The Repercussions of Two SEC Rules for Mutual Fund Investors: Evidence from Share Class Flows

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Abstract

A conflict of interest arises between investors and intermediaries (broker-dealers and investment advisers) when a fund has multiple share classes (SEC Rule 18f-3) with different distribution fees (SEC Rule 12b-1). We show that within a fund, flow is less sensitive to poor performance for share classes with a higher 12b-1 fee. These results suggest that intermediaries fail to advise investors in share classes with high 12b-1 fees to leave poorly performing funds, which ultimately harms these investors. A negative exogenous shock to fund performance due to the 2008 Financial Crisis exacerbates the existing agency problems.

1. Introduction

In 1980, the Securities and Exchange Commission (SEC) promulgated Rule 12b-1, pursuant to the Investment Company Act of 1940. This rule allows mutual funds to charge existing shareholders annual fees (12b-1 fees) out of fund assets to cover distribution and service costs. Distribution costs include fees paid to brokers who sell fund shares as well as costs such as advertising, printing, and mailing prospectus to new investors; service costs are expenses related to serving current fund shareholders, such as operating and staffing information hotlines.[1] Prior to 1980, funds would charge a fee only when investors purchased shares (front-end load fees) or sold shares (back-end load fees). With the enactment of Rule 12b-1, intermediaries became able to receive a regular stream of payments from the fund. Examples of such intermediaries are broker-dealers, investment and financial advisers, and pension fund consultants. A survey of the use of 12b-1 fees, performed by the Investment Company Institute (ICI) in 2004, reveals that most of the fees go to financial advisers and other financial intermediaries (only 2 percent of 12b-1 fees are used for promotion, advertising, and other miscellaneous purposes).[2] The survey also reports that the amount of 12b-1 fees that shareholders pay through mutual funds rose from a few million dollars in the early 1980s to more than $10 billion in 2004; notably, most of it goes to financial advisers and other financial intermediaries.

In 1995, the SEC adopted Rule 18f-3, which allows mutual funds to offer multiple share classes that are claims on the same underlying portfolio of assets. Rule 18f-3 also allows different compensation arrangements to intermediaries among share classes in the same fund. The practice of offering multiple share classes was adopted by 47.38% of U.S. equity funds in 2000, and by the end

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[1] The SEC does not limit the size of 12b-1 fees, but the Financial Industry Regulatory Authority, Inc. (FINRA) rules limit the 12b1-fees to 1% annually, with distribution/marketing fees and service fees limited to 0.75% and 0.25%, respectively.
[2] https://www.ici.org/pdf/fm-v14n2.pdf

of 2018 that percentage had grown to 99.95%.[3] During our sample period, 60–70% of all funds with multiple share classes charged different 12b-1 fees for different classes.[4]

The combination of Rules 12b-1 and 18f-3 creates an opportunity for a conflict of interest between investors and intermediaries in the mutual fund industry, in which the intermediaries have incentives to prevent investors from leaving share classes with higher 12b-1 fees when fund performance is poor. This potential conflict of interest is further exacerbated by the fact that the roles of broker-dealers and investment advisers have been converging (U.S. Securities and Exchange Commission [SEC], 2013). The objective of our study is to investigate the scope of the conflict of interest in the mutual fund industry created by Rules 12b-1 and 18f-3 and whether this conflict is harmful to investors.

Broker-dealers and investment advisors are required to disclose any conflicts of interest to their clients; however, in many cases involving 12b-1 fees, conflicts of interest are not disclosed. For example, on December 21, 2018, the SEC announced that it charged two advisory firms with mutual fund share class disclosure violations (SEC, 2018c). According to the SEC, American Portfolios Advisers Inc. and PPS Advisors Inc. invested advisory clients in mutual fund share classes that paid 12b-1 fees to the firms' investment adviser representatives, even though less expensive share classes of the same funds were available.[5] The firms collectively paid more than $1.8 million to the harmed investors. However, regardless of whether or not the conflict of interest is disclosed to investors, the extent to which intermediaries misbehave and harm investors when different 12b-1 fees are levied on

[3] See Appendix Table A1 for details.
[4] See Appendix Table A2 for details.
[5] To curb this behavior SEC initiated a Share Class Selection Disclosure Initiative (SCSD) in June 2018. "Under the SCSD Initiative the Commission's Division of Enforcement (the 'Division') will recommend that the Commission accept favorable settlement terms for investment advisers that self-report to the Division possible securities law violations relating to their failure to make necessary disclosures concerning mutual fund share class selection." "To be eligible for the SCSD Initiative, an investment adviser must self-report by notifying the Division by 12:00 am EST on June 12, 2018" (SEC, 2018b). As a result of the SCSD, on March 11, 2019 the SEC settled charges against 79 investment advisers who will return more than $125 million to clients (source: https://www.sec.gov/news/press-release/2019-28).

different share classes in the same fund has not yet been thoroughly investigated. Our paper fills this gap in the literature.

Based on the theoretical work that studies the effects of intermediaries' compensation structure and incentives on customers (Stoughton, Wu, and Zechner, 2011; Inderst and Ottaviani, 2012a, 2012b), we discuss three possible scenarios about whether flow sensitivity to performance varies across share classes with different 12b-1 fees in the same fund. Consider a case in which an intermediary has to cater to current and future investors of a particular mutual fund with two share classes with different 12b-1 fees. Further, assume that this intermediary receives an annual commission from share classes' 12b-1 fee and that investors have different levels of sophistication.

Scenario (I): If most investors are sophisticated and wary about the intermediary's incentives, the intermediary will act in the best interest of their clients. The intermediary will provide better service to investors in the high 12b-1 fee share class, such as phone calls with relevant information about their investments or updates on the stock market situation. In this scenario, the savviness of the investors serves as a disciplining mechanism for the intermediary's behavior and thus essentially aligns the incentives of the intermediary and the clients. Under this scenario, we expect to find that in the same fund, flow is *more* sensitive to poor performance in the share classes with high 12b-1 fees than in the share classes with low 12b-1 fee, as intermediaries on average advise investors to leave poorly-performing funds.

Scenario (II): If most investors are less sophisticated or naïvely believe that they receive unbiased advice, the intermediary will have an incentive to shirk and fail to provide appropriate service to investors, or, bluntly, engage in misconduct.[6] Under this scenario, we expect to find that flow is *less* sensitive to poor performance in the share classes with high 12b-1 fees than in the share classes with

[6] In April 2018, SEC charged PNC Investments LLC, Securities America Advisors Inc., and Geneos Wealth Management Inc. for investing advisory clients in higher-cost mutual fund shares when lower-cost shares of the same funds were available (SEC, 2018a).

low 12b-1 fees in the same fund, as intermediaries on average fail to advise, or even discourage, investors to leave poorly performing funds.

Scenario (III): It is also possible that there is no significant difference in the flow-performance sensitivity across share classes with different 12b-1 fees in the same fund. For example, if the majority of the intermediaries are pure broker-dealers who are not supposed to give advice, or if investors are simply inattentive in both the high and low 12b-1 fee share classes, then there will be *no difference* in the flow-performance sensitivity. Given these three different scenarios about the sensitivity of flow to poor performance across different share classes with different 12b-1 fees, which scenario predominates is an empirical question.

To test these three predictions, we perform analyses at the share class level using U.S. equity mutual funds that have multiple share classes with different 12b-1 fees in the 2000–2018 period. We provide two sets of results – whether a conflict of interest exists and whether it harms investors. Our results provide strong evidence that a conflict of interest exists. We find that the flow of higher 12b-1 fee share classes is *less* sensitive to poor performance than the flow of lower 12b-1 fee share classes. The difference in the flow-performance sensitivity is economically significant. On average, high 12b-1 share classes are 20% less sensitive to poor performance than low 12b-1 share classes. The impact of the 12b-1 fee on the flow sensitivity to poor performance is amplified during the Financial Crisis of 2008. These findings are robust to subsample analysis, different regression specifications, as well as alternative measures of fund abnormal performance such as the capital asset pricing model (CAPM) alpha and the objective-adjusted return (OAR).

After we provide results consistent with a conflict of interest, we next investigate whether this conflict is harmful to investors. If performance persistence is low, then chasing performance is pointless and the documented conflict of interest may not necessarily hurt investors. We show that a given year's abnormal performance predicts the following year's abnormal performance. This finding suggests that investors in the high 12b-1 share classes are hurt by not being advised to leave funds that perform poorly and end up keeping their money in poorly performing funds for too long.

Our study contributes to three strands of literature in the mutual fund research area. First, it relates to studies on 12b-1 fees and multiple share classes. Existing research documents that, at the mutual fund level, 12b-1 fees and flow are positively related (Barber, Odean, and Zheng, 2005; Bergstresser, Chalmers, and Tufano, 2009), and funds with multiple share classes have lower administrative fees but higher management fees than funds with a single share class (Lesseig, Long, and Smythe, 2002). Performing a share class level analysis, Oh, Parwada, and Tan (2017) find that regulated caps on mutual fund 12b-1 fees are associated with negative equity fund performance, but only after a structural shift toward maximum permitted levels of the fees around 2000. O'Neal (1999) uses a hypothetical example to show that investors' holding period returns and brokers' present value of commissions do not always line up for all share classes in a fund. Our study provides systematic evidence consistent with the idea that funds with multiple share classes with different 12b-1 fees enable and incentivize intermediaries to extract rents from investors. Our study also suggests that future empirical research should consider the significance of variations across share classes in the same fund.

Second, our study relates to literature that investigates brokers' roles and incentives in the mutual fund industry. A strand of recent research provides evidence of a conflict of interest between brokers and investors at the mutual fund level. For example, broker recommendations steer retirement savers toward higher-fee funds yielding lower investor returns (Chalmers and Reuter, 2015); consumers purchase more reverse convertible bonds with higher kickbacks to brokers (Egan, 2019); broker incentives impact investor flow to funds, especially for brokers not affiliated with the fund family (Christoffersen, Evans, and Musto, 2013); and broker-sold mutual funds underperform their directly sold peers (Bergstresser Chalmers, and Tufano, 2009; Del Guercio and Reuter, 2014). Egan, Matvos and Seru (2019) provide direct evidence that 7% of advisers have misconduct records, and this share reaches more than 15% at some of the largest advisory firms. On the flip side, Linnainmaa, Melzer, and Previtero (2018) show that while conflicts of interest matter, they only matter to a small fraction of advisors.

Third, our study contributes to the literature that explores flow-performance sensitivity. Many researchers document a positive and significant relation between future mutual fund flow and past performance and that this relation is asymmetric, where funds with superior recent performance have more new money inflow, while funds with poor performance have smaller outflow (Gruber, 1996; Chevalier and Ellison, 1997; Sirri and Tufano, 1998; Huang, Wei, and Yan, 2007; Christoffersen and Xu, 2017). Most of the papers in this strand of literature conduct the analysis at the fund level (Wermers, 2000). We contribute to this literature by showing that flow-performance sensitivity at the fund level depends on the 12b-1 fees that the share classes charge. For example, our results suggest that the attrition reported by Christoffersen and Xu (2017) can be due to cases where high 12b-1 share classes represent the greater part of a fund. Specifically, Christoffersen and Xu (2017) argue that, since performance-sensitive investors leave or decide not to invest after poor performance, both inflows and outflows are found to be less sensitive to performance. A reason for this observation could be the differential effects of 12b-1 fees on different share classes.

Our study has important policy implications in terms of aligning interests between investors and intermediaries in relation to multiple share classes and 12b-1 fees. First, a fund with multiple share classes can reach a broader clientele with different preferences, leading to more flow in the fund (Nanda, Wang, and Zheng, 2009). However, intermediaries currently have differential incentives for promoting and offering particular share classes in the same mutual fund, based on commissions they receive, which creates opportunities for misconduct or neglecting to take an action. Our results suggest that commissions should be designed to align the interests of intermediaries and fund investors. It might be a better practice to let intermediaries set and charge their own fees and be paid solely by their clients for the directly provided services. This practice could create higher fee transparency and reduce conflicts of interest, leading to a more competitive environment for portfolio management and investment. Second, our findings suggest that both broker-dealers and financial advisors should be governed by a fiduciary duty, as many investors don't distinguish broker-dealers from investment advisors (SEC, 2013). At present, broker-dealers are regulated as salespeople while investment advisers are regulated as advisers. Third, while better disclosure of conflicts of interest in the mutual fund industry is important, the overload of information and its complexity that investors receive nowadays might cloud their judgment. An independent entity that monitors intermediaries on behalf of retail mutual fund investors can be beneficial. However, a system that has fewer conflicts of interest by design (e.g., by having the same 12b-1 fees for all share classes in the same fund) can be also a solution.

2. Data and Methodology

2.1. Data Sources and Sample Distribution

We collect data from the Center for Research in Security Prices (CRSP) survivor-bias-free mutual fund database. Our analysis focuses on the actively-managed domestic equity mutual funds that are open to investors.[7] We delete exchange traded funds (ETF), exchange traded notes (ETN), and index funds. The first three years of return data are removed to eliminate the incubation bias (Evans, 2010). Share classes with total net assets (TNA) less than $15 million are excluded to eliminate the upward bias in their reported returns. All continuous variables are winsorized at the 1st and 99th percentiles to reduce the impact of outliers.

To conduct analysis of the impact of 12b-1 fee on the flow-performance relation at the share class level, we keep funds that have multiple share classes with different 12b-1 fees. Then for each

[7] We use variable *open_to_inv* to identify whether the fund is open to investors. This variable is available from December 1999 and therefore our sample period starts in 2000.

fund, we keep the highest and the lowest 12b-1 fee share classes. For funds that have multiple share classes with the same highest (or lowest) 12b-1 fee within the fund, we keep all these share classes in our sample. Our resulting sample has 1,838 unique funds with 3,536 unique share classes over the period spanning January 2000 to September 2018.[8]

Table 1 presents the distribution of our final sample by year for high and low 12b-1 fee share classes. We observe that the number of both high and low 12b-1 share classes increases from 2000 to 2018. The number of high 12b-1 share classes decreases after 2008, while low 12b-1 share classes experience a hiccup in 2009 and increase in number thereafter. The last column of Table 1 reports the ratio of the number of high versus low 12b-1 share classes. We observe that the high-low ratio of the number of share classes increases initially before 2002, fluctuates in the following three years, and decreases thereafter. This pattern indicates that early in our sample period, some funds offered multiple high 12b-1 share classes.

2.2. Methodology and Variables

To test for the existence of a conflict of interest between intermediaries and mutual fund investors, we study the flow sensitivity to performance at the share class level. We begin our analysis by implementing the performance rank approach in Sirri and Tufano (1998) but at the share class level instead of at the mutual fund level. Specifically, we investigate the asymmetric flow-performance relation test at the *share class level* using a piecewise linear regression that allows for different flow-

[8] We observe that in our regression sample, some funds change identifiers (*crsp_portno*) while their share classes keep the same identifier (*crsp_fundno*). For example, AB Discovery Value Fund Class C Share has an identifier of 004483. Its corresponding fund identifier was 1002086 for the period of 2003/07/31-2010/05/31 and was 1026179 for the period of 2010/06/30-2018/09/03. Therefore, share class 004483 shows up once as a unique share classes in 2010, yet its belonging fund shows up twice (with two different identifier). Share class 004483 did not acquire other share classes in 2010. In our sample, there were 1,229 share classes that have more than one corresponding *crsp_portno*, and 1,061 of them are in 2010.

performance sensitivities at different levels of performance (Sirri and Tufano, 1998; Huang, Wei, and Yan, 2007):

$$Flow_{i,t+1} = \beta_0 + \beta_1\, Low\ Carhart\ Alpha_{i,t} + \beta_2\, Med\ Carhart\ Alpha_{i,t} + \beta_3\, High\ Carhart\ Alpha_i + \beta_X\, Controls_{i,t} + \varepsilon_{i,t}\,, \quad (1)$$

where the dependent variable $Flow_{i,t+1}$ is the monthly net flow of share class i in the following month ($t+1$):

$$Flow_{i,t} = [TNA_{i,t} - (1 + R_{i,t}) \times TNA_{i,t-1}] / TNA_{i,t-1}, \quad (2)$$

where $TNA_{i,t}$ and $R_{i,t}$ are total net assets and monthly net return of share class i in month t. Net flow reflects the net change in share class assets beyond the performance of the investment portfolio. Sources for net flow include share redemptions and new money inflow.

Low Carhart Alpha, *Med Carhart Alpha*, and *High Carhart Alpha* in Eq. (1) are estimated at the share class level and are constructed in the following way. First, to ensure that share classes in the same fund are assigned to the same performance rank we back out share class monthly gross returns. The *Monthly Gross Return* equals *Monthly Net Return* plus 1/12th of the expense ratio. Different share classes in a given fund are likely to have very similar gross returns, since all share classes hold the same investment portfolio and the only difference among them is the fee structure.

Second, we estimate the Carhart four-factor alpha (Carhart, 1997) for each share class in each month using the previous 24 months of gross returns. The Carhart four-factor model adjusts for size, value and momentum in share class returns. Using gross returns to estimate the Carhart alpha results in similar alphas (if not the same) across share classes within a fund. We refer to this estimated alpha as the gross Carhart alpha.

Third, in each month we rank all share classes into deciles according to their gross Carhart alphas, denoted $Rank\_Carhart_{i,t}$. $Rank\_Carhart_{i,t}$ is share class i's gross Carhart alpha decile in month t. We divide the ranking by 10 to get a value ranging from 0.1 (worst) to one (best) (Sirri and Tufano, 1998; Huang, Wei, and Yan, 2007). We define *Low Carhart Alpha* = Min(*Rank_Carhart*, 0.2], which captures share classes ranked in the lowest performance quintile. Along the same line, we define *Med Carhart Alpha* = Min(0.6, *Rank_Carhart* − *Low Carhart Alpha*) and *High Carhart Alpha* = *Rank_Carhart* − *Low Carhart Alpha* – *Med Carhart Alpha*.[9] *Med Carhart Alpha* represents the gross Carhart alpha rank in the middle quintiles 2–4, and *High Carhart Alpha* represents the gross Carhart alpha rank in the highest quintile. We only keep share classes of a fund that have the same performance rank. Details on the construction of all variables are in Appendix A.

To examine the impact of the 12b-1 fee on the flow-performance relation at different performance levels, we interact each performance rank with *High 12b-1 Share*, an indicator variable that takes a value of one for the high 12b-1 share class(es) and zero for the low 12b-1 share class(es) (or no 12b-1 fee share class(es)) of a fund.[10] We then run the following regression specification:

$$\begin{aligned} Flow_{i,t+1} = {} & \beta_0 + \beta_1 \, Low\ Carhart\ Alpha_{i,t} \times High\ 12b\text{-}1\ Share_i \\ & + \beta_2 \, Med\ Carhart\ Alpha_{i,t} \times High\ 12b\text{-}1\ Share_i \\ & + \beta_3 \, High\ Carhart\ Alpha_{i,t} \times High\ 12b\text{-}1\ Share_i \\ & + \beta_4 \, Low\ Carhart\ Alpha_{i,t} + \beta_5 \, Med\ Carhart\ Alpha_{i,t} + \beta_6 \, High\ Carhart\ Alpha_{i,t} \\ & + \beta_7 \, High\ 12b\text{-}1\ Share_i + \beta_X \, Controls_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{3}$$

The independent variable of interest is the interaction term *Low Carhart Alpha*$_{i,t}$ × *High 12b-1 Share*. If intermediaries are acting in their own interest, a higher 12b-1 fee decreases the sensitivity of flow to poor performance, so we expect β_1 to be negative. This logic also predicts that β_3 would be positive, as intermediaries are likely to advertise the high 12b-1 share classes when performance is good to attract higher money inflows. We perform both Fama-MacBeth and panel regression approaches and include a battery of control variable commonly used to explain flow.

Table 2 reports summary statistics of the final sample used in regression analysis at the share class level. Our main dependent variable *Flow* has a mean of −0.369% with a standard deviation of

[9] Subscript *i,t* is omitted for brevity.

[10] The results hold if instead of the indicator variable *High 12b-1 Share* we use the 12b-1 fee itself. For the ease of interpretation, we report results using the indicator variable.

3.059%. Total net assets (*TNA*) is a measure of share class size and is in millions of dollars. The average share class is $514 million. The average gross monthly *Carhart Alpha* is 0.084%. *MVol* is the standard deviation of the previous 24 gross monthly returns. The average return volatility is 4.760% with a standard deviation of 1.459%. *Age* is share class age in months. On average, the sample share classes are 164 months old. The average *Expense Ratio* is 0.134% with a standard deviation of 0.041%. The average 12b-1 fee is 0.054%. *Net Expense Ratio* is the expense ratio net of the 12b-1 fee. *Front Load* and *Back Load* are the front-end and back-end load fees for the share class. All variables are explained in detail in Appendix A.

3. Empirical Findings

3.1. Main Results

3.1.1. Flow-performance Relation

Table 3 reports the regression results of Eq. (1). Columns (1) and (2) report Fama-MacBeth regression results while Columns (3) and (4) report panel regression results. Columns (2) and (4) include a list of control variables. For the Fama-MacBeth regressions we include style fixed effects and Newey-West adjustment of the standard errors with four lags.[11] For the panel regressions, we include style, fund, and year-month fixed effects. Standard errors are clustered by year-month. Table 3 results support prior evidence that the relationship between flow and past performance is asymmetric (Ippolito, 1992; Gruber, 1996; Chevalier and Ellison, 1997; Sirri and Tufano, 1998; Huang, Wei, and Yan, 2007). The parameter estimates for *Low Carhart Alpha*, *Med Carhart Alpha*, and *High Carhart Alpha* are all positive and significant, with *High Carhart Alpha* having the largest point estimate (ranging from 5.885 to 8.846 with $p = 0.01$) and *Low Carhart Alpha* having the second largest point estimate (ranging from 2.462 to 5.184 with $p = 0.01$). These findings suggest that the fund-level

[11] *Category Flow* is not estimated in Fama-MacBeth regression because we include style fixed effects.

asymmetric flow-performance relation documented in the literature also holds for share class level analysis.

The parameter estimates for the other independent variables are consistent with our expectations. The coefficients associated with *12b-1 Fee* and *Net Expense Ratio* are both negative and significant. The higher the 12b-1 fee or total fee a share class charges, the less flow the share class receives. Old and large share classes with high volatility and back-end load receive less flow. Yet share classes of a larger fund receive more flow than those of a smaller fund.

Next, we re-run Eq. (1) but now for two subsamples — high 12b-1 share classes and low 12b-1 share classes. Failure of the intermediaries to act in the best interest of investors predicts that flow will be less sensitive to performance for the high 12b-1 share class subsample when past performance is poor. Table 4 reports the results. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. Columns (1) and (3) use the subsample of high 12b-1 share classes, and Columns (2) and (4) use low 12b-1 share classes. We include style fixed effects and Newey-West adjustment of the standard errors with four lags for the Fama-MacBeth regressions. For the panel regressions, we include style, fund, and year-month fixed effects. Standard errors are clustered by year-month.

We find that β_1 is positive and significant in all model specifications, which is consistent with a positive flow-performance relation in both high and low 12b-1 share classes. As expected, we find that β_1 is larger in magnitude for low 12b-1 share classes than for high 12b-1 share classes. The parameter estimates associated with *Low Carhart Alpha* are 3.693 (p = 0.01) and 2.217 (p=0.01) for high 12b-1 share classes reported in Columns (1) and (3) and are 5.473 (p = 0.01) and 3.113 (p=0.01) for low 12b-1 share classes reported in Columns (2) and (4). Notably, the difference in coefficients between high and low 12b-1 share class is significant. For example, the difference between coefficients reported in Columns (3) and (4) is statistically significant – the p-value of the chi-square statistic is

0.016 (unreported in the table). This finding shows that flow is more sensitive to poor performance in low 12b-1 share classes than in high 12b-1 share classes, and thus provides evidence that intermediaries do not act in the best interest of investors invested in the high 12b-1 share classes. The parameter estimates associated with the control variables are consistent for both share classes. We find that expensive, volatile, old, and large share classes with back-end loads receive less flow. Share classes of a larger fund receive more flow than those of a smaller fund.

Overall, this section documents that the sensitivity of flow to poor performance depends on the 12b-1 fee charged by share classes. Flow is less sensitive to poor performance for high 12b-1 fee share classes than for low 12b-1 fee share classes. This finding provides evidence of the existence of conflicts of interest between intermediaries and mutual fund investors. Intermediaries do not advise the investors of high 12b-1 share classes to leave a poorly performing fund.

3.1.2. The Impact of 12b-1 Fee on the Flow-performance Relation

Table 5 reports the results of the main regression model of Eq. (3). Control variables in Eq. (3) are the same as in Eq. (1) except that we now replace *12b-1 Fee* with *High 12b-1 Share*. The key finding is that β_1 is negative and significant for all model specifications (ranging from −1.110 to −1.250 with $p = 0.01$). We use Column (1) where $\beta_1 = -1.250$ ($p = 0.01$) to interpret the findings. For a 1% increase of *Low Carhart Alpha* (note that *Low Carhart Alpha* is a ranking variable that equals 0.1 or 0.2 by construction), the *Flow* next period is about 1.25% (estimated as −1.250 × 1%) less for a high 12b-1 share class than for a low 12b-1 share class. If *High 12b-1 Share* changes from zero to one, then the flow sensitivity to poor performance decreases from 5.893 to 5.893 – 1.250 = 4.643, a decrease of 1.250/5.893 = 21.21%. That is, when performance is poor, the high 12b-1 share class is more than 20% less sensitive than the low 12b-1 share class.

To buttress that we are observing outcomes consistent with a conflict of interest, it is important to juxtapose the impact of 12b-1 fee on the flow-performance relation for both high and low performance. Notably, β_3 is positive and significant for all models in Table 5. This finding indicates that when performance is good, the high 12b-1 share class is 8% (estimated as 0.660/8.276) more sensitive than the low 12b-1 share class. This result is consistent with intermediaries promoting the high 12b-1 share classes when a fund performs well. This finding provides further evidence that intermediaries, on average, act in their own best interests by attracting more new money inflow to the high 12b-1 share classes when performance is good. We do not argue that β_3 being positive and significant indicates a conflict of interest, since investors are not hurt in this case.

3.2. Further Analysis

3.2.1. Evidence from the Financial Crisis of 2008

The Financial Crisis of 2008, a period from August 2008 to March 2009 during which the stock market lost approximately 50% of its value, provides a unique setting to test our main model of Eq (3). The 2008 crisis was a negative shock to the performance of all funds. As a response to the drop in stock market value, investors withdrew money from mutual funds (Browning, 2010). To maximize their own utility, intermediaries had a greater incentive to prevent investors from leaving the share classes with higher 12b-1 fee, which provides them a regular stream of payment for their "service." We conjecture that the crisis, which is a negative shock to the performance of all mutual funds, would exacerbate any existing agency problems. Conflict of interest between intermediaries and investors predicts that the impact of 12b-1 fee on flow sensitivity to poor performance is larger during the crisis period.

To test the above conjecture, we re-run the regression specification from Column (2) in Table 5 for the crisis period only (August 2008 to March 2009) and report the results in Columns (1) and (3) of Table 6. Columns (2) and (4) report the results when we exclude the crisis period. The coefficient associated with *Low Carhart Alpha* × *High 12b-1 Share* is negative and significant in all regression specifications. This finding provides further evidence that a higher 12b-1 fee attenuates the flow sensitivity to poor performance. More importantly, the magnitude of the coefficient for *Low Carhart Alpha* × *High 12b-1 Share* is larger during the crisis period (Columns 1 and 3). Specifically, the coefficient for the crisis period (-4.879, column 1) is four times larger in magnitude than that for the non-crisis period (-1.031, column 2) using Fama-MacBeth regression. Using a panel regression yields a similar difference in magnitudes of this parameter estimate. This finding shows that the difference in flow sensitivity to poor performance between high and low 12b-1 share classes within a fund increases by more than four times in the crisis period. Results are similar if we define the non-crisis period as either three years or five years before and after the crisis period. This finding also implies that, during the financial crisis when the fund industry suffered, the intermediates managed to decelerate the redemptions from investors of the share classes where they collect a higher 12b-1 fees. Overall, results in Table 6 buttress our results of conflict of interest between intermediaries and investors.

3.2.2. Do Investors Lose by Holding High 12b-1 Share Classes?

Our evidence is consistent with a conflict of interest between intermediaries and investors. However, it is important to investigate whether this conflict of interest is actually harmful to investors. If performance does not persist, then it is possible that this conflict of interest in fact prevents investors from pointlessly chasing performance. This section investigates whether the past period alpha is related to the current period alpha. To perform this test, it is critical that the return data used to estimate alpha for the current and previous periods do not overlap. Otherwise, any correlation between the current and previous period alpha will be mechanical. To avoid this concern, we estimate net Carhart alpha from daily net returns in each year for each share class with at least 200 daily observations in that year.[12] We denote this variable with *Net Annual Carhart Alpha*. Net alpha is used in this section to evaluate the abnormal returns that investors receive. The following Fama-MacBeth regression specification tests performance persistence:

$$\begin{aligned} \textit{Net Annual Carhart Alpha}_{i,t+1} = \beta_0 + \beta_1 \textit{Net Annual Carhart Alpha}_{i,t} \\ + \beta_X \textit{Controls}_{i,t} + \varepsilon_{i,t}\,. \end{aligned} \quad (4)$$

Table 7 reports the results. Column (1) reports the results using a sample of equity funds without restrictions of having both high and low 12b-1 share classes. Column (2) reports results using our regression sample (i.e., equity funds that have both high and low 12b-1 share classes). The last two columns report results separately for high and low 12b-1 share classes. The coefficient associated with *Net Annual Carhart Alpha* is positive and significant across all columns (*p*-value ranges between 0.1 and 0.01) indicating that the previous year performance is very likely to persist into the next year. This evidence indicates that investors lose if they hold a losing fund over to the next year.

3.2.3. Controlling for Load Fees

Next, we control for front and back-end load fees in all regression specifications. In this section we consider a more conservative approach to ensure that our results are not driven by load fees that differ across share classes. Specifically, we perform an analysis on a subsample in which we keep only funds that have both high and low 12b-1 fee share classes with the same front- and back-end loads. Prior to 2007, the number of funds that meet this requirement ranges from one in 2000 to 34 in 2006. Thus, we use data from 2007 to 2018 and re-run the regression specifications from Column

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[12] When estimating the parameters of a factor model using daily returns, infrequent trading can result in biased estimates (Scholes and Williams, 1977; Dimson, 1979). The same issue exists for portfolios composed of infrequently traded securities (Bollen and Busse, 2001). Our results are quantitively similar if we use Dimsons's (1979) correction for infrequent trading by adding lagged values of the factors as additional independent variables when estimating *Net Annual Carhart Alpha*.

(2) and (4) in Table 5. The results are reported in Columns (1) and (3) of Table 8. Because the 2007-2018 period contains the Financial Crisis, we also report the results using a subsample that begins in 2009 (Columns 2 and 4). In all four regression specifications, the coefficient associated with *Low Carhart Alpha* × *High 12b-1 Share* is negative and significant, providing robustness to our results. Additionally, we find that the coefficient associated with *High Carhart Alpha* × *High 12b-1 Share* is still positive but no longer significant. This finding is consistent with the idea that intermediaries do not necessarily promote the high 12b-1 share classes to investors when a fund performs well.

3.3. Robustness Tests

3.3.1. Retail Share Classes

The CRSP mutual fund database identifies retail and institutional share classes, which are sold to retail and institutional investors, respectively. Retail investors are generally considered less sophisticated and more likely to rely on intermediaries' advice. Therefore, one might expect that any misconduct by the intermediaries would be directed at the retail investors who are easier to deceive. Alternatively, taking advantage of a large investor can be more profitable as more wealth is involved (Pool, Sialm, and Stefanescu, 2016). This section tests the existence of conflicts of interest using only retail share classes. We re-run the main tests of Table 4 using a sample of retail share classes and report the results in Table 9. To do so, we first delete institutional share classes and then, for each fund that has multiple share classes with different 12b-1 fees, we keep the highest and the lowest 12b-1 fee share classes. We find that the parameter estimates associated with the interaction term *Low Carhart Alpha* × *High 12b-1 Share* are negative and significant in all model specifications. We do not test the agency problem using institutional share classes alone. Our test sample requires that a fund has both high and low 12b-1 share classes, yet we are unable to construct a test sample only using institutional share classes due to their limited number over the sample period. Thus, no conclusion is drawn on conflict of interest in institutional share classes in the current study.

3.3.2. Alternative Performance Measures: the CAPM Alpha and the Objective-Adjusted Return

We use low, medium, and high Carhart alpha to measure share class performance in our main tests. This section constructs low, medium, and high CAPM alpha (Sharpe, 1964; Lintner, 1965) as well as low, medium, and high objective-adjusted return (OAR) as alternative performance measures and tests the robustness of our main findings in Table 5.

To assign both share classes to the same performance rank based on the CAPM alpha, we proceed similarly to the procedure used for estimating the performance rank based on gross Carhart alpha. We first run the one-factor CAPM using prior 24 months gross returns and obtain the time-series gross CAPM alpha for each share class. Next, in each month we rank all share classes into deciles according to their gross CAPM alphas and divide the rank by 10 (*Rank_CAPM*).[13] *Low CAPM Alpha* = (*Rank_CAPM,* 0.2] and captures share classes ranked in the lowest CAPM quintile. *Med CAPM Alpha* = Min(0.6, *Rank_CAPM* − *Low CAPM Alpha*) and *High CAPM Alpha* = *Rank_CAPM* − *Low CAPM Alpha* – *Med CAPM Alpha* represent the gross CAPM alpha rank in the middle quintiles 2–4 and the highest quintile, respectively. We only keep share classes of a fund that have the same performance rank.

A similar performance measure is obtained based on OAR. First, we calculate equal-weighted category gross monthly return and subtract it from share class gross monthly return to get OAR for each share class in each month. Next, we define low, medium, and high OAR as follows: *Low OAR* = (*OAR_Rank,* 0.2], *Med OAR* = Min(0.6, *OAR_Rank* − *Low OAR*), and *High OAR* = *OAR_Rank* −

[13] Subscript *i,t* is omitted for brevity in defining variables in this section.

Low OAR – *Med OAR* representing the lowest, the middle (quintile 2-4), and the highest quintiles, respectively. We only keep share classes of funds that have the same performance rank.

We re-run our main test of Eq. (3) while replacing the performance ranking variables based on Carhart alpha with performance ranking variables based on the CAPM alpha and OAR and report results in Table 10. Columns (1) and (3) use the CAPM alpha rankings and Columns (2) and (4) use the OAR rankings. Columns (1) and (2) report the results from Fama-MacBeth approach and Columns (3) and (4) report the panel regression results. We find that the parameter estimates for the interaction terms, *Low CAPM Alpha* × *High 12b-1 Share* and *Low OAR* × *High 12b-1 Share*, are negative and significant in all model specifications. This finding alleviates the concern that our results might be driven by a particular measure of performance.

Our main test of Eq. (3) so far used data at the monthly level where alpha is estimated from the previous 24 months of return data. To address the concern that the results could be driven by the rolling procedure used for alpha estimation, we estimate share class Carhart alpha using daily returns within each calendar month and re-do our main tests in Table 5. Our findings are robust to this alternative measure of fund performance as well. These results are untabulated and available upon request.

4. Additional Discussion

Researchers, as well as regulators in many cases, do not observe the behavior of market participants. In these cases, behavior is inferred from market outcomes such as trading volume or price. In this study, we infer unobservable behavior based on flow sensitivity to performance at the share class level. Specifically, we infer the intermediaries' behavior by examining the flow-performance relation depending on 12b-1 fees at the share class level. We conjecture that our results of lower flow sensitivity to poor performance for the high 12b-1 fee share class (vs low 12b-1 fee share class) is a result of conflict of interest. In this section we discuss some alternative possibilities to further support this argument.

First, if investors are sophisticated, then we will observe an outflow of funds if a fund performs poorly, particularly from share classes with high 12b-1 fees (holding intermediaries' behavior constant and assuming it is irrelevant). Notably, we will observe the same outcome if financial advisors act in the interest of the investors due to disciplining mechanisms such as penalties. The savviness of the average investor can also serve as a disciplining mechanism – intermediaries know that investors are savvy so they refrain from misconduct. Although broker-dealers should not provide advice, recently "the roles of various broker-dealers and investment advisers have converged. While differences remain, many broker-dealers today offer advisory services, such as investment planning and retirement planning similar to services offered by investment advisers. Potentially compounding this confusion is the fact that many financial firms are so-called dual-registered firms" (Shorter, 2019, p. 1). Any broker-dealers acting in the best interest of investors will make the flow more sensitive in the high 12b-1 share class if the fund performs poorly. Yet, we do not find empirical supporting evidence that broker-dealers act in the best interest of investors.

Second, if on average investors are naïve and/or inattentive, holding intermediaries' behavior constant and assuming their behavior is irrelevant, the flow sensitivity to performance will be the same for both the high and low 12b-1 share classes. We do not find supporting evidence for this possible scenario.

Related to the scenario just described, it is possible that the most naïve and inattentive investors end up in the high 12b-1 share classes. This situation can be (i) a result of intermediaries advising these investors to invest in high 12b-1 share classes on the first place (with the promise of better service, for example) even though a lower 12b-1 fee share class is available and/or (ii) because these least sophisticated investors self-select in high 12b-1 share classes hoping for a better advice from the intermediaries. Recall that our main result is that flow is less sensitive to poor performance for high 12b-1 share classes. In the light of this empirical evidence, under case (i) when a fund performs poorly, there is no reason to believe that investors would not take into account the advice of the intermediary to leave the poorly performing funds – as these investors invested in the high 12b-1 share classes per intermediaries' advice on the first place. Similar argument holds for case (ii) – it is unlikely that the investors would not consider intermediaries' advice to leave poorly performing funds given that these investors self-selected in the high 12b-1 share classes in order to have access to intermediaries' professional advice on the first place. Therefore, considering our empirical evidence, either of these two cases is consistent with intermediaries acting in their own interest and not in the best interest of these most naïve and inattentive investors who need intermediaries' professional advice the most.

Another possible scenario is that intermediaries act in the interest of the investors and move the investors' investments from poor- to well-performing funds and at the same time maximize their own wealth by always keeping the investments in the high 12b-1 share classes. Under this scenario we would observe, all else equal, that β_1 and β_3 in Eq. (3) are both positive and significant. Yet, we document that this is not the case (see Table 5).

Lastly, if financial advisors fail to act in the best interest of investors and act on their own interest in maximizing their income through 12b-1 payments, either because investors are naïve and/or because the advisors do not disclose possible conflicts of interest, we would observe that flow will be less sensitive to poor performance in the high 12b-1 share class than in the low 12b-1 share class. Importantly, our results are consistent with this last scenario in which intermediaries do not act in the best interest of investors and thus hurting them.

5. Conclusion

In many cases, the relation between investors and mutual funds is intermediated via an "advisor" or a "broker-dealer." These intermediaries may receive commissions based on 12b-1 fees. For funds with multiple share classes, the kickbacks can differ across share classes that have different 12b-1 fees. Our research shows that conflicts of interest exist between intermediaries and mutual fund investors.

We find that flow in the share classes with high 12b-1 fees is less responsive to poor performance than flow in share classes with low 12b-1 fees. Our findings provide evidence of the existence of an agency problem in the mutual fund industry and have important policy implications. Our findings suggest that it might be a better practice to let intermediaries set and charge their own fees for the services provided. Our findings also suggest that both broker-dealers and financial advisors should be governed by a fiduciary duty. Disclosure of any conflicts of interest as well as full disclosure of any hidden kickbacks is important. However, full disclosure may not be sufficient, as kickbacks can take different forms (dinners, travel grants, etc.), and thus, structuring the system to reinforce good behavior is worth the effort from all stakeholders, including investors, fund managers, and intermediates. For example, the United Kingdom banned financial advisers from taking commissions after December 31, 2012, in an attempt to restore consumer confidence in the investment market following a series of mis-selling scandals, estimated to have cost investors millions of pounds (BBC News, 2010; Osborne, 2010). Also, theory suggests that, while mandatory disclosure stifles all commissions, it may have negative consequences for efficiency because it reduces the responsiveness of advice to the supply side (Inderst and Ottaviani, 2012a).

Our study also contributes to empirical research in mutual funds. Traditionally, fee variables in this line of research are lumped together at the mutual fund level, e.g., by weighing the fees based on the size of share classes. Our results suggest that when studying fund characteristics, such as flow and performance, considering the differences across shares classes for the same fund is important. In particular, we show that the flow sensitivity to performance is conditional on the fee structures across the share classes in a mutual fund.

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Table 1. Sample Distribution

This table reports the annual distribution of the sample funds and the high and low 12b-1 fee share classes of these funds for the period 2000–2018. High 12b-1 share class refers to the share class that has the highest 12b-1 fee in a fund; if a fund has more than one share class with the same high 12b-1 fee, we keep all these share classes in our sample. Low 12b-1 share class refers to the share class that has the lowest 12b-1 fee in a fund; if a fund has more than one share class with the same low 12b-1 fee, we keep all these share classes in our sample. The last column reports the ratio of the number of high 12b-1 share classes over the number of low 12b-1 share classes.

Year	Number of Funds	Number of High 12b-1 Share Classes	Number of low 12b-1 Share Classes	High/Low 12b-1 Share Classes
2000	268	393	273	1.44
2001	377	575	384	1.50
2002	436	723	446	1.62
2003	482	806	494	1.63
2004	512	866	528	1.64
2005	516	882	535	1.65
2006	515	888	543	1.64
2007	521	883	562	1.57
2008	617	1007	659	1.53
2009	520	775	551	1.41
2010	965	735	609	1.21
2011	544	667	624	1.07
2012	543	638	627	1.02
2013	593	671	683	0.98
2014	590	655	680	0.96
2015	630	686	723	0.95
2016	608	662	693	0.96
2017	600	647	688	0.94
2018	573	606	649	0.93

Table 2. Summary Statistics of Share Class Characteristics

The summary statistics represent the time-series averages of cross-sectional means for an average of 981 share classes in a month from January 2000 through December 2018. See Appendix A for detailed definitions and constructions for all variables.

	Mean	Median	Standard Deviation	Minimum	Maximum
Flow (%)	-0.369	-0.763	3.059	-9.141	13.959
Monthly Net Returns (%)	0.528	0.515	2.302	-7.990	8.575
Monthly Gross Returns (%)	0.539	0.526	2.302	-7.977	8.587
Carhart Alpha (%)	0.084	0.053	0.435	-1.093	1.722
Expense Ratio (%)	0.134	0.136	0.041	0.026	0.222
12b-1 Fee (%)	0.054	0.060	0.031	0.003	0.083
Net Expense Ratio (%)	0.080	0.082	0.025	0.008	0.150
MVol (%)	4.760	4.492	1.459	1.636	10.996
Total Net Assets ($ Millions)	514	135	1,077	16	7,122
Age (Month)	164	140	116	47	825
Turnover	0.76	0.59	0.65	0.02	3.94
Front Load	0.024	0	0.031	0	0.070
Back Load	0.014	0	0.017	0	0.067

Table 3. Asymmetric Flow-Performance Relation

This table reports results of testing the asymmetric flow-performance relation using monthly share class level data. The dependent variable is *Flow* in the following month. The independent variables of interest are *Low Carhart Alpha*, *Med Carhart Alpha*, and *High Carhart Alpha*. All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. Columns (2) and (4) include control variables. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p<0.01$, $p<0.05$, and $p<0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
Low Carhart Alpha	5.184***	4.395***	2.462***	2.634***
	(0.439)	(0.433)	(0.298)	(0.293)
Med Carhart Alpha	2.348***	2.386***	1.699***	1.698***
	(0.160)	(0.148)	(0.074)	(0.074)
High Carhart Alpha	8.629***	8.846***	5.962***	5.885***
	(0.537)	(0.511)	(0.276)	(0.270)
12b-1 Fee		-5.952***		-1.799*
		(1.585)		(0.918)
Net Expense Ratio		-8.854***		-0.489
		(0.855)		(1.320)
MVol		0.005		-0.099***
		(0.047)		(0.024)
Log(Age)		-0.741***		-0.690***
		(0.043)		(0.034)
Front Load		2.317***		5.466***
		(0.877)		(0.598)
Back Load		-13.973***		-19.260***
		(1.082)		(1.014)
Log(Share Class TNA)		-0.087***		-0.082***
		(0.018)		(0.012)
Turnover		-0.009		0.100***
		(0.028)		(0.031)
Log(Fund TNA)		0.052**		-0.351***
		(0.022)		(0.053)
Category Flow				8.160***
				(1.592)
Observations	217,605	216,995	217,605	216,995
Adjusted R^2	0.170	0.245	0.278	0.305

Table 4. Asymmetric Flow-Performance Relation - Subsamples of High and Low 12b-1 Fee Share Classes

This table reports results of testing the asymmetric flow-performance relation using two subsamples: high vs. low 12b-1 fee share classes. The dependent variable is *Flow* in the following month. The independent variables of interest are *Low Carhart Alpha*, *Med Carhart Alpha*, and *High Carhart Alpha*. All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (3) report results for the subsample of high 12b-1 share classes. Columns (2) and (4) report results for low 12b-1 share classes. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p<0.01$, $p<0.05$, and $p<0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
	High 12b-1 Share Class	Low 12b-1 Share Class	High 12b-1 Share Class	Low 12b-1 Share Class
Low Carhart Alpha	3.693***	5.473***	2.217***	3.113***
	(0.533)	(0.452)	(0.316)	(0.381)
Med Carhart Alpha	2.323***	2.444***	1.607***	1.788***
	(0.177)	(0.135)	(0.085)	(0.074)
High Carhart Alpha	9.040***	8.722***	5.892***	5.793***
	(0.518)	(0.594)	(0.267)	(0.323)
12b-1 Fee	-7.785***	-11.466***	14.571**	-13.694**
	(2.311)	(4.410)	(6.409)	(6.098)
Net Expense Ratio	-7.832***	-10.034***	8.335***	-0.567
	(0.803)	(1.078)	(1.539)	(1.838)
MVol	0.019	-0.007	-0.116***	-0.074***
	(0.048)	(0.050)	(0.026)	(0.024)
Log(Age)	-1.245***	-0.453***	-1.993***	-0.873***
	(0.066)	(0.042)	(0.084)	(0.068)
Front Load	-6.142	2.246**	-55.067***	5.515***
	(8.516)	(0.973)	(6.684)	(0.822)
Back Load	-16.258***	-0.355	-20.549***	-9.635***
	(1.086)	(5.914)	(1.176)	(2.778)
Log(Share Class TNA)	-0.086***	-0.146***	-0.110***	-0.130***
	(0.020)	(0.025)	(0.019)	(0.030)
Turnover	-0.016	0.011	0.089***	0.101**
	(0.029)	(0.033)	(0.031)	(0.040)
Log(Fund TNA)	0.057**	0.086***	-0.205***	-0.411***
	(0.023)	(0.027)	(0.059)	(0.052)
Category Flow			9.319***	6.548***
			(1.873)	(1.378)
Observations	119,494	97,501	119,494	97,501
Adjusted R^2	0.297	0.229	0.409	0.267

Table 5. Impact of 12b-1 Fees on the Flow Sensitivity to Poor Performance

This table reports the main results of the paper testing Eq. (3). The dependent variable is *Flow* in the following month. The independent variables of interest are the interaction terms *Low Carhart Alpha* × *High 12b-1 Share*, *Med Carhart Alpha* × *High 12b-1 Share*, and *High Carhart Alpha* × *High 12b-1 Share*. All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. Columns (2) and (4) include control variables. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p<0.01$, $p<0.05$, and $p<0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
Low Carhart Alpha × High 12b-1 Share	-1.250***	-1.173**	-1.301***	-1.110***
	(0.445)	(0.469)	(0.362)	(0.367)
Med Carhart Alpha × High 12b-1 Share	-0.039	-0.094	-0.016	-0.098
	(0.114)	(0.114)	(0.063)	(0.064)
High Carhart Alpha × High 12b-1 Share	0.660**	0.818***	0.891***	0.840***
	(0.334)	(0.301)	(0.214)	(0.215)
Low Carhart Alpha	5.893***	5.017***	3.165***	3.238***
	(0.534)	(0.460)	(0.377)	(0.378)
Med Carhart Alpha	2.384***	2.439***	1.709***	1.752***
	(0.146)	(0.133)	(0.073)	(0.074)
High Carhart Alpha	8.276***	8.416***	5.480***	5.420***
	(0.589)	(0.560)	(0.319)	(0.312)
High 12b-1 Share	-0.262***	-0.133	-0.288***	0.131*
	(0.099)	(0.105)	(0.073)	(0.073)
Net Expense Ratio		-8.939***		-0.398
		(0.849)		(1.319)
MVol		0.007		-0.099***
		(0.047)		(0.024)
Log(Age)		-0.748***		-0.690***
		(0.043)		(0.035)
Front Load		2.183**		5.808***
		(0.960)		(0.599)
Back Load		-14.309***		-19.259***
		(1.113)		(1.015)
Log(Share Class TNA)		-0.088***		-0.083***
		(0.018)		(0.012)
Turnover		-0.013		0.100***
		(0.028)		(0.031)
Log(Fund TNA)		0.057**		-0.350***
		(0.022)		(0.053)
Category Flow				8.158***
				(1.592)
Observations	217,605	216,995	217,605	216,995
Adjusted R^2	0.191	0.247	0.285	0.305

Table 6. Impact of 12b-1 on the Flow Sensitivity to Poor Performance - Crisis vs. Non-Crisis Period
This table reports results of testing the existence of agency problem (Eq. (3)) in crisis vs. non-crisis periods. The dependent variable is *Flow* in the following month. The independent variables of interest are the interaction terms *Low Carhart Alpha × High 12b-1 Share*, *Med Carhart Alpha × High 12b-1 Share*, and *High Carhart Alpha × High 12b-1 Share*. All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. Columns (1) and (3) report results for crisis period. Columns (2) and (4) report results for non-crisis period. The crisis period is from August 2008 to March 2009. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p<0.01$, $p<0.05$, and $p<0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
	Crisis	Non-Crisis	Crisis	Non-Crisis
Low Carhart Alpha × High 12b-1 Share	-4.879**	-1.031**	-3.491*	-0.994***
	(1.827)	(0.470)	(1.768)	(0.376)
Med Carhart Alpha × High 12b-1 Share	-0.527**	-0.078	-0.411**	-0.086
	(0.171)	(0.118)	(0.146)	(0.067)
High Carhart Alpha × High 12b-1 Share	-2.823***	0.949***	-1.296	0.945***
	(0.599)	(0.291)	(0.739)	(0.218)
Low Carhart Alpha	4.544	5.034***	1.444	3.217***
	(2.407)	(0.470)	(2.582)	(0.386)
Med Carhart Alpha	1.625***	2.468***	-0.482**	1.776***
	(0.114)	(0.136)	(0.195)	(0.077)
High Carhart Alpha	9.085***	8.392***	2.425***	5.382***
	(1.164)	(0.580)	(0.515)	(0.323)
High 12b-1 Share	-0.212	-0.132	-0.352	0.129*
	(0.388)	(0.109)	(0.405)	(0.075)
Net Expense Ratio	-11.051***	-8.816***	-4.757	-0.981
	(1.332)	(0.877)	(5.748)	(1.344)
MVol	-0.655***	0.032	-0.080	-0.101***
	(0.057)	(0.045)	(0.155)	(0.024)
Log(Age)	-0.422***	-0.756***	-0.405***	-0.688***
	(0.113)	(0.043)	(0.063)	(0.035)
Front Load	-3.499**	2.399**	-2.770	5.974***
	(1.179)	(0.977)	(3.204)	(0.608)
Back Load	-19.313***	-14.101***	-20.089***	-18.991***
	(1.816)	(1.133)	(4.043)	(1.044)
Log(Share Class TNA)	-0.174***	-0.085***	-0.100**	-0.086***
	(0.044)	(0.019)	(0.035)	(0.012)
Turnover	0.057	-0.016	-0.528*	0.106***
	(0.095)	(0.029)	(0.252)	(0.032)
Log(Fund TNA)	0.189***	0.052**	0.738	-0.348***
	(0.018)	(0.023)	(0.591)	(0.054)
Category Flow			-0.299	8.332***
			(4.123)	(1.648)
Observations	8,095	208,900	8,076	208,877
Adjusted R^2	0.229	0.248	0.445	0.307

Table 7. The Relation Between the Current and Next Periods' Alphas

This table reports results of testing whether alpha persists using the Fama-MacBeth regressions. The dependent variable is *Net Annual Carhart Alpha* in the following year. The independent variable of interest is *Net Annual Carhart Alpha* of the current year. All independent variables are reported at the end of the current year. See Appendix A for detailed definitions and constructions for all variables. Columns (1)-(4) report results for all equity share classes, share classes in our regression sample, high 12b-1 share classes, and low 12b-1 share classes, respectively. All regressions include control variables and style fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate p<0.01, p<0.05, and p<0.1, respectively.

	(1)	(2)	(3)	(4)
	All Equity Share Classes	Regression Sample	High 12b-1 Share Classes	Low 12b-1 Share Classes
Net Annual Carhart Alpha	0.125***	0.135**	0.169*	0.108**
	(0.042)	(0.055)	(0.088)	(0.043)
12b-1 Fee	-10.818***	-10.045**	-22.013	-62.487***
	(3.138)	(4.520)	(13.789)	(21.216)
Net Expense Ratio	-6.712	-10.114	-11.840*	-5.092
	(4.608)	(6.109)	(6.088)	(6.186)
DVol	-2.774**	-2.983*	-2.427	-3.836**
	(1.186)	(1.454)	(1.623)	(1.421)
Log(Age)	0.190	0.189	-0.133	0.295
	(0.190)	(0.268)	(0.384)	(0.269)
Front Load	-0.009	-0.064	-0.124	-0.016
	(0.011)	(0.055)	(0.116)	(0.034)
Back Load	1.932	4.175	16.752	5.823
	(2.681)	(4.194)	(33.741)	(5.074)
Log(Share Class TNA)	-7.924*	-12.597	-18.248	49.135
	(3.980)	(7.917)	(11.776)	(47.908)
Turnover	-0.224**	-0.274**	-0.326**	-0.117
	(0.083)	(0.109)	(0.131)	(0.106)
Log(Fund TNA)	0.089	0.012	0.022	-0.141
	(0.074)	(0.087)	(0.057)	(0.145)
Observations	21,853	12,427	6,780	5,647
Adjusted R^2	0.512	0.557	0.566	0.572

Table 8. Impact of 12b-1 Fees on the Flow Sensitivity to Poor Performance - Restricted Samples

This table reports the results from running Eq. (3) on a subsample of funds that have both high and low 12b-1 fee share classes with the same front- and back-end loads. The dependent variable is *Flow* in the following month. The independent variables of interest are the interaction terms *Low Carhart Alpha* × *High 12b-1 Share*, *Med Carhart Alpha* × *High 12b-1 Share*, and *High Carhart Alpha* × *High 12b-1 Share*. All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. Columns (1) and (3) use a sample that begins in 2007. Columns (2) and (4) use a sample that begins in 2009. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p<0.01$, $p<0.05$, and $p<0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
	2007-2018	2009-2018	2007-2018	2009-2018
Low Carhart Alpha × High 12b-1 Share	-4.323**	-6.346***	-6.598***	-6.793***
	(1.972)	(2.102)	(1.518)	(1.617)
Med Carhart Alpha × High 12b-1 Share	-0.235	0.021	-0.115	0.036
	(0.307)	(0.339)	(0.253)	(0.266)
High Carhart Alpha × High 12b-1 Share	1.697	2.073	0.674	1.340
	(1.246)	(1.335)	(0.923)	(0.971)
Low Carhart Alpha	10.126***	9.432***	7.005***	6.840***
	(1.916)	(1.632)	(1.622)	(1.726)
Medium Carhart Alpha	2.129***	1.981***	1.944***	2.042***
	(0.333)	(0.351)	(0.260)	(0.276)
High Carhart Alpha	6.119***	6.628***	4.135***	3.810***
	(2.007)	(2.150)	(0.985)	(1.039)
High 12b-1 Share	0.747**	1.115***	1.281***	1.412***
	(0.376)	(0.397)	(0.266)	(0.272)
Net Expense Ratio	-14.279***	-21.013***	11.162	3.243
	(4.254)	(3.126)	(7.430)	(8.270)
MVol	0.283*	0.453***	-0.062	0.004
	(0.153)	(0.148)	(0.078)	(0.085)
Log(Age)	-1.007***	-1.097***	-1.439***	-1.734***
	(0.132)	(0.136)	(0.120)	(0.137)
Back Load	15.857	25.003***	109.450***	143.570***
	(10.113)	(8.565)	(22.437)	(24.276)
Log(Share Class TNA)	0.048	-0.001	0.027	0.042
	(0.055)	(0.059)	(0.041)	(0.044)
Turnover	-0.014	0.077	0.263	0.330
	(0.175)	(0.193)	(0.197)	(0.204)
Log(Fund TNA)	-0.124**	-0.140**	-0.402***	-0.441***
	(0.052)	(0.060)	(0.111)	(0.113)
Category Flow			2.501	2.082
			(1.753)	(1.770)
Observations	13,050	11,746	13,047	11,744
Adjusted R^2	0.491	0.474	0.324	0.322

Table 9. Impact of 12b-1 Fees on the Flow Sensitivity to Poor performance - Retail Share Classes

This table reports results of running Eq. (3) using only retail share classes. The dependent variable is *Flow* in the following month. The independent variables of interest are the interaction terms *Low Carhart Alpha × High 12b-1 Share*, *Med Carhart Alpha × High 12b-1 Share*, and *High Carhart Alpha × High 12b-1 Share.* All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. Columns (2) and (4) include control variables. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p<0.01$, $p<0.05$, and $p<0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
Low Carhart Alpha × High 12b-1 Share	-0.940**	-0.822*	-1.037***	-0.895**
	(0.439)	(0.427)	(0.347)	(0.347)
Med Carhart Alpha × High 12b-1 Share	0.056	-0.013	0.070	-0.008
	(0.109)	(0.111)	(0.062)	(0.063)
High Carhart Alpha × High 12b-1 Share	0.736**	0.904***	0.816***	0.776***
	(0.292)	(0.277)	(0.204)	(0.206)
Low Carhart Alpha	5.698***	4.884***	3.084***	3.220***
	(0.540)	(0.484)	(0.355)	(0.352)
Med Carhart Alpha	2.276***	2.339***	1.626***	1.666***
	(0.152)	(0.134)	(0.075)	(0.075)
High Carhart Alpha	8.304***	8.345***	5.591***	5.508***
	(0.579)	(0.562)	(0.320)	(0.312)
High 12b-1 Share	-0.345***	-0.198*	-0.377***	0.017
	(0.097)	(0.106)	(0.071)	(0.073)
Net Expense Ratio		-8.672***		0.657
		(0.860)		(1.376)
MVol		0.013		-0.093***
		(0.047)		(0.025)
Log(Age)		-0.729***		-0.688***
		(0.043)		(0.036)
Front Load		2.623**		5.246***
		(1.091)		(0.632)
Back Load		-15.152***		-19.370***
		(0.992)		(1.004)
Log(Share Class TNA)		-0.089***		-0.088***
		(0.018)		(0.012)
Turnover		-0.024		0.088***
		(0.027)		(0.029)
Log(Fund TNA)		0.067***		-0.355***
		(0.019)		(0.054)
Category Flow				8.715***
				(1.640)
Observations	202,664	202,127	202,664	202,127
Adjusted R^2	0.202	0.257	0.293	0.315

Table 10. Alternative Performance Measures: CAPM Alpha and Objective-Adjusted Returns

This table reports the results of the main test of paper using alternative measures of share class performance: the *CAPM alpha* and the objective-adjusted return (*OAR*). The dependent variable is *Flow* in the following month. The independent variables of interest in Columns (1) and (3) are the interaction terms *Low CAPM Alpha* × *High 12b-1 Share*, *Med CAPM Alpha* × *High 12b-1 Share*, and *High CAPM Alpha* × *High 12b-1 Share*. The independent variables of interest in Columns (2) and (4) are the interaction terms *Low OAR* × *High 12b-1 Share*, *Med OAR* × *High 12b-1 Share*, and *High OAR* × *High 12b-1 Share*. All independent variables are lagged one month. See Appendix A for detailed definitions and constructions for all variables. Columns (1) and (2) report Fama-MacBeth regression results. Columns (3) and (4) report panel regression results. The Fama-MacBeth regressions include style fixed effects and Newey-West adjustment of the standard errors with four lags. The panel regressions include fund, style, and year-month fixed effects. Standard errors are clustered by year-month. Robust standard errors are in parentheses. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively.

	(1)	(2)	(3)	(4)
	Fama-MacBath		Panel	
	CAPM Alpha	OAR	CAPM Alpha	OAR
Low CAPM Alpha × High 12b-1 Share	-0.744*		-0.694**	
	(0.422)		(0.349)	
Med CAPM Alpha × High 12b-1 Share	0.033		0.016	
	(0.139)		(0.074)	
High CAPM Alpha × High 12b-1 Share	0.819***		1.078***	
	(0.315)		(0.227)	
Low CAPM Alpha	7.151***		3.914***	
	(0.606)		(0.374)	
Med CAPM Alpha	3.219***		2.038***	
	(0.192)		(0.096)	
High CAPM Alpha	9.406***		5.872***	
	(0.609)		(0.326)	
Low OAR * High 12b-1 Share		-1.107***		-1.257***
		(0.420)		(0.366)
Med OAR * High 12b-1 Share		-0.069		-0.070
		(0.076)		(0.065)
High OAR * High 12b-1 Share		-0.305		-0.341
		(0.244)		(0.223)
Low OAR		1.790***		1.929***
		(0.498)		(0.415)
Med OAR		0.582***		0.385***
		(0.086)		(0.071)
High OAR		3.221***		1.733***
		(0.295)		(0.244)
Control Variables	Yes	Yes	Yes	Yes
Observations	216,995	216,995	216,995	216,995
Adjusted R^2	0.270	0.177	0.316	0.271

Appendix A: Variable Definitions and Constructions

Monthly Net Return — CRSP Mutual Fund Dataset variable *mret*, the total return per share as of month end for each share class, calculated as a change in Net Asset Values (NAV), including reinvested dividends from one period to the next. NAVs are net of all management expenses and 12b-fees. Front- and rear-load fees are excluded. This variable is expressed in percent.

Expense Ratio — the ratio of total investment (in percentage) that shareholders pay for the share class operating expenses (which includes 12b-1 fees, management fees, administrative fees and other costs) in the most recently completed fiscal year. CRSP Mutual Fund Dataset variable name *exp_ratio* (in decimals).

Monthly Gross Return — share class gross return is the sum of *Monthly Net Return* and 1/12th of the *Expense Ratio.* This variable is expressed in percent.

12b-1 Fee — share class 12b-1 fee, a percentage of total net assets.

High 12b-1 Share — an indicator variable that takes a value of one for the high 12b-1 share class and zero for the low 12b-1 share class (or no 12b-1 fee share class) of a fund.

Net Expense Ratio — the *Expense Ratio* net of 12b-1 fees.

Carhart Alpha — the estimated intercept of running the Carhart four-factor model (Carhart, 1997) using *Monthly Gross Returns* of each share class over the previous 24 months.

$Low\ Carhart\ Alpha_{i,t}$ = Min($Rank\_Carhart_{i,t}$, 0.2], where $Rank\_Carhart_{i,t}$ is share class *i*'s *Carhart Alpha* decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *Carhart Alpha* and divide the ranking by 10. *Low Carhart Alpha* captures funds ranked in the lowest *Carhart Alpha* quintile.

$Med\ Carhart\ Alpha_{i,t}$ = Min(0.6, $Rank\_Carhart_{i,t} - Low\ Carhart\ Alpha_{i,t}$), where $Rank\_Carhart_{i,t}$ is share class *i*'s *Carhart Alpha* decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *Carhart Alpha* and divide the ranking by 10. *Median Carhart Alpha* captures share classes ranked in the *Carhart Alpha* quintiles 2, 3, and 4.

$High\ Carhart\ Alpha_{i,t} = Rank\_Carhart_{i,t} - Low\ Carhart\ Alpha_{i,t} - Median\ Carhart\ Alpha_{i,t}$, where $Rank\_Carhart_{i,t}$ is share class *i*'s *Carhart Alpha* decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *Carhart Alpha* and divide the ranking by 10. *High Carhart Alpha* captures share classes ranked in the highest *Carhart Alpha* quintile.

CAPM Alpha — the estimated intercept of running the CAPM model using *Monthly Gross Returns* of each share class over the previous 24 months.

$Low\ CAPM\ Alpha_{i,t}$ = Min($Rank\_CAPM_{i,t}$, 0.2], where $Rank\_CAPM_{i,t}$ is share class *i*'s *CAPM Alpha* decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *CAPM Alpha* and divide the ranking by 10. *Low CAPM Alpha* captures share classes ranked in the lowest *CAPM Alpha* quintile.

Med CAPM Alpha$_{i,t}$ = Min(0.6, *Rank_CAPM*$_{i,t}$ − *Low Alpha*$_{i,t}$), where *Rank_CAPM*$_{i,t}$ is share class *i*'s *CAPM Alpha* decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *CAPM Alpha* and divide the ranking by 10. *Median CAPM Alpha* captures share classes ranked in the *CAPM Alpha* quintiles 2, 3, and 4.

High CAPM Alpha$_{i,t}$ = *Rank_CAPM*$_{i,t}$ − *Low CAPM Alpha*$_{i,t}$ − *Median CAPM Alpha*$_{i,t}$, where *Rank_CAPM*$_{i,t}$ is share class *i*'s *CAPM Alpha* decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *CAPM Alpha* and divide the ranking by 10. *High CAPM Alpha* captures share classes ranked in the highest *CAPM Alpha* quintile.

OAR — the objective-adjusted return is calculated in each month as the average gross returns of all share classes with the same investment style and subtract it from share class monthly gross return to get the OAR. We identify share class investment style using variable *crsp_obj_cd* in CRSP Mutual Fund Dataset.

Low OAR$_{i,t}$ = Min(*Rank_OAR*$_{i,t}$, 0.2], where *Rank_OAR*$_{i,t}$ is share class *i*'s OAR decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their OAR and divide the ranking by 10. *Low OAR* captures share classes ranked in the lowest OAR quintile.

Med OAR$_{i,t}$ = Min(0.6, *Rank_OAR*$_{i,t}$ − *Low OAR Alpha*$_{i,t}$), where *Rank_OAR*$_{i,t}$ is share class *i*'s OAR decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *CAPM Alpha* and divide the ranking by 10. *Median CAPM Alpha* captures share classes ranked in the *CAPM Alpha* quintiles 2, 3, and 4.

High OAR$_{i,t}$ = *Rank_OAR*$_{i,t}$ − *Low OAR Alpha*$_{i,t}$ – *Med OAR Alpha*$_{i,t}$, where *Rank_OAR*$_{i,t}$ is share class *i*'s OAR decile ranking in month *t*. Specifically, in each month we rank all share classes into deciles according to their *OAR* and divide the ranking by 10. *High OAR* captures share classes ranked in the highest *OAR* quintile.

Flow (%) — the flow at the share class level is estimated as $Flow_{i,t} = [TNA_{i,t} - (1 + R_{i,t}) \times TNA_{i,t-1}]/TNA_{i,t-1}$, where $TNA_{i,t}$ and $R_{i,t}$ are total net assets and monthly net return of share class *i* in month *t*.

Net Annual Carhart Alpha — the estimated intercept of running the Carhart four-factor model (Carhart, 1997) using daily net returns (CRSP Mutual Fund Dataset variable name *dret*) of each share class in a year with at least 200 daily observations available in a year.

Back Load — the rear-end load fee for the share class divided by seven (see footnote 9 in Sirri and Tufano (1998) and footnote 13 in Huang, Wei, and Yan (2007)).

Front Load — the front-end load fee divided by seven (see footnote 9 in Sirri and Tufano (1998) and footnote 13 in Huang, Wei, and Yan (2007)).

Turnover — share class turnover ratio. It is calculated as the minimum (of aggregated sales or aggregated purchases of securities), divided by the average 12-month *Total Net Assets* of the share class.

MVol — the standard deviation of monthly gross returns of a share class over the previous 24 months.

DVol — the standard deviation of daily net returns of a share class in a year.

Age — share class age in months.

Log(Age) — the logarithm of share class age in months.

Total Net Assets (*TNA*) — a measure of share class size, in millions of dollars.

Log(Fund TNA) — the logarithm of fund TNA.

Log(Share Class TNA) — the logarithm of share class TNA.

Category Flow — the flow at the category and month level, where category refers to investment style. We identify share class investment style using variable *crsp_obj_cd* in CRSP Mutual Fund Dataset.

Table A1. Distribution of Funds by Year: Multiple and Single Share Classes

This table reports the annual distribution of actively managed equity domestic mutual funds in the time period of 2000–2018. Column (2) reports number of unique funds every year. Column (3) reports the number of funds that have multiple share classes. Column (4) reports the number of funds that have single share class. Columns (5) and (6) are percentage of funds with multiple and single share class, respectively.

(1)	(2)	(3)	(4)	(5)	(6)
Year	Total Number of Funds	Funds Have Multiple Share Classes	Funds Have Single Share Class	Funds Have Multiple Share Classes (%)	Funds Have Single Share Class (%)
2000	2,102	996	1,106	47.38%	52.62%
2001	2,576	1,272	1,304	49.38%	50.62%
2002	2,807	1,435	1,372	51.12%	48.88%
2003	2,779	1,554	1,225	55.92%	44.08%
2004	2,532	1,446	1,086	57.11%	42.89%
2005	2,437	1,396	1,041	57.28%	42.72%
2006	2,557	1,449	1,108	56.67%	43.33%
2007	2,850	1,619	1,231	56.81%	43.19%
2008	3,492	2,107	1,385	60.34%	39.66%
2009	2,311	2,078	233	89.92%	10.08%
2010	3,750	3,676	74	98.03%	1.97%
2011	1,927	1,927	0	100.00%	0.00%
2012	1,965	1,961	4	99.80%	0.20%
2013	1,973	1,960	13	99.34%	0.66%
2014	1,993	1,976	17	99.15%	0.85%
2015	2,091	2,088	3	99.86%	0.14%
2016	2,071	2,068	3	99.86%	0.14%
2017	2,085	2,084	1	99.95%	0.05%
2018	1,970	1,969	1	99.95%	0.05%

Table A2. Distribution of Funds with Multiple Share Classes by Year

This table reports the annual distribution of actively managed domestic mutual funds that have multiple share classes in the time period of 2000–2018. Column (2) reports the number of unique funds with multiple share classes every year. Column (3) reports the number of funds that have multiple share classes with different 12b-1 fees. Column (4) reports the number of funds that have multiple share classes with the same 12b-1 fee. Columns (5) and (6) are percentage of funds with multiple share classes that have different and same 12b-1 fees, respectively.

(1)	(2)	(3)	(4)	(5)	(6)
Year	Funds Have Multiple Share Classes	Share Classes Have Different 12b-1 Fees	Share Classes Have Same 12b-1 Fees	Share Classes Have Different 12b-1 Fees (%)	Share Classes Have Same 12b-1 Fees (%)
2000	996	602	394	60.44%	39.56%
2001	1,272	802	470	63.05%	36.95%
2002	1,435	927	508	64.60%	35.40%
2003	1,554	1,030	524	66.28%	33.72%
2004	1,446	990	456	68.46%	31.54%
2005	1,396	949	447	67.98%	32.02%
2006	1,449	995	454	68.67%	31.33%
2007	1,619	1,085	534	67.02%	32.98%
2008	2,107	1,420	687	67.39%	32.61%
2009	2,078	1,334	744	64.20%	35.80%
2010	3,676	2,465	1,211	67.06%	32.94%
2011	1,927	1,300	627	67.46%	32.54%
2012	1,961	1,305	656	66.55%	33.45%
2013	1,960	1,294	666	66.02%	33.98%
2014	1,976	1,293	683	65.44%	34.56%
2015	2,088	1,345	743	64.42%	35.58%
2016	2,068	1,330	738	64.31%	35.69%
2017	2,084	1,329	755	63.77%	36.23%
2018	1,969	1,262	707	64.09%	35.91%