Conflict of Interests between Load Fund Investors and Brokers and Financial Advisors*

Xinge Zhao
Associate Professor of Finance
China Europe International Business School (CEIBS)
699 Hongfeng Road, Pudong
Shanghai, China, 201206
Tel: 86-21-28905601
Fax: 86-21-28905620
Email: zxinge@ceibs.edu

December 2008

Abstract

Load funds are primarily sold through brokers and financial advisors. This paper finds that load funds with higher loads and 12b-1 fees tend to receive higher flows, showing evidence that there exists conflict of interests between load fund investors and brokers and financial advisors: brokers and financial advisors, who exert a substantial degree of influence on load fund investors, apparently serve their own interests by guiding investors into funds with higher loads and 12b-1 fees, which generate higher income to the brokers and financial advisors but increase the expenses of investors. In addition, brokers and financial advisors do not seem to be as sensitive in saving operating expenses as no-load fund investors. For load fund investors, these findings help them understand that they are in a vulnerable position in their relationship with brokers and financial advisors, who are sales people first, and advisors second.

KEY WORDS: 12b-1 fees, brokers and financial advisors, conflict of interests, load funds, loads

*I would like to thank Julie Agnew, John Boschen, Denise Jones, Erik Lie, George Oldfield, Chris Taber, Wanda Wallace, Russ Wermers, and seminar participants at College of William & Mary, Virginia Tech, China Europe International Business School (CEIBS), the 2005 China International Conference in Finance, Financial Management Association International 2005 Annual Meeting, and the 18th Australasian Finance and Banking Conference for very helpful comments. Any errors are my responsibility.

Introduction

Mutual funds have become an increasingly important investment vehicle for individual investors. In general, an individual mutual fund investor may either invest in no-load funds, which largely rely on direct sales to investors, or load funds, which are primarily sold through brokers and financial advisors. Consequently, a natural question to investigate is how brokers and financial advisors influence the investors of load funds, which account for 75% of total retail mutual funds. In particular, is there any conflict of interests between load fund investors and brokers and financial advisors?

To investigate this issue, this paper first studies the effects of fund loads on the net flows into load funds. Various surveys have shown that load fund investors are overall unsophisticated and they often consider brokers and financial advisors the most important information source (Capon, et al., 1996; Investment Company Institute, 1997; Alexander, et al., 1998). As a result, brokers and financial advisors must exert a substantial degree of influence on load fund investors. In addition, as noted in Nanda, et al. (2000) and Sirri and Tufano (1998), as a component of the expenses encountered by mutual fund investors, fund loads are used primarily to compensate brokers and financial advisors. Consequently, if brokers and financial advisors always act in the best interest of the investors, we would expect that fund loads have a negative effect on flows, because, all else being equal, rational investors should stay away from funds with higher expenses, as argued by Barber, et al. (2005). However, if brokers and financial advisors put their own interests first instead, flows might be positively associated with fund loads, because higher loads, as suggested by Sirri and Tufano (1998), should motivate brokers and financial advisors to sell more aggressively.

In addition to the study of the effects of fund loads on flows into load funds, I also compare the effects of other determinants of flows into load and no-load funds, especially fund operating expenses and 12b-1 fee, a distribution fee primarily paid to brokers and financial advisors as a trailing commission, and use the observed differences to analyze whether there exists conflict of interests between load fund investors and brokers and financial advisors.

This paper first finds that load funds with higher loads and 12b-1 fees tend to receive higher flows. This finding suggests that brokers and financial advisors apparently serve their own interests by guiding investors into funds with higher loads. In addition, brokers and financial advisors do not seem to be as sensitive in saving operating expenses as no-load fund investors. These results are consistent with examples reported in the financial media. For instance, Morgan Stanley is reported to practice "favored sale" of fund companies' products based on brokerage commissions that Morgan Stanley would receive from those fund companies.[1] This paper reveals that such "favored sale" practice is not limited to Morgan Stanley, but spread all over the entire brokerage industry. Furthermore, the behavior pattern of brokers and financial advisors suggested by these results is also consistent with the findings in Bergstresser, et al. (2008) and Houge and Wellman (2007). Bergstresser, et al. (2008) fail to find that brokers deliver substantial tangible benefits for load fund investors, while Houge and Wellman (2007) claim that load mutual fund companies charge higher expenses to their target customer: the less-knowledgeable investor.

For load fund investors, these findings help them understand that they are in a vulnerable position in their relationship with brokers and financial advisors, who are sales people first, and advisors second. In light of any investigation as to whether brokers and financial advisors have abused their influence on mutual fund investors, these findings are of great importance to both regulators and mutual fund investors.

Data, variables, and methodology

Data

Using the CRSP Survivor-Bias Free US Mutual Fund Database, I create a data set of quarterly data from the first quarter of 1992 to the third quarter of 2001 of 15,853 open-end mutual funds. The data set covers all equity funds, bond funds, and hybrid funds. All funds are categorized into 19 investment objectives primarily based on the Investment Company Data, Inc. (ICDI)'s Fund Objective Code, which indicates the fund's investment strategy as identified by Standard & Poor's Fund Services.[2]

The data include fund name, fund family (management company), inception date, fund age (months), quarterly return, NAV (net asset value), expense ratio, turnover ratio, front-end loads, back-end loads, 12b-1 fees, and total assets. More than 60% of the funds are different share classes of a common portfolio. To examine and compare the effects of different types of loads, which are specific to each share class, on flows, following Greene and Hodges (2002), this paper studies flows to each share class instead of each portfolio.

About 75% of all funds target retail investors, and these retail mutual funds can be disaggregated by load types into no-load funds and three categories of load funds: front-end load funds, back-end load funds, and level-load funds. Front-end load funds charge a front-end load and a 12b-1 fee but not a back-end load; back-end load funds charge a back-end load and a 12b-1 fee but not a front-end load; and, level-load funds generally charge a standard one-percent back-end load and a 12b-1 fee but not a front-end load. No-load funds, on the other hand, charge neither a front-end load nor a back-end load, but may charge a 12b-1 fee (if any) less than 25 basis points. Load funds are generally sold through brokers and financial advisors, while no-load funds largely rely on direct sales to investors. The loads and 12b-1 fees are used primarily to compensate brokers and financial advisors and to pay for distribution expenses.

Related literature and control variables

Barber, et al. (2005) and Sirri and Tufano (1998) have studied the effects that fund loads and changes in loads have on flows, respectively. However, how this paper studies the effects of fund loads differs from the literature in the following ways.

First, in the literature, the effects of fund loads are investigated using a data set of both load funds and no-load funds. Two offsetting effects might be combined in such a setting and cannot be distinguished from one another. Nanda, et al. (2000) suggest that different investor clienteles might exist for load and no-load funds, with load funds catering to unsophisticated investors. Therefore, sophisticated investors might simply stay away from any load fund, because they should understand that load funds underperform no-load funds after adjusting for loads (Gruber, 1996; Carhart, 1997), generating a negative effect for fund loads. However, for the clientele who do invest in load funds, if brokers and financial advisors put their own interests first, the stronger incentives due to the higher compensation to brokers and financial advisors from higher loads might lead to higher flows, indicating a positive relationship between fund loads and flows. In other words, using a data set of both load funds and no-load funds, the effects of fund loads on flows might be non-linear: no-load funds and high-load funds might both receive higher flows than low-load funds. Consequently, in this paper, to isolate the effect of loads on flows into load funds, I first only include observations from load funds in the estimation. To make the results in this paper comparable to the literature, I also perform estimations using both load funds and no-load funds, but I include both load fund dummies and load levels to control for the non-linearity.

Second, partially due to data limitations, most papers in the literature only include front-end load funds in their study and treat fund loads simply just as front-end loads. In this paper, I further disaggregate load funds according to load types into front-end load funds, back-end load funds, and level-load funds and study the effects of front-end and back-end loads separately. Such a practice sheds more light on the decision-making process of investments into different types of load funds.

In addition, Sirri and Tufano (1998) also find mutual fund investors are fee-sensitive in that funds with higher total fees (expense ratio plus amortized load assuming a seven-year holding period) have lower flows. Barber, et al. (2005) study the effects of front-end loads, 12b-1 fees, and other operating expenses separately. They find negative relations between front-end loads and fund flows, no relation between total operating expenses and fund flows, as well as positive relations between 12b-1 fees and fund flows. They argue that mutual fund investors are more sensitive to salient in-your-face fees, such as front-end loads, than operating expenses. Apparently, in addition to fund loads, the effects of 12b-1 fees and operating expenses should also be studied.

The determinants of flows into mutual funds have been the subject of a growing literature of academic studies. This literature provides a number of control variables to include in the investigation. Gruber (1996), for instance, finds that investors chase past performance. Chevalier and Ellison (1997) and Sirri and Tufano (1998) not only corroborate this finding but also detect the non-linearity in the performance-flow relationship: mutual fund investors flock to funds with the highest recent returns, but fail to flee from poor performers. Sirri and Tufano (1998) and Nanda, et al. (2004) both study the spillover effects — a fund might enjoy higher flows if the fund family it belongs to has larger size or a star fund with superior performance. In addition, the effects of other factors, such as fund size, previous flows, and fund age, have also been studied in the above-mentioned papers.

In addition to the factors already studied in previous research, this paper introduces two new variables to control for the effects of fund families and investment objectives on the flows into a fund. First, this paper includes the number of investment objectives offered in the fund family. This variable is included to capture the spillover effects within a fund family from a different angle. Second, because this paper follows Sirri and Tufano (1998) in measuring fund performance as its percentile performance relative to other funds with the same investment objective in the same period, the asset-weighted average raw return of the corresponding investment objective is also included to control for the effect of investors chasing the absolute performance of an investment objective.

Definitions of variables

Flows Consistent with the literature, I define *dollar flows* (*FLOW*) as the change in total assets in excess of appreciation. I especially follow Zheng (1999) in also removing the increase in total assets due to merger so that the flow measure clearly represents only net new investments made by investors:

$$FLOW_{i,t} = ASSET_{i,t} - ASSET_{i,t-1}\,(1 + R_{i,t}) - MASSET_{i,t} \tag{1}$$

where $ASSET_{i,t}$ is the total assets of fund *i* at the end of quarter *t*, $R_{i,t}$ is the holding period return of fund *i* during quarter *t*, and $MASSET_{i,t}$ is the assets added to fund *i* during quarter *t* due to acquiring other mutual funds.

I then define *percentage flows* (*PFLOW*) as the asset growth rate of a fund due to dollar flows:

$$PFLOW_{i,t} = FLOW_{i,t} / ASSET_{i,t-1} \quad (2)$$

Loads and Changes in Loads Previous research largely includes only the level of front-end loads in the analysis. In addition to using a front-end load level variable, *FLOAD*, in the analysis of flows into front-end load funds, I also include a back-end load level variable, *BLOAD*, in the analysis of flows into back-end load and level-load funds. To test if changes in loads have any immediate effect on flows, I also include changes in front-end loads ($\Delta FLOAD$) or back-end loads ($\Delta BLOAD$) in the estimations.

12b-1 Fees and Operating Expenses As in Barber, et al. (2005), I subtract 12b-1 fees (*12B*) from the expense ratio to create a new variable, *NON12B*, which only represents operating expenses not related to distribution efforts.

Fund Size Consistent with the literature, $LASSET_{i,t}$, which is the natural log of $ASSET_{i,t}$, the total net assets of a mutual fund, is used to represent the size of a fund.

Performance Following Sirri and Tufano (1998), I measure the performance of a fund as its fractional performance rank ($RANK_{i,t}$), which represents the percentile of its raw return (*RAW*) relative to other funds with the same investment objective in the same quarter. To apply a piecewise linear regression to control for the non-linearity in the flow-performance relationship, I continue to follow Sirri and Tufano (1998) to create three performance range variables defined as follows using splines:

$$LOWPERF_{i,t-1} = \min [RANK_{i,t-1}, 0.2]$$

$$MIDPERF_{i,t-1} = \min [RANK_{i,t-1} - \text{LOWPERF}_{i,t-1}, 0.6]$$

$$HIGHPERF_{i,t-1} = \min [RANK_{i,t-1} - \text{LOWPERF}_{i,t-1} - \text{MIDPERF}_{i,t-1}, 0.2] \quad (3)$$

LOWPERF $_{i,t-1}$ represents the bottom performance quintile, *MIDPERF* $_{i,t-1}$ represents the middle three performance quintiles, and *HIGHPERF* $_{i,t-1}$ represents the top performance quintile. I also calculate *OAWRET* $_{i,t-1}$ as the asset-weighted average of the raw holding period returns of all funds with the same investment objective to measure investment objective performance.

Sirri and Tufano (1998) also use the standard deviation of monthly raw returns to measure the risk of a fund and to study its effect on fund net flows. Instead of incorporating this risk measure directly, I measure the risk-adjusted performance of a fund using the Sharpe ratio (*SHARPE*), which is computed as:

$$SHARPE = \frac{\overline{R}_i - \overline{R}_f}{\sigma_i} \tag{4}$$

where $\overline{R}_i$ and $\overline{R}_f$ are the average monthly raw return of fund *i* and risk-free rate in the past 12 months, respectively, and σ_i is the standard deviation of the monthly raw returns of fund *i* in the past 12 months. Performance ranks and performance range variables — *LOWSHARPE* $_{i,t-1}$, *MIDSHARPE* $_{i,t-1}$, and *HIGHSHARPE* $_{i,t-1}$ — are computed in the same fashion as in Equation (3), and used to study the effect of risk-adjusted performance on flows.

Fund Age The age of a fund (*AGE*) is also included in the analysis to control for the possibility that fund families might steer more flows into new funds.

Number of Investment Objectives in the Fund Family *NUMOBJ* represents the number of investment objectives offered in the fund family.

Summary statistics

I compute the medians and means of various characteristics of funds with different load types and report the results in TABLE I. The median front-end load is 4.75%. As expected, the median back-end load of a level-load fund is considerably lower than that of a back-end load fund. No-load funds and front-end load funds have the lowest 12b-1 fees and operating expenses. The median size of a no-load fund ($60.480 million) is almost 50% larger than that of a front-end load fund ($43.039 million), while the median sizes of the relatively younger back-end load funds and level-load funds are only $24.797 million and $5.195 million, respectively. Similar ranks can also be observed for the raw return and the Sharpe ratio, although the difference is not as significant. No-load funds have the highest median dollar flows, while level-load funds have the highest median percentage flows. Regardless of the flow measure, front-end load funds have the lowest flows. For all variables, using means generates the same ranking among different load types as using medians, even though the means of fund size, dollar flows, and percentage flows are all considerably higher than their medians due to some extreme values.

[Insert TABLE I about here]

The statistical model

I test the effects of fund loads on fund flows, while controlling for other variables in a multivariate regression framework. Consistent with the literature, I measure fund flows as percentage flows.[3]

For front-end load funds, I estimate the following random effects regression using only observations from front-end load funds:[4]

$$PFLOW_{i,t} = \alpha + \beta_1 \bullet FLOAD_{i,t-1} + \beta_2 \bullet \Delta FLOAD_{i,t-1} + \beta_3 \bullet 12B_{i,t-1} + \beta_4 \bullet NON12B_{i,t-1} + \beta_5 \bullet LASSET_{i,t-1} + \beta_6 \bullet PFLOW_{i,t-1} + \beta_7 \bullet LOWPERF_{i,t-1} + \beta_8 \bullet MIDPERF_{i,t-1} + \beta_9 \bullet HIGHPERF_{i,t-1} + \beta_{10} \bullet AGE_{i,t-1} + \beta_{11} \bullet NUMOBJ_{i,t-1} + \beta_{12} \bullet OAWRET_{i,t-1} + u_i + \varepsilon_{i,t} \quad (5)$$

where all variables are as defined earlier, and u_i is the random disturbance characterizing the i^{th} fund and is constant through time. $FLOAD_{i,t-1}$ is replaced by $BLOAD_{i,t-1}$ when back-end load and level-load funds are studied, or dropped when no-load funds are studied, and only the relevant data are used for each load type. $\Delta FLOAD_{i,t-1}$ is also replaced by $\Delta BLOAD_{i,t-1}$ for back-end load funds. $\Delta BLOAD_{i,t-1}$ is not included for level-load funds because about 90% of the back-end loads for level-load funds are a standard 1%. In separate regressions, *LOWPERF*, *MIDPERF*, and *HIGHPERF* are replaced by *LOWSHARPE*, *MIDSHARPE*, and *HIGHSHARPE* as an alternative performance measure. Performance measures based on raw and risk-adjusted returns are not included in the same model because they tend to be highly correlated to each other.

After studying the effects of loads on flows into load funds and comparing the determinants of flows into each of the four load types of funds, following the literature, I also use the full sample of load and no-load funds to study the effects of fund loads on flows into load funds. I estimate the following random effects panel regression:

$$PFLOW_{i,t} = \alpha + \beta_1 \bullet FLDUMMY_i + \beta_2 \bullet BLDUMMY_i + \beta_3 \bullet LLDUMMY_i + \beta_4 \bullet FLOAD_{i,t-1} + \beta_5 \bullet BLOAD_{i,t-1} + \beta_6 \bullet 12B_{i,t-1} + \beta_7 \bullet NON12B_{i,t-1} + \beta_8 \bullet LASSET_{i,t-1} + \beta_9 \bullet PFLOW_{i,t-1} + \beta_{10} \bullet LOWPERF_{i,t-1} + \beta_{11} \bullet MIDPERF_{i,t-1} + \beta_{12} \bullet HIGHPERF_{i,t-1} + \beta_{13} \bullet AGE_{i,t-1} + \beta_{14} \bullet NUMOBJ_{i,t-1} + \beta_{15} \bullet OAWRET_{i,t-1} + u_i + \varepsilon_{i,t} \quad (6)$$

where the three load fund dummy variables, *FLDUMMY*, *BLDUMMY*, and *LLDUMMY*, take the value of one if the fund is a front-end load fund, back-end load fund, and level-load fund, respectively, and zero otherwise. Both load fund dummy variables and actual load levels are included to control for the possible non-linearity in the effects of fund loads. In separate regressions, *LOWPERF*, *MIDPERF*, and *HIGHPERF* are replaced by *LOWSHARPE*, *MIDSHARPE*, and *HIGHSHARPE* as an alternative performance measure.

The panel regression method is used to account for the fact that observations from the same fund are not independent relative to one another in this time-series cross-sectional (panel) data set. The random effects model is chosen over a fixed effects model due to the existence of the load fund dummy variables. Like the fixed effects, the dummy variables, which take the value of either one or zero for all observations of a specific fund, are time invariant. Consequently, a fixed effects model cannot be estimated with such dummy variables. I estimate Equation (5) using random effects model to stay consistent with the method used for Equation (6). I also estimate Equation (5) and Equation (6) without the dummy variables using the fixed effects model and obtain the same qualitative results (not reported) for the remaining variables. As another robustness check, I also apply the Fama-MacBeth method in addition to the random effects and fixed-effects models and estimate the coefficients for each of the 38 quarters separately. Then I calculate the coefficients and *t*-statistics from the vector of quarterly results, as in Fama and MacBeth (1973). The same qualitative results (not reported) are obtained for almost all of the variables.

Estimation results

Panel A of TABLE II reports the results of separate random effects panel estimation for the following four fund load types: front-end load funds, back-end load funds, level-load funds, and no-load funds. Results from estimations using alternative performance measures based on the Sharpe ratio are reported in Panel B of TABLE II.

In addition to the study of the effects of fund loads on flows into load funds, I also want to compare the effects of other determinants of flows into load and no-load funds, especially 12b-1 fees and fund operating expenses, and use the observed differences to analyze whether there exists conflict of interests between load fund investors and brokers and financial advisors. Therefore, in both Panel A and Panel B, for each variable other than fund loads and changes in loads, following Del Guercio and Tkac (2002) in their comparison of pension fund and mutual fund managers, I test whether the coefficients for each type of load funds are statistically different from the corresponding coefficients in the no-load fund regression, and use [a], [b], and [c] to indicate that the coefficients are statistically different at the 1%, 5%, and 10% confidence levels, respectively.

[Insert TABLE II about here]

The effects of fund loads

Both Panel A and Panel B show that front-end loads and back-end loads are significantly positively associated with flows into front-end load funds and back-end load funds, respectively.

Nanda, et al. (2000) suggest that different investor clienteles might exist for load and no-load funds, with load funds catering to unsophisticated investors. Various surveys have corroborated that no-load fund investors are more sophisticated and rely primarily on fund prospectuses and financial publications to make independent investment decisions. Load fund investors, on the other hand, are generally viewed as less informed, and they often consider brokers and financial advisors the most important information source. For instance, Capon, et al.

(1996) show that 83% of mutual fund investors who seek advice from commission-based advisors do not know whether they own an equity fund or a fixed-income fund. Alexander, et al. (1998) find that no-load fund investors scored much higher than load fund investors in a financial literacy quiz. Investment Company Institute (1997) claims that 87% of mutual fund investors who use advisors either delegate all decisions to the advisor or choose a fund from among several recommended by the advisor. Investment Company Institute (2004) indicates that 81% of investors in funds sold through a sales force assert that "I tend to rely on the advice of a professional financial advisor when making mutual fund purchase and sales decisions".

Considering the substantial degree of influence brokers and financial advisors exert on load fund investors and the fact that fund loads are used primarily to compensate brokers and financial advisors, the positive relation between fund loads and flows shows evidence of the presence of conflict of interests between load fund investors and brokers and financial advisors: brokers and financial advisors apparently serve their own interests by guiding investors into funds with higher loads.

It should be noted that, even though back-end load fund investors may only need to pay the load at redemption (the back-end loads will be reduced by one percentage point for each year that money is left invested in the fund), higher back-end loads should also provide stronger incentives for the brokers and financial advisors to sell the fund rather than push investors to redeem from the fund, for the reason that, although no load is paid initially by the investors to purchase back-end load funds, the fund families still advance the sales charges to the brokers and financial advisors when they sell the fund (O'Neal, 1999). The finding for back-end load funds indicates that, most likely, the brokers and financial advisors might simply manage to sell back-end load funds to unsophisticated investors who are happy to pay the loads at a later time.

On the other hand, it is not a surprise to find the effect of back-end loads on flows into level-load funds to be insignificant, though, because about 90% of the back-end loads for level-load funds are a standard 1% and should not have any effect on flows. In terms of the effects of changes in loads on flows, while increases in back-end loads do lead to higher flows, especially when the effects of risk-adjusted performance are controlled, increases in front-end loads are not significantly related to higher flows.[5]

The effects of 12b-1 fees and operating expenses

It is first noted that, the effects of 12b-1 fees on flows are significantly different between no-load funds and load funds. For no-load funds, a one basis point increase in 12b-1 fees might reduce flows by more than 20 basis points, indicating that no-load fund investors are only interested in funds which are truly "no-load". On the contrary, 12b-1 fees are shown to have a statistically and economically significant and positive effect on flows for both front-end load funds and level-load funds. According to O'Neal (1999), 12b-1 fees are primarily paid to brokers and financial advisors as a trailing commission. Therefore, this finding corroborates that 12b-1 fees exert similar effects on load fund flows as fund loads and provides further evidence of the self-serving behavior of brokers and financial advisors. [6]

Investments into both load funds and no-load funds are shown to be sensitive to operating expenses. This result is expected because operating expenses, unlike loads or 12b-1 fees, do not increase the income of brokers and financial advisors. However, the sensitivity of no-load fund investors is significantly higher. While a one basis point increase in operating expenses might reduce flows into a no-load fund by more than five basis points, the same increase only reduces flows into any type of load funds by less than three basis points. This finding might suggest that no-load fund investors are more enthusiastic in saving expenses.

The effects of other control variables

As for other control variables, most factors have similar qualitative effects on the flows of no-load and various load funds. For example, fund flows are highly autocorrelated regardless of load types, as shown by the significantly positive estimates for lagged flow variables.

The study also reveals that investments into funds with different load types apparently all chase absolute performance, flocking into investment objectives with high average raw returns. Investments into all load types appear to chase relative performance as well, investing disproportionately more in the performance leaders in each investment objective, as shown by the significantly positive and convex relationship between performance percentile ranks and flows. For instance, the estimates from the piecewise regression of the three performance ranges show that, for both front-end load and no-load funds, the same increase in performance percentile ranks leads to almost five times as high percentage flows in the top performance quintile as in the middle three quintiles. As shown in Panel B, the use of alternative performance measures based on the Sharpe ratio, which measures risk-adjusted performance, does not change the conclusions. In fact, the convex and positive relationship between performance percentile ranks and flows becomes even stronger.

Regardless of load types, funds from fund families investing in a greater number of investment objectives all tend to receive higher flows. By offering more investment objectives, the fund family provides investors with greater flexibility to switch among funds and a better opportunity to execute asset allocation strategies, and makes its funds more attractive.

Full sample analysis

Following the literature, I also use the full sample of load and no-load funds to study the effects of fund loads on flows. I include both load dummies and load levels to control for possible non-linearity in the effects of fund loads. The results are reported in TABLE III. Model 1 uses performance measures based on raw returns, while Model 2 uses performance measures based on Sharpe ratios.

[Insert TABLE III about here]

All of the load fund dummies are shown to be significantly negative, suggesting that, all else being equal, a no-load fund receives higher flows than any type of load fund. After controlling for these load fund dummy variables, *FLOAD* and *BLOAD* exhibit the same positive relationships with fund flows as observed in TABLE II for front-end load and back-end load funds. These findings corroborate the non-linearity in the relationship between fund loads and flows: no-load funds and high-load funds both receive higher flows than low-load funds. If *FLOAD* and *BLOAD* are dropped from the estimation, the coefficients of the three load fund dummy variables are still significantly negative, while the same qualitative results are obtained for other variables.

Estimation by investment objectives

The data set used in this paper covers not only domestic equity funds, but also international equity funds, bond funds, and hybrid funds. To test whether the results found for the entire data set are robust across different fund groups, I repeat the estimations in TABLE II and TABLE III for each of the 19 investment objectives. In results not reported here, I find that the main findings of this paper ─ load funds with higher loads and 12b-1 fees tend to receive higher flows ─ can be obtained for all the 19 investment objectives.

Conclusion

This paper investigates whether there exists any conflict of interests between load fund investors and brokers and financial advisors. Load funds are primarily sold through brokers and financial advisors, and load fund investors have been shown to be less informed in general.

This paper finds that load funds with higher loads and 12b-1 fees, which provide stronger incentives to the brokers and financial advisors but increase the expenses of investors, receive higher flows. These findings suggest the presence of conflict of interests between load fund investors and brokers and financial advisors: brokers and financial advisors apparently serve their own interests by guiding investors into funds with higher loads. In addition, brokers and financial advisors do not seem to be as sensitive in saving operating expenses as no-load fund investors.

The findings in this paper are of great importance to mutual fund investors, regulators, and researchers. For load fund investors, these findings should help them understand that they are in a vulnerable position in their relationship with brokers and financial advisors, who are sales people first, and advisors second. In addition, the findings in this paper should also provide insights to regulators and researchers in terms of the decision making process of mutual fund investors. Mutual fund investors are often assumed to "choose" funds as if they were all independent decision makers. However, this paper shows that the relatively uninformed load fund investors seldom "choose" load funds on their own; in reality, to a significant degree, brokers and financial advisors "sell" the funds to these investors instead.

---

[1] The Wall Street Journal, "SEC Could Sanction Morgan Stanley," October 15, 2003, page D13.

[2] For a list of all fund objectives and their description, please refer to Appendix A to the CRSP Survivor-Bias Free US Mutual Fund Database Guide.

[3] The percentage flow variables are winsorized at the 1st and 99th percentiles in these regressions to control for the effects of outliers.

[4] Pairwise correlations (not reported here) are computed for all independent variables and found to be low enough (all less than 0.30, with the vast majority less than 0.15) to eliminate concerns over multicollinearity problems in the regressions. As a matter of fact, in addition to the variables included in the model, some other variables, such as the total assets or the number of funds in a family and fund capital gains overhang, are also considered. However, they are highly correlated to variables already included in the model and therefore dropped.

[5] The difference in the effects of changes in front-end loads and back-end loads might be due to the fact that back-end loads tend to be more narrowly distributed. The difference between the 90th percentile and the 10th percentile is only about 1% for back-end loads, but exceeds 2% for front-end loads. As a result, any increase in back-end loads is more likely to be noticed by brokers and financial advisors.

[6] It is not surprising to find that the estimate of 12b-1 fees is insignificant for back-end load funds, though. According to O'Neal (1999), for front-end load and level-load funds, 12b-1 fees are almost entirely paid to brokers and financial advisors as trailing commissions; however, for back-end load funds, only around 25% of the 12b-1 fees are paid to brokers and financial advisors, while the rest of the fees are kept by the fund family to recover the sales charges advanced to brokers and financial advisors.

References

Alexander, G., J. D. Jones and P. Nigro: 1998, 'Mutual Fund Shareholders: Characteristics, Investor Knowledge, and Sources of Information', *Financial Services Review* 7, 301-316.

Barber, B., T. Odean and L. Zheng: 2005, 'Out of Sight, Out of Mind: The Effects of Expenses on Mutual Fund Flows', *Journal of Business* 78(6), 2095-2119.

Bergstresser, D., J. Chalmers and P. Tufano: 2008, 'Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry', *Review of Financial Studies*, forthcoming.

Capon, N., G. Fitzsimons and R. Prince: 1996, 'An Individual Level Analysis of the Mutual Fund Investment Decision', *Journal of Financial Service Research* 10, 59-82.

Carhart, M.: 1997, 'On Persistence in Mutual Fund Performance', *Journal of Finance* 52, 57-82.

Chevalier, J. and G. Ellison: 1997, 'Risk Taking by Mutual Funds as a Response to Incentives', *Journal of Political Economy* 105, 1167-1200.

Del Guercio, D. and P. Tkac: 2002, 'The Determinants of the Flows of Funds of Managed Portfolios: Mutual Funds vs. Pension Funds', *Journal of Financial and Quantitative Analysis* 37, 523-557.

Fama, E. and J. MacBeth: 1973, 'Risk, Returns, and Equilibrium: Empirical Tests', *Journal of Political Economy* 81, 607-636.

Greene, J. and C. Hodges: 2002, 'The Dilution Impact of Daily Fund Flows on Open-end Mutual Funds', *Journal of Financial Economics* 65, 131-158.

Gruber, M.: 1996, 'Another Puzzle: The Growth in Actively Managed Mutual Funds', *Journal of Finance* 51, 783-810.

Houge, T. and J. Wellman: 2007, 'The Use and Abuse of Mutual Fund Expenses', *Journal of Business Ethics* 70, 23-32.

Investment Company Institute: 1997, *Understanding Shareholders' Use of Information and Advisers*. Washington, DC.

Investment Company Institute: 2004, *Profile of Mutual Fund Shareholders*. Washington, DC.

Nanda, V., M. Narayanan and V. Warther: 2000, 'Liquidity, Investment Ability, and Mutual Fund Structure', *Journal of Financial Economics* 57, 417-43.

Nanda, V., Z. Wang and L. Zheng: 2004, 'Family Values and the Star Phenomenon', *Review of Financial Studies* 17, 667-698.

O'Neal, E.: 1999, 'Mutual Fund Share Classes and Broker Incentives', *Financial Analysts Journal* 55, 76-87.

Sirri, E. and P. Tufano: 1998, 'Costly Search and Mutual Fund Flows', *Journal of Finance* 53, 1589-1622.

Zheng, L.: 1999, 'Is Money Smart? A Study of Mutual Fund Investors' Fund Selection Ability', *Journal of Finance* 54, 901-933.

TABLE I

Summary statistics of load and no-load funds

Fund Characteristics	All Retail Funds	Front-end Load Funds	Back-end Load Funds	Level-load Funds	No-load Funds
Panel A: Medians					
FLOAD (%)	N/A	4.750	N/A	N/A	N/A
BLOAD (%)	N/A	N/A	5.000	1.000	N/A
12B (%)	0.250	0.250	1.000	1.000	0.000
NON12B (%)	0.930	0.900	0.970	1.000	0.900
ASSET ($ million)	32.697	43.039	24.797	5.195	60.498
RAW (%)	1.724	1.782	1.558	1.364	1.933
SHARPE (%)	14.028	15.113	10.725	7.917	17.692
FLOW ($ million)	0.108	0.010	0.221	0.103	0.235
PFLOW (%)	1.099	-0.013	2.665	4.352	1.038
AGE (months)	44	57	36	29	47
Panel B: Means					
FLOAD (%)	N/A	4.581	N/A	N/A	N/A
BLOAD (%)	N/A	N/A	4.622	1.030	N/A
12B (%)	0.395	0.208	0.904	0.871	0.023
NON12B (%)	0.992	0.981	1.024	1.065	0.943
ASSET ($ million)	329.970	383.384	208.126	44.780	490.864
RAW (%)	1.661	1.685	1.333	1.063	2.144
SHARPE (%)	13.067	13.912	8.979	6.222	18.115
FLOW ($ million)	4.675	2.331	3.300	2.329	9.628
PFLOW (%)	16.902	11.465	21.879	29.345	14.068
AGE (months)	70.970	91.564	48.867	36.396	79.095

Note: This table reports the medians and means of various characteristics of funds with different load types. *FLOAD* and *BLOAD* measure the front-end load level and back-end load level of a fund, respectively. *12B* represents the 12b-1 fees of a fund, while *NON12B* is created by subtracting 12b-1 fees from expense ratio to represent operating expenses not related to distribution efforts. *ASSET* is the total assets of a fund. *RAW* is the raw quarterly return of a fund. *SHARPE* stands for Sharpe ratio, a measure of risk-adjusted performance, which is calculated as average monthly return in excess of T-bill return divided by standard deviation of monthly returns in the past 12 months. *FLOW* measures *dollar flows*, and is defined as change in total assets in excess of appreciation and assets added through acquisition. *PFLOW* measures *percentage flows* and is defined as the asset growth rate of a fund due to dollar flows. *PFLOW* is winsorized at the 1^{st} and 99^{th} percentiles to control for the effects of outliers. *AGE* represents the age of a fund.

TABLE II

Determinants of flows into retail mutual funds with different load types

Panel A: Performance measures based on raw returns

Variables	Front-end Load Funds	Back-end Load Funds	Level-load Funds	No-load Funds
FLOAD (t-1)	1.334***			
	(0.000)			
BLOAD (t-1)		1.261***	2.491	
		(0.006)	(0.181)	
ΔFLOAD/ ΔBLOAD (t-1)	-0.417	0.975		
	(0.289)	(0.121)		
12B (t-1)	2.471*, a	0.244 a	5.921***, a	-21.309***
	(0.057)	(0.878)	(0.002)	(0.000)
NON12B (t-1)	-2.232***, a	-0.883**, a	-2.654***, b	-5.398***
	(0.000)	(0.036)	(0.001)	(0.000)
LASSET (t-1)	-6.082***, a	-6.860***, a	-7.978***, a	-9.622***
	(0.000)	(0.000)	(0.000)	(0.000)
PFLOW (t-1)	0.138***, a	0.194***, a	0.157***, a	0.069***
	(0.000)	(0.000)	(0.000)	(0.000)
LOWPERF (t-1)	0.067**	0.064*	0.009	0.034
	(0.047)	(0.090)	(0.905)	(0.423)
MIDPERF (t-1)	0.053***	0.068***	0.115***, a	0.042***
	(0.000)	(0.000)	(0.000)	(0.000)
HIGHPERF (t-1)	0.251***	0.456***, a	0.702***, a	0.209***
	(0.000)	(0.000)	(0.000)	(0.000)
AGE (t-1)	0.011***, a	-0.061***, a	-0.083***, a	0.009**
	(0.000)	(0.000)	(0.000)	(0.024)
NUMOBJ (t-1)	0.123***, a	0.123*, b	0.166*	0.274***
	(0.004)	(0.072)	(0.100)	(0.000)
OAWRET (t-1)	0.211***	0.279***, a	0.331***, a	0.168***
	(0.000)	(0.000)	(0.000)	(0.000)
INTERCEPT	-25.609***	-27.238***	-37.825***	-21.907***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	75,653	44,225	27,637	59,371
Overall R^2	0.1036	0.2508	0.1601	0.0638

TABLE II (Continued)

Panel B: Performance measures based on risk-adjusted returns

Variables	Front-end Load Funds	Back-end Load Funds	Level-load Funds	No-load Funds
FLOAD (t-1)	1.187***			
	(0.000)			
BLOAD (t-1)		1.237***	1.657	
		(0.005)	(0.308)	
ΔFLOAD/ ΔBLOAD (t-1)	-0.419	1.334**		
	(0.261)	(0.016)		
12B (t-1)	2.444*, a	-2.217 a	4.817***, a	-17.156***
	(0.054)	(0.141)	(0.005)	(0.000)
NON12B (t-1)	-1.758***, b	-0.936**, a	-1.455**	-4.149***
	(0.000)	(0.017)	(0.035)	(0.000)
LASSET (t-1)	-5.715***, c	-6.238***, a	-6.648***, a	-8.006***
	(0.000)	(0.000)	(0.000)	(0.000)
PFLOW (t-1)	0.122***, a	0.187***, a	0.138***, a	0.056***
	(0.000)	(0.000)	(0.000)	(0.000)
LOWSHARPE (t-1)	0.213***, a	0.105***	0.101	0.046
	(0.000)	(0.002)	(0.150)	(0.308)
MIDSHARPE (t-1)	0.066***	0.102***, b	0.181***, a	0.068***
	(0.000)	(0.000)	(0.000)	(0.000)
HIGHSHARPE (t-1)	0.459***	0.685***, a	1.234***, a	0.389***
	(0.000)	(0.000)	(0.000)	(0.000)
AGE (t-1)	0.010***, a	-0.064***, a	-0.065***, a	0.003
	(0.000)	(0.000)	(0.000)	(0.387)
NUMOBJ (t-1)	0.119***, c	0.104	0.191**	0.203***
	(0.004)	(0.106)	(0.032)	(0.001)
OAWRET (t-1)	0.207***	0.272***, a	0.368***, a	0.173***
	(0.000)	(0.000)	(0.000)	(0.000)
INTERCEPT	-27.818***	-24.208***	-35.674***	-18.939***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	73,807	42,506	26,588	57,456
Overall R^2	0.0875	0.2147	0.1571	0.0526

TABLE II (Continued)

Note: In Panel A, for front-end load funds, I estimate the following random effects regression using only observations from front-end load funds:

$$PFLOW_{i,t} = \alpha + \beta_1 \cdot FLOAD_{i,t-1} + \beta_2 \cdot \Delta FLOAD_{i,t-1} + \beta_3 \cdot 12B_{i,t-1} + \beta_4 \cdot NON12B_{i,t-1} + \beta_5 \cdot LASSET_{i,t-1} + \beta_6 \cdot PFLOW_{i,t-1}$$

$$+ \beta_7 \cdot LOWPERF_{i,t-1} + \beta_8 \cdot MIDPERF_{i,t-1} + \beta_9 \cdot HIGHPERF_{i,t-1} + \beta_{10} \cdot AGE_{i,t-1} + \beta_{11} \cdot NUMOBJ_{i,t-1} + \beta_{12} \cdot OAWRET_{i,t-1}$$

$$+ u_i + \varepsilon_{i,t}$$

PFLOW measures *percentage flows*, and is defined as the asset growth rate of a fund due to dollar flows. *FLOAD* measures the front-end load level. *ΔFLOAD* measures the change in front-end load. *12B* represents the 12b-1 fees of a fund, while *NON12B* is created by subtracting 12b-1 fees from expense ratio to represent operating expenses not related to distribution efforts. *LASSET* is the natural log of *ASSET*, the total assets of a fund. Following Sirri and Tufano (1998), I measure the performance of a fund as its fractional performance rank ($RANK_{i,t}$), which represents the percentile of its raw return relative to other funds with the same investment objective in the same quarter, and create three performance range variables defined as follows using splines: $LOWPERF_{i,t}$ = min [$RANK_{i,t}$, 0.2], $MIDPERF_{i,t}$ = min [$RANK_{i,t}$ - $LOWPERF_{i,t}$, 0.6], and $HIGHPERF_{i,t}$ = min [$RANK_{i,t}$ - $LOWPERF_{i,t}$ - $MIDPERF_{i,t}$, 0.2]. *LOWPERF* represents the bottom performance quintile, *MIDPERF* represents the middle three performance quintiles, and *HIGHPERF* represents the top performance quintile. *AGE* represents the age of a fund. *NUMOBJ* represents the number of investment objectives offered in the fund family. *OAWRET* is the asset-weighted average of the raw holding period returns of all funds with the same investment objective. u_i is the random disturbance characterizing the i^{th} fund and is constant through time. *FLOAD* is replaced by *BLOAD*, which measures the back-end load level, when back-end load and level-load funds are studied, or dropped when no-load funds are studied, and only the relevant data are used for each load type. *ΔFLOAD* is also replaced by *ΔBLOAD* for back-end load funds. The percentage flow variable is winsorized at the 1^{st} and 99^{th} percentiles to control for the effects of outliers. *p*-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% confidence levels, respectively. ^{a}, ^{b}, and ^{c} indicate that the coefficients for each type of load funds are statistically different from the corresponding coefficients in the no-load fund regression at the 1%, 5%, and 10% confidence levels, respectively.

In Panel B, performance range variables based on the Sharpe ratio, $LOWSHARPE_{i,t}$, $MIDSHARPE_{i,t}$, and $HIGHSHARPE_{i,t}$, which are computed in the same fashion as the percentage variables based on raw returns, are used instead as an alternative performance measure. Sharpe ratio measures the risk-adjusted performance of a fund, and is calculated as average monthly return in excess of T-bill return divided by standard deviation of monthly returns in the past 12 months.

TABLE III

An analysis using the full sample of load and no-load funds

Variables	Model 1	Model 2
FLDUMMY	-8.454***	-7.509***
	(0.000)	(0.000)
BLDUMMY	-9.585***	-9.307***
	(0.000)	(0.007)
LLDUMMY	-10.576***	-8.970***
	(0.000)	(0.000)
FLOAD (t-1)	1.068***	0.923***
	(0.000)	(0.000)
BLOAD (t-1)	1.520***	1.590***
	(0.002)	(0.001)
12B (t-1)	-1.679*	-1.298
	(0.066)	(0.128)
NON12B (t-1)	-2.903***	-2.062***
	(0.000)	(0.000)
LASSET (t-1)	-8.349***	-7.222***
	(0.000)	(0.000)
PFLOW (t-1)	0.138***	0.125***
	(0.000)	(0.000)
LOWPERF (t-1)	0.049**	
	(0.023)	
MIDPERF (t-1)	0.062***	
	(0.000)	
HIGHPERF (t-1)	0.299***	
	(0.000)	
LOWSHARPE (t-1)		0.134***
		(0.000)
MIDSHARPE (t-1)		0.091***
		(0.000)
HIGHSHARPE (t-1)		0.550***
		(0.000)
AGE (t-1)	0.006***	0.002
	(0.007)	(0.226)
NUMOBJ (t-1)	0.183***	0.173***
	(0.000)	(0.000)
OAWRET (t-1)	0.242***	0.245***
	(0.000)	(0.000)
INTERCEPT	-22.542***	-22.699***
	(0.000)	(0.000)
Number of observations	206,890	200,361
Overall R^2	0.1235	0.1063

Note: Model 1 estimates random effects panel regression using the full sample of retail mutual funds. Model 2 uses alternative performance range variables based on the Sharpe ratio. *FLDUMMY*, *BLDUMMY*, and *LLDUMMY*, take the value of one if the fund is a front-end load fund, back-end load fund, and level-load fund, respectively, and zero otherwise. Please refer to TABLE II for the definitions of other variables. *p*-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% confidence levels, respectively.