(<.0001)	(<.0001)		(<.0001)	(<.0001)		(<.0001)
Number of Family Funds Offered	0.4053***		0.4507***		0.4438***	0.3869***	
	(<.0001)		(<.0001)		(<.0001)	(<.0001)	
Number of Family Fund Objectives offered	0.0295***	0.0224***		0.0199***			0.0236***
	(<.0001)	(<.0001)		(<.0001)			(<.0001)
# of observations	2493	2475	2514	2386	2461	2432	2516
Likelihood Ratio (p-value)	102.7683	56.0878	49.0217	56.8556	53.4815	56.5444	48.1578
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Wald Test	88.6299	44.7465	44.2003	48.5868	44.6157	68.4452	44.5389
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)

Figure 1. Number of managed funds versus the number of investment objective offered by acquiring fund complex. The sample of 602 investment companies acquiring 3902 mutual funds from 1993 to 2002. The number of funds is defined as the percentage of individual funds managed by the acquiring investment company.

Figure 2: Mutual Fund Industry Expense Ratio from 1993 to 2002
Figure 2 presents the average expense ratio for equity, bond and money market funds for the CRSP reference funds and target funds from 1993 to 2002.

Figure 3: Mutual Fund Industry Expense Ratio from 1993-2002
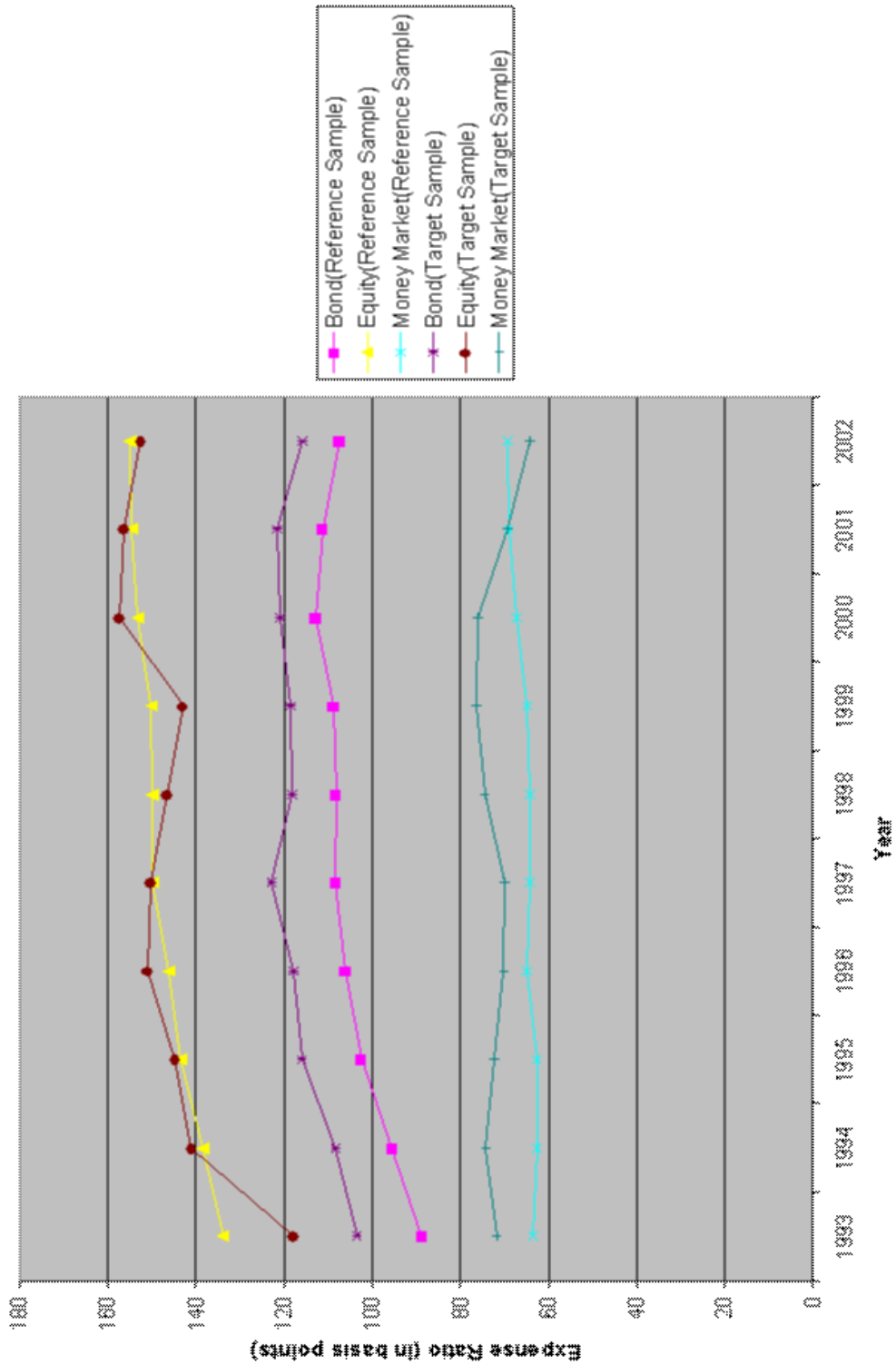
Figure 3: Mutual Fund Industry Expense Ratio for Fund Complex Size Deciles
Figure 3 presents the average expense ratio for equity, bond and money market funds for the CRSP reference funds and target funds for fund complex size deciles.