What do Soft-dollars Buy?
Performance, Expense Shifting, Agency Costs*

Roger M. Edelen
Graduate School of Management
University of California, Davis
Davis, CA 95616
rmedelen@ucdavis.edu

Richard Evans
Darden School
University of Virginia
Charlottesville, VA 22906
evansr@darden.virginia.edu

Gregory B. Kadlec
Pamplin College of Business
Virginia Tech
Blacksburg, VA 24060
kadlec@vt.edu

Abstract

We examine several hypotheses regarding mutual-fund commission payments using data from N-SAR filings. Consistent with an information motive, relatively active funds pay higher excess commissions, and these 'soft dollar' payments are associated with improved return performance. However, excess commissions are also related to an expense-shifting motive and these payments are associated with lower return performance -- suggesting that agency costs arise from soft-dollar payments. The strongest evidence for expense shifting occurs with relatively controversial distribution expenses, and these payments exhibit the most severe performance degradation (agency costs). Overall, the impact of soft dollar payments on performance is negative.

Keywords: Disclosure, Brokerage Commissions, Soft Dollars, Trading Costs.

First Version: December 27, 2007
Current Version: October 27, 2008

* We are grateful for the comments and suggestions of George Aragon, Marc Lipson, Michael Schill and seminar participants at the University of Oregon Institutional Investors Conference, Arizona State University, University of Arizona, University of Wisconsin Madison, Virginia Tech and the University of Virginia.

Brokerage commissions vary widely across otherwise similar mutual funds. For example, controlling for characteristics such as fund size, family size, and asset category, commission rates for the highest quintile of funds average four times that of the lowest quintile (32 vs. 7 bps). Total commission payments (commission rate times trading volume) of the highest-quintile of funds average seven times that of the lowest quintile (57 vs. 8 bps as an annual percent of TNA). This variation in commission payments is largely due to variation in the extent to which funds bundle payment for trade execution with 'soft-dollar' payments[2] for other goods and services such as research, administration, and distribution[3]. Each of these can be considered a customary expense of the fund; hence commission bundling shifts what would otherwise be a line item on the fund's income statement into a direct debit on the balance sheet. Because disclosure of balance sheet entries is generally less accessible than income statement entries (expenses), this mechanism obscures the true costs of the fund. Thus, soft dollars provide a potentially useful means to investigate the impact of disclosure on investment managers' behavior.

This study analyzes the commission payments of an exhaustive sample of mutual funds from 1994 – 2005 using funds' semi-annual regulatory filing (N-SAR) with the Securities and Exchange Commission (SEC). We focus on three plausible motives for soft dollar payments. The most commonly argued motive is performance enhancement – i.e., information purchase or improved trade execution. We examine the extent to which this motive explains variation in fund commissions, and whether such payments are related to performance. A second plausible motive is expense shifting, which refers to the use of soft dollars to pay for goods and services

[2]Soft dollars have been defined by the NASD Mutual Fund Task Force (2004) as "…products and services, other than execution of securities transactions, that an investment manager receives from or through a broker-dealer in exchange for the adviser's direction of client brokerage transactions to the broker-dealer."

[3]Directed brokerage, the practice of directing a fund's trading to a given broker in exchange for distribution or sale of the fund's shares by the brokerage firm, was disallowed by the SEC in 2004 (see SEC Release No. IC-26591; File No. S7-09-04). For much of our sample, however, it was possible to bundle distribution costs with trading costs via directed brokerage.

that the fund manager likely would have otherwise billed to investors as a line-item expense [Siggelkow (1999)]. All else equal, the payment mechanism for an expenditure should have no effect on fund performance. However, soft-dollar opponents argue that soft dollar payments give the fiduciary access to clients' money through means not subject to audit and accountability, exacerbating agency costs [Berkowitz and Logue (1987), Logue (1991), Ambachsheer (1993)]. Thus, in addition to information purchase and expense shifting, a third factor that must be considered in soft dollar arrangements is the role of agency costs.

The N-SAR filing requires funds to identify goods and services they receive from brokers.[4] These goods and services can be classified as one of three types: research, administration, or distribution. Of the three, research has taken a special place in the academic literature. Several studies argue that linking payment for research to the level of trading activity provides an optimal means of selling information to investment managers [Admati & Pfleiderer (1988), Brennan and Chordia (1993), Johnsen (1994), Goldstein, Irvine, Kandel, and Wiener (2008), Horan and Johnsen (2000), Bias and Germain (2002), Livne and Trueman (2002)]. Thus, in what follows we treat information purchase as an explanation separate from expense shifting. In fact, information purchases represent a shift of advisory expenses, so this separation is somewhat artificial. Nevertheless we maintain this separation to test these assertions regarding the sale of information. Likewise, agency costs are not a shifted expense but rather a *new* expense that arises from the payment mechanism. Thus, we examine three hypotheses regarding "abnormal" brokerage commissions: information purchase, expense shifting, and agency costs.

[4]N-SAR filing question 26 requires the fund to identify "Considerations which affected the participation of brokers or dealers or other entities in commissions or other compensation paid on portfolio transactions". Specifically, they are required to indicate whether their decision to use the brokers they used was due to the sale/distribution of the fund shares, receipt of research, receipt of quotations, best execution, receipt of telephone line or wire services, the affiliation of the broker/dealer or a commission rebate program.

Our analysis proceeds in two steps. In the first step, we construct a model for 'normal' commissions, using fund characteristics such as investment objective, fund size, family size, etc. We similarly normalize the proxy variables used for soft-dollar motive (N-SAR filing indicators of the types of goods and services received in exchange for using particular brokers), and fund expenses (investment advisor fees, administrative fees, and marketing expenses). By using normalized variables, we eliminate spurious relations between soft dollar payments and other potential motives arising from fund characteristics. In the second step, we relate 'abnormal' commissions to proxies for soft-dollar motives and to abnormal returns. This allows us to assess the relative merits of the three soft dollar explanations that we consider.

Overall, we find that fund returns are negatively related to abnormal commissions (soft dollars). However, when we partition abnormal commissions into an information-motivated component and a non-information motivated component, we find that the information component is *positively* related to return performance. We regard this as evidence that an information motive explains a component of soft dollar payments, and that these payments have economic merit. Not surprisingly, given that the overall relation between commissions and return performance is negative, the non-information component of commissions is negatively related to returns.

The non-information component of soft dollar payments reflects potential expense-shifting and agency costs. We provide direct evidence that expense shifting plays a role in soft dollar arrangements. In particular, we find that distribution (marketing) expenses to external brokers decrease with abnormal commission payments. Somewhat surprisingly, we find no relationship between abnormal brokerage commissions and administrative expenses.

That commissions are used to offset distribution expenses but not administrative expenses is noteworthy. One possible reason for this is that distribution expenses are more controversial. Under the Investment Company Act Rule 12(b)–1, Congress provides a safe harbor for funds to charge existing shareholders expenses for the purpose of acquiring new shareholders. Despite this safe harbor, distribution expenses are still a controversial topic, certainly more so than administrative expenses. Thus, fund managers may have a greater incentive to hide distribution expenses. Another possible reason is that distribution efforts by commission-receiving brokers are much more opaque and difficult to audit than administrative goods and services, which generally involve an explicit invoice to a third-party provider.[5] For similar reasons, fund families may be able to cross-subsidize independent funds with distribution services more readily than with administrative goods and services. We are unable to determine whether any of these particular motives are at work, but our results do suggest more generally that disclosure – or lack thereof – plays an important role in the economics of soft dollars.

To the extent that reduced disclosure motivates soft-dollar payments, agency costs are a likely outcome. These agency costs may be indirect; in the sense that shifting expenses to the balance sheet via soft dollars leads to less efficient monitoring and resource allocation. Or they may be direct; wherein managers directly benefit (receive resources) as a result of soft dollar payments. Consistent with the assertion that expense-shifting is accompanied by agency costs; we find that the expense-shifting soft dollars are negatively related to performance net of both hard and soft dollar expenses. In particular, the performance of funds that use soft dollars as a payment mechanism for distribution is lower than that of funds that don't use soft dollars for this purpose.

[5] This argument relates closely to Barber, Odean and Zheng (2004), who argue that fund investors pay less attention to fees and expenses that are less salient (i.e., load and 12(b)-1 fees).

Existing empirical studies of soft dollars focus primarily on their direct cost. Livingston and O'Neal (1996) find that average brokerage commissions paid by funds exceed execution-only commission rates. Conrad, Johnson, and Wahal (2001) find that soft dollar commissions are not recovered in better execution. These studies, however, provide little evidence regarding the primary motive for soft-dollars (information purchase), its potential indirect cost (agency costs), or its overall economic merit (impact on fund performance)[6]. Thus, our study makes a novel contribution to the literature, providing a broad analysis of the economics of soft dollar payments. We conclude that despite their potential benefits (information acquisition), soft-dollar arrangements appear to be fraught with agency costs, and their net effect on fund performance is negative.

The remainder of the paper proceeds as follows. Section II describes our sample and data sources. Section III presents our empirical model for "normal" commissions. Section IV presents our tests of the relative merits of alternative hypotheses regarding soft dollars. Section V offers our conclusions. The Appendix presents a comparison of the N-SAR estimated returns with a matched sample of fund returns from CRSP.

II. Data and Proxy Variables

A. Sample Funds and Data Sources

The data for this study is obtained from semi-annual N-SAR reports filed with the SEC from 1994 – 2006.[7] These reports are compiled at a 'series' level. A series is a subset of funds generally grouped because of a common date of inception into the fund family (e.g., creation of a new 'line' of funds). Despite there being only one filing per series, most of the data in the N-

[6] Blume (1993) provides survey evidence that information purchase is the primary motive for soft dollar payments.
[7] This data is also used in Edelen (1999), Reuter (2006), Christoffersen, Evans and Musto (2008) and Edelen, Evans, and Kadlec (2007).

SAR is reported at the fund level. However, disclosure regarding brokerage commission (hereafter, commissions) is aggregated to the series level. This may in part be due to the fungible nature of the benefits received from commission payments -- to some extent, information and administrative expenses flow across funds within a fund family. In any event, this is a contributing factor to the opacity of disclosure relating to commissions. In addition to brokerage commissions, the N-SAR report includes information on investment objective, TNA, loads, investor flows, returns, and a detailed partitioning of fund fees.

We apply three screens at the fund level: Funds must self-categorize as equity, bond, or balanced; have more than $15 million in total net assets (TNA); and have a cash position of less than 80%. This narrows the sample from 207,000 observations to 86,059 (six-month fund-level observations).[8] We also apply screens at the observation level to remove outliers for the following variables: expenses, load fees, flow, trading volume, brokerage commissions, and returns.[9]

[Insert Table I Here]

Table I presents descriptive statistics of the sample of series and funds. Series can contain dozens of funds (the largest contains 92 funds), but about 2/3 of the series are single fund. Single-fund series tend to be larger-TNA funds, but collectively they represent only 1/4 of total fund assets because many more funds are found in multiple-fund series (1/5 of sample funds are in a single-fund series). Funds are categorized into six groups based on self-reported investment

[8]Observations remaining after sequential filtering: Initial sample 206,342; Non Money Market / Asset Category 177,322; Net Assets > $15 million 133,015; Returns 86,059.
[9]Specifically, we first remove extreme values (such as a 10% expense ratio), then compute means and standard deviations, then winzorize to 4 standard deviations.

objectives in the N-SAR: aggressive growth, growth, growth & income, balanced, bond, and international equity. The two extreme categories – aggressive growth and bond – have the largest number of fund observations, but funds in these categories are the smallest on average. Thus, total assets are roughly equally divided across categories, with the exception of balanced funds which do not appear frequently.

B. Calculating Fund Returns

To avoid problems associated with merging the N-SAR and CRSP databases, we use data from the N-SAR filings to compute returns.[10] Returns are computed using per-share NAV, distributions, and dividends. Methodologically, calculating returns from N-SAR data is straightforward, but errors in data add some amount of noise to our estimated returns. To ensure that our return estimates are reasonable, we compare a subsample of the N-SAR estimated returns to CRSP returns in the Appendix. The conclusion is that N-SAR return estimates are very similar to CRSP returns.

There are two complications with relating commissions to returns using the N-SAR disclosure. First, commission data is at the series level and can contain funds from multiple asset categories, so a procedure is needed to aggregate return performance across asset categories. Second, the six-month N-SAR observations can correspond to non-overlapping filing periods across funds, so a procedure is needed to align observations in time. We address these issues as follows.

The first step combines a multivariate set of return-generating factors into a single composite index, one for each of the five asset categories (see Table II). Doing so reduces the number of

[10]Prior studies using N-SAR data are able to match roughly 40-50% of the CRSP returns data to the N-SAR data. Given the aggregate (series level) nature of commission data it is important to obtain as complete a mapping between commissions and returns as possible.

parameters that we need to estimate for each fund to one – the beta against the respective asset category's composite index. For example, from Table II, the composite factor for aggressive growth funds is the following linear combination of returns:

$$R_t^{AG} - R_t^f = 0.997 \cdot \left(R_t^{Mkt} - R_t^f\right) + 0.097 \cdot R_t^{SMB} + 0.145 \cdot R_t^{HML} + 0.029 \cdot R_t^{Momentum} \quad (1)$$

The time-series of returns for each Aggressive Growth fund in the sample is regressed on the time series of $R_t^{AG} - R_t^f$. The residual from this regression is the fund's abnormal return.

[Insert Table II Here]

To construct these composite return indices, we estimate a pooled regression of six-month returns for all funds within an asset category on the concurrent six-month return on the relevant index return factors. The factor model used for the Aggressive Growth, Growth, and Growth & Income categories is the standard Fama and French (1993) / Carhart (1997) four-factor model. For the Balanced category, the four-factor model is supplemented with two term-structure factors relating to the Treasury slope and curvature[11]. The Treasury slope factor is ($R_{10\text{Yr}} - R_{3\text{Mo}}$) where *R* represents the 6-month holding period return on the Treasuries of the indicated maturity. The Treasury curvature factor is [$R_{5\text{Yr}}$ - ($R_{7\text{Yr}}$ + 3*$R_{1\text{Yr}}$)/2]. For the Bond category, we add high yield and mortgage premium factors and remove the four equity factors. The high-yield factor is the holding-period return on the Credit Suisse First Boston High Yield Index less the risk-free rate. The mortgage premium factor is the 30-Year Conventional Fixed-Rate Mortgage rate from the Federal Reserve Bank less the risk-free rate. For the Foreign equity category, the Fama and French (1993) three-factor model is applied using S&P/Citigroup Global Indices. Specifically,

[11] Litterman and Scheinkman (1991) argue that the level, slope and curvature are the appropriate factors for capturing systematic risks in fixed income securities.

the market factor is the value-weighted Global Broad Market Index (BMI), encompassing both developed and emerging markets minus the U.S. risk-free rate. The SMB factor is the difference in returns between the Global BMI Index for companies with market capitalization less than $1 Billion and companies with market capitalization greater than $5 Billion. The HML factor is the difference in returns between the World Value BMI index and the World Growth BMI index.Table II, Panel A presents the results from these regressions. The rows report the portfolio of indices used to construct each asset category's composite return index.

As noted above, one difficulty in combining *fund* abnormal returns into a *series* abnormal return lies in the fact that the funds in the series may represent different asset categories. A 1% abnormal return in one category is generally not comparable to a 1% abnormal return in another category. We address this problem by converting each fund's abnormal return into a performance ranking based on all funds in the same asset category, during the same period. We use 20 groups: Rank-1 funds have the lowest abnormal return and Rank-20 funds have the highest abnormal return. We then average the rank performance of all funds within a series to construct the *series* performance rank during the period. Table II, Panel B presents summary statistics on the abnormal returns corresponding to the 20 ranks, by asset category. Not surprisingly, extreme returns (rank 1, rank 20) are much larger in absolute value for Aggressive Growth and International funds than Balanced and Bond funds.

A second difficulty in using series-level returns arises because N-SAR filing periods tend to be staggered across funds. To address this, we first prorate the six-month abnormal return from the N-SAR data to each month of the filing period prior to computing ranks across similarly classified funds. We then average the six monthly ranks to get a performance score for the fund

for the entire six-month filing period, and then we average across funds in the series to get a performance score for the series. This performance measure is denoted *Perf_20*.

C. Fund Characteristics and Proxy Variables

We normalize both commissions and explanatory variables against fund characteristics to eliminate spurious correlations and get a clearer signal on the hypothesized motives for soft dollar payments. This normalization is also necessary to facilitate aggregation across funds within a series. Table III presents these regressions for all explanatory variables used in the analysis (data at the fund level); each column is a pooled regression of all funds' semi-annual observations from 1994 - 2005 (86,059 observations). Standard errors are calculated clustering by fund. The independent variables include indicator variables for asset category (*FundType* where *AG*=aggressive growth, *Gro*=growth, *GI*=growth and income, *Bal*=balanced, *Bnd*=bond, *Intl*=international); an indicator for index funds (*IndexFund*); the natural log of fund TNA (*LogTNA*); total fund flow (inflow plus outflow, *TotFlow_Pct*); log of family TNA less the fund's TNA; and log of number of funds in the fund family. Fixed effects for year are also included in the regression but not reported in the tables. To aid in the interpretation of the indicator variables, no intercept is included and all independent variables have been de-meaned. As a result, the coefficients of the indicator variables for asset category can be interpreted as the average tracking error, trading volume, etc. of each category. In the analysis that follows, standardized residuals (i.e., divided by residual standard deviation) from these regressions, denoted by appending "*_sDev*" to the variable name, are used in place of the raw data.

[Insert Table III Here]

Table III, Column 1 reports the normalizing regression results for tracking error. International funds have the highest tracking error and equity funds have higher tracking error than bond funds. Tracking error is lower for index funds and positively related to shareholder flow. Column 2 reports normalizing regressions for trading volume. International funds have the lowest trading volume while Aggressive Growth and Balanced funds have the highest. Trading volume is lower at index funds and, as shown in Edelen, Evans and Kadlec (2007), inversely related to fund size. Consistent with Edelen (1999), trading volume is significantly positively related to flow; indeed, flow is the strongest determinant of trading volume across regressors. Column 3 reports normalizing regressions for flow. International and aggressive growth funds have the highest flow and balanced and bond funds having the lowest. Flow is higher at index funds and inversely related to fund size. Columns 4-7 report normalizing regressions for total expenses and disaggregated expenses (investment advisor, administrative, and marketing). All three expense categories are higher for equity funds than for bond funds. Scale effects are apparent for all expenses but not statistically significant for marketing expenses. Flow is associated with higher advisory and marketing expenses, but unrelated to administrative expenses. Expenses are higher for international funds and lower for index funds. Because loads and marketing expenses are both related to distribution, we include a load revenue variable in the marketing expenses regression and a marketing expenses variable in the load revenue regression. While one might expect that these two forms of payment for distribution are substitutes, they appear to be compliments (i.e., positively related).

III. Baseline Commission Models

The focus of the paper is the relation between commissions and services received in consideration for soft dollars: return enhancement (trade execution, research, data, software); expense shifting relating to administration (custodial, accounting, and service-agent fees); and expense shifting related to distribution (marketing and 12b-1 expenses). To get a cleaner signal regarding these relations and aggregate funds within a series, we control for dependence of commissions on fund characteristics, similar to Table III. We then relate *abnormal* commissions to proxies for the hypothesized services.

Because commission data is observed at the series level, we aggregate all variables[12] to the series level by averaging the data across funds within a series, weighted by fund assets. We also include six variables for each series (*Series_AG* through *Series_Intl*), equal to the proportion of total series assets in each investment category.

Table IV presents the baseline commission model relating commission rates (*Brok_Trad* equal to commissions scaled by trading volume) and commission payments (*Brok_TNA* equal to commissions scaled by TNA) to generic fund characteristics. Because we exclude the intercept and de-mean all variables except the '*Series_*' variables, the '*Series_*' variables can be interpreted as the average brokerage commissions for the indicated fund type.

[Insert Table IV Here]

Our approach is conservative, as cross sectional differences in soft dollar payments likely relate to fund type *because* different fund types are more or less inclined to information purchase; expense shifting; or agency costs. Controlling for fund type eliminates such variation,

[12] More precisely, the '*_Dev*' version of each variable, equal to the residual from the Table III regressions. The '*_sDev*' version is the standardized series residuals, where the residuals are aggregated using each fund's TNA as the weight and then the series residuals are normalized by the standard deviation across all series.

hindering our ability to assess determinants of soft dollar commissions. However, this conservatism helps rule out spurious factors and sharpen the focus on those factors that we do investigate.

Both commission rates and commission payments are monotonically increasing in the equity focus of the series. From Panel A of Table IV, international funds incur the highest commission rate, with an average of 25.7 bps versus 8.2 bps for balanced and 6.0 bps for bond funds. The substantially lower commission rates for balanced and bond funds most likely reflects the common tendency for bond commissions to be incorporated into bid-ask spreads. The variable *StockPct* in column 2, equal to the percent equity in the fund portfolio, further indicates a higher commission rate for equity. Index funds are associated with a 6.1 bp lower commission rate.

To the extent that size is associated with bargaining power, it is a likely determinant of commissions at all levels – fund, series, and family. From Table IV, the TNA of the series is negatively associated with commission rates (Panel A) and commission payments (Panel B). Fund TNA is also negatively related to commissions, as the number of funds in the series (i.e., smaller average fund size) is positively related to commission payment. Somewhat surprisingly, there is no relation between family size and commission rate. Finally, economies of scale are also evident with respect to trading volume – high trading volume correlates with low commission rates (but, not surprisingly, high total commission payments).

Curiously, both commission rates and commission payments are higher during the second half of the fiscal year. The variable *FiscalYr_2dHalf* is 1 if the semi-annual filing represents the second half of the fiscal year. As the fund approaches year-end and the closing of its books, both

the commission rate and the total commissions as a fraction of TNA increase.[13] One possible explanation for this result is advisors try to "make a quota" set by *ex ante* agreements with soft-dollar brokers to provide a given level of payment in return for a given level of services received. As the fiscal year-end approaches, funds shift trading to soft dollar brokers, and/or elevate the level of their trading. If this interpretation is correct, controlling for variation in brokerage commissions related to the *FiscalYr_2dHalf* variable may hinder our ability to assess soft dollar usage with the regression residual, but by including this variable in the base model, we are conservative in our approach.

IV. Analysis of Soft Dollar Motives

A. Expanded Models of Brokerage Commissions

Section III presents models of normal commissions given various fund characteristics. In this section we expand the models by including proxies for the hypothesized motives for soft dollar payments: information purchase/return-enhancement; expense shifting; and agency cost.

The language "motive for soft dollar payments" suggests that the soft dollar payments *cause* enhanced returns, lower expenses, or agency costs. Regressions, of course, only indicate correlation. Thus, while the logic suggests regressing returns, expenses and agency cost proxy variables on commissions, it is just as meaningful to regress commissions on these variables. The advantage of such a specification is that *all* proxies for motive can be analyzed jointly. Thus, in a multivariate setting with commissions as the dependent variable we observe the correlation between commissions and each proxy for motive while controlling for other fund characteristics.

[13]The format of the N-SAR is (for many variables including commissions) to report the full-year data in the N-SAR-B (second half of the fiscal year). Our analysis subtracts the first-half from the second observation for commissions, trading volume, etc. If this introduces error, it should make the second half value *smaller*.

Table V presents the results from these regressions. In each case, the regressors from the baseline model (Regression 2 of Table IV, Panel A & B) are included, but the results suppressed to save space. Two approaches are used to assess the motive for soft dollar usage. The first approach relates our proxy for soft-dollar usage to indicators of the advisors' motive for selecting their brokers. These analyses are in regression 1 of Panel A and B. The second approach relates the soft-dollar proxy to fund-level performance and expense characteristics which proxy for the fund's motives. These analyses are in regressions 2 through 4 of Panel A and B.

[Insert Table V Here]

To implement the first approach, we require information about the advisor's selection of a brokerage firm. As mentioned in Section I, Question 26 of the N-SAR filing requires funds to identify products and services that they receive from brokers.[14] Based on this disclosure, we classify funds as receiving products and services relating to information purchase; distribution; administrative; and advisor categories, and designate by appending "*sd_*" (soft dollar) to the category.[15] Because these variables directly indicate the benefits received by advisors and motivations for selecting brokers, they provide an important confirmation of the validity of our proxy for soft-dollars. To implement the second approach, we use series-level aggregated performance and fee data from the N-SAR filings.

[14]N-SAR question 26 requires the fund to identify "Considerations which affected the participation of brokers or dealers or other entities in commissions or other compensation paid on portfolio transactions". Specifically, they are required to indicate whether their decision to use the brokers they use was due to the sale/distribution of fund shares, receipt of research, receipt of quotations, best execution, receipt of telephone line or wire services, affiliation of the broker/dealer, or a commission rebate program.

[15] At a fund level, each of the "*sd_*" variables equals 1 if the answer to the N-SAR question is yes, and 0 otherwise. These fund-level responses are then aggregated to a trust-level by value-weighting the response of all funds in the trust. The fund-level value of *SD_InfoPurchase*, *SD_Distribution* correspond to the answers to questions 26.B and 26.A respectively. *SD_Administrative* takes a value of 1 if any of answers to questions 26.C, 26.E or 26.G.ii is yes. Last of all, *SD_Advisor* takes a value of 1 if the answer to either question 26.F or 26.G.i is yes.

Return-enhancement motives: Soft-dollar purchases of research, data, or software

To analyze return-enhancement motives for soft dollars, we explore the correlation between abnormal commissions and two proxy variables for the degree to which the fund is 'active': *SD_InfoPurchase*, an indicator variable for an N-SAR disclosure of soft dollar payments relating to 'Research,' 'Data,' or 'Software' and *TrackErr*, the standard deviation of tracking error.

From regressions 1-4 of Table V, commissions are significantly positively related to both proxies for information motive. From Panel A, the *SD_InfoPurchase* indicator shows that average commission rates are 2.6 bps higher (about 20% higher than the norm) for funds that use soft dollars to purchase research. From Panel B, the *SD_InfoPurchase* indicator is also positively related to total commission payments. Tracking error, a common metric for "active" management is also significantly positively related to both commission rates and total commission payments. Thus, our evidence supports the notion that information purchase is an important motive for soft dollar payments.

Expense-shifting motives:
Soft-dollar purchases of administrative & distribution services

Table V documents the correlation between commissions and fund expenses. Regression 1 documents a statistically significant, positive relationship between commissions and the *SD_Distribution* variable. The *SD_Distribution* variable is an indication in the N-SAR that the fund directed brokerage in exchange for distribution of the fund's shares. While we would expect that a fund that directs brokerage in exchange for distribution would have a higher commission rate, this result confirms that our proxy for soft dollars is capturing these higher soft-dollar related commissions. Additional evidence for the distribution motive is provided in regressions 2 through 4. Regression 2 shows that abnormal expense ratios, *Exp_sDev*, are

negatively related to commission rates, consistent with an expense shifting motive. However, the relation is only marginally significant. Moreover, the relation between abnormal expenses and total commission payments is insignificant. Thus, looking at the expense ratio, the evidence for an expense-shifting motive for soft dollar payments is weak. Regression 3 examines the relation between commissions and each of the three components of fund expenses: advisory (*InvstAdvis_sDev*), administrative (*AdminExp_sDev*), and marketing (*MarketingExp_sDev*). The evidence of expense shifting is stronger – particularly for marketing expenses which are significantly negatively related to commissions. Somewhat surprisingly, administrative expenses are not significantly related to commissions.

The marketing component of expenses can be further decomposed using the fund's disclosure regarding 12b-1 fees. The N-SAR requires that the fund partition 12b-1 fees into seven categories, which we reduce to three – those relating to external marketing, those relating to internal marketing, and other. From Table V, regression 4, substantially all of the negative relation between marketing expenses and commissions occurs with external 12b-1 expenses. The most likely place for this form of expense shifting is to compensate wire-house brokers by making commission payments to the same wire-houses' trading desks.

That commissions are used to offset distribution expenses, but not administrative expenses, is noteworthy. One potential reason for this is that distribution expenses are relatively controversial. Under the Investment Company Act Rule 12(b)–1, Congress provides a safe harbor for funds to charge existing shareholders expenses for the purpose of acquiring new shareholders. Despite this safe harbor, there are currently several cases alleging excessive 12(b)-1 fees and very few cases alleging excessive administrative fees. Given the historical controversy associated with distribution expenses, fund managers arguably have a greater

incentive to hide this expense. Furthermore, the provision of distribution services by brokerage firms is likely to be more opaque than the provision of administrative goods and services. Distribution is an in-brokerage-house service whereas administrative goods and services are more likely to involve a third-party and an invoice. For similar reasons, fund families may be able to cross-subsidize funds using distribution services more readily than administrative goods and services. Whatever the case may be, our results suggest that disclosure – or lack thereof – plays an important role in the economics of soft dollars.

Further evidence regarding the role of distribution in soft dollar arrangements is found in regressions 2 through 4 of Table V. The *Load* regressor is significantly positively related to commissions, which again suggests a distribution motive behind soft dollars. Load fees go to external (broker) sales forces. The existence of such a relation provides a conduit for further payments via soft dollars. The positive correlation of commissions with Load suggests that this conduit is exploited to further enhance the fund's distribution.

B. Performance and Soft Dollar Usage

While the previous analysis provides insight into the nature and use of soft dollar payments, it does not assess the impact of soft dollars on performance. Table VI reports regressions of the weighted-average return performance of funds in a series, *Perf_20*, on the series' abnormal commission rates (Panel A) and total commission payments (Panel B). The independent variables in these regressions represent a sequence of three levels of decomposition to commissions.

[Insert Table VI Here]

In table VI, regressions 1 and 2 commissions are decomposed into a predicted and residual component using the base commission model from Table IV. These regressions show the relation between return performance and 'normal' (predicted) commissions versus abnormal (our proxy for soft-dollar) commissions. In regression1 we include only commission variables; in regression 2 the explanatory variables from the base commission model are also included.[16] Normal commissions are unrelated to return performance, suggesting that common variation in commissions relating to fund characteristics (size, category, etc.) does not adversely impact returns. By contrast, soft-dollar commissions – i.e., the abnormal or residual component – are negatively related to performance. Collectively, regressions 1 and 2 suggest that funds tend to recover the cost of 'normal' commissions relating to trade execution, but not soft-dollar commissions relating to "other goods and services received." This suggests that the soft dollar payment mechanism for these other goods and services may lead to agency costs. Our decomposition of abnormal commissions in regressions 3 – 6 shed more light on the role of agency costs.

In regressions 3 and 4 the base-model residual (i.e., our soft dollar proxy) is decomposed to isolate information purchase from other goods and services. Our decomposition considers two proxies for information purchase **(***SD_InfoPurchase* and *TrackErr***)**. The 'information model' component indicates the performance effects of soft-dollar payments attributed to information purchase, and the 'information model residual' indicates the performance effects of other soft dollar payments. From regressions 3 and 4 of Table VI we find strong evidence that soft dollars

[16] Specifically, we include the series type variables for the six fund categories (Aggressive Growth, Growth, Growth & Income, Balanced, Bond and International Equity), yearly fixed effects, the percentage of portfolio held in equities, the natural log of the summed TNA of all funds in the series, the standardized series-level trading volume (Buys+Sells) and expense ratio and the index fund incidence variable (percent of series assets that are indexed).

used for information purchase enhance performance. This result is consistent with the theoretical arguments for the bundling of information purchase with commissions. However, the non-information component of soft dollar payments is negatively related to fund performance, albeit weakly. This suggests that non-information expense shifting is associated with some loss of economic efficiency (agency costs). We examine this more closely in the final two regression specifications of Table VI.

In regressions 5 and 6 the residual from the information model (base model plus information proxies) is decomposed using three expense-shifting proxies: *sd_Distribution*, *sd_Administrative*, and *sd_Advisor*, yielding a direct proxy for expense-shifting soft dollars (*Expense Shifting Model Predicted*) and a residual component whose motive is unclear. Because the predicted component represents soft dollar payments that are directly linked to an offsetting reduction in expenses. That is, they relate to a shift in expenses rather than an increase *per se*. Nevertheless, these shifts are associated with a reduction in return performance for all specifications. The residual from the expense-shifting component is also negative related to performance but the result is only significant for the commission rate results (Panel A).

Overall, the picture that emerges from Table VI supports the SEC's current position of allowing soft dollars for information purchase but discouraging its use for other purposes. That is, information purchase, positively impacts performance while other forms of expense shifting, particularly distribution, negatively impact performance. Indeed, given our evidence regarding the negative impact of distribution expense shifting on performance the SEC's 2004 singling out and prohibiting of distribution expense-shifting via directed brokerage seems prudent.

V. CONCLUSION

The debate surrounding the efficiency of bundling research and administrative expenses with commissions has been ongoing since the creation of a "safe harbor" for soft dollars in the 1970's. The lack of transparency regarding soft dollar usage has made it difficult to examine this issue in a systematic fashion. Using a comprehensive sample of mutual funds, we build an empirical model to describe commissions paid by funds and measure abnormal or excess commissions, our proxy for soft dollar usage. We then use our estimates of abnormal commissions to test three competing hypotheses for soft dollar usage: information acquisition, expense shifting, and agency costs.

We find support for the principal justification for soft dollars; that actively managed funds exhibit higher excess commissions and those excess commissions are associated with higher return performance. When the information-acquisition and expense-shifting hypotheses are jointly examined, we find that the positive impact of information-motivated payments is more than offset by the negative impact of expense-shifting motivated payments – particularly in the case of distribution expenses. We also examine the impact of expense shifting via soft versus hard dollars (expense ratio). Consistent with an agency cost explanation, we find that soft dollar expense shifting is more detrimental to performance than hard dollars.

Overall, the results suggest that soft dollar usage can be inefficient. While we find that soft dollars can be an efficient mechanism to facilitate information acquisition, the impact of expense shifting and the agency costs associated soft dollars dominate the empirical results. The results suggest that the SECs recent prohibition of directed brokerage in exchange for distribution is in the best interest of investors. These results also suggest that given the potential for other types of expense-shifting, investors would benefit from either increasing the disclosure

and the accessibility of that disclosure of soft dollar usage or to require that expenses previously covered by soft dollars be converted to hard dollars and included in the expense ratio.

APPENDIX

We use the reported net asset values (NAV) and fund distributions from N-SAR filings to construct returns for each fund.[17] To assure that returns calculated by this method are accurate, we compare them to returns CRSP for a matched sample of funds. Table VII contains the results of this comparison.

[Insert Table VII Here]

Because the N-SAR codes are not linked to CRSP, these two databases are matched by hand. This initial procedure correctly matches approximately 82% of the funds by name. To insure the match is correct, we then compare the NAV reported in the N-SAR to the NAV reported in CRSP. Matching names by hand and then matching NAV through an automated procedure leaves us with a sample where we are confident that CRSP and the N-SAR data have been matched exactly. Unfortunately it also removes valid data points where the NAVs differ slightly. The final matched sample contains 41,209 fund-semiannual observations.

The results in Table VII indicate that the N-SAR returns correspond very closely to that of the CRSP returns. The correlation between the two is 0.93 and the mean, median, standard deviation and 5th through 95th percentiles are very close. We also calculate the pair-wise difference between the CRSP and N-SAR semi-annual returns. While there are differences, potentially due to data errors or the timing of distributions[18], the differences are very small. The

[17]The per-share NAV is reported in N-SAR question 74 V and the per-share dividends, capital gains distributions and other distributions are reported in N-SAR questions 73 A,B and C respectively. Multi-share class funds are required to report dividends (73A) and the NAVs (74V) for two share classes. In our calculations we use only the first reported share class values for every fund (74V.1 and 73A.1).

[18]The CRSP returns accurately account for the monthly timing of the various distributions whereas our return calculation assumes that the distributions occur at the end of each semi-annual period.

mean difference is 7bp and the median difference is 0bp. Overall, these results give us confidence that our method of estimate returns from the N-SAR data is precise.

References

Admati, A., and P. Pfleiderer, 1988, Selling and trading on information in financial markets, *American Economic Review* 78, 96-103.

Ambachsheer, K., 1993, The soft dollar question: what is the answer?, *Financial Analyst Journal*, 49, 8-10.

Bais, B., and L. Germain, 2002, Incentive compatible contracts for the sale of information, *Review of Financial Studies* 15, 987-1003.

Barber, B., T. Odean, and L. Zheng, 2004, Out of sight out of mind: the effect of expenses on mutual fund flows, *Journal of Business* 78, 2095-2119.

Berkowitz, S. and D. Logue, 1987, The portfolio turnover explosion explored, *Journal of Portfolio Management* 13.

Brennan, M., and T. Chordia, 1993, Brokerage commission schedules, *Journal of Finance*, 48, 1379-1402.

Blume, M., 1993, Soft dollars and the brokerage industry, *Financial Analyst Journal*, 49, Spring, 36-44.

Carhart, M, 1997, On persistence in mutual fund performance, *Journal of Finance*, 52, 1, 57-82.

Christoffersen, S., R. Evans, and D. Musto, 2008, The Economics of Mutual-Fund Brokerage: Evidence from the Cross Section of Investment Channels, Darden working paper.

Conrad, J., K. Johnson, and S. Wahal, 2001, Institutional trading and soft dollars, *Journal of Finance*, 56, 397-416.

Edelen, R., 1999. Investor flows and the assessed performance of open-end mutual funds, *Journal of Financial Economics*, 53, 439-466.

Edelen, R., R. Evans, and G. Kadlec, 2007, Scale effects in mutual fund performance, the role of trading costs, Virginia Tech working paper.

Fama, E., and K. French, 1993, Common Risk Factors in the Returns on Stocks and Bonds, Journal of Financial Economics, 33, 3-56 .

Goldstein, M., P. Irvine, E. Kandel, and Z. Weiner, 2008, Brokerage Commissions and Institutional Trading Patterns, forthcoming in *Review of Financial Studies*.

Horan, S. and B. Johnsen, 2000, The Welfare Effects of Soft Dollar Brokerage: Law and Economics, monograph, Research Foundation of CFA Institute.

Johnsen, B., 1994, Property rights to investment research: The agency cost to soft dollar brokerage, *Yale Journal of Regulation*, 11, 75-113.

Litterman, R., and J. Scheinkman, 1991, Common Factors Affecting Bond Returns, *Journal of Fixed Income*, 1, 54-61.

Livingston, M., and E. Oneal, 1996, Mutual fund brokerage commissions, *Journal of Financial Research*, 19, 273-292.

Livne, G., and B. Trueman, 2002, The impact of soft dollars on market equilibrium and investor profits, London School of Business working paper.

NASD Mutual Fund Taskforce, 2004, Report of the mutual fund task force - soft dollars and portfolio transaction costs.

Reuter, J., 2006, Are IPO Allocations for Sale? Evidence from Mutual Funds, *Journal of Finance*, 61, 2289-2324.

Siggelkow, N., 1999, Expense shifting: an empirical study of agency costs in the mutual fund industry, Wharton School working paper.

Siggelkow, N., 2004, Caught between two principals, Wharton School working paper.

Table I – Sample Characteristics

Funds file N-SAR reports semi-annually, by series (a group of one or more funds). Panel A presents the number of separate series making a filing, by year. 'Single-fund' refers to series with only one fund. Assets are computed by first averaging, by fund, net assets over the one or two filings made during the calendar year, then summing across all funds in the series. Panel B presents fund characteristics by series size; and by self-described fund categories. Assets are computed by first averaging, by fund, net assets over the entire time series of observations, then summing.

Panel A. Series Characteristics, in Time

Year	Series Count	Funds per Series	Percent Single-fund	Fund Assets ($Bns)
1994	1,022	2.0	74.7%	935
1995	1,600	2.1	73.9%	1,632
1996	1,789	2.3	69.9%	2,244
1997	1,834	2.5	67.6%	2,764
1998	1,775	2.7	64.7%	3,298
1999	1,787	2.8	65.4%	3,989
2000	1,790	2.9	64.3%	4,382
2001	1,740	3.1	63.8%	3,870
2002	1,724	3.2	65.3%	3,714
2003	1,460	3.1	66.0%	2,722
2004	1,527	3.1	67.8%	3,004
2005	1,506	3.1	68.9%	3,279
2006	718	2.8	71.0%	1,863

Panel B. Fund Characteristics, in Cross Section

Funds in Series	Series Count	Fund Count	Percent of Sample	Assets ($B) Total	Assets ($B) %	Assets ($B) Avg. Fund
1	1,882	1,882	18.4%	1,480	26.6%	0.787
2 - 5	593	1,874	18.3%	1,181	21.2%	0.630
6 - 10	218	1,673	16.4%	931	16.7%	0.557
11 - 20	142	1,993	19.5%	702	12.6%	0.352
21 - 50	78	2,299	22.5%	978	17.6%	0.425
> 50	8	502	4.9%	291	5.2%	0.579

Fund Category	Fund Count	Percent of Sample	Assets ($B) Total	Assets ($B) %	Assets ($B) Avg. Fund
Aggr. Gro.	2301	23.0%	1,224	22.0%	0.532
Growth	1227	12.2%	890	16.0%	0.725
Gro & Inc.	1362	13.6%	1,158	20.8%	0.850
Balanced	442	4.4%	262	4.7%	0.593
Bond	3588	35.8%	1,534	27.6%	0.428
Int'l	1104	11.0%	491	8.8%	0.445

Table II – Return Performance

Returns are computed using NAV, dividend and capital gains information from N-SAR filings, which are semi-annual. A pooled regression is run for all funds, all periods, by fund category (six regressions), yielding coefficient estimates on the indicated indices (Panel A). The dependent variable in the regression is the fund's 6-month return less the risk-free rate. For the Aggressive Growth, Growth, and Growth & Income categories, the standard Fama French (1993) and Carhart (1997) four-factor model is used. For the Balanced category, the four-factor model is used along with Treasury Slope and Curvature factors. The Treasury Slope factor is calculated as (r_{10Yr} - r_{3Mo}) where r represents the 6-month holding period return on the treasuries of the respective maturities. The Treasury Curvature factor is calculated as [r_{5Yr} - (r_{7Yr} + 3*r_{1Yr})/2]. The High-Yld Premium factor is the return on the Credit Suisse First Boston High Yield Index less the risk-free rate. The Mortgage Premium factor is the difference between the 30-Year Conventional Fixed-Rate Mortgage rates from the Federal Reserve Bank and the risk-free rate. For the International category, the factors are constructed from the S&P/Citigroup Global Indices. Specifically, the Mkt-Rf factor is the value-weighted Global Broad Market Index (BMI), encompassing both developed and emerging markets minus the U.S. risk-free rate. The SMB factor is the difference in returns between the Global BMI index for companies with market cap. less than $1 Billion and companies with market cap. greater than $5 Billion. The HML factor is the difference in returns between the World Value BMI index and the World Growth BMI index. Abnormal returns are constructed by first using the coefficients in Panel A to form a time-series of 'Category-index' returns for each asset category. Then each fund's time series of returns is regressed on the corresponding Category Index to get a time series of abnormal returns for the fund. Finally, abnormal returns are ranked by category, by date, into groups of 20. These ranks form the performance measure used in the paper. Panel B presents the average abnormal return within these ranks, for each of the five asset categories.

Panel A. Category Indices

Category	Coefficient								Adj. R Sqr.
	Mkt-Rf	SMB	HML	Moment.	Treas. Slope	Treas. Curvature	High-Yld Premium	Mortg. Premium	
Aggressive Growth	0.997	0.097	0.145	0.029					44%
Growth	1.046	0.010	0.070	0.054					58%
Growth & Income	0.761	0.067	0.161	-0.062					51%
Balanced	0.559	0.042	0.077	-0.035	0.168	-0.210			56%
Bond					0.287	0.009	0.244	-0.134	30%
International	0.996	0.473	-0.198						49%

Panel B. Abnormal Return Rankings

Category	Average Abnormal Return per Rank			
	1	2 - 10	11 - 19	20
Aggressive Growth	-22.2%	-6.0%	3.5%	21.0%
Growth	-17.7%	-4.9%	2.4%	17.8%
Growth & Income	-12.9%	-3.4%	2.7%	14.8%
Balanced	-9.5%	-2.6%	1.0%	9.6%
Bond	-6.1%	-0.7%	2.1%	7.9%
International	-24.1%	-5.9%	5.8%	26.3%

Table III – Regressor Variables on Generic Fund Characteristics

A series of pooled regressions of all funds' semi-annual observations is run using data from 1994 - 2006 (86,059 obs). The dependent variable for each regression is listed in the first row and the units for each regression are identified as well. The independent variables for each regression are listed in the first column. Standard errors are clustered by series and annual fixed effects for the year of filing are included in the regession (but not reported). The first column under each heading is the coefficient estimate and the second column (in parentheses) the t-statistic. Each FundType variable is an indicator variable for fund type (AG = Aggressive Growth; Gro = Growth; G&I = Growth & Income; Bal = Balanced; Bnd = Bond; Intl = International Equity). All other variables in the regression are de-meaned. Index is a 1/0 indicator if the fund is a self-declared index fund or not. LogTNA is the log of fund net assets. TotFlow_Pct is the sum of inflow and outflow, scaled by net assets. LogFamily_TNA and LogFamilyNmFds are the assets and number of funds in the fund family. The marketing expenses and load revenue regressions are run for funds that indicate they charge 12b-1 fees and loads. For all other funds, we assume the residual for the regression is 0. As a result, the number of observations for each regression is less (34,074 and 21,595 for the marketing expenses and load revenue regressions respectively).

Dependent Variable:	Tracking Error		Trading Volume		Total Flow		Total Expenses		Advisory Expenses		Admin. Expenses		Mrk'ing Expenses		Load Revenue	
Units:	(in percent)		(in percent)		(in percent)		(in bp)		(in bp)		(in bp)		(in bp)		(in bp)	
FundType_AG	19.5	(37.56)	103.90	(45.15)	54.0	(18.22)	60.2	(56.10)	37.9	(64.12)	15.9	(13.80)	14.8	(24.69)	10.5	(11.08)
FundType_Gro	16.2	(41.07)	99.66	(42.04)	46.4	(33.82)	55.4	(57.68)	37.2	(61.76)	12.5	(22.54)	14.1	(20.85)	13.1	(12.40)
FundType_GI	13.0	(44.84)	85.63	(40.33)	37.9	(31.98)	50.7	(43.38)	32.4	(49.64)	12.3	(22.46)	14.3	(19.43)	13.7	(14.23)
FundType_Bal	8.3	(27.36)	112.84	(28.02)	32.2	(29.49)	50.2	(33.19)	30.1	(39.62)	12.8	(13.93)	15.4	(16.02)	11.1	(8.38)
FundType_Bnd	6.6	(52.95)	99.61	(34.77)	32.4	(33.55)	45.4	(61.70)	28.1	(67.52)	11.3	(23.34)	13.0	(20.75)	11.3	(16.63)
FundType_Intl	26.4	(54.07)	77.08	(35.32)	66.2	(29.89)	70.5	(51.69)	43.9	(64.20)	21.1	(27.07)	14.0	(15.55)	11.0	(10.34)
IndexFund (1=Yes)	-2.6	(-3.38)	-55.82	(-9.76)	8.7	(1.82)	-30.4	(-20.04)	-20.4	(-22.66)	-6.4	(-5.14)	-3.9	(-3.18)	-0.3	(-0.11)
logTNA	-0.097	(-1.21)	-1.71	(-2.32)	-2.8	(-5.07)	-0.24	(-8.25)	-1.03	(-5.43)	-1.79	(-8.03)	-0.07	(-0.32)	-1.01	(-3.89)
TotFlow_pct	1.63	(4.70)	48.97	(22.38)			0.65	(8.34)	3.37	(7.88)	0.58	(0.63)	2.0	(4.60)	3.0	(2.92)
logFamily_TNA	0.069	(0.62)	1.35	(1.75)	1.27	(1.96)	-0.19	(-5.90)	-1.17	(-6.46)	-0.19	(-0.65)	-0.64	(-2.95)	0.50	(1.57)
logFamilyNmFds	-0.028	(-0.28)	-2.63	(-2.70)	0.03	(0.06)	0.080	(2.36)	0.18	(0.95)	-0.12	(-0.45)	1.2	(4.68)	-0.64	(-1.21)
Load Revenue													3.5	(11.56)		
Marketing Expenses															4.2	(9.23)
Observations	86,059		86,059		86,059		86,059		86,059		86,059		34,074		21,595	
Adj Rsqr	78.0%		57.8%		48.7%		80.6%		83.8%		43.1%		63.2%		42.3%	

Table IV – Regression Models of Commission Rates and Total Commissions

A pooled regression of all series' semi-annual observations is run using data from 1994 - 2005 (21,301 obs). The dependent variable is the brokerage commissions paid over a six month period, scaled as indicated in the panel headings. Each SeriesType variable is the weighted average incidence of the respective fund type within the series (AG = Aggressive Growth; Gro = Growth; G&I = Growth & Income; Bal = Balanced; Bnd = Bond; Intl = International Equity). Index Fund is a dummy variable for index funds. StockPct is the % of portfolio held in equities. logSeriesTNA is the natural log of the summed TNA of all funds in the series. logFundInSeries is the natural log of then number of funds in the series. logOthFamilyTNA is the natural log of the fund family TNA less the series TNA. TradingVolume_sDev is the trading volume (Buys + Sells) scaled by the standard deviation across all funds in the category. FiscalYr_2dHalf is an indicator variable for whether or not the fund filing is from the first (0) or last (1) six months of the fund's fiscal year. Standard errors are clustered by series and t-statistics are included in parentheses. Fixed effects for year are included in the second specification in each panel.

	Panel A. Rate (Scale by Trading Volume)				**Panel B.** Total (Scale by Net Assets)			
Regression:	1		2		1		2	
SeriesType_AG	17.1	(23.4)	15.5	(19.5)	17.9	(19.4)	16.4	(15.7)
SeriesType_Gro	14.4	(26.6)	13.5	(18.8)	12.9	(13.2)	13.6	(12.5)
SeriesType_GI	13.4	(27.3)	12.9	(22.4)	10.9	(14.9)	10.5	(13.9)
SeriesType_Bal	7.5	(9.0)	8.2	(9.8)	7.3	(6.5)	8.5	(7.6)
SeriesType_Bnd	3.0	(9.3)	6.0	(5.1)	2.8	(7.8)	4.8	(2.7)
SeriesType_Intl	26.8	(28.7)	25.7	(25.3)	22.1	(17.9)	20.5	(16.2)
Index Fund (1=Yes)	-7.8	(-7.8)	-6.1	(-5.8)	-10.4	(-8.5)	-8.9	(-7.7)
StockPct			4.6	(2.7)			5.4	(2.1)
logSeriesTNA			-1.9	(-10.6)			-3.0	(-11.4)
logFundsInSeries			-0.03	(-0.2)			1.4	(5.6)
logOthFamilyTNA			-0.07	(-0.6)			0.36	(2.4)
TradingVolume_sDev			-1.00	(-5.9)			6.7	(16.8)
FiscalYr_2dHalf			1.15	(4.9)			1.7	(5.1)
Annual Fixed Effects	No		Yes		No		Yes	
Adj Rsqr	38.0%		41.0%		21.0%		29.0%	

Table V – Regression Expanded models of Commissions: Including Proxies for Soft Dollar Motives

A pooled regression of all funds' semi-annual observations is run using data from 1994 - 2006 (21,301 obs). The dependent variable is the brokerage commissions paid over a six month period, scaled as indicated in the panel headings. In regression 1, the variables pre-fixed by sd_ are indicator variables corresponding to soft-dollar disclosure on the N-SAR: *InfoPurchase* for research, data and software; *Distribution* for distribution; *Administrative* for payment for administrative services; and *Advisor* for receipts by advisor. In regressions 2-4, *No-load Fund* and *No 12b-1 Fun*d are dummy variables for whether or not any front or rear load income or 12b-1 expenses are reported by the fund. *Load_sDev* is the total front and back loads paid to external brokers scaled by the lagged total net assets of the fund. As with all variables denoted _sDev, it is normalized against generic fund characteristics as in Table III, aggregated across the series using fund TNA as the weight, and then standardized by the standard deviation of all series aggregates of that variable. *logTrackingErr* is the log of the standard deviation of returns against category indices. *Exp* is the total expenses of the fund, which is decomposed into *InvstAdvis* (investment advisor fee); *Marketing* expenses; and *Admin*istrative expenses. Marketing expenses is further decomposed by multiplying the total marketing expense times the percentage 12b-1 fee allocated to external marketing agents; internal marketing; and other. All Regressions also include the 'Base' commission model regressors from Table IV, Regression 2, including yearly fixed effects. T-statistics are in parentheses and the standard errors are clustered by series.

Panel A. Brokerage Commissions scaled by Trading Volume

Regression:	1	2	3	4
sd_InfoPurchase	2.55 (4.49)			
sd_Distribution	1.16 (2.44)			
sd_Administrative	0.37 (0.94)			
sd_Advisor	0.12 (0.24)			
No-load Fund		-3.11 (-2.19)	-2.11 (-1.35)	-2.09 (-1.34)
Load_sDev		1.31 (2.36)	1.13 (1.99)	1.16 (2.04)
No 12b-1 Fund		-1.81 (-3.64)	-2.56 (-3.63)	-2.51 (-3.55)
logTrackErr_sDev		2.42 (2.93)	2.20 (2.65)	2.19 (2.63)
Exp_sDev		-0.50 (-1.87)		
InvstAdvis_sDev			-0.11 (-0.49)	-0.11 (-0.50)
AdminExp_sDev			-0.13 (-0.41)	-0.12 (-0.39)
MarketingExp_sDev			-0.81 (-2.38)	
Twlv_b1_External				-0.91 (-2.66)
Twlv_b1_Internal				-0.04 (-0.04)
Twlv_b1_Other				-0.48 (-1.11)
Base Model Controls	Yes	Yes	Yes	Yes
Adjusted R-Squared	41.1%	41.2%	41.2%	41.2%
Number of Observations	21,301	21,301	21,301	21,301

Panel B. Brokerage Commissions scaled by Total Net Assets

	1	2	3	4
sd_InfoPurchase	2.70 (3.10)			
sd_Distribution	1.79 (2.85)			
sd_Administrative	0.57 (1.05)			
sd_Advisor	0.60 (0.85)			
No-load Fund		-4.54 (-1.98)	-1.94 (-0.78)	-1.86 (-0.74)
Load_sDev		1.50 (1.75)	1.03 (1.18)	1.03 (1.20)
No 12b-1 Fund		-3.45 (-5.21)	-5.6 -4.73	-5.53 (-4.68)
logTrackErr_sDev		3.24 (2.93)	2.91 (2.65)	2.92 (2.66)
Exp_sDev		-0.22 (-0.48)		
InvstAdvis_sDev			0.32 (0.94)	0.32 (0.95)
AdminExp_sDev			0.04 (0.08)	0.03 (0.08)
MarketingExp_sDev			-1.58 (-2.75)	
Twlv_b1_External				-1.62 (-2.80)
Twlv_b1_Internal				0.18 (0.15)
Twlv_b1_Other				-1.67 (-2.46)
Base Model Controls	Yes	Yes	Yes	Yes
Adjusted R-Squared	29.0%	29.2%	29.3%	29.3%
Number of Observations	21,301	21,301	21,301	21,301

Table VI – Regression Expanded models of Commissions: Including Proxies for Soft Dollar Motives

A pooled regression of all funds' semi-annual observations is run using data from 1994 - 2006 (21,301 obs). The dependent variable is series-level performance. To construct this measure, the benchmark models in Table II are used to calculate the abnormal return of each fund. This abnormal return is then ranked against all other funds in the category into 20 groups. These fund-level abnormal performance ranks are then aggregated across the series using each fund's TNA as the weight. The independent variables include an intercept and the predicted/residual component from different models of brokerage commissions. In Panel A, brokerage commissions are scaled by trading volume and in Panel B, brokerage commissions are scaled by TNA. The *Base Commissions Model* is the model described in Table IV, regression 2. The *Information Model* uses the residual from the *Base Commissions Model* as the dependent variable and it uses the two proxies for active management from Table V, *sd_InfoPurchase* and *logTrackingErr*, as explanatory variables. The *Expense Shift Model* uses the residual from the *Information Model* as the dependent variable and the remaining N-SAR soft dollar indicators, *sd_Distribution*, *sd_Administrative*, and *sd_Advisor*, as explanatory variables. Regressions 2, 4 and 6 also include the independent variables from the base commissions model as potential explanatory variables for the performance measure. Standard errors are clustered by series and t-statistics are included in parentheses.

Panel A. Performance and Brokerage Commissions scaled by Trading Volume

	Regression:	1		2		3		4		5		6	
Intercept		9.6	(106.1)	9.3	(9.0)	9.6	(107.5)	9.3	(9.0)	9.6	(107.1)	9.3	(8.9)
Base Commissions Model	*Predicted*	0.004	(0.7)	0.017	(0.4)	0.004	(0.6)	0.018	(0.4)	0.002	(0.3)	0.017	(0.4)
	Residual	-0.004	(-1.6)	-0.005	(-2.0)								
Information Model	*Predicted*					0.305	(4.1)	0.141	(1.9)	0.319	(4.3)	0.163	(2.2)
(on Base Residual)	*Residual*					-0.005	(-2.0)	-0.004	(-2.1)				
Expense Shift Model	*Predicted*									-0.206	(-2.3)	-0.328	(-3.6)
(on Base+Info Resid)	*Residual*									-0.005	(-2.0)	-0.005	(-2.0)
Adjusted R-Squared		0.01%		1.56%		0.14%		1.58%		0.17%		1.66%	
Number of Observations		21,301		21,301		21,301		21,301		21,301		21,301	
Base Model Coefficients Included		No		Yes		No		Yes		No		Yes	

Panel B. Performance and Brokerage Commissions scaled by TNA

	Regression:	1		2		3		4		5		6	
Intercept		9.8	(136.9)	8.7	(10.8)	9.8	(138.5)	8.7	(10.9)	9.8	(138.7)	8.6	(10.7)
Base Commissions Model	*Predicted*	-0.014	(-2.9)	0.057	(1.4)	-0.015	(-3.1)	0.056	(1.3)	-0.015	(-3.2)	0.057	(1.4)
	Residual	-0.002	(-1.2)	-0.003	(-1.4)								
Information Model	*Predicted*					0.230	(4.8)	0.098	(2.0)	0.237	(5.0)	0.109	(2.2)
(on Base Residual)	*Residual*					-0.003	(-1.4)	-0.003	(-1.4)				
Expense Shift Model	*Predicted*									-0.144	(-2.7)	-0.210	(-3.8)
(on Base+Info Resid)	*Residual*									-0.003	(-1.4)	-0.003	(-1.3)
Adjusted R-Squared		0.07%		1.56%		0.25%		1.58%		0.30%		1.68%	
Number of Observations		21,301		21,301		21,301		21,301		21,301		21,301	
Base Model Coefficients Included		No		Yes		No		Yes		No		Yes	

Table VII – Comparing N-SAR Estimated Returns with CRSP Returns

Using a sub-sample of 41,209 fund-semiannual observations we compare the returns estimated using net asset values and distributions from the N-SAR filings to semiannual returns calculated by compounding the monthly returns reported in CRSP. The N-SAR and CRSP samples are first hand-matched using the name reported in CRSP and the N-SAR filing. To ensure the matching is correct, we then compare the NAV reported in CRSP with the NAV reported in the N-SAR. If there is an exact match in NAVs, then the returns are kept. The table reports the mean, median, standard deviation and 5th, 10th, 90th and 95th percentiles for the CRSP and NSAR returns separately as well as the distribution of pair-wise differences in returns. The correlation between the CRSP and NSAR returns is also reported.

				Percentiles					
Source of Returns	**Mean**	**Median**	**Std. Dev.**	**5th**	**10th**	**90th**	**95th**	**No. Obs**	**Corr.**
CRSP	3.79%	2.71%	11.58%	-15.88%	-9.13%	16.56%	22.35%	41,209	0.93
NSAR	3.86%	2.79%	11.99%	-16.24%	-9.41%	17.03%	23.31%		
Pair-wise Difference	0.07%	0.00%	4.34%	-1.43%	-0.48%	0.33%	1.67%	41,209	-