

Managerial Incentives and Audit Fees: Evidence from the Mutual Fund Industry

Abstract

We examine the relation between audit fees and managerial incentives in the mutual fund industry. Using proxies for managerial incentives based on fund organizational form, advisor compensation, and fund expenses, we find that audit fees are higher when managerial incentives are poor. Our results represent new evidence on the relation between audit fees and managerial incentives.

1. Introduction

Prior researchers have considered the demand for audit quality as a function of managerial agency costs. For example, Palmrose (1984), Francis and Wilson (1988) and Defond (1992) examine the link between managerial incentives and auditor choice for existing public firms. Datar, Feltham, and Hughes (1991), Feltham, Hughes, and Simunic (1991), and Clarkson and Simunic (1994) also examine managerial incentives and auditor choice, but in the context of initial public offerings. Researchers have also considered the supply price of audit services. For example, O’Keefe, Simunic, and Stein (1994) and Bell, Landsman, and Shackelford (2001) examine the relation between audit fees and auditor business risk.^{1,2} Our study is similar in nature to the demand side studies in that we are interested the role of managerial agency costs in determining audit outcomes. Like the more recent supply side studies, however, we focus on audit fees rather than auditor identity (or size). Specifically, we focus on the link between audit fees and managerial incentives.

We identify two potential sources of managerial agency costs. First, is the conflict between fund managers and fund investors. Investors are assumed to be less than fully informed with regard to managerial actions and the demand for audited financial numbers used in contracting follows. Recent research suggests another potential managerial agency problem as well, however. That research (discussed below) suggests that the managerial propensity to misrepresent performance measures increases with the sensitivity of managerial wealth to firm value. If that propensity is recognized by audit firms, then presumably it will be reflected in audit fees. We expect, then, that when managerial agency costs are large audit fees will also be large.

We examine the link between audit fees and managerial incentives in the mutual fund industry for

¹ While they do not directly examine the role of managerial agency costs, O’Keefe, Simunic, and Stein (1994) do consider agency costs associated with the bondholder, shareholder relation.

² More recent studies have returned to the demand side—examining audit fees (as a proxy for demanded audit quality) and corporate governance [Abbot, Parker, Peters, and Raghunandan (2001), Carcello, Hermanson, Neal, and Riley (2000), and Coulton, Craswell, and Taylor (2001)]. Those studies show a link between audit committee composition and the level of audit fees and between board independence, activity, and expertise and audit fees. See Abbot, Parker, Peters, and Raghunandan (2001) on the relation between audit committees and audit fees and Carcello, Hermanson, Neal, and Riley (2000) and Coulton, Craswell, and Taylor (2001) for the relation between full

several reasons. First, Fama and Jensen (1983a,b) note that fund organizational form proxies for managerial incentives. They argue this arises because open-end funds offer “a special form of diffuse control” in that investors, by redeeming their shares, may affect what amounts to a partial takeover or liquidation of the fund. The constant threat of withdrawal of fund assets serves as a disciplining force for open-end advisors. This same disciplining force is not present for closed-end funds (whose shares trade in the secondary market). The absence of a disciplining force leads to poorer incentives for closed-end fund advisors than for open-end fund advisors.³ We argue that the difference in managerial incentives associated with the different organizational forms allows for a powerful test of the relation between audit fees and managerial incentives. Second, the large number of mutual funds (and hence, the large number of sample observations) enhances the power of our empirical analysis. Third, mutual fund advisory contracts are readily available and simply specified. This allows us to create a very precise measure of advisor marginal compensation (which we use as another proxy for the incentive to misrepresent performance). Finally, fund type and holdings are readily identifiable which allows us to precisely control for other factors that may affect audit fees.⁴

Our expectation is that audit fees are positively related to poor managerial incentives. Using three different proxies for managerial incentives, our results are consistent with that expectation. For example, we find that closed-end funds have significantly higher audit fees than their open-end fund counterparts. The mean audit fee for an open-end equity fund is \$23,554. The mean audit fee for a closed-end equity fund is \$57,392. Likewise, among open-end debt funds the average audit fee is \$22,632 while among closed-end debt funds it is \$43,528. These differences are not explained by other factors related to the level of audit fees (such as fund size or auditor identity). In other words, closed-end funds have audit fees that are essentially twice the level of audit fees for open-end funds.

We also examine the relation between audit fees and managerial incentives as captured by advisor

board independence, activity, and expertise and the level of audit fees.

³ Barclay, Holderness, and Pontiff (1993) find evidence consistent with meaningful agency conflicts between closed-end fund investors and fund managers.

⁴ We also avoid problems inherent to matched-sample analysis.

marginal compensation rates. We find that audit fees among closed-end funds are positively related to the sensitivity of advisor payoffs to fund value. When fund advisor wealth has its greatest sensitivity to fund value audit fees are higher. This finding is consistent with the notion that fund managers have the greatest incentive to misrepresent fund value when their wealth is more sensitive to that value and that the auditing market prices that incentive.

Fund expenses provide another avenue for examining the link between managerial incentives and audit fees. Recent mutual fund research suggests that excess fund expenses proxy for an environment consistent with poor managerial incentives [Tufano and Sevick (1997) and Del Guercio, Dann, and Partch (2003), and Zitzewitz (2003)]. Relying on the findings of those studies, we examine the relation between audit fees and excess expenses. We find that audit fees are greater when excess expenses are greater. That result is consistent with the expectation that audit fees increase with poor managerial incentives.

Finally, we find that mutual fund audit fees are also determined by factors previously found to drive audit fees in industrial firms. For example, we find that audit fees are increasing in audit scope (as proxied by fund size) and that they exhibit economies of scale. Additionally, we find evidence that audit fees are increasing in audit complexity. For example, we find that audit fees are higher for funds that invest in assets that are difficult to value or funds that have trading strategies that rely on investing in complex assets. Specifically, we find that funds that invest in restricted securities and funds that invest in derivatives have significantly higher audit fees than funds that do not invest in restricted securities or derivatives.

We make two important contributions to the literature. First, we are able to extend the research on the link between managerial incentives and audit outcomes. Prior research examining the link between managerial incentives and auditor identity have produced largely mixed results. In what we believe to be a more powerful empirical environment and using three different proxies for managerial incentives, we are able to establish the link between managerial incentives and audit fees. Second, our research is the first to make the link between the incentive to misrepresent performance and audits fees. This result

suggests that the auditing profession, at least to some extent, recognizes the incentive created by compensation schemes tied to firm value and prices auditing services to reflect that incentive.

The rest of the paper proceeds as follows. In section 2 we provide background on the auditing of mutual funds as well as develop our hypothesis with respect to the link between managerial incentives and the demand for audit certification. Section 3 describes the sample and provides preliminary analysis. Section 4 reports results from multivariate analysis of the relation between managerial incentives and the demand for audit certification. Section 5 presents robustness tests and provides further discussion of our results and section 6 concludes.

2. Background and Hypothesis Development

In this section we first explore the procedures involved in auditing mutual funds. We then develop the formal hypotheses linking audit fees to managerial incentives. Finally, we discuss factors previously shown to affect the level of audit fees.

2.1. Audit procedures for mutual funds

The American Institute of Certified Public Accountants (2002) defines several principal objectives with respect to the audit of mutual fund portfolio assets including determining whether portfolio investments are properly valued.⁵ For example, the AICPA suggests “The auditor should test all portfolio valuations as of the date of the financial statements.” Further, the auditor should consider “testing transactions on dates selected from the period under examination for agreement with the values computed by the [fund].” To do so, the AICPA suggests that auditors consider obtaining independent quotes or reviewing the procedures used by pricing services for determining quotes.⁶ Thus, a central issue in the

⁵ Other objectives include determining whether: (1) the fund has ownership of and accounting control over all of its portfolio investments, (2) transactions are authorized and recorded in the proper account, amount, and period, (3) income from investments and realized gains and losses from securities transactions are properly accounted for, and (4) investments are free of liens, pledges, or other security interests or, if not, such matters are properly identified and disclosed [AICPA (2002)].

⁶ For example, if a pricing service uses matrix pricing to determine fair value, the auditor should: (1) review the matrix used, (2) determine that the results have been review for reasonableness, and (3) compare sales proceeds

audit process is determining the appropriateness of portfolio asset values.

Additionally, auditors are charged with the responsibility for considering whether fund internal controls provide appropriate assurance that material pricing errors would be prevented or detected. For example, the AICPA suggests that such control procedures might include: (1) checking methods used by the pricing service (if one is used) to obtain daily prices, (2) verifying large price changes that occur over a short period of time, (3) confirming dealer quotations with other dealers, and (4) maintaining a comparison of actual sales prices with the value used for the previous day [AICPA (2002)]. Again, the AICPA's suggestions highlight the centrality of asset pricing to the audit process.

2.2. Hypothesis Development

Casual observation of the assets under management in open-end funds and closed-end funds suggests that open-end funds must typically offer advantages that lead to the overwhelming majority of fund investments being made in open-end funds.⁷ Following the arguments of Fama and Jensen (1983a,b), we suggest that an important advantage of open-end funds is a reduction in agency costs stemming from investors' ability to redeem shares at NAV.

Investors in open-end funds have the right to redeem their shares at NAV. That is, they can realize their proportional claim on the market value of the underlying portfolio assets. This is not the case for closed-end funds. Closed-end fund shares trade in the secondary market at prices potentially different from NAV. Closed-end fund shares tend to trade at discounts to NAV [e.g., Zweig (1973), Malkiel (1977), Brauer (1984), and Lee, Shleifer, and Thaler (1991)]. Barclay, Holderness, and Pontiff (1993) provide evidence that at least a portion of the discount is explained by opportunistic behavior by closed-end fund advisors. Following the lead of that research, we assume poorer managerial incentives in the case of closed-end funds than in open-end funds.

The assumption that managerial incentives are more poorly aligned in closed-end funds than they are

from securities sold during the year to the value used on several days before the sale [AICPA (2002)].

⁷ Although assets under management by closed-end funds have grown from \$8.1 billion in 1980 to \$55.3 billion in 1990 and to \$114.9 billion by the end of 2000, 98% of the approximately \$7.0 trillion of assets invested in mutual funds are held in open-end funds [CDA/Wiesenberger (2001)].

in open-end funds begs the question of the existence of closed-end funds. We note, however, that while open-end funds economize on agency costs between fund managers and investors, closed-end funds offer other economies. For example, closed-end funds mitigate conflicts among investors with different horizons and between existing investors and potential investors [Deli and Varma (2002)]. Chordia (1996) argues that the closed-end organizational form mitigates costly opportunity costs associated with cash balances held by open-end funds to meet redemptions. Edelen (1999) suggests that the closed-end organizational form can also mitigate costs associated with trading forced by net flows in and out of a fund. Thus, while closed-end funds involve poorer managerial incentives, they also offer advantages that allow for their continued existence in equilibrium.

Jensen and Meckling (1976) and Watts and Zimmerman (1986) argue that in situations involving conflicts of interest between contracting parties, the parties have the incentive to develop mechanisms to reduce the costs of those conflicts. As Watts and Zimmerman (1986) note, however, those mechanisms would be of little use if their provisions were not monitored and enforced. Auditing plays a central role in certifying the inputs to those mechanisms used to overcome costly agency conflicts.

There is a large literature documenting the pervasiveness of contracts under which advisor compensation is tied to net asset value [Starks (1987), Grinblatt and Titman (1989), Stoughton (1993), Heinkel and Stoughton (1994), Admati and Pfleiderer (1997), Coles, Suay, and Woodbury (2000), Deli (2002)]. The pervasiveness of contracts tied to net asset values suggests that the inputs required for net asset value calculations are of central importance to the contracting process. There are at least two reasons to believe that closed-end funds will seek greater certification of those inputs than open-end funds. As previously discussed, unlike open-end funds, closed-end funds do not have the disciplining mechanism offered by redemption. Also, because closed-end funds are not subject to the possibility of redemptions, manipulations of contracting numbers, such as fund value, seem more likely to persist.⁸

⁸ Recent experience by two open-end bond funds managed by Heartland Advisors is consistent with this notion. In October of 2000 Heartland wrote down the value of its High-Yield Municipal Bond fund by 70% and the value of its Short Duration High-Yield Municipal Fund by 44%. Both funds had been experiencing net withdrawals driven by earlier, but much smaller write-downs of fund assets. Heartland had been meeting those redemptions by drawing

The above arguments suggest closed-end funds offer poorer managerial incentives and the opportunity for the manipulation of numbers used in the contracting process. That agency conflict leads to a greater demand for audit certification. More recent research assumes that incremental audit fees (i.e., controlling for factors known to affect fees such as auditor reputation) proxy for demand for audit certification [Abbot, Parker, Peters, and Raghunandan (2001), Carcello, Hermanson, Neal, and Riley (2000), and Coulton, Craswell and Taylor (2001)]. Because managerial incentives are poorer in closed-end funds and because funds will demand greater certification when managerial incentives are poorer, we expect that closed-end funds will have greater audit fees than their open-end fund counterparts.

It is also the case that supply side factors may affect the level of audit fees as well. For example, differences in managerial incentives may affect the level of audit risk which, in turn, affects the level of audit fees either because auditors price the risk directly or because they adjust the level of audit effort to mitigate the risk. Davis, Ricchiute, and Trompeter (1993) document that incremental audit effort is costly and reflected in audit fees. Thus, supply side factors related to managerial incentives could lead to higher audit fees for closed-end funds as well. Both demand and supply side factors suggest that closed-end funds will have higher audit fees. Consequently, without trying to distinguish between the two, we simply predict that closed-end funds will have higher audit fees than their open-end fund counterparts.

Advisor compensation may offer another mechanism for examining the effect of managerial incentives on audit fees. Gao and Shrieve (2002), Cheng and Warfield (2003), Bergstresser and Philippon (2005), and Peng and Roell (2005) find a positive association between equity-based compensation and earnings manipulation. Johnson, Ryan, and Tian (2003) and Erickson, Hanlon, and Maydew (2004) document a positive association between equity-based compensation and a firm's being accused of fraud by the SEC. Similarly, Richardson, Tuna, and Wu (2003) and Burns and Kedia (2004) find that the likelihood of earnings restatement is positively related to equity-based compensation. In

down lines of credit supplied by Deutsche Bank AG. In the face of continued redemptions and the need to sell portfolio assets to meet those redemptions, Heartland was forced to write down portfolio assets to their true values. Closed-end funds, by construction, would never face the same necessity of writing down fund values because they do not have to service redemptions. It seems likely, given the above example, that misvaluations are more likely in

sum, these recent studies find that managers are more likely to manipulate or misrepresent accounting measures as sensitivity of their wealth to firm value increases. If those results generalize to the mutual fund industry, and if the incentive is priced in audit fees, then we would expect that in those instances where advisor compensation is more sensitive to fund value we would also tend to observe higher audit fees.

In addition to advisor compensation, fund expenses provide a useful mechanism for examining the relation between audit fees and managerial incentives. Tufano and Sevick (1997) and Del Guercio, Dann, and Partch (2003), and Zitzewitz (2003) argue that fund expenses in excess of those explained by the nature of a fund's assets are a function of poor fund governance and resulting managerial opportunism. For example, Tufano and Sevick (1997) and Del Guercio, Dann, and Partch (2003) find board characteristics generally associated with poorer fund governance are associated with higher expenses. Zitzewitz (2003) finds that funds with greater excess expenses are less likely to adopt measures that prevent short-term trading strategies harmful to long-term fund investors. We follow the spirit of their work and examine the relation between audit fees and excess expenses (net of audit fees). Our expectation is that audit fees will be higher for those funds with greater excess expenses.

2.3. The general determinants of audit fees

Simunic (1980) suggests three broad factors that determine the level of audit fees that are relevant for our study: (1) the size of the auditee, (2) the complexity of the auditee's operations, and (3) audit difficulties associated with certain types of assets.⁹ Consistent with Simunic's first suggestion, there is a large empirical literature documenting a positive relation between audit fees and auditee size [c.f., Simunic (1980), Chow (1982), Craswell, Francis, and Taylor (1995), Francis and Simon (1987), Palmrose (1986), Simon and Francis (1988), and Turpen (1990)]. This suggests that it is important that we control for auditee size when examining the relation between audit fees and managerial incentives. Similarly, it

closed-end funds than in open-end funds.

⁹ Simunic (1980) suggests two additional factors that determine the level of audit fees, but that are not relevant in the context of our study within the mutual fund industry: (1) the industry of the auditee, and (2) whether the auditee is publicly traded.

is the case that there may be economies of scope when auditing funds within a mutual fund family. This suggests that it is important that we control for membership within a mutual fund family in our analysis.

As suggested by Simunic (1980), audit complexity is also potentially important in the determination of audit fees. In considering industrial firms, researchers use proxies such as the number of divisions to proxy for the degree of audit complexity. In the context of the mutual fund industry, we suspect that audit complexity may be related to two factors: (1) the frequency of trading, and (2) the use of exotic (derivative) securities. In general terms, we suspect that if a fund rarely trades, auditing that fund will be less complex than auditing a fund whose trading strategies result in frequent revisions of portfolio assets. Also, we suspect that trading strategies that involve the use of relatively complex financial securities, such as derivatives, will lead to greater audit complexity.¹⁰ Thus, these arguments suggest that it is important that we control for frequency of fund trading and the use of derivative securities when examining the relation between the demand for audit certification and managerial incentives.

Simunic (1980) also suggests that certain auditees pose greater loss exposure because of the difficulty associated with confirming their assets. In the context of industrial firms, Simunic (1980) suggests that both receivables and inventories are “risky” balance sheet items because the valuation of these items is difficult. It is possible that a similar notion holds true within the context of mutual funds. In particular, it may be more difficult to confirm the value of certain types of assets than it is for others. As a general proposition, we expect that securities that are thinly traded or that have less price transparency will be those for which it is most difficult to confirm value. Asset liquidity and price transparency, then, are potentially important determinants of audit fees.

The potential relation between audit fees and asset liquidity and transparency suggests that it is important to control for differences in liquidity and transparency in the empirical analysis. Because we expect audit fees to be related to the liquidity of portfolio securities, we require some taxonomy of liquidity across security type. The broadest characterization is in terms of debt versus equity securities.

¹⁰ Koski and Pontiff (1999) find that funds use derivatives as a means of adjusting portfolio exposure rather than trading the underlying assets.

We are wary, though, of making a blanket statement about the relative liquidity of equity and debt securities in general. For example, it may be the case that short-term government debt obligations are more liquid than equities. It may also be the case that certain debt obligations, for example, long-term corporate debt, are less liquid than equities. Because it is difficult to make a general statement with respect to the relative liquidity of debt and equity securities, we do not make a prediction about audit fees for debt and equity funds, but we do, however, control for the difference in the empirical analysis. While we are unwilling to make a general statement about the relative liquidity of the securities invested in by debt and equity funds, it is possible to make such a distinction within the subsets of equity and debt funds. Our data allow us to make meaningful distinctions about asset liquidity within fund types (this analysis appears in sections 5.1 and 5.2).

It is possible that there are also differences in liquidity and transparency between foreign securities and domestic securities. It has been argued that foreign securities are more thinly traded and involve greater difficulty in accurate valuation than domestic securities [SEC (1992) and Solnik (1996)]. The AICPA contends that “investments in securities of foreign issuers involve considerations not typically associated with domestic investments” [AICPA (2002)]. Among other things, the AICPA suggests that foreign securities are likely to be less liquid which, in turn, suggests that confirming foreign security values involves greater expense than confirming domestic security values. This suggests that it is important that we control for the foreign versus domestic nature of fund assets when examining the link between audit fees and managerial incentives.

It is potentially the case that portfolio liquidity is subtler than the broad classifications we suggest. For example, secondary portfolio holdings may affect liquidity and transparency. In particular, cash balances (and holdings of short-term debt securities) are likely easy to value. A foreign fund holding a large fraction of portfolio assets in the form of cash or short-term debt securities may be more liquid than a domestic equity fund holding little cash or short-term debt securities. These arguments suggest that it is important that we control for cash and short-term debt securities when examining the relation between

audit fees and managerial incentives.

Also, some funds invest in what are known as restricted securities. Restricted securities are those acquired in a transaction or chain of transactions not involving a public offering [Pollock (1990)]. In the typical transaction securities are privately placed to a small number of investors. SEC rules 144 and 144A limit the resale of restricted securities.¹¹ Thus, relative to their unrestricted counterparts, restricted securities are illiquid. Given our prior arguments, we expect that funds that invest in restricted securities are likely to have higher audit fees than those funds that do not invest in restricted securities. This suggests that it is important that we control for investments in restricted securities when examining the relation between the demand for audit certification and managerial incentives.

Finally, previous research suggests that the level of audit fees may be a function of auditor reputation (or size). For example, several studies find that audit fees are a positive function of auditor reputation [DeAngelo (1981), Francis (1984), Palmrose (1986), Francis and Stokes (1986), Barber, Brooks, and Ricks (1987), Francis and Simon (1987), Rubin (1988), Craswell, Francis, and Taylor (1995)]. Simunic (1980), on the other hand, finds that audit fees decline with auditor reputation. Big-5 auditors audit 95% of our sample funds (99% of aggregate fund assets).¹² We make no prediction about the relation between audit fees and auditor reputation, but we note that prior research suggests that it is potentially important that we control for auditor reputation in our empirical analysis.

3. Sample and Preliminary Analysis

3.1. Sample

Our data are from SEC investment company form N-SAR. All regulated investment companies are required to file two N-SARs annually, one covering the first six months of the fiscal year (N-SARA) and

¹¹ In particular, Rule 144 prohibits the resale of restricted securities if the issue is less than two years old. Rule 144A removes that constraint conditional on the purchaser being a qualified institutional buyer.

¹² Arthur Andersen audits 106 (2.1%) of our sample funds, Deloitte Touche 795 (15.6%), Ernst Young 977 (19.2%), KPMG 740 (14.5%), and PriceWaterhouseCoopers 2,237 (43.9%).

the second covering the full year (N-SARB).¹³ We search the SEC's EDGAR web site for all N-SARB filings during the calendar year of 2002.

We examine funds' answers to various questions on form N-SAR to determine whether a fund is closed-end or open-end, the amount of fund assets, whether a fund invests primarily in equity or debt, whether a fund invests primarily in US securities or foreign securities, the level of fund turnover (the lesser of purchases or sales divided by average net asset value), whether a fund is a member of a family of funds, the percentage of fund assets comprised of cash or cash equivalents, whether a fund traded derivatives during the reporting period¹⁴, whether a fund invested in restricted securities during the reporting period, and auditor identity. For equity funds we collect each fund's stated primary investment objective. For debt funds we also collect the composition of each fund's portfolio. Because they are unlikely to ever be closed-end, we exclude money-market funds and funds for whom a majority of portfolio assets are comprised of short-term debt instruments. To be included in the final sample each fund must report each of the above data items.

Table 1 provides a description of the sample. The final sample consists of 5,091 funds—5.5% (278) closed-end and 94.5% (4,813) open-end. Our sample funds invest primarily in equities (72.3% of funds). Capital appreciation and growth funds represent the largest portions of equity funds. Within debt funds, government debt funds outnumber corporate debt funds (900 to 367). The overall sample is heavily weighted toward domestic funds. 86.4% (4,396) of our sample funds are domestic funds and the remaining 13.7% (695) are foreign.

3.2. Preliminary Analysis

Panel A of table 2 provides descriptive statistics for the level of audit fees within the mutual fund

¹³ The SEC is authorized under Section 30(b) of the Investment Company Act of 1940 and Sections 13 and 15(d) of the 1934 Act to solicit information required by form N-SAR. Disclosure of the information specified on form N-SAR is mandated under SEC Rule 30b1-1 (Semi-Annual Report for Registered Management Investment Companies) Audit fees are an explicit line item included on form N-SAR.

¹⁴ Funds answer the following six questions with respect to investments in equity and debt derivatives: (1) did the fund write or invest in options on equities?, (2) did the fund write or invest in options on stock indices?, (3) did the fund write or invest in stock index futures?, (4) did the fund write or invest in options on stock index futures?, (5) did the fund write or invest in options on debt securities?, and (6) did the fund write or invest in interest rate

industry. The mean (median) audit fee is \$24,699 (\$19,000). Panel B of table 2 illustrates the importance of various fund characteristics in determining the level of audit fees. For example, the mean (median) audit fee for a foreign fund is \$30,564 (\$24,000) while for domestic funds it is \$23,772 (\$19,000). The difference is statistically significant and large in percentage terms. Similar relations hold along other fund dimensions. For example, funds that invest in derivatives have higher audit fees than funds that do not invest in derivatives. Also, funds that invest in restricted securities have higher audit fees than funds that do not invest in restricted securities. Panel C provides further evidence on the link between fund characteristics and audit fees. In panel C we divide funds into quartile subsamples based on various characteristics of the fund and then examine mean (median) audit fees within each subsample. As expected, audit fees are strongly related to the size of the fund being audited with average (median) fees being \$14,275 (\$12,000) for funds in the smallest size quartile and then rising monotonically to \$37,679 (\$30,000) for funds in the largest fund size quartile.

Perhaps the most striking result of table 2, however, is the result with respect to fund organizational form and audit fees reported in panel B. For open-end funds the average (median) audit fee is \$23,318 (\$18,000). For closed-end funds the average (median) audit fee is \$48,615 (\$41,500). The difference is statistically significant and large in percentage terms. Audit fees for closed-end funds are more than two times greater than audit fees for open-end funds. This preliminary result is consistent with our hypothesis that audit fees are higher when managerial incentives are the poorer.

Of course, simple univariate comparisons implicitly hold others factors that potentially affect the level of audit fees constant. As a first step toward loosening that assumption, we examine audit fees for closed-end funds and open-end funds of various types in panel D of table 2. The results are striking. For every type of fund, audit fees for closed-end funds of that type are greater than for open-end funds of the same type. For example, among equity funds, average audit expenses are over 2.4 times greater for closed-end funds (\$57,392) than they are for open-end funds (\$23,554). A similar, though less extreme, relation holds among debt funds. Among debt funds the average audit expense for open-end funds is

futures? If a fund answers “yes” to at least one of these six questions then we classify it as investing in derivatives.

\$22,632. For closed-end debt funds the average audit expense is \$43,528. Regardless of which single dimension on which funds are classified, average audit fees for closed-end funds are on the order of two times greater than for open-end funds. These results, by fund type, provide further support for the hypothesis that when managerial incentives are poorer, funds demand higher levels of audit certification.

4. Multivariate Analysis

Multivariate regression results for the full sample of funds are reported in table 3. In each of our regressions we use dollar audit fees as our dependent variable. To capture potential economies of scale in the provision of audit services we include both a fund size (in dollars) and a squared fund size variable. Specifying the regressions in this manner allows for an intuitive interpretation of all the dichotomous variables. For example, the coefficient on the closed-end fund variable captures the difference in audit fees for a closed-end fund versus an open-end fund.¹⁵

Our results are consistent with those of the univariate analysis and suggest that audit fees are greater when managerial incentives are poorer. For example, in the first regression of table 3 we report that audit fees are \$26,681 more for closed-end funds than for open-end funds. Again, the difference is not only statistically significant (t-stat = 20.05), but also large in relative terms. We conclude that this result on mutual fund organizational form and audit fees is consistent with our hypothesis that when managerial incentives are poorest, audit fees are greatest.

As noted previously, prior research finds that manipulation or misrepresentation of accounting measures increases as the sensitivity of manager wealth to firm value increases. We follow Coles, Suay, and Woodbury (2000) and Deli (2002) and define the advisor's sensitivity to fund value (i.e., the advisor's marginal compensation rate) as the change in advisor compensation given a small change in fund assets (as indicated by the fund advisory contract). For example, suppose a fund's advisory contract

¹⁵ In order to make sure that our results are not driven by the specification of our regressions, we repeat our analysis using ranks of the left-hand-side and right-hand-side variables as well as using logs of both audit fees and

calls for an advisor to receive 1% of fund assets under \$500 million, 0.75% of fund assets greater than \$500, but less than \$1 billion, and 0.5% of fund assets greater than \$1 billion. Also, assume that the fund has \$600 million of assets. In that case, we assign a value of 0.75% to the advisor's marginal compensation rate. If the propensity of fund managers to misrepresent fund value is a function of the sensitivity of advisor wealth to changes in fund value, then we expect that audit fees will be positively related to marginal compensation rates. We examine that possibility in the second and third columns of table 3.

In the second column of table 3 we include the advisor marginal compensation rate by itself. When we do so, we find that the relation between audit fees and marginal compensation rates is positive, but statistically insignificant. We next include the marginal compensation rate plus a term interacting the marginal compensation rate with fund organizational form. When we do so, we find that there is no link between audit fees and marginal compensation rates for open-end funds, but there is a significant positive relation between audit fees and marginal compensation rates for closed-end funds (1% level). That result is consistent with the notion that agency conflicts are more severe in closed-end funds and that greater advisor sensitivity to reported asset values leads to an increased incentive to misrepresent fund value which is then reflected in higher audit fees.

Excess fund expenses also offer another means by which to examine the link between audit fees and managerial incentives. We do so by including an estimate of excess expenses in our analysis. We implement the test by first regressing expense ratios (net of the audit fee) on the log of fund size and a set of dummy variables capturing fund organizational form and fund type. We then take the residuals from that regression as our measure of "excess" expenses. We include the residuals in our regression analysis and report the results in the fourth column of table 3. We find that audit fees are positively related (t-stat = 7.79) to excess expenses. If our measure of excess expenses is an accurate proxy for poor managerial incentives, then the results suggest that audit fees are greater when managerial incentives are poorest.

The fee structures of open-end funds offer another means of providing indirect evidence on the link

fund size (see section 5.4). Our inferences with respect to the audit fees of closed-end funds are unaffected.

between managerial incentives and audit fees. Chordia (1996) argues that open-end funds use back-end fees to make redemption prohibitively costly. Like closed-end funds relative to open-end funds, open-end funds using back-end fees face less of a disciplining force from redemptions than open-end funds without back-end fees. We make use of the difference in incentives that this creates by repeating our analysis within the subsample of open-end funds while including a dichotomous variable for the use of back-end fees.¹⁶ The back-end fee variable, then, operates in the same way as our closed-end variable in that it captures differences in managerial incentives. Consistent with our results for closed-end funds, we find that funds making use of back-end fees have significantly higher audit fees (1% level). Specifically, open-end funds using back-end fees have audit fees that are \$2,647 greater than open-end funds without back-end fees. Thus, we consider this evidence on the use of back-end fees and audit fees as further indirect evidence consistent with our earlier results.

Results for our control variables are also consistent with the univariate analysis. For example, foreign funds have higher audit fees than domestic funds (1% level). Foreign funds have audit fees that are \$5,762 higher than the audit fees of domestic funds. A similar relation holds for those funds investing in derivatives relative to those not investing in derivatives. Funds investing in derivatives have audit fees that are \$3,457 higher than funds that do not invest in derivatives (the difference is statistically significant at the 1% level). Likewise, funds that invest in restricted securities have audit fees that are \$3,990 higher than funds that do not invest in restricted securities (again, the difference is statistically significant at the 1% level). Audit fees are also positively related to portfolio turnover (1% level). This result is consistent with more actively managed funds being more costly to audit.¹⁷

In sum, we capture variation in managerial incentives several ways. Regardless of the means by

¹⁶ Specifically, the variable takes the value of one if a fund charges either a contingent deferred sales charge or a redemption fee.

¹⁷ We note that in the first and fourth regressions of table 3 funds that are members of larger fund families have higher audit fees. To the extent that we expect to observe economies of scope, this result appears contrary to our expectations. Deli (2002), however, documents that advisor marginal compensation is related to fund family size. Thus, family size may be capturing advisor compensation effects in addition to scope economies. Indeed, when advisor marginal compensation is included in the analysis in the second and third regressions the coefficient on family size becomes negative (though statistically insignificant).

which we capture managerial incentives, we find that audit fees are greater when managerial incentives are poorest. Also, audit fees in the mutual fund industry appear to be affected by factors previously documented to affect the audit fees of industrial firms. Overall, our results are consistent with the hypothesis that audit fees are affected by managerial incentives.

5. Additional Analysis

The above results are consistent with the hypothesis that audit fees are related to managerial incentives. One potential limitation of that analysis stems from its reliance on a coarse characterization of fund assets (at least in terms of their debt v. equity characteristics). We now address that limitation by examining finer characterizations of fund assets within the equity and debt subsamples of our funds. We then examine the possibility that audit fees, themselves, are a manifestation of managerial opportunism. We then conduct sensitivity analysis to make sure our results are not specific to our initial regression specification.

5.1. Equity funds

To further explore the link between managerial incentives and audit fees we examine that relation in the context of equity funds while controlling for each fund's primary investment objective. Form N-SAR requires equity funds to classify their primary investment objective as: (1) aggressive capital appreciation, (2) capital appreciation, (3) growth, (4) growth and income, (5) total return, or (6) income. We examine the link between organizational form and audit fees among equity funds while controlling for investment objective in panel A of table 4.¹⁸ We include a dummy variable for each of the investment objectives except aggressive capital appreciation.

The results reported in Panel A of table 4 suggest that our previous results using the full sample of funds are not driven by an overly coarse characterization of our sample funds. For example, while

¹⁸ Because equity derivatives are likely to be the relevant derivatives for equity funds, we control for investment in equity derivatives (rather than any derivative) during the reporting period.

controlling for equity fund investment objective we continue to find that closed-end funds have higher audit fees than their open-end fund counterparts (1% level). Again, the relation is large in percentage terms as well as statistically significant. Among equity funds, closed-end funds have audit fee that are \$34,770 higher than similar open-end funds. Also, audit fees remain positively related to excess fees (1% level). The coefficient on the interaction between closed-end and marginal compensation remains positive, but it becomes statistically insignificant in the subsample of equity funds. We note, though, that we have fewer observations (due to limitations on the availability of marginal compensation data) and that only 2.5% of equity funds are closed-end. Thus, we likely have less power to find the hypothesized relation. Overall, we interpret these equity subsample results as providing further evidence consistent with our hypothesis that when managerial incentives are poorer, audit fees are higher.

5.2. Debt funds

To provide further evidence on the link between managerial incentives and audit fees we also examine the subsample of debt funds. Unlike the case of equity funds where we only have data on funds' stated investment objectives, form N-SAR filings for debt funds allow us to observe the actual level of investment in different types of debt. We characterize each debt fund by the type of debt that makes up the largest fraction of portfolio assets. Results are reported in panel B of table 4.

In the first row of panel B we report results for the full subsample of debt funds while controlling for whether funds invest in corporate or government debt. Consistent with our results using the full sample and our results using the equity subsample, closed-end debt funds have significantly higher audit fees than their open-end fund counterparts (1% level). The difference remains large in percentage terms as well. Closed-end debt fund audit fees are \$22,083 higher than their open-end debt fund counterparts. In the second regression of panel B we see that the coefficient on the interaction term between closed-end and advisor marginal compensation is significantly positive (1% level) as in the full sample analysis. Among closed-end funds, as advisor marginal compensation rates rise, audit fees increase. Finally, in the third regression of panel B we continue to find that audit fees are positively related to excess expenses.

The results within the debt subsample, then, are consistent with those for the full sample.

In panel C we examine the relation between organizational form and audit fees for the subsample of funds comprised of funds that invest in government securities. There are three broad classes of government debt that funds invest in: (1) US Treasury debt, (2) agency debt, and (3) municipal debt. We control for the type of government debt by including a dummy variable for agency debt and municipal debt. Again, our results indicate that closed-end funds have higher audit fees than their open-end fund counterparts (1% level). In particular, closed-end government bond funds pay \$18,202 more in audit fees than their open-end fund counterparts. Also, audit fees remain positively related to excess expenses (1% level). Overall, the results using the subsample of debt funds are broadly consistent with our initial results using the full sample of funds and suggest they were not driven by an overly coarse characterization of the funds.

5.3. Managerial Opportunism

It is possible that rather than reflecting equilibrium outcomes, higher audit fees among closed-end funds are actually a manifestation of an agency conflict between investors and fund advisors. John Bogle, founder and former CEO of the Vanguard family of mutual funds, suggests that there is an inherent conflict of interest in the mutual fund industry because the firms that audit mutual funds also tend to be the ones that audit the fund advisor. This opens the door to the possibility that the costs of auditing the fund advisor could be shifted to the funds that the fund advisor manages.¹⁹ Bogle makes his comment with regard to the mutual fund industry in general, but there is reason to believe that the problem could be most severe for closed-end funds. To the extent that the disciplining mechanism of constant redemption is unavailable to closed-end fund investors and to the extent that fund advisors want to shift auditing expenses from themselves to the funds they manage, it may make sense that fund advisors shift audit expenses onto their closed-end funds. Large fund managers are likely to have greater dollar audit expenses to shift than small fund managers. If families of funds tend to be managed, in whole or in substantial part, by one fund advisor, then it seems reasonable to assume that fund family size proxies for

the amount of audit expense dollars that could be shifted from the fund advisor to its funds. If, by virtue of their poorer incentives, fund advisors shift all (or at least a disproportionate share) of their audit expense to their closed-end funds, then we would expect closed-end funds that are members of large fund families to have higher audit fees. Although it seems unlikely that such an arrangement could survive in a competitive equilibrium, we address that possibility by interacting our organizational form variable with our family size variable. In untabulated results, we find that when closed-end funds are members of large fund families they actually have lower audit fees (1% level). We interpret this result as evidence that is inconsistent with the difference in audit fees for closed-end funds and open-end funds being a manifestation of an agency problem between funds and their advisors.

Another possibility is that fund managers may have some ability to “allocate” audit fees across the funds they manage. If that is the case, then fund managers might, for example, allocate expenses away from poorly performing funds as a means of increasing performance. We find that possibility unlikely with respect to audit fees because mutual funds are separate legal entities and the non-interested directors on a mutual fund’s board have an obligation to ensure that each fund’s interests are not being compromised to the benefit of another fund [Glazer (1970) and Nutt (1971)]. Nevertheless, we allow for the possibility by examining the relation between net fund flows and audit fees among open-end funds. Managerial opportunism suggests funds experiencing outflows should have lower audit expenses (as managers attempt to improve performance in order to stem the outflow).

To test that possibility we repeat our empirical analysis for the subsample of open-end funds while controlling for net flows.²⁰ Contrary to the implications of managerial opportunism, we find a negative and statistically significant (1% level) relation between net flows and audit fees. Funds experiencing outflows pay higher audit fees and funds experiencing inflows pay lower fees. One explanation for the difference is that audit fees are, at least to some extent, pre-negotiated and the negative coefficient captures the lag between changes in fund size (as a function of net cash flows) and negotiated audit fees.

¹⁹ “Do mutual funds have auditing conflicts?,” *The Wall Street Journal*, March 14, 2002.

²⁰ Open-end funds report gross flows for six months on form N-SARB.

We note that our results pertain to the potential allocation of audit fees among open-end funds because only open-end funds experience net flows in and out of the funds. Thus, we interpret this result as indirect evidence that is inconsistent with audit fees being a manifestation of advisor opportunism rather than representing an equilibrium price for audit certification.

5.4. Additional Empirical Analysis

It is possible that our results are a function of outliers in the data. We allow for the possibility in two ways. First, we repeat our analysis using rank regressions. Specifically, we create ranks for audit fees and repeat our analysis. Perhaps not surprisingly, adjusted R^2 s drop (to between 17% and 20%) and the t-statistics for our variables of interest change somewhat (e.g., the t-statistic for closed-end funds drops to 18.86 from 20.05 in the base regression of table 3), but the inferences remain essentially the same. The one exception is the coefficient on the interaction between closed-end fund and advisor marginal compensation which remains positive, but becomes statistically insignificant (t-statistic = 0.69). Second, we use the natural log of audit fees and fund size. Again, our inferences are unchanged.

A second possible limitation of our analysis stems from our choice of sample period. We examine only one year of cross-sectional data (i.e., funds filing in 2002). While our full sample size suggests that power is not an issue, our results could potentially be biased. Given the relative stability of auditing relationships we do not expect this to be a problem. To address the possibility, however, we collect data for funds filing in 1998 and repeat our analysis. Our results are unaffected. For example, the mean (median) audit fees for closed-end funds in 1998 is \$44,373 (\$40,000). The comparable number for open-end funds is \$22,502 (\$17,000). When looking at the subsample of equity funds, closed-end equity funds have mean (median) audit fees of \$49,471 (\$47,000) whereas open-end equity funds have mean (median) audit fees of \$23,332 (\$17,000). When looking at the subsample of debt funds, closed-end debt funds have mean (median) audit fees of \$41,340 (\$36,000) whereas open-end equity funds have mean (median) audit fees of \$20,998 (\$16,000). All of these differences in means and medians are statistically significant at the 1% level. We conclude, therefore, that our results are not merely a byproduct of looking

at a particular year.

6. Conclusion

We examine the relation between audit fees and managerial incentives in the mutual fund industry. Using proxies for managerial incentives based on fund organizational form, advisory firm compensation, and fund expenses, we find that audit fees are greater when advisor incentives are poorest. In particular, we find that closed-end funds have significantly higher audit fees than their open-end fund counterparts. The difference is large in percentage terms as well as statistically significant with closed-end funds having audit fees that are essentially twice the level of audit fees for open-end funds. We also find that audit fees are greater for closed-end fund advisors with higher levels of marginal compensation. That result is consistent with recent research which suggests that managerial incentives to manipulate or misrepresent accounting numbers are positively related to the sensitivity of managerial wealth to firm value. Finally, we find that audit fees are positively related to excess fund expenses. Recent research suggests that (positive) excess expenses are consistent with an environment of poor managerial incentives. Thus, the results on excess fund expenses also confirm the relation between audit fees and managerial incentives. Overall, the results suggest that managerial incentives play an important role in determining audit fees.

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Table 1. Sample Description. Our data are from the SEC's Electronic Data Gathering and Retrieval (EDGAR) world wide web site. The source is investment company form N-SARB for those funds that filed such a form during the calendar year 2002. We examine funds' answers to various questions on form N-SAR to determine whether a fund invests primarily in equity or debt. For equity funds we collect each fund's stated primary investment objective. For debt funds we collect the composition of each fund's portfolio. Debt funds are classified by what type of debt makes up the single largest percentage of portfolio assets.

Fund Type:	Number (% of sample)
<i>Full Sample</i>	5,091
<i>Closed-end</i>	278 (5.5)
<i>Open-end</i>	4,813 (94.5)
<i>Equity</i>	3,680 (72.3)
<i>Aggressive Capital Appreciation</i>	127 (2.5)
<i>Capital Appreciation</i>	1,515 (29.8)
<i>Growth</i>	1,014 (19.9)
<i>Growth and Income</i>	498 (9.8)
<i>Income</i>	66 (1.3)
<i>Total Return</i>	460 (9.0)
<i>Debt</i>	1,411 (27.7)
<i>Government</i>	900 (17.7)
<i>L-T Treasury</i>	44 (0.9)
<i>L-T Agency</i>	245 (4.8)
<i>L-T Municipal</i>	611 (12.0)
<i>Corporate</i>	367 (7.2)
<i>Foreign</i>	695 (13.7)
<i>Domestic</i>	4,396 (86.4)

Table 2. Univariate analysis of audit expense. The sample consists of 5,091 open-end and closed-end funds that filed annual N-SARs with the SEC in 2002. Closed-end is a dichotomous variable that is true if a fund closed-end and false if it is open-end. Equity fund is a dichotomous variable that is true if a fund invests primarily in equity securities and false if it invests primarily in debt securities. Foreign fund is a dichotomous variable that is true if a fund invests primarily in foreign securities and false if it invests primarily in domestic securities. Member of a family of funds is a dichotomous variable that is true if a fund is a member of a family of mutual funds and false if it is not. Derivatives is a dichotomous variable that is true if a fund invests in derivative securities and false if it does not. Restricted securities is a dichotomous variable that is true if a firm invests in restricted securities and false if it does not. Big-5 is a dichotomous variable equal that is true if the auditor is a Big-5 auditor and false if it is not. Fund size is total fund net assets. Family size is the total (within sample) net assets of the fund family. Turnover is the lesser of fund purchases or sales divided by average net assets value. Cash is the percentage of cash relative to total fund assets. For continuous variables in panel C we create subsamples based on quartile rankings of the variable and calculate means and medians within quartile subsamples. ** indicates significance at the 1% level. * indicates significance at the 5% level.

Panel A: Descriptive statistics for audit expense						
	Mean	Median	Max.	75 th Perc.	25 th Perc.	Min.
Audit Fees	24,699	19,000	338,000	31,000	11,000	1,000

Panel B: Mean (median) audit expense by fund type.			
	Yes	No	t-statistic for difference in means (Z-statistic for diff. in medians)
Closed-end fund?	48,615 (41,500)	23,318 (18,000)	13.58** (14.05)**
Equity fund?	24,492 (19,000)	25,239 (21,000)	1.07 (-3.66)**
Foreign fund?	30,564 (24,000)	23,772 (19,000)	5.77** (4.37)**
Derivatives?	29,268 (24,000)	23,358 (18,000)	7.03** (8.46)**
Restricted Securities?	31,342 (25,000)	22,535 (18,000)	9.85** (9.24)**
Big-5?	25,203 (20,000)	14,339 (12,000)	13.53** (9.21)**

Panel C: Mean (median) audit expense by quartile ranking of each explanatory variable (1 = smallest). ^a						
	1	2	3	4	Kruskal-Wallis (p-value)	Spearman correlation (p-value)
Fund Size	14,275 (12,000)	20,522 (17,000)	26,307 (23,000)	37,679 (30,000)	879.5 (.001)	.434 (.001)
Family Size	21,009 (15,000)	21,879 (17,000)	22,637 (19,000)	33,047 (28,000)	430.8 (.001)	.254 (.001)
Turnover	23,134 (18,000)	24,281 (18,000)	26,392 (20,000)	25,004 (21,000)	23.7 (.001)	.071 (.001)
Cash	23,416 (16,000)	26,532 (22,000)	25,216 (20,000)	23,632 (19,000)	50.6 (.001)	.030 (.030)

Table 2. Univariate analysis of audit expense (continued).

Panel D: Mean (median) audit expense by fund type.			
	Closed-end fund	Open-end fund	t-statistic for difference in means (Z-statistic for diff. in medians)
Equity fund	57,392 (53,000)	23,554 (18,000)	9.27** (8.43)**
Debt fund	43,528 (38,000)	22,632 (19,000)	10.56** (11.50)**
Foreign fund	69,077 (60,000)	26,590 (21,000)	8.48** (6.93)**
Domestic fund	42,371 (37,000)	22,825 (18,000)	11.57** (12.20)**
Large fund family	44,549 (38,000)	26,798 (22,000)	9.44** (10.60)**
Small fund family	54,465 (46,500)	19,888 (15,000)	16.14** (9.06)**
Trades Derivatives	47,063 (38,500)	28,225 (23,000)	6.04** (7.29)**
No Derivatives	49,079 (42,500)	21,880 (17,000)	12.16** (11.82)**
Restricted Securities	52,019 (45,000)	29,448 (23,000)	7.40** (8.41)**
No Restricted Securities	46,549 (39,000)	21,402 (17,000)	10.63** (10.79)**
Big-5	49,576 (43,000)	23,773 (19,000)	13.61** (14.23)**
Not Big-5	19,889 (16,000)	14,119 (12,000)	2.06* (2.27)*
Large fund	53,632 (43,500)	30,772 (25,000)	7.35** (9.18)**
Small fund	43,810 (39,000)	15,842 (14,000)	13.83** (10.31)**
High turnover	55,965 (52,000)	24,649 (20,000)	9.96** (8.19)**
Low turnover	45,378 (37,000)	21,932 (17,000)	10.32** (11.26)**
High cash	50,087 (43,500)	23,088 (19,000)	10.03** (9.52)**
Low cash	47,395 (39,500)	23,550 (18,000)	9.23** (10.36)**

Table 3. Regression Analysis of Audit Expense. The sample consists of 5,091 open-end and closed-end funds that filed annual N-SARs with the SEC in 2002. *Closed-end* is a dichotomous variable equal to one if a fund is closed-end and zero otherwise. *Fund size* is total fund net assets. *Fund Size²* is the square of fund size. *Equity* is a dichotomous variable equal to one if a fund invests primarily in equity securities and zero otherwise. *Foreign* is a dichotomous variable equal to one if a fund invests primarily in foreign securities and zero otherwise. *Turnover* is the lesser of fund purchases or sales divided by average net assets value. *Family Size* is the total (within sample) net assets of the fund family. *Cash* is the percentage of cash relative to total fund assets. *Derivatives* is a dichotomous variable equal to one if a fund invests in derivative securities and zero otherwise. *Restricted Securities* is a dichotomous variable equal to one if a firm invests in restricted securities and zero otherwise. *Big-5* is a dichotomous variable equal to one if the auditor is a Big-5 auditor and zero otherwise. *Marginal Compensation* is the change in advisor compensation given a small change in fund assets (given the advisory contract and the current level of fund assets). *Excess Expenses* is the residual from the regression of fund expenses on various fund characteristics. t-statistics are in parentheses. ** indicates significance at the 1% level. * indicates significance at the 5% level.

	(1)	(2)	(3)	(4)
<i>Intercept</i>	9,849 (6.49)**	9,695 (5.93)**	10,709 (6.49)**	10,213 (6.76)**
<i>Closed-end</i>	26,681 (20.05)**	26,930 (20.37)**	14,595 (4.56)**	26,559 (20.06)**
<i>Fund Size (x 10⁻⁵)</i>	.477 (22.95)**	.747 (25.24)**	.746 (25.26)**	.455 (21.77)**
<i>Fund Size² (x 10⁻¹⁴)</i>	-4.559 (-12.80)**	-12.532 (-16.42)**	-12.515 (-16.43)**	-4.305 (-12.10)**
<i>Equity</i>	1,142 (1.64)	513 (0.70)	411 (0.56)	1,136 (1.64)
<i>Foreign</i>	5,762 (6.56)**	5,901 (6.62)**	5,621 (6.30)**	5,749 (6.57)**
<i>Turnover</i>	.009 (3.43)**	.004 (1.68)	.004 (1.57)	.006 (2.46)*
<i>Family Size (x 10⁻⁸)</i>	1.033 (3.39)**	-.269 (-0.40)	-.405 (-0.60)	1.095 (3.61)**
<i>Cash</i>	-6.113 (-2.36)*	-6.937 (-2.69)**	-7.030 (-2.73)**	-5.939 (-2.30)*
<i>Derivatives</i>	3,457 (4.87)**	3,770 (5.19)**	3,671 (5.06)**	3,589 (5.07)**
<i>Restricted Securities</i>	3,990 (5.58)**	2,171 (3.04)**	2,078 (2.91)**	3,829 (5.38)**
<i>Big-5</i>	6,672 (4.74)**	6,049 (4.33)**	5,890 (4.22)**	6,626 (4.73)**
<i>Marginal Compensation</i>		1.661 (1.52)	.724 (0.65)	
<i>Closed-end*Marg. Comp.</i>			17.821 (4.23)**	
<i>Excess Expenses</i>				123.2 (7.33)**
adj.-R ²	22.5	24.9	25.2	23.3
Obs.	5,091	4,357	4,357	5,091

Table 4. Additional Analysis of Audit Fees. The sample consists of open-end and closed-end funds that filed annual N-SARs with the SEC in 2002. *Closed-end* is a dichotomous variable equal to one if a fund is closed-end and zero otherwise. *Fund size* is total fund net assets. *Fund Size*² is the square of fund size. *Equity* is a dichotomous variable equal to one if a fund invests primarily in equity securities and zero otherwise. *Foreign* is a dichotomous variable equal to one if a fund invests primarily in foreign securities and zero otherwise. *Turnover* is the lesser of fund purchases or sales divided by average net assets value. *Family Size* is the total (within sample) net assets of the fund family. *Cash* is the percentage of cash relative to total fund assets. *Derivatives* is a dichotomous variable equal to one if a fund invests in derivative securities and zero otherwise. *Rest. Sec.* is a dichotomous variable equal to one if a firm invests in restricted securities and zero otherwise. *Big-5* is a dichotomous variable equal to one if the auditor is a Big-5 auditor and zero otherwise. *Marg. Comp.* is the change in advisor compensation given a small change in fund assets (given the advisory contract and the current level of fund assets). *Excess Expenses* is the residual from the regression of fund expenses on various fund characteristics. t-statistics are in parentheses. ** indicates significance at the 1% level. * indicates significance at the 5% level.

Panel A: Regression analysis of audit fees for equity fund subsample (N=3,680, 3,148, and 3,680, respectively). The intercept captures domestic aggressive capital appreciation funds. *Turnover*, *Cash*, *Deriv.* and *Rest. Sec.* are included in the regression analysis, but are omitted from the table for the sake of brevity.

<i>Intercept</i>	<i>Closed-end</i>	<i>Fund Size</i>	<i>Fund Size</i> ²	<i>Capital App.</i>	<i>Growth</i>	<i>Growth and Income</i>	<i>Income</i>	<i>Total Return</i>	<i>Foreign</i>	<i>Family Size</i>	<i>Big5</i>	<i>Marg. Comp.</i>	<i>Closed* Marg. Comp.</i>	<i>Excess Expenses</i>	adj. R ²
10,731 (4.23)**	34,770 (15.72)**	.491 (21.41)**	-4.677 (-12.26)**	-38 (-0.02)	-115 (-0.06)	-2,393 (-1.11)	-2,248 (-0.68)	1,181 (0.54)	4,894 (5.04)**	1.289 (3.62)**	6,793 (4.15)**				24.0
10,766 (3.98)**	37,127 (6.53)**	.755 (23.19)**	-12.454 (-15.42)**	-476 (-0.24)	72 (0.04)	-1,550 (-0.73)	-578 (-0.18)	2,271 (1.06)	5,099 (5.24)**	.004 (0.01)	5,843 (3.67)**	1.493 (1.18)	-480 (-0.08)		26.2
11,276 (4.46)**	34,701 (15.76)**	.471 (20.36)**	-4.448 (-11.65)**	-130 (-0.07)	-200 (-0.10)	-2,151 (-1.15)	-2,479 (-0.76)	1,062 (0.49)	4,845 (5.01)**	1.387 (3.91)**	6,699 (4.11)**		107.94 (5.92)**		24.7

Panel B: Regression analysis of audit fees for debt subsample (N=1,411, 1,209, and 1,411, respectively). The intercept captures government debt funds. *Cash* is included in the regression analysis, but is omitted from the table for the sake of brevity.

<i>Intercept</i>	<i>Closed-end</i>	<i>Fund Size</i>	<i>Fund Size</i> ²	<i>Corp.</i>	<i>Turnover</i>	<i>Family Size</i>	<i>Deriv.</i>	<i>Rest. Sec.</i>	<i>Big5</i>	<i>Marg. Comp.</i>	<i>Closed* Marg. Comp.</i>	<i>Excess Expenses</i>	adj. R ²
11,390 (4.27)**	22,083 (14.38)**	.991 (11.69)**	-52.840 (-9.62)**	-2,937 (-2.38)*	.009 (2.18)*	-.214 (-0.35)	1,519 (1.21)	5,473 (4.78)**	6,132 (2.27)*				23.4
9,922 (3.12)**	3,870 (0.79)	1.203 (12.04)**	-65.067 (-8.69)**	-3,680 (-2.86)**	.007 (1.66)	-.513 (-0.43)	1,895 (4.03)**	4,864 (4.03)**	5,494 (1.93)	2,900 (1.05)	30.516 (3.88)**		27.7
11,362 (4.31)**	21,922 (14.45)**	.935 (11.10)**	-50.234 (-9.23)**	-2,627 (-2.16)*	.007 (1.79)	-.157 (-0.26)	2,627 (2.21)*	5,015 (4.43)**	6,284 (2.35)*			303.76 (5.78)**	25.8

Table 4. Additional Analysis of Audit Fees (continued). The sample consists of open-end and closed-end funds that filed annual N-SARs with the SEC in 2002. *Closed-end* is a dichotomous variable equal to one if a fund is closed-end and zero otherwise. *Fund size* is total fund net assets. *Fund Size*² is the square of fund size. *Agency* is a dichotomous variable equal to one if a fund invests primarily in agency debt and zero otherwise. *Muni* is a dichotomous variable equal to one if a fund invests primarily in municipal debt and zero otherwise. *Turnover* is the lesser of fund purchases or sales divided by average net assets value. *Family Size* is the total (within sample) net assets of the fund family. *Cash* is the percentage of cash relative to total fund assets. *Deriv.* is a dichotomous variable equal to one if a fund invests in derivative securities and zero otherwise. *Rest. Sec.* is a dichotomous variable equal to one if a firm invests in restricted securities and zero otherwise. *Big-5* is a dichotomous variable equal to one if the auditor is a Big-5 auditor and zero otherwise. *Marg. Comp.* is the change in advisor compensation given a small change in fund assets (given the advisory contract and the current level of fund assets). *Excess Expenses* is the residual from the regression of fund expenses on various fund characteristics. t-statistics are in parentheses. ** indicates significance at the 1% level. * indicates significance at the 5% level.

Panel C: Regression analysis of audit fees for government debt subsample (N= 900, 762, and 900, respectively). The intercept captures US Treasury debt funds.

<i>Intercept</i>	<i>Closed-end</i>	<i>Fund Size</i>	<i>Fund Size</i> ²	<i>Agency</i>	<i>Muni.</i>	<i>Turnover</i>	<i>Family Size</i>	<i>Cash</i>	<i>Deriv.</i>	<i>Rest. Sec.</i>	<i>Big5</i>	<i>Marg. Comp.</i>	<i>Closed* Marg. Comp.</i>	<i>Excess Expenses</i>	adj. R ²
10,834 (2.97)**	18,202 (10.82)**	1.032 (11.40)**	-52.695 (-9.74)**	-504 (-0.18)	85 (0.03)	.007 (1.24)	-1.124 (-1.73)	-12.783 (-3.57)**	2,434 (1.78)	3,993 (2.87)**	6,877 (2.39)*				24.7
12,071 (2.94)**	13,814 (2.10)*	.123 (11.48)**	-67.475 (-9.00)**	-1,411 (-0.48)	-876 (-0.30)	.009 (1.57)	1.317 (0.96)	-13.383 (-3.55)**	2,846 (1.73)	3,423 (2.21)*	6,079 (2.01)*	-2.822 (-0.98)	9.352 (0.78)		29.4
10,442 (2.88)**	18,204 (10.90)**	.991 (10.96)**	-50.899 (-9.44)**	-315 (-0.12)	-159 (-0.06)	.005 (0.95)	-.906 (-1.39)	-12.149 (-3.41)**	3,592 (2.74)**	3,471 (2.50)*	7,296 (2.56)*			339.51 (3.28)**	25.8