



# Agency costs, governance, and organizational forms: Evidence from the mutual fund industry

Stephen P. Ferris\*, Xuemin (Sterling) Yan

Department of Finance, Robert J. Trulaske Sr. College of Business, University of Missouri, Columbia, MO 65211-2600, United States

## ARTICLE INFO

### Article history:

Received 5 May 2008

Accepted 17 December 2008

Available online 25 December 2008

### JEL classification:

G23

G30

G34

### Keywords:

Organizational form

Mutual funds

Agency costs

## ABSTRACT

Using a comprehensive sample of mutual funds and fund families for the period 1992–2004, this study examines the impact of fund management companies' organizational forms on the level of agency costs within mutual funds. We find that, all else being equal: (1) funds managed by public fund families charge higher fees than those managed by private fund families; (2) public fund families acquire more funds than private fund families; and (3) funds of public fund families significantly underperform funds of private fund families. Collectively, these findings suggest that agency costs are higher in mutual funds managed by public fund families. Our results are consistent with the idea that the agency conflict between the fund management company and fund shareholders is more acute for public management companies because of their shorter-term focus.

© 2009 Elsevier B.V. All rights reserved.

## 1. Introduction

Researchers as well as industry critics (e.g., Mahoney, 2004; Bogle, 2005) generally agree that the recent scandals at dozens of mutual fund families can be seen as a manifestation of the agency conflict between the fund management company and fund shareholders. While fund shareholders desire high, risk-adjusted returns at low cost, the fund management company wishes to maximize the level of assets under management and the associated management fees. What remains unrecognized in the literature, however, is that this agency conflict is more acute for fund management companies with a short-term focus.

Since fund management companies with a short-term focus emphasize near-term profits over long-term value creation, they are more likely to adopt strategies that increase their current fee revenue, but conflict with the interests of fund shareholders. For instance, they might raise fees or allow market timing trades by favored clients. By contrast, fund management companies possessing a long-term focus are less likely to employ such myopic strategies because they tend to decrease long-term fee revenue due to lower fund performance and investor cash flows. Instead, long-term fund management companies tend to focus on fund performance maxi-

mization. Consequently, the interest of fund shareholders is better aligned with that of long-term fund management companies than with fund companies having a shorter-term orientation.

Although the time horizon of a fund management company is unobservable, we contend that the organizational form of a fund management company influences its temporal focus. Specifically, we argue that publicly traded fund management companies have a shorter time horizon than their private counterparts. Publicly traded companies typically have a diffused equity ownership and are subject to mandatory disclosure requirements such as annual and quarterly earnings reports. Furthermore, their stocks are traded on an active secondary market and are widely followed by analysts who provide highly publicized quarterly earnings forecasts. These characteristics lead public companies to focus excessively on short-term performance (Froot et al., 1992) in a fashion consistent with the previously documented managerial myopia of corporate managers (Stein, 1988).

By contrast, privately held companies typically have concentrated and dedicated owners. There is no active secondary market for their stocks. Nor is there pressure to meet analyst forecasts. Further, private firms are not subject to mandatory disclosures required by the SEC. These characteristics allow private companies to focus on maximizing long-run firm value without the distractions of satisfying short-term performance measures. Consequently, we contend that the agency conflict between the fund management company and fund shareholders is more acute within mutual funds managed by public fund companies.

\* Corresponding author. Tel.: +1 573 882 9905; fax: +1 573 884 6296.

E-mail addresses: [Ferriss@missouri.edu](mailto:Ferriss@missouri.edu) (S.P. Ferris), [yanx@missouri.edu](mailto:yanx@missouri.edu) (Xuemin (Sterling) Yan).

We test this hypothesis by analyzing three different measures of agency costs. Our first measure is the fees that a fund charges its shareholders. Fund fees are at the center of the agency conflict between the fund management company and fund shareholders (Del Guercio et al., 2003; Bogle, 2005; Friesen and Sapp, 2007; Green et al., 2007; Cao et al., 2008). Higher fees enrich the fund management company, while eroding the net performance enjoyed by fund shareholders. Our second measure of agency costs is the number of funds a fund family acquires. Jayaraman et al. (2002) find that the shareholders of acquiring funds experience a significant decline in their post-merger performance, suggesting that fund acquisitions conflict with the interest of fund shareholders. Our final measure of agency costs is fund performance, which directly relates to the fundamental interest of fund shareholders. Fund performance might be the most comprehensive measure of agency costs since any such cost is ultimately charged against performance.

Using data for 750 fund families over the period 1992–2004, we empirically examine the effect of a fund management company's organizational form on the level of agency costs within a mutual fund.<sup>1</sup> We find that funds managed by public fund families charge higher fees than those managed by private fund families, even after controlling for those fund characteristics shown to affect fund fees including fund size and past performance.<sup>2</sup> We also find that public fund families acquire a greater number of funds than private fund families. Finally, we observe that funds of public fund families significantly underperform those of private fund families. Collectively, our results paint a coherent picture that agency costs are higher in mutual funds managed by public fund families.

The mutual fund industry provides a unique laboratory for studying the effect of organizational forms for two reasons. First, unlike most industries which are dominated by public companies, the mutual fund industry is populated with both private and public companies. In fact, some of the largest mutual fund companies (e.g., Fidelity) are privately held. Second, despite the fact that many mutual fund companies are private, each of their mutual funds is a public entity and subject to disclosure requirements according to the Investment Company Act of 1940. Therefore, performance and governance data are publicly available for all mutual funds, including those managed by private fund companies. This makes a comprehensive empirical comparison between public and private companies feasible for the mutual fund industry.

The results we present in this study provide three contributions to the literature. First, they add to our understanding regarding the nature of the agency conflict present in mutual funds, which has recently attracted important public attention. We show in this study that the organizational form of the fund management company significantly impacts the extent of its agency conflict with the fund shareholders.

Second, our study adds to the recent research that examines the industrial organization of the mutual fund industry. Massa (2003) examines how the structure of the mutual fund industry influences mutual fund behavior. He shows that “fund proliferation” rather than “performance maximization,” is often the optimal strategy for fund families. Chen et al., 2004 offer evidence that organizational diseconomy is partly responsible for the documented inverse relation between fund size and performance. The findings of our study suggest that the organizational form of the fund management company is an important determinant of the structure and competition in the mutual fund industry.

<sup>1</sup> In this study we use “fund management company” and “fund family” interchangeably.

<sup>2</sup> For ease of exposition, we henceforth refer to funds managed by public fund companies as public funds, and funds managed by private fund companies as private funds when there is no possibility of confusion.

Finally, the empirical analysis contained in this study enriches the broader literature that examines firms' organizational forms. Academics have long been interested in whether business organizational forms impact various financial and operating decisions. Work by Demsetz (1967) and Williamson (1979) and others in the area of new institutional economics examines the role of organizational structure in economic activity. In finance, Fama and Jensen (1985) show that organizational forms impact investment decisions, while Esty (1997) examines the role of organizational structure on risk taking in financial intermediaries. Our study contributes to this inter-disciplinary literature by investigating the relation between the organizational form of a mutual fund company and the extent of its agency conflict with fund shareholders.

We organize the remainder of this study into four sections. In Section 2, we discuss our hypothesis development and the related literature. Section 3 contains a description of the data and sample. Section 4 presents our empirical findings on the relation between the fund company's organizational form and agency costs in mutual funds. We conclude in Section 5 with a brief summary.

## 2. Background and hypothesis development

The agency conflict between the fund management company and fund shareholders has been extensively studied by such researchers as Brown et al. (1996), Chevalier and Ellison (1997), Tufano and Sevick (1997), Mahoney (2004), and Gaspar et al. (2006). What has not been recognized in the literature is that this agency conflict is more acute for those fund management companies with a short-term focus. Fund management companies having a short-term focus are more likely to adopt myopic strategies that maximize their current fee revenue at the expense of long-term value. These strategies also tend to conflict with the interests of fund shareholders. By contrast, fund management companies with a long-term focus are less likely to employ these strategies. Rather, such companies tend to focus on the maximization of fund performance. Consequently, fund shareholder interests are better aligned with those of long-term versus short-term management companies.

We contend that the organizational form of a fund management company influences whether the fund management company has a short or a long-term focus. Specifically, we argue that publicly traded fund management companies have a shorter time horizon than their privately held counterparts. Public companies have a diffused equity ownership with a large base of transient investors, who trade frequently and emphasize near-term performance (Bushee, 1998, 2001). Additionally, public companies are subject to mandatory disclosure requirements such as annual and quarterly earnings reports. In contrast, privately held fund management companies generally have concentrated and dedicated owners, who emphasize long-term value creation. Further, there is no pressure to meet analyst forecasts and no mandatory SEC disclosure requirements exist for private firms.

Because of these differences, we argue that public fund management companies are more short-term oriented than private fund management companies. This difference in temporal focus will result in higher agency costs as the public fund management company's short-term orientation conflicts more with the interests of the fund's shareholders. Consequently, we hypothesize that public funds will suffer from greater agency costs than private funds.

Based on this central hypothesis, we develop a series of corollary hypotheses that examine three different measures of agency costs within a mutual fund. The first measure of agency costs that we examine is the level of fees that a fund charges its shareholders. Fund fees play a central role in the agency conflict that exists be-

tween the fund management company and fund shareholders. For example, Bogle (2005) argues that “nowhere in mutual fund America is the conflict between the owners’ capitalism and managers’ capitalism more severe than in the costs assessed against fund shareholders”. Higher fees benefit the fund management company, but are contrary to the interests of the fund shareholders. This suggests that the level of fees charged by a mutual fund is positively associated with the severity of the agency conflict present within the fund. Consequently, we specify our first corollary hypothesis as follows:

H1: All else being equal, public funds charge higher fees than private funds.

Our second measure of agency costs is the number of funds a fund family acquires. One easy way that fund families can increase their fee income is to acquire other funds. Jayaraman et al. (2002) examine the wealth effect of mutual fund mergers and find that the shareholders of acquiring funds experience a significant deterioration in their post-merger performance. Their finding suggests that fund acquisition is generally associated with higher agency costs. Hence, we specify our second corollary hypothesis as follows:

H2: All else being equal, public fund families acquire a greater number of funds than private fund families.

Our final measure of agency costs is fund performance. A comparison of performance between public and private funds represents yet another way to test for differential agency costs between these two kinds of funds. Fund performance reflects the cumulative effect of all forms of agency costs. Our use of fund performance to capture agency costs is consistent with the use of firm value as a measure of agency costs in the corporate finance literature such as Yermack (1996). Our final hypothesis can be stated as follows:

H3: All else being equal, public funds underperform private funds.

### 3. Data, sample, and descriptive statistics

#### 3.1. Data and sample

Our primary data source for mutual funds is the CRSP Survivor-bias free mutual fund database (hereafter referred to as the CRSP mutual fund database). The CRSP mutual fund database provides information on fund returns, total net assets (TNA), fees, investment objectives, and other fund characteristics. Our sample includes all mutual fund families that exist at any time between 1992 and 2004. There are 750 such fund families. We begin our sample in 1992 since this is the first year the CRSP mutual fund database provides information concerning fund management companies.

We hand collect the organizational form data from D&B Million Dollar Directory, Hoover’s Online, Nelson’s Directory of Investment Managers, and Thomson/Gale Business and Industry Resource Center. These publications and databases provide information on whether a fund management company is private or public, whether the company is a subsidiary of another company, and if so, whether its parent is private or public. In some cases, we also use the individual company’s website to determine a fund management company’s organizational form. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a publicly traded company or its parent is a publicly traded company. A fund family is classified as private if it is not public.

#### 3.2. Descriptive statistics

In Table 1 we provide a descriptive overview of our sample of mutual funds by presenting the time-series means of cross-sectional

**Table 1**

Time-series mean of cross-sectional average fund characteristics by fund family organization form, 1992–2004.

	All funds	Public funds	Private funds
Number of funds	9871	6373	3498
Total net assets (\$ million)	418.61	357.36	534.19
Age (years)	7.79	7.50	8.24
Expense ratio (%)	0.81	0.88	0.73
12b-1 fee (%)	0.16	0.19	0.11
Total load (%)	1.78	1.91	1.64
Turnover (%)	76.03	84.93	67.81
Holdings-stocks (%)	44.95	36.72	54.61
Holdings-bonds (%)	21.20	23.15	18.94
Holdings-cash (%)	31.79	38.05	24.39

This table presents the time-series mean of thirteen yearly cross-sectional average fund characteristics. The sample period is from 1992 to 2004. The sample includes funds from all 750 fund families that exist any time between 1992 and 2004 in the CRSP Survivor-bias free mutual fund database. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a public traded company or it is a subsidiary of a publicly traded company. A fund family is classified as private if it is not public. We collect the organizational form data from Nelson’s Directory of Investment Managers, D&B Million Dollar Directory, Hoover’s Online, Thomson/Gale Business and Industry Resource Center. Public funds are funds managed by public fund families, while private funds are funds managed by private fund families. Fund characteristics are from CRSP survivor-bias free mutual fund database. In the cross-section, total net assets and age are equal-weighted averages, while all other variables are TNA-weighted averages.

tional averages of a number of fund characteristics for public, private and the combined set of mutual funds. There are, on average, 9871 sample funds annually during 1992–2004. Approximately 65% of these funds belong to public fund families while the remaining funds are members of private fund families. Private funds are on average nearly 50% larger in size than public funds. A comparison of measures of mutual fund fees, expense ratio, 12b-1 fee, and total load, suggests that public funds do in fact charge higher fees than private funds, consistent with our first corollary hypothesis H1. Public funds have significantly higher turnover than private funds. We also observe differences in the portfolio holdings between public and private funds. The public funds hold more bonds and cash while private funds hold more stocks. This difference likely reflects a higher concentration of equity mutual funds within private fund families.

### 4. Empirical results

In this section, we present our empirical results on the relation between the fund management company’s organizational form and the level of agency costs within mutual funds. Specifically, we relate the organizational form of the fund management company to the level of fund fees, the incidence of fund acquisition, and fund performance.

#### 4.1. Fund family organizational form and fund fees

##### 4.1.1. Dependent variable

Following Tufano and Sevick (1997), we use as our measure of fees the fund’s expense ratio plus 1/7 of the total load charges, which reflects the assumption that investors hold their shares for an average of seven years.<sup>3</sup>

##### 4.1.2. Control variables

Consistent with Tufano and Sevick (1997), we include in our regression analysis a number of control variables which might

<sup>3</sup> Our results are qualitatively similar if we use only the fund expense ratio as our measure of fund fees.

influence the level of fund fees. The following discussion contains a brief description of these control variables.

**4.1.2.1. Fund size.** Fund size is measured as the logarithm of the fund's total net assets. Previous literature (e.g., Tufano and Sevick, 1997) finds an inverse relation between fund size and fund fees, consistent with the presence of economies of scale in the mutual fund industry.

**4.1.2.2. Fund age.** This is a control variable used by both Tufano and Sevick (1997) and Del Guercio et al., 2003 in their examinations of fund fees. Younger funds might be subsidized by the sponsor, resulting in lower fees. Alternatively, newer funds might experience high start-up costs and require that higher fees be charged.

**4.1.2.3. Fund performance.** It is possible that high fees might be justifiable by superior performance. Thus, it is useful to control for performance in our analysis of fund fees. Hence, we include as a regressor the percentile ranking of each fund's total return within each investment objective in the past year.

**4.1.2.4. Index and institutional fund dummy variables.** We include separate dummy variables to reflect whether a fund is either an index or an institutional fund. Both should be associated with lower fees. Index funds require comparatively little management and consequently should experience lower operating expenses. Institutional funds require a higher minimum initial investment and typically have fewer accounts to service, also resulting in a lower level of operating expenses. We construct these two variables by using data from Morningstar Principia. We match Morningstar data with the CRSP mutual fund database by using the ticker symbol assigned to each mutual fund.

**4.1.2.5. Investment objective dummy variables.** We include a series of dummy variables to capture the investment objectives of the sample funds. Tufano and Sevick (1997) argue that funds investing in different asset classes are likely to have varying operating costs, reflecting in part different research and analysis needs.

#### 4.1.3. Methods

We use two methods to examine the relation between fund fees and the fund family's organizational form. The first method is to estimate a pooled regression with year dummy variables. Specifically, we estimate the following regression:

$$\begin{aligned} \text{Fund Fees}_i = & a + b_1 \text{Public}_i + b_2 \text{LogTNA}_i + b_3 \text{LogAge}_i \\ & + b_4 \text{Performance}_i + b_5 \text{IndexFund}_i + b_6 \text{InstFund}_i \\ & + \sum_{j=1}^{12} c_j \text{Year}_{ij} + \sum_{k=1}^{21} d_k \text{InvObj}_{i,k} + e_i, \end{aligned} \quad (1)$$

where *Public* is a dummy variable that takes a value of 1 if the fund family is public and 0 otherwise, *LogTNA* is the logarithm of the fund's total net assets, *LogAge* is the logarithm of fund age, *IndexFund* is a dummy variable for index funds, *InstFund* is a dummy variable for institutional fund, *Year<sub>j</sub>* is a dummy variable for year *j*, and *InvObj<sub>k</sub>* is a dummy variable for ICDI investment objective *k*. We estimate Eq. (1) at the fund family level, with both the dependent and independent variables measured as TNA-weighted averages of the fund-level variables across all funds within a fund family.<sup>4</sup> Furthermore, we use a weighted-least-square approach where the

<sup>4</sup> An alternative approach is to estimate regression (1) at the fund level. Since the fund family organizational form is common across all funds in a fund family, the fund-level approach tends to underestimate the standard errors for the coefficient on the public dummy.

**Table 2**

Regression analysis of fund fees, 1992–2004.

	Pooled regressions	Fama–MacBeth
Intercept	2.313 (30.20)	2.311 (31.84)
Public dummy	<b>0.152</b> (9.54)	<b>0.100</b> (5.11)
Log of fund total net assets	−0.150 (−16.79)	−0.142 (−11.07)
Log of fund age	0.025 (1.48)	0.002 (0.08)
Performance ranking	−0.285 (−3.71)	−0.347 (−2.88)
Index fund dummy	−1.462 (−10.87)	−2.163 (−7.86)
Institutional fund dummy	−0.406 (−10.21)	−0.340 (−8.07)
Year dummies	Included	Not included
Investment objective dummies	Included	Included
Adjusted R-squared	0.72	0.76

This table presents the results for regression of fund fees against the fund management company's organizational form. We use a fund family average approach. The dependent variables and independent variables are TNA-weighted averages across all funds within a family. The sample period is from 1992 to 2004. The sample includes funds from all 750 fund families that exist any time between 1992 and 2004 in the CRSP Survivor-bias free mutual fund database. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a public traded company or it is a subsidiary of a publicly traded company. A fund family is classified as private if it is not public. We collect the organizational form data from Nelson's Directory of Investment Managers, D&B Million Dollar Directory, Hoover's Online, Thomson/Gale Business and Industry Resource Center. Fund characteristics are from CRSP Survivor-bias free mutual fund database. Public dummy is the dummy variable that takes the value of 1 if the fund family is public and 0 otherwise. Performance ranking is the percentile ranking of each fund's total return within each investment objective in each year. Index fund and institutional fund dummies are based on data from Morningstar Principia. The dependent variable is fund expense ratio plus 1/7 of total load charges, expressed in percent. Numbers in parentheses are *t*-statistics. The *t*-statistics for pooled regressions are based on robust standard errors clustered by time (Petersen (2008)). The *t*-statistics for the Fama–MacBeth approach is adjusted for serial correlation using Newey–West method.

weight for each observation is the total net assets for each fund family.<sup>5</sup>

In the second method, we estimate regression Eq. (1) annually (without the year dummies) and report the time-series average of the coefficient estimates. We use the Fama and MacBeth (1973) method to assess the statistical significance of the time-series average of the coefficients.

#### 4.1.4. Results

Table 2 presents the results for our regression analysis of fund fees. The second column reports the results from the pooled regression approach. In using a pooled regression approach, Petersen (2009) cautions that the correlation of residuals across observations can result in biased standard errors. Consequently, we follow Petersen and estimate clustered standard errors to explicitly control for any contemporaneous correlation across observations within a given time interval.

For our pooled regression estimates, we find that the coefficient for the public dummy variable is positive and statistically significant. This result is also economically significant. The coefficient of 0.152 suggests that, on average, mutual funds of public fund families charge 0.152% higher fees than those of private fund families. This difference in fund fees between public and private funds is economically significant.

The above result is obtained after controlling for various fund and fund family characteristics shown to impact fund fees. The signs for these control variables are generally consistent with those previously observed in the literature. Similar to Tufano and Sevick (1997), we find an inverse relation between fund fees and fund size, indicating the presence of economies of scale. The significantly negative coefficient for the index fund dummy variable con-

<sup>5</sup> This approach assigns greater weights to bigger fund families, which are more economically significant than smaller fund families. Using OLS does not alter the qualitative results.

firms our conjecture that such funds require comparatively little management and thus enjoy lower operating expenses. The coefficient for the institutional fund dummy is likewise negative, consistent with their lower costs due to fewer accounts to service. Consistent with prior studies on mutual fund performance, we find a negative relation between fund fees and fund performance.

In the third column of Table 2, we present our results from the Fama–MacBeth approach. Consistent with the pooled regression approach, we find that the coefficient for the public dummy is significantly positive. We note, however, that the magnitude of the coefficient is lower than that estimated with the pooled regression approach (i.e., 0.1 vs. 0.152). This magnitude is nonetheless economically significant.

In un-tabulated results we further examine the relation between fund fees and the fund management company's organizational form while controlling for the fund's board structure. It might be that public funds charge higher fees because they suffer from ineffective governance due to weaker boards. We test for such a possibility by adding the following board governance variables as regressors: board size, the percentage of independent directors, and a dummy variable capturing the presence of an independent chairman. Because we draw our board structure data from the year 2002, we limit this analysis to the years 2002, 2003, and 2004. Our empirical results show that even in the presence of these board control variables, the public dummy variable continues to be highly statistically significant and positively related to the level of a fund's fees. Collectively, our results provide a robust finding that public management companies charge higher fees. This result supports H1, our first corollary hypothesis.

## 4.2. Fund family organizational form and fund acquisition

### 4.2.1. Methods

In this section, we examine our second measure of agency costs, the number of funds a fund family acquires. We calculate the annual number of acquired funds for each fund family using data from the CRSP mutual fund database. We then regress this variable on the public dummy variable and a number of control variables including the number of funds in a fund family, fund family TNA, performance ranking, expense ratio ranking, and investor cash flows. Since the values of the dependent variables are truncated at zero, we use a Tobit regression.

$$\begin{aligned} \text{Number of Acquired Funds}_i = & a + b_1 \text{Public}_i \\ & + b_2 \text{LagNumFunds}_i \\ & + b_3 \text{LagFamilyTNA}_i \\ & + b_4 \text{LagPerformance}_i \\ & + b_5 \text{LagExpense}_i + b_6 \text{LagFlow}_i \\ & + \sum_{j=1}^{11} c_j \text{Year}_{ij} + e_i, \end{aligned} \quad (2)$$

where *Public* is a dummy variable that assumes a value of 1 if the fund family is public and 0 otherwise, *LagNumFunds* is the lagged number of funds in a fund family, *LagFamilyTNA* represents the lagged fund family size in terms of total assets under management, *LagPerformance* captures the lagged average percentile performance ranking across all funds in the fund family, *LagExpense* is the lagged average percentile expense ratio ranking across all funds in the fund family<sup>6</sup>, *LagFlow* measures the lagged total investor cash flow. The unit of observation for the Tobit regression (2) is fund family-year.

### 4.2.2. Results

In Table 3 we present our results for the Tobit regression model specified in Eq. (2). The sample period begins in 1993, because several of the control variables are lagged one year. We find that larger fund families tend to engage in more acquisitions. We also determine that fund families that charge higher fees or experience greater investor cash flows in the past year tend to acquire more funds. We find, however, that past performance is not an important determinant of fund acquisition. More importantly, we observe that the coefficient for the public dummy is statistically significant and positive, indicating that public fund families engage in more extensive acquisition activity than private fund families. This result is economically significant. The coefficient on the public dummy indicates that a public fund family acquired almost 7 ( $0.571 \times 12$ ) more funds during 1993–2004 than a comparable private fund family.

In un-tabulated results, we control for three principal board variables (board size, percent of independent directors, and independent board chairman dummy) to determine if more effective boards might limit this behavior by public fund families. The coefficient for the public dummy remains significantly positive. Thus, in spite of controlling for monitoring by the fund's board, we continue to observe that public fund families engage in significantly higher levels of fund proliferation than do private fund families.

We conclude from the findings of Table 3 that public fund families systematically undertake more acquisitions than do their private competitors. These results support our corollary hypothesis H2 and are consistent with public fund families seeking to increase their management fees by expanding their asset base. Given the evidence cited previously regarding the negative impact of fund proliferation and acquisition strategies on fund performance, we interpret these findings as indicative of a higher level of agency costs present in public funds.

**Table 3**  
Tobit analysis of number of acquired funds, 1993–2004.

	1993–2004
Intercept	1.074 (0.001)
Public dummy	<b>0.571</b> (0.001)
Lagged number of funds in Fund Family	0.012 (0.001)
Lagged fund family total net asset	–0.003 (0.001)
Lagged fund family performance percentile ranking	–0.001 (0.370)
Lagged fund family expense ratio percentile ranking	0.003 (0.023)
Lagged fund family investor cash flow	0.011 (0.024)
Year dummies	Included

This table presents the results for our Tobit analysis of the number of acquired funds. The sample period is from 1993 to 2004. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a public traded company or it is a subsidiary of a publicly traded company. A fund family is classified as private if it is not public. We collect the organizational form data from Nelson's Directory of Investment Managers, D&B Million Dollar Directory, Hoover's Online, Thomson/Gale Business and Industry resource center. Fund characteristics are from CRSP Survivor-bias free mutual fund database. The dependent variable is number of acquired funds for each fund family in each year. Performance and expense ratio percentile rankings are averaged across all funds within a family. The percentile ranking for each fund is relative to all funds in the same investment objective and same year. We use a Tobit model. Numbers in parentheses are *p*-values.

<sup>6</sup> The percentile performance ranking and expense ratio ranking for each fund is obtained within each year and investment objective.

#### 4.3. Fund family organizational form and fund performance

We believe that the agency costs within mutual funds should ultimately be reflected in fund performance. Thus, in this section we explore the effect of the fund management company's organizational form on fund performance. Specifically, we compare the performance of mutual funds of public fund companies with those of private fund companies by using three methods. In the first method, we calculate the average fund returns within each investment objective and compare the average performance between public funds and private funds.

In the second method, we use a cross-sectional regression framework to control for the effect of various fund characteristics on fund performance. Specifically, we regress investment objective-adjusted fund returns on the public dummy and various fund characteristics. The advantage of this approach is that it mitigates the concern that our results might be driven by fund characteristics other than the public/private nature of the fund management company.

Much of the mutual fund performance literature focuses on diversified equity mutual funds and, not surprisingly, the performance evaluation techniques are most developed for these funds. Consequently, in our third method we limit our analysis to equity mutual funds. Specifically, we explicitly control for the risk of equity mutual funds by using three standard performance evaluation models: the single factor Capital Asset Pricing Model (CAPM), the Fama and French (1996) three-factor model, and the Carhart's, 1997 four-factor model. This approach allows us to more precisely compare risk-adjusted performance across funds that belong to families of different organizational forms.

##### 4.3.1. Average fund returns by investment objectives

We begin our analysis of fund performance by comparing the average monthly returns for each investment objective across public and private funds. For each month and investment objective, we first calculate the TNA-weighted average return for public funds and private funds. We then report the time-series mean of these monthly returns for each investment objective. The results contained in Table 4 show that public funds generally underperform private funds. For 19 of the 22 investment categories, the mean monthly return is lower for the public funds when compared to the private funds. In 13 of these investment objectives, public funds significantly (at the 5% level) underperform private funds. The binomial test that the median public-private difference is equal to zero is rejected at the five percent level ( $p$ -value = 0.017), providing aggregate evidence that public funds underperform relative to private funds. The analysis contained in Table 4 provides initial, but strong, evidence that the agency conflicts inherent in public firms exert a depressing effect on performance, resulting in lower returns to shareholders.

##### 4.3.2. Cross-sectional regressions

In this section, we further compare performance between public and private funds while controlling for a number of characteristics that might influence the level of fund returns. Specifically, we conduct a cross-sectional regression analysis for the investment objective-adjusted performance of mutual funds. We follow Chen et al., 2004 and estimate the following regression each month:

$$r_{i,t} = a + b_1 \text{Public} + b_2 \text{LOGTNA}_{i,t-1} + b_3 \text{LOGFAM}_{i,t-1} + b_4 \text{EXP}_{i,t-1} + b_5 \text{LOGAGE}_{i,t-1} + b_6 \text{TURNOVER}_{i,t-1} + b_7 \text{LOAD}_{i,t-1} + b_8 \text{LAGFLOW}_{i,t-1} + b_9 \text{LAGFUNDRET}_{i,t-1} + e_{i,t}, \quad (3)$$

where  $r_{i,t}$  is one-month-ahead investment objective-adjusted fund return. We calculate both lagged fund flow and lagged fund return

**Table 4**

Average monthly fund returns by investment objectives and organizational forms, 1992–2004.

Investment objectives	Average monthly fund returns (%)		
	Public	Private	Public-private ( $t$ -statistics)
Aggressive growth	0.902	0.904	-0.002 (-0.03)
Balanced	0.670	0.825	-0.155 (-3.64)
High quality bonds	0.534	0.545	-0.011 (-0.94)
High-yield bonds	0.600	0.692	-0.092 (-3.94)
Global bonds	0.506	0.613	-0.107 (-3.17)
Global equity	0.767	0.928	-0.161 (-2.62)
Growth and income	0.802	0.935	-0.133 (-5.00)
Ginnie Mae funds	0.464	0.492	-0.027 (-2.05)
Government securities	0.456	0.495	-0.040 (-2.34)
International equities	0.656	0.722	-0.066 (-1.84)
Income	0.825	0.931	-0.106 (-2.41)
Long-term growth	0.775	0.879	-0.104 (-1.87)
Tax-free money market	0.194	0.205	-0.011 (-34.02)
Government securities money market	0.302	0.300	0.002 (3.81)
High quality municipal bond fund	0.470	0.471	-0.001 (-0.07)
Single-state municipal bond fund	0.483	0.505	-0.022 (-2.14)
Taxable money market fund	0.308	0.314	-0.005 (-10.14)
High-yield money market fund	0.482	0.430	0.052 (1.35)
Precious metals	0.676	0.811	-0.135 (-1.55)
Sector funds	0.786	0.882	-0.096 (-0.85)
Total return	0.631	0.712	-0.081 (-2.24)
Utility funds	0.709	0.677	0.031 (0.22)

Number of investment objectives where Public > Private: 3.

Number of investment objectives where Public < Private: 19.

$p$ -Value of the binomial test that the median Public-Private is equal to zero: 0.017.

This table presents the average monthly fund returns by investment objectives and organizational forms. The sample period is from 1992 to 2004. The sample includes funds from all 750 fund families that exist any time between 1992 and 2004 in the CRSP Survivor-bias free mutual fund database. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a public traded company or it is a subsidiary of a publicly traded company. A fund family is classified as private if it is not public. We collect the organizational form data from Nelson's Directory of Investment Managers, D&B Million Dollar Directory, Hoover's Online, Thomson/Gale Business and Industry resource center. Fund returns and investment objectives are from CRSP Survivor-bias free mutual fund database. Numbers in parentheses are  $t$ -statistics.

using the past one year's data. In particular, the lagged one year fund flow is defined as follows:

$$FLOW_t = \frac{TNA_t - TNA_{t-1}(1 + R_t) - MGTNA_t}{TNA_{t-1}}, \quad (4)$$

where  $R_t$  is the fund return and  $MGTNA_t$  represents the assets acquired from a merger.

Table 5 reports the time-series average of the coefficient estimates for the set of monthly cross-sectional regressions over the period 1992–2004. We use Fama–MacBeth technique to calculate standard errors while adjusting for possible serial correlation with the Newey–West method. We separately examine gross and net returns where gross return is the net return plus one-twelfth of the fund's annual expense ratio. We also present separate specifications with and without turnover since turnover data are missing from the CRSP mutual fund database for one year in our sample period.<sup>7</sup>

We find that regardless of the choice of dependent variable and alternative specifications for the independent variables, the coefficient for the public dummy variable is significantly negative. That is, funds of public fund families have a lower return than do funds of private families even after controlling for the fund's size, the size of the fund family, expense ratio, fund age, total load and lagged fund return as well as fund flow.

The results we obtain for the control variables are broadly consistent with the prior literature. Similar to Chen et al., 2004, we

<sup>7</sup> The turnover data is unavailable for year 1991. Since we use lagged turnover in regression (3), this implies that we cannot estimate regression (3) for 1992.

**Table 5**  
Cross-sectional regressions of fund performance, 1992–2004.

	Dependent variable: objective-adjusted fund return			
	Gross return (%)		Net return (%)	
Intercept	-0.080 (-2.36)	-0.068 (-1.53)	0.002 (0.07)	0.027 (0.61)
Public dummy	<b>-0.025</b> (-3.02)	<b>-0.024</b> (-2.82)	<b>-0.028</b> (-3.15)	<b>-0.027</b> (-2.89)
Log TNA	-0.011 (-2.60)	-0.009 (-2.00)	-0.009 (-2.41)	-0.007 (-1.64)
Log family TNA	0.011 (5.39)	0.009 (3.85)	0.011 (5.21)	0.009 (3.19)
Expense ratio	0.018 (1.43)	0.018 (1.19)	-0.045 (-3.60)	-0.048 (-3.22)
Log fund age	0.010 (1.34)	0.006 (0.70)	0.004 (0.59)	0.001 (0.13)
Total load	0.001 (0.23)	0.001 (0.78)	0.002 (1.15)	0.001 (0.38)
Lagged fund flow	-0.012 (-1.80)	-0.019 (-2.16)	-0.011 (-1.75)	-0.018 (-2.06)
Lagged fund return	0.023 (3.74)	0.024 (3.62)	0.023 (3.76)	0.024 (3.63)
Turnover		0.001 (0.13)		0.001 (0.14)
Averaged R-squared	0.11	0.13	0.11	0.13

This table presents results for the cross-sectional regressions of fund performance. The sample period is 1992–2004. We report the average coefficients from regressions of one-month-ahead investment objective-adjusted fund returns on various fund characteristics. We obtain mutual fund stock holdings from Thompson Financials. Fund characteristics are from the CRSP mutual fund database. The sample includes funds from all 750 fund families that exist any time between 1992 and 2004 in the CRSP Survivor-bias free mutual fund database. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a public traded company or it is a subsidiary of a publicly traded company. A fund family is classified as private if it is not public. We collect the organizational form data from Nelson's Directory of Investment Managers, D&B Million Dollar Directory, Hoover's Online, Thomson/Gale Business and Industry Resource Center. Gross returns are calculated by adding back one-twelfth of annual expense ratio to the net return. Stock characteristics are from the Compustat and the CRSP stock database. We calculate both lagged fund flow and lagged fund return using past one year's data. We use the Fama and MacBeth (1973) method. Numbers in parentheses are *t*-statistics, which are based on Newey–West standard errors.

find that fund performance is inversely related to fund size and positively related to fund family size. Further, we observe that the coefficient for lagged performance is significantly positive, implying a persistence in performance.

In un-tabulated results, we re-estimate our cross-sectional regressions of fund performance by controlling for board variables (Andres and Vallelado, 2008). In addition to board size, percentage of independent directors, and independent chairman dummy, we also include the average equity ownership by independent and inside directors. The inclusion of these director ownership variables is motivated by Cremers et al., forthcoming, who examine whether the directors' incentive structure is related to fund performance.

We obtain two important results from this analysis. First, even after adding additional controls for fund governance including the ownership stakes of both independent and insider directors, the funds of public fund families continue to have a lower return than private family funds. Second, we find that both independent and insider director ownership is positively related to fund performance. Similar to Cremers et al. (forthcoming), we observe the strongest results for ownership by insider directors. We conclude that the effect of a fund's public or private status has an effect on performance even after controlling for fund governance, including director ownership levels.

#### 4.3.3. Risk-adjusted returns for equity mutual funds

To more completely examine the issue of comparative risk-adjusted performance between public and private funds, we risk-ad-

just returns using three widely employed asset pricing models. As we stated earlier, performance evaluation techniques are most developed for equity mutual funds. Consequently, we limit our analysis with this methodology to equity mutual funds. Specifically, we only include funds in the "Aggressive growth", "Long-term growth", or "Growth and income" categories. The first model we use is the single factor CAPM:

$$r_{p,t} - r_{f,t} = \alpha + b \text{MKT}_t + e_t, \quad (5)$$

where  $r_p$  is the TNA-weighted return for the portfolio of public funds or private funds, and  $\text{MKT}$  is the market excess return. We also use the Fama and French (1996) and Carhart (1997) models:

$$r_{p,t} - r_{f,t} = \alpha + b \text{MKT}_t + s\text{SMB}_t + h\text{HML}_t + e_t, \quad (6)$$

$$r_{p,t} - r_{f,t} = \alpha + b \text{MKT}_t + s\text{SMB}_t + h\text{HML}_t + u\text{UMD}_t + e_t, \quad (7)$$

where  $r_p$  is the TNA-weighted return for the portfolio of public funds or private funds,  $\text{MKT}$ ,  $\text{SMB}$ ,  $\text{HML}$ , and  $\text{UMD}$  are market factor, size factor, book-to-market factor, and the momentum factor respectively.<sup>8</sup> Consistent with previous literature, we use alpha, the intercept term in (5)–(7), as the performance measure.

Table 6 contains our empirical results. In the first row, we present results for raw returns. We find that equity funds of public fund families on average earn 0.461% each month over 1992–2004, while equity funds of private fund families earn 0.608% each month. The difference is almost 15 basis points per month, and statistically significant at the 1 percent level. Results for the CAPM alpha indicate that both public equity funds and private equity funds underperform their benchmarks (after fees), by 11.2 and 4.4 basis points per month respectively. However, the underperformance is statistically significant for public funds, and not for private funds. Furthermore, the difference in the CAPM alpha between public and private equity funds is 6.8 basis points per month, statistically significant at the 1% level.

The Fama–French 3-factor alphas are negative for both public and private funds. Again, public equity funds underperform private equity funds. However, the underperformance of 2.2 basis points per month is not statistically significant ( $t = 0.93$ ). This statistical insignificance is related to the momentum effect. Once we control for the momentum factor, public funds again underperform private equity funds by a significant 4.3 basis point per month ( $t = 1.97$ ).

In aggregate, the results presented in Tables 4–6 provide evidence that mutual funds managed by public fund families significantly underperform those managed by privately held fund families. These results support our corollary hypothesis H3. These findings are also consistent with our earlier results regarding fee levels and the degree of fund proliferation. Public fund families are less able to align their interests with those of the fund's shareholders compared to private fund families. This results in a higher level of agency costs and consequently lower fund performance. These findings support this study's central hypothesis that agency costs are higher in public funds.

#### 4.4. Summary

In summary, we find strong evidence that agency costs are higher among public funds than private funds. We note that agency costs are not directly observable and that separately each of our three measures is an imperfect proxy. But collectively they paint a coherent picture. For example, one might argue that public funds charge higher fees because these funds are run by more talented people. However, this interpretation would be inconsistent

<sup>8</sup> We download the market, size, value, and momentum factors from Kenneth French's website.

**Table 6**  
Risk-adjusted performance of equity funds by organizational forms, 1992–2004.

	Public	Private	Public-private
Raw return	0.461 (3.10)	0.608 (3.25)	-0.147 (-2.99)
CAPM alpha	-0.112 (-2.24)	-0.044 (-1.06)	-0.068 (-2.68)
FF 3-factor alpha	-0.086 (-1.93)	-0.064 (-1.70)	-0.022 (-0.93)
Carhart 4-factor alpha	-0.136 (-3.30)	-0.092 (-2.49)	-0.043 (-1.97)

This table presents the risk-adjusted performance of equity mutual funds by organizational forms. The sample period is from 1992 to 2004. The sample includes all domestic equity funds that exist any time between 1992 and 2004 in the CRSP Survivor-bias free mutual fund database. We classify each fund family into one of two categories, public and private. Specifically, a fund family is classified as a public fund family if it is a public traded company or it is a subsidiary of a publicly traded company. A fund family is classified as private if it is not public. We collect the organizational form data from Nelson's Directory of Investment Managers, D&B Million Dollar Directory, Hoover's Online, Thomson/Gale Business and Industry Resource Center. Fund returns and investment objectives are from CRSP Survivor-bias free mutual fund database. CAPM, Fama-French, and Carhart alphas are given in regression equations (5)–(7), respectively. Portfolio returns are TNA-weighted. Numbers in parentheses are *t*-statistics.

with our evidence that public funds significantly underperform private funds. Taken as a whole, our results strongly suggest that agency costs are higher within public funds.

## 5. Conclusion and discussion

This study undertakes an analysis of an aspect of mutual funds that heretofore has remained unexamined in the literature: the impact of a fund management company's organizational form on the severity of the agency conflict within a mutual fund. We argue that public fund management companies emphasize the short-term to a greater extent than private fund management companies. This horizon difference will result in higher agency costs as the public fund management company's short-term orientation conflicts more with the interests of the fund's shareholders. Consequently, we hypothesize that public funds will suffer from greater agency costs than private funds.

The empirical findings reported in this study are consistent with this central hypothesis. We find that public funds charge higher fees than private funds, even after controlling for various fund characteristics and board governance variables. We find that public fund families are more likely to pursue fund proliferation strategies that are consistent with revenue rather than performance maximization efforts. Finally, we observe that public funds underperform relative to private funds. Overall, these findings are consistent with our hypothesis that the agency conflict is more acute in those mutual funds managed by public fund families.

This study's findings raise several interesting questions. How do public fund companies avoid being eclipsed by private fund companies with their seemingly closer alignment to fund shareholder interests? Alternatively, why have not investors punished the public fund companies by redeploying their capital to private fund families? One conjecture might be that fund investors are not consistently rational (see, e.g., Elton et al., 2004). Another possible explanation might be that the mutual fund industry is still evolving and has not achieved its long-run equilibrium. We leave an examination of these and related questions, however, to future research.

## Acknowledgments

We benefited from a conversation with Michael Jensen. We thank Ike Mathur (the editor), an anonymous referee, and seminar participants at the University of Kansas for helpful comments. We thank W.D. Allen, Matteo Arena, and Emre Unlu for excellent research assistance.

## References

- Andres, P., Vallelado, E., 2008. Corporate governance in banking: The role of the board of directors. *Journal of Banking and Finance* 32, 2570–2580.
- Bogle, J., 2005. *The Battle for the Soul of Capitalism*. Yale University Press.
- Brown, K., Harlow, W., Starks, L., 1996. Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry. *Journal of Finance* 51, 85–110.
- Bushee, B., 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73, 305–333.
- Bushee, B., 2001. Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research* 18, 207–246.
- Cao, C., Chang, E., Wang, Y., 2008. An empirical analysis of the dynamic relationship between mutual fund flow and market return volatility. *Journal of Banking and Finance* 32, 2111–2123.
- Carhart, M., 1997. On persistence of mutual fund performance. *Journal of Finance* 52, 57–82.
- Chen, J., Hong, H., Huang, M., Kubik, J., 2004. Does fund size erode performance? Liquidity, organizational diseconomies and active money management. *American Economic Review* 94, 1276–1302.
- Chevalier, J., Ellison, G., 1997. Risk taking by mutual funds as a response to incentives. *Journal of Political Economy* 105, 1167–1200.
- Creemers, M., Dreissen, J., Maenhout, P., D. Weinbaum, D., forthcoming. Does skin in the game matter? Director incentives and governance in the mutual fund industry. *Journal of Financial and Quantitative Analysis*.
- Del Guercio, D., Dann, L., Partch, M., 2003. Governance and boards of directors in closed-end investment companies. *Journal of Financial Economics* 69, 111–152.
- Demsetz, H., 1967. Toward a theory of property rights. *American Economic Review* 57, 347–359.
- Elton, E., Gruber, M., Busse, J., 2004. Are investors rational? Choices among index funds. *Journal of Finance* 59, 261–288.
- Esty, B., 1997. Organizational form and risk taking in the saving and loan industry. *Journal of Financial Economics* 44, 25–55.
- Fama, E., French, K., 1996. Multifactor explanations of asset pricing anomalies. *Journal of Finance* 51, 55–84.
- Fama, E., Jensen, M., 1985. Organizational forms and investment decisions. *Journal of Financial Economics* 14, 101–119.
- Fama, E., Macbeth, J., 1973. Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy* 71, 607–636.
- Friesen, G., Sapp, T., 2007. Mutual fund flows and investor returns: An empirical examination of fund investor timing ability. *Journal of Banking and Finance* 31, 2796–2816.
- Froot, K., Perold, A., Stein, J., 1992. Shareholder trading practices and corporate investment horizons. *Journal of Applied Corporate Finance* 5, 42–58.
- Gaspar, J., Massa, M., Matos, P., 2006. Favoritism in mutual fund families? Evidence on strategic cross-fund subsidization. *Journal of Finance* 61, 73–104.
- Green, J., Hodges, C., Ratkowski, D., 2007. Daily mutual fund flows and redemption policies. *Journal of Banking and Finance* 21, 3822–3842.
- Jayaraman, N., Khorana, A., Nelling, E., 2002. An analysis of the determinants and wealth effects of mutual fund mergers. *Journal of Finance* 57, 1521–1551.
- Mahoney, P., 2004. Manager-investor conflicts in mutual funds. *Journal of Economic Perspectives* 18, 161–182.
- Massa, M., 2003. How do family strategies affect fund performance? When performance-maximization is not the only game in town. *Journal of Financial Economics* 67, 249–304.
- Petersen, M., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22, 435–480.
- Stein, J., 1988. Takeover threats and managerial myopia. *Journal of Political Economy* 96, 61–80.
- Tufano, P., Sevick, M., 1997. Board structure and fee-setting in the mutual fund industry. *Journal of Financial Economics* 46, 321–355.
- Williamson, O., 1979. Transaction cost economics: The governance of contractual relations. *Journal of Law and Economics* 22, 233–261.
- Yermack, D., 1996. Higher market valuations with a small board of directors. *Journal of Financial Economics* 40, 185–212.