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## Essays On Mutual Fund Governance And The Advisory Fee Contracts

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# ESSAYS ON MUTUAL FUND GOVERNANCE AND THE ADVISORY FEE CONTRACTS

by

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Philosophy  
in the Department of Finance  
in the College of Business Administration  
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## **ABSTRACT**

This dissertation consists of three studies related to corporate governance of equity mutual funds in a framework of relations between the three closely interrelated actors of mutual fund industry. The mutual fund advisers, the shareholders and the mutual fund board being the advocate of shareholders rights.

The first study analyzes the advisory fee, using a survivorship bias free data set of 176 equity funds managed by 125 different advisers. The price of professional portfolio management provided by the mutual fund adviser depends not only on the fund characteristics but also on the fund objective, the adviser's portfolio related and management based decisions, and the portfolio performance. I find that the advisers may reduce their own costs through the use of derivatives or manipulate the actual fee contract by engaging in soft dollar agreements. Advisers actively manage the advisory fee contracts responding to the outcome of their management decisions. The advisory fee increases after voluntary fee reimbursement or if the adviser is not fully reimbursed for certain services. Risk taking behavior is the main motivation behind the structure of advisory contracts. Also, I show that non-surviving funds have higher advisory fees, suggesting competitive fee pricing may be necessary for survival.

The second study focuses on the relation between general board characteristics, independent director characteristics and the advisory fee which is solely an outcome of the negotiations between the fund board and the adviser, thus a good proxy for the governance skills of the board. I also examine the impact of SEC's regulation change of 2000. Mutual fund scandals that took place after the regulation change of 2000 suggested that besides the fraction of

independent seats, the individual characteristics of the members that occupy board seats are crucial for mutual fund board governance.

I find that boards benchmark objective average fee but not necessarily for the best interest of shareholders. Shareholders are likely to benefit from the expertise of members with higher tenure and finance backgrounds. Although increase in board independence is likely to contribute to board governance, the effect of 2000 regulation change of board independence on its arguably target group is limited. Nominating committee improves the board governance. Although the results do not suggest that an independent chairman directly improves board governance, I find modest evidence that the impact of an independent chairman is likely to depend on the expertise of the member that would occupy the chairman seat.

Third study analyzes a specific tool, soft dollar arrangements using a survivorship bias free data set of 432 equity funds managed by 129 different advisers. Soft dollar arrangements affect all three actors of mutual fund industry. They are widely used by the advisers, have to be monitored closely by the fund board and eventually affect the overall wealth of shareholders. Fund advisers determine the broker base, scope of brokerage services and whether to self produce or outsource brokerage services through soft dollar arrangements. In return, shareholders expect to benefit from better fund performance and reduction in advisory fee. I find that transaction execution not necessarily motivated by additional brokerage services is likely to be responsible for high turnover. Construction of brokerage base by the adviser is not arbitrary. Advisers *ex ante* construct the broker base in order to minimize the brokerage commissions and considering *ex post* soft dollar arrangements. Transaction execution related services lead to less brokerage commissions and soft dollar use while both increase if research is a consideration for broker participation. More concentrated broker base leads to lower brokerage fee and higher soft

dollar use. Results indicate that advisers enforce competition within brokerage industry for lower cost of transaction execution. Shareholders benefit from increasing soft dollar use through performance improvement and reduction in advisory fee. Yet, the cost of soft dollar arrangements seems to exceed their benefit to shareholders. If the results indicate competition within brokerage industry for lower cost of transaction execution, the undisclosed premium paid for the additional services are likely to be responsible for this adverse effect.

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## TABLE OF CONTENTS

LIST OF TABLES .....	xii
PART 1. DYNAMIC MANAGEMENT OF MUTUAL FUND ADVISORY CONTRACTS .....	1
1.1 Introduction .....	1
1.2 Variables and Hypothesis .....	5
1.2.1 Advisory fee .....	5
1.2.1.1 Fund specific factors .....	5
1.2.1.2 Market factors .....	6
1.2.1.3 Fund performance .....	7
1.2.1.4 Adviser's decisions .....	7
1.2.1.4.1 Research agreements and use of derivatives .....	8
1.2.1.4.2 Adviser's management decisions .....	9
1.2.2. Structure of advisory fee contracts .....	11
1.3 Data and Methodology .....	12
1.4 Empirical Analysis .....	17
1.4.1 Descriptive Statistics .....	17
1.4.2 Advisory Fee .....	18
1.4.2.1 Fund specific factors and adviser size .....	18
1.4.2.2 Market factors .....	19
1.4.2.3 Fund returns .....	19
1.4.2.4 Adviser's decisions .....	20
1.4.2.4.1 Use of derivatives and research agreements .....	20

1.4.2.4.2 Adviser's management decisions.....	21
1.4.3 Structure of advisory fee contracts .....	22
1.4.4 Limitations .....	23
1.5 Conclusion .....	25
TABLES .....	27
<b>PART 2. DIRECTOR CHARACTERISTICS AND THE ADVISORY FEE; IMPACT OF REGULATION CHANGES .....</b>	<b>34</b>
2.1 Introduction.....	34
2.2 Variables and Hypothesis .....	37
2.2.1 Fund and Market Specific Variables.....	37
2.2.2 General Board Characteristics .....	39
2.2.3 Individual Director Characteristics .....	41
2.2.4 SEC's Regulation Change of Board Independence .....	43
2.3 Data and Methodology.....	45
2.4 Descriptive Statistics.....	51
2.5 Empirical Results .....	54
2.5.1 Board Characteristics and Fund Governance.....	55
2.5.2 Member Characteristics and Fund Governance.....	57
2.5.3 Separate Nominating Committee .....	58
2.5.4 Regulation Change and Board Independence .....	59
2.5.4 Limitations .....	61
2.6 Conclusion .....	63
TABLES .....	65

PART 3. DETERMINANTS OF SOFT DOLLAR ARRANGEMENTS; DO SHAREHOLDERS BENEFIT? .....	72
3.1 Introduction.....	72
3.2 Hypotheses.....	76
3.2.1. Considerations for Broker Participation .....	76
3.2.2. Broker Base and Fund Characteristics .....	77
3.2.2.1. Concentration of broker base. ....	77
3.2.2.2. The institutional relations with the brokers .....	78
3.2.2.3. Alternative rent transfers.....	79
3.2.2.4 Fund characteristics .....	79
3.2.3. Do Shareholders Benefit? .....	80
3.2.3.1. Fund Returns and Soft Dollar Use .....	80
3.2.3.2. The Advisory Fee and Soft Dollar Use.....	81
3.3 Data and Methodology.....	83
3.4 Empirical Analysis.....	93
3.4.1 Descriptive Statistics.....	93
3.4.2 Brokerage Fee, Soft Dollar Use and Considerations of the Adviser in Broker Participation .....	94
3.4.3. Brokerage Fee, Soft Dollar Use and Broker Base .....	96
3.4.4 Brokerage Fee, Soft Dollar Arrangements and Fund Characteristics.....	98
3.4.5. Adjusted Fund Returns and Soft Dollar.....	100
3.4.6. Advisory Fee and Soft Dollar Use .....	101
3.5 Further Tests and Robustness Checks.....	103

3.6 Limitations .....	105
3.7. Conclusion .....	107
TABLES .....	110
CONCLUSION.....	116
REFERENCES .....	118

## LIST OF TABLES

Table 1 List of variables names, sources and definitions .....	27
Table 2 Advisory Fee Descriptive Statistics .....	28
Table 3 Descriptive Statistics of Independent Variables .....	29
Table 4 Panel Model Regressions of Advisory Fee.....	30
Table 5 Robustness Tests for Advisory Fee .....	32
Table 6 Panel Model Regressions of Concavity .....	33
Table 7 Definition of the Variables .....	65
Table 8 Descriptive Statistics.....	66
Table 9 Whole Sample Set and Subset Board Independence .....	67
Table 10 Advisory Fee - General Board and Member Characteristics .....	68
Table 11 Panel Models of Nominating Committee .....	70
Table 12 Subsets of Increase in Board Independence Around Regulation Change .....	71
Table 13 Descriptive Statistics.....	110
Table 14 Descriptive Statistics of Broker Base Characteristics and the Frequency of the Considerations on Broker Participation .....	111
Table 15 Panel Model Regressions of Brokerage Commissions and Soft Dollar Commissions	112
Table 16 Panel Regression of Adjusted Fund Returns and Soft Dollar Use .....	113
Table 17 Panel Regression of Advisory Fee and Soft Dollar Use .....	114
Table 18 Panel Model Regressions for Further Tests .....	115

# **PART 1. DYNAMIC MANAGEMENT OF MUTUAL FUND ADVISORY CONTRACTS**

## **1.1 Introduction**

Mutual funds have been displaying dramatic growth for over a decade and this dynamic financial service industry has been getting increasing attention from the regulators, academia, and the press. Despite this rapid growth and dynamic structure of the mutual funds industry, the attention devoted to the advisory contracts which determines the price of the primary product, professional portfolio management, is limited.

Optimal contracts should provide a strong link between managerial compensation and investor welfare when there is little known by the investors about the production function linking their objective function and manager's objective function (Murphy 1998). Since each fund and each adviser is unique, so the contracts should be. The advisory fee contract defines the optimal advisory fee, the major component of the total fee; that covers solely the cost of portfolio management, provides profit to the adviser and still attracts additional inflows. Other components of the fund's total fee are 12b-1 fees, which are used to compensate broker-dealers for selling efforts, transfer agent fees, and accounting and legal expenses. Funds also charge loads that incur when fund shares are purchased (front-end load) and redeemed (back-end load).

Coles et al (2000) argue that the optimal fee structure varies between funds. Furthermore, Deli (2002) provides evidence implying that the fund characteristics have impact on the variation of the advisory fee. However, the economic determinants of the advisory fee would not be limited to the fund characteristics for couple of reasons. First, the advisory fee is not bound by any regulation such as 12b-1 fees. Due to its largely unconstrained nature, the advisory fee will

depend on the contract environment (Jensen and Meckling (1976), Deli (2002)). Therefore, market dynamics and norms are likely to affect the optimal advisory fee. Second, Tufano and Sevick (1997) suggest that advisory contracts are largely the products of advisory firms themselves. Therefore, the advisory fee is dependent on the adviser's decisions. These decisions might be directly related to portfolio management such as the use of derivatives or they might be management decisions exogenous to cost of portfolio management such as voluntary reimbursement of fees. The adviser is also expected to attempt to distinguish himself based on the quality of his marginal product. Therefore, the adviser is likely to try to signal abnormal performance as an indicator of superior management skills.

Overall, the economic determinants of the optimal advisory fee are not limited to the fund characteristics. While the adviser takes the fund characteristics, the market norms and fund performance given, he or she could actively manage the advisory fee through his or her own management decisions. The adviser would consider these four set of factors while adopting an advisory fee strategy.

In a competitive market such as mutual funds where funds are pushed to compete on the fees, the adviser would determine the additional mark-up to advisory fee observing the market norms and competitors' advisory fees. This would not require a fundamental change to the cost structure as long as the premium is high enough for the adviser. However, the competition would limit the degree of mark-up. Hence, this would lead the adviser to attempt to find ways to reduce the cost of portfolio management. In that case, the advisor has broadly two options. First, the adviser may alter the portfolio management techniques or reimburse fees. Second, he or she may

simply manipulate the fee contract in order to reduce the contractual advisory fee without actually changing the total rent transfer from shareholders.

Using a survivorship bias free sample of 176 equity funds managed by 125 different advisors, I investigate how the dynamic advisory fee management is associated with the adviser's decisions and the given factors such as fund characteristics, market norms and performance. I find that fund characteristics have an impact on the advisory fee. The advisory fee decreases with fund size, but increases with the adviser's size. I find that the advisory fee is adjusted based on the objective average. However, this strategy benefits the shareholder only when the objective average fee declines.

Advisory fee determination is associated with both the portfolio related and the management related decisions of the adviser. Several results support this conclusion. I find that, the adviser successfully reduces the cost of portfolio management by using derivatives or manipulate the advisory fee by engaging in research agreements. Also, funds that bundle the gross administrative fee and gross advisory fee have a higher contractual advisory fee. Contracting is further affected by *ex ante* voluntary fee reimbursement by the advisory firm. Advisers do not adjust the advisory fee based on the overall number of non-reimbursed services. However, when the non-reimbursement is examined at the individual service level, the results indicate that advisers adjust the advisory fee based on the non-reimbursement of certain services.

Finally, not necessarily performance improvement but superior performance gives the adviser the opportunity to successfully signal better management skills and increase the advisory fee. Since Jensen (1968), the majority of the studies show that mutual fund managers fail to



outperform passive benchmarks. However, superior performance is still likely to serve as a signal of better management skills.

I also investigate the structure of the advisory contracts. The structure of the advisory fee contract influences the total dollar amount of rent transfer from shareholders to the adviser. Over 90% of the equity mutual fund advisory contracts specify the fee as a certain percentage of net assets. Remaining type of contracts adopt benchmark-based performance fee. I do not examine these funds.<sup>1</sup> Asset based advisory fee contracts either have a fixed fee rate or a scaled fee rate. In the case of a fixed fee rate, the same percentage is applied to each additional dollar, whereas in the case of a scaled fee structure, decreasing fee rates are applied to different brackets of fund assets. I find that the advisory fee contracts tend to be more concave as funds grow. This result is consistent with the risk motivation argument of Deli (2002) suggesting that a fixed fee rate structure motivates the fund management to take on more risk since the marginal increase in the amount of total rent for each additional dollar will be constant. Finally, I find that advisers adjust the structure of the advisory fee contract following the non-reimbursement of services.

Section 1 discusses the variables and hypothesis. Section 2 provides information on the data and methodology. Section 3 presents descriptive statistics, discusses empirical results, and limitations. Section 4 concludes and suggests possible future research.

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<sup>1</sup> See Elton et al. (2003) for benchmark-based performance fees.

## **1.2 Variables and Hypothesis**

### ***1.2.1 Advisory fee***

Literature provides evidence that advisory contracts differ based on fund characteristics. However, the adviser would consider different sets of factors simultaneously for the advisory fee determination. Besides the fund characteristics, the adviser's fee decision would be constrained by the norms imposed by the market dynamics; influenced by the incentive to signal superior management skills, and determined by the management decisions.

#### ***1.2.1.1 Fund specific factors***

The literature provides evidence that fund size significantly affects the advisory fee. Smaller funds and funds of smaller advisers have higher advisory fees (Deli (2002)), thus economies of scale exists.<sup>2</sup> Furthermore, a better informed adviser is more likely to engage in a greater amount of information-motivated trading leading to a higher turnover rate (Ippolito (1992), Edelen (1999), Deli (2002)). Nevertheless, it has also been suggested that a high turnover rate could be the result of the manager's excess risk-taking motivated by poor performance (Brown et al. (1996), Khorana (2001)). Moreover, it could be higher rent transfer that gives incentive to the fund management to increase the amount of transactions. Therefore, the relation between turnover and the advisory fee is an empirical question.

Tufano and Sevick (1997) point out that a higher minimum investment will reduce the number of shareholder accounts, and have a negative effect on the total fee, increasing the

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<sup>2</sup> McLeod and Malhotra (1994); Malhotra and McLeod (1997); Latzko (1999); Rea et al. (1999); Securities and Exchange Commission (2000); LaPlante (2001); Latzko (2004).

monitoring power of shareholders. On the other hand, distribution of the fixed part of the management cost over a larger number of accounts decreases the cost per account. Freeman and Brown (2000) challenge the latter argument suggesting that additional shareholder accounts resembles “the effect of adding viewers on the creative cost of devising a TV show.” and should not affect the management cost. Thus, the relation between the advisory fee and the number of shareholder accounts is not clear a priori.

### ***1.2.1.2 Market factors***

Due to its largely unconstrained nature, the advisory fee will depend on the contract environment (Jensen and Meckling (1976), Deli (2002)). Moreover, if the mutual fund market is self disciplinary and competitive, advisers that fail to be competitive on the advisory fee should be driven out of the market. Luo (2002) reports that competition within the fund objective -- measured by a Herfindahl index-- has a decreasing effect on the mark-up of management fees. This proxy also suggests that competition will be stronger if there are more funds in an objective or the assets are more equally distributed. Therefore, I expect the advisory fee to decrease as the objective gets more competitive.

Besides the competition, the optimal advisory fee will be affected by the market norms if the adviser actually attempts to meet these norms. In that case, the adviser would take the competitors’ advisory fees into account while determining his or her own advisory fee. Thus, if the common argument in the fund proxies stating that the advisory fee is set with respect to similar funds’ is valid, then I should observe the adviser adjusting the advisory fee according to the objective average. For example, if an adviser sets the advisory fee equal to the objective average, a decrease in the objective average would require an advisory fee adjustment.

### ***1.2.1.3 Fund performance***

The literature suggests that bearing the cost of load fees or higher expense ratios does not necessarily lead to better returns for investment.<sup>3</sup> Furthermore, there is a tradeoff between higher costs and excess return. Nevertheless, the adviser is likely to try to justify an increase in the advisory fee by implying better performance is a signal of superior management skills. Similarly, if performance is poor, the adviser is likely to be monitored more closely. Kuhn (2005) suggests that the advisory fee decreases when the fund is within the group of the lowest two deciles of unadjusted performers.

If the investor reacts to simple performance measures as Sirri and Tufano (1998) suggest then beating the market benchmark or objective average could be used to justify an increase in advisory fee. Thus, a fund that beats its benchmark may be able to successfully signal superior management skills.

### ***1.2.1.4 Adviser's decisions***

As mentioned above, the literature argues that the advisory contracts are largely the products of advisory firms themselves. Thus, the contractual advisory fee should not be independent from the adviser's decisions. The first group of these decisions is directly related to portfolio management such as outsourcing the research service or the use of derivatives. These decisions would be mainly cost reduction motivated and would be indirectly enforced by the market factors that limit the degree of possible mark-up for excess premium. The second group is

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3, Ippolito (1989), Elton, Gruber, Das, Hlavka (1993), Grinblatt and Titman (1994), Droms and Walker (1994), Gruber (1996), and Fortin and Michelson (1996)

management decisions that are not directly linked to the portfolio management such as voluntary fee reimbursement. The adviser is likely to consider the outcome of these decisions while reviewing the advisory fee.

#### ***1.2.1.4.1 Research agreements and use of derivatives***

The adviser takes market dynamics as given and these factors play mostly a constraining role on the mark-up. However, there is a limit that the adviser can decrease the mark-up in order to remain competitive without decreasing the cost of portfolio management. In an attempt to reduce the cost or manipulate the advisory fee, the adviser may choose to alter portfolio management techniques or adopt additional procedures. In the case of successful reduction of the cost, the adviser chooses between passing on the reduction to shareholders as a lower advisory fee and keeping the excess rent as an indirect mark-up.

One procedure would be outsourcing the research activity under agreements commonly known as “soft dollar agreements” or “soft dollar arrangements.” When the research activity is carried out by a separate entity, the adviser does not necessarily change the cost structure of portfolio management but rather manipulates it. The cost of research which would otherwise be paid out of the advisory fee is transferred from shareholders in the form of brokerage fees. In this case, less rent transfer from shareholders under the advisory fee should be enough to accomplish the remaining portfolio management functions. Thus, advisers that enter research agreements should have lower advisory fees if they pass the reduction on to the shareholders.

Another procedure would be the use of derivatives. Even if the use of derivatives as an alternative portfolio management tool requires the mutual fund board’s approval, it is the fund

management that decides to actually use them. Deli and Varma (2002) suggest that approval of derivatives varies between different types of funds based on the risk involved. Thus, the use of the derivatives is not independent from the adviser's marginal product. Although Koski and Pontiff (1999) find that funds use derivatives as a means of reducing the transaction costs that are necessary to keep a given portfolio exposure, Deli (2002) argues that there is no significant relation between the use of derivatives and the advisory fee. On the other hand, it is possible that the adviser proposes the successful use of derivatives as a signal of superior management skill.

#### ***1.2.1.4.2 Adviser's management decisions***

Deli (2002) suggests that equity and domestic funds with higher numbers of services have higher advisory fees. However, services that are reported in fund's NSAR filings<sup>4</sup> under item 54 are the services that the adviser provides, but is not fully reimbursed by the fund.<sup>5</sup> In case of non-reimbursement, the adviser has the option to adjust the advisory fee or forgo non-reimbursement probably because the current advisory contract already includes the necessary mark-up. Furthermore, the adviser's response to non-reimbursement may differ between the services based on the structure of the service. If the cost of the service is mostly fixed and the adviser could predetermine the approximate cost allocated to a specific fund (i.e. occupancy of

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<sup>4</sup> (1) Occupancy and office rental (2) Clerical and bookkeeping services (3) Accounting services (4) Services of independent auditors (5) Services of outside counsel (6) Registration and filing fees (7) Stationery, supplies and printing (8) Salaries & compensation of Registrant's interested directors (9) Salaries & compensation of Registrant's disinterested directors (10) Salaries & compensation of Registrant's officers who are not directors (11) Reports to current shareholders (12) Determination of offering and redemption prices (13) Trading department (14) Prospectus preparation and printing for current shareholders (15) Other

<sup>5</sup> NSAR asks the fund (the registrant) to provide the following information under item 54 "Indicate below whether services were supplied or paid for wholly or in substantial part by investment adviser(s) or administrator(s) in connection with the advisory or administrative contract(s) but for which the adviser(s) or administrator(s) *are not reimbursed* by the Registrant:"

office rental), he or she can make necessary adjustments to advisory fee in advance. On the other hand, if the cost of the service varies based on changing fund characteristics, or if the service is solely used by the fund, the adviser could choose to adjust the advisory fee following the non-reimbursement of the service. Salaries and compensation of independent directors is a good example for this type of service. Compensation of directors not only depends on the changing workload of the fund but also on the fact that each fund compensates its board members separately. Thus, the non-reimbursement of these types of services may increase the advisory fee *ex post*.

Another management decision of the adviser is how the payment of gross administrative fee would be. Funds pay the gross administrative fee separately or bundled with the gross advisory fee. In the bundled case, the fund reports in the NSAR a gross administrative fee of zero. Therefore, a fund that reports a positive administrative fee in the NSAR is expected to report a lower advisory fee compared to a similar fund that reports the two costs combined. Latzko (1999) finds larger economies of scale in administrative services cost. Therefore, any existing economies of scale should not be affected even if the administrative fee and the advisory fee are bundled.

Christoffersen (2001) suggests that *ex ante* contracting is affected by the possibility of *ex post* voluntary reimbursement by the advisory firm. The best signal for the possibility of *ex post* voluntary reimbursement is likely to be the *ex ante* reimbursement. Thus, I control for the amount of *ex ante* voluntary reimbursement.

Overall, in a competitive market where the advisory fee contracts are dynamically managed, the advisory fee contract is based on but not limited to the fund characteristics. The

advisory fee management would be affected by a set of factors. Successfully signaling superior management skills (i.e. higher quality marginal product) may give the adviser the opportunity for additional mark-up. However, in a dynamic market the adviser is expected to respond to the competitors' price and market structure as well. The reduction of mark-up solely based on market factors is limited and enforces cost reduction as an alternative in order to remain competitive. The adviser could reduce the portfolio management cost either by using more sophisticated techniques such as derivatives or simply manipulate the advisory fee by adopting procedures such as the "soft dollar agreement". Besides these cost reduction techniques, outcomes of the adviser's management decisions would also have a significant effect on the advisory fee.

### ***1.2.2. Structure of advisory fee contracts***

I further investigate whether the adviser dynamically manages the structure of advisory fee contract based on the factors discussed above. Deli (2002) shows that the structures of the advisory fee contracts differ between funds. He also provides evidence that the linear fixed fee structure motivates the manager for taking on risk. Following Coles et al. (1999) and Deli (2002), concavity is used in this study as the proxy of advisory fee contract's structure.



### **1.3 Data and Methodology**

The data covers a 9-year period from 1996 to 2004. 1996 was picked as the beginning year since SEC started to make the filing of NSAR a requirement for a subsample of funds in 1994 and for the whole industry beginning in 1996. The information was collected from the fund proxy reports, the NSAR-B, the SAI (Statement of Additional Information) and the CRSP Survivorship Free Mutual Fund Database. Table 1 provides a list of variables with their sources and definitions.

To construct the sample, I select randomly among the actively managed equity funds on the CRSP Survivorship Free Mutual Fund Database after excluding index funds. Data are limited to equity funds in order to make the collection process manageable, and most prior literature focuses on equity funds. Index funds were eliminated because these funds are not actively managed. Multiple classes of the same fund were also eliminated, thus the final list included each fund only once. One possible concern may be that large fund families such as Fidelity are likely to appear more frequently, leading to a selection bias. However, considering the ongoing fee competition between major fund families, it cannot be ruled out that an advisory firm which has more weight in the industry might also have more influence on the industry norms. Moreover, as mentioned above it is widely stated in fund proxies that comparing the fee rate of the fund with the fee rate of similar funds is a common method. Thus, any bias in the sample set due to this reason will also be valid for the population itself.

Funds are grouped according to their objective as defined in the CRSP Database. The weight of each objective in the initial sample set was determined based on the weight of the objective in the whole set of funds. For example, if there are 100 funds that were active in the

industry sometime between 1996 and 2004, and 20 of these funds are aggressive growth funds; then my sample set was constructed such that 20% of it consists of aggressive growth funds. The final data set consist of 176 funds, 109 of which are still active and 67 are dead. These 176 funds are managed by 125 different advisers.

I collect the information about the funds and the advisers from the funds' NSAR-B and SAI. The advisory fee reported in fund NSAR-B at the end of a fiscal year is taken as the applied advisory fee during that past fiscal year. The adviser is assumed to determine the applied advisory fee after observing the information at the beginning of the fiscal year. For example, the advisory fee reported in January 2000 NSAR-B is taken as the applied advisory fee for the year 1999 based on the information available to the adviser at the beginning of 1999, reported in January 1999 NSAR-B.

For the models in Table 4 and Table 6, the dependent variable is the weighted advisory fee measured in basis points. The study is limited to funds that have contracts defining advisory fee as a percentage of total assets. Deli (2002) shows that the majority of the advisory fee contracts have asset based fixed or scaled fee structures. Under a scaled fee contract, different fee rates are applied to different ranges of assets. In the case of scaled fee contract, asset weighted advisory fee is calculated by multiplying each fee level with the amount of asset the fee is applied to using the total weighted average asset of the fund reported in NSAR-B. Thus, the first fixed effects model for fund "*i*" where the advisory fee is regressed on lagged variables (except research agreement dummy) is as follows;

$$\begin{aligned}
advfee_{i,t} = & \\
& \ln fsize_{i,t-1} + \ln advsize_{i,t-1} + turnover_{i,t-1} + \ln numaccount_{i,t-1} + herfindahl_{i,t-1} \\
& + feeratio_{i,t-1} + ffar_{i,t-1} + derivused_{i,t-1} + research_{i,t} + nonreimbserv_{i,t-1} \\
& + feereimburs_{i,t-1} + peradmfee_{i,t-1} + e_{i,t}
\end{aligned} \tag{1}$$

Where the independent variables are fund size, adviser size, number of shareholder accounts, objective Herfindahl index, objective management fee average, Fama French four factor adjusted return, “use of derivatives” dummy, research dummy, percent non-reimbursement, percent fee reimbursement and percent administrative fee respectively. Detailed definitions and the calculations of the variables are given in Table 1.

Fama French 4 factor adjusted return <sup>6</sup> is replaced with a “beat fund objective average return” dummy in model 2 and is replaced with the spread between the fund return and the objective average in model 3. Services are entered separately in model 4. Hausmann tests favored fixed effects model. However, recent literature raises concern about the use of a more restricted fixed effects model arguing that governance structures of corporations are too dynamic to assume that uncontrolled variables are constant throughout the sample period. Therefore, such assumption could lead to spurious results (Zhou 2001). Furthermore, the random effect models allow for the inclusion of non-variant variables. Model 5 is the random effects model with the additional non-variant variables of dead fund dummy and fund objective. Results of both methods are reported for robustness check.

The dependent variable for the models in Table 5 is the concavity and the model is as follows;

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<sup>6</sup> Intercept of the regression analysis where excess fund return is regressed on Fama and French four factors: small to big (SMB), high minus low (HML), excess return on market (MKTRF) and momentum. Values for factors are obtained from CRSP Survivorship Free Mutual Fund Database.

$$\begin{aligned}
\text{concavity}_{i,t} = & \ln fsize_{i,t-1} + \ln advsize_{i,t-1} + turnover_{i,t-1} + \ln numaccount_{i,t-1} + herfindahl_{i,t-1} \\
& + feeratio_{i,t-1} + ffar_{i,t-1} + derivused_{i,t-1} + research_{i,t} + nonreimbserv_{i,t-1} \\
& + feereimburs_{i,t-1} + peradmfee_{i,t-1} + e_{i,t}
\end{aligned} \tag{2}$$

Concavity of fund “ $i$ ” is calculated following Coles et al. (2000) and Deli (2002) as the difference between the highest and the lowest advisory rate in funds fee scale, divided by the applied advisory fee rate. It takes the value of zero for funds with a fixed fee structure.

$$\text{concavity}_{i,t} = \frac{\text{highestfee} - \text{lowestfee}}{\text{appliedfee}} \tag{3}$$

The Herfindahl index of each objective is calculated in order to control for the competitiveness of the objective. Using the notation of Luo (2002), the calculation of the objective’s Herfindahl index  $h(I, i)$  is as follows:

$$h(I, i) = \sum_{k \in I} \left( \frac{A_k}{\sum_{j \in I} A_j} \right)^2 \tag{4}$$

Where  $\frac{A_k}{\sum_{j \in I} A_j}$  is the share of net assets of fund  $k$  relative to the total net assets in the category.

Luo (2002) argues that if the competition among the advisers in an objective is Bertrand competition then all advisers’ services are assumed to be homogeneous and equal. Therefore, I should observe the advisers pricing their services equal to the marginal cost of the product regardless of the number of advisers in the market. This would be the same as saying one adviser is not different than another, which is a strong assumption in the mutual fund industry.

Furthermore, Sutton (1991) shows that, over a broad class of oligopoly models, there is not necessarily a relation between the number of market participants and the variable part of the cost of the product. Thus, normalized Herfindahl indices are calculated following Luo's (2002) technique.

Specifically, the normalized Herfindahl index for category  $I$  in which fund  $i$  belong, denoted  $h_i^I$ , is defined as:

$$h_i^I = \frac{h(I, i)}{h^c(I, i)} - 1 \quad (5)$$

Where  $h^c(I, i) = 1 / N^I$ ;  $N^I$  denotes the number of funds in mutual fund category.

The normalized Herfindahl index characterizes the relative competitiveness of the objective to which the fund belongs compared to the case where net assets are equally distributed among all funds within the objective. For example, it takes the value of one if there exists one fund in an objective.<sup>7</sup>

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<sup>7</sup> I repeated tests without normalizing the Herfindahl index as suggested by Luo (2002). Results remained qualitatively the same.

## **1.4 Empirical Analysis**

### ***1.4.1 Descriptive Statistics***

Table 2 specifies that the asset weighted advisory fee mean is 73.17, median is 73.29 basis points. Partitioning the sample set based on the contract type reveals that fixed fee funds' average advisory fee is 7.25 basis points higher than funds with concave fee contracts. Results also provide preliminary evidence suggesting that use of derivatives is negatively related with the advisory fee. Although all have linear fee structures, fixed fee funds that use derivatives have on average lower advisory fee (79.79 bp.) than the fixed fee funds that do not (72.47 bp). Furthermore, the funds that fail to survive during the sample period have 0.119% higher advisory fee suggesting that competitive fee pricing may be necessary for survival.

Table 3 shows that average fund size is \$254.55 million and average advisory size is \$9506.09 million. Average fund turnover is 90.48%. Funds do not fully reimburse the management company, on average, for 6 services. Although, average voluntary reimbursement of fees is equal to 21 basis points of net assets, the median is 0 basis points, indicating that a significant number of funds do not reimburse fees. The number of years that the funds voluntarily reimburse fees accounts for 47% of all observations. Administrative fee has the same skewed distribution. Although the average administrative fee is 0.11% of the total net assets, the median is just 0.013% since some funds combine the administrative costs with the advisory fee, and report administrative expenses in NSAR as \$0. The number of years that the administrative fee is equal to zero accounts for 47% of the observations. Funds receive research service from an

outside source for 81% of the fund years<sup>8</sup>, and use derivatives as a management tool for 44% of the fund years indicating that these practices are not rare among funds.

Preliminary tests not reported here reveal that correlations between the advisory fee and other types of rent transfer (i.e. loads and 12b-1) are positive and below 0.58. Thus, one type of rent transfer is not used systematically as substitute for another.<sup>9</sup> Finally, all VIF (variance inflation factor) values are below 3, suggesting that there is no serious multicollinearity between independent variables.<sup>10</sup>

### ***1.4.2 Advisory Fee***

#### ***1.4.2.1 Fund specific factors and adviser size***

Table 4 reports results from the model (1) which dependent variable is the basis point advisory fee. Results indicate that larger funds have lower advisory fees, consistent with the previous literature and supports the existence of economies of scale. It also implies that funds that manage to survive and grow reduce the advisory fee. However, a positive relation between the adviser size and the advisory fee indicates that as the adviser grows, he or she charges higher advisory fees. I interpret this result as the adviser reflecting the increasing market power to shareholders as assets under the management grow.

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<sup>8</sup> These are the funds that stated that the item 26B in fund NSAR-B “receipt of investment research and statistical information” as one of the “considerations which affected the participation of brokers or dealers or other entities in commissions or other compensation paid on portfolio transactions of Registrant”

<sup>9</sup> Advisory fee is the only form of rent transfer to the adviser solely for the purpose of portfolio management service and represents the largest component of total fee. Nevertheless, it is not the only form of rent transfer to adviser. Thus, one may argue that an adviser who transfers enough rent through other sources (such as 12b-1 and loads) may accept a lower advisory fee.

<sup>10</sup> Although there is no certain threshold in statistics for determining multicollinearity based on VIF values, 10 is considered as the conservative threshold (Neter, Wasserman and Kutner 1985).

#### ***1.4.2.2 Market factors***

The positive relation between the fee ratio and the advisory fee indicate that the objective average management fee is benchmarked. However, this benefits the shareholder only when there is a decrease in the objective advisory fee. For example, if the objective average advisory fee and the fund advisory fee ratio is 1 and the objective average advisory fee increases and ratio becomes 2, the adviser negotiates for higher advisory fee for the following fiscal year. Similarly, if the ratio is 2 and decreases to 1 after the objective average advisory fee decreases, the adviser approves lower advisory fee for the following fiscal year. However, the Herfindahl index and the advisory fee are not significantly related indicating that the advisory fee is not managed based on the objective asset concentration.<sup>11</sup>

#### ***1.4.2.3 Fund returns***

Results indicate that performance improvement does not necessarily signal superior management skill leading to additional mark-up. Thus, the advisers tend to prefer to benefit from investor's "return chasing" behavior, additional fund inflow following a performance improvement (Sirri and Tufano 1998). Further the second model where the Fama-French 4 factor adjusted return is replaced by the dummy variable equal to one if the fund beats the benchmark implies similar results. However, in model 3 where the adjusted return is replaced by the spread between the benchmark and the adjusted fund performance suggest that sufficient spread between the benchmark and the fund return is followed by additional mark-up. Although an adviser who beats the benchmark index does not necessarily signal superior management skills,

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<sup>11</sup> This result is consistent with Warner and Wu (2005) where in a different and limited model they study the role of economies of scale, advisor ability and industry competition on advisory fee contracts.



performance improvement seems to be sufficient if the fund return exceeds a certain threshold for signaling superior management. Table 5 reports the robustness check where the market benchmark is replaced by the objective average return. Results are qualitatively the same.

#### ***1.4.2.4 Adviser's decisions***

Further results indicate that the adviser's decisions related to portfolio management that will reduce the cost of management or just manipulate the advisory fee without a fundamental change to the overall cost affect the advisory fee. Decisions such as the use of derivatives, the research agreements, separating administrative fee and fee reimbursements are used in order to remain competitive and for indirect mark-up.

##### ***1.4.2.4.1 Use of derivatives and research agreements***

One optional technique is the use of derivatives (options or futures). The negative result between the use of derivatives and the advisory fee supports Koski and Pointiff's (1999) argument that the use of derivatives reduces the cost of portfolio management. Certainly, the result does not rule out the argument that ability to use derivatives being taken as a signal of superior management skill which could lead to an advisory fee increase; yet, the benefit seems to exceed the potential cost of it. Although the use of derivatives has to be approved by the fund board before they are actually used by the adviser, the robustness check in Table 5 shows that the approval does not lead to a decrease in the advisory fee. Thus, the approval of the use of derivatives by the board does not automatically signal that the adviser has superior management skills.

Another optional procedure is outsourcing the research activity. In this case, the cost of research which would otherwise be paid out of the advisory fee is transferred from the shareholder in the form of a brokerage fee. Such an agreement gives the adviser the opportunity to reduce the advisory fee without a fundamental reduction in the overall cost of portfolio management. Positive result between the research dummy and advisory fee suggests that funds with such agreements have significantly lower advisory fees.

#### ***1.4.2.4.2 Adviser's management decisions***

One of the adviser's management decisions is whether to bundle the gross administrative fee with the gross advisory fee. Results imply that the advisory fee is lower for the funds that pay a separate gross administration fee. Another management decision of the adviser is voluntary fee reimbursement. Christoffersen (2001) suggests that expense reimbursements negotiated at the end of the year are direct mechanism of temporary increase in fund returns thus rebalancing rent transfer to shareholders. The contract environment is affected by the possibility of this *ex post* reimbursement by the adviser. A signal of the possible *ex post* reimbursement practice is voluntary reimbursement during the previous fiscal year. I find that *ex ante* voluntary fee reimbursement leads to a higher advisory fee. Thus, previous voluntary fee reimbursement is likely to be taken as a signal for possible fee reimbursement in the future. In this case, the contractual fee might include some amount of mark-up that is expected to be *ex post* reimbursed. Such mark-up gives the adviser opportunity to manage the rent transfer after the contract is created.

The fourth and fifth models in Table 4 provide further evidence on non-reimbursed services. In these two models, the aggregate number of non-reimbursed services is replaced by

the dummy variables for the services listed in the NSAR. VIF values of all services are below 4.03 indicating that there is no serious multicollinearity between services. Only statistically significant results are reported in Table 4. Although the total number of non-reimbursed services and the advisory fee do not reveal any significant relation in previous models, results in the last two models in Table 4 indicate that advisers do not follow a uniform strategy for the non-reimbursement among services. Results indicate that the adviser adjusts the advisory fee if the adviser is not fully reimbursed for the disinterested directors' and officers' compensation. The result supports the positive relation between independent director compensation and advisory fee.<sup>12</sup> The negative result of office rental could be due to the predictability of the cost which gives the adviser the opportunity to make necessary mark-up *ex ante*. Furthermore, funds might benefit from economies of scale since cost of office rent is allocated between funds under the management of the same adviser.

#### ***1.4.3 Structure of advisory fee contracts***

Asset based advisory fee contracts have either a linear fixed fee rate or a scaled fee structure where decreasing fee levels are applied to certain ranges of the fund assets. The funds in my sample set have a fixed advisory fee rate in 53% of the fund years. The descriptive statistics reported in Table 2 show that the mean fixed advisory fee rate is 76.48 basis points. The mean scaled advisory fee is 69.23 basis points. The difference in means is significant at 1%. Deli (2002) argues that a fixed fee structure motivates the adviser to take on more risk since the marginal increase in the amount of total rent for each additional dollar will be constant. On the

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<sup>12</sup> Tufano and Sevik (1997), Del Guercio et al. (2003), Khorana et al. (2005)

other hand, shareholders are more likely to benefit from economies of scale if the advisory fee contract has a scaled fee structure since the marginal fee rate per dollar monotonically decreases as fund assets increase.

The results in Table 6 indicate a significant positive relation between fund size and concavity. Smaller funds tend to have less concave (more linear) fee structure. This result is consistent with the literature (Deli 2002, Warner and Wu 2005), confirming that smaller fund managements are motivated to take on risk in order to grow and survive. This makes the risk motivating fixed fee structure a more desirable choice for smaller funds. Furthermore, the second model indicates that funds that fail to survive have less concave fee structures. Thus, the pressure of survival leads the advisers to favor risk-motivating linear fee structures.

The research agreement dummy and convexity are positively related suggesting that the advisers that reduce the advisory fee by outsourcing the research as the results above suggests also adopt more convex fee structure which would pass on the benefit of the economies of scale to shareholders. The funds that use derivatives have more linear contracts. If a more linear contract signals motivation for taking on risk then the result implies that the advisers that actively use derivatives possibly in order to manage portfolio risk, tend to be more motivated to take on risk.

#### ***1.4.4 Limitations***

Results suggest neither a form of causality nor an order of the factors. While determining the optimal advisory fee, each adviser is likely to give different weights to each factor but the results do not imply that the advisers favor one type of factors over another. Moreover, results

should be interpreted carefully and not be taken as rejection of any alternative theory.

Performance is a good example for this phenomenon. Results suggest that superior performance is rewarded by a higher advisory fee but they do not refute the alternative theory of performance improvement as a result of excess resource allocation.

Furthermore, the advisory fee could be driven by some unaccounted factors. For example, the study does not fully capture the possible effect of the adviser marginal product. Any uncaptured difference between marginal products of the advisers could be partially responsible for the variation of advisory fee. However, this is minimized through the use of a panel model.

The data set is limited to actively managed equity funds. The literature documents qualitatively similar results between the fund characteristics and the advisory fee of different types of funds. Nevertheless, the relations between the advisory fee and other factors investigated in this study like market norms, superior performance and use of alternative portfolio techniques could be qualitatively and quantitatively different for other types of funds.

Finally, as Deli (2002) notes, there may be factors which have the potential to be substitutes for the advisory fee that are not observed such as the adviser's ownership of the fund.

## **1.5 Conclusion**

The determination of the advisory fee is based on, but not limited to, fund specific characteristics. Market norms as well as the choice of portfolio techniques and management decisions; affect the adviser's decision about the price of the professional portfolio management. Although the evidence suggests that the effect of market factors on the advisory fee is moderate, the adviser's decisions that would reduce the cost of management or just manipulate the advisory fee without a fundamental change to the overall cost have relatively stronger impact on the advisory fee.

The advisers systematically adjust the advisory fee based on the objective average as it is commonly stated in fund proxies. However, this benefits the shareholders only when the objective average declines. I find that the improvement of adjusted performance or beating the benchmark index is not sufficient for the adviser to negotiate for an increase of the advisory fee. Advisers successfully signal superior managerial skills for additional mark-up if the fund beats the benchmark index or objective average by a significant spread. In a competitive market, the limited nature of the reduction of mark-up without altering the cost structure would enforce cost reduction in order to remain competitive. I show that advisers successfully use derivatives to reduce the cost of portfolio management or engage in research agreements partially to manipulate the advisory fee without necessarily changing the total cost.

I also show that besides the adviser's decisions that are directly related to portfolio, advisers actively manage the advisory fee based on the outcomes of their management decisions. The funds that report the gross administrative fee and gross advisory fee separate have lower advisory fees. *Ex ante* voluntary fee reimbursement affects the *ex post* contracting leading to

higher advisory fee and the adviser increases the advisory fee if there is non-reimbursement for the compensation of independent directors and officers.

Results on the structure of advisory fee contracts measured by the concavity indicate that the motivation for risk taking is a strong factor in determining the advisory fee schedules.

Advisers of smaller funds or funds that have more incentive to take on risk in order to survive, favor more linear advisory fee contracts. Finally, advisers actively use derivatives tend to be more motivated to take on risk.

There are several issues that require further research. While my results suggest that advisers reduce the advisory fee if they have research agreements, they do not provide insight on whether the shareholders benefit overall from the transfer of the cost of research from the advisory fee to the brokerage fee. The results do not address to what degree the persistence of superior performance requires allocation of additional resource and if superior performance covers the cost of this additional resource. Finally, the role of mutual fund boards in negotiating the advisory fee requires further attention.

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## TABLES

**Table 1 List of variables names, sources and definitions**

Name	Source	Definition
<i><b>Fund specific factors and Adviser size</b></i>		
Fund size	NSAR-B	Natural log of fund size reported under 74T measured in millions of dollar
Adviser Size	CRSP	Total Net Asset of all funds managed by the same adviser listed in a year in millions of dollar
Number of shareholder account	NSAR-B	As reported under 74X in thousands of account
Turnover	NSAR-B	Lowest of the purchase or sales divided by the weighted average assets
Fund Objective	CRSP	Fund objective in CRSP
<i><b>Market factors</b></i>		
Herfindahl Index	CRSP-Calculated	Herfindahl Index of fund objective
Fee ratio	SAI	Proportion of fund management fee to fund objective average
<i><b>Fund performance</b></i>		
FFAR	CRSP-Calculated	Fama French four factor adjusted returns
Beat benchmark	CRSP-Calculated	D=1 if fund total net return is higher than fund benchmark
Spread b/w benchmark	CRSP-Calculated	Difference between fund return and fund benchmark
Beat objective average	CRSP-Calculated	D=1 if fund total return is higher than funds within the same objective
Spread b/w objective average	CRSP-Calculated	Difference between fund return and fund objective average
<i><b>Adviser's decisions</b></i>		
Research agreement	NSAR-B	D=1 if fund purchase research service
Derivatives used	NSAR-B	D=1 if fund management actually use derivatives
Derivatives allowed	NSAR-B	D=1 if fund management is contractually allowed to use derivatives
Number of services non-reimbursed	NSAR-B	Number of services reported under item 54
Types of services non-reimbursed	NSAR-B	Dummy=1 if certain service is reported as non-reimbursed
Fee reimbursement	NSAR-B	Dollar amount reimbursed divided by total fund assets
Percent administrative fee	NSAR-B	Administrative fee under 72G divided by total net assets



**Table 2 Advisory Fee Descriptive Statistics**

<b><i>Panel A</i></b>						
Advisory Fee (basis points)	N	Mean	Median	Std. dev.	1 <sup>st</sup> Quartile	3 <sup>rd</sup> Quartile
<i>All observations</i>	1334	73.17	73.29	21.21	45.00	115.00
<i>Fixed fee</i>	736	76.48	75.00	20.84	45.00	115.00
<i>Scaled fee</i>	598	69.23	66.57	21.01	45.75	115.25
<b><i>Panel B</i></b>						
<i>Fixed fee use derivatives</i>	251	72.47	74.00	19.13	56.25	118.75
<i>Fixed fee no use of derivatives</i>	338	79.79	75.00	20.86	56.25	118.75
<i>Dead funds</i>	372	80.52	75.00	24.17	56.25	118.75
<i>Live funds</i>	962	70.33	70.00	19.21	45.00	115.00

**Table 3 Descriptive Statistics of Independent Variables**

<b><i>Panel A</i></b>		
Variables	Mean	Median
<b><i>Fund size (\$ million)</i></b>	254.55	275.63
<b><i>Adviser size (\$ million)</i></b>	9506.09	14445.80
<b><i>Turnover</i></b>	90.48	68.00
<b><i>Services</i></b>	5.80	6.00
<b><i>% reimbursement</i></b>	0.21%	0.00%
<b><i>Num of account (thousand)</i></b>	7374.75	10721.0
<b><i>Percent Administrative cost</i></b>	0.11%	0.013%
<b><i>Panel B</i></b>		
Variables	1	0
<b><i>Research Agreement</i></b>	81%	19%
<b><i>Use of derivatives</i></b>	44%	56%

**Table 4 Panel Model Regressions of Advisory Fee**

Variable definitions are in Table 1. Dependent variable is advisory fee in basis points in all models. First three models are the results with different measurements for fund performance. Fourth model summarizes the results where the non-reimbursed services are entered separately. Fifth model is the Random Effect model where dead fund dummy and fund objectives are entered the model.

Variables	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<i>Constant</i>					<b>75.820***</b> (4.310)
<i>Fund specific factors and Adviser size</i>					
<i>Fund size</i>	<b>-1.061***</b> (0.416)	<b>-1.076***</b> (0.414)	<b>-1.296***</b> (0.422)	<b>-1.179***</b> (0.420)	<b>-0.812**</b> (0.406)
<i>Adviser size</i>	<b>0.846***</b> (0.327)	<b>0.837***</b> (0.325)	<b>0.840***</b> (0.324)	<b>0.961***</b> (0.321)	<b>-0.070</b> (0.286)
<i>Turnover</i>	<b>-1.8E-04</b> (0.001)	<b>-2.2E-04</b> (0.001)	<b>-6.0E-04</b> (0.001)	<b>3.0E-04</b> (0.001)	<b>1.0E-04</b> (0.001)
<i>Number of accounts</i>	<b>-0.245</b> (0.329)	<b>-0.245</b> (0.325)	<b>-0.101</b> (0.329)	<b>-0.145</b> (0.327)	<b>-0.456</b> (0.296)
<i>Dead fund dummy</i>					<b>2.670</b> (2.507)
<i>Objective Dummy</i>					<i>included</i>
<i>Market factors</i>					
<i>Herfindahl</i>	<b>-0.039</b> (0.040)	<b>-0.043</b> (0.040)	<b>-0.050</b> (0.040)	<b>-0.052</b> (0.040)	<b>-0.022</b> (0.041)
<i>Fee Ratio</i>	<b>4.89***</b> (1.46)	<b>4.76***</b> (1.47)	<b>4.36***</b> (1.47)	<b>4.46***</b> (1.47)	<b>8.050***</b> (1.45)
<i>Fund performance</i>					
<i>FFAR</i>	<b>1.044</b> (1.35)				
<i>Beat Benchmark</i>		<b>0.377</b> (0.343)			
<i>Spread b/w benchmark</i>			<b>2.227***</b> (0.831)	<b>1.851**</b> (0.826)	<b>1.579*</b> (0.824)
<i>Adviser's decisions</i>					
<i>Research Agreement</i>	<b>-2.596***</b> (0.734)	<b>-2.562***</b> (0.725)	<b>-2.548***</b> (0.722)	<b>-2.231***</b> (0.723)	<b>-2.257***</b> (0.715)
<i>Derivatives used</i>	<b>-1.634**</b> (0.778)	<b>-1.616**</b> (0.776)	<b>-1.619**</b> (0.773)	<b>-1.564**</b> (0.764)	<b>-1.650**</b> (0.748)
<i>Number of service not reimbursed</i>	<b>-0.010</b> (0.129)	<b>-0.009</b> (0.129)	<b>-6.5E-04</b> (0.128)		
<i>Basis points reimbursement</i>	<b>0.013***</b> (0.005)	<b>0.013***</b> (0.004)	<b>0.011**</b> (0.005)	<b>0.011**</b> (0.005)	<b>0.014***</b> (0.004)

Continued

<i>Percent administrative cost</i>	<b>-0.058***</b> (0.014)	<b>-0.057***</b> (0.014)	<b>-0.056***</b> (0.014)	<b>-0.055***</b> (0.014)	<b>-0.054***</b> (0.013)
<i>Services</i>					
<i>Occupancy of office rental</i>				<b>-5.175***</b> (1.217)	<b>-4.745***</b> (1.194)
<i>Salary &amp; Compensation of disinterested directors</i>				<b>6.235***</b> (2.000)	<b>6.349**</b> (1.990)
<i>Salary &amp; Compensation of officers</i>				<b>2.103**</b> (0.930)	<b>1.994**</b> (0.9810)
Models	<b>Fixed</b>	<b>Fixed</b>	<b>Fixed</b>	<b>Fixed</b>	<b>Random</b>
Number of Funds	<b>174</b>	<b>173</b>	<b>173</b>	<b>173</b>	<b>173</b>
R <sup>2</sup>	<b>0.07</b>	<b>0.08</b>	<b>0.07</b>	<b>0.06</b>	<b>0.26</b>

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. Standard deviations are given in parenthesis.

**Table 5 Robustness Tests for Advisory Fee**

Variable definitions are in Table 1. Dependent variable is advisory fee in basis points in all models. First two models are the results with different measurements for fund performance where benchmark is replaced with objective. Use of derivatives is replaced by the contractual permission in the third model.

Variable	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<i>Fund specific factors and Adviser size</i>			
<i>Fund size</i>	<b>-0.934**</b> (0.412)	<b>-1.214***</b> (0.422)	<b>-1.207***</b> (0.422)
<i>Adviser size</i>	<b>0.809**</b> (0.325)	<b>0.857***</b> (0.325)	<b>0.882***</b> (0.326)
<i>Turnover</i>	<b>-1.04E-04</b> (0.001)	<b>-4.2E-04</b> (0.001)	<b>-4.4E-04</b> (0.001)
<i>Number of accounts</i>	<b>-0.336</b> (0.326)	<b>-0.136</b> (0.332)	<b>-0.155</b> (0.332)
<i>Market factors</i>			
<i>Herfindahl</i>	<b>-0.039</b> (0.039)	<b>-0.037</b> (0.039)	<b>-0.037</b> (0.040)
<i>Fee Ratio</i>	<b>5.09***</b> (1.465)	<b>4.61***</b> (1.467)	<b>4.81***</b> (1.472)
<i>Fund performance</i>			
<i>Beat objective average</i>	<b>-0.525</b> (0.386)		
<i>Spread b/w average</i>		<b>1.817*</b> (0.940)	<b>1.867**</b> (0.941)
<i>Adviser's decisions</i>			
<i>Research Agreement</i>	<b>-2.602***</b> (0.726)	<b>-2.431***</b> (0.725)	<b>-2.475***</b> (0.725)
<i>Derivatives used</i>	<b>-1.612**</b> (0.776)	<b>-1.560**</b> (0.775)	
<i>Derivatives contractually allowed</i>			<b>-1.123</b> (0.919)
<i>Number of service not reimbursed</i>	<b>0.021</b> (0.129)	<b>-8.9E-04</b> (0.129)	<b>-0.010</b> (0.130)
<i>Basis points reimbursement</i>	<b>0.014***</b> (0.005)	<b>0.012**</b> (0.005)	<b>0.012**</b> (0.005)
<i>Percent administrative cost</i>	<b>-0.058***</b> (0.014)	<b>-0.056***</b> (0.014)	<b>-0.056***</b> (0.014)
Number of Funds	<b>174</b>	<b>173</b>	<b>174</b>
R <sup>2</sup>	<b>0.09</b>	<b>0.07</b>	<b>0.07</b>

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. Standard deviations are given in parenthesis.

**Table 6 Panel Model Regressions of Concavity**

Variable definitions are in Table 1. Dependent variable is concavity of advisory fee.

Variables	<i>Model 1</i>	<i>Model 2</i>
<b><i>Constant</i></b>		<b>0.134***</b> (0.046)
<i>Fund specific factors and Adviser size</i>		
<b><i>Fund size</i></b>	<b>0.009**</b> (0.004)	<b>0.007*</b> (0.004)
<b><i>Adviser size</i></b>	<b>3.9E-04</b> (0.003)	<b>-7.9E-04</b> (0.003)
<b><i>Turnover</i></b>	<b>-7.5E-06</b> (1.15E-05)	<b>-5.9E-06</b> (1.1E-5)
<b><i>Number of accounts</i></b>	<b>-0.006*</b> (0.003)	<b>-0.001</b> (0.003)
<b><i>Dead fund dummy</i></b>		<b>-0.089***</b> (0.028)
<b><i>Objective Dummy</i></b>		<b><i>included</i></b>
<i>Market factors</i>		
<b><i>Herfindahl</i></b>	<b>-5.5E-04</b> (4.3E-4)	<b>-6.5E-04</b> (4.5E-4)
<b><i>Fee Ratio</i></b>	<b>-0.017</b> (0.015)	<b>-0.018</b> (0.015)
<i>Fund performance</i>		
<b><i>FFAR</i></b>	<b>0.010</b> (0.015)	<b>0.011</b> (0.015)
<i>Adviser's decisions</i>		
<b><i>Research Agreement</i></b>	<b>0.014**</b> (0.007)	<b>0.014**</b> (0.007)
<b><i>Derivatives used</i></b>	<b>-0.032***</b> (0.008)	<b>-0.028***</b> (0.008)
<b><i>Number of service not reimbursed</i></b>	<b>0.003**</b> (0.001)	<b>0.004***</b> (0.001)
<b><i>Basis points reimbursement</i></b>	<b>2.0E-5</b> (4.9E-5)	<b>-7.9E-6</b> (4.9E-5)
<b><i>Percent administrative cost</i></b>	<b>1.2E-4</b> (1.8E-4)	<b>1.0E-5</b> (1.7E-4)
Number of Funds	164	164
R <sup>2</sup>	0.01	0.13

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. Standard deviations are given in parenthesis.

## **PART 2. DIRECTOR CHARACTERISTICS AND THE ADVISORY FEE; IMPACT OF REGULATION CHANGES**

### **2.1 Introduction**

The mutual fund industry grew dramatically over the last decade. This growth put several aspects of the industry under scrutiny, including the role of mutual fund boards as effective watchdogs of shareholder rights. Eventually, in 2000 the SEC passed a set of regulation changes, including an increase in the proportion of independent directors from 40% to 50% of the board and a mandatory nominating committee clause. Not long after the first regulation change, the SEC adopted another set of regulation changes in 2004, which increased the independent board member proportion from 50% to 75% and mandated the board chairman to be an independent director. However, the effectiveness of these regulation changes has been debated since. In particular, practitioners have been arguing since the 2004 regulation change that there is not enough empirical evidence to support the independent board chairman clause.

The existing empirical evidence suggests that compensation contracts are the products of bargaining between the participants rather than a process of finding a mutually optimal contract. Bebchuk et al. (2002) suggest that managerial power over the board of directors distorts optimal compensation contracts. However, a more effective board would bargain the advisory contract more effectively reducing such distortion. Thus, a fee determined by a contract solely based on the bargain between the adviser and the board would provide a robust proxy to measure the governance ability of the board. Tufano and Sevick (1997) argue that the total fee is the product of the bargain between the adviser and the board thus could be taken as a proxy for the governance ability of the board. However, not all components of the total fee are the products of

solely the negotiations. On the other hand, the advisory fee which is the major component of the total fee, provides a robust proxy to study the effectiveness of the board. First, the advisory fee is determined by the advisory contract which is based solely on the negotiations between the board and the adviser. Second, the advisory fee is neither bound by any regulation, such as 12b-1 fees, nor determined largely by the market dynamics, such as the cost of administrative expenses.

Deli (2002) argues that management contracts that define the fund advisory fee vary across funds based on fund characteristics. However, due to its largely unconstrained nature, the advisory fee would also depend on the contract environment (Jensen and Meckling (1976), Deli (2002)). Therefore, the outcome of the fee negotiations could depend on factors other than the fund characteristics. As Tufano and Sevick (1997) suggest more independent boards are better watchdogs. Thus, improving general board characteristics are likely to lead to better board governance. However, on going scrutiny and the last wave of fund scandals suggest that such improvements have limited impact on improving the effectiveness of board governance.<sup>13</sup> Governance effectiveness of the boards could depend on factors beyond the general characteristics of the board. Individual characteristics of the board members may also be important.

Although, the literature provides evidence on the relation between general board characteristics and mutual fund governance, the relation between individual member characteristics and fund board governance effectiveness is limited. Using a survivorship bias free sample of 176 equity funds managed by 125 different advisors, I investigate the relation between the advisory fee and general board characteristics as well as individual member characteristics

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<sup>13</sup> Average board independence of the funds that are managed by the advisers subject to litigation is 82% including some funds with fully independent boards.



such as tenure, background, number of seats occupied, other directorships, retirement/pension benefits and compensation. Furthermore, I test whether the 2000 regulation changes have been effective at improving mutual fund governance.

I find that funds with larger boards and boards with higher percentages of independence have lower advisory fee. However, as much as the general composition and characteristics of the board, the independent characteristics of the members affect the governance ability of the board. Boards with higher percentages of members with a finance background, members that have longer tenures and receive less compensation, negotiate lower fees. The results on the relation between the advisory fee and three factors that are subject to the regulation change imply that the impact of regulation change on board governance is somewhat limited. Having an independent chairman does not directly improve the board governance. I find modest evidence that the impact of an independent chairman is likely to depend on the expertise of the member that occupies the chairman seat. Shareholders benefited from the increase of board independence around the regulation change. However, the effect of regulation change on the possible target group is limited. Finally, boards that established separate nominating committees are likely to display more effective governance.

Section 1 discusses the variables and hypotheses. Section 2 provides information on the data and methodology. Section 3 presents descriptive statistics. Section 4 discusses empirical results. Section 5 concludes.

## **2.2 Variables and Hypothesis**

I examine the relation between the advisory fee and the member characteristics as well as the impact of latest regulation changes. I group the variables into two sets, the control variables that have been used previously in the literature and the variables that test general fund board characteristics and individual member characteristics.

### ***2.2.1 Fund and Market Specific Variables***

Deli (2002) and Kuhnen (2005a) show that advisory contracts differ based on fund characteristics. Deli documents that larger funds and funds that are managed by larger fund families have lower advisory fees. He also documents a direct relation between the fund turnover and the advisory fee and no significant relation between reimbursed expenses and advisory fee. Deli interprets the number of services reported in fund's NSAR as the number of services provided by the adviser to the fund shareholders. However, in the NSAR, they are defined as the services that the adviser provides but does not get adequate reimbursement.<sup>14</sup> Since the rate of reimbursement controls for the effect of that phenomenon, I exclude the number of services from my model. *Ex post* expense reimbursement negotiated at the end of the year is a direct mechanism of temporary increase in the fund returns by rebalancing rent transfer from shareholders (Christoffersen (2001)). Since previous use of the reimbursement mechanism is likely to be the signal of possible use at the following fiscal term, I control for *ex ante*

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<sup>14</sup> NSAR asks the fund (the registrant) to provide the following information under item 54 "Indicate below whether services were supplied or paid for wholly or in substantial part by investment adviser(s) or administrator(s) in connection with the advisory or administrative contract(s) but for which the adviser(s) or administrator(s) *are not reimbursed* by the Registrant:"

reimbursement to control for an additional mark-up in the advisory fee contract approved by the board with an expectation of *ex post* reimbursement.

Funds that perform well are likely to negotiate for higher fees arguing that better performance is a signal of better management abilities. However, the relation between performance and the advisory fee is not obvious a priori. The advisers may prefer to benefit from the increase in fund inflow following good performance rather than increasing the advisory fee. Moreover, poorly performing funds may simply be lower quality, and lower quality funds are characterized by higher fees (Kuhnen (2005b)).

Funds that have a higher number of shareholder accounts are likely to require more resources for management. However, the relation between the number of accounts and the advisory fee is not obvious. While a higher number of accounts increases the total cost of management, the marginal cost of management would decrease with each additional account since the fixed cost of account management would be allocated over a larger number of accounts. Moreover, a smaller number of shareholder would lead to less dispersion of shareholder power and increase the shareholders' monitoring power.

Funds follow two different methods for reporting the gross administrative fee in the NSAR. They either report the gross administrative cost separately under item 72G or they include it into the gross advisory fee under item 72F. I expect the funds that combine gross administrative cost with the gross advisory cost to have higher contractual advisory fees.

The mutual fund industry is argued to be competitive and self disciplinary. Thus, market dynamics as well as fund characteristics are likely to be factors that would affect the outcome of the fee negotiations. The board is expected to negotiate for an advisory fee that would keep the

fund competitive and reflect industry norms. To capture the effect of the competition for the inflow to the fund objective, a Herfindahl index of the fund objective is included as a measure of the competitiveness and concentration within the fund objective. More important, it is a common statement in the fund proxies that the board approves the advisory fee after careful consideration and comparison with similar funds. The difference between the average management fee of the fund objective and the fund management fee is included in the model in order to control for the norms of the portfolio management cost within the fund objective.

### ***2.2.2 General Board Characteristics***

The SEC's main regulation changes to improve the governance of the fund boards require higher board independence, an independent chairman and a mandatory nominating committee. Prior literature suggests that performance is positively related to board independence for corporate boards.<sup>15</sup> A similar relation between board independence and total fund fee is documented by Tufano and Sevick (1997) for open end funds and by Del Guercio et al. (2003) for closed end funds. Almazan et al. (2004) show that funds with higher proportion of independent directors impose fewer investment constraints on the fund management. Thus, board independence is expected to have a negative effect on rent transfer from shareholders to the adviser. Besides the board composition, the 2004 regulatory change requires the chairman to be an independent director. However, the evidence on independent chairman is inconclusive. Brickley et al. (1997) do not find a statistical relation between the firm's leadership structure and its performance for corporate boards. Varma (2003) suggests that an independent board leader

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<sup>15</sup> Weisbach (1988); Byrd and Hickman (1992); Brickley et al. (1994); Klein (1998)

may empower the board and influence the board agenda. On the other hand, Vafeas (1999) argues that an outside board chairman needs to be informed more frequently, which may decrease the effectiveness of the board. Given, these conflicting results, I offer no directional expectations between independent chairman and board governance.

The literature on board size suggests mixed evidence.<sup>16</sup> Large boards are less likely to engage in open dialogue about management performance (Jensen (1993)). The lack of open dialogue is likely to affect the fee negotiations as well. Tufano and Sevick (1997) suggest that funds with larger boards have higher total fees. Del Guercio et al (2003) present similar results for closed end funds. However, the trend of delegating the responsibilities of the board to committees is gaining popularity among funds. Such practices that would improve the effectiveness of the board are likely to require larger boards.

Finally, an independent nominating committee is mandated by the regulation change of 2000. By introducing this clause, the SEC attempted to improve the selection process of new board members. Vance (1983) argues that nominating committee is one of the four committees that greatly influence corporate activities. Funds established either a completely separate nominating committee or stated in their proxies how the nomination of new members would be handled solely by independent directors. Kesner (1998) argues that most important board decisions originate at the committee level. A separate nominating committee rather than a sub committee that handles multiple tasks does not only allow the board to focus on the selection of new members but is also likely to signal the quality of board governance. Thus, I expect the

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<sup>16</sup> Yermack (1996), Eisenberg et al. (1998), Dalton et al. (1999), Xie et al. (2003)

establishment of a separate nominating committee as a signal of better governance ability leading to lower advisory fees.

### ***2.2.3 Individual Director Characteristics***

The recent fund scandals suggest that virtually similar boards, with the same independence and size, display different governance effectiveness. Thus, factors that determine the governance ability of a mutual fund board extend beyond the total number or fraction of independence of board seats. The independent characteristics of members that occupy those seats are likely to affect board's governance ability. Most of the member characteristics are not arbitrary but largely determined by the members themselves. They are either determined by the existing members (e.g. background of the new member) since the new members are nominated by the existing board members or by the members themselves (e.g. number of fund boards a member accepts to sit and length of service (tenure)).

However, the relation between most of these variables and the advisory fee are not obvious a priori. For example, funds benefit from the expertise of members who have been sitting on the board for a long time. However, the selection process could be influenced by the adviser. In practice initial boards are formed by the adviser and evolve throughout the life of the fund. Therefore, these members could be chosen to the board by the adviser at the fund's inception and may be more likely to align their interests with the adviser's. Similarly, the literature suggests contradicting results between the number of fund boards a director sits and his or her governance ability. The lack of time to carry out their duties is one of the common problems among directors (Lipton and Lorsch (1992)). Sitting on multiple fund boards decreases

the time a director devotes to each fund.<sup>17</sup> Moreover, the courts have accepted the argument of “occupying multiple board seats raises the compensation of the director which makes the independence of the director questionable”.<sup>18</sup> However, Tufano and Sevick (1997) find a negative relation between the total fund fee and director concentration, suggesting that the directors who oversee larger proportions of the adviser’s total assets are better monitors. The time a member spends for a particular fund would also decrease if the individual has a directorship outside the fund family (Morck et al. 1988; Beasley 1996). On the other hand, having an outside directorship could be interpreted as a signal of the quality of the director (Booth and Deli (1999), Shivdasani and Yermack (1999)). Moreover, it might reduce the possibility of aligning the board member’s interest with the adviser’s by increasing the compensation if he or she has alternative income sources. The problem of limited time could be overcome to some extent by improving the efficiency of the use of it. Sarbanes and Oxley requires at least one member with a background familiar with auditing procedures. Likewise, directors who have a background in finance or a related field are likely to be more familiar with the concepts of fund management, utilize limited time more efficiently and be more effective at governing the fund. Xie et. al (2003) report that outside directors with finance background are better monitors of earnings management for corporate boards. Beasley (1996) finds that the likelihood of financial reporting fraud is a decreasing function of the tenure of outside directors.

As mentioned above, higher compensation may make independent directors “not so independent”. However, the literature provides mixed evidence about the effect of compensation

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<sup>17</sup> For the mutual fund governance index Morningstar introduced in December 2004, it was assumed that having a director sitting on more than 12 fund boards would have negative impact on board oversight.

<sup>18</sup> Olesh v. Dreyfus, Strougo v. Scudder, Stevens and Clark, the Brazil fund law suit.

on the oversight of independent directors.<sup>19</sup> A positive relation between compensation and advisory fee could be signal of superior ability of members deserving higher compensation as well as an attempt to create an incentive to align an independent director's interest closer with the adviser's. Finally, rent transfer from shareholders as compensation is not limited to the amount for independent directors. In some of cases boards approve compensation for dependent directors who are affiliated with or employed by the adviser<sup>20</sup>. Approval of such rent transfer would be a signal of poor governance.

#### ***2.2.4 SEC's Regulation Change of Board Independence***

The effectiveness of the regulation change of 2000 was criticized as being limited since almost all of the funds were already well above the 50% minimum board independence by the time the regulation change became effective. Nevertheless, it put board independence in the spotlight of the debate on improving mutual fund governance. The SEC's revisit to the phenomenon concluded with the 2004 regulation change of increasing the minimum board independence to 75%. Khorana et al. (2005) find that the impact of an independent board is felt when the board is fully independent. However, without a mandatory fully independent board clause, already high average board independence suggests that the regulation change would not lead to an increase in board independence for the whole industry and would be limited to a number of funds close to the new threshold. Thus, examining the whole industry could fail to capture the true impact of the independence increase due to lower variance of board

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<sup>19</sup> Tufano and Sevick (1997), Vafeas (1999), Perry (2000), Ryan and Wiggins (2004)

<sup>20</sup>For example Arthur Levitt, then Chairman of the SEC, raised the following question for the fund industry: "[S]hould fund directors pay 'interested directors' when they already work for the fund management company?" (Tam and Lucchetti, 1999, p. C25). (as cited by Varma 2003)



independence in the whole industry. To explore the effectiveness of the regulation change, I investigate if the relation between board independence and the advisory fee changed for the subset of possible target funds and for the subset of funds that experience an increase around the regulation change. In other words, I examine those funds that responded around the time of the regulation change by altering their board.

## **2.3 Data and Methodology**

The data covers a 9-year period of boards from 1996 to 2004. 1996 was picked as the beginning year since the SEC started to make the filing of an NSAR a requirement for a subsample of funds in 1994 and for all funds in 1996. The funds' SAI (Statement of Additional Information) and NSAR filings are available on EDGAR after this year. The information was collected from the fund proxy reports, NSAR-B, SAI and the CRSP Survivorship Free Mutual Fund Database.

To construct the sample set, I select randomly among the actively managed equity funds on the CRSP Survivorship Free Mutual Fund Database after excluding index funds. My data are limited to equity funds in order to make the data collection process manageable, and most prior literature focuses on equity funds. Index funds are eliminated because these funds are not actively managed. Multiple classes of the same fund are also eliminated, thus the final list includes each fund only once. One possible concern may be that large fund families such as Fidelity are likely to appear more frequently, leading to a selection bias. However, considering the ongoing fee competition between major fund families, it cannot be ruled out that an advisory firm which has more weight in the industry would also have more influence on the industry norms. Moreover, as mentioned above it is widely stated by the boards in fund proxies that comparing the fund fee with the fees of similar funds is a common method. Thus, such characteristic of a randomly selected sample set would be reflective of the whole population of equity funds.

Funds are grouped according to their objective as defined in the fund proxy. The weight of each objective in the sample set was determined based on the weight of the objective in the

whole population of equity funds. For example, if there are 100 funds that were active in the industry between 1995 and 2004, and 20 of these funds are aggressive growth funds; then my sample set was constructed such that 20% would be aggressive growth funds. The final data set consist of 176 funds managed by 125 different advisers, 109 of which are active and 67 are dead by the end of 2004.

The information about the fund boards and member characteristics are collected from the funds' SAI. Other information is collected from the funds' NSAR-B. The advisory fee reported in the NSAR-B at the end of a fiscal year is taken as the applied advisory fee during that last fiscal year. The board is considered as determining this applied advisory fee after observing the information at the beginning of the fiscal year. For example, the advisory fee reported in the January 2000 NSAR-B is taken as the advisory fee applied over the year of 1999 approved by the board at the beginning of 1999 based on the information available to the board at the beginning of 1999, reported in January 1999 NSAR-B.<sup>21</sup>

Deli (2002) shows that the majority of the advisory fee contracts have asset based fixed or scaled fee structures. Under a fixed fee structure, the advisory fee is a flat rate independent from the asset size. Under a scaled fee contract, different fee rates are applied to different ranges of assets. The asset weighted advisory fee of the funds with a scaled fee contract is calculated by multiplying each fee level with the amount of assets the fee is applied, using the total weighted average assets of the fund reported in the NSAR-B. Table 1 provides a complete list of variables with their sources and definitions.

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<sup>21</sup> SAI or NSAR filings that end between January and May of a year are taken as reflecting the information on the fund for the previous year.

I use a general fixed effects model for fund “*i*” where the advisory fee is regressed against the quantitative and dummy variables as follows;

$$\begin{aligned}
 advfee_{i,t} = & \ln fsize_{i,t-1} + \ln advsize_{i,t-1} + turn_{i,t-1} + \ln numacco_{i,t-1} + reimburs_{i,t-1} + \ln admfee_{i,t-1} \\
 & + ffar_{i,t-1} + herf_{i,t-1} + feesprd_{i,t-1} + numseat_{i,t} + boardindep_{i,t} + chindep_{i,t} \\
 & + medfsit_{i,t} + medten_{i,t} + othdirp_{i,t} + finp_{i,t} + lawp_{i,t} + edup_{i,t} + fcomp_{i,t-1} + e_{i,t}
 \end{aligned} \tag{6}$$

Where the first group of independent variables control for fund and market characteristics (i.e. the natural log of fund size, the natural log of adviser size, fund turnover, the natural log of number of shareholder accounts, the percentage of reimbursement, the natural log of administrative cost, the Fama French four factor adjusted return, the objective Herfindahl index, the difference between the average objective management fee and the fund management fee)

To capture general board characteristics, I include the board size, the percentage of independent board members, and dummy variable that takes the value of 1 if the board chairman is independent.

To control for the individual member characteristics, I include the percentage of the adviser’s fund boards an independent director sits, median of the tenure of the independent board members, percentage of independent directors that have at least one position on a board other than funds’ managed by the same adviser, percentage of members that have finance, law or education (e.g. academician) background, and following Khorana et. al. (2005) the median dollar amount of compensation paid to the members for their service during the past fiscal year. Since some funds report the compensation paid to each director at the trust (group of funds) level rather than individual fund level, fund level compensation is estimated by dividing the compensation paid by the trust by the number of funds in the trust.

The Herfindahl index of each objective is calculated in order to control for the competitiveness. The calculation of the objective's Herfindahl index  $h(I, i)$  is as follows:

$$h(I, i) = \sum_{k \in I} \left( \frac{A_k}{\sum_{j \in I} A_j} \right)^2 \quad (7)$$

Where  $\frac{A_k}{\sum_{j \in I} A_j}$  is the share of net assets of fund  $k$  relative to the total net assets in the category.

Luo (2002) argues that if the competition among the advisers in an objective is Bertrand competition then all advisers' services are assumed to be homogeneous and equal. Then, I should observe the advisers pricing their services equal to the marginal cost of product regardless of the number of the advisers in the market. This would be the same as saying one adviser is no different than any other, which is a strong assumption for the mutual fund industry. Sutton (1991) shows that, over a broad class of oligopoly models, there is not necessarily a relation between the number of market participants and the variable part of the cost of the product. Thus, normalized Herfindahl indices are calculated following Luo's (2002) technique.

Specifically, the normalized Herfindahl index for category  $I$  in which fund  $i$  belong, denoted  $h_i^I$ , is defined as:

$$h_i^I = \frac{h(I, i)}{h^c(I, i)} - 1 \quad (8)$$

Where  $h^c(I, i) = 1 / N^I$ ;  $N^I$  denotes the number of funds in mutual fund category.

The normalized Herfindahl index characterizes the relative competitiveness of the objective to which the fund belongs compared to the case where net assets are equally distributed among all funds within the objective. For example, it takes the value of one if there is one fund in an objective.<sup>22</sup>

Almost all of the funds already meet the 50% criteria by 2000 and roughly half have more than 75% independence which is later required by the 2004 regulation change. This leaves little room for a number of funds to increase the existing percentage of board independence to higher levels. Thus, testing the impact of regulation change using the whole sample set reduces the variability and is likely to fail to fully investigate the change in fund governance due to an increase in board independence around regulation change.<sup>23</sup> In order to examine the impact of the regulation change of 2000, I construct two alternative subsets to investigate whether funds that experience an increase in board independence around the regulation change have improved their governance. The first subset consists of 85 funds that experience an increase in mean board independence between the periods of 1996-2000 and 2001-2004. An alternative subset includes 61 funds that increase board independence between 1999, the last year before the regulation change, and 2001, the deadline year for adoption of regulation change. 47 funds appear in both sets. Both subsets are divided into two time periods of 1996 to 2000 and 2001 to 2004. Equation (1) is estimated for each time period as well as the whole period of 1996 to 2004. Since the motivation behind the increase in independence could be unrelated to the regulation change, I repeat the same test with a subset of funds that have independence levels below 65% at the

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<sup>22</sup> I repeated tests without normalizing the Herfindahl index. Results remained qualitatively the same.

<sup>23</sup> Although, there are attempts in the literature to test the effectiveness of the 2000 regulation change in a cross sectional data setting, investigating the impact of a regulation change requires a panel data set that covers the periods before and after the date of the regulation change.

beginning of year 2000. Arguably, these are the possible funds at which the regulation change was aimed.

Finally, the data on nominating committees are collected from fund SAI for the 3 year period of 2002 to 2004. The deadline to adopt the mandatory nominating clause was 2001 and disclosure of information on committees became largely available after 2002. Funds established either a completely separate nominating committee or delegated the nominating task to more general committees. A reduced form of Equation (1) is estimated separately for this time period including the dummy variable for the existence of a completely separate nominating committee and the number of meetings the completely separate nominating committee held.

## **2.4 Descriptive Statistics**

The descriptive statistics of control variables are summarized at Panel A of Table 2. The data set consists of randomly selected 176 equity funds with an average advisory fee of 73.20 basis points and a median of 73.59 basis points.<sup>24</sup> The average fund size is 243.72 million dollar and the average adviser size is 9.319 billion dollar. The administrative fee in dollars has a higher mean than median due to the funds that bundle administrative costs with the advisory fee and report zero administrative costs. The average difference between the objective management fee and the fund management fee is 3.09 basis points, indicating that on average funds in the sample set have management fee almost equal to the objective average fee.<sup>25</sup>

The descriptive statistics on Panel B show that, average fund independence is 74.72% indicating that during the period of 1995-2004 the majority of the funds are well above the 50% board independence level that was required by the 2000 regulation change. Moreover, roughly half of the funds meet the requirement of 75% board independence level which was introduced later in 2004. This structure of the equity fund boards suggests that the industry as a whole has not responded to the regulation change simultaneously to alter the board composition.

Average board size is 8. Independent directors on average sit on the 66% of the funds that are managed by the same adviser and have a median tenure of 7 years on the fund board. 23.87% of the independent members have a finance background, 10.97% have an education background and 6.46% have a law background. The descriptive statistics on Panel C show that having a

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<sup>24</sup> Average advisory fee for equity funds documented in literature is around 76 basis points

<sup>25</sup> As an alternative measure, “fee ratio” between objective and fund management fee is calculated. The mean is 1.02 confirming that the funds in the sample set are close to the objective norms.



member with one of these backgrounds is fairly common among the fund boards. 78% of the fund years, there is at least one independent member with a finance background; 46% of the fund years, there is at least one independent member with an education background and 31% of the fund years, fund boards have at least one member with a law background. 52.04% of the independent members sit as a director on a board outside the funds' managed by the adviser.

Besides increasing mandatory board independence from 50% to 75%, the regulation change of 2004 also mandated the board chairman to be an independent director. Descriptive statistics show that for the 9 years period prior to 2004, 20% of the funds have an independent board chairman.

Average compensation paid to an independent member by the fund is 3,823 dollars. Although, the dependent board members are employees of the adviser or affiliated with the adviser, at 25.38% of the fund years, at least one dependent board member has received compensation from the fund.

Panel D summarizes the descriptive statistics of the average board independence for the whole sample set and the subsets, (i.e. subset that increase in mean between the periods of 1996-2000 and 2001-2004, subset that increase between 1999 and 2001 and the possible target set.) The difference in average fund independence for the whole sample set between the periods of 1996-2000 and 2001-2004 is 3.38% significant at 1%. For the first subset of funds that have increase in mean independence, the difference between the two periods is 8.23% and for the remaining funds which experience "decrease or no change" in mean, the difference between the two periods is -3.27%. For the second subset of funds that have increase in mean independence between 1999 and 2001, the difference is 6.15% and for the funds which experience "decrease or

no change” between 1999 and 2001 the difference between is -3.02%. The differences between two periods for both subsets of funds that have an increase in board independence are significant at 1% whereas for the “decrease or no change” group differences are not significant at 1%. Average independence of the possible target funds that have independence below 65% is 58.90% at 1996-2000 period and 66.01% at 2001-2004 period. Thus, funds that have independence close to the minimum threshold also increased their board independence during the period following regulation change.

Finally, I computed variance inflation factors (VIFs), yet never obtained VIFs in excess 4.3, below the conventional cutoff value of ten implying no severe multicollinearity exist between variables. (Netter, Wasserman & Kutner 1985).

## **2.5 Empirical Results**

Results of the estimated models are summarized at Table 4. The dependent variable is the weighted advisory fee in basis points. Independent variables are included in the models in groups in order to show that the results are largely consistent and not based on certain model specifications. Larger funds have lower advisory fees confirming Deli (2002). However, the relation between adviser size and the advisory fee is positive which contradicts his findings. This is likely to indicate that as the adviser's market share grows, he or she tends to charge a higher advisory fee for fund management. However, this result does not rule out the possibility that although a successful adviser that attracts additional asset demands a higher price for his or her marginal product, he or she simultaneously adjusts other channels of rent transfer (e.g. loads and 12b-1 fees) in order to remain competitive.

Adjusted performance is not significantly related to the advisory fee suggesting that advisers prefer to benefit from additional fund inflow following good performance. However, the positive relation between the advisory fee and the spread between fund return and objective average return indicates that a higher spread leads to higher advisory fee.<sup>26</sup> This implies that an increase in performance alone does not lead to the additional mark-up. However, funds that beat their peers significantly benefit not only from additional inflow but also from higher rent transfer through the advisory fee which would be applied to not only besides the new shareholders but also to the existing shareholders.

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<sup>26</sup> I repeated the test with the difference between the fund benchmark index and the adjusted fund return. Results are qualitatively the same.

Descriptive statistics above indicate that the fund management fee and objective management fee are close. However, the significant negative relation between the advisory fee and the spread between the objective and the fund management fee suggests that the relation is dynamic. Boards adjust the management fee strategically but not always for the benefit of shareholders. For example, if there is a negative (-1%) difference (i.e. fund fee is above the objective fee) and the objective fee decreases and the difference becomes -2%, the fund fee decreases approaching the new level of the benchmark. In this case, the decline in the fund fee is beneficial to the shareholders. However, if the difference is 1% (i.e. fund fee is below the objective fee) and the objective fee increases and the difference becomes 2%, the fund increases the management fee approaching the new objective average. In this case, the fund management fee is still benchmarked to the objective average but adjustment is detrimental to the shareholders' wealth. Thus, results confirm the boards' common argument in fund proxies which states that the advisory fee is approved after consideration and comparison with similar funds. Fund boards benchmark to the objective average, yet this benefits the shareholders if the fund fee follows a decreasing benchmark and detracts if the pattern is upwards.

I do not find a significant relation between the Herfindahl index of objective (proxy for competitiveness and concentration within the objective) and the advisory fee. This result suggests that the boards do not adjust the advisory fee based on objective competitiveness and contradicts the argument of a self disciplinary fund industry.

### ***2.5.1 Board Characteristics and Fund Governance***

The relation between the board size and the advisory fee is significant and negative supporting the finding of Baker and Gompers (2003) and Kuhnen (2005b) suggesting that higher

board size increase the monitoring potential of the board.<sup>27</sup> Considering the necessary time to govern each fund that a single board oversees and the increasing number of committees in the fund industry, I interpret this result as larger boards have more aggregate time to allocate to the governance of a particular fund and are able to delegate tasks to specific committees. Board independence is negatively related to the advisory fee indicating that a board that has higher percentage of independent members displays better governance ability. This result is consistent with Tufano and Sevick (1997) and Del Guercio et al. (2003) and supports the SEC's motivation behind increasing the mandatory minimum level of board independence.

The results do not suggest a significant relation between the independent board chairman dummy and the advisory fee. This supports the industry practitioners' view of limited effectiveness of the mandatory independent chairman clause introduced by the SEC's 2004 regulation change. Although, the last two full models at Table 4 imply that an independent chair alone does not necessarily lead to better governance, the positive relation between the tenure of the independent chairman and the advisory fee indicates that the higher the tenure of the chairman of the board, the better the board governance is.<sup>28</sup> Thus, the expertise of the individual that would occupy the seat has an impact on the fund governance.

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<sup>27</sup> In tests not reported here, I do not find evidence of non-linear relation.

<sup>28</sup> Vafeas (1999) argues that an independent chairman would improve the fund governance by influencing the board agenda. In the cases where the chairman is not independent such influence would likely to be determined by the expertise of independent board members. Therefore, for observations where the board chairman is not independent I set the value to median tenure of independent members reflecting the aggregate expertise of the independent portion of the board.

As a robustness check, I also repeated the tests including the mandatory retirement age which is suggested by ICI in order to improve fund governance<sup>29</sup> and the percentage of independent members since the fund's inception to investigate whether these members deteriorate the governance by aligning their interests with the adviser's. I find that the board governance neither improves nor worsens from adopting a mandatory retirement age or retirement plan and having members since the fund's inception. Results remained qualitatively the same.

### ***2.5.2 Member Characteristics and Fund Governance***

The results between individual member characteristics and the advisory fee suggest that not only the general composition and characteristics of the board but also individual characteristics of members that occupy the seats are effective on board governance. Table 4 shows that boards which have members with higher tenure display better governance ability. The shareholders are likely to benefit from the expertise of members who have been sitting on the fund board for a longer period and are familiar with the fund management.<sup>30</sup> Members with a finance related background are likely to be more familiar with the tasks of fund management. The positive relation between the percent of members with a finance background and the advisory fee indicates that members with a finance background govern shareholder rights better than their peers. Interestingly, the fourth model suggests modest evidence that member with an education background (employed in education sector) are likely to be less effective in

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<sup>29</sup> At 18% of fund years funds have a pension/retirement plan. Ryan and Wiggins (2004) report 13.16% of the corporate boards in their sample set have a pension/retirement plan.

<sup>30</sup> I also checked for a non-linear relation between the tenure and the advisory fee to control for whether the relation reverse in the long run as members align their interest with the adviser's and find no non-linear relation.

governance. Fund compensation is included separately in the last two models. Results indicate that funds that pay higher compensation to its independent members have higher advisory fees. This could signal that better compensated directors are likely to align their interest with the adviser.<sup>31</sup> Results do not suggest a significant relation between the advisory fee and the fraction of the adviser's funds independent members sit. Finally, there is no significant relation between the percentages of members that sit on a board other than the funds' managed by the same adviser and the overall governance effectiveness of the fund board. This result is consistent with the finding of Brickley et al. (1997).

### *2.5.3 Separate Nominating Committee*

The regulation change of 2000 also mandated an independent nominating committee. Following the regulation change, funds either formed a separate nominating committee or specified how the task would be handled solely by independent directors (e.g. including the nominating task into the responsibilities of another committee). I estimated a separate restricted model for the shorter period of 2002-2004 since the data on board committees and number of committee meetings are widely available only after 2002. In Table 5, the negative relation between the existence of a separate nominating committees and the advisory fee indicates that funds that form separate independent nominating committee display better governance ability. Since the impact of the nominating would actually be felt over the longer period, the result mostly implies that establishing a separate nominating committee signals the quality of board governance. The number of nominating committee meetings is not significantly related to

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<sup>31</sup> Further tests of total compensation and a dummy variable that takes the value of 1 if fund has paid compensation to the dependent members during the past fiscal year reveal no significant relation. Results remain qualitatively the same.

advisory fee. This is probably due to the way the nominating committee functions. The nominating committee meets whenever there is need for a new member.<sup>32</sup>

#### ***2.5.4 Regulation Change and Board Independence***

Table 6 summarizes the results on whether the relation between board independence and the advisory fee has changed for the funds that experience an increase in board independence around the regulation change. Columns 2, 3 and 4 summarize the results for the subset of funds that have an increase in mean board independence between the periods of 1996-2000 and 2001-2004. Results in column 2 indicate that this subset of funds has a negative relation similar to the whole sample over the 10 years period. Higher independence leads to more effective governance. Column 3 and 4 investigate whether the increase in board independence after the regulation change improved board governance. Results indicate no significant relation between board independence and the advisory fee for the 1996-2000 period (before the regulation change) whereas a negative relation for the 2001-2004 period suggests that boards that increased their independence after the regulation change improved in governance. Furthermore, the negative relation between the independent chairman and the fund governance disappears after the regulation change, suggesting that the positive relation in the whole sample is driven by the observations before 2000.

The subset of funds that increased board independence between 1999 and 2001 indicates similar and qualitatively stronger results. The relation between the independent chairman and fund governance disappears after 2000 for the alternative subset as well. Thus, the results on the

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<sup>32</sup> Furthermore, tests that are not reported indicate that there is also no significant relation between the size of the nominating committee and the advisory fee.



first six columns overall indicate that shareholders of the funds that experienced an increase in board independence around the regulation change benefited from the change in board composition.

However, the boards of funds that experience increase in board independence around the regulation change could be motivated by reasons other than regulation change. I repeat the tests with the subset of target funds that have board independence less than 65% in 2000. Despite board independence increases by 7.11% on average, funds that have 65% or less independence prior to the regulation change do not display the same trend as the other two subsets.<sup>33</sup> Although they are possibly the primary target group of the regulation change, there is no significant positive relation between governance quality and board independence of the funds with independence below 65%. Results do not suggest that an increase in board independence leads to significant improvement of governance for the target group of funds.

Overall, the results at Table 6 suggest that funds that have increased their independence around the regulation change improved their governance ability. However, such a change in the funds' board composition is likely to have motivations other than the regulation change since there is no evidence of similar improvement in the target group. The regulation changes of 2000 and 2004 are crucial steps in improving the fund governance. However, considering that 4 of the 34 funds in the sample set that are managed by the advisors subject to litigation during the last wave of scandals had 100% independence<sup>34</sup> and the limited effect of regulation change on the possible target group, there is some truth to the idea that not only what the percentage of board

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<sup>33</sup> Tests are repeated with the subsets of funds with less than 70% independence and 75% independence. Results remained qualitatively the same.

<sup>34</sup> Average independence of 34 funds is 82% during the period of litigations.

independence is but also by whom the independent seats are filled is critical for mutual fund governance. Now that funds have an independent nominating committee and stricter disclosure rules, existing board members have more ability to select the best individuals to serve for the shareholders' best interest.

#### ***2.5.4 Limitations***

Results suggest neither a form of causality nor an order of the factors. Furthermore, advisory fee could be driven by some unaccounted factors. For example, the study does not fully capture the possible effect of the adviser marginal product. Any uncaptured difference between the marginal products of the advisers could be partially responsible for the variation of advisory fee. However, this is minimized through the use of a panel model. As Deli (2002) notes, there may be factors that are not observed such as the adviser's ownership of the fund which have the potential to be substitutes for the advisory fee.

The data set is limited to actively managed equity funds. Nevertheless, the literature documents qualitatively similar relations between the fund characteristics and the advisory fee of different types of funds. Moreover, the results do not refute the alternative hypothesis. Compensation is a good example for this. Although, the relation between the advisory fee and compensation is positive, this could be partially due to the necessity of higher compensation to include better individuals to the board.

Results suggest that although the increase in board independence around regulation change improved the fund governance, the funds that are possible target group does not display

the same pattern. These results are needed to be interpreted carefully since the actual reason of increase in board independence could be other than regulation change or a related factor.

## **2.6 Conclusion**

The rapid growth of the mutual fund industry escalated the debate on many aspects of the industry including the effectiveness of mutual fund boards as the watchdogs of the shareholder rights. In 2000, the SEC passed regulation changes that increased the minimum required board independence from 40% to 50% and mandated the nomination of the new members to be done only by independent members. With another set of regulation changes in 2004, the SEC increased the board independence further to 75% and mandated the board chairman to be independent. Yet, the latest scandals suggest that the governance effectiveness of a board is determined by factors beyond the general characteristics of the board that were subject to the regulation changes. After controlling for fund and general board characteristics I investigate the relation between individual characteristics of board members and the board governance. I further investigate the impact of the 2000 regulation change (i.e. board independence and nominating committee) and independent chairman on fund governance introduced by 2004 regulation change.

I find that funds with larger boards and higher board independence display better governance ability. However, the results suggest that besides the general composition of the board, the individual characteristics of members also matter. Shareholders benefit from the expertise of members with higher tenure and a finance background. However, funds that pay higher compensation are likely to have higher advisory fees suggesting that high compensation reduces the effectiveness of board governance.

The effectiveness of the 2000 regulation change that increased the board independence was criticized since a significant number of funds already exceeded the required minimum

independent rate. Using a subset of funds that experience increase in independence around the regulation change of 2000, I find that governance improved as a result of increasing board independence. However, I do not see similar improvement for the possible target funds that have less than 65% independence. Thus, the effect of the regulation change on board independence is limited. Funds that created separate nominating committee displayed more effective governance. The independent board chairman clause of 2004 is criticized by practitioners due to the lack of empirical evidence to support the contribution of such clause. The results do not suggest that having an independence chairman directly improves the board governance. However, the expertise of the chairman (i.e. tenure) is likely to improve his or her influence on fund governance.

Finally the control variables deserve some brief comments. Results indicate that the boards benchmark to the objective average management fee while setting the advisory fee. However, this does not always work for the shareholders best interest. Performance improvement alone does not lead to higher rent transfer but the funds that beat their peers significantly tend to increase the advisory fee.

## TABLES

**Table 7 Definition of the Variables**

<b>Name</b>	<b>Source</b>	<b>Definition</b>
<b><i>Fund specific factors and Adviser size</i></b>		
Fund size	NSAR-B	Natural log of fund size reported under 74T measured in millions of dollar
Adviser Size	CRSP	Total Net Asset of all funds managed by the same adviser listed in a year in millions of dollar
Turnover	NSAR-B	Lowest of the purchase or sales divided by the weighted average assets
Rate of reimbursement	NSAR-B	Dollar value of reimbursement divided by weighted total fund assets
FFAR	CRSP	Fama French four factor adjusted returns
Number of shareholder account	NSAR-B	As reported under 74X in thousands of account
Administrative costs	NSAR-B	Natural log of administrative cost reported under 72G
<b><i>Market factors</i></b>		
Objective Herfindahl	CRSP	Herfindahl Index of fund objective
Fee Difference	SAI	Difference between the objective fee and fund management fee
<b><i>General Board Character.</i></b>		
Board Size	SAI	Number of directors sitting on the fund board
Board Independence	SAI	Number of independent directors divided by total number of directors
Independent Board Chairman	SAI	D=1 if board chairman is independent director
<b><i>Director Characteristics</i></b>		
Adviser Fund Occupied	SAI – CRSP	Median fund number independent members occupy divided by the total number of funds managed by the adviser in CRSP
Median Tenure	SAI	Median of the tenure of independent directors
Other directorship	SAI	Percentage of directors sitting at least on one board other than funds managed by the adviser
Background	SAI	Percentage of directors who has finance, law or education background
Fund Compensation	SAI	Median compensation independent members receive for sitting on the fund board
Nominating committee exist	SAI	D=1 if independent nominating committee exists
Nominating committee meeting	SAI	Number of nominating committee meetings

**Table 8 Descriptive Statistics**

<i>Panel A</i>					
<b>Variables</b>	<b>N</b>	<b>Mean</b>	<b>Med.</b>	<b>25th</b>	<b>75th</b>
<i>Adviser Fee (basis)</i>	1336	73.20	73.59	60.00	85.00
<i>Fund Size (\$ million)</i>	1352	243.72	269.70	71.05	881.84
<i>Adviser size (\$ million)</i>	1477	9,318.99	14,343.76	2,264.09	51,369.51
<i>Turnover</i>	1355	96.40	67.00	36.00	115.00
<i>Adjusted return</i>	1422	-1.21%	-1.21%	-6.95%	3.86%
<i>Admin. Fee (\$ thousand)</i>	1342	14.86	5.48	1.00	185.00
<i>Number of accounts</i>	1323	6,999	10,886	1,913	38,949
<i>% reimbursement</i>	1323	0.22%	0.00%	0.00%	4.97%
<i>fee difference (basis points)</i>	1409	3.09	5.43	1.41	25.41
<i>Panel B</i>					
<b>Variables</b>	<b>N</b>	<b>Mean</b>	<b>Med.</b>	<b>25th</b>	<b>75th</b>
<i>number of seat</i>	1326	8.08	8.00	6.00	10.00
<i>% independent dir.</i>	1326	74.72%	75.00%	66.67%	83.33%
<i>tenure median</i>	1321	6.88	6.00	4.00	9.00
<i>% median fun occu.</i>	1296	66.31%	76.92%	37.50%	100.00%
<i>% finance back.</i>	1326	23.87%	20.00%	10.00%	33.33%
<i>% education back.</i>	1326	10.97%	0.00%	0.00%	20.00%
<i>% law back.</i>	1326	6.46%	0.00%	0.00%	14.29%
<i>% other director.</i>	1325	52.04%	50.00%	25.00%	77.78%
<i>\$ fund seat compen.</i>	1207	3,823	2,114	1,111	4,400
<i>Panel C</i>					
<b>Variables</b>	<b>N</b>	<b>1</b>	<b>0</b>	<b>≥1</b>	<b>None</b>
<i>chair independent</i>	1320	19.92%	80.08%		
<i>separate indep. nominating comm</i>	393	78.12%	21.88%		
<i>depen. dir. Comp.</i>	1320	25.38%	74.62%		
<i>incl.fin.back. member</i>	1326			77.98%	22.02%
<i>incl.edu back. member</i>	1326			45.78%	54.22%
<i>incl.law back. member</i>	1326			30.54%	69.46%

**Table 9 Whole Sample Set and Subset Board Independence**

<b>Period</b>	<b>N</b>	<b>Mean</b>	<b>Med.</b>	<b>t values</b>	<b>p values</b>
<b><i>whole sample set</i></b>					
1996-2000	771	73.22%	75.00%	-2.72	0.000
2001-2004	555	76.60%	75.00%		
<b><i>increase in mean independence</i></b>					
1996-2000	402	71.28%	71.43%	-4.94	0.000
2001-2004	316	79.51%	79.29%		
<b><i>increase in independence between 99-01</i></b>					
1996-2000	296	71.26%	72.72%	-2.81	0.003
2001-2004	236	77.41%	76.92%		
<b><i>Independence below 65% at 2000</i></b>					
1996-2000	161	58.90%	57.85%	-4.02	0.000
2001-2004	127	66.01%	66.67%		
<b><i>no increase in mean independence</i></b>					
1996-2000	369	75.71%	75.00%	2.10	0.019
2001-2004	239	72.44%	71.32%		
<b><i>no increase in independence between 99-01</i></b>					
1996-2000	475	76.44%	75.00%	1.63	0.0525
2001-2004	319	73.46%	75.00%		



**Table 10 Advisory Fee - General Board and Member Characteristics**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
<b>Fund Specific Factors</b>						
<i>Fund Size</i>	-0.96** (0.02)	-0.90** (0.03)	-0.87** (0.03)	-0.97** (0.02)	-1.21*** (0.00)	-1.18*** (0.00)
<i>Adviser size</i>	0.58* (0.07)	0.64** (0.05)	0.80** (0.02)	0.77** (0.02)	1.38*** (0.00)	1.39*** (0.00)
<i>Turnover</i>	-1.53E-04 (0.90)	4.86E-04 (0.84)	-1.09E-04 (0.96)	-0.01 (0.62)	-2.21E-04 (0.35)	-0.002 (0.35)
<i>Rate of Reimbursement</i>	7.13E-04 (0.72)	-1.08E-03 (0.61)	-1.13E-03 (0.59)	-1.53E-03 (0.47)	0.786E-03 (0.79)	0.748E-03 (0.80)
<i>Number of Accounts</i>	-0.40 (0.22)	-0.41 (0.21)	-0.44 (0.17)	-0.34 (0.29)	-0.54* (0.10)	-0.52 (0.12)
<i>Administrative Cost</i>	-0.07 (0.63)	-0.01 (0.92)	0.02 (0.87)	0.05 (0.72)	0.16 (0.28)	0.15 (0.30)
<i>Adjusted Return</i>	1.23 (0.36)	1.19 (0.38)	0.88 (0.52)			
<i>Spread b/w Objective</i>				2.20** (0.02)	2.76*** (0.00)	2.80*** (0.00)
<b>Market Specific Factors</b>						
<i>Objective Herfindahl</i>	-0.04 (0.26)	-0.04 (0.27)	-0.03 (0.51)	-0.02 (0.66)	-2.56E-03 (0.95)	-0.01 (0.77)
<i>Fee Difference</i>	-66.19 (0.43)	-159.38* (0.08)	-155.45* (0.08)	-167.39* (0.055)	-151.06* (0.07)	-146.73* (0.08)
<b>General Board Characteristics</b>						
<i>Board size</i>		-0.19 (0.17)	-0.3** (0.05)	-0.31** (0.03)	-0.39*** (0.01)	-0.39*** (0.01)
<i>Board Independence</i>		-4.96* (0.08)	-5.97** (0.03)	-4.90* (0.08)	-6.03** (0.03)	-5.71** (0.05)
<i>Chair Independent</i>		0.92 (0.32)	1.17 (0.21)	1.25 (0.23)	1.7* (0.08)	2.04** (0.04)
<i>Independent Chair Tenure</i>						-0.21* (0.07)

<b>Continued</b>						
<b>Director Characteristic</b>						
<i>Adviser Fund Occupied</i>		1.49 (0.26)	1.55 (0.23)	1.71 (0.19)	1.67 (0.20)	
<i>Tenure</i>		-0.18** (0.03)	-0.17** (0.04)	-0.14* (0.08)	-0.05 (0.73)	
<i>Other Director</i>			-1.75 (0.12)	-1.67 (0.14)	-1.68 (0.14)	
<i>Finance Background</i>			-4.35** (0.05)	-4.10* (0.07)	-4.11* (0.07)	
<i>Law Background</i>			-0.24 (0.95)	-1.89 (0.62)	-1.56 (0.68)	
<i>Education Background</i>			6.72** (0.02)	2.66 (0.36)	3.09 (0.29)	
<i>Fund Compensation</i>				0.9E-04* (0.06)	1.0E-04* (0.06)	
<b>R<sup>2</sup></b>	.05	.10	.07	.08	.07	.08
<b>Number of funds</b>	175	169	169	169	168	168

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.

**Table 11 Panel Models of Nominating Committee**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>
<b>Fund Specific Characteristics</b>		
<i>Fund Size</i>	-1.13 (0.15)	-0.15 (0.85)
<i>Adviser size</i>	-2.91*** (0.00)	-1.5* (0.08)
<i>Turnover</i>	0.014*** (0.01)	0.007 (0.18)
<i>Rate of Reimbursement</i>	-6.9E-04 (0.94)	-3.05E-03 (0.71)
<i>Adjusted Return</i>	4.15* (0.09)	2.01 (0.41)
<i>Number of Accounts</i>	0.20 (0.83)	-0.77 (0.39)
<i>Administrative Cost</i>	0.04 (0.87)	-0.19 (0.46)
<b>Market Specific Factors</b>		
<i>Objective Herfindahl</i>	-0.02 (0.62)	-0.04 (0.27)
<i>Fee Difference</i>	-305.76** (0.03)	-163.93 (0.38)
<b>General Board Characteristics</b>		
<i>Board size</i>	-0.57*** (0.00)	-0.65*** (0.00)
<i>Board Independence</i>	-7.85** (0.05)	-2.47 (0.64)
<i>Chair Independent</i>	-1.36 (0.26)	-1.41 (0.40)
<i>Nominating Committee Exits</i>	-1.94* (0.08)	
<i>Nomi. Comm. Meetings</i>		-0.05 (0.61)
<b>R<sup>2</sup></b>	.22	.21
<b>N</b>	136	112

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.

**Table 12 Subsets of Increase in Board Independence Around Regulation Change**

Variables	Increase in mean board independence			Increase in board independence b/w 99-01			Independence below 65 % at 2000		
	1995-2004	1995-1999	2000-2004	1995-2004	1995-1999	2000-2004	1995-2004	1995-1999	2000-2004
<b>Fund Specific Charac.</b>									
<i>Fund Size</i>	-2.08*** (0.00)	-2.03*** (0.00)	-1.95** (0.02)	-2.02*** (0.00)	-1.16* (0.10)	-1.38 (0.19)	2.72** (0.04)	-3.18** (0.05)	0.30 (0.90)
<i>Adviser size</i>	2.22*** (0.00)	0.95 (0.17)	0.52 (0.61)	3.32*** (0.00)	1.22 (0.18)	1.01 (0.45)	0.92 (0.38)	2.83** (0.03)	3.61 (0.21)
<i>Turnover</i>	7.43E-04 (0.74)	1.97E-03 (0.50)	-4.16E-04 (0.94)	-4.14E-04 (0.85)	1.18E-03 (0.68)	-4.35E-03 (0.55)	-6.58E-03* (0.09)	-9.4E-04 (0.84)	0.02 (0.25)
<i>Rate of Reimbursement</i>	-3.44E-04 (.0.91)	-0.002 (0.38)	0.017* (0.07)	8.38E-04 (0.78)	-8.98E-04 (0.74)	0.02* (0.06)	0.02 (0.20)	-7.5E-03 (0.64)	0.01 (0.51)
<i>Adjusted Return</i>	-0.27 (0.89)	-1.09 (0.60)	6.30*** (0.01)	0.79 (0.68)	0.11 (0.96)	1.38 (0.57)	11.60** (0.02)	-0.06 (0.98)	13.73* (0.07)
<i>Number of Accounts</i>	-0.02 (0.97)	1.13** (0.02)	-1.02 (0.27)	-0.32 (0.45)	0.83 (0.08)	-1.35 (0.23)	-4.28*** (0.00)	2.81** (0.05)	-2.98 (0.32)
<i>Administrative Cost</i>	0.14 (0.37)	-0.01 (0.92)	0.06 (0.82)	-0.24 (0.18)	-0.63*** (0.00)	0.32 (0.35)	-1.21*** (0.00)	-1.05*** (0.08)	-0.07 (0.93)
<b>Market Spec. Factor</b>									
<i>Objective Herfindahl</i>	0.01 (0.91)	-0.10 (0.15)	0.001 (0.96)	0.002 (0.98)	-0.07 (0.36)	0.05 (0.43)	-0.08 (0.56)	-0.19 (0.21)	-0.19 (0.40)
<i>Fee Difference</i>	-262.42* (0.06)	-224.70 (0.21)	-21.88 (0.91)	-42.70 (0.78)	-32.33 (0.86)	-153.00 (0.52)	-689.21** (0.03)	-250.07 (0.55)	-722.95* (0.08)
<b>Board Charac</b>									
<i>Board size</i>	-0.20 (0.23)	0.41 (0.14)	-0.01 (0.97)	-0.53*** (0.00)	-0.02 (0.95)	-0.02 (0.93)	-0.67 (0.28)	0.52 (0.50)	-1.31 (0.13)
<i>Board Independence</i>	<b>-7.08** (0.02)</b>	<b>-6.00 (0.18)</b>	<b>-7.62* (0.08)</b>	<b>-12.00*** (0.00)</b>	<b>0.43 (0.95)</b>	<b>-18.79*** (0.00)</b>	<b>10.48 (0.18)</b>	<b>-10.54 (0.49)</b>	<b>14.08 (0.15)</b>
<i>Chair Independent</i>	<b>2.00** (0.04)</b>	<b>4.29** (0.02)</b>	<b>0.92 (0.49)</b>	<b>3.02** (0.01)</b>	<b>5.40** (0.02)</b>	<b>2.35 (0.16)</b>	<b>2.18 (0.45)</b>	<b>n/a (n/a)</b>	<b>n/a (n/a)</b>
<i>Fund Compensation</i>	1.04E-04** (0.03)	1.83E-04*** (0.00)	-3.92E-05 (0.50)	-4.28E-06 (0.94)	-0.46* (0.08)	-4.86E-05 (0.47)	0.65E-04 (0.74)	-1.6E-04 (0.47)	-0.86E-04 (0.85)
<b>R<sup>2</sup></b>	.01	.04	.15	.01	.01	.01	.28	.20	.14
<b>N</b>	85	80	85	61	57	61	35	34	34

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.

## **PART 3. DETERMINANTS OF SOFT DOLLAR ARRANGEMENTS; DO SHAREHOLDERS BENEFIT?**

### **3.1 Introduction**

The scope of services provided to fund advisers by brokers is often not limited to the execution of securities transactions. The arrangements with the brokers could include additional products or services such as the sale of fund shares, the receipt of investment research and statistical information, the receipt of quotations for portfolio valuations. Section 28(e) that was enacted as part of the Securities Acts Amendments of 1975 permits the adviser to transfer a premium to brokers for these additional services<sup>35</sup> under “soft dollar arrangements” requiring the adviser to disclose if such arrangements exist. In soft dollar arrangements, the adviser obtains additional services from a selected broker besides transaction execution paying more than the lowest available rates. The total rent transfer from the adviser to the broker includes a premium for additional services as well as the cost of execution of securities transactions.

The use of soft dollar arrangements and the number of firms that provide research and other services in exchange for soft dollars has been growing since the arrangement was created in 1975. Greenwich Associates reported in 1996 that 71% of the total transaction executions involve some form of soft dollar arrangements (Wirth 1997). Livingstone and O’Neal (1996) suggest that a substantial amount of brokerage commissions are payments for research services rather than for execution. In its 1998 report on soft dollars, the SEC notes that almost the entire industry adopts some type of soft dollar arrangement and estimates that commissions for

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<sup>35</sup> I use the term “additional services” rather than “research” because although most of the products purchased by soft dollar are research related advisers also obtain mixed use services such as reports and non-research products such as pricing services and trade assistance services.

research products as a result of soft dollar arrangements adds up to 30-50% of the total brokerage expenses. Furthermore, the SEC reports that the total amount was approximately 1.4 billion dollar in 1998. Conrad et al. (2001) note that on average 60% of the soft dollar commissions are paid for research service. Although, the soft dollar has been receiving some publicity for over a decade, the research on these arrangements and their overall implications on shareholder's wealth are very limited.<sup>36</sup>

Based on his or her considerations on the necessary brokerage services, the adviser simultaneously decides the broker participation and determines the structure of arrangements to obtain these services from selected brokers. The disproportionate nature of taking on the total cost of research and additional services, and their benefit creates incentives for the adviser to engage in soft dollar arrangements (Horan and Johnsen 2004). The degree of soft dollar use indicates how much of the total brokerage services the adviser chooses to obtain in the bundled form. In bundled form, the adviser receives basic transaction execution and the additional services together making an aggregate payment for all. Eventually, the arrangements reflect the scale and scope of the brokerage services as well as the extent of soft dollar use. However, as Blume (1993) documents soft dollar arrangements often lead institutional managers to use brokers that they ordinarily would not employ. Thus, if the adviser manages the brokerage services strategically, the *ex ante* considerations should be reflected in the *ex post* broker participation and arrangements for brokerage services. Such a strategy should lead to minimization of brokerage commissions while optimizing the use of soft dollar arrangements. No relation between considerations and broker participation would suggest that either the adviser

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<sup>36</sup> See Livingstone and O'Neal (1996), Brennan and Chordia (1993), Ambachtsheer (1993) and Blume (1993)

does not follow a strategy for the management of brokerage services or management of brokerage services is distorted by the agency conflict between the shareholders, the adviser, and the brokers, leading to results not optimal for the best interest of the shareholders.

The bundling of services under the soft dollar arrangements are expected to provide two benefits to the shareholders. First, shareholders should expect to have better returns for their investments as a result of the additional services. Second, shareholders should pay a lower advisory fee since the cost of research and other additional services are paid as a brokerage commission, which otherwise would be part of the advisory fee and reflected in the expense ratio.

Using a survivorship bias free sample of 432 equity funds over the 5 years period of 1999 to 2003, I investigate how the adviser's *ex ante* considerations on broker's participation and the characteristics of the relations between the adviser and the brokers affect the *ex post* level of soft dollar use and the cost of brokerage services. In other words, I study whether the adviser strategically manages soft dollar use and the cost of brokerage services based on *ex ante* factors. I also investigate whether advisers that obtain additional services under soft dollar arrangements are better in capturing the returns and provide a benefit to shareholders from a reduction in advisory fees.

I find that the adviser's management of soft dollar use and cost of brokerage services are not arbitrary. They reflect the adviser's considerations for broker participation. Brokerage fees and soft dollar use decline if the adviser considers transaction execution related services, such as obtaining the best price as a consideration for broker participation. Thus, the adviser successfully induces the brokers to minimize the cost of transaction execution. Soft dollar use increases if

additional services, such as research, are considered in determining the broker participation. The shareholders benefit from better returns and a declining advisory fee as soft dollar use increases. However, results suggest that the premium paid for the additional services are detrimental to shareholders' wealth.

Section 1 discusses the variables and hypotheses. Section 2 provides information on the data and methodology. Section 3 presents descriptive statistics and discusses empirical results. Section 4 discusses the limitations. Section 5 presents results of additional tests. Section 6 concludes.



## **3.2 Hypotheses**

The management of brokerage services would initially involve the determination of the broker participation based on *ex ante* considerations and the management of related contracts and business relations with participating brokers. Non-arbitrary management of soft dollar arrangements and brokerage services is essential to optimize the benefit of the additional services obtained through soft dollar arrangements and minimize the total brokerage commissions. Thus, if the management of brokerage services is not arbitrary, I should observe the soft dollar use being strategically determined reflecting the *ex ante* considerations and related contracts between *the adviser and the brokers*.

### ***3.2.1. Considerations for Broker Participation***

Funds disclose in the NSAR which of the following considerations affect the participation of brokers or dealers or other entities in commissions or other compensation paid on portfolio transactions of the fund:

- Sales of funds shares.
- Receipt of investment research and statistical information.
- Receipt of quotations for portfolio valuations.
- Ability to execute portfolio transactions to obtain best price and execution.
- Receipt of telephone line and wire services.

If the adviser strategically determines the low cost, high quality brokers to improve fund performance and attempts to minimize the brokerage commissions, then I should observe the *ex*

*ante* considerations being reflected on *ex post* degree of soft dollar use and the total cost of brokerage commissions. A broker base that is determined based on mostly transaction execution related considerations, such as “obtain best price and execution”, should lead to lower brokerage commission and soft dollar premiums, and require less soft dollar use. Soft dollar use should increase if the services and research that mostly serve to improve portfolio management and induce information motivated transaction are considerations for broker participation. Moreover, increase in soft dollar use would lead to higher commissions due to the premium paid for the services and research and higher cost of excess amount of transaction.

### ***3.2.2. Broker Base and Fund Characteristics***

#### ***3.2.2.1. Concentration of broker base.***

Following the determination of the broker participation based on the considerations, the adviser allocates the total brokerage service demand to the brokers. A more concentrated brokerage base indicates that the adviser obtains most of the brokerage services from a smaller number of brokers. If the adviser successfully chooses these brokers in order to minimize the cost of brokerage services then a more concentrated broker base should lead to obtaining transaction execution at fairer prices. Since the additional services are the products of the brokers as well, a similar negative relation would exist between a more concentrated broker base and the premium paid for the additional services. However, the effect of obtaining the additional services at a fairer price on the soft dollar use is not clear a priori. The adviser might revise and increase the soft dollar use in order to benefit from low premiums paid for the additional services or choose not to alter the predetermined amount of necessary research and information, leading to a

lower percentage of soft dollar use (less soft dollar commissions within total brokerage commissions).

### ***3.2.2.2. The institutional relations with the brokers***

While determining the terms of the contracts the adviser would distinguish between the brokers based on the characteristics such as their quality or affiliation with the broker in order to minimize the cost of the services and the soft dollar arrangements. Thus, the scale and scope of brokerage services therefore the cost of these services would reflect the effects of such characteristics. Funds report in their NSAR whether they hold securities of their regular brokers that derive more than 15% of gross revenue. Holding the securities of a brokerage house could signal the adviser's opinion on the quality of the broker. If a broker is most likely to be considered as a better quality broker if he or she provides the services at fairer prices then the funds that hold the securities of their major brokers should be receiving the brokerage services at fairer prices.

Funds also report in the NSAR whether they have an affiliated broker. Popular press recently argues that unaffiliated brokers favor funds that pay them more. In 2004, the SEC passed a proposal that outlaws the practice of directed brokerage. Recently PIMCO settled a legal suit for engaging in arrangements that required the brokers to “tout PIMCO mutual funds, via placement on intranet web sites or ‘preferred or ‘recommended’ lists”.<sup>37</sup> Thus, affiliated brokers could provide the services at a lower cost and be favored at the allocation of brokerage services.

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<sup>37</sup> As cited by Christoffersen et al. (2005) <http://ag.co.gov/newsalerts/2004/04-105.htm>

### ***3.2.2.3. Alternative rent transfers***

The brokerage commissions and soft dollar premiums are not the only forms of rent transfers to the brokers. Total rent transfers through brokerage services are likely to be affected by commission rebalances and rent transfers through other channels such as loads and 12b-1 fees. Funds report if there is an “arrangement to return or credit part of all of the commissions or profits to the adviser or the fund”. Such arrangement indirectly serves the purpose of rebalancing the rent transfer between the shareholders and the brokers. Therefore, the initial amount of soft dollar arrangements may be larger if such an arrangement of commission return exists. Nevertheless, total rent transfer to the brokers has to be enough to create an incentive for the brokers to maintain a supply of the services. The brokers could be compensated by part of the front end loads and 12b-1 fees. If there is a rent transfer to the broker through these alternative channels, the broker is likely to provide transaction execution and additional brokerage services at a lower cost, thus the adviser engages in higher amount of soft dollar use.

### ***3.2.2.4 Fund characteristics***

Larger funds may obtain lower commissions as a percent of total assets or since the fixed component of commissions is allocated over a larger amount of assets. Larger shareholder base leading to larger redemption of shares would increase the fund turnover. Therefore, fund management would engage in a higher amount of regular transaction execution that would increase the total brokerage commissions. However, such transactions would not require the use of services provided under soft dollar arrangements. Thus, the soft dollar use, the proportion of bundled services through soft dollar arrangements within the total brokerage service, should

decline as the proportion of transaction execution not motivated by the information and services increase.

Finally, funds of certain objectives are more likely to demand additional services. Livingstone and O'Neal (1996) suggest that international funds have higher brokerage expense. However, they do not make any indication on the relation between the soft dollar use and the fund objective. International funds, small cap funds and funds that specialize in a particular sector might allocate higher proportion of brokerage commission under soft dollar arrangements.

### ***3.2.3. Do Shareholders Benefit?***

#### ***3.2.3.1. Fund Returns and Soft Dollar Use***

Shareholders should benefit from better fund performance as the soft dollar use increases since additional services and research should improve the portfolio management.

The informed investors profit more from their private information if less of the information is incorporated into prices by nonclient members (Livne and Trueman (2002)). The information obtained through the soft dollar arrangement is less likely to be diffused to the prices by traders that do not have the information. The less diffused information obtained through soft dollar arrangements motivates the adviser to trade more and possibly profit more. While the positive impact of more precise information is obvious for the adviser, as Brennan and Chordia (1993) argue, high quality information also provides higher revenue to the seller of information (i.e. the broker). However, the quality of the research and other services obtained under soft dollar arrangements is not homogeneous so the impact of soft dollar use is likely to vary between different advisers. Brennan and Chordia suggest that the amount of trading done by the

information purchaser could be a proxy for the quality of the information. Thus, the advisers that obtain higher quality of information and additional services would engage in greater amounts of transaction per soft dollar commission leading to better performance.

Carhart (1997) finds that transaction costs describe most of the unexplained mutual fund performance. Thus, following Carhart, I expect fund performance to decrease as the cost of turnover increases. Finally, following the evidence of Chen et al. (2004) I expect larger funds to underperform smaller funds.

A positive relation between the adjusted fund return and the soft dollar use does not necessarily imply that the overall impact of the soft dollar use would be beneficial to shareholders wealth. Although, the fund return improves as soft dollar use increases, the cost of additional services and research might exceed the improvement in fund performance and be detrimental to the overall wealth of shareholders.

#### ***3.2.3.2. The Advisory Fee and Soft Dollar Use***

The second benefit of soft dollar arrangements to the shareholders is the decrease in the advisory fee. Shareholders should expect a reduction in the advisory fee as soft dollar use increases since the cost of research is paid by the shareholders under the brokerage commissions, which otherwise would be part of the advisory fee. However, the cost of outsourced services and research could be higher than the cost incurred when they are provided by the adviser. Moreover, Conrad et al (2001) document that the transaction fee is higher for soft dollar brokers. Therefore, an increase in soft dollar use does not directly imply that the shareholders bear less cost when these services are outsourced. Livingstone and O'Neal (1996) document no trade off between

brokerage commission per trade and the expense ratio and suggest that the shareholders do not benefit from soft dollar arrangements through a reduction in advisory fees. Moreover, the SEC notes in a 1995 report that “Soft dollar practices also diminish the ability of a client to evaluate the expense it incurs in obtaining portfolio management services and may hinder the ability of the client to negotiate fee arrangements.” The SEC argues that the problem arises due to limited disclosure. Thus, the overall implication of soft dollar use on shareholder wealth through the decline in advisory fee is not clear. A negative relation would indicate that the shareholders benefit from advisory fee decrease as the amount of commission including the premium for additional services and research paid under soft dollar arrangements (i.e. soft dollar fee) increases. A positive relation or no significant relation instead would indicate that shareholders’ wealth does not necessarily improve through a decline in advisory fees.

The literature documents evidence of a relation between advisory fee and fund size, adviser size and turnover (Deli 2002). Deli also controls for reimbursed expenses in his model. I also control for the number of accounts since the higher redemption of shares and managing a larger number of shareholder accounts is likely to increase the cost of portfolio management. Moreover, funds compete with other funds in the same objective to attract prospective shareholders. In order to capture the effect of market dynamics and the competition within the objective I control for the concentration of assets within the objective. Deli documents a higher advisory fee for international funds. In addition to that, I also control for small cap and specialized funds.

### **3.3 Data and Methodology**

Disclosure of the amount of soft dollars and the amount of transaction that soft dollars are involved are not mandated by SEC. To construct the sample, I randomly select actively managed equity funds from CRSP Survivorship Free Mutual Fund Database after excluding index funds and multiple classes of the same fund. Initial screening of randomly selected equity funds reveals that two third of the funds report the dollar amount of the soft dollar commission paid to obtain services other than transaction execution. Funds that report zero soft dollar commissions are taken as having no soft dollar arrangements and excluded from the final sample set. My data are limited to equity funds because the use of soft dollars among fixed-income and OTC equity transactions was almost stopped after the SEC found that the Section 28(e) that introduced the soft dollar does not apply to dealer transactions for these groups.<sup>38</sup> Index funds are eliminated because these funds are not actively managed. Funds are grouped according to their objectives as defined in the CRSP database. Since CRSP does not distinguish between foreign and domestic funds, international funds are determined based on the information provided in the fund proxy. The weight of each objective in the sample set is determined based on the weight of the objective in the whole population of equity funds in CRSP database. The final sample set covers a 5-years period from 1999 to 2003 and consists of 432 equity funds managed by 129 different advisers. 1999 was picked as the beginning year, since less than half of the randomly selected funds disclose the dollar amount of soft dollar commissions prior to 1999.

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<sup>38</sup> I controlled the proxies and found that during the sample period almost all fixed income securities funds report zero soft dollar commission.



The dollar amount of the soft dollar commissions and total brokerage commissions are collected from the funds' SAI. The rest of the data are collected from the funds' NSAR. It is possible that the advisers who are more successful at using the services obtained by the soft dollar arrangements are more likely to disclose the information. In order to determine whether the lack of uniform disclosure leads to selection bias, I conduct a Heckman sample selection bias test with all screened funds, including the funds that do not disclose information. The results fail to reject the null hypothesis of no selection bias and are robust to treating the funds that report zero soft dollar commissions as having no soft dollar arrangements. Another concern could be that the large fund families such as Fidelity are likely to appear more frequently in the sample set. However, since a fund family that has higher weight in the industry is more likely to influence the industry norms, such characteristic of a randomly selected sample set would be only reflective of the whole population of mutual funds.

Conrad et al (2001) document that the transaction commission is higher for soft dollar brokers. However, my analysis on soft dollar use is not affected by this phenomenon since the dependent variable is not the commission per trade but the dollar amount of brokerage commissions paid under soft dollar arrangements divided by the total dollar amount of brokerage commissions. Thus, if the total brokerage commissions indicates the cost of the aggregate brokerage services necessary for the management of the fund, the dependent variable attempts to capture the degree of the soft dollar use indicating the amount of the brokerage services the fund management decides to bundle with additional services.

Livingston and O'Neal (1996) note that the sells are likely to be higher than buys at times of high redemption and decreasing fund assets. Likewise, buys are likely to be more than sells at

times of asset inflow. Therefore, the turnover reported in fund NSAR does not exactly reflect the total transaction that is necessary for fund management and understates the total assets traded. I calculate the fund turnover as the sum of the purchases and sales reported in NSAR divided by the weighted average value of the portfolio. Funds with high turnover also bear the market impact cost of transaction besides the brokerage commissions. However, Berkowitz et al. (1988) argue that market impact cost is small relative to commissions and concludes that there is no economic trade-off between market impact cost and commissions. Chan and Lakonishok (1993) suggest no correlation between market impact cost and brokerage commission. Thus, following Livingstone and O'Neal's (1996) model I do not control for market impact cost.

Advisers report the total amount of brokerage commission as well as the amounts paid to the first 10 brokers. Thus, it is possible to estimate the concentration of the brokerage services (i.e. broker base). A Herfindahl index of the brokerage commissions paid to the top 10 broker is calculated to obtain the brokerage service concentration. The calculation of the brokerage base's Herfindahl index  $h(I,i)$  is as follows:

$$h(I,i) = \sum_{k \in I} \left( \frac{A_k}{\sum_{j \in I} A_j} \right)^2 \quad (j = 1, 2, \dots, 10) \quad (9)$$

Where  $\frac{A_k}{\sum_{j \in I} A_j}$  is the brokerage commission received by broker  $k$  relative to the total

broker commission paid by the adviser<sup>39</sup>.

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<sup>39</sup> I also calculated the concentration of brokerage base following the method Deli (2002) uses to calculate the convexity of fee schedule, where the difference between the highest and the lowest fee level divided by the applied fee. Test results are qualitatively similar.

Two major alternative rent transfers to the brokers and dealers are front end load and 12b-1 fees. Although, in the literature front end loads and 12b-1 fees tend to be considered as rent transfer only to the brokers and other sales forces, not all front-end loads and 12b-1 fees are received by the brokers. Actual load payments reported in the funds' NSARs bear little resemblance to the maximum load fees that are widely reported and used in academic research (Christoffersen et al. 2005). The NSAR's decomposition of loads and 12b-1 fees allows me to determine the actual dollar amount of front end load received by the captive sales force and unaffiliated brokers as well as 12b-1 fees received solely by the brokers.<sup>40</sup> Captive brokers are brokers affiliated with the fund family, whereas unaffiliated do not represent any fund family. The percent of the front end load received by the brokers is the sum of the front end load paid to the captive sales force and unaffiliated brokers (Questions 32 and 33 in NSAR) in dollars divided by the total weighted assets. The 12b-1 fee paid solely to brokers and dealers is the dollar amount of 12b-1 payment received by brokers and dealers (Question 42D in NSAR) divided by the total weighted assets. Total compensation through alternative channels is the sum of the front end load and 12b-1 fee paid to brokers.

Soft dollar use, SDU, is regressed against the quantitative and dummy variables in equation (2)

$$SDU_{i,t} = \ln wfund_{i,t} + to_{i,t} + brcon_{i,t} + brstc_{i,t} + affi_{i,t} + cred_{i,t} + sales_{i,t} + quo_{i,t} + exe_{i,t} + tel_{i,t} + res_{i,t} + altcomp_{i,t} + int_{i,t} + sc_{i,t} + sp_{i,t} + e_{i,t} \quad (10)$$

Where

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<sup>40</sup> NSAR also reports the front end load retained by the adviser or 12b-1 fees paid to clients such as underwriters, sales personnel, banks etc.

$SDU_{i,t}$	=	soft dollar commissions for fund $i$ in year $t$ divided by the total brokerage commissions for fund $i$ in year $t$ .
$lnwfund_{i,t}$	=	natural log of weighted average assets
$to_{i,t}$	=	sum of purchases and sales divided by weighted average assets
$brcon_{i,t}$	=	brokerage service concentration
$brstc_{i,t}$	=	one if fund holds securities of its regular brokers that derive more than 15% of gross revenue
$aff_{i,t}$	=	one if any broker or dealer is an affiliated person
$cred_{i,t}$	=	one if there is an arrangement to return or credit part of all of commissions or profits to the adviser or the fund
$sales_{i,t}$	=	one if sales of fund's shares is a consideration for the participation of broker
$quo_{i,t}$	=	one if receipt of quotations for portfolio valuations is a consideration for the participation of broker
$exe_{i,t}$	=	one if ability to execute portfolio transactions to obtain best price and execution valuations is a consideration for the participation of broker
$tel_{i,t}$	=	one if receipt of telephone line and wire services is a consideration for the participation of broker
$res_{i,t}$	=	one if receipt of investment research and statistical information is a consideration for the participation of broker
$altcomp_{i,t}$	=	total front-end load and 12b-1 fee received by brokers or dealers
$int_{i,t}$	=	one if fund is an international fund
$sc_{i,t}$	=	one if fund is a small company fund
$sp_{i,t}$	=	one if fund is a special sector portfolio

Equation (2) is also estimated for soft dollar fee and brokerage fee. Soft dollar fee is calculated as the total soft dollar commissions divided by the total weighted average assets. Brokerage fee is calculated as the total brokerage commissions divided by the total weighted average assets.

Equation (3) investigates the first benefit shareholders expect from the use of soft dollar arrangements. The equation tests whether fund performance improves as soft dollar use increases.

$$FFAR_{i,t} = SDUHAT_{i,t} + \ln pertr_{i,t} + tr\ cost_{i,t} + \ln wfund_{i,t-1} + to_{i,t} + sc_{i,t} + int_{i,t} + sp_{i,t} + e_{i,t} \quad (11)$$

The dependent variable of equation (2), soft dollar use (SDU) and the independent variable of equation (2), turnover both enter the equation (3) as independent variables. Although variance inflation factors (VIFs below 4) remain below the conventional cutoff line of ten (Netter, Wasserman & Kutner 1985) and do not reveal any multicollinearity, in order to alleviate the effect of possible multicollinearity between the control variables I estimate a more restricted model using the non-stochastic component of soft dollar use,  $SDUHAT_{i,t}$ , the fitted values that are obtained from equation (2).

The dependent variable in equation (3) is Fama French four factor adjusted returns where;

$SDUHAT_{i,t}$  = the fitted values of soft dollar use obtained from equation (2).

$\ln pertr_{i,t}$  = the natural log of total soft dollar involved transaction divided by the soft dollar commissions controls for the quality of information as suggested by Brennan and Chordia (1993).

$trcost_{i,t}$  = following Carhart (1997), brokerage commission for turning over the fund portfolio once measured as the total brokerage commission divided by the fund turnover.

Keim and Madhavan (1998) find that commissions are affected by the share price. Thus, the marginal dollar amount of transaction per soft dollar commission is likely to be affected by the values of the securities in the underlying portfolio. However, some of the control variables in my analyses should alleviate this problem. Specifically, the potential bias is minimized by using Fama French adjusted returns controlling for the “high” versus “low”. I also include a dummy for small cap funds and use the log normal transaction per soft dollar which captures the percent change in transaction.

Following Carhart (1997), fund assets are lagged one year to avoid spurious correlation (Granger and Newbold 1974). Furthermore, a reduced model excluding turnover is estimated in order to test whether including turnover leads to biased results.

The shareholders could benefit from the use of higher quality services. Nevertheless, they would still bear the cost of these additional services. Although, equation (3) investigates the relation between the soft dollar use and the adjusted fund performance, it does not clearly capture the effect of the cost of soft dollar arrangements on shareholders’ wealth. Equation (4) is estimated in order to shed further light on the impact of the cost of soft dollar arrangements on shareholder’s wealth.

$$FFAR_{i,t} = SOFTFEE_{i,t} + \ln pertr_{i,t} + trcost_{i,t} + \ln wfund_{i,t-1} + to_{i,t} + sc_{i,t} + int_{i,t} + sp_{i,t} + e_{i,t} \quad (12)$$

Where,  $SOFTFEE_{i,t}$  is the soft dollar fee calculated as the total soft dollar commissions divided by the total weighted asset.

Equation (5) investigates the second benefit shareholders expect from the use of soft dollar arrangements. The equation tests whether the shareholders benefit from a reduction in gross advisory fee as soft dollar use increases.

$$WADV_{i,t} = SDUHAT_{i,t} + \ln wfund_{i,t} + \ln advsz_{i,t} + to_{i,t} + \ln account_{i,t} + reimb_{i,t} + obherf_{i,t} + sc_{i,t} + \text{int}_{i,t} + sp_{i,t} + e_{i,t} \quad (13)$$

Where in addition to the variables defined above;

$WADV_{i,t}$  = actual dollar amount of advisory fee paid by fund  $i$  in year  $t$  divided by the weighted average portfolio of fund  $i$  in year  $t$ .

$\ln advsz_{i,t}$  = natural log of adviser size calculated as the total asset of funds in CRSP database managed by the same adviser.

$\ln account_{i,t}$  = natural log of the number of shareholder accounts

$reimb_{i,t}$  = dollar amount of reimbursement of the adviser divided by total fund size.

$obherf_{i,t}$  = the Herfindahl index of the fund objective as a measure of the concentration of the assets within the fund objective.

Restricted models are estimated in order to check whether the results are model specific and affected from multicollinearity.

Although the advisory fee is expected to decrease as soft dollar use increases, equation (6) is estimated in order to have a better understanding of the impact of the cost of soft dollar arrangements, soft dollar fee, on the shareholders' wealth.

$$WADV_{i,t} = SOFTFEE_{i,t} + \ln wfund_{i,t} + \ln advsz_{i,t} + to_{i,t} + \ln spsz_{i,t} + \ln account_{i,t} + reimb_{i,t} + obherf_{i,t} + sc_{i,t} + \text{int}_{i,t} + sp_{i,t} + e_{i,t} \quad (14)$$

The herfindahl index of the fund objective controls for the competition within the fund objective in order to capture the objective characteristics. The calculation of the objective's Herfindahl index  $h(I,i)$  is as follows:

$$h(I,i) = \sum_{k \in I} \left( \frac{A_k}{\sum_{j \in I} A_j} \right)^2 \quad (15)$$

Where  $\frac{A_k}{\sum_{j \in I} A_j}$  is the share of net assets of fund  $k$  relative to the total net assets in the objective.

Sutton (1991) shows that, over a broad class of oligopoly models, the number of market participants and the variable part of the cost of the product are not necessarily related. Thus, normalized Herfindahl indices are calculated following Luo's (2002) method.

Specifically, the normalized Herfindahl index for category  $I$  in which fund  $i$  belong, denoted  $h_i^I$ , is defined as:

$$h_i^I = \frac{h(I,i)}{h^c(I,i)} - 1 \quad (16)$$

Where  $h^c(I,i) = 1/N^I$ ;  $N^I$  denotes the number of funds in mutual fund category.

The normalized Herfindahl index characterizes the relative competitiveness of the objective to which the fund belongs compared to the case where net assets are equally distributed



among all funds within the objective. For example, it takes the value of one if there is one fund in an objective.<sup>41</sup>

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<sup>41</sup> I repeated tests without normalizing the Herfindahl index. Results remained qualitatively similar.

## **3.4 Empirical Analysis**

### ***3.4.1 Descriptive Statistics***

Table 1 summarizes the descriptive statistics. Results indicate that on average 51% of total brokerage commissions are paid under soft dollar arrangements. This result confirms SEC's soft dollar use estimation in its 1998 report.<sup>42</sup> Total brokerage commissions are on average 40.85 basis points of funds' total assets which 20.73 basis points are transferred as soft dollar commissions for transaction execution and additional services bundled. Since the average fund size is \$161.36 million dollars, this suggests that an average equity fund transfers around \$334,000 to the brokers under soft dollar arrangements. In return, funds engage in \$738.20 worth of transaction for \$1 of soft dollar commission. The average advisory fee is 79.19 basis points.<sup>43</sup>

Table 2 summarizes the descriptive statistics of the dummy variables. 39.97% of the funds hold securities of the brokers that generate more than 15% of their revenue and 28.75% of the funds report that they have an affiliated broker or dealer. Thus, such characteristics of the relation between the adviser and the broker are not limited to a small number of funds. Moreover 29.86% of the funds have an arrangement with at least one of their brokers or dealers in order to return part of the commissions to the adviser indicating that additional contracts that would directly affect the rent transfer between the adviser and the brokers are not limited to a marginal group of funds. Almost all five groups of services listed in funds' NSARs are reported by a significant number of funds to be a consideration while deciding the broker participation. Among

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<sup>42</sup> SEC, 1998, Inspection report on the soft dollar practices of broker-dealers, investment advisers and mutual funds, <http://www.sec.gov/news/studies/softdollar.htm>

<sup>43</sup> The literature documents average advisory fee for equity funds to be around 76.7 basis points (Deli 2002) thus the sample set is representative of the equity funds.

them, “providing research and information” is particularly important since it is considered as the primary product obtained through soft dollar arrangements. 88.08% of the funds report that receipt of investment research and statistical information influences their decision on broker participation.

#### ***3.4.2 Brokerage Fee, Soft Dollar Use and Considerations of the Adviser in Broker Participation***

If the advisers are successful at strategically determining the brokerage participation that would minimize the cost of brokerage services and the soft dollar premium then *ex post* brokerage commission and the soft dollar use should be reflecting *ex ante* considerations of adviser in determining the broker participation.

Results in Table 3 suggest that two of the factors listed in fund NSAR as a consideration on broker participation, “sales of funds shares” and “ability to execute portfolio transactions to obtain best price and execution” are negatively related to brokerage fee and soft dollar fee indicating that the advisers are successful at selecting the brokers based on their ability to market fund shares and execute transaction. This also indicates that while determining the broker participation, the advisers compel the brokerage industry to be competitive on the cost of marketing and trading service. The positive relation between the research dummy and the soft dollar fee as well as the brokerage fee indicates that the advisers that consider the broker’s ability to provide research and statistical services, mostly stated as the primary reason for soft dollar arrangements, pay higher soft dollar fees and brokerage fees because of to the premiums paid for additional services.

Soft dollar use is negatively related to the considerations for broker participation of “best price and execution” and “supplying communication service” (i.e. telephone line and wire services). Thus, a brokerage base constructed with considerations mainly for regular transaction execution does not lead to higher soft dollar use. However, soft dollar use increases if research, the primary product fund obtains through soft dollar arrangements, is considered as a factor for broker participation. Thus, the determination of broker participation by the adviser and soft dollar use are not arbitrary. Advisers construct the broker base considering the soft dollar agreements and in order to minimize the brokerage commissions. Regular transaction related considerations lead to lower commissions and soft dollar use, whereas considerations mostly related to the improvement of portfolio management (i.e. research) increase both the commissions and soft dollar use.

Although, it is not a direct factor for improving fund management as research and information, participation of the broker in the sale of fund shares is directly related with the soft dollar use. However, if the sale of fund shares is a significant factor in the participation of the broker and the sale force is also compensated by the front end loads and 12b-1 fees, it is possible that brokers that are compensated through these alternative channels would provide the additional services at a lower cost. However, I find the total rent transfer to brokers through front end load and 12b-1 fees does not lead to the decrease of soft dollar fees. I interpret the result that advisers make a distinction between the sales activity and rest of the brokerage services to some degree. Furthermore, fund managements that are aggressive in marketing (i.e. select the brokers considering the ability to sell shares) also tend to be aggressive in portfolio management. Such managements are likely to allocate more soft dollars for research and additional services.

### ***3.4.3. Brokerage Fee, Soft Dollar Use and Broker Base***

If the broker participation and soft dollar use are determined strategically as the results above suggest then the allocation of the soft dollar arrangements and the demand for other brokerage services among the participating brokers should reflect a similar structure. The positive relation between soft dollar use and the broker concentration suggested by the results in Table 3 indicates that a more concentrated broker base leads to more soft dollar use. However, the positive relation between the soft dollar fee and brokerage concentration imply that shareholders do not benefit from lower premiums. Furthermore, broker concentration and the brokerage commissions are inversely related indicating that the more concentrated the broker base of the fund is, the less brokerage commissions the shareholders pay. If the adviser concentrates its brokerage service on a smaller number of brokers, the shareholders benefit from relatively lower brokerage commissions but not necessarily lower premiums for additional services. Thus, the advisers have incentives to favor certain brokerage houses over others in order to reduce the cost of transaction executions. However, my results suggest that the advisers transfer excess premium for the additional services. Nevertheless, the results do not rule out that the higher soft dollar use is partially responsible for the positive relation between the soft dollar fee and broker concentration.

Results in Table 3 indicate that the brokerage fee, soft dollar fee and soft dollar use increase if there exists an agreement “to return or credit part of all of commissions or profits to the adviser or the fund”. Such agreement gives the adviser the opportunity to rebalance the rent transfer to its broker base. The adviser that would receive part of the commissions back may accept to transfer higher amount of rent as brokerage commissions and soft dollar premiums.

Funds that hold the securities of their brokers tend to have lower brokerage commissions. Brokers might be compensating the adviser through lower brokerage commissions for holding the securities of the brokerage house or simply brokerage houses that are successful at executing transactions at a lower cost are taken by the advisers as successful institutions to invest. However, results do not suggest that such optimism spills over to the decision of soft dollar use since advisers that hold the securities of regular broker that derive more than 15% of gross revenue of the fund neither engage in significantly higher soft dollar use nor pay less soft dollar fee.

The positive relations between the affiliated broker dummy and both the soft dollar fee and brokerage fee indicate that funds that are managed by an adviser that has an affiliated broker pay higher commissions. Since there is no significant relation between the soft dollar use and the existence of affiliated broker, the positive relation between the soft dollar fee and affiliated broker dummy imply that the adviser indirectly compensates the affiliated brokers by transferring excess rent as premiums of soft dollar arrangements which are not required for disclosure. Courts have recently documented the unnecessary excess rent transfer to unaffiliated brokers suggesting that similar services could be provided by the affiliated brokers at a lower cost. However, Christoffersen et. al. (2005) suggest that the advisers favor affiliated brokers over unaffiliated brokers for retaining assets that would otherwise leave the fund family. Thus, the positive relation between the existence of an affiliated broker and the brokerage commissions suggest that such favoritism could lead to excess transaction execution by affiliated brokers that

do not directly require additional services purchased through soft dollars and result in higher brokerage commissions.<sup>44</sup>

#### ***3.4.4 Brokerage Fee, Soft Dollar Arrangements and Fund Characteristics***

Table 3 summarizes how considerations for broker participation and the characteristics of the broker base affect brokerage services. The dependent variable of the first model is the soft dollar use. The dependent variable of the second model is the soft dollar fee. The dependent variable of the last model in Table 3 is the brokerage fee.

Results confirm the findings of Livingstone and O’Neal (1996). Larger funds have not only lower brokerage fee but also lower soft dollar fees. They may obtain lower commissions as a percent of total assets. Moreover, the fixed component of commissions is allocated over a larger amount of assets. Results do not suggest that larger funds differ in the soft dollar use. Thus, the use of additional services through soft dollars is not limited to the funds of a specific size. The positive relation between the turnover and the soft dollar fee as well as brokerage fee indicates that higher turnover leads to higher brokerage fees and higher soft dollar fees. However, the soft dollar use is negatively related with turnover suggesting that the percentage of soft dollar transactions decrease as turnover increases. Hence, the results suggest that regular transaction executions that are less likely to be motivated with services obtained through soft dollar arrangements are responsible for higher levels of turnover. I do not find any significant relation between sum of front end load and 12b-1 fee and brokerage commission or soft dollar

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<sup>44</sup> However, in further tests where dependent variable is the brokerage fee net of soft dollar fee (brokerage fee mainly for transaction execution), I find no significant relation between brokerage fee and affiliated broker dummy. Thus, soft dollar commissions are likely to be responsible for higher commissions if there exists an affiliated broker.

use.<sup>45</sup> Rent transfers to brokers through these channels do not affect the brokerage fee suggesting that the distribution activity and its cost is managed independent from the brokerage services and cost of brokerage services.

International funds have higher soft dollar fee suggesting that they pay higher premiums for research and additional services in international markets. Shareholders of international funds also bear higher brokerage fees confirming Livingstone and O’Neal (1996). However, they do not engage in significantly higher soft dollar use. I interpret these results as international funds allocating more of their brokerage commissions for regular transaction executions rather than additional services through soft dollar arrangements possibly due to relatively higher transaction costs in foreign markets.

Small cap funds have higher brokerage fee and lower soft dollar use implying that these funds allocate most of their brokerage commission for regular transaction execution rather than for additional services obtained through soft dollar arrangements. However, specialized funds have lower brokerage fees and higher soft dollar use, indicating that they bundle more of their brokerage service with additional services and pay lower brokerage commissions overall. Thus, specialized funds may be using additional services in order to successfully determine strategic transaction execution.

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<sup>45</sup> I also repeated the tests separating front end load and 12b-1 fees. I do not find any significant relation between front end load and brokerage commission confirming Livingstone and O’Neal’s result. I also find no relation between brokerage fees and the amount of 12b-1 fees paid solely to brokers or dealers.



### ***3.4.5. Adjusted Fund Returns and Soft Dollar***

If the purpose of the additional services is to improve the portfolio management then the shareholders should benefit from higher returns as a result soft dollar arrangements. The first three models in Table 4 summarize the results of the relation between the Fama French four factor adjusted returns and the soft dollar use. The positive result between the fund performance and soft dollar use indicates that shareholders benefit from better returns as soft dollar use increase after controlling for the quality of the information.<sup>46</sup> Robustness check using the actual rather than values of soft dollar use indicates the same positive relation between adjusted fund performance and soft dollar use.<sup>47</sup> The quality of information provided by the soft dollar arrangement is directly related to the fund performance supporting the argument of Livne and Trueman (2002) that informed investors profit more from their private information if less of the information is incorporated into prices by nonclient members. There is some truth to the idea that soft dollar arrangements are not homogeneous and the effectiveness of the arrangements depends on the quality of the services and information obtained.

The last two models in Table 4 try to capture the impact of the cost of soft dollar arrangements on the shareholders wealth. The negative relation between the soft dollar fee and the fund performance imply that although performance improves as soft dollar use increases the shareholders bear the cost of this improvement and their overall wealth is adversely affected.

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<sup>46</sup> I also checked for non-linear relation between the soft dollar use and adjusted fund performance. Although, results suggest some degree of non-linearity, they are subject to model specification.

<sup>47</sup> Nevertheless, this alternative model suffers from heterogeneity once turnover is included in the model as discussed in methodology section.

### ***3.4.6. Advisory Fee and Soft Dollar Use***

The advisory fee is solely the cost of fund management including the cost of research if it is done by the adviser. When the research is outsourced under the soft dollar arrangement, the cost of research and related services are paid under the brokerage fee instead of the advisory fee. In this case the shareholders should expect to benefit from reduction in advisory fees.

The first three models in Table 5 investigate the relation between the gross advisory fee and the soft dollar use. Results suggest that the increase in soft dollar use leads to a reduction in the advisory fee. The last two models indicate that the soft dollar fee, total soft dollar commissions divided by total fund assets, and the gross advisory fee are positively related, inconsistent with the idea that shareholders who surrender part of their wealth for soft dollar commissions benefit from a reduction in advisory fees. However, since I can not determine the value added by the outsourced research I can not refute that the information provided by the outside source could have higher quality therefore be more valuable. Nevertheless, results overall suggest that although the advisory fee decreases as the adviser bundles more of the additional services under soft dollar arrangements, a high amount of soft dollar arrangements is detrimental for shareholders' wealth.

Finally, the control variables deserve some brief comments. The results between the control variables and the advisory fee confirm Deli's (2002) findings. Larger funds and funds that are managed by larger advisers have lower advisory fee. Funds with higher turnover have higher advisory fee. Results suggest that the advisers are likely to rebalance the rent transfer from shareholders for portfolio management through reimbursement. This indicates that since the advisers could not predict the exact cost of portfolio management, they negotiate for a mark-up

which they could rebalance at the end of the fiscal year. Results further suggest that small cap domestic equity funds and international equity funds have higher advisory fee.

Overall, the results in Table 4 and Table 5 suggest that although shareholders benefit from better fund performance and a reduction in advisory fee as soft dollar use increases, the adviser bundles more of the brokerage service with additional services, the improvement comes to the shareholders at a cost. The results suggest that shareholders wealth is adversely affected from high amount of soft dollar arrangements. If the part of the brokerage commissions for transaction execution is determined in a competitive brokerage industry as suggested by previous results, then the undisclosed premium portion of the soft dollar commissions paid for the additional services would be responsible for this adverse effect of soft dollar arrangements on shareholders' wealth.

### **3.5 Further Tests and Robustness Checks**

Table 6 summarizes the results of the models that provide further evidence to understand the results documented in the previous tests. Results above suggest that more concentrated broker base leads to lower brokerage commissions but higher soft dollar commissions. Yet, a more concentrated broker base also leads to higher degree of soft dollar use. The results in Table 6 investigates whether besides the premium paid under soft dollar fee, the degree of soft dollar use is likely to be partially responsible for the positive relation between broker concentration and soft dollar fee. The first model in Table 6 is an indication that there is some truth to this argument. After controlling for the degree of soft dollar use, broker concentration is not significantly related to the soft dollar commission implying that although previous results suggest that the advisers pay higher premium to favored brokers for additional services obtained through soft dollar arrangements; this is partially the result of the higher degree of soft dollar use.

As the results above indicate, the adjusted performance of the fund is positively related to the quality of information, suggesting that the soft dollar arrangements are not homogeneous. The impact of the quality of information obtained through soft dollar arrangements on fund management is not limited to its positive effect on the performance. The results in Table 6 indicate that the quality of the additional services and information (LNPERTR, proxy for the quality of additional services) obtained through soft dollar arrangements leads to lower commissions and less soft dollar use. Higher quality of additional services and information not only reduces the necessity of soft dollar arrangements thus reducing the aggregate premium paid for these services but also improves the effectiveness of the transactions thus reducing the

brokerage commissions. Thus, the quality of the products and additional services obtained through soft dollar arrangements are important elements of the adviser's management of the brokerage services and related contracts.

### **3.6 Limitations**

Results suggest neither a form of causality nor an order of the factors. Moreover, they should be interpreted carefully and not be taken as rejection of any alternative theory. For example, although Carhart (1997) documents that more than half of the annual excess return could be explained by the 4-Factor model and transaction costs describe most of the unexplained mutual fund performance, the fund performance could be affected by various factors such as individual manager skills.

Although, Heckmann test suggests no selection bias, some the results have to be interpreted carefully. The direct relation between the performance and soft dollar use is a good example. It is possible that funds that experience superior performance are likely to use additional services more effectively and are more likely to disclose information about the details of soft dollar use. Similarly, negative relation between the advisory fee and the soft dollar should be interpreted carefully. Several variables are introduced in order to control for the factors effective on the advisory fee, yet there could be some unaccounted factors. For example, the study does not fully capture the possible effect of the adviser's marginal product. Any uncaptured difference between marginal products of the advisers could be partially responsible for the variation of the advisory fee. However, this is minimized through the use of a panel model.

Funds disclose the aggregate amount of soft dollar but not the details on services obtained through soft dollar arrangements and there is no uniform price determined for a specific additional service. It is not possible to observe specifically which services are obtained through a particular soft dollar arrangement or exact premium paid for a specific service. Therefore, I am

unable to extend the model in order to distinguish between the effectiveness of the use of soft dollar arrangement to obtain a particular service or investigate the net value added by outsourcing. Moreover, it is not possible to investigate the differences of the use of soft dollar arrangements within or between the advisers. However, in order to minimize the bias due to the limited disclosure, I use the proportion of soft dollar commissions within the total brokerage commissions, attempting to capture how the advisers manage the necessary aggregate brokerage service and the degree of bundling services.

Finally, it is possible that investment management service represents something more than simply indirect sale of information (Brennan and Chordia 1993). Although the study provides support that shareholder wealth is not improved from soft dollar arrangements, no conclusive statement is suggested. This would require the investigation of the net value added by outsourcing the services and exact amount of soft dollar paid for research and information.

### **3.7. Conclusion**

Fund management involves determining the *ex post* broker participation based on *ex ante* expectations. The adviser further determines the necessary total brokerage services and the scope of additional services besides trade execution that would be obtained from participating brokers through soft dollar arrangements. Successful management of soft dollar arrangements and brokerage services should lead to obtaining the services at the minimum cost and strategic engagement of additional contracts with the brokers. Under soft dollar arrangements, the adviser outsources the services (mainly research) and the shareholders pay the cost of these services under brokerage commissions. Therefore, in return shareholders expect to benefit from better performance and reduction in advisory fee.

Results indicate that the determination of the broker participation by the adviser is not arbitrary. The adviser's considerations on broker participation are strategically reflected in the brokerage fee and soft dollar use. The advisers *ex ante* determine the broker participation in order to minimize the *ex post* brokerage commissions while considering soft dollar arrangements. The advisers engage in more soft dollar use and have higher brokerage fees if they consider research and the sale of fund shares in determining broker's participation. However, the soft dollar use, soft dollar fee and the brokerage commissions decrease if the adviser considers transaction related services, such as the ability to obtain best execution price in broker's participation. Concentrating the brokerage service demand on certain brokerage houses leads to lower brokerage commission but higher soft dollar fee. Moreover, such favoritism induces advisers to engage in higher soft dollar use. Thus, the advisers enforce competition within the brokerage industry for lower cost of transaction execution. However, the concentration of



services on a number of brokers does not lead to similar competition for obtaining the additional services at fairer premiums.

The soft dollar use and cost of brokerage services are not solely based on the careful determination of the participation of broker based on the considerations of the adviser or allocation of brokerage services among the brokers. The relations and related contracts between the adviser and the brokers also affect the management of brokerage services. The arrangements that allow rebalancing of rent transfer to the adviser lead to increase in brokerage commissions and bundling of brokerage services. Furthermore, the advisers that hold securities of brokers that derive more than 15% of the profits also have lower brokerage commissions. The results suggest that having affiliated brokers increase both the brokerage commissions and soft dollar fee. This suggests that the adviser engages in excess transaction execution through affiliated brokers to retain the assets within the family and indirectly compensates affiliated brokers by rent transfer through premiums. Neither holding securities of the brokerage houses nor having an affiliated broker affects the soft dollar use.

I find that the increase in soft dollar use, the proportion of bundled brokerage services, leads to better fund returns and a reduction in the gross advisory fee. Nevertheless, shareholders bear the cost of improvement through soft dollar commissions. Overall, shareholder wealth is not better off from soft dollar arrangements. In a brokerage industry where brokers compete for lower cost of transaction execution as the results suggest, the undisclosed premium portion of the soft dollar commissions paid for the additional services are likely to be responsible for this adverse effect. Two results provide further support for this argument. First, although the brokerage commissions decrease when the broker base is more concentrated, soft dollar fees

increase. Second, the soft dollar fee is higher if there exists an affiliated broker although the results suggest that the fund does not obtain higher soft dollar use. As the SEC notes in its 1995 report “Soft dollar practices also diminish the ability of a client to evaluate the expense it incurs in obtaining portfolio management services and may hinder the ability of the client to negotiate fee arrangements.” Hence, the disclosure of the details of soft dollar arrangements could encourage the competition to provide these services at fairer prices to shareholders.

Overall, concentration of the broker base and the scope of services the adviser considers in determining the broker base affect the soft dollar use. Transaction based services lead to less soft dollar use while soft dollar use increases if research and sale is a consideration. Reimbursement of commissions leads to increase in both the soft dollar use and the aggregate cost of brokerage services whereas the existence of affiliated broker leads to only increase of commissions. Shareholders benefit from higher degree of soft dollar use but detriment from the cost incurred. Results suggest that the undisclosed premium of the additional services is responsible for this adverse effect.

## TABLES

**Table 13 Descriptive Statistics**

<b>Variables</b>		<b>N</b>	<b>Mean</b>	<b>Med.</b>	<b>25th</b>	<b>75th</b>
<i>Soft \$ / Total Brokerage</i>	<i>SDU</i>	<b>1583</b>	<b>0.51</b>	<b>0.37</b>	<b>0.10</b>	<b>0.87</b>
<i>Advisory Fee (basis points)</i>	<i>WADVb</i>	<b>1787</b>	<b>79.19</b>	<b>75.87</b>	<b>60.94</b>	<b>94.22</b>
<i>Brokerage Fee (basis points)</i>	<i>BRKFb</i>	<b>1738</b>	<b>40.85</b>	<b>22.16</b>	<b>12.65</b>	<b>45.16</b>
<i>Adjusted Return</i>	<i>FFAR</i>	<b>1761</b>	<b>-0.67%</b>	<b>-1.42%</b>	<b>-7.72%</b>	<b>5.06%</b>
<i>Fund Size (\$ million)</i>	<i>WFUND</i>	<b>1761</b>	<b>161.36</b>	<b>167.39</b>	<b>47.30</b>	<b>541.61</b>
<i>Turnover</i>	<i>TO</i>	<b>1790</b>	<b>320.78%</b>	<b>199.62%</b>	<b>121.15%</b>	<b>319.80%</b>
<i>Brokerage Concentration</i>	<i>BRHERF</i>	<b>1845</b>	<b>0.07</b>	<b>0.04</b>	<b>0.03</b>	<b>0.07</b>
<i>Adviser Size (\$ million)</i>	<i>ADVSZ</i>	<b>1817</b>	<b>16011.30</b>	<b>17908.84</b>	<b>3291.01</b>	<b>69410.96</b>
<i>Number of Accounts (thous.)</i>	<i>NUMACC</i>	<b>1666</b>	<b>5053.32</b>	<b>7973.51</b>	<b>1278.50</b>	<b>34909.00</b>
<i>% Reimbursement</i>	<i>REIM</i>	<b>1662</b>	<b>0.18%</b>	<b>0.01%</b>	<b>0.00%</b>	<b>0.11%</b>
<i>Objective Concentration</i>	<i>OBHERF</i>	<b>1757</b>	<b>22.09</b>	<b>24.26</b>	<b>16.95</b>	<b>28.33</b>
<i>FE load+12b-1 (basis pts.)</i>	<i>ALTCOMP</i>	<b>1626</b>	<b>17.01</b>	<b>0.1</b>	<b>0.00</b>	<b>14.55</b>
<i>soft \$ / TNA (basis pts.)</i>	<i>SOFTFEE</i>	<b>1612</b>	<b>20.73</b>	<b>7.67</b>	<b>2.07</b>	<b>21.89</b>
<i>\$ Transaction per soft \$</i>	<i>PERTR</i>	<b>1161</b>	<b>738.20</b>	<b>590.29</b>	<b>442.14</b>	<b>780.66</b>

**Table 14 Descriptive Statistics of Broker Base Characteristics and the Frequency of the Considerations on Broker Participation**

<b>Variables</b>		<b>N</b>	<b>1</b>	<b>0</b>
<i>Hold sec. of brokers</i>	<i>BRSTC</i>	<b>1774</b>	<b>39.97%</b>	<b>60.03%</b>
<i>Affiliated broker</i>	<i>AFFI</i>	<b>1801</b>	<b>28.54%</b>	<b>71.46%</b>
<i>Arrange. to return comm.</i>	<i>CRED</i>	<b>1795</b>	<b>29.86%</b>	<b>70.14%</b>
<i>Sales of fund shares</i>	<i>SALES</i>	<b>1795</b>	<b>31.98%</b>	<b>68.02%</b>
<i>Research and information</i>	<i>RES</i>	<b>1796</b>	<b>88.08%</b>	<b>11.92%</b>
<i>Receipt of quote &amp; valuation</i>	<i>QUO</i>	<b>1795</b>	<b>27.69%</b>	<b>72.31%</b>
<i>Obtain best price for execu.</i>	<i>EXE</i>	<b>1795</b>	<b>97.21%</b>	<b>2.79%</b>
<i>Telephone or wire service</i>	<i>TEL</i>	<b>1795</b>	<b>8.25%</b>	<b>91.75%</b>

**Table 15 Panel Model Regressions of Brokerage Commissions and Soft Dollar Commissions**

Dependent variable for first model is brokerage fee, for the second model soft dollar use. Independent variables are respectively, fund size, fund turnover, BRHERF brokerage concentration, BRSTCK fund holds securities of brokers that derives more than 15% of the profits, AFFI dummy variable equal to 1 if an affiliated broker exists, CRED is equal to one if there is an agreement to return all or part of the commissions. Dummy variables are equal to one if following factor is a factor in broker participation. SALES for sale of fund, QUO for quote and valuation service, EXE for obtaining best execution price, COM for telephone or wire service, RES for research and information providing. ALTCOMP is the percentage of total dollar front end load and dollar 12b-1 fee paid solely to brokers. INT, SC and SP are objective dummies for international, small company and specialized funds.

<i>Variables</i>	Soft Dollar Use	Soft Dollar Fee	Aggregate Brokerage
	<u>Soft \$ Commission</u> Brokerage Commissions	<u>Soft \$ Commission</u> TNA	<u>Brokerage</u> TNA
<b>LNWFUND</b>	0.009 (0.14)	-1.61** (0.02)	-4.41*** (0.00)
<b>TURN</b>	-0.01*** (0.00)	2.39*** (0.00)	10.25*** (0.00)
<b>BRHERF</b>	0.16** (0.04)	17.17* (0.06)	-73.78*** (0.00)
<b>BRSTC</b>	0.02 (0.17)	-0.14 (0.93)	-5.93** (0.04)
<b>AFFI</b>	0.02 (0.42)	5.68** (0.02)	9.06** (0.02)
<b>CRED</b>	0.07*** (0.00)	7.08*** (0.00)	9.81*** (0.01)
<b>SALES</b>	0.03** (0.05)	-4.50*** (0.00)	-9.90*** (0.00)
<b>QUO</b>	0.03 (0.20)	0.32 (0.89)	1.43 (0.70)
<b>EXE</b>	-0.16*** (0.00)	-37.32*** (0.00)	-40.74*** (0.00)
<b>COM</b>	-0.14*** (0.00)	-1.32 (0.71)	-4.25 (0.46)
<b>RES</b>	0.09*** (0.00)	12.65*** (0.00)	15.84*** (0.00)
<b>ALTCOMP</b>	1.6E-04 (0.30)	0.04** (0.02)	4.0E-03 (0.88)
<b>INT</b>	0.02 (0.57)	9.00** (0.03)	22.73*** (0.00)
<b>SC</b>	-0.11** (0.03)	-1.15 (0.82)	19.14*** (0.01)
<b>SP</b>	0.22*** (0.00)	-2.85 (0.50)	-18.37*** (0.00)
<b>ONE</b>	0.36*** (0.00)	52.03*** (0.00)	92.93*** (0.00)
<b>R<sup>2</sup></b>	0.28	0.25	0.54
<b>Number of Funds</b>	390	401	403

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.

**Table 16 Panel Regression of Adjusted Fund Returns and Soft Dollar Use**

Dependent variable is Fama-French 4 factor adjusted returns. Independent variables are SDUHAT fitted values of soft dollar use, LNPERTR natural log of dollar value of transaction per soft dollar commission in order to capture the quality of information, TRCOST is the brokerage commission to turnover fund once, lagged fund size, fund turnover and fund dummies.

<i>Dependent Variable : Adjusted Fund Return</i>					
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>SDUHAT</b>	0.14*** (0.00)	0.22*** (0.00)	0.18*** (0.01)		
<b>SOFTFEE</b>				-3.5E-04*** (0.00)	-3.2E-04** (0.03)
<b>LNPERTR</b>		0.02*** (0.00)	0.02*** (0.00)		0.02* (0.07)
<b>TRCOST</b>		-0.005 (0.27)	-0.001 (0.78)		-3.67E-04 (0.93)
<b>LNWFUND(T-1)</b>		-0.003 (0.50)	-0.002 (0.61)		-5.8E-04 (0.90)
<b>TURN</b>			-6.3E-04 (0.62)		-0.002* (0.09)
<b>SC</b>		-0.01 (0.69)	-0.005 (0.81)		-0.02 (0.26)
<b>INT</b>		-0.05*** (0.00)	-0.04*** (0.00)		-0.04*** (0.01)
<b>SP</b>		-0.03 (0.17)	-0.01 (0.60)		0.04*** (0.00)
<b>ONE</b>	-0.08*** (0.00)	-0.16** (0.02)	-0.20*** (0.00)	-0.006 (0.23)	-0.10 (0.12)
<b>R<sup>2</sup></b>	0.02	0.05	0.05	0.01	0.05
<b>Number of Funds</b>	371	275	275	379	283

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.

**Table 17 Panel Regression of Advisory Fee and Soft Dollar Use**

Dependent variable is the gross advisory fee divided by fund size. SOFTFEE is the percent of assets paid as soft dollar commission. SDUHAT is the fitted values of soft dollar use. LNWFUND NATURAL LOG OF FUND SIZE, TURN is fund turnover, LNPSZ is sponsor size, LNACCOU natural log of number of shareholder accounts, REIMBURS reimbursement divided by fund size, OBHERF objective concentration and fund dummies for international, small cap and specialized funds.

<i>Dependent Variable: Advisory Fee (basis points)</i>					
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>SDUHAT</b>	-39.06*** (0.00)	-30.11*** (0.01)	-25.52** (0.02)		
<b>SOFTFEE</b>				0.18*** (0.00)	0.07*** (0.01)
<b>LNWFUND</b>			-4.48*** (0.00)		-4.09*** (0.00)
<b>TURN</b>					0.79*** (0.00)
<b>LNPSZ</b>		-4.34*** (0.00)	-4.03*** (0.00)		-3.55*** (0.00)
<b>LNACCOU</b>		1.33*** (0.00)	3.27*** (0.00)		2.81*** (0.00)
<b>REIMBURS</b>		-0.004 (0.73)	-0.02* (0.095)		-0.02** (0.03)
<b>OBHERF</b>		0.06 (0.60)	0.05 (0.64)		0.03 (0.76)
<b>INT</b>		21.55*** (0.00)	19.79*** (0.00)		18.06*** (0.00)
<b>SC</b>		9.19** (0.05)	9.82** (0.03)		14.59*** (0.00)
<b>SP</b>		11.04*** (0.01)	5.21 (0.20)		-5.08 (0.16)
<b>ONE</b>	96.94*** (0.00)	114.54*** (0.00)	148.55*** (0.00)	76.13*** (0.00)	129.60*** (0.00)
<b>R<sup>2</sup></b>	0.04	0.18	0.20	0.10	0.22
<b>Number of Funds</b>	390	361	361	410	371

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.

**Table 18 Panel Model Regressions for Further Tests**

Variables are the same as in Table 3. SDU is the soft dollar use, LNPERTR is the natural log of transaction per commission of soft dollar.

<i>Variables</i>	Soft Dollar Use	Soft Dollar Fee	Brokerage Fee
	<u>Soft \$ Commission</u> Brokerage Commissions	<u>Soft \$ Commission</u> TNA	<u>Brokerage Commission</u> TNA
<b>SDU</b>		44.05*** (0.00)	
<b>LNPERTR</b>	-0.07*** (0.00)	-9.00*** (0.00)	-14.88*** (0.00)
<b>LNWFUND</b>	0.01** (0.03)	-1.57*** (0.00)	-1.89 (0.11)
<b>TURN</b>	-0.006*** (0.01)	2.11*** (0.00)	11.25*** (0.00)
<b>BRHERF</b>	0.003 (0.98)	4.16 (0.61)	-121.26*** (0.00)
<b>BRSTC</b>	-0.02 (0.33)	-0.45 (0.76)	-6.43* (0.08)
<b>AFFI</b>	0.04 (0.19)	1.37 (0.53)	11.81** (0.02)
<b>CRED</b>	0.09*** (0.00)	1.66 (0.42)	15.21*** (0.00)
<b>SALES</b>	0.05*** (0.00)	-5.41*** (0.00)	-12.72*** (0.00)
<b>QUO</b>	0.05** (0.03)	-0.76 (0.72)	0.53 (0.91)
<b>EXE</b>	-0.16*** (0.00)	-30.62*** (0.00)	-30.71*** (0.00)
<b>COM</b>	-0.17*** (0.00)	6.63** (0.04)	-0.52 (0.93)
<b>RES</b>	0.06* (0.08)	8.19*** (0.00)	13.24** (0.05)
<b>ALTCOMP</b>	3.04E-04 (0.19)	0.03** (0.02)	0.01 (0.83)
<b>INT</b>	0.03 (0.43)	10.15*** (0.00)	20.69*** (0.00)
<b>SC</b>	-0.15*** (0.01)	6.21 (0.15)	9.81 (0.25)
<b>SP</b>	0.17*** (0.00)	-4.15 (0.25)	-27.23*** (0.00)
<b>ONE</b>	0.83*** (0.00)	31.58*** (0.00)	149.14*** (0.00)
<b>R<sup>2</sup></b>	0.68	0.39	0.62
<b>Number of Funds</b>	295	390	298

\*\*\*, \*\*, \* indicate significance at 1%, 5%, 10% respectively. p values are given in parenthesis.



## CONCLUSION

I study corporate governance of equity mutual funds in a framework of relations between the three closely interrelated actors of mutual fund industry. The mutual fund advisers, the shareholders and the mutual fund board being the advocate of shareholders rights.

The advisory fee, price of professional portfolio management provided by the mutual fund adviser depends not only on the fund characteristics but also on the fund objective, the adviser's portfolio related and management based decisions, and the portfolio performance. Furthermore, the advisory fee which is solely an outcome of the negotiations between the fund board and the adviser, thus a good proxy for the governance skills of the board. Advisers may reduce their own costs through the use of derivatives or manipulate the actual fee contract by engaging in soft dollar agreements. Advisers actively manage the advisory fee contracts responding to the outcome of their management decisions such as voluntary fee reimbursement or non-reimbursements. Risk taking behavior is the main motivation behind the structure of advisory contracts. Also, I show that non-surviving funds have higher advisory fees, suggesting competitive fee pricing may be necessary for survival.

The individual characteristics of the members that occupy board seats are crucial for mutual fund board governance. I find that boards benchmark objective average fee but not necessarily for the best interest of shareholders. Shareholders are likely to benefit from the expertise of members with higher tenure and finance backgrounds. Although increase in board independence is likely to contribute to board governance, the effect of 2000 regulation change of board independence on its arguably target group is limited. Nominating committee improves the board governance. Although the results do not suggest that an independent chairman directly

improves board governance, I find modest evidence that the impact of an independent chairman is likely to depend on the expertise of the member that would occupy the chairman seat.

Soft dollar arrangements which are found to be reducing the advisory fee are unique in the sense that they are joint product of board and adviser and directly affect the overall wealth of shareholders. Fund advisers determine the broker base, scope of brokerage services and whether to self produce or outsource brokerage services through soft dollar arrangements. In return, shareholders expect to benefit from better fund performance and reduction in advisory fee. I find that transaction execution not necessarily motivated by additional brokerage services is likely to be responsible for high turnover. Construction of brokerage base by the adviser is not arbitrary. Advisers *ex ante* construct the broker base in order to minimize the brokerage commissions and considering *ex post* soft dollar arrangements. Transaction execution related services lead to less brokerage commissions and soft dollar use while both increase if research is a consideration for broker participation. More concentrated broker base leads to lower brokerage fee and higher soft dollar use. Results indicate that advisers enforce competition within brokerage industry for lower cost of transaction execution. Shareholders benefit from increasing soft dollar use through performance improvement and reduction in advisory fee. Yet, the cost of soft dollar arrangements seems to exceed their benefit to shareholders. If the results indicate competition within brokerage industry for lower cost of transaction execution, the undisclosed premium paid for the additional services are likely to be responsible for this adverse effect.

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